

CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
6229	11.78	4.22	3.00	11.64	1090	1453	1356	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2212	2	529	823	4.15	60.0	4.2	1.80
	3	806	1261	4.96	60.0	4.2	1.80
	4	1010	1650	5.66	60.0	4.2	1.80
	5	1089	1959	5.73	60.0	4.2	1.80

POIDS DU MONTAGE= 232 daN/m²

G1= 28 daN/m²

G2= 204 daN/m²

BETON CHANTIER= 52.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}









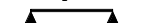







CAS DE CHARGE [daN/m²]

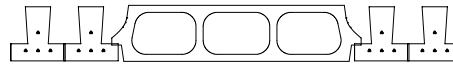
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	5.40	4.69	3.94	3.56	3.00	6.26	5.32	4.36	5.79	4.99	4.14	
Limite V _{pu}	4.12	3.59	3.02	2.74	2.32	4.76	4.06	3.34	4.41	3.81	3.17	
Limite V _{cu}	5.06	4.40	3.69	3.34	2.82	5.86	4.98	4.09	5.43	4.67	3.88	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 211												
	2.07	2.07	2.07	2.07	2.04	2.07	2.07	2.07	2.07	2.07	2.07	0.19
	3.16	2.91	2.62	2.47	2.23	3.40	3.09	2.75	3.27	2.99	2.68	0.24
	3.50	3.16	2.79	2.61	2.33	3.74	3.33	2.91	3.61	3.24	2.85	0.30 1.08
	4.18	3.76	3.30	3.07	2.73	4.46	3.96	3.43	4.31	3.86	3.36	1.58
FRG 311												
	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	0.28
	3.91	3.60	3.24	3.06	2.77	4.21	3.83	3.41	4.05	3.71	3.32	0.38
	4.24	3.91	3.46	3.23	2.88	4.63	4.13	3.60	4.42	4.02	3.53	0.45 1.67
	4.99	4.66	4.09	3.81	3.38	5.51	4.90	4.25	5.17	4.78	4.17	2.49
FRG 411												
	2.83	2.83	2.83	2.83	2.82	2.83	2.83	2.83	2.83	2.83	2.83	0.36
	3.96	3.86	3.71	3.50	3.16	4.51	4.34	3.90	4.14	4.01	3.80	0.48
	4.32	4.15	3.94	3.70	3.30	4.88	4.63	4.12	4.49	4.29	4.04	0.54 1.99
	5.07	4.84	4.55	4.35	3.86	5.63	5.32	4.86	5.24	5.00	4.69	2.85
FRG 511												
	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87	0.38
	4.00	3.90	3.76	3.69	3.44	4.55	4.40	4.16	4.19	4.05	3.90	0.55
	4.36	4.19	3.97	3.86	3.59	4.94	4.68	4.38	4.53	4.34	4.11	0.60 2.20
	5.13	4.90	4.61	4.46	4.20	5.70	5.39	5.05	5.30	5.05	4.74	3.31



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
5402	10.82	5.18	2.83	11.60	1050	1203	1116	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
1564	2	499	812	6.16	60.0	4.2	1.80
	3	761	1237	7.37	60.0	4.2	1.80
	4	954	1606	8.41	60.0	4.2	1.80
	5	1029	1891	8.51	60.0	4.2	1.80

POIDS DU MONTAGE= 255 daN/m²

G1= 48 daN/m²

G2= 207 daN/m²

BETON CHANTIER= 59.2 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

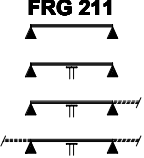
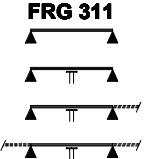
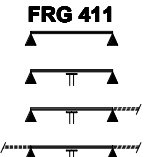
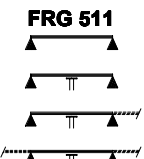
CAS DE CHARGE [daN/m²]

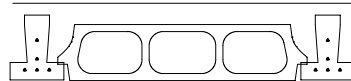
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												
Limite V _{bu}	7.22	6.30	5.29	4.79	4.03	8.34	7.12	5.85	7.74	6.68	5.55	τ _{bu} =0.75
Limite V _{pu}	6.34	5.53	4.65	4.21	3.55	7.32	6.25	5.14	6.79	5.87	4.88	τ _{pu} =1.80
Limite V _{cu}	6.72	5.86	4.93	4.46	3.76	7.76	6.63	5.45	7.20	6.22	5.17	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 211 	3.08	2.97	2.81	2.72	2.56	3.08	3.08	2.92	3.08	3.03	2.86	0.28 1.00
	3.88	3.65	3.35	3.16	2.86	4.16	3.88	3.51	4.01	3.76	3.43	
	4.30	3.98	3.58	3.35	2.99	4.58	4.20	3.72	4.44	4.08	3.65	
	5.17	4.74	4.23	3.94	3.50	5.49	4.99	4.39	5.32	4.86	4.31	
FRG 311 	3.68	3.67	3.47	3.36	3.16	3.68	3.68	3.60	3.68	3.68	3.54	0.41 1.46
	4.44	4.32	4.13	3.90	3.53	5.03	4.79	4.34	4.63	4.49	4.23	
	4.82	4.64	4.42	4.13	3.69	5.38	5.15	4.60	5.01	4.80	4.50	
	5.58	5.35	5.09	4.87	4.33	6.17	5.86	5.42	5.76	5.51	5.22	
FRG 411 	4.20	4.11	3.89	3.76	3.53	4.20	4.20	4.03	4.20	4.19	3.96	0.48 1.69
	4.51	4.40	4.24	4.15	3.99	5.10	4.94	4.71	4.71	4.57	4.40	
	4.91	4.72	4.47	4.35	4.13	5.48	5.23	4.94	5.09	4.88	4.63	
	5.68	5.44	5.17	5.01	4.74	6.30	5.97	5.59	5.88	5.61	5.30	
FRG 511 	4.25	4.25	4.04	3.90	3.67	4.25	4.25	4.19	4.25	4.25	4.11	0.49 1.73
	4.55	4.44	4.28	4.19	4.03	5.16	4.99	4.75	4.75	4.62	4.44	
	4.97	4.76	4.53	4.40	4.18	5.53	5.28	4.99	5.15	4.94	4.68	
	5.74	5.50	5.23	5.07	4.80	6.40	6.05	5.67	5.96	5.67	5.36	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
6267	11.75	4.25	2.18	11.57	1141	1512	1676	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2212	3	746	1220	6.68	60.0	4.2	1.80
	4	923	1583	6.96	60.0	4.2	1.80
	5	1073	1919	7.29	60.0	4.2	1.80
	6	1097	2145	7.15	60.0	4.2	1.80

POIDS DU MONTAGE= 232 daN/m²

G1= 33 daN/m²

G2= 199 daN/m²

BETON CHANTIER= 50.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}









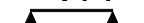







CAS DE CHARGE [daN/m²]

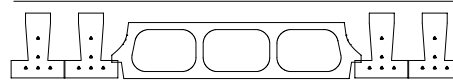
	100	100	100	100	100	0	0	0	100	100	100	Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	5.61	4.88	4.09	3.70	3.12	6.50	5.52	4.52	6.02	5.18	4.30	τ _{bu} =0.75
Limite V _{pu}	4.30	3.74	3.15	2.86	2.42	4.97	4.23	3.48	4.61	3.97	3.31	τ _{pu} =1.80
Limite V _{cu}	6.19	5.38	4.50	4.07	3.43	7.18	6.09	4.99	6.64	5.71	4.73	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.23	3.07	2.87	2.76	2.57	3.34	3.23	3.00	3.31	3.15	2.93	
FRG 313												
	3.23	3.07	2.87	2.76	2.57	3.34	3.23	3.00	3.31	3.15	2.93	0.30
	3.81	3.54	3.19	3.01	2.72	4.11	3.76	3.35	3.95	3.65	3.27	0.36
	4.22	3.85	3.40	3.18	2.84	4.52	4.06	3.54	4.36	3.95	3.47	0.44 1.61
	4.99	4.59	4.02	3.74	3.32	5.41	4.82	4.18	5.17	4.70	4.10	2.39
FRG 413												
	3.48	3.41	3.19	3.07	2.86	3.48	3.48	3.34	3.48	3.48	3.26	0.38
	3.96	3.86	3.63	3.43	3.10	4.51	4.24	3.82	4.14	4.01	3.72	0.46
	4.31	4.14	3.88	3.62	3.23	4.88	4.57	4.04	4.49	4.29	3.95	0.53 1.93
	5.07	4.83	4.55	4.27	3.78	5.62	5.32	4.76	5.24	4.99	4.67	2.79
FRG 513												
	3.65	3.65	3.45	3.31	3.08	3.65	3.65	3.60	3.65	3.65	3.52	0.44
	4.01	3.91	3.76	3.69	3.41	4.57	4.40	4.15	4.19	4.07	3.91	0.54
	4.36	4.19	3.97	3.86	3.56	4.94	4.69	4.38	4.54	4.34	4.11	0.60 2.20
	5.13	4.90	4.61	4.46	4.17	5.70	5.39	5.05	5.30	5.05	4.74	3.21
FRG 613												
	3.58	3.58	3.48	3.35	3.12	3.58	3.58	3.58	3.58	3.58	3.56	0.45
	4.03	3.94	3.79	3.71	3.45	4.59	4.43	4.19	4.21	4.09	3.94	0.56
	4.40	4.21	3.99	3.88	3.60	4.97	4.72	4.42	4.57	4.38	4.13	0.61 2.25
	5.17	4.94	4.64	4.48	4.22	5.74	5.44	5.09	5.34	5.09	4.78	3.34



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
5428	10.80	5.20	2.05	11.56	1098	1261	1306	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
1564	3	703	1195	9.91	60.0	4.2	1.80
	4	870	1540	10.34	60.0	4.2	1.80
	5	1012	1850	10.83	60.0	4.2	1.80
	6	1034	2047	10.62	60.0	4.2	1.80

POIDS DU MONTAGE= 255 daN/m²

G1= 56 daN/m²

G2= 199 daN/m²

BETON CHANTIER= 55.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

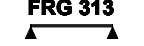


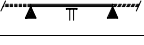

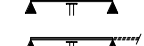

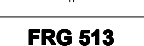


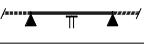


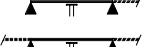
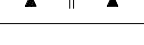

CAS DE CHARGE [daN/m²]

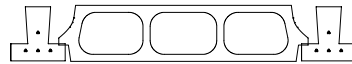
	100	100	100	100	100	0	0	0	100	100	100	Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	7.56	6.59	5.53	5.01	4.22	8.74	7.45	6.12	8.11	6.99	5.81	τ _{bu} =0.75
Limite V _{bu}	7.56	6.59	5.53	5.01	4.22	8.74	7.45	6.12	8.11	6.99	5.81	τ _{bu} =0.75
Limite V _{pu}	6.62	5.77	4.85	4.39	3.71	7.64	6.52	5.36	7.09	6.12	5.09	τ _{pu} =1.80
Limite V _{cu}	7.82	6.81	5.72	5.17	4.36	9.04	7.71	6.33	8.38	7.23	6.01	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.04	3.84	3.60	3.46	3.23	4.26	4.04	3.76	4.15	3.94	3.68	0.29
FRG 313 	4.04	3.84	3.60	3.46	3.23	4.26	4.04	3.76	4.15	3.94	3.68	0.29
	4.46	4.34	4.03	3.83	3.47	5.01	4.66	4.25	4.64	4.51	4.14	0.34
	4.84	4.65	4.31	4.06	3.63	5.40	5.04	4.51	5.03	4.82	4.40	0.39 1.39
	5.59	5.36	5.09	4.78	4.25	6.19	5.86	5.31	5.77	5.51	5.20	1.99
FRG 413 	4.49	4.28	4.00	3.85	3.59	4.74	4.49	4.18	4.61	4.38	4.09	0.36
	4.51	4.40	4.24	4.15	3.92	5.11	4.94	4.71	4.71	4.57	4.40	0.43
	4.92	4.72	4.47	4.36	4.10	5.48	5.23	4.94	5.09	4.89	4.63	0.47 1.67
	5.68	5.44	5.17	5.01	4.74	6.30	5.97	5.59	5.87	5.61	5.30	2.33
FRG 513 	4.57	4.46	4.29	4.15	3.87	5.11	4.84	4.51	4.76	4.63	4.41	0.42
	4.57	4.46	4.29	4.21	4.03	5.17	5.01	4.76	4.76	4.63	4.46	0.45
	4.97	4.78	4.53	4.40	4.19	5.55	5.30	5.00	5.16	4.96	4.69	0.49 1.74
	5.76	5.51	5.23	5.07	4.80	6.41	6.06	5.67	5.96	5.69	5.37	2.40
FRG 613 	4.59	4.47	4.32	4.20	3.91	5.17	4.89	4.56	4.80	4.66	4.46	0.43
	4.59	4.47	4.32	4.22	4.06	5.21	5.03	4.80	4.80	4.66	4.47	0.46
	5.01	4.80	4.57	4.44	4.21	5.59	5.33	5.03	5.19	4.99	4.72	0.49 1.75
	5.80	5.55	5.26	5.11	4.84	6.46	6.11	5.72	6.00	5.73	5.40	2.44



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
7356	12.56	4.44	3.32	12.42	1191	1551	1448	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2484	2	586	888	4.04	60.0	4.2	1.80
	3	893	1359	4.69	60.0	4.2	1.80
	4	1119	1781	5.13	60.0	4.2	1.80
	5	1207	2123	5.59	60.0	4.2	1.80

POIDS DU MONTAGE= 256 daN/m²

G1= 28 daN/m²

G2= 227 daN/m²

BETON CHANTIER= 62.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

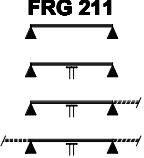



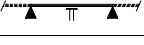
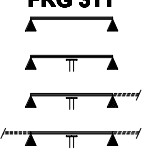
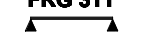
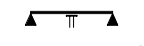


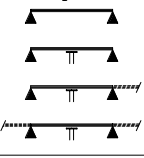
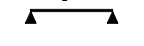

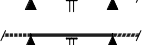
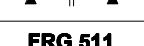
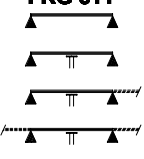


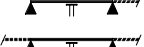
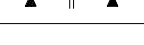
CAS DE CHARGE [daN/m²]

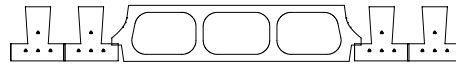
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	5.58	4.88	4.11	3.73	3.16	6.44	5.50	4.54	5.98	5.17	4.31	τ _{bu} =0.75
Limite V _{pu}	4.35	3.81	3.22	2.93	2.49	5.01	4.29	3.55	4.66	4.04	3.38	τ _{pu} =1.80
Limite V _{cu}	5.23	4.57	3.86	3.50	2.96	6.03	5.16	4.25	5.60	4.85	4.05	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 211 		2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	0.18	
		3.23	2.98	2.69	2.54	2.30	3.47	3.16	2.82	3.34	3.07	0.24	
		3.58	3.24	2.88	2.69	2.40	3.82	3.42	2.99	3.70	3.33	2.93	0.30 1.08
		4.30	3.87	3.40	3.17	2.82	4.58	4.06	3.53	4.43	3.96	3.47	1.60
FRG 311 		2.42	2.42	2.42	2.42	2.42	2.42	2.42	2.42	2.42	2.42	0.25	
		4.00	3.69	3.33	3.14	2.85	4.29	3.91	3.49	4.14	3.79	3.41	0.38
		4.43	4.01	3.56	3.33	2.97	4.73	4.23	3.70	4.57	4.12	3.63	0.46 1.71
		5.21	4.79	4.21	3.92	3.49	5.66	5.03	4.37	5.37	4.90	4.29	2.52
FRG 411 		2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	0.33	
		4.15	4.05	3.81	3.60	3.26	4.70	4.48	4.00	4.32	4.21	3.90	0.48
		4.51	4.34	4.07	3.81	3.40	5.07	4.83	4.24	4.70	4.49	4.15	0.56 2.07
		5.28	5.06	4.78	4.49	3.99	5.84	5.53	5.00	5.46	5.21	4.91	2.93
FRG 511 		2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79	0.34	
		4.19	4.09	3.95	3.86	3.56	4.74	4.58	4.31	4.36	4.24	4.09	0.56
		4.57	4.38	4.17	4.05	3.72	5.13	4.88	4.57	4.74	4.54	4.30	0.62 2.28
		5.34	5.11	4.84	4.68	4.36	5.92	5.60	5.25	5.51	5.26	4.97	3.30



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
6399	11.58	5.42	3.14	12.28	1143	1273	1182	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
1771	2	552	877	5.96	60.0	4.2	1.80
	3	842	1335	7.13	60.0	4.2	1.80
	4	1056	1737	8.14	60.0	4.2	1.80
	5	1138	2055	8.24	60.0	4.2	1.80

POIDS DU MONTAGE= 278 daN/m²

G1= 48 daN/m²

G2= 230 daN/m²

BETON CHANTIER= 69.2 Litres/m²

CHARGE DE CHANTIER MAXI (50 daN/ml , 100 daN)

CAS DE CHARGE [daN/m²]

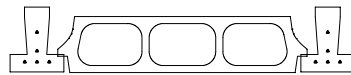
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	7.42	6.49	5.48	4.97	4.20	8.52	7.31	6.04	7.93	6.88	5.75	τ _{bu} =0.75
Limite V _{bu}	7.42	6.49	5.48	4.97	4.20	8.52	7.31	6.04	7.93	6.88	5.75	τ _{bu} =0.75
Limite V _{pu}	6.69	5.86	4.95	4.49	3.80	7.68	6.59	5.45	7.15	6.20	5.19	τ _{pu} =1.80
Limite V _{cu}	6.90	6.04	5.11	4.63	3.92	7.93	6.81	5.63	7.38	6.40	5.35	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	2.98	2.96	2.81	2.73	2.58	2.98	2.98	2.91	2.98	2.98	2.86	0.17
FRG 211	2.98	2.96	2.81	2.73	2.58	2.98	2.98	2.91	2.98	2.98	2.86	0.17
	4.00	3.77	3.44	3.25	2.95	4.26	4.00	3.61	4.12	3.88	3.52	0.23
	4.43	4.11	3.69	3.45	3.09	4.70	4.33	3.83	4.56	4.22	3.76	0.28 1.01
	5.33	4.91	4.36	4.07	3.62	5.64	5.15	4.52	5.48	5.02	4.44	1.49
FRG 311	3.57	3.57	3.47	3.37	3.18	3.57	3.57	3.57	3.57	3.57	3.53	0.26
	4.65	4.53	4.25	4.01	3.64	5.21	4.93	4.45	4.84	4.71	4.35	0.35
	5.05	4.86	4.55	4.26	3.81	5.59	5.34	4.73	5.23	5.03	4.63	0.42 1.50
	5.82	5.57	5.30	5.02	4.47	6.42	6.09	5.58	5.99	5.74	5.44	2.04
FRG 411	4.07	4.07	3.89	3.77	3.56	4.07	4.07	4.02	4.07	4.07	3.95	0.33
	4.72	4.61	4.46	4.36	4.16	5.28	5.13	4.92	4.92	4.78	4.61	0.45
	5.13	4.95	4.71	4.57	4.34	5.68	5.44	5.15	5.30	5.11	4.86	0.50 1.77
	5.92	5.67	5.39	5.23	4.99	6.55	6.21	5.82	6.11	5.84	5.53	2.43
FRG 511	4.12	4.12	4.04	3.92	3.70	4.12	4.12	4.12	4.12	4.12	4.10	0.36
	4.76	4.65	4.49	4.40	4.22	5.34	5.19	4.97	4.97	4.84	4.65	0.47
	5.18	4.99	4.75	4.62	4.40	5.74	5.49	5.20	5.36	5.16	4.91	0.51 1.81
	5.99	5.74	5.46	5.29	5.04	6.65	6.29	5.90	6.20	5.92	5.59	2.49



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
7412	12.52	4.48	2.42	12.29	1250	1596	1769	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2480	3	828	1318	6.05	60.0	4.2	1.80
	4	1024	1714	6.67	60.0	4.2	1.80
	5	1192	2082	7.11	60.0	4.2	1.80
	6	1217	2341	6.97	60.0	4.2	1.80

POIDS DU MONTAGE= 256 daN/m²

G1= 33 daN/m²

G2= 223 daN/m²

BETON CHANTIER= 60.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m²]

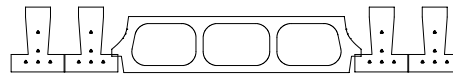
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	5.74	5.01	4.22	3.83	3.24	6.61	5.65	4.66	6.14	5.31	4.43	τ _{bu} =0.75
Limite V _{bu}	5.74	5.01	4.22	3.83	3.24	6.61	5.65	4.66	6.14	5.31	4.43	τ _{bu} =0.75
Limite V _{pu}	4.55	3.98	3.37	3.06	2.60	5.24	4.49	3.71	4.87	4.22	3.53	τ _{pu} =1.80
Limite V _{cu}	6.33	5.52	4.65	4.21	3.56	7.30	6.24	5.13	6.78	5.86	4.88	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.22	3.07	2.89	2.79	2.61	3.26	3.22	3.01	3.26	3.14	2.95	0.29
FRG 313	3.22	3.07	2.89	2.79	2.61	3.26	3.22	3.01	3.26	3.14	2.95	0.29
	3.94	3.63	3.28	3.10	2.80	4.23	3.85	3.44	4.07	3.74	3.36	0.36
	4.36	3.95	3.51	3.28	2.93	4.66	4.16	3.65	4.50	4.05	3.57	0.45 1.65
	5.21	4.71	4.15	3.86	3.43	5.58	4.95	4.30	5.38	4.83	4.22	2.47
FRG 413	3.40	3.40	3.22	3.10	2.91	3.40	3.40	3.35	3.40	3.40	3.28	0.37
	4.15	4.05	3.74	3.53	3.20	4.70	4.38	3.92	4.32	4.21	3.83	0.46
	4.51	4.34	4.00	3.74	3.34	5.07	4.74	4.16	4.70	4.49	4.08	0.54 1.98
	5.27	5.05	4.73	4.41	3.92	5.83	5.53	4.91	5.45	5.21	4.81	2.88
FRG 513	3.56	3.56	3.47	3.35	3.13	3.56	3.56	3.56	3.56	3.56	3.54	0.43
	4.19	4.09	3.96	3.86	3.53	4.75	4.59	4.31	4.38	4.24	4.09	0.55
	4.57	4.39	4.17	4.05	3.68	5.13	4.90	4.57	4.75	4.55	4.30	0.62 2.28
	5.34	5.11	4.84	4.68	4.32	5.92	5.60	5.26	5.51	5.26	4.97	3.27
FRG 613	3.49	3.49	3.49	3.38	3.17	3.49	3.49	3.49	3.49	3.49	3.49	0.44
	4.22	4.11	3.97	3.90	3.61	4.78	4.62	4.35	4.40	4.28	4.11	0.57
	4.61	4.42	4.21	4.07	3.77	5.17	4.93	4.62	4.78	4.58	4.34	0.64 2.33
	5.38	5.15	4.88	4.71	4.41	5.97	5.65	5.29	5.56	5.30	5.01	3.43



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
6434	11.55	5.45	2.27	12.23	1196	1311	1357	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
1771	3	779	1294	9.59	60.0	4.2	1.80
	4	963	1670	10.01	60.0	4.2	1.80
	5	1121	2014	10.48	60.0	4.2	1.80
	6	1145	2243	10.28	60.0	4.2	1.80

POIDS DU MONTAGE= 278 daN/m²

G1= 56 daN/m²

G2= 222 daN/m²

BETON CHANTIER= 65.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

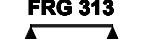


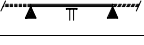

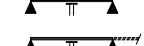

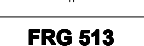


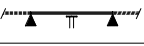


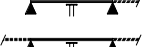
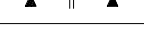

CAS DE CHARGE [daN/m²]

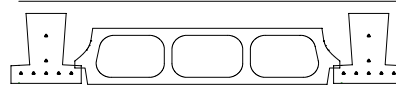
	100	100	100	100	100	0	0	0	100	100	100	Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	7.63	6.67	5.63	5.11	4.32	8.77	7.52	6.21	8.16	7.07	5.91	τ _{bu} =0.75
Limite V _{bu}	7.63	6.67	5.63	5.11	4.32	8.77	7.52	6.21	8.16	7.07	5.91	τ _{bu} =0.75
Limite V _{pu}	6.99	6.12	5.17	4.69	3.97	8.03	6.89	5.69	7.47	6.48	5.42	τ _{pu} =1.80
Limite V _{cu}	7.89	6.90	5.82	5.28	4.46	9.07	7.77	6.42	8.43	7.31	6.11	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.03	3.85	3.63	3.50	3.28	4.23	4.03	3.77	4.12	3.94	3.70	0.28
FRG 313 	4.03	3.85	3.63	3.50	3.28	4.23	4.03	3.77	4.12	3.94	3.70	0.28
	4.66	4.53	4.18	3.95	3.59	5.15	4.81	4.38	4.85	4.67	4.28	0.34
	5.06	4.88	4.48	4.19	3.75	5.59	5.21	4.65	5.23	5.04	4.56	0.40 1.42
	5.82	5.59	5.30	4.94	4.40	6.42	6.10	5.49	6.01	5.74	5.39	2.04
FRG 413 	4.48	4.29	4.04	3.89	3.65	4.70	4.48	4.20	4.59	4.38	4.11	0.35
	4.72	4.61	4.46	4.36	4.07	5.29	5.13	4.90	4.92	4.78	4.61	0.44
	5.13	4.95	4.71	4.57	4.26	5.68	5.44	5.15	5.30	5.11	4.86	0.48 1.70
	5.92	5.67	5.38	5.23	4.98	6.54	6.21	5.82	6.11	5.84	5.52	2.42
FRG 513 	4.78	4.62	4.35	4.20	3.93	5.07	4.83	4.53	4.95	4.72	4.44	0.40
	4.78	4.67	4.49	4.41	4.24	5.36	5.20	4.97	4.97	4.84	4.67	0.47
	5.19	5.01	4.76	4.63	4.40	5.76	5.50	5.21	5.36	5.17	4.92	0.51 1.81
	5.99	5.74	5.46	5.30	5.04	6.65	6.30	5.91	6.21	5.92	5.59	2.49
FRG 613 	4.81	4.67	4.40	4.24	3.98	5.13	4.88	4.58	5.00	4.77	4.49	0.41
	4.81	4.69	4.53	4.44	4.26	5.40	5.23	5.01	5.01	4.88	4.69	0.48
	5.22	5.03	4.80	4.66	4.43	5.80	5.54	5.24	5.40	5.20	4.96	0.52 1.84
	6.05	5.78	5.49	5.33	5.07	6.72	6.36	5.96	6.25	5.97	5.64	2.52



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
9265	12.07	4.93	2.05	12.10	2094	1937	2457	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2819	5	1250	2113	7.69	60.0	4.2	1.80
	6	1526	2562	7.99	60.0	4.2	1.80
	7	1704	2921	8.51	60.0	4.2	1.80
	8	1688	3110	8.18	60.0	4.2	1.80

POIDS DU MONTAGE= 261 daN/m²

G1= 47 daN/m²

G2= 214 daN/m²

BETON CHANTIER= 58.7 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

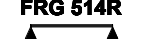


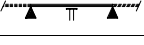

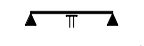


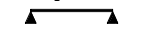

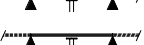
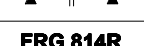

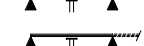
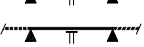

CAS DE CHARGE [daN/m²]

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	6.54	5.71	4.81	4.36	3.69	7.54	6.45	5.31	7.01	6.06	5.05	
Limite V _{pu}	7.05	6.16	5.18	4.69	3.96	8.13	6.95	5.72	7.55	6.53	5.44	
Limite V _{cu}	8.23	7.17	6.03	5.46	4.60	9.49	8.11	6.67	8.81	7.61	6.33	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 514R												
	3.84	3.83	3.59	3.45	3.22	3.84	3.84	3.74	3.84	3.84	3.66	0.47
	4.40	4.28	4.04	3.82	3.46	4.97	4.68	4.24	4.59	4.46	4.14	0.57
	4.78	4.60	4.32	4.04	3.61	5.34	5.06	4.50	4.97	4.76	4.41	0.65 2.40
	5.54	5.32	5.05	4.77	4.24	6.13	5.82	5.30	5.73	5.48	5.19	3.43
FRG 614R												
	3.99	3.99	3.96	3.81	3.55	3.99	3.99	3.99	3.99	3.99	3.99	0.58
	4.46	4.34	4.19	4.10	3.81	5.04	4.86	4.64	4.64	4.51	4.34	0.67
	4.84	4.65	4.43	4.30	3.98	5.40	5.17	4.87	5.03	4.82	4.57	0.75 2.74
	5.62	5.38	5.11	4.96	4.67	6.23	5.90	5.53	5.80	5.54	5.24	4.01
FRG 714R												
	4.25	4.25	4.19	4.03	3.76	4.25	4.25	4.25	4.25	4.25	4.25	0.65
	4.49	4.38	4.22	4.13	3.97	5.09	4.92	4.69	4.69	4.55	4.38	0.73
	4.90	4.71	4.47	4.34	4.12	5.46	5.21	4.92	5.08	4.87	4.61	0.79 2.89
	5.68	5.44	5.16	5.01	4.72	6.30	5.97	5.59	5.87	5.60	5.29	4.16
FRG 814R												
	4.09	4.09	4.09	4.01	3.74	4.09	4.09	4.09	4.09	4.09	4.09	0.65
	4.49	4.38	4.23	4.15	3.98	5.10	4.94	4.70	4.70	4.56	4.38	0.74
	4.91	4.71	4.47	4.34	4.13	5.48	5.23	4.94	5.09	4.88	4.63	0.79 2.91
	5.70	5.46	5.17	5.02	4.74	6.32	5.98	5.61	5.90	5.62	5.30	4.21



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
7999	11.11	5.89	1.92	12.07	1995	1663	1878	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2037	5	1172	2053	11.07	60.0	4.2	1.80
	6	1432	2476	11.50	60.0	4.2	1.80
	7	1599	2804	12.25	60.0	4.2	1.80
	8	1583	2956	11.78	60.0	4.2	1.80

POIDS DU MONTAGE= 286 daN/m²

G1= 77 daN/m²

G2= 209 daN/m²

BETON CHANTIER= 62.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

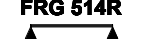


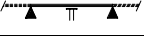

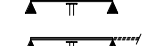

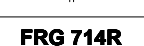


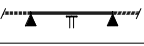


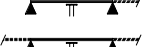
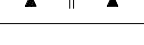

CAS DE CHARGE [daN/m²]

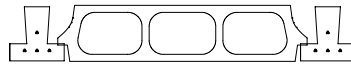
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	8.79	7.69	6.49	5.89	4.98	10.09	8.66	7.16	9.39	8.15	6.81	
Limite V _{pu}	10.48	9.17	7.73	7.01	5.91	12.04	10.33	8.53	11.20	9.71	8.11	
Limite V _{cu}	9.88	8.65	7.29	6.61	5.58	11.35	9.74	8.05	10.56	9.16	7.65	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 514R												
	4.94	4.71	4.42	4.25	3.97	5.20	4.94	4.60	5.07	4.82	4.51	0.45
	4.95	4.82	4.67	4.57	4.30	5.51	5.35	5.13	5.13	5.01	4.82	0.53
	5.34	5.16	4.94	4.78	4.50	5.92	5.67	5.36	5.52	5.32	5.07	0.58 2.06
	6.16	5.90	5.61	5.46	5.19	6.82	6.48	6.07	6.36	6.08	5.75	2.85
FRG 614R												
	5.01	4.89	4.72	4.63	4.38	5.59	5.42	5.09	5.21	5.07	4.89	0.55
	5.01	4.89	4.72	4.63	4.45	5.59	5.42	5.21	5.21	5.07	4.89	0.57
	5.41	5.23	4.99	4.86	4.61	6.01	5.74	5.44	5.60	5.39	5.14	0.61 2.18
	6.26	5.99	5.69	5.52	5.26	6.96	6.59	6.17	6.48	6.19	5.84	2.96
FRG 714R												
	5.05	4.94	4.76	4.67	4.48	5.65	5.48	5.24	5.24	5.12	4.94	0.58
	5.05	4.94	4.76	4.67	4.48	5.65	5.48	5.24	5.24	5.12	4.94	0.58
	5.46	5.26	5.04	4.90	4.65	6.08	5.80	5.48	5.66	5.44	5.19	0.62 2.21
	6.34	6.06	5.74	5.58	5.30	7.05	6.67	6.24	6.55	6.25	5.90	3.01
FRG 814R												
	5.07	4.96	4.78	4.67	4.49	5.67	5.48	5.26	5.26	5.13	4.96	0.58
	5.07	4.96	4.78	4.67	4.49	5.67	5.48	5.26	5.26	5.13	4.96	0.58
	5.48	5.28	5.05	4.92	4.67	6.10	5.82	5.49	5.67	5.46	5.20	0.63 2.24
	6.36	6.07	5.76	5.59	5.32	7.07	6.69	6.26	6.57	6.26	5.92	3.03



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
8598	13.35	4.65	3.66	13.24	1294	1653	1543	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2772	2	644	953	3.93	60.0	4.2	1.80
	3	982	1457	4.27	60.0	4.2	1.80
	4	1230	1912	4.66	60.0	4.2	1.80
	5	1327	2286	5.46	60.0	4.2	1.80

POIDS DU MONTAGE= 279 daN/m²

G1= 28 daN/m²

G2= 251 daN/m²

BETON CHANTIER= 72.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



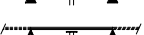



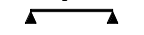




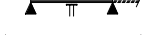
CAS DE CHARGE [daN/m²]

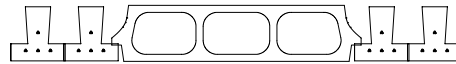
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	5.77	5.06	4.29	3.90	3.31	6.62	5.69	4.72	6.16	5.36	4.49		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	4.58	4.03	3.42	3.12	2.65	5.25	4.52	3.76	4.89	4.26	3.58		
Limite V _{cu}	5.41	4.74	4.02	3.66	3.11	6.20	5.33	4.42	5.77	5.02	4.21		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)														
FRG 211	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97		0.30 1.09	
	3.30	3.05	2.76	2.61	2.37	3.53	3.23	2.89	3.41	3.13	2.82			0.16 0.25 1.61
	3.66	3.32	2.95	2.77	2.48	3.90	3.50	3.07	3.77	3.41	3.01			
	4.40	3.97	3.50	3.26	2.90	4.67	4.16	3.63	4.53	4.06	3.56			
FRG 311	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	0.23 0.38 1.71 2.55		
	4.08	3.77	3.41	3.22	2.93	4.37	3.99	3.58	4.21	3.87	3.49			
	4.53	4.11	3.65	3.42	3.06	4.82	4.32	3.80	4.66	4.21	3.72			
	5.40	4.90	4.32	4.03	3.59	5.78	5.14	4.48	5.57	5.02	4.40			
FRG 411	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	0.30 0.48 2.08 2.98		
	4.32	4.22	3.91	3.69	3.35	4.88	4.57	4.10	4.50	4.38	4.00			
	4.72	4.53	4.18	3.92	3.51	5.24	4.95	4.35	4.90	4.69	4.26			
	5.48	5.26	4.95	4.62	4.11	6.04	5.74	5.13	5.66	5.42	5.04			
FRG 511	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	0.30 0.57 2.31 3.34		
	4.37	4.26	4.13	4.03	3.67	4.94	4.76	4.44	4.55	4.43	4.26			
	4.76	4.58	4.36	4.24	3.83	5.30	5.07	4.72	4.96	4.74	4.49			
	5.54	5.32	5.05	4.90	4.50	6.12	5.80	5.46	5.73	5.48	5.18			



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
7494	12.31	5.69	3.45	13.05	1243	1353	1256	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
1976	2	608	942	5.78	60.0	4.2	1.80
	3	928	1433	6.92	60.0	4.2	1.80
	4	1163	1868	7.89	60.0	4.2	1.80
	5	1254	2218	7.99	60.0	4.2	1.80

POIDS DU MONTAGE= 302 daN/m²

G1= 48 daN/m²

G2= 254 daN/m²

BETON CHANTIER= 79.2 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



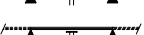



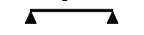




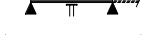
CAS DE CHARGE [daN/m²]

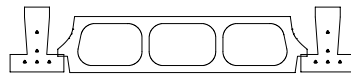
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	7.65	6.72	5.70	5.18	4.39	8.75	7.54	6.27	8.16	7.11	5.97		0.28 1.03
Limite V _{pu}	7.05	6.20	5.26	4.78	4.06	8.06	6.95	5.78	7.52	6.55	5.51		
Limite V _{cu}	7.12	6.26	5.31	4.83	4.10	8.14	7.02	5.84	7.59	6.62	5.56		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												0.25 0.36 0.42 1.52 0.32 0.45 0.50 1.77 0.34 0.49 0.53 1.89	
FRG 211	2.89	2.89	2.80	2.73	2.59	2.89	2.89	2.89	2.89	2.89	2.85		0.28 1.03
	4.10	3.88	3.53	3.34	3.04	4.35	4.10	3.70	4.22	3.99	3.61		
	4.56	4.24	3.79	3.55	3.18	4.81	4.45	3.94	4.68	4.34	3.86		
	5.48	5.06	4.49	4.19	3.73	5.77	5.29	4.65	5.62	5.18	4.57		
FRG 311	3.46	3.46	3.46	3.37	3.20	3.46	3.46	3.46	3.46	3.46	3.46	0.42 1.52	
	4.86	4.74	4.35	4.12	3.74	5.38	5.06	4.56	5.04	4.92	4.45		
	5.24	5.07	4.67	4.38	3.92	5.78	5.49	4.85	5.42	5.23	4.76		
	6.04	5.80	5.52	5.16	4.60	6.65	6.32	5.73	6.23	5.97	5.63		
FRG 411	3.95	3.95	3.88	3.77	3.58	3.95	3.95	3.95	3.95	3.95	3.93	0.50 1.77	
	4.92	4.80	4.65	4.55	4.28	5.48	5.31	5.11	5.11	4.99	4.80		
	5.32	5.15	4.92	4.78	4.48	5.88	5.63	5.34	5.49	5.30	5.06		
	6.15	5.90	5.61	5.46	5.20	6.78	6.44	6.05	6.34	6.07	5.74		
FRG 511	3.99	3.99	3.99	3.92	3.72	3.99	3.99	3.99	3.99	3.99	3.99	0.53 1.89	
	4.97	4.86	4.70	4.60	4.44	5.53	5.36	5.16	5.16	5.03	4.86		
	5.38	5.20	4.97	4.84	4.61	5.95	5.69	5.40	5.55	5.36	5.11		
	6.23	5.98	5.67	5.51	5.24	6.88	6.53	6.13	6.44	6.15	5.82		



CARACTERISTIQUES DU MONTAGE								
I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
8682	13.28	4.72	2.67	13.01	1363	1687	1870	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2761	3	914	1416	5.38	60.0	4.2	1.80
	4	1130	1845	5.93	60.0	4.2	1.80
	5	1315	2246	6.85	60.0	4.2	1.80
	6	1344	2538	6.81	60.0	4.2	1.80

POIDS DU MONTAGE= 279 daN/m²

G1= 33 daN/m²

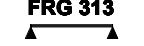


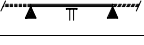

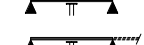

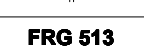


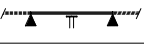


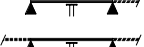
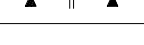

G2= 246 daN/m²

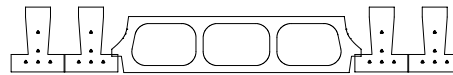
BETON CHANTIER= 70.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]												
Limite V _{bu}	5.88	5.16	4.37	3.97	3.37	6.75	5.80	4.81	6.28	5.46	4.58	τ _{bu} =0.75
Limite V _{pu}	4.81	4.22	3.59	3.26	2.78	5.51	4.74	3.94	5.13	4.47	3.75	τ _{pu} =1.80
Limite V _{cu}	6.49	5.69	4.81	4.37	3.70	7.45	6.40	5.30	6.93	6.02	5.04	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 313												
	3.18	3.07	2.90	2.81	2.64	3.18	3.18	3.01	3.18	3.13	2.96	0.29
	4.02	3.71	3.36	3.18	2.88	4.30	3.94	3.53	4.15	3.82	3.44	0.37
	4.46	4.05	3.60	3.37	3.02	4.75	4.26	3.74	4.60	4.15	3.67	0.45 1.65
	5.36	4.83	4.26	3.98	3.54	5.69	5.07	4.42	5.51	4.95	4.34	2.51
FRG 413												
	3.31	3.31	3.23	3.12	2.94	3.31	3.31	3.31	3.31	3.31	3.29	0.36
	4.33	4.22	3.84	3.63	3.29	4.84	4.49	4.02	4.51	4.36	3.93	0.47
	4.72	4.53	4.11	3.85	3.44	5.24	4.86	4.27	4.90	4.70	4.19	0.55 2.00
	5.48	5.26	4.87	4.54	4.04	6.03	5.73	5.04	5.65	5.41	4.95	2.97
FRG 513												
	3.47	3.47	3.47	3.37	3.17	3.47	3.47	3.47	3.47	3.47	3.47	0.41
	4.38	4.26	4.13	4.00	3.63	4.94	4.77	4.44	4.55	4.44	4.26	0.56
	4.77	4.59	4.36	4.24	3.80	5.31	5.08	4.72	4.96	4.74	4.49	0.63 2.30
	5.55	5.32	5.05	4.90	4.46	6.13	5.81	5.46	5.73	5.48	5.19	3.33
FRG 613												
	3.40	3.40	3.40	3.40	3.20	3.40	3.40	3.40	3.40	3.40	3.40	0.42
	4.40	4.30	4.15	4.07	3.76	4.97	4.80	4.51	4.59	4.46	4.30	0.59
	4.80	4.62	4.40	4.26	3.93	5.35	5.12	4.79	4.99	4.78	4.53	0.65 2.40
	5.59	5.36	5.09	4.94	4.61	6.18	5.86	5.49	5.77	5.51	5.23	3.52



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
7543	12.27	5.73	2.51	12.94	1303	1376	1425	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
1974	3	860	1392	9.30	60.0	4.2	1.80
	4	1063	1801	9.70	60.0	4.2	1.80
	5	1237	2177	10.16	60.0	4.2	1.80
	6	1264	2439	9.97	60.0	4.2	1.80

POIDS DU MONTAGE= 302 daN/m²

G1= 56 daN/m²

G2= 246 daN/m²

BETON CHANTIER= 75.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	7.77	6.83	5.79	5.26	4.46	8.89	7.67	6.37	8.29	7.22	6.06	τ _{bu} =0.75
Limite V _{bu}	7.77	6.83	5.79	5.26	4.46	8.89	7.67	6.37	8.29	7.22	6.06	τ _{bu} =0.75
Limite V _{pu}	7.38	6.48	5.50	5.00	4.24	8.43	7.27	6.05	7.87	6.85	5.76	τ _{pu} =1.80
Limite V _{cu}	8.04	7.06	5.98	5.44	4.61	9.19	7.93	6.58	8.58	7.47	6.27	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.01	3.85	3.65	3.53	3.32	4.18	4.01	3.78	4.09	3.93	3.71	0.27
FRG 313	4.01	3.85	3.65	3.53	3.32	4.18	4.01	3.78	4.09	3.93	3.71	0.27
	4.86	4.68	4.29	4.06	3.69	5.29	4.96	4.49	5.05	4.81	4.39	0.35
	5.25	5.09	4.60	4.31	3.87	5.79	5.38	4.78	5.42	5.23	4.69	0.41 1.48
	6.05	5.80	5.45	5.09	4.54	6.65	6.32	5.65	6.24	5.98	5.55	2.07
FRG 413	4.46	4.28	4.06	3.92	3.69	4.65	4.46	4.20	4.55	4.37	4.13	0.34
	4.92	4.80	4.65	4.55	4.20	5.48	5.31	5.07	5.11	4.99	4.80	0.44
	5.32	5.15	4.92	4.78	4.40	5.88	5.63	5.34	5.49	5.30	5.06	0.49 1.74
	6.15	5.90	5.61	5.45	5.16	6.78	6.44	6.05	6.34	6.06	5.74	2.45
FRG 513	4.81	4.62	4.37	4.23	3.98	5.02	4.81	4.53	4.91	4.71	4.45	0.39
	4.98	4.86	4.71	4.61	4.44	5.53	5.38	5.17	5.17	5.04	4.86	0.49
	5.38	5.21	4.97	4.84	4.61	5.96	5.71	5.40	5.57	5.36	5.12	0.53 1.89
	6.23	5.98	5.67	5.51	5.25	6.89	6.53	6.13	6.44	6.15	5.82	2.55
FRG 613	4.86	4.67	4.42	4.28	4.03	4.98	4.86	4.58	4.96	4.76	4.50	0.40
	5.01	4.90	4.73	4.64	4.46	5.58	5.42	5.20	5.20	5.07	4.90	0.50
	5.42	5.23	5.01	4.88	4.64	6.00	5.74	5.44	5.61	5.40	5.15	0.54 1.92
	6.28	6.02	5.72	5.55	5.28	6.96	6.59	6.19	6.49	6.21	5.86	2.58



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
10879	12.81	5.19	2.27	12.81	2294	2024	2568	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3143	5	1383	2276	7.50	60.0	4.2	1.80
	6	1689	2758	7.40	60.0	4.2	1.80
	7	1886	3150	8.29	60.0	4.2	1.80
	8	1868	3371	7.98	60.0	4.2	1.80

POIDS DU MONTAGE= 284 daN/m²

G1= 47 daN/m²

G2= 237 daN/m²

BETON CHANTIER= 68.7 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

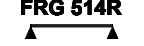


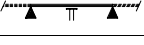

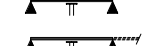

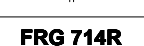


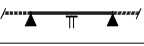


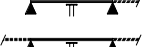
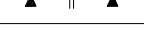

CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	6.64	5.82	4.93	4.48	3.79	7.61	6.55	5.42	7.09	6.16	5.16	τ _{bu} =0.75
Limite V _{bu}	6.64	5.82	4.93	4.48	3.79	7.61	6.55	5.42	7.09	6.16	5.16	τ _{bu} =0.75
Limite V _{pu}	7.48	6.56	5.54	5.03	4.26	8.59	7.38	6.11	8.00	6.94	5.81	τ _{pu} =1.80
Limite V _{cu}	8.34	7.30	6.17	5.60	4.73	9.58	8.22	6.80	8.91	7.74	6.47	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.75	3.75	3.61	3.49	3.27	3.75	3.75	3.75	3.75	3.75	3.68	0.46
FRG 514R 	3.75	3.75	3.61	3.49	3.27	3.75	3.75	3.75	3.75	3.75	3.68	0.46
	4.59	4.47	4.15	3.92	3.56	5.15	4.84	4.35	4.78	4.65	4.25	0.57
	4.99	4.80	4.45	4.16	3.73	5.52	5.24	4.62	5.17	4.97	4.53	0.67 2.47
	5.76	5.53	5.25	4.91	4.37	6.35	6.03	5.46	5.95	5.69	5.36	3.53
FRG 614R 	3.90	3.90	3.90	3.85	3.61	3.90	3.90	3.90	3.90	3.90	3.90	0.57
	4.65	4.53	4.38	4.28	3.92	5.21	5.05	4.79	4.84	4.71	4.53	0.69
	5.05	4.86	4.63	4.49	4.10	5.59	5.35	5.07	5.23	5.03	4.78	0.77 2.83
	5.84	5.59	5.32	5.17	4.82	6.46	6.11	5.74	6.03	5.76	5.46	3.98
FRG 714R 	4.15	4.15	4.15	4.07	3.82	4.15	4.15	4.15	4.15	4.15	4.15	0.64
	4.69	4.57	4.42	4.32	4.16	5.25	5.09	4.88	4.88	4.74	4.57	0.76
	5.09	4.91	4.67	4.53	4.32	5.65	5.40	5.11	5.26	5.07	4.82	0.83 3.02
	5.90	5.65	5.36	5.21	4.96	6.52	6.19	5.80	6.09	5.82	5.50	4.33
FRG 814R 	3.99	3.99	3.99	3.99	3.80	3.99	3.99	3.99	3.99	3.99	3.99	0.63
	4.70	4.58	4.43	4.34	4.17	5.26	5.11	4.90	4.90	4.76	4.58	0.77
	5.11	4.93	4.69	4.55	4.32	5.67	5.42	5.13	5.28	5.09	4.84	0.83 3.02
	5.92	5.67	5.38	5.23	4.97	6.55	6.21	5.82	6.11	5.84	5.52	4.38



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
9402	11.81	6.19	2.12	12.76	2180	1715	1935	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2279	5	1296	2216	10.74	60.0	4.2	1.80
	6	1583	2672	11.16	60.0	4.2	1.80
	7	1767	3033	11.88	60.0	4.2	1.80
	8	1750	3218	11.42	60.0	4.2	1.80

POIDS DU MONTAGE= 310 daN/m²

G1= 77 daN/m²

G2= 233 daN/m²

BETON CHANTIER= 72.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

















CAS DE CHARGE [daN/m²]

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	8.80	7.73	6.56	5.96	5.05	10.05	8.68	7.21	9.38	8.18	6.87	
Limite V _{pu}	11.10	9.75	8.26	7.50	6.35	12.70	10.95	9.09	11.85	10.32	8.65	
Limite V _{cu}	9.89	8.69	7.37	6.69	5.67	11.31	9.76	8.11	10.55	9.19	7.72	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 514R												
	4.93	4.72	4.45	4.30	4.03	5.17	4.93	4.63	5.05	4.82	4.54	0.59 2.11
	5.14	5.03	4.88	4.77	4.46	5.71	5.53	5.32	5.32	5.20	5.03	
	5.54	5.36	5.14	5.01	4.68	6.13	5.87	5.56	5.73	5.51	5.27	
	6.40	6.13	5.84	5.67	5.41	7.07	6.71	6.30	6.61	6.32	5.98	
FRG 614R												
	5.20	5.09	4.92	4.75	4.45	5.58	5.45	5.11	5.38	5.26	5.02	0.64 2.27
	5.20	5.09	4.94	4.83	4.65	5.78	5.61	5.38	5.38	5.26	5.09	
	5.61	5.42	5.20	5.07	4.83	6.23	5.96	5.63	5.80	5.59	5.34	
	6.49	6.23	5.92	5.74	5.48	7.20	6.82	6.40	6.73	6.42	6.07	
FRG 714R												
	5.24	5.13	4.97	4.88	4.69	5.84	5.67	5.40	5.44	5.30	5.13	0.65 2.32
	5.24	5.13	4.97	4.88	4.69	5.84	5.67	5.44	5.44	5.30	5.13	
	5.67	5.48	5.24	5.11	4.88	6.29	6.01	5.69	5.86	5.65	5.38	
	6.57	6.30	5.98	5.80	5.52	7.30	6.92	6.48	6.80	6.49	6.14	
FRG 814R												
	5.26	5.15	4.99	4.89	4.68	5.71	5.68	5.38	5.46	5.32	5.15	0.65 2.33
	5.26	5.15	4.99	4.89	4.71	5.86	5.68	5.46	5.46	5.32	5.15	
	5.69	5.49	5.25	5.13	4.89	6.31	6.03	5.71	5.88	5.67	5.40	
	6.60	6.32	5.99	5.82	5.54	7.32	6.94	6.50	6.82	6.51	6.16	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
11417	14.90	5.10	4.35	14.98	1509	1879	1745	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3359	2	766	1084	3.99	60.0	4.2	1.80
	3	1168	1654	4.44	60.0	4.2	1.80
	4	1464	2173	4.85	60.0	4.2	1.80
	5	1578	2613	5.51	60.0	4.2	1.80

POIDS DU MONTAGE= 269 daN/m²

G1= 28 daN/m²

G2= 241 daN/m²

BETON CHANTIER= 63.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



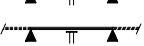

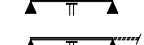

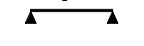

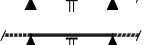


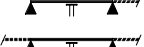
CAS DE CHARGE [daN/m²]

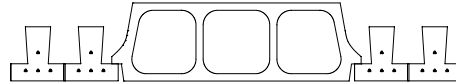
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	6.64	5.81	4.91	4.46	3.78	7.63	6.54	5.41	7.10	6.16	5.15	τ _{bu} =0.75
Limite V _{bu}	6.64	5.81	4.91	4.46	3.78	7.63	6.54	5.41	7.10	6.16	5.15	τ _{bu} =0.75
Limite V _{pu}	5.40	4.73	4.01	3.65	3.10	6.19	5.32	4.41	5.77	5.01	4.20	τ _{pu} =1.80
Limite V _{cu}	6.19	5.42	4.58	4.16	3.53	7.11	6.10	5.05	6.62	5.74	4.81	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	0.14
FRG 211	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	0.14
	3.54	3.27	2.96	2.79	2.53	3.79	3.47	3.10	3.66	3.36	3.03	0.25
	3.93	3.56	3.16	2.96	2.65	4.18	3.75	3.29	4.05	3.65	3.22	0.30 1.09
	4.72	4.25	3.74	3.49	3.10	5.01	4.46	3.88	4.86	4.35	3.81	1.59
FRG 311	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	0.20
	4.37	4.04	3.65	3.45	3.13	4.69	4.28	3.83	4.52	4.15	3.74	0.38
	4.85	4.40	3.91	3.65	3.27	5.17	4.63	4.06	5.00	4.51	3.98	0.46 1.69
	5.83	5.25	4.62	4.31	3.83	6.19	5.51	4.79	6.00	5.37	4.71	2.53
FRG 411	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	0.27
	4.76	4.63	4.19	3.95	3.59	5.32	4.91	4.39	4.97	4.76	4.28	0.49
	5.17	4.99	4.48	4.19	3.75	5.71	5.31	4.66	5.34	5.15	4.57	0.57 2.07
	5.96	5.71	5.30	4.94	4.40	6.57	6.24	5.50	6.15	5.88	5.40	3.00
FRG 511	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	0.27
	4.82	4.70	4.53	4.34	3.93	5.38	5.23	4.81	5.01	4.88	4.70	0.57
	5.22	5.03	4.80	4.59	4.11	5.77	5.52	5.11	5.39	5.19	4.96	0.65 2.33
	6.03	5.77	5.48	5.33	4.82	6.67	6.32	5.94	6.23	5.95	5.63	3.37



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
9941	13.63	6.37	4.14	14.84	1460	1544	1428	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2339	2	729	1073	5.79	60.0	4.2	1.80
	3	1112	1629	6.93	60.0	4.2	1.80
	4	1394	2130	7.90	60.0	4.2	1.80
	5	1503	2545	8.00	60.0	4.2	1.80

POIDS DU MONTAGE= 301 daN/m²

G1= 48 daN/m²

G2= 252 daN/m²

BETON CHANTIER= 74.4 Litres/m²

CHARGE DE CHANTIER MAXI (50 daN/ml , 100 daN)








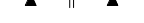




CAS DE CHARGE [daN/m²]

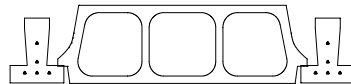
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	8.73	7.67	6.50	5.91	5.01	9.99	8.61	7.15	9.32	8.11	6.81	τ _{bu} =0.75
Limite V _{bu}	8.73	7.67	6.50	5.91	5.01	9.99	8.61	7.15	9.32	8.11	6.81	τ _{bu} =0.75
Limite V _{pu}	8.28	7.27	6.16	5.60	4.75	9.47	8.16	6.78	8.83	7.69	6.46	τ _{pu} =1.80
Limite V _{cu}	8.10	7.12	6.04	5.49	4.66	9.27	7.99	6.64	8.64	7.53	6.32	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	2.89	2.89	2.89	2.84	2.71	2.89	2.89	2.89	2.89	2.89	2.89	0.16
FRG 211	2.89	2.89	2.89	2.84	2.71	2.89	2.89	2.89	2.89	2.89	2.89	0.16
	4.40	4.16	3.77	3.57	3.24	4.66	4.40	3.95	4.52	4.27	3.86	0.24
	4.89	4.54	4.04	3.79	3.40	5.15	4.77	4.20	5.01	4.65	4.12	0.29 1.05
	5.87	5.42	4.79	4.47	3.99	6.20	5.68	4.96	6.03	5.54	4.87	1.51
FRG 311	3.46	3.46	3.46	3.46	3.34	3.46	3.46	3.46	3.46	3.46	3.46	0.24
	5.28	5.12	4.65	4.39	3.99	5.75	5.42	4.87	5.46	5.26	4.75	0.36
	5.69	5.50	4.98	4.67	4.18	6.26	5.88	5.18	5.88	5.67	5.08	0.43 1.52
	6.55	6.28	5.90	5.51	4.91	7.21	6.86	6.11	6.76	6.48	6.00	2.13
FRG 411	3.95	3.95	3.95	3.92	3.74	3.95	3.95	3.95	3.95	3.95	3.95	0.30
	5.34	5.23	5.09	4.99	4.57	5.93	5.75	5.53	5.53	5.40	5.23	0.46
	5.76	5.57	5.34	5.22	4.78	6.37	6.10	5.78	5.96	5.74	5.48	0.50 1.79
	6.67	6.40	6.07	5.91	5.62	7.36	6.98	6.56	6.88	6.57	6.23	2.51
FRG 511	4.00	4.00	4.00	4.00	3.88	4.00	4.00	4.00	4.00	4.00	4.00	0.33
	5.40	5.28	5.13	5.04	4.86	5.99	5.82	5.59	5.59	5.46	5.28	0.52
	5.82	5.63	5.40	5.26	5.04	6.46	6.17	5.84	6.02	5.80	5.54	0.56 1.98
	6.75	6.48	6.15	5.98	5.69	7.48	7.08	6.65	6.98	6.67	6.30	2.59



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
11600	14.78	5.22	3.20	14.60	1604	1914	2099	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3334	3	1098	1612	5.64	60.0	4.2	1.80
	4	1357	2107	6.22	60.0	4.2	1.80
	5	1579	2573	7.01	60.0	4.2	1.80
	6	1613	2930	6.88	60.0	4.2	1.80

POIDS DU MONTAGE= 269 daN/m²

G1= 33 daN/m²

G2= 236 daN/m²

BETON CHANTIER= 61.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}









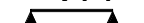







CAS DE CHARGE [daN/m²]

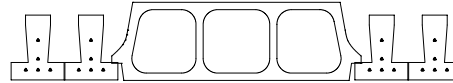
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	6.75	5.91	4.99	4.53	3.84	7.76	6.66	5.51	7.22	6.26	5.24	τ _{bu} =0.75
Limite V _{bu}	6.75	5.91	4.99	4.53	3.84	7.76	6.66	5.51	7.22	6.26	5.24	τ _{bu} =0.75
Limite V _{pu}	5.72	5.01	4.24	3.85	3.27	6.56	5.64	4.67	6.11	5.30	4.44	τ _{pu} =1.80
Limite V _{cu}	7.38	6.45	5.45	4.94	4.18	8.48	7.27	6.01	7.89	6.84	5.71	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.21	3.21	3.06	2.97	2.80	3.21	3.21	3.16	3.21	3.21	3.11	0.28
FRG 313												
	3.21	3.21	3.06	2.97	2.80	3.21	3.21	3.16	3.21	3.21	3.11	0.28
	4.32	3.98	3.61	3.41	3.09	4.63	4.23	3.78	4.46	4.10	3.69	0.37
	4.79	4.34	3.86	3.61	3.23	5.10	4.57	4.01	4.94	4.45	3.93	0.45 1.64
	5.75	5.18	4.56	4.26	3.79	6.12	5.44	4.73	5.93	5.30	4.65	2.46
FRG 413												
	3.35	3.35	3.35	3.30	3.12	3.35	3.35	3.35	3.35	3.35	3.35	0.35
	4.78	4.55	4.12	3.89	3.53	5.28	4.83	4.32	4.97	4.69	4.22	0.48
	5.18	4.97	4.41	4.13	3.69	5.73	5.23	4.59	5.35	5.09	4.49	0.56 2.06
	5.96	5.73	5.22	4.86	4.33	6.58	6.21	5.41	6.16	5.88	5.31	2.96
FRG 513												
	3.51	3.51	3.51	3.51	3.36	3.51	3.51	3.51	3.51	3.51	3.51	0.41
	4.82	4.71	4.55	4.30	3.90	5.40	5.23	4.78	5.03	4.90	4.66	0.57
	5.23	5.05	4.81	4.56	4.08	5.78	5.53	5.07	5.40	5.21	4.96	0.64 2.32
	6.03	5.78	5.49	5.34	4.78	6.67	6.32	5.94	6.24	5.96	5.63	3.37
FRG 613												
	3.44	3.44	3.44	3.44	3.40	3.44	3.44	3.44	3.44	3.44	3.44	0.42
	4.86	4.74	4.59	4.47	4.12	5.44	5.26	4.93	5.05	4.93	4.74	0.62
	5.26	5.08	4.84	4.71	4.30	5.83	5.57	5.23	5.44	5.24	4.99	0.68 2.46
	6.09	5.83	5.53	5.38	5.05	6.74	6.38	5.99	6.28	6.00	5.68	3.62



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
10038	13.52	6.48	3.03	14.59	1542	1558	1603	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2325	3	1038	1588	9.32	60.0	4.2	1.80
	4	1284	2063	9.72	60.0	4.2	1.80
	5	1494	2504	10.18	60.0	4.2	1.80
	6	1526	2832	9.98	60.0	4.2	1.80

POIDS DU MONTAGE= 301 daN/m²

G1= 56 daN/m²

G2= 244 daN/m²

BETON CHANTIER= 71.0 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



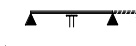
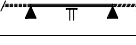

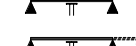

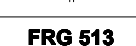
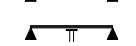

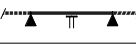


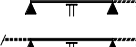
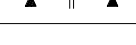

CAS DE CHARGE [daN/m²]

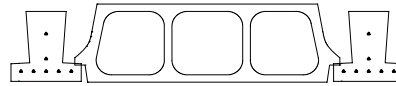
	100	100	100	100	100	0	0	0	100	100	100	Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	8.81	7.74	6.56	5.96	5.05	10.08	8.69	7.21	9.40	8.18	6.87	τ _{bu} =0.75
Limite V _{bu}	8.81	7.74	6.56	5.96	5.05	10.08	8.69	7.21	9.40	8.18	6.87	τ _{bu} =0.75
Limite V _{pu}	8.72	7.66	6.49	5.90	5.00	9.98	8.60	7.14	9.31	8.10	6.80	τ _{pu} =1.80
Limite V _{cu}	9.05	7.95	6.73	6.12	5.19	10.36	8.93	7.41	9.66	8.41	7.06	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.15	4.00	3.81	3.70	3.50	4.31	4.15	3.94	4.23	4.07	3.87	0.27
FRG 313 	4.15	4.00	3.81	3.70	3.50	4.31	4.15	3.94	4.23	4.07	3.87	0.27
	5.29	5.05	4.59	4.34	3.94	5.71	5.35	4.80	5.48	5.20	4.69	0.35
	5.70	5.51	4.92	4.61	4.13	6.28	5.80	5.11	5.88	5.66	5.01	0.42 1.51
	6.55	6.30	5.83	5.44	4.85	7.23	6.86	6.04	6.76	6.48	5.93	2.13
FRG 413 	4.61	4.45	4.24	4.11	3.89	4.79	4.61	4.38	4.70	4.53	4.31	0.33
	5.35	5.24	5.09	4.95	4.50	5.94	5.76	5.48	5.53	5.41	5.24	0.45
	5.76	5.57	5.34	5.22	4.71	6.38	6.11	5.78	5.96	5.74	5.49	0.50 1.79
	6.67	6.39	6.07	5.90	5.53	7.35	6.98	6.55	6.88	6.57	6.23	2.42
FRG 513 	4.98	4.80	4.57	4.44	4.20	5.09	4.98	4.72	5.07	4.89	4.65	0.38
	5.41	5.29	5.14	5.05	4.87	6.00	5.82	5.60	5.60	5.47	5.29	0.52
	5.84	5.64	5.40	5.26	5.05	6.46	6.19	5.86	6.03	5.81	5.55	0.56 1.99
	6.76	6.48	6.15	5.98	5.69	7.48	7.09	6.65	6.98	6.67	6.31	2.59
FRG 613 	4.99	4.85	4.62	4.48	4.24	4.99	4.99	4.77	4.99	4.94	4.70	0.39
	5.44	5.32	5.17	5.08	4.90	6.05	5.87	5.64	5.64	5.50	5.32	0.53
	5.88	5.68	5.44	5.30	5.08	6.51	6.23	5.90	6.08	5.86	5.59	0.57 2.01
	6.82	6.53	6.21	6.02	5.73	7.55	7.16	6.72	7.05	6.73	6.36	2.65



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
14574	14.17	5.83	2.74	14.37	2736	2246	2861	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3747	5	1675	2603	7.56	60.0	4.2	1.80
	6	2046	3151	7.85	60.0	4.2	1.80
	7	2285	3608	8.37	60.0	4.2	1.80
	8	2262	3895	8.04	60.0	4.2	1.80

POIDS DU MONTAGE= 277 daN/m²

G1= 47 daN/m²

G2= 230 daN/m²

BETON CHANTIER= 60.7 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

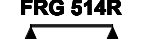


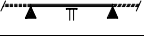

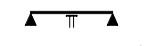


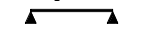

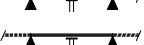
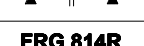

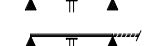
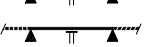

CAS DE CHARGE [daN/m²]

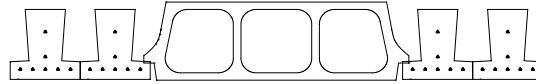
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	7.44	6.51	5.50	5.00	4.23	8.54	7.33	6.06	7.95	6.90	5.77	τ _{bu} =0.75
Limite V _{pu}	8.99	7.86	6.63	6.01	5.08	10.33	8.86	7.32	9.61	8.33	6.96	τ _{pu} =1.80
Limite V _{cu}	9.38	8.20	6.92	6.27	5.30	10.79	9.25	7.63	10.03	8.69	7.26	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 514R 	3.78	3.78	3.78	3.69	3.48	3.78	3.78	3.78	3.78	3.78	3.78	0.68 2.47	
		5.05	4.92	4.46	4.21	3.82	5.61	5.22	4.67	5.23	5.06		4.56
		5.44	5.26	4.77	4.46	3.99	6.01	5.65	4.96	5.62	5.42		4.86
		6.26	6.01	5.65	5.27	4.69	6.92	6.57	5.85	6.48	6.19		5.75
FRG 614R 	3.93	3.93	3.93	3.93	3.84	3.93	3.93	3.93	3.93	3.93	3.93	0.78 2.82	
		5.10	4.99	4.82	4.63	4.20	5.67	5.49	5.14	5.28	5.16		4.99
		5.49	5.30	5.09	4.91	4.39	6.09	5.82	5.46	5.68	5.48		5.23
		6.34	6.07	5.77	5.61	5.16	7.01	6.65	6.24	6.55	6.26		5.92
FRG 714R 	4.18	4.18	4.18	4.18	4.06	4.18	4.18	4.18	4.18	4.18	4.18	0.86 3.09	
		5.13	5.02	4.86	4.76	4.50	5.72	5.54	5.32	5.32	5.20		5.02
		5.53	5.35	5.12	4.99	4.70	6.15	5.87	5.55	5.73	5.51		5.26
		6.41	6.13	5.82	5.66	5.39	7.09	6.73	6.30	6.63	6.32		5.98
FRG 814R 	4.02	4.02	4.02	4.02	4.02	4.02	4.02	4.02	4.02	4.02	4.02	0.88 3.19	
		5.15	5.04	4.88	4.78	4.59	5.74	5.57	5.34	5.34	5.21		5.04
		5.55	5.37	5.14	5.01	4.76	6.17	5.90	5.57	5.74	5.53		5.28
		6.44	6.17	5.85	5.69	5.41	7.14	6.76	6.34	6.65	6.35		6.00



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
12512	12.96	7.04	2.58	14.44	2603	1896	2145	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2665	5	1572	2543	10.71	60.0	4.2	1.80
	6	1920	3064	11.12	60.0	4.2	1.80
	7	2144	3490	11.85	60.0	4.2	1.80
	8	2123	3741	11.39	60.0	4.2	1.80

POIDS DU MONTAGE= 312 daN/m²

G1= 77 daN/m²

G2= 235 daN/m²

BETON CHANTIER= 69.7 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

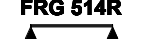


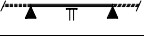

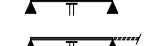

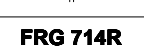


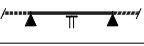


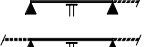
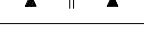

CAS DE CHARGE [daN/m²]

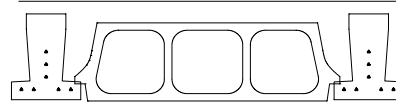
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	9.70	8.53	7.24	6.58	5.58	11.08	9.57	7.96	10.34	9.02	7.58	
Limite V _{pu}	13.20	11.59	9.81	8.91	7.54	15.09	13.01	10.80	14.08	12.26	10.28	
Limite V _{cu}	10.93	9.61	8.15	7.40	6.27	12.49	10.78	8.96	11.66	10.16	8.53	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 514R												
	5.10	4.91	4.66	4.51	4.26	5.32	5.10	4.82	5.21	5.01	4.74	0.43
	5.56	5.45	5.28	5.20	4.77	6.17	5.99	5.76	5.76	5.63	5.45	0.55
	5.99	5.80	5.55	5.42	5.01	6.63	6.35	6.01	6.20	5.98	5.71	0.60 2.12
	6.92	6.65	6.32	6.14	5.86	7.65	7.26	6.82	7.15	6.84	6.48	3.00
FRG 614R												
	5.56	5.43	5.15	4.99	4.70	5.56	5.56	5.33	5.56	5.53	5.24	0.53
	5.62	5.50	5.34	5.24	5.08	6.24	6.06	5.82	5.82	5.69	5.50	0.62
	6.07	5.86	5.62	5.48	5.24	6.73	6.44	6.09	6.28	6.05	5.77	0.66 2.34
	7.03	6.74	6.40	6.23	5.92	7.78	7.38	6.93	7.26	6.94	6.57	3.07
FRG 714R												
	5.67	5.55	5.38	5.27	4.97	5.92	5.92	5.63	5.88	5.73	5.54	0.59
	5.67	5.55	5.38	5.28	5.11	6.31	6.12	5.88	5.88	5.73	5.55	0.63
	6.13	5.92	5.67	5.53	5.29	6.80	6.49	6.15	6.34	6.11	5.82	0.67 2.39
	7.11	6.81	6.47	6.28	5.98	7.88	7.48	7.00	7.36	7.01	6.64	3.14
FRG 814R												
	5.69	5.57	5.40	5.24	4.95	5.69	5.69	5.61	5.69	5.69	5.51	0.59
	5.69	5.57	5.40	5.30	5.13	6.34	6.15	5.90	5.90	5.75	5.57	0.63
	6.15	5.94	5.69	5.54	5.30	6.83	6.53	6.17	6.36	6.13	5.84	0.68 2.40
	7.15	6.84	6.49	6.30	5.99	7.94	7.51	7.03	7.40	7.05	6.67	3.17



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
14574	14.17	5.83	1.92	14.37	2736	2442	3563	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3747	6	1774	2988	8.91	60.0	4.2	1.80
	7	2018	3446	9.55	60.0	4.2	1.80
	8	2261	3895	10.07	60.0	4.2	1.80

POIDS DU MONTAGE= 277 daN/m²

G1= 56 daN/m²

G2= 221 daN/m²

BETON CHANTIER= 56.9 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

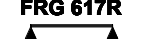


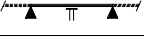

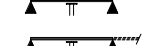

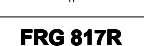




CAS DE CHARGE [daN/m²]

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	8.06	7.05	5.96	5.40	4.57	9.26	7.94	6.57	8.61	7.47	6.25	τ _{bu} =0.75
Limite V _{pu}	8.99	7.86	6.63	6.01	5.08	10.33	8.86	7.32	9.61	8.33	6.96	τ _{pu} =1.80
Limite V _{cu}	11.60	10.14	8.54	7.73	6.52	13.35	11.44	9.43	12.41	10.75	8.96	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 617R    	4.45	4.45	4.28	4.11	3.84	4.45	4.45	4.45	4.45	4.45	4.37	0.56
	5.10	4.99	4.77	4.51	4.09	5.67	5.49	5.00	5.28	5.16	4.88	
	5.49	5.30	5.08	4.78	4.28	6.09	5.82	5.31	5.68	5.48	5.21	0.75 2.71
	6.34	6.07	5.76	5.61	5.02	7.01	6.65	6.24	6.55	6.25	5.92	
FRG 717R    	4.78	4.78	4.56	4.39	4.09	4.78	4.78	4.76	4.78	4.78	4.66	0.64
	5.13	5.02	4.86	4.76	4.39	5.73	5.55	5.32	5.32	5.20	5.02	
	5.53	5.34	5.12	4.99	4.60	6.15	5.88	5.55	5.73	5.51	5.26	0.82 2.93
	6.40	6.13	5.82	5.65	5.38	7.09	6.73	6.30	6.61	6.32	5.98	
FRG 817R    	5.03	5.03	4.83	4.65	4.33	5.03	5.03	5.03	5.03	5.03	4.93	0.72
	5.17	5.06	4.90	4.79	4.61	5.76	5.59	5.36	5.36	5.23	5.06	
	5.58	5.39	5.16	5.03	4.78	6.21	5.92	5.60	5.77	5.55	5.30	0.89 3.22
	6.47	6.19	5.87	5.71	5.43	7.18	6.79	6.36	6.69	6.38	6.03	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
12512	12.96	7.04	1.80	14.44	2603	2105	2629	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2665	6	1665	2901	12.61	60.0	4.2	1.80
	7	1894	3328	13.52	60.0	4.2	1.80
	8	2122	3741	14.25	60.0	4.2	1.80

POIDS DU MONTAGE= 312 daN/m²

G1= 92 daN/m²

G2= 221 daN/m²

BETON CHANTIER= 63.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

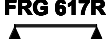


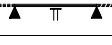

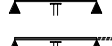

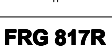




CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	10.73	9.43	8.00	7.27	6.16	12.26	10.59	8.80	11.45	9.98	8.38	τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	10.73	9.43	8.00	7.27	6.16	12.26	10.59	8.80	11.45	9.98	8.38	
Limite V _{pu}	13.20	11.59	9.81	8.91	7.54	15.09	13.01	10.80	14.08	12.26	10.28	
Limite V _{cu}	13.32	11.70	9.91	9.00	7.61	15.24	13.14	10.91	14.21	12.38	10.38	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	5.63	5.51	5.24	5.04	4.71	6.16	5.85	5.46	5.84	5.70	5.34	0.53 0.61 0.67 2.36 3.08
FRG 617R 	5.63	5.51	5.24	5.04	4.71	6.16	5.85	5.46	5.84	5.70	5.34	
	5.63	5.51	5.36	5.26	5.06	6.27	6.08	5.84	5.84	5.70	5.51	
	6.08	5.88	5.63	5.49	5.26	6.74	6.46	6.11	6.29	6.06	5.78	
	7.03	6.74	6.41	6.23	5.93	7.80	7.40	6.94	7.28	6.96	6.57	
FRG 717R 	5.69	5.55	5.40	5.30	5.02	6.34	6.14	5.82	5.89	5.74	5.55	0.60 0.63 0.68 2.40 3.14
	5.69	5.55	5.40	5.30	5.13	6.34	6.14	5.89	5.89	5.74	5.55	
	6.14	5.94	5.68	5.53	5.30	6.82	6.51	6.17	6.36	6.12	5.84	
	7.13	6.82	6.48	6.28	5.98	7.92	7.50	7.01	7.37	7.03	6.65	
FRG 817R 	5.73	5.61	5.44	5.34	5.16	6.40	6.20	5.94	5.94	5.80	5.61	0.64 0.64 0.69 2.44 3.22
	5.73	5.61	5.44	5.34	5.16	6.40	6.20	5.94	5.94	5.80	5.61	
	6.20	5.98	5.73	5.58	5.34	6.90	6.59	6.23	6.42	6.18	5.88	
	7.21	6.90	6.53	6.35	6.03	8.01	7.59	7.10	7.46	7.11	6.72	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
13017	15.76	5.24	4.69	15.79	1613	1981	1840	1.19

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3725	2	826	1150	3.87	60.0	4.2	1.80
	3	1259	1752	4.08	60.0	4.2	1.80
	4	1578	2304	4.45	60.0	4.2	1.80
	5	1701	2777	5.38	60.0	4.2	1.80

POIDS DU MONTAGE= 293 daN/m²

G1= 28 daN/m²

G2= 264 daN/m²

BETON CHANTIER= 73.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



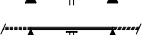







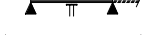
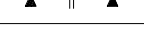
CAS DE CHARGE [daN/m²]

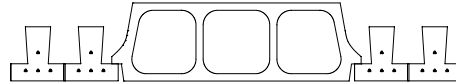
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	6.79	5.97	5.07	4.61	3.92	7.77	6.70	5.57	7.24	6.31	5.30	τ _{bu} =0.75
Limite V _{bu}	6.79	5.97	5.07	4.61	3.92	7.77	6.70	5.57	7.24	6.31	5.30	τ _{bu} =0.75
Limite V _{pu}	5.59	4.92	4.19	3.82	3.26	6.39	5.52	4.60	5.96	5.20	4.38	τ _{pu} =1.80
Limite V _{cu}	6.33	5.57	4.73	4.31	3.66	7.24	6.25	5.20	6.75	5.89	4.95	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	0.13
FRG 211	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	0.13
	3.59	3.32	3.01	2.85	2.59	3.84	3.52	3.16	3.71	3.42	3.08	0.25
	3.99	3.63	3.23	3.02	2.71	4.24	3.81	3.36	4.11	3.72	3.29	0.30 1.10
	4.80	4.33	3.82	3.57	3.18	5.09	4.54	3.96	4.93	4.43	3.89	1.60
FRG 311	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	0.19
	4.43	4.10	3.72	3.52	3.19	4.74	4.34	3.90	4.58	4.22	3.80	0.38
	4.92	4.48	3.98	3.73	3.34	5.24	4.71	4.14	5.07	4.59	4.06	0.47 1.69
	5.92	5.34	4.72	4.40	3.92	6.28	5.60	4.89	6.09	5.47	4.80	2.53
FRG 411	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66	0.24
	4.92	4.70	4.26	4.03	3.66	5.44	4.98	4.47	5.10	4.83	4.36	0.49
	5.31	5.13	4.57	4.28	3.84	5.86	5.40	4.75	5.48	5.26	4.66	0.58 2.12
	6.13	5.88	5.41	5.05	4.50	6.74	6.42	5.61	6.32	6.05	5.51	3.08
FRG 511	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	0.25
	4.97	4.84	4.68	4.43	4.02	5.51	5.30	4.90	5.15	5.02	4.79	0.58
	5.36	5.19	4.97	4.70	4.21	5.92	5.67	5.22	5.53	5.34	5.10	0.66 2.37
	6.21	5.95	5.65	5.49	4.94	6.84	6.49	6.10	6.40	6.12	5.79	3.43



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
11411	14.49	6.51	4.47	15.57	1558	1619	1498	1.19

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2631	2	787	1139	5.62	60.0	4.2	1.80
	3	1200	1727	6.73	60.0	4.2	1.80
	4	1504	2260	7.68	60.0	4.2	1.80
	5	1621	2709	7.77	60.0	4.2	1.80

POIDS DU MONTAGE= 324 daN/m²

G1= 48 daN/m²

G2= 276 daN/m²

BETON CHANTIER= 84.4 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}




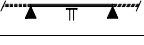

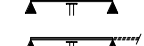

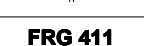


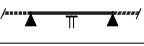


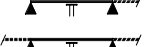
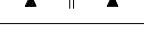

CAS DE CHARGE [daN/m²]

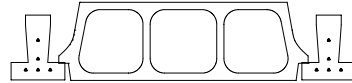
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	8.90	7.84	6.67	6.08	5.17	10.13	8.78	7.33	9.47	8.28	6.99	τ _{bu} =0.75
Limite V _{pu}	8.57	7.56	6.44	5.86	4.99	9.76	8.46	7.06	9.13	7.98	6.73	τ _{pu} =1.80
Limite V _{cu}	8.26	7.28	6.20	5.65	4.81	9.40	8.15	6.81	8.79	7.69	6.49	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 211		2.81	2.81	2.81	2.81	2.69	2.81	2.81	2.81	2.81	2.81	0.15
		4.46	4.23	3.84	3.64	3.31	4.71	4.46	4.02	4.58	4.34	0.24
		4.96	4.62	4.13	3.87	3.48	5.21	4.85	4.29	5.08	4.73	0.29 1.05
		6.01	5.52	4.89	4.57	4.08	6.33	5.78	5.07	6.16	5.65	1.54
FRG 311		3.36	3.36	3.36	3.36	3.32	3.36	3.36	3.36	3.36	3.36	0.23
		5.44	5.21	4.73	4.48	4.08	5.81	5.50	4.95	5.61	5.35	0.36
		5.86	5.67	5.08	4.77	4.28	6.43	5.98	5.28	6.04	5.83	0.43 1.55
		6.75	6.49	6.03	5.63	5.03	7.42	7.05	6.24	6.96	6.67	2.18
FRG 411		3.84	3.84	3.84	3.84	3.72	3.84	3.84	3.84	3.84	3.84	0.29
		5.49	5.39	5.24	5.13	4.67	6.08	5.91	5.67	5.69	5.56	0.47
		5.94	5.74	5.51	5.38	4.90	6.54	6.27	5.96	6.13	5.92	0.52 1.83
		6.87	6.59	6.27	6.10	5.75	7.56	7.19	6.76	7.09	6.78	2.52
FRG 511		3.89	3.89	3.89	3.89	3.86	3.89	3.89	3.89	3.89	3.89	0.31
		5.55	5.44	5.28	5.20	5.03	6.15	5.98	5.74	5.74	5.61	0.53
		6.00	5.80	5.57	5.44	5.21	6.63	6.34	6.01	6.21	5.98	0.57 2.02
		6.96	6.68	6.34	6.17	5.88	7.69	7.28	6.86	7.19	6.88	2.66



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
13279	15.63	5.37	3.47	15.34	1721	2010	2205	1.19

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3706	3	1189	1711	5.09	60.0	4.2	1.80
	4	1470	2237	5.61	60.0	4.2	1.80
	5	1710	2736	6.48	60.0	4.2	1.80
	6	1747	3126	6.72	60.0	4.2	1.80

POIDS DU MONTAGE= 293 daN/m²

G1= 33 daN/m²

G2= 260 daN/m²

BETON CHANTIER= 71.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m²]

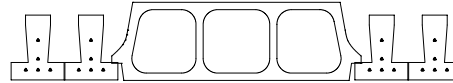
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	6.88	6.05	5.13	4.67	3.97	7.88	6.79	5.64	7.34	6.40	5.38	τ _{bu} =0.75
Limite V _{bu}	6.88	6.05	5.13	4.67	3.97	7.88	6.79	5.64	7.34	6.40	5.38	τ _{bu} =0.75
Limite V _{pu}	5.95	5.23	4.45	4.05	3.45	6.79	5.87	4.88	6.34	5.53	4.65	τ _{pu} =1.80
Limite V _{cu}	7.52	6.60	5.60	5.09	4.32	8.61	7.41	6.16	8.02	6.98	5.86	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.14	3.14	3.04	2.96	2.80	3.14	3.14	3.13	3.14	3.14	3.09	0.27
FRG 313	3.14	3.14	3.04	2.96	2.80	3.14	3.14	3.13	3.14	3.14	3.09	0.27
	4.38	4.05	3.67	3.47	3.16	4.68	4.29	3.85	4.52	4.17	3.76	0.37
	4.86	4.42	3.94	3.69	3.30	5.17	4.65	4.09	5.01	4.53	4.01	0.45 1.65
	5.85	5.28	4.66	4.35	3.88	6.21	5.53	4.83	6.02	5.40	4.75	2.47
FRG 413	3.27	3.27	3.27	3.27	3.12	3.27	3.27	3.27	3.27	3.27	3.27	0.33
	4.94	4.63	4.20	3.97	3.61	5.36	4.91	4.40	5.11	4.76	4.30	0.48
	5.32	5.06	4.50	4.22	3.78	5.87	5.32	4.68	5.49	5.18	4.59	0.58 2.12
	6.14	5.90	5.33	4.98	4.44	6.76	6.33	5.53	6.34	6.06	5.43	2.97
FRG 513	3.43	3.43	3.43	3.43	3.36	3.43	3.43	3.43	3.43	3.43	3.43	0.39
	4.98	4.86	4.65	4.39	3.99	5.53	5.37	4.87	5.17	5.04	4.75	0.57
	5.38	5.21	4.97	4.67	4.18	5.94	5.69	5.18	5.55	5.36	5.08	0.66 2.37
	6.22	5.96	5.67	5.50	4.90	6.86	6.50	6.11	6.42	6.13	5.81	3.44
FRG 613	3.36	3.36	3.36	3.36	3.36	3.36	3.36	3.36	3.36	3.36	3.36	0.39
	5.01	4.90	4.74	4.60	4.24	5.57	5.40	5.05	5.20	5.07	4.90	0.63
	5.42	5.23	5.01	4.88	4.44	5.98	5.73	5.37	5.59	5.40	5.15	0.70 2.53
	6.26	6.01	5.71	5.55	5.21	6.92	6.57	6.17	6.48	6.19	5.86	3.69



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
11561	14.36	6.64	3.28	15.23	1654	1626	1673	1.19

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2614	3	1126	1686	9.05	60.0	4.2	1.80
	4	1392	2194	9.44	60.0	4.2	1.80
	5	1620	2668	9.89	60.0	4.2	1.80
	6	1655	3028	9.70	60.0	4.2	1.80

POIDS DU MONTAGE= 324 daN/m²

G1= 56 daN/m²

G2= 268 daN/m²

BETON CHANTIER= 81.0 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

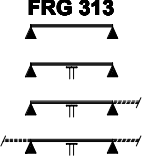
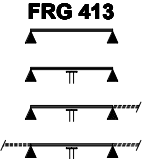
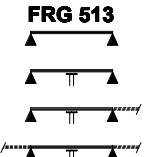
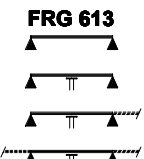
CAS DE CHARGE [daN/m²]

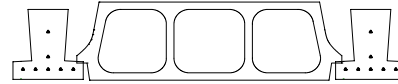
	100	100	100	100	100	0	0	0	100	100	100	Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	8.93	7.88	6.70	6.10	5.19	10.18	8.81	7.36	9.51	8.32	7.01	τ _{bu} =0.75
Limite V _{pu}	9.08	8.00	6.81	6.20	5.27	10.34	8.96	7.47	9.67	8.45	7.13	τ _{pu} =1.80
Limite V _{cu}	9.18	8.09	6.88	6.27	5.33	10.46	9.06	7.56	9.77	8.55	7.20	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 313 	4.09	3.96	3.79	3.69	3.51	4.24	4.09	3.90	4.16	4.03	3.85	0.26 0.35 0.43 1.53 2.17
	5.45	5.14	4.68	4.43	4.03	5.81	5.44	4.89	5.63	5.28	4.78	
	5.87	5.63	5.02	4.71	4.23	6.42	5.91	5.22	6.05	5.76	5.12	
	6.76	6.49	5.95	5.57	4.97	7.42	7.04	6.17	6.98	6.69	6.06	
FRG 413 	4.55	4.41	4.22	4.10	3.90	4.71	4.55	4.34	4.63	4.48	4.28	0.32 0.45 0.51 1.83 2.44
	5.51	5.40	5.24	5.05	4.60	6.09	5.92	5.58	5.70	5.57	5.40	
	5.94	5.75	5.51	5.38	4.83	6.55	6.28	5.95	6.14	5.92	5.67	
	6.87	6.59	6.27	6.11	5.67	7.55	7.19	6.76	7.09	6.78	6.44	
FRG 513 	4.91	4.76	4.55	4.43	4.21	4.94	4.91	4.68	4.94	4.83	4.62	0.37 0.54 0.57 2.03 2.67
	5.57	5.46	5.30	5.21	5.04	6.17	5.99	5.76	5.76	5.63	5.46	
	6.01	5.82	5.57	5.44	5.22	6.64	6.36	6.03	6.21	5.99	5.73	
	6.98	6.69	6.36	6.18	5.89	7.69	7.30	6.86	7.20	6.88	6.51	
FRG 613 	4.85	4.81	4.60	4.47	4.25	4.85	4.85	4.73	4.85	4.85	4.66	0.38 0.54 0.58 2.05 2.72
	5.61	5.49	5.34	5.24	5.07	6.22	6.03	5.80	5.80	5.67	5.49	
	6.06	5.86	5.61	5.48	5.24	6.71	6.42	6.08	6.26	6.03	5.76	
	7.03	6.74	6.42	6.23	5.94	7.77	7.38	6.93	7.26	6.95	6.57	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
16775	15.00	6.00	2.98	14.98	2950	2342	2983	1.19

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4195	5	1821	2767	7.39	60.0	4.2	1.80
	6	2223	3347	6.42	60.0	4.2	1.80
	7	2483	3837	7.20	60.0	4.2	1.80
	8	2459	4156	7.85	60.0	4.2	1.80

POIDS DU MONTAGE= 300 daN/m²

G1= 47 daN/m²

G2= 253 daN/m²

BETON CHANTIER= 70.7 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



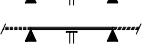

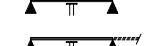

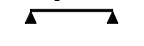

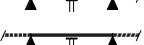


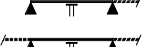
CAS DE CHARGE [daN/m²]

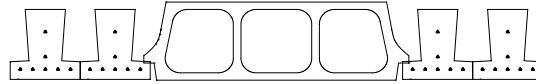
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	7.53	6.62	5.62	5.11	4.35	8.60	7.43	6.18	8.03	7.00	5.89	τ _{bu} =0.75
Limite V _{bu}	7.53	6.62	5.62	5.11	4.35	8.60	7.43	6.18	8.03	7.00	5.89	τ _{bu} =0.75
Limite V _{pu}	9.39	8.25	6.99	6.35	5.38	10.75	9.26	7.69	10.02	8.73	7.32	τ _{pu} =1.80
Limite V _{cu}	9.50	8.34	7.06	6.42	5.44	10.87	9.36	7.77	10.13	8.82	7.40	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.69	3.69	3.69	3.69	3.49	3.69	3.69	3.69	3.69	3.69	3.69	0.44
FRG 514R	3.69	3.69	3.69	3.69	3.49	3.69	3.69	3.69	3.69	3.69	3.69	0.44
	5.21	5.01	4.55	4.30	3.91	5.75	5.30	4.76	5.38	5.15	4.65	0.59
	5.60	5.42	4.87	4.57	4.09	6.18	5.75	5.06	5.78	5.58	4.97	0.69 2.50
	6.46	6.20	5.77	5.39	4.80	7.11	6.76	5.98	6.67	6.38	5.87	3.62
FRG 614R	3.84	3.84	3.84	3.84	3.84	3.84	3.84	3.84	3.84	3.84	3.84	0.54
	5.24	5.14	4.99	4.73	4.30	5.82	5.65	5.24	5.44	5.30	5.11	0.70
	5.66	5.48	5.24	5.02	4.50	6.24	5.98	5.57	5.84	5.63	5.38	0.79 2.84
	6.53	6.26	5.96	5.80	5.28	7.21	6.84	6.44	6.74	6.46	6.11	4.02
FRG 714R	4.09	4.09	4.09	4.09	4.08	4.09	4.09	4.09	4.09	4.09	4.09	0.61
	5.28	5.17	5.03	4.93	4.60	5.86	5.69	5.48	5.48	5.34	5.17	0.78
	5.71	5.51	5.28	5.15	4.82	6.30	6.03	5.73	5.90	5.69	5.42	0.86 3.10
	6.61	6.33	6.01	5.84	5.57	7.29	6.92	6.49	6.82	6.51	6.17	4.46
FRG 814R	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	0.56
	5.30	5.19	5.04	4.96	4.76	5.89	5.72	5.49	5.49	5.36	5.19	0.84
	5.73	5.53	5.30	5.17	4.96	6.34	6.07	5.74	5.92	5.71	5.45	0.91 3.31
	6.63	6.36	6.04	5.87	5.59	7.34	6.96	6.53	6.86	6.55	6.20	4.51



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
14473	13.76	7.24	2.80	15.02	2809	1963	2221	1.19

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2999	5	1713	2707	10.40	60.0	4.2	1.80
	6	2091	3260	10.81	60.0	4.2	1.80
	7	2335	3719	11.51	60.0	4.2	1.80
	8	2313	4002	11.06	60.0	4.2	1.80

POIDS DU MONTAGE= 336 daN/m²

G1= 77 daN/m²

G2= 259 daN/m²

BETON CHANTIER= 79.7 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

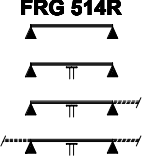



CAS DE CHARGE [daN/m²]

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	9.76	8.62	7.34	6.69	5.69	11.10	9.63	8.06	10.39	9.10	7.68	τ _{bu} =0.75
Limite V _{pu}	13.82	12.18	10.36	9.42	8.00	15.74	13.64	11.38	14.72	12.87	10.84	τ _{pu} =1.80
Limite V _{cu}	11.00	9.71	8.26	7.52	6.40	12.52	10.86	9.07	11.71	10.25	8.65	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 514R 	5.06	4.88	4.66	4.52	4.28	5.20	5.06	4.80	5.15	4.97	4.73	0.61 2.18
	5.73	5.61	5.46	5.36	4.89	6.34	6.16	5.92	5.93	5.79	5.61	
	6.19	5.98	5.74	5.61	5.13	6.82	6.53	6.21	6.38	6.17	5.90	
	7.15	6.86	6.53	6.34	6.03	7.86	7.48	7.03	7.38	7.05	6.69	
FRG 614R 	5.40	5.40	5.14	4.99	4.73	5.40	5.40	5.31	5.40	5.40	5.22	0.68 2.40
	5.79	5.67	5.51	5.42	5.24	6.42	6.23	5.99	5.99	5.86	5.67	
	6.26	6.05	5.80	5.67	5.43	6.92	6.63	6.28	6.47	6.24	5.96	
	7.25	6.96	6.61	6.44	6.13	8.00	7.60	7.15	7.50	7.17	6.78	
FRG 714R 	5.76	5.70	5.44	5.28	5.00	5.76	5.76	5.61	5.76	5.76	5.52	0.69 2.45
	5.84	5.73	5.55	5.46	5.28	6.48	6.29	6.05	6.05	5.91	5.73	
	6.32	6.11	5.86	5.71	5.48	6.99	6.69	6.34	6.53	6.30	6.01	
	7.34	7.03	6.69	6.49	6.19	8.11	7.70	7.23	7.58	7.25	6.86	
FRG 814R 	5.53	5.53	5.41	5.25	4.98	5.53	5.53	5.53	5.53	5.53	5.49	0.70 2.47
	5.86	5.74	5.57	5.48	5.30	6.51	6.32	6.07	6.07	5.94	5.74	
	6.34	6.13	5.88	5.73	5.49	7.02	6.73	6.37	6.56	6.32	6.03	
	7.38	7.07	6.72	6.52	6.21	8.17	7.75	7.26	7.63	7.28	6.89	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
16778	14.99	6.01	2.08	14.95	2952	2496	3642	1.19

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4190	6	1929	3184	8.70	60.0	4.2	1.80
	7	2195	3674	9.33	60.0	4.2	1.80
	8	2459	4156	9.83	60.0	4.2	1.80

POIDS DU MONTAGE= 300 daN/m²

G1= 56 daN/m²

G2= 244 daN/m²

BETON CHANTIER= 66.9 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}









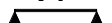



CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	8.00	7.03	5.97	5.43	4.61	9.15	7.89	6.56	8.53	7.44	6.25	τ _{bu} =0.75
Limite V _{bu}	8.00	7.03	5.97	5.43	4.61	9.15	7.89	6.56	8.53	7.44	6.25	τ _{bu} =0.75
Limite V _{pu}	9.40	8.25	6.99	6.36	5.39	10.76	9.27	7.70	10.03	8.73	7.33	τ _{pu} =1.80
Limite V _{cu}	11.51	10.10	8.55	7.76	6.56	13.19	11.35	9.41	12.29	10.69	8.96	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.35	4.35	4.30	4.14	3.88	4.35	4.35	4.35	4.35	4.35	4.35	0.55
FRG 617R 	4.35	4.35	4.30	4.14	3.88	4.35	4.35	4.35	4.35	4.35	4.35	0.55
	5.24	5.13	4.88	4.61	4.19	5.82	5.64	5.11	5.43	5.30	4.99	0.66
	5.65	5.47	5.23	4.90	4.39	6.24	5.98	5.43	5.84	5.63	5.33	0.77 2.77
	6.53	6.26	5.96	5.78	5.15	7.21	6.84	6.42	6.74	6.44	6.11	3.99
FRG 717R 	4.66	4.66	4.58	4.42	4.14	4.66	4.66	4.66	4.66	4.66	4.66	0.63
	5.28	5.17	5.02	4.92	4.50	5.86	5.69	5.48	5.48	5.34	5.17	0.76
	5.70	5.51	5.28	5.15	4.72	6.30	6.03	5.72	5.89	5.68	5.42	0.83 3.01
	6.59	6.32	6.00	5.84	5.54	7.28	6.92	6.49	6.80	6.50	6.16	4.39
FRG 817R 	4.92	4.92	4.85	4.68	4.38	4.92	4.92	4.92	4.92	4.92	4.92	0.71
	5.32	5.21	5.05	4.96	4.78	5.92	5.73	5.51	5.51	5.38	5.21	0.85
	5.74	5.55	5.32	5.19	4.96	6.36	6.09	5.76	5.94	5.73	5.46	0.91 3.31
	6.66	6.38	6.05	5.88	5.61	7.37	6.99	6.55	6.88	6.57	6.22	4.56



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
14473	13.76	7.24	1.96	15.02	2809	2117	2644	1.19

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2999	6	1813	3098	12.26	60.0	4.2	1.80
	7	2063	3557	13.14	60.0	4.2	1.80
	8	2311	4002	13.85	60.0	4.2	1.80

POIDS DU MONTAGE= 336 daN/m²

G1= 92 daN/m²

G2= 244 daN/m²

BETON CHANTIER= 73.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

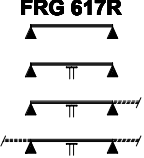
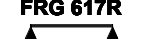


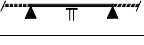
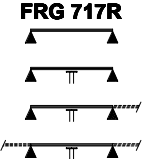
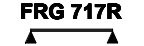
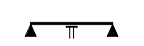


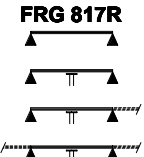
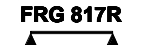



CAS DE CHARGE [daN/m²]

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	10.50	9.27	7.89	7.19	6.11	11.95	10.36	8.66	11.18	9.78	8.26		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	13.82	12.18	10.36	9.42	8.00	15.74	13.64	11.38	14.72	12.87	10.84		
Limite V _{cu}	13.03	11.49	9.77	8.89	7.55	14.83	12.86	10.73	13.87	12.13	10.23		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												0.68 2.41 0.69 2.45 0.70 2.49		
FRG 617R 		5.80	5.59	5.27	5.08	4.77	6.12	5.83	5.47	5.97	5.71		5.37	0.52 0.63 0.68 2.41 3.16
		5.80	5.68	5.51	5.42	5.23	6.44	6.24	6.00	6.00	5.86		5.68	
		6.26	6.05	5.80	5.67	5.44	6.94	6.63	6.28	6.48	6.24	5.97		
		7.25	6.96	6.61	6.44	6.13	8.01	7.61	7.15	7.50	7.17	6.78		
FRG 717R 		5.85	5.73	5.56	5.42	5.09	6.49	6.22	5.84	6.05	5.92	5.73	0.59 0.64 0.69 2.45 3.23	
		5.85	5.73	5.56	5.46	5.28	6.49	6.30	6.05	6.05	5.92	5.73		
		6.32	6.11	5.86	5.72	5.48	7.01	6.71	6.35	6.54	6.30	6.01		
		7.34	7.03	6.69	6.49	6.19	8.13	7.71	7.24	7.59	7.25	6.86		
FRG 817R 		5.90	5.77	5.61	5.50	5.32	6.56	6.36	6.11	6.11	5.97	5.77	0.65 0.65 0.70 2.49 3.30	
		5.90	5.77	5.61	5.50	5.32	6.56	6.36	6.11	6.11	5.97	5.77		
		6.38	6.17	5.91	5.76	5.51	7.09	6.77	6.42	6.61	6.36	6.07		
		7.43	7.11	6.75	6.55	6.24	8.24	7.80	7.32	7.69	7.33	6.94		



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
14725	16.57	5.43	5.04	16.66	1721	2091	1942	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4070	2	888	1215	3.76	60.0	4.2	1.80
	3	1354	1850	3.79	60.0	4.2	1.80
	4	1697	2435	4.14	60.0	4.2	1.80
	5	1830	2940	5.27	60.0	4.2	1.80

POIDS DU MONTAGE= 316 daN/m²

G1= 28 daN/m²

G2= 288 daN/m²

BETON CHANTIER= 83.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



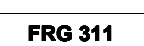
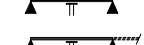

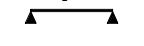
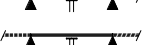


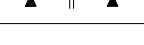
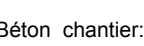
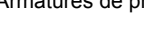
CAS DE CHARGE [daN/m²]

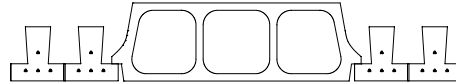
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	6.96	6.14	5.23	4.77	4.07	7.93	6.87	5.74	7.41	6.48	5.47	τ _{bu} =0.75
Limite V _{bu}	6.96	6.14	5.23	4.77	4.07	7.93	6.87	5.74	7.41	6.48	5.47	τ _{bu} =0.75
Limite V _{pu}	5.79	5.12	4.37	3.99	3.42	6.59	5.72	4.79	6.17	5.40	4.57	τ _{pu} =1.80
Limite V _{cu}	6.49	5.73	4.89	4.46	3.81	7.39	6.40	5.36	6.91	6.05	5.11	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	0.12
FRG 211	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	0.12
	3.64	3.37	3.06	2.90	2.64	3.88	3.57	3.21	3.75	3.46	3.13	0.25
	4.04	3.69	3.29	3.09	2.77	4.29	3.87	3.42	4.16	3.78	3.35	0.31 1.10
	4.87	4.40	3.90	3.64	3.25	5.15	4.61	4.04	5.00	4.50	3.97	1.60
FRG 311	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	0.17
	4.49	4.16	3.78	3.58	3.26	4.79	4.40	3.96	4.63	4.28	3.87	0.38
	4.99	4.55	4.06	3.81	3.42	5.30	4.78	4.22	5.14	4.66	4.14	0.47 1.69
	6.00	5.43	4.81	4.49	4.01	6.36	5.69	4.98	6.17	5.56	4.89	2.53
FRG 411	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	0.22
	5.05	4.77	4.34	4.11	3.74	5.50	5.05	4.54	5.23	4.90	4.44	0.49
	5.45	5.22	4.66	4.37	3.92	5.99	5.48	4.84	5.63	5.35	4.74	0.59 2.16
	6.29	6.04	5.52	5.16	4.60	6.92	6.53	5.72	6.49	6.21	5.62	3.09
FRG 511	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	0.23
	5.09	4.99	4.77	4.51	4.11	5.63	5.48	4.99	5.26	5.15	4.88	0.58
	5.49	5.32	5.11	4.80	4.31	6.05	5.80	5.32	5.68	5.48	5.21	0.67 2.43
	6.36	6.11	5.81	5.65	5.06	6.99	6.65	6.26	6.57	6.28	5.96	3.50



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
12954	15.31	6.69	4.80	16.36	1660	1701	1574	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2904	2	846	1204	5.47	60.0	4.2	1.80
	3	1290	1825	6.29	60.0	4.2	1.80
	4	1616	2391	6.87	60.0	4.2	1.80
	5	1743	2872	7.56	60.0	4.2	1.80

POIDS DU MONTAGE= 348 daN/m²

G1= 48 daN/m²

G2= 299 daN/m²

BETON CHANTIER= 94.4 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



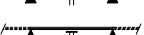



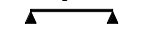




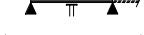
CAS DE CHARGE [daN/m²]

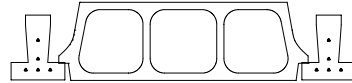
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	9.08	8.04	6.87	6.27	5.35	10.31	8.97	7.52	9.65	8.48	7.18		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	8.87	7.85	6.71	6.12	5.23	10.06	8.76	7.35	9.43	8.28	7.01		
Limite V _{cu}	8.43	7.46	6.38	5.83	4.97	9.56	8.32	6.99	8.96	7.87	6.67		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)													
FRG 211	2.74	2.74	2.74	2.74	2.67	2.74	2.74	2.74	2.74	2.74	2.74		0.29 1.05
	4.51	4.29	3.91	3.71	3.38	4.74	4.51	4.09	4.63	4.41	4.00		
	5.03	4.70	4.21	3.95	3.55	5.26	4.91	4.37	5.14	4.81	4.29		
	6.14	5.62	4.99	4.67	4.18	6.46	5.88	5.17	6.29	5.75	5.08		
FRG 311	3.27	3.27	3.27	3.27	3.27	3.27	3.27	3.27	3.27	3.27	3.27	0.44 1.58	
	5.57	5.29	4.82	4.57	4.16	5.86	5.58	5.04	5.71	5.43	4.92		
	6.01	5.79	5.18	4.87	4.38	6.59	6.07	5.38	6.21	5.93	5.28		
	6.94	6.67	6.15	5.75	5.14	7.61	7.24	6.36	7.15	6.86	6.25		
FRG 411	3.74	3.74	3.74	3.74	3.69	3.74	3.74	3.74	3.74	3.74	3.74	0.53 1.87	
	5.65	5.53	5.38	5.23	4.77	6.23	6.05	5.76	5.83	5.71	5.53		
	6.10	5.90	5.67	5.53	5.01	6.71	6.44	6.11	6.29	6.07	5.81		
	7.06	6.78	6.46	6.28	5.89	7.75	7.38	6.96	7.28	6.98	6.61		
FRG 511	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	0.58 2.06	
	5.71	5.59	5.44	5.34	5.18	6.29	6.12	5.90	5.90	5.76	5.59		
	6.17	5.98	5.73	5.59	5.36	6.78	6.51	6.19	6.36	6.15	5.88		
	7.16	6.87	6.53	6.36	6.05	7.88	7.49	7.04	7.38	7.07	6.70		



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
15078	16.42	5.58	3.74	16.15	1845	2117	2323	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4055	3	1284	1809	4.67	60.0	4.2	1.80
	4	1588	2368	5.15	60.0	4.2	1.80
	5	1848	2900	5.95	60.0	4.2	1.80
	6	1888	3322	6.57	60.0	4.2	1.80

POIDS DU MONTAGE= 316 daN/m²

G1= 33 daN/m²

G2= 283 daN/m²

BETON CHANTIER= 81.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}






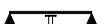


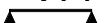






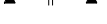
CAS DE CHARGE [daN/m²]

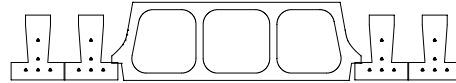
	100	100	100	100	100	0	0	0	100	100	100	Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	7.04	6.21	5.29	4.83	4.12	8.02	6.95	5.81	7.50	6.56	5.54	τ _{bu} =0.75
Limite V _{bu}	7.04	6.21	5.29	4.83	4.12	8.02	6.95	5.81	7.50	6.56	5.54	τ _{bu} =0.75
Limite V _{pu}	6.18	5.46	4.66	4.25	3.63	7.04	6.10	5.11	6.58	5.76	4.87	τ _{pu} =1.80
Limite V _{cu}	7.69	6.78	5.77	5.26	4.48	8.76	7.59	6.34	8.19	7.16	6.04	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.07	3.07	3.01	2.94	2.80	3.07	3.07	3.07	3.07	3.07	3.06	0.26
FRG 313 	3.07	3.07	3.01	2.94	2.80	3.07	3.07	3.07	3.07	3.07	3.06	0.26
	4.44	4.11	3.74	3.54	3.22	4.74	4.35	3.91	4.58	4.23	3.82	0.37
	4.93	4.50	4.01	3.76	3.38	5.24	4.72	4.17	5.08	4.61	4.09	0.46 1.65
	5.94	5.37	4.76	4.44	3.97	6.29	5.63	4.93	6.11	5.49	4.84	2.47
FRG 413 	3.20	3.20	3.20	3.20	3.11	3.20	3.20	3.20	3.20	3.20	3.20	0.32
	5.07	4.71	4.28	4.05	3.69	5.42	4.98	4.48	5.24	4.84	4.38	0.48
	5.47	5.15	4.59	4.31	3.86	6.00	5.41	4.77	5.65	5.27	4.68	0.59 2.16
	6.30	6.05	5.44	5.09	4.54	6.93	6.44	5.64	6.50	6.23	5.54	3.01
FRG 513 	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	0.37
	5.11	5.01	4.73	4.48	4.08	5.65	5.49	4.96	5.29	5.17	4.84	0.58
	5.52	5.34	5.08	4.77	4.28	6.08	5.83	5.28	5.71	5.49	5.18	0.66 2.39
	6.38	6.13	5.83	5.63	5.02	7.02	6.67	6.24	6.59	6.30	5.98	3.46
FRG 613 	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	0.36
	5.15	5.04	4.89	4.71	4.36	5.70	5.53	5.16	5.32	5.21	5.04	0.64
	5.56	5.38	5.16	5.01	4.58	6.13	5.88	5.50	5.74	5.53	5.29	0.71 2.58
	6.44	6.19	5.88	5.72	5.37	7.09	6.74	6.34	6.65	6.36	6.02	3.76



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
13171	15.16	6.84	3.54	15.94	1769	1702	1751	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2888	3	1215	1784	8.81	60.0	4.2	1.80
	4	1503	2324	9.19	60.0	4.2	1.80
	5	1749	2831	9.62	60.0	4.2	1.80
	6	1786	3224	9.44	60.0	4.2	1.80

POIDS DU MONTAGE= 348 daN/m²

G1= 56 daN/m²

G2= 291 daN/m²

BETON CHANTIER= 91.0 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}


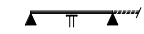








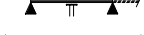
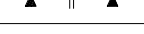
CAS DE CHARGE [daN/m²]

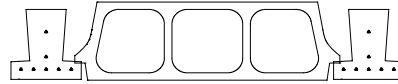
	100	100	100	100	100	0	0	0	100	100	100	Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	9.09	8.04	6.87	6.27	5.35	10.31	8.97	7.53	9.66	8.48	7.18	τ _{bu} =0.75
Limite V _{bu}	9.09	8.04	6.87	6.27	5.35	10.31	8.97	7.53	9.66	8.48	7.18	τ _{bu} =0.75
Limite V _{pu}	9.43	8.34	7.13	6.50	5.54	10.70	9.31	7.81	10.02	8.80	7.45	τ _{pu} =1.80
Limite V _{cu}	9.34	8.26	7.06	6.44	5.49	10.60	9.22	7.73	9.93	8.71	7.38	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.04	3.92	3.77	3.67	3.50	4.16	4.04	3.87	4.10	3.98	3.81	0.25
FRG 313	4.04	3.92	3.77	3.67	3.50	4.16	4.04	3.87	4.10	3.98	3.81	0.25
	5.57	5.23	4.76	4.52	4.12	5.88	5.52	4.98	5.72	5.37	4.87	0.36
	6.03	5.73	5.12	4.81	4.33	6.52	6.00	5.32	6.23	5.86	5.22	0.43 1.55
	6.96	6.69	6.08	5.69	5.08	7.61	7.16	6.29	7.17	6.88	6.18	2.18
FRG 413	4.49	4.36	4.19	4.08	3.90	4.59	4.49	4.30	4.56	4.42	4.24	0.31
	5.66	5.55	5.40	5.15	4.70	6.24	6.07	5.68	5.84	5.72	5.55	0.45
	6.11	5.92	5.69	5.49	4.94	6.72	6.45	6.07	6.30	6.09	5.82	0.52 1.84
	7.07	6.78	6.46	6.28	5.80	7.75	7.38	6.96	7.28	6.98	6.63	2.48
FRG 513	4.81	4.70	4.52	4.40	4.20	4.81	4.81	4.64	4.81	4.77	4.58	0.35
	5.72	5.61	5.45	5.36	5.19	6.31	6.14	5.92	5.92	5.78	5.61	0.54
	6.19	5.98	5.74	5.61	5.38	6.80	6.53	6.20	6.38	6.16	5.89	0.59 2.07
	7.17	6.88	6.55	6.36	6.07	7.88	7.50	7.05	7.40	7.07	6.71	2.72
FRG 613	4.72	4.72	4.57	4.45	4.25	4.72	4.72	4.69	4.72	4.72	4.63	0.36
	5.76	5.65	5.48	5.40	5.23	6.36	6.19	5.96	5.96	5.82	5.65	0.55
	6.23	6.03	5.78	5.65	5.42	6.87	6.59	6.24	6.44	6.21	5.94	0.60 2.11
	7.25	6.95	6.61	6.42	6.12	7.98	7.57	7.13	7.48	7.15	6.77	2.77



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
19122	15.78	6.22	3.23	15.70	3175	2454	3127	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4613	5	1973	2930	7.07	60.0	4.2	1.80
	6	2409	3543	5.51	60.0	4.2	1.80
	7	2690	4066	6.17	60.0	4.2	1.80
	8	2664	4418	7.68	60.0	4.2	1.80

POIDS DU MONTAGE= 324 daN/m²

G1= 47 daN/m²

G2= 277 daN/m²

BETON CHANTIER= 80.7 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



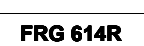
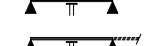

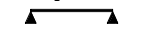
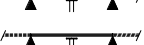


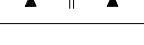
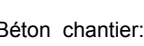
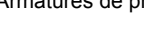
CAS DE CHARGE [daN/m²]

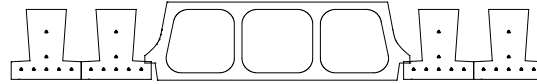
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	7.67	6.77	5.77	5.26	4.48	8.72	7.56	6.33	8.16	7.14	6.03	τ _{bu} =0.75
Limite V _{bu}	7.67	6.77	5.77	5.26	4.48	8.72	7.56	6.33	8.16	7.14	6.03	τ _{bu} =0.75
Limite V _{pu}	9.81	8.65	7.35	6.70	5.69	11.18	9.68	8.08	10.45	9.13	7.70	τ _{pu} =1.80
Limite V _{cu}	9.67	8.52	7.25	6.60	5.61	11.01	9.54	7.96	10.29	9.00	7.59	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.61	3.61	3.61	3.61	3.50	3.61	3.61	3.61	3.61	3.61	3.61	0.43
FRG 514R	3.61	3.61	3.61	3.61	3.50	3.61	3.61	3.61	3.61	3.61	3.61	0.43
	5.34	5.09	4.63	4.38	3.99	5.85	5.38	4.84	5.51	5.23	4.73	0.59
	5.75	5.57	4.97	4.66	4.19	6.33	5.85	5.16	5.94	5.70	5.07	0.71 2.57
	6.64	6.38	5.89	5.51	4.92	7.28	6.94	6.10	6.84	6.55	6.00	3.70
FRG 614R	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	0.49
	5.39	5.28	5.09	4.82	4.39	5.96	5.78	5.33	5.57	5.45	5.20	0.70
	5.81	5.63	5.40	5.13	4.60	6.40	6.14	5.68	5.99	5.79	5.53	0.79 2.86
	6.73	6.46	6.14	5.98	5.41	7.40	7.03	6.61	6.94	6.63	6.29	4.10
FRG 714R	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	0.56
	5.43	5.32	5.17	5.07	4.70	5.99	5.83	5.61	5.61	5.48	5.32	0.79
	5.86	5.67	5.44	5.30	4.93	6.46	6.19	5.88	6.05	5.84	5.57	0.87 3.11
	6.78	6.51	6.19	6.01	5.74	7.48	7.11	6.69	7.00	6.71	6.35	4.55
FRG 814R	3.84	3.84	3.84	3.84	3.84	3.84	3.84	3.84	3.84	3.84	3.84	0.52
	5.45	5.34	5.19	5.09	4.90	6.03	5.86	5.63	5.63	5.50	5.34	0.86
	5.88	5.69	5.46	5.32	5.11	6.49	6.23	5.90	6.08	5.86	5.60	0.93 3.38
	6.82	6.55	6.23	6.05	5.76	7.52	7.15	6.72	7.05	6.74	6.38	4.59



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
16557	14.52	7.48	3.04	15.63	3021	2042	2312	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3321	5	1857	2870	10.13	60.0	4.2	1.80
	6	2267	3457	10.52	60.0	4.2	1.80
	7	2532	3948	11.20	60.0	4.2	1.80
	8	2507	4264	10.77	60.0	4.2	1.80

POIDS DU MONTAGE= 359 daN/m²

G1= 77 daN/m²

G2= 282 daN/m²

BETON CHANTIER= 89.7 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

















CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	9.88	8.75	7.49	6.84	5.84	11.19	9.76	8.20	10.50	9.23	7.83	τ _{bu} =0.75
Limite V _{bu}	9.88	8.75	7.49	6.84	5.84	11.19	9.76	8.20	10.50	9.23	7.83	τ _{bu} =0.75
Limite V _{pu}	14.44	12.77	10.90	9.94	8.46	16.38	14.26	11.95	15.35	13.47	11.40	τ _{pu} =1.80
Limite V _{cu}	11.14	9.86	8.43	7.69	6.56	12.62	10.99	9.23	11.83	10.39	8.81	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	5.00	4.85	4.64	4.52	4.29	5.06	5.00	4.77	5.06	4.92	4.71	0.41
FRG 514R 	5.00	4.85	4.64	4.52	4.29	5.06	5.00	4.77	5.06	4.92	4.71	0.41
	5.89	5.77	5.61	5.48	5.00	6.49	6.32	6.03	6.09	5.96	5.77	0.56
	6.36	6.17	5.92	5.78	5.25	6.99	6.71	6.38	6.56	6.34	6.07	0.63 2.24
	7.36	7.07	6.73	6.55	6.18	8.07	7.69	7.25	7.58	7.26	6.90	3.06
FRG 614R 	5.26	5.26	5.13	4.99	4.74	5.26	5.26	5.26	5.26	5.26	5.20	0.49
	5.96	5.83	5.67	5.57	5.40	6.57	6.40	6.15	6.15	6.01	5.83	0.64
	6.44	6.23	5.98	5.84	5.59	7.09	6.80	6.46	6.65	6.42	6.13	0.69 2.45
	7.46	7.17	6.82	6.63	6.32	8.21	7.80	7.34	7.71	7.37	6.99	3.23
FRG 714R 	5.60	5.60	5.42	5.27	5.01	5.60	5.60	5.58	5.60	5.60	5.49	0.55
	6.00	5.88	5.72	5.62	5.44	6.64	6.46	6.21	6.21	6.07	5.88	0.65
	6.49	6.28	6.03	5.88	5.64	7.17	6.87	6.51	6.71	6.48	6.19	0.71 2.50
	7.55	7.25	6.88	6.69	6.38	8.32	7.90	7.44	7.79	7.46	7.06	3.30
FRG 814R 	5.38	5.38	5.38	5.25	4.99	5.38	5.38	5.38	5.38	5.38	5.38	0.55
	6.03	5.90	5.74	5.64	5.46	6.67	6.48	6.24	6.24	6.09	5.90	0.66
	6.53	6.32	6.05	5.91	5.67	7.21	6.90	6.55	6.74	6.50	6.22	0.71 2.52
	7.59	7.28	6.92	6.73	6.41	8.38	7.96	7.48	7.84	7.50	7.10	3.33



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
19137	15.76	6.24	2.26	15.60	3183	2580	3764	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4599	6	2094	3380	8.51	60.0	4.2	1.80
	7	2382	3903	9.12	60.0	4.2	1.80
	8	2669	4418	9.61	60.0	4.2	1.80

POIDS DU MONTAGE= 324 daN/m²

G1= 56 daN/m²

G2= 268 daN/m²

BETON CHANTIER= 76.9 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}









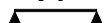



CAS DE CHARGE [daN/m²]

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	8.04	7.09	6.04	5.51	4.69	9.15	7.93	6.63	8.56	7.49	6.32	
Limite V _{pu}	9.83	8.67	7.37	6.71	5.71	11.20	9.70	8.09	10.47	9.15	7.72	
Limite V _{cu}	11.56	10.18	8.65	7.87	6.68	13.18	11.41	9.51	12.32	10.76	9.06	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)													
FRG 617R 	4.25	4.25	4.25	4.16	3.92	4.25	4.25	4.25	4.25	4.25	4.25	0.77 2.79	
		5.38	5.27	4.97	4.71	4.29	5.96	5.77	5.20	5.57	5.44		5.08
		5.80	5.62	5.34	5.01	4.50	6.40	6.13	5.55	5.99	5.78		5.44
		6.71	6.44	6.13	5.92	5.28	7.38	7.01	6.55	6.92	6.63		6.28
FRG 717R 	4.56	4.56	4.56	4.44	4.18	4.56	4.56	4.56	4.56	4.56	4.56	0.85 3.07	
		5.42	5.31	5.17	5.06	4.61	5.99	5.82	5.59	5.61	5.48		5.31
		5.85	5.67	5.43	5.30	4.83	6.46	6.19	5.87	6.04	5.83		5.57
		6.77	6.49	6.19	6.01	5.68	7.46	7.09	6.67	6.99	6.69		6.34
FRG 817R 	4.81	4.81	4.81	4.70	4.42	4.81	4.81	4.81	4.81	4.81	4.81	0.93 3.38	
		5.46	5.34	5.20	5.11	4.90	6.05	5.88	5.65	5.65	5.51		5.34
		5.90	5.71	5.48	5.34	5.11	6.51	6.24	5.92	6.09	5.88		5.61
		6.84	6.56	6.24	6.05	5.77	7.55	7.17	6.74	7.07	6.74		6.40



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
16557	14.52	7.48	2.12	15.62	3022	2156	2693	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3319	6	1966	3294	11.93	60.0	4.2	1.80
	7	2237	3786	12.79	60.0	4.2	1.80
	8	2506	4264	13.48	60.0	4.2	1.80

POIDS DU MONTAGE= 359 daN/m²

G1= 92 daN/m²

G2= 268 daN/m²

BETON CHANTIER= 83.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

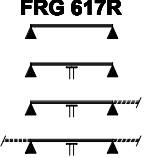
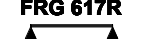


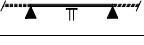
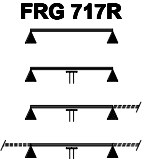
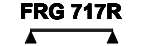
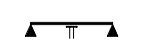


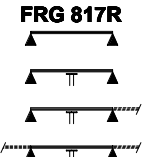
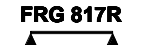



CAS DE CHARGE [daN/m²]

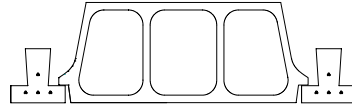
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	10.41	9.22	7.88	7.20	6.14	11.80	10.28	8.63	11.06	9.72	8.24		0.69 2.45
Limite V _{pu}	14.45	12.78	10.90	9.94	8.46	16.39	14.26	11.95	15.35	13.48	11.40		
Limite V _{cu}	12.91	11.43	9.76	8.90	7.58	14.64	12.75	10.69	13.72	12.05	10.20		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												0.69 2.45		
FRG 617R 		5.80	5.58	5.28	5.11	4.81	5.96	5.80	5.48	5.93	5.69		5.38	0.51 0.63 0.69 2.45 3.23
		5.96	5.84	5.67	5.57	5.35	6.59	6.40	6.16	6.16	6.01		5.84	
		6.44	6.23	5.98	5.84	5.59	7.09	6.80	6.46	6.65	6.42	6.13		
		7.46	7.17	6.81	6.63	6.32	8.21	7.80	7.34	7.70	7.36	6.98		
FRG 717R 		6.01	5.88	5.64	5.45	5.13	6.39	6.19	5.84	6.22	6.07	5.74	0.58 0.65 0.71 2.50 3.30	
		6.01	5.88	5.73	5.62	5.44	6.65	6.46	6.22	6.22	6.07	5.88		
		6.49	6.28	6.03	5.88	5.64	7.18	6.88	6.52	6.72	6.48	6.19		
		7.55	7.25	6.88	6.69	6.38	8.32	7.91	7.44	7.79	7.46	7.05		
FRG 817R 		6.05	5.94	5.76	5.67	5.43	6.72	6.51	6.18	6.26	6.13	5.94	0.65 0.66 0.72 2.54 3.37	
		6.05	5.94	5.76	5.67	5.48	6.72	6.51	6.26	6.26	6.13	5.94		
		6.56	6.34	6.08	5.94	5.69	7.25	6.96	6.59	6.78	6.53	6.24		
		7.63	7.32	6.96	6.76	6.44	8.44	8.01	7.51	7.89	7.53	7.13		



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
18437	18.07	5.93	5.79	18.57	1956	2449	2175	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4667	2	1020	1346	3.78	60.0	4.2	1.80
	3	1555	2046	3.82	60.0	4.2	1.80
	4	1949	2697	4.18	60.0	4.2	1.80
	5	2101	3267	5.28	60.0	4.2	1.80

POIDS DU MONTAGE= 313 daN/m²

G1= 28 daN/m²

G2= 285 daN/m²

BETON CHANTIER= 77.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



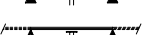







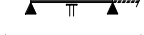
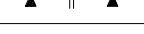
CAS DE CHARGE [daN/m²]

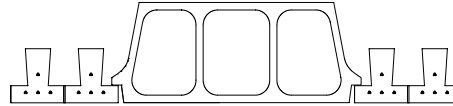
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	8.15	7.19	6.12	5.57	4.75	9.30	8.05	6.72	8.69	7.59	6.40	τ _{bu} =0.75
Limite V _{bu}	8.15	7.19	6.12	5.57	4.75	9.30	8.05	6.72	8.69	7.59	6.40	τ _{bu} =0.75
Limite V _{pu}	6.59	5.82	4.97	4.53	3.87	7.50	6.51	5.44	7.02	6.14	5.19	τ _{pu} =1.80
Limite V _{cu}	7.29	6.43	5.48	4.99	4.26	8.30	7.19	6.01	7.76	6.79	5.73	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	0.11
FRG 211	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	0.11
	3.84	3.56	3.23	3.06	2.78	4.10	3.76	3.38	3.96	3.65	3.30	0.25
	4.26	3.89	3.47	3.25	2.92	4.53	4.08	3.60	4.39	3.98	3.53	0.31 1.10
	5.13	4.64	4.11	3.84	3.42	5.43	4.86	4.25	5.28	4.75	4.18	1.60
FRG 311	2.29	2.29	2.29	2.29	2.29	2.29	2.29	2.29	2.29	2.29	2.29	0.16
	4.73	4.38	3.98	3.77	3.43	5.05	4.64	4.17	4.88	4.50	4.07	0.38
	5.26	4.79	4.27	4.01	3.60	5.58	5.03	4.44	5.41	4.91	4.35	0.47 1.68
	6.33	5.72	5.06	4.73	4.22	6.70	5.99	5.25	6.51	5.85	5.15	2.51
FRG 411	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61	0.20
	5.36	5.03	4.57	4.33	3.94	5.80	5.32	4.79	5.53	5.17	4.68	0.49
	5.78	5.50	4.91	4.60	4.13	6.36	5.78	5.10	5.97	5.63	5.00	0.60 2.17
	6.69	6.42	5.81	5.43	4.85	7.34	6.88	6.02	6.89	6.59	5.92	3.04
FRG 511	2.64	2.64	2.64	2.64	2.64	2.64	2.64	2.64	2.64	2.64	2.64	0.21
	5.40	5.30	5.03	4.76	4.33	5.98	5.80	5.27	5.59	5.46	5.15	0.58
	5.84	5.65	5.40	5.06	4.54	6.44	6.17	5.61	6.02	5.81	5.50	0.67 2.42
	6.76	6.48	6.17	5.98	5.33	7.44	7.07	6.63	6.98	6.67	6.32	3.47



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
16147	16.53	7.47	5.54	18.34	1896	1965	1769	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3243	2	976	1335	5.44	60.0	4.2	1.80
	3	1489	2021	6.15	60.0	4.2	1.80
	4	1866	2653	6.72	60.0	4.2	1.80
	5	2012	3199	7.52	60.0	4.2	1.80

POIDS DU MONTAGE= 352 daN/m²

G1= 48 daN/m²

G2= 304 daN/m²

BETON CHANTIER= 92.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}




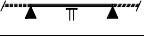

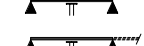

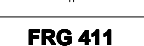


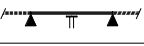


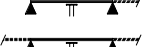
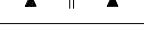

CAS DE CHARGE [daN/m²]

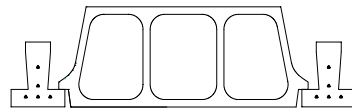
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	10.42	9.22	7.88	7.19	6.14	11.81	10.28	8.63	11.07	9.72	8.24	τ _{bu} =0.75
Limite V _{pu}	10.06	8.91	7.62	6.95	5.93	11.41	9.93	8.34	10.69	9.39	7.96	τ _{pu} =1.80
Limite V _{cu}	9.42	8.34	7.13	6.51	5.56	10.67	9.30	7.81	10.00	8.79	7.45	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 211													
	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	0.13	
	4.72	4.51	4.11	3.90	3.56	4.95	4.72	4.30	4.83	4.62	4.20	0.24	
	5.26	4.94	4.42	4.16	3.74	5.69	5.14	4.59	5.54	5.05	4.51	0.30 1.09	
	6.51	5.91	5.25	4.91	4.39	6.84	6.18	5.43	6.67	6.04	5.34	1.60	
FRG 311													
	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26	0.19	
	5.83	5.55	5.06	4.80	4.38	6.34	5.83	5.29	6.09	5.70	5.17	0.37	
	6.36	6.08	5.44	5.11	4.60	6.98	6.38	5.65	6.56	6.22	5.55	0.45 1.61	
	7.34	7.07	6.46	6.04	5.41	8.05	7.60	6.68	7.57	7.26	6.57	2.23	
FRG 411													
	3.72	3.72	3.72	3.72	3.72	3.72	3.72	3.72	3.72	3.72	3.72	0.25	
	5.97	5.85	5.69	5.50	5.01	6.57	6.40	6.06	6.17	6.03	5.85	0.47	
	6.46	6.24	5.99	5.86	5.27	7.09	6.80	6.47	6.65	6.42	6.15	0.53 1.88	
	7.48	7.17	6.83	6.65	6.19	8.21	7.80	7.36	7.71	7.38	6.99	2.52	
FRG 511													
	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	0.26	
	6.03	5.91	5.74	5.65	5.48	6.65	6.48	6.23	6.23	6.09	5.91	0.55	
	6.51	6.31	6.05	5.92	5.67	7.18	6.88	6.53	6.73	6.49	6.21	0.59 2.07	
	7.57	7.26	6.92	6.73	6.41	8.32	7.92	7.46	7.81	7.48	7.09	2.72	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
18997	17.86	6.14	4.34	18.01	2119	2484	2609	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4639	3	1488	2005	4.72	60.0	4.2	1.80
	4	1840	2630	5.21	60.0	4.2	1.80
	5	2141	3227	6.02	60.0	4.2	1.80
	6	2187	3715	6.59	60.0	4.2	1.80

POIDS DU MONTAGE= 313 daN/m²

G1= 33 daN/m²

G2= 280 daN/m²

BETON CHANTIER= 75.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}









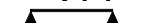







CAS DE CHARGE [daN/m²]

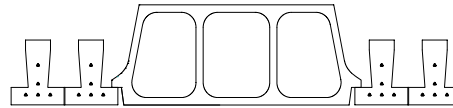
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	8.26	7.28	6.20	5.65	4.81	9.42	8.15	6.80	8.80	7.69	6.49		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	7.11	6.27	5.35	4.88	4.16	8.10	7.02	5.86	7.57	6.62	5.59		
Limite V _{cu}	8.66	7.63	6.49	5.91	5.03	9.87	8.54	7.13	9.22	8.06	6.79		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 313												
	3.08	3.08	3.08	3.03	2.90	3.08	3.08	3.08	3.08	3.08	3.08	0.25
	4.68	4.34	3.94	3.73	3.39	5.00	4.59	4.13	4.83	4.46	4.03	0.37
	5.20	4.74	4.23	3.97	3.56	5.53	4.98	4.40	5.36	4.86	4.31	0.46 1.65
	6.26	5.66	5.01	4.68	4.18	6.63	5.93	5.19	6.44	5.79	5.10	2.45
FRG 413												
	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	0.31
	5.36	4.97	4.52	4.27	3.89	5.73	5.25	4.73	5.53	5.11	4.62	0.48
	5.81	5.43	4.85	4.54	4.08	6.33	5.71	5.03	5.99	5.56	4.94	0.59 2.15
	6.71	6.44	5.74	5.36	4.79	7.36	6.79	5.95	6.92	6.62	5.84	3.02
FRG 513												
	3.36	3.36	3.36	3.36	3.36	3.36	3.36	3.36	3.36	3.36	3.36	0.34
	5.44	5.32	5.00	4.73	4.31	6.01	5.82	5.24	5.63	5.49	5.11	0.58
	5.86	5.68	5.37	5.03	4.51	6.47	6.20	5.58	6.05	5.84	5.47	0.66 2.39
	6.78	6.51	6.20	5.94	5.30	7.48	7.09	6.59	7.00	6.71	6.35	3.40
FRG 613												
	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	0.33
	5.48	5.36	5.21	5.04	4.62	6.05	5.88	5.50	5.67	5.53	5.36	0.65
	5.92	5.72	5.48	5.35	4.84	6.51	6.24	5.86	6.11	5.89	5.63	0.73 2.63
	6.85	6.57	6.24	6.07	5.69	7.55	7.17	6.74	7.07	6.76	6.40	3.72



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
16490	16.31	7.69	4.12	17.85	2041	1967	1970	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3218	3	1414	1980	8.76	60.0	4.2	1.80
	4	1749	2586	9.14	60.0	4.2	1.80
	5	2034	3158	9.57	60.0	4.2	1.80
	6	2078	3616	9.39	60.0	4.2	1.80

POIDS DU MONTAGE= 352 daN/m²

G1= 56 daN/m²

G2= 296 daN/m²

BETON CHANTIER= 89.1 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



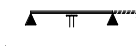
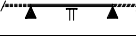

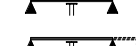

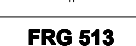
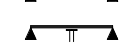

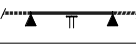


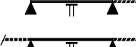
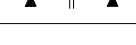

CAS DE CHARGE [daN/m²]

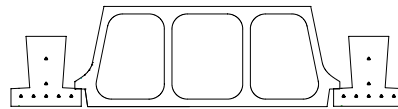
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	cm ² HA / p
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	FeE400
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	10.42	9.23	7.88	7.20	6.14	11.82	10.29	8.63	11.07	9.73	8.24	τ _{bu} =0.75
Limite V _{bu}	10.42	9.23	7.88	7.20	6.14	11.82	10.29	8.63	11.07	9.73	8.24	τ _{bu} =0.75
Limite V _{pu}	10.80	9.56	8.16	7.45	6.35	12.25	10.66	8.94	11.48	10.08	8.54	τ _{pu} =1.80
Limite V _{cu}	10.44	9.24	7.90	7.21	6.15	11.83	10.30	8.65	11.09	9.74	8.25	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 313	4.09	3.99	3.85	3.76	3.60	4.20	4.09	3.94	4.15	4.04	3.89	0.24
	4.09	3.99	3.85	3.76	3.60	4.20	4.09	3.94	4.15	4.04	3.89	0.24
	5.88	5.49	5.01	4.75	4.33	6.19	5.80	5.24	6.03	5.64	5.12	0.36
	6.39	6.02	5.39	5.06	4.55	6.86	6.31	5.59	6.59	6.16	5.49	0.43 1.56
	7.37	7.09	6.39	5.98	5.35	8.07	7.52	6.62	7.59	7.28	6.50	2.19
FRG 413	4.55	4.44	4.28	4.18	4.01	4.57	4.55	4.38	4.57	4.49	4.33	0.29
	4.55	4.44	4.28	4.18	4.01	4.57	4.55	4.38	4.57	4.49	4.33	0.29
	5.99	5.87	5.71	5.43	4.95	6.60	6.42	5.98	6.19	6.05	5.85	0.46
	6.48	6.26	6.01	5.79	5.20	7.11	6.82	6.39	6.67	6.44	6.17	0.52 1.84
	7.48	7.19	6.84	6.67	6.11	8.21	7.82	7.36	7.71	7.39	7.01	2.50
FRG 513	4.79	4.79	4.62	4.51	4.32	4.79	4.79	4.73	4.79	4.79	4.67	0.34
	4.79	4.79	4.62	4.51	4.32	4.79	4.79	4.73	4.79	4.79	4.67	0.34
	6.05	5.93	5.76	5.67	5.47	6.68	6.49	6.25	6.25	6.11	5.93	0.55
	6.54	6.34	6.07	5.94	5.69	7.21	6.91	6.56	6.75	6.51	6.24	0.59 2.09
	7.59	7.28	6.94	6.74	6.43	8.34	7.94	7.48	7.83	7.50	7.11	2.74
FRG 613	4.69	4.69	4.67	4.56	4.37	4.69	4.69	4.69	4.69	4.69	4.69	0.35
	4.69	4.69	4.67	4.56	4.37	4.69	4.69	4.69	4.69	4.69	4.69	0.35
	6.09	5.98	5.80	5.71	5.53	6.74	6.55	6.30	6.30	6.17	5.98	0.56
	6.60	6.38	6.13	5.98	5.73	7.27	6.98	6.61	6.82	6.57	6.28	0.60 2.12
	7.67	7.36	6.99	6.80	6.48	8.45	8.03	7.55	7.92	7.57	7.17	2.79



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
24130	17.03	6.97	3.78	17.56	3679	2869	3496	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5190	5	2308	3257	7.10	60.0	4.2	1.80
	6	2818	3935	5.53	60.0	4.2	1.80
	7	3147	4524	6.20	60.0	4.2	1.80
	8	3116	4941	7.69	60.0	4.2	1.80

POIDS DU MONTAGE= 323 daN/m²

G1= 47 daN/m²

G2= 276 daN/m²

BETON CHANTIER= 76.0 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



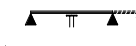
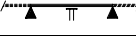

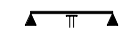


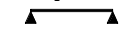

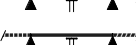


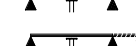
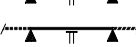

CAS DE CHARGE [daN/m²]

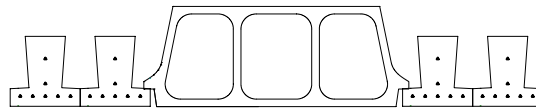
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	8.94	7.89	6.72	6.12	5.22	10.18	8.82	7.37	9.52	8.33	7.03		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	11.35	10.00	8.50	7.74	6.57	12.94	11.20	9.34	12.09	10.57	8.90		
Limite V _{cu}	10.81	9.52	8.10	7.37	6.27	12.32	10.66	8.90	11.51	10.06	8.48		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 514R												
	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	0.42
	5.67	5.37	4.88	4.62	4.21	6.17	5.67	5.11	5.86	5.52	4.99	0.60
	6.11	5.87	5.24	4.92	4.42	6.73	6.17	5.45	6.31	6.01	5.34	0.71 2.59
	7.05	6.78	6.22	5.81	5.19	7.75	7.34	6.44	7.28	6.97	6.32	3.70
FRG 614R												
	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	0.45
	5.73	5.61	5.37	5.08	4.63	6.32	6.15	5.62	5.92	5.78	5.49	0.70
	6.17	5.98	5.73	5.41	4.85	6.80	6.51	5.99	6.38	6.15	5.87	0.80 2.88
	7.14	6.86	6.51	6.34	5.70	7.86	7.48	7.03	7.36	7.05	6.69	4.14
FRG 714R												
	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	0.51
	5.76	5.65	5.48	5.39	4.96	6.38	6.19	5.96	5.96	5.82	5.65	0.79
	6.23	6.01	5.77	5.63	5.20	6.86	6.57	6.24	6.43	6.20	5.92	0.87 3.12
	7.21	6.92	6.57	6.40	6.09	7.94	7.55	7.09	7.44	7.11	6.74	4.53
FRG 814R												
	3.84	3.84	3.84	3.84	3.84	3.84	3.84	3.84	3.84	3.84	3.84	0.47
	5.78	5.67	5.50	5.42	5.18	6.40	6.23	5.98	5.98	5.84	5.67	0.86
	6.24	6.05	5.80	5.66	5.42	6.90	6.61	6.26	6.46	6.23	5.96	0.95 3.40
	7.25	6.96	6.61	6.42	6.12	8.00	7.59	7.13	7.50	7.15	6.78	4.59



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
20734	15.55	8.45	3.56	17.45	3500	2341	2579	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3681	5	2171	3197	10.04	60.0	4.2	1.80
	6	2651	3849	10.42	60.0	4.2	1.80
	7	2961	4406	11.11	60.0	4.2	1.80
	8	2932	4787	10.67	60.0	4.2	1.80

POIDS DU MONTAGE= 367 daN/m²

G1= 77 daN/m²

G2= 290 daN/m²

BETON CHANTIER= 89.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



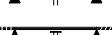



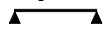


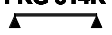
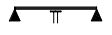
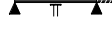
CAS DE CHARGE [daN/m²]

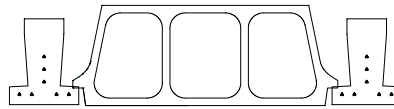
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	11.20	9.93	8.50	7.77	6.63	12.67	11.06	9.30	11.89	10.47	8.89	τ _{bu} =0.75
Limite V _{bu}	11.20	9.93	8.50	7.77	6.63	12.67	11.06	9.30	11.89	10.47	8.89	τ _{bu} =0.75
Limite V _{pu}	16.55	14.65	12.52	11.42	9.72	18.75	16.34	13.71	17.58	15.45	13.09	τ _{pu} =1.80
Limite V _{cu}	12.30	10.90	9.33	8.52	7.27	13.92	12.15	10.21	13.06	11.49	9.75	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	5.02	4.93	4.74	4.63	4.42	5.02	5.02	4.87	5.02	5.00	4.80	0.39
FRG 514R	5.02	4.93	4.74	4.63	4.42	5.02	5.02	4.87	5.02	5.00	4.80	0.39
	6.23	6.11	5.94	5.76	5.26	6.86	6.67	6.34	6.44	6.29	6.11	0.56
	6.73	6.51	6.26	6.11	5.53	7.39	7.09	6.74	6.94	6.71	6.42	0.64 2.26
	7.78	7.48	7.13	6.94	6.51	8.53	8.13	7.67	8.01	7.69	7.30	3.06
FRG 614R	5.21	5.21	5.21	5.11	4.89	5.21	5.21	5.21	5.21	5.21	5.21	0.48
	6.28	6.17	5.99	5.90	5.71	6.94	6.74	6.49	6.49	6.36	6.17	0.65
	6.80	6.59	6.32	6.17	5.92	7.50	7.19	6.82	7.02	6.78	6.49	0.70 2.48
	7.89	7.57	7.21	7.01	6.69	8.67	8.25	7.76	8.14	7.79	7.40	3.25
FRG 714R	5.55	5.55	5.54	5.41	5.17	5.55	5.55	5.55	5.55	5.55	5.55	0.53
	6.34	6.22	6.04	5.94	5.75	7.01	6.81	6.55	6.55	6.42	6.22	0.67
	6.86	6.65	6.38	6.23	5.97	7.57	7.26	6.89	7.09	6.84	6.54	0.72 2.52
	7.98	7.67	7.28	7.08	6.74	8.78	8.36	7.86	8.25	7.88	7.48	3.31
FRG 814R	5.34	5.34	5.34	5.34	5.14	5.34	5.34	5.34	5.34	5.34	5.34	0.53
	6.37	6.24	6.07	5.96	5.77	7.05	6.84	6.59	6.59	6.44	6.24	0.67
	6.90	6.68	6.40	6.24	5.99	7.61	7.30	6.92	7.13	6.88	6.57	0.72 2.55
	8.03	7.71	7.32	7.12	6.78	8.86	8.42	7.90	8.28	7.94	7.51	3.36



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
24201	16.95	7.05	2.66	17.30	3708	2982	4153	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5149	6	2462	3773	8.51	60.0	4.2	1.80
	7	2801	4361	9.13	60.0	4.2	1.80
	8	3138	4941	9.62	60.0	4.2	1.80

POIDS DU MONTAGE= 323 daN/m²

G1= 56 daN/m²

G2= 267 daN/m²

BETON CHANTIER= 72.2 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

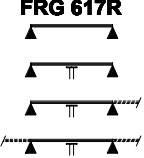
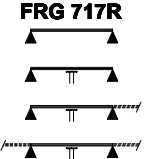
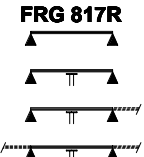
CAS DE CHARGE [daN/m²]

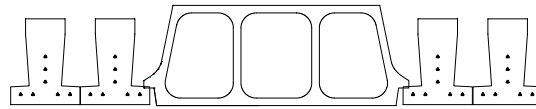
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	9.28	8.18	6.97	6.35	5.40	10.56	9.15	7.65	9.88	8.64	7.29	
Limite V _{pu}	11.44	10.08	8.57	7.80	6.62	13.04	11.29	9.41	12.19	10.65	8.97	
Limite V _{cu}	12.76	11.24	9.55	8.68	7.37	14.56	12.59	10.49	13.60	11.88	10.00	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R 	4.26	4.26	4.26	4.26	4.10	4.26	4.26	4.26	4.26	4.26	4.26	0.53
	5.72	5.60	5.25	4.98	4.53	6.32	6.11	5.50	5.92	5.78	5.37	0.68
	6.17	5.97	5.64	5.29	4.75	6.80	6.51	5.86	6.36	6.15	5.75	0.78 2.81
	7.13	6.84	6.51	6.25	5.58	7.84	7.46	6.93	7.35	7.03	6.67	3.98
FRG 717R 	4.56	4.56	4.56	4.56	4.37	4.56	4.56	4.56	4.56	4.56	4.56	0.61
	5.75	5.64	5.48	5.35	4.87	6.37	6.19	5.91	5.96	5.82	5.64	0.77
	6.22	6.01	5.76	5.63	5.11	6.86	6.57	6.24	6.42	6.19	5.92	0.86 3.11
	7.19	6.90	6.57	6.38	6.00	7.94	7.53	7.09	7.42	7.10	6.73	4.36
FRG 817R 	4.81	4.81	4.81	4.81	4.63	4.81	4.81	4.81	4.81	4.81	4.81	0.68
	5.80	5.68	5.51	5.42	5.18	6.42	6.24	5.99	5.99	5.86	5.68	0.86
	6.26	6.05	5.80	5.67	5.43	6.92	6.63	6.28	6.48	6.24	5.96	0.95 3.41
	7.26	6.97	6.62	6.44	6.13	8.01	7.61	7.15	7.50	7.17	6.78	4.61



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
20743	15.52	8.48	2.49	17.37	3509	2426	2945	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3671	6	2303	3686	11.82	60.0	4.2	1.80
	7	2621	4244	12.68	60.0	4.2	1.80
	8	2936	4787	13.36	60.0	4.2	1.80

POIDS DU MONTAGE= 367 daN/m²

G1= 92 daN/m²

G2= 276 daN/m²

BETON CHANTIER= 83.3 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

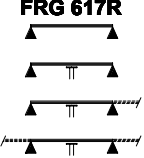
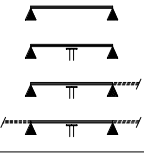
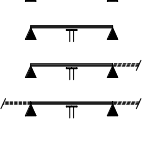
CAS DE CHARGE [daN/m²]

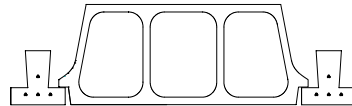
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	11.60	10.28	8.80	8.04	6.86	13.12	11.45	9.63	12.31	10.83	9.19		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	16.59	14.69	12.55	11.44	9.74	18.80	16.38	13.75	17.62	15.49	13.12		
Limite V _{cu}	13.99	12.39	10.59	9.67	8.24	15.84	13.81	11.60	14.86	13.06	11.07		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R 	5.91	5.72	5.45	5.29	5.00	5.91	5.91	5.62	5.91	5.82	5.53	0.50 0.64 0.70 2.48 3.24
	6.28	6.17	5.99	5.90	5.65	6.96	6.75	6.50	6.50	6.36	6.17	
	6.80	6.59	6.32	6.17	5.92	7.50	7.19	6.82	7.02	6.78	6.48	
	7.88	7.57	7.21	7.00	6.68	8.67	8.25	7.76	8.13	7.78	7.38	
FRG 717R 	6.32	6.10	5.81	5.64	5.33	6.34	6.32	6.00	6.34	6.21	5.90	0.57 0.66 0.71 2.51 3.31
	6.34	6.21	6.03	5.94	5.74	7.01	6.82	6.56	6.56	6.42	6.21	
	6.86	6.65	6.37	6.23	5.96	7.57	7.26	6.89	7.09	6.84	6.53	
	7.98	7.65	7.28	7.07	6.74	8.78	8.34	7.86	8.23	7.88	7.46	
FRG 817R 	6.40	6.26	6.09	5.97	5.65	6.68	6.68	6.35	6.62	6.47	6.25	0.64 0.67 0.73 2.56 3.38
	6.40	6.26	6.09	5.98	5.79	7.09	6.88	6.62	6.62	6.47	6.26	
	6.94	6.71	6.42	6.26	6.00	7.65	7.34	6.96	7.17	6.90	6.59	
	8.06	7.73	7.34	7.15	6.80	8.90	8.46	7.94	8.32	7.96	7.53	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
20559	19.02	5.98	6.14	19.37	2059	2555	2269	1.14

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5155	2	1081	1411	3.68	60.0	4.2	1.80
	3	1648	2144	3.59	60.0	4.2	1.80
	4	2065	2827	3.92	60.0	4.2	1.80
	5	2226	3431	5.17	60.0	4.2	1.80

POIDS DU MONTAGE= 337 daN/m²

G1= 28 daN/m²

G2= 308 daN/m²

BETON CHANTIER= 87.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}




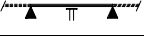
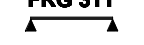
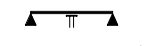


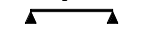

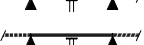
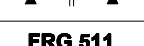

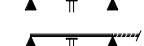
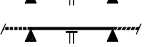

CAS DE CHARGE [daN/m²]

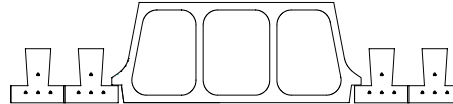
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	8.27	7.31	6.25	5.71	4.88	9.38	8.16	6.85	8.79	7.71	6.53	τ _{bu} =0.75
Limite V _{pu}	6.74	5.98	5.12	4.68	4.01	7.64	6.66	5.60	7.16	6.30	5.35	τ _{pu} =1.80
Limite V _{cu}	7.39	6.54	5.60	5.11	4.38	8.38	7.29	6.13	7.85	6.90	5.85	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 211												
	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	0.10
	3.87	3.60	3.27	3.10	2.83	4.13	3.80	3.42	3.99	3.69	3.35	0.25
	4.31	3.94	3.52	3.30	2.97	4.57	4.13	3.65	4.43	4.03	3.58	0.31 1.11
	5.19	4.70	4.17	3.90	3.49	5.49	4.92	4.32	5.33	4.81	4.24	1.61
FRG 311												
	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	0.14
	4.77	4.43	4.04	3.82	3.48	5.09	4.68	4.22	4.92	4.55	4.13	0.38
	5.31	4.85	4.34	4.07	3.66	5.63	5.09	4.50	5.47	4.97	4.42	0.47 1.69
	6.39	5.80	5.14	4.81	4.30	6.76	6.07	5.33	6.57	5.93	5.23	2.51
FRG 411												
	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55	0.19
	5.48	5.09	4.63	4.39	4.00	5.84	5.37	4.85	5.65	5.23	4.74	0.50
	5.91	5.57	4.98	4.68	4.20	6.47	5.85	5.17	6.09	5.70	5.07	0.61 2.21
	6.83	6.56	5.91	5.52	4.94	7.49	6.97	6.11	7.03	6.74	6.01	3.08
FRG 511												
	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	0.19
	5.51	5.41	5.11	4.84	4.41	6.09	5.92	5.34	5.71	5.57	5.22	0.59
	5.96	5.77	5.49	5.15	4.63	6.55	6.28	5.70	6.15	5.94	5.59	0.68 2.43
	6.92	6.63	6.32	6.08	5.44	7.59	7.22	6.74	7.13	6.82	6.48	3.48



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
18138	17.48	7.52	5.89	19.11	1999	2048	1844	1.14

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3617	2	1037	1400	5.31	60.0	4.2	1.80
	3	1582	2120	5.59	60.0	4.2	1.80
	4	1983	2784	6.11	60.0	4.2	1.80
	5	2138	3363	7.33	60.0	4.2	1.80

POIDS DU MONTAGE= 376 daN/m²

G1= 48 daN/m²

G2= 328 daN/m²

BETON CHANTIER=102.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



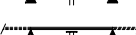



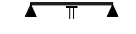



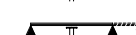
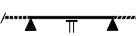
CAS DE CHARGE [daN/m²]

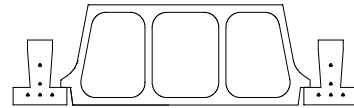
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	10.56	9.38	8.05	7.36	6.30	11.93	10.43	8.79	11.20	9.88	8.40		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	10.32	9.16	7.86	7.19	6.16	11.65	10.19	8.59	10.94	9.65	8.21		
Limite V _{cu}	9.55	8.49	7.29	6.67	5.71	10.78	9.43	7.96	10.13	8.93	7.61		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												k _a
FRG 211	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	
	4.75	4.56	4.17	3.96	3.62	4.96	4.75	4.36	4.85	4.65	4.26	0.24
	5.46	5.00	4.49	4.23	3.81	5.78	5.25	4.66	5.62	5.09	4.58	
	6.58	5.99	5.33	5.00	4.48	6.95	6.26	5.52	6.76	6.12	5.42	1.61
FRG 311	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	0.18
	6.03	5.62	5.13	4.87	4.45	6.41	5.92	5.36	6.21	5.76	5.24	
	6.51	6.16	5.53	5.20	4.68	7.11	6.45	5.73	6.72	6.30	5.63	0.46 1.65
	7.53	7.25	6.56	6.15	5.51	8.23	7.70	6.79	7.75	7.44	6.67	
FRG 411	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	0.23
	6.11	5.99	5.83	5.58	5.10	6.71	6.53	6.14	6.30	6.17	5.99	
	6.61	6.40	6.15	5.96	5.37	7.25	6.96	6.57	6.81	6.58	6.30	0.54 1.90
	7.65	7.36	7.01	6.82	6.31	8.38	8.00	7.53	7.89	7.55	7.19	
FRG 511	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	0.24
	6.17	6.05	5.88	5.78	5.60	6.78	6.61	6.37	6.37	6.24	6.05	
	6.69	6.48	6.21	6.07	5.82	7.34	7.04	6.69	6.90	6.65	6.37	0.60 2.12
	7.76	7.46	7.09	6.90	6.59	8.51	8.11	7.64	8.00	7.67	7.26	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
21278	18.80	6.20	4.62	18.76	2240	2587	2717	1.14

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5144	3	1583	2103	4.39	60.0	4.2	1.80
	4	1958	2761	4.83	60.0	4.2	1.80
	5	2278	3390	5.59	60.0	4.2	1.80
	6	2328	3911	6.45	60.0	4.2	1.80

POIDS DU MONTAGE= 337 daN/m²

G1= 33 daN/m²

G2= 303 daN/m²

BETON CHANTIER= 85.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

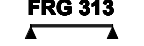


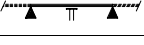

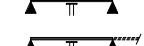

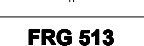


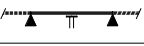


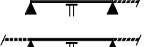
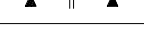

CAS DE CHARGE [daN/m²]

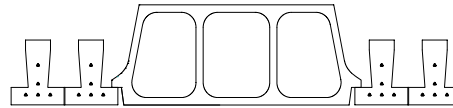
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	8.37	7.40	6.32	5.77	4.93	9.50	8.26	6.93	8.89	7.80	6.61	τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	8.37	7.40	6.32	5.77	4.93	9.50	8.26	6.93	8.89	7.80	6.61	
Limite V _{pu}	7.30	6.47	5.53	5.06	4.33	8.28	7.21	6.05	7.76	6.81	5.78	
Limite V _{cu}	8.77	7.75	6.62	6.04	5.16	9.95	8.65	7.25	9.32	8.18	6.92	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.01	3.01	3.01	2.99	2.87	3.01	3.01	3.01	3.01	3.01	3.01	0.24 0.37 0.46 1.66 2.46
FRG 313 	3.01	3.01	3.01	2.99	2.87	3.01	3.01	3.01	3.01	3.01	3.01	
	4.73	4.39	4.00	3.79	3.45	5.04	4.64	4.18	4.87	4.51	4.09	
	5.26	4.81	4.30	4.03	3.62	5.58	5.04	4.46	5.41	4.92	4.38	
	6.33	5.74	5.09	4.76	4.26	6.70	6.01	5.27	6.51	5.87	5.18	
FRG 413 	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	0.29 0.49 0.60 2.16 3.12
	5.42	5.03	4.58	4.34	3.95	5.77	5.31	4.79	5.58	5.16	4.68	
	5.94	5.51	4.92	4.62	4.15	6.39	5.78	5.11	6.13	5.64	5.01	
	6.86	6.58	5.84	5.46	4.88	7.52	6.88	6.04	7.07	6.73	5.94	
FRG 513 	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	0.32 0.58 0.68 2.46 3.42
	5.55	5.45	5.07	4.81	4.38	6.13	5.89	5.31	5.74	5.61	5.19	
	6.00	5.81	5.45	5.12	4.60	6.59	6.33	5.66	6.19	5.98	5.56	
	6.96	6.67	6.36	6.05	5.40	7.63	7.26	6.70	7.17	6.86	6.51	
FRG 613 	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	0.30 0.65 0.74 2.65 3.74
	5.59	5.48	5.33	5.12	4.71	6.17	5.98	5.57	5.78	5.65	5.45	
	6.05	5.86	5.61	5.46	4.94	6.65	6.38	5.94	6.24	6.02	5.76	
	7.01	6.73	6.40	6.23	5.80	7.71	7.33	6.90	7.24	6.92	6.56	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
18606	17.24	7.76	4.40	18.56	2161	2046	2049	1.14

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3595	3	1510	2078	7.65	60.0	4.2	1.80
	4	1867	2717	8.43	60.0	4.2	1.80
	5	2172	3322	9.33	60.0	4.2	1.80
	6	2219	3813	9.15	60.0	4.2	1.80

POIDS DU MONTAGE= 376 daN/m²

G1= 56 daN/m²

G2= 320 daN/m²

BETON CHANTIER= 99.1 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}









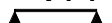







CAS DE CHARGE [daN/m²]

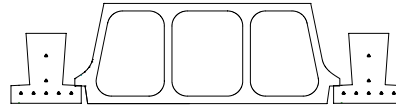
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	10.55	9.37	8.04	7.35	6.29	11.92	10.42	8.78	11.19	9.86	8.39	τ _{bu} =0.75
Limite V _{bu}	10.55	9.37	8.04	7.35	6.29	11.92	10.42	8.78	11.19	9.86	8.39	τ _{bu} =0.75
Limite V _{pu}	11.12	9.88	8.47	7.74	6.62	12.56	10.98	9.26	11.80	10.40	8.84	τ _{pu} =1.80
Limite V _{cu}	10.57	9.38	8.05	7.36	6.30	11.93	10.43	8.80	11.21	9.88	8.41	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.02	3.93	3.80	3.72	3.58	4.12	4.02	3.88	4.07	3.97	3.84	0.23
FRG 313 	4.02	3.93	3.80	3.72	3.58	4.12	4.02	3.88	4.07	3.97	3.84	0.23
	5.94	5.56	5.08	4.82	4.41	6.23	5.86	5.31	6.08	5.71	5.19	0.36
	6.55	6.10	5.47	5.15	4.64	6.92	6.39	5.68	6.74	6.24	5.57	0.44 1.60
	7.55	7.28	6.50	6.09	5.45	8.26	7.62	6.72	7.78	7.46	6.61	2.27
FRG 413 	4.45	4.37	4.23	4.14	3.98	4.45	4.45	4.32	4.45	4.42	4.27	0.28
	6.13	6.01	5.81	5.51	5.04	6.74	6.57	6.07	6.34	6.20	5.93	0.46
	6.63	6.43	6.17	5.89	5.30	7.26	6.99	6.49	6.84	6.61	6.32	0.53 1.85
	7.68	7.38	7.03	6.84	6.23	8.40	8.01	7.55	7.92	7.59	7.21	2.58
FRG 513 	4.66	4.66	4.56	4.47	4.29	4.66	4.66	4.66	4.66	4.66	4.61	0.33
	6.20	6.07	5.92	5.82	5.57	6.82	6.64	6.40	6.40	6.26	6.07	0.55
	6.71	6.49	6.24	6.09	5.84	7.36	7.07	6.73	6.92	6.69	6.40	0.61 2.13
	7.78	7.48	7.13	6.94	6.61	8.54	8.13	7.67	8.03	7.69	7.30	2.81
FRG 613 	4.57	4.57	4.57	4.51	4.34	4.57	4.57	4.57	4.57	4.57	4.57	0.34
	6.24	6.13	5.96	5.86	5.68	6.88	6.70	6.46	6.46	6.31	6.13	0.57
	6.76	6.55	6.28	6.14	5.89	7.44	7.15	6.78	6.99	6.74	6.46	0.62 2.17
	7.88	7.55	7.19	6.99	6.67	8.65	8.23	7.75	8.12	7.77	7.37	2.87



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
27217	17.96	7.04	4.04	18.25	3910	2981	3633	1.14

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5800	5	2467	3421	6.30	60.0	4.2	1.80
	6	3013	4132	4.92	60.0	4.2	1.80
	7	3365	4753	5.51	60.0	4.2	1.80
	8	3332	5203	7.52	60.0	4.2	1.80

POIDS DU MONTAGE= 347 daN/m²

G1= 47 daN/m²

G2= 300 daN/m²

BETON CHANTIER= 86.0 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

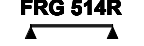


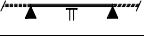

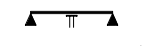


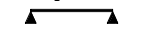

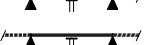
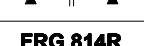

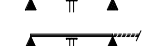
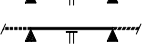

CAS DE CHARGE [daN/m²]

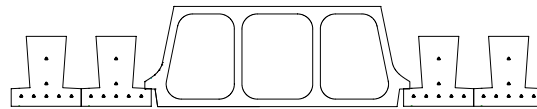
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	9.03	8.00	6.84	6.25	5.34	10.24	8.92	7.49	9.60	8.43	7.15	
Limite V _{pu}	11.72	10.36	8.84	8.06	6.87	13.30	11.57	9.69	12.46	10.93	9.25	
Limite V _{cu}	10.92	9.66	8.24	7.52	6.41	12.39	10.78	9.03	11.61	10.18	8.62	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 514R												
	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	0.39
	5.80	5.44	4.95	4.70	4.28	6.23	5.74	5.18	5.99	5.58	5.06	0.60
	6.26	5.95	5.33	5.00	4.50	6.88	6.24	5.53	6.46	6.09	5.43	0.73 2.67
	7.25	6.96	6.32	5.91	5.29	7.93	7.44	6.54	7.46	7.15	6.43	3.72
FRG 614R												
	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	0.42
	5.86	5.74	5.44	5.16	4.70	6.46	6.28	5.69	6.05	5.92	5.56	0.71
	6.32	6.13	5.85	5.50	4.94	6.96	6.67	6.08	6.53	6.30	5.96	0.82 2.93
	7.32	7.03	6.70	6.50	5.81	8.03	7.65	7.19	7.55	7.23	6.86	4.21
FRG 714R												
	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	0.47
	5.90	5.78	5.63	5.53	5.05	6.51	6.32	6.09	6.09	5.96	5.78	0.80
	6.38	6.17	5.92	5.78	5.30	7.01	6.73	6.40	6.58	6.35	6.07	0.89 3.20
	7.40	7.09	6.75	6.57	6.23	8.13	7.73	7.28	7.63	7.30	6.92	4.58
FRG 814R												
	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	0.44
	5.92	5.80	5.65	5.55	5.28	6.53	6.36	6.13	6.13	5.99	5.80	0.87
	6.41	6.21	5.96	5.80	5.55	7.05	6.76	6.42	6.61	6.38	6.11	0.96 3.45
	7.44	7.14	6.78	6.61	6.29	8.19	7.78	7.32	7.67	7.34	6.96	4.70



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
23521	16.43	8.57	3.82	18.11	3733	2431	2678	1.14

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4115	5	2332	3361	9.79	60.0	4.2	1.80
	6	2847	4045	10.16	60.0	4.2	1.80
	7	3180	4635	10.83	60.0	4.2	1.80
	8	3149	5049	10.41	60.0	4.2	1.80

POIDS DU MONTAGE= 391 daN/m²

G1= 77 daN/m²

G2= 314 daN/m²

BETON CHANTIER= 99.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



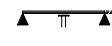

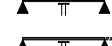

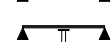

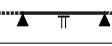

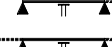
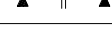
CAS DE CHARGE [daN/m²]

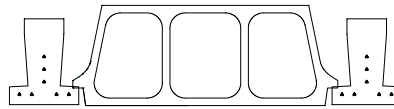
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	11.33	10.07	8.66	7.92	6.79	12.77	11.19	9.45	12.00	10.60	9.04	τ _{bu} =0.75
Limite V _{bu}	11.33	10.07	8.66	7.92	6.79	12.77	11.19	9.45	12.00	10.60	9.04	τ _{bu} =0.75
Limite V _{pu}	17.17	15.25	13.07	11.94	10.20	19.38	16.96	14.29	18.21	16.06	13.66	τ _{pu} =1.80
Limite V _{cu}	12.44	11.06	9.49	8.69	7.43	14.02	12.28	10.37	13.18	11.64	9.91	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.89	4.87	4.70	4.60	4.41	4.89	4.89	4.81	4.89	4.89	4.76	0.38
FRG 514R	4.89	4.87	4.70	4.60	4.41	4.89	4.89	4.81	4.89	4.89	4.76	0.38
	6.38	6.26	6.09	5.86	5.35	7.01	6.84	6.44	6.59	6.46	6.26	0.57
	6.90	6.69	6.44	6.26	5.64	7.57	7.27	6.90	7.12	6.88	6.59	0.65 2.30
	8.00	7.69	7.32	7.13	6.64	8.75	8.34	7.87	8.23	7.90	7.50	3.08
FRG 614R	5.08	5.08	5.08	5.08	4.87	5.08	5.08	5.08	5.08	5.08	5.08	0.46
	6.46	6.32	6.15	6.05	5.87	7.10	6.92	6.67	6.67	6.51	6.32	0.67
	6.99	6.76	6.49	6.34	6.09	7.67	7.36	6.99	7.21	6.96	6.67	0.72 2.54
	8.11	7.78	7.42	7.22	6.88	8.88	8.46	7.98	8.36	8.00	7.59	3.33
FRG 714R	5.41	5.41	5.41	5.37	5.15	5.41	5.41	5.41	5.41	5.41	5.41	0.51
	6.50	6.38	6.21	6.10	5.92	7.17	6.98	6.73	6.73	6.57	6.38	0.68
	7.05	6.82	6.55	6.40	6.14	7.75	7.44	7.07	7.27	7.02	6.73	0.74 2.59
	8.20	7.88	7.50	7.28	6.95	9.00	8.57	8.07	8.46	8.09	7.68	3.41
FRG 814R	5.20	5.20	5.20	5.20	5.12	5.20	5.20	5.20	5.20	5.20	5.20	0.51
	6.53	6.41	6.23	6.13	5.94	7.21	7.01	6.75	6.75	6.61	6.41	0.69
	7.09	6.86	6.59	6.43	6.17	7.80	7.48	7.11	7.32	7.06	6.75	0.74 2.61
	8.25	7.92	7.53	7.32	6.99	9.07	8.63	8.13	8.51	8.15	7.73	3.45



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
27374	17.85	7.15	2.86	17.85	3960	3077	4286	1.14

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5740	6	2644	3969	8.33	60.0	4.2	1.80
	7	3008	4590	8.67	60.0	4.2	1.80
	8	3370	5203	8.53	60.0	4.2	1.80

POIDS DU MONTAGE= 347 daN/m²

G1= 56 daN/m²

G2= 291 daN/m²

BETON CHANTIER= 82.2 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m²]

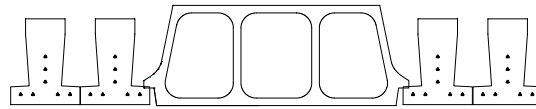
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	9.31	8.24	7.05	6.43	5.50	10.56	9.19	7.72	9.89	8.69	7.37	
Limite V _{pu}	11.86	10.49	8.95	8.16	6.95	13.47	11.71	9.81	12.61	11.06	9.36	
Limite V _{cu}	12.81	11.32	9.65	8.80	7.49	14.54	12.64	10.58	13.62	11.94	10.10	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R 	4.17	4.17	4.17	4.17	4.11	4.17	4.17	4.17	4.17	4.17	4.17	0.52
	5.86	5.74	5.34	5.06	4.61	6.46	6.18	5.58	6.05	5.92	5.45	0.68
	6.32	6.13	5.74	5.39	4.84	6.95	6.67	5.96	6.52	6.30	5.84	0.80 2.89
	7.30	7.01	6.69	6.37	5.69	8.01	7.63	7.04	7.53	7.22	6.85	4.01
FRG 717R 	4.47	4.47	4.47	4.47	4.38	4.47	4.47	4.47	4.47	4.47	4.47	0.59
	5.90	5.78	5.62	5.44	4.96	6.51	6.32	6.00	6.09	5.96	5.78	0.78
	6.38	6.17	5.92	5.78	5.21	7.01	6.73	6.39	6.57	6.34	6.07	0.89 3.19
	7.38	7.09	6.74	6.55	6.12	8.11	7.71	7.26	7.61	7.28	6.92	4.38
FRG 817R 	4.71	4.71	4.71	4.71	4.64	4.71	4.71	4.71	4.71	4.71	4.71	0.66
	5.94	5.82	5.66	5.56	5.28	6.55	6.38	6.14	6.14	5.99	5.82	0.87
	6.42	6.22	5.96	5.82	5.55	7.07	6.78	6.44	6.63	6.40	6.11	0.96 3.45
	7.46	7.15	6.80	6.61	6.30	8.21	7.79	7.34	7.69	7.36	6.98	4.72



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
23558	16.37	8.63	2.68	17.93	3754	2490	3023	1.14

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4093	6	2481	3882	11.53	60.0	4.2	1.80
	7	2823	4472	12.36	60.0	4.2	1.80
	8	3163	5049	13.03	60.0	4.2	1.80

POIDS DU MONTAGE= 391 daN/m²

G1= 92 daN/m²

G2= 299 daN/m²

BETON CHANTIER= 93.3 Litres/m²

CHARGE DE CHANTIER MAXI (50 daN/ml , 100 daN)

CAS DE CHARGE [daN/m²]

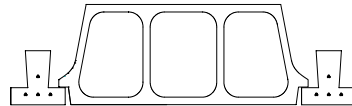
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	11.59	10.31	8.86	8.11	6.94	13.07	11.45	9.67	12.29	10.85	9.25	
Limite V _{pu}	17.27	15.33	13.14	12.01	10.25	19.49	17.05	14.37	18.31	16.14	13.73	
Limite V _{cu}	13.98	12.43	10.66	9.75	8.34	15.77	13.81	11.65	14.82	13.08	11.14	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												0.72 2.52 0.73 2.58 0.75 2.62	
FRG 617R	5.76	5.68	5.43	5.28	5.02	5.76	5.76	5.59	5.76	5.76	5.51		0.49 0.64 3.33
	6.46	6.32	6.15	6.05	5.75	7.11	6.92	6.67	6.67	6.51	6.32		
	6.98	6.76	6.49	6.34	6.06	7.67	7.36	6.99	7.21	6.96	6.66		
	8.09	7.77	7.40	7.21	6.88	8.88	8.46	7.98	8.34	8.00	7.59		
FRG 717R	6.18	6.06	5.79	5.64	5.35	6.18	6.18	5.97	6.18	6.16	5.88	0.56 0.68 3.40	
	6.50	6.38	6.21	6.09	5.91	7.17	6.98	6.73	6.73	6.57	6.38		
	7.05	6.82	6.55	6.40	6.13	7.75	7.44	7.07	7.26	7.01	6.72		
	8.19	7.86	7.48	7.27	6.94	9.00	8.55	8.05	8.44	8.09	7.67		
FRG 817R	6.51	6.41	6.13	5.96	5.67	6.51	6.51	6.32	6.51	6.51	6.22	0.62 0.69 3.46	
	6.55	6.43	6.24	6.15	5.96	7.25	7.03	6.78	6.78	6.63	6.43		
	7.11	6.88	6.60	6.44	6.18	7.83	7.51	7.13	7.34	7.09	6.77		
	8.28	7.94	7.55	7.34	6.99	9.11	8.67	8.15	8.54	8.17	7.75		



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
22752	19.88	6.12	6.50	20.25	2168	2670	2371	1.13

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5576	2	1144	1477	3.59	60.0	4.2	1.80
	3	1744	2242	3.39	60.0	4.2	1.80
	4	2186	2958	3.70	60.0	4.2	1.80
	5	2357	3594	5.06	60.0	4.2	1.80

POIDS DU MONTAGE= 360 daN/m²

G1= 28 daN/m²

G2= 332 daN/m²

BETON CHANTIER= 97.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



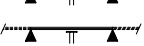

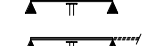

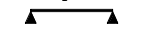

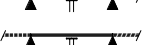


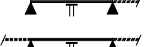
CAS DE CHARGE [daN/m²]

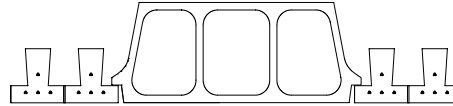
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	8.40	7.46	6.40	5.86	5.02	9.50	8.30	6.99	8.92	7.86	6.68	τ _{bu} =0.75
Limite V _{bu}	8.40	7.46	6.40	5.86	5.02	9.50	8.30	6.99	8.92	7.86	6.68	τ _{bu} =0.75
Limite V _{pu}	6.91	6.14	5.28	4.84	4.16	7.80	6.82	5.76	7.32	6.46	5.51	τ _{pu} =1.80
Limite V _{cu}	7.51	6.67	5.73	5.25	4.50	8.49	7.42	6.26	7.97	7.02	5.98	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	0.09
FRG 211	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	0.09
	3.91	3.63	3.32	3.15	2.87	4.15	3.83	3.46	4.02	3.73	3.39	0.25
	4.35	3.98	3.57	3.35	3.02	4.61	4.18	3.70	4.47	4.08	3.63	0.31 1.11
	5.24	4.76	4.23	3.96	3.55	5.54	4.98	4.38	5.38	4.87	4.31	1.62
FRG 311	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	0.14
	4.81	4.48	4.09	3.88	3.54	5.12	4.72	4.27	4.96	4.60	4.17	0.38
	5.36	4.91	4.40	4.13	3.72	5.68	5.15	4.56	5.51	5.02	4.48	0.47 1.69
	6.46	5.87	5.22	4.89	4.37	6.82	6.14	5.40	6.63	6.00	5.31	2.51
FRG 411	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	0.18
	5.53	5.14	4.69	4.45	4.06	5.88	5.42	4.90	5.70	5.28	4.80	0.50
	6.02	5.64	5.05	4.75	4.27	6.52	5.91	5.24	6.21	5.77	5.14	0.61 2.22
	6.98	6.71	5.99	5.61	5.02	7.63	7.05	6.20	7.18	6.88	6.10	3.16
FRG 511	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53	0.18
	5.63	5.51	5.17	4.91	4.48	6.19	5.98	5.41	5.80	5.69	5.29	0.59
	6.08	5.90	5.57	5.23	4.71	6.67	6.40	5.78	6.26	6.05	5.67	0.68 2.46
	7.05	6.78	6.46	6.19	5.54	7.73	7.36	6.84	7.26	6.96	6.61	3.49



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
20175	18.36	7.64	6.24	19.90	2102	2133	1920	1.13

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3964	2	1098	1466	5.18	60.0	4.2	1.80
	3	1674	2218	5.16	60.0	4.2	1.80
	4	2099	2914	5.64	60.0	4.2	1.80
	5	2263	3526	7.15	60.0	4.2	1.80

POIDS DU MONTAGE= 399 daN/m²

G1= 48 daN/m²

G2= 351 daN/m²

BETON CHANTIER=112.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



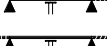
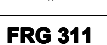

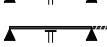




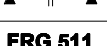

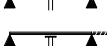
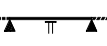

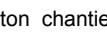
CAS DE CHARGE [daN/m²]

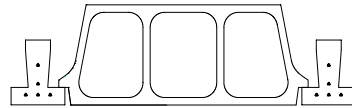
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	10.71	9.54	8.22	7.53	6.46	12.05	10.58	8.96	11.34	10.04	8.57	τ _{bu} =0.75
Limite V _{pu}	10.56	9.41	8.10	7.42	6.37	11.88	10.43	8.84	11.18	9.89	8.45	τ _{pu} =1.80
Limite V _{cu}	9.69	8.64	7.44	6.82	5.86	10.90	9.57	8.11	10.26	9.08	7.76	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 211		2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	0.11
		4.76	4.59	4.23	4.01	3.67	5.25	4.76	4.41	4.86	4.31	0.24
		5.52	5.07	4.56	4.29	3.87	5.83	5.31	4.73	5.67	5.19	0.31 1.11
		6.65	6.07	5.42	5.08	4.55	7.01	6.33	5.60	6.83	6.20	1.62
FRG 311		3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	0.16
		6.09	5.68	5.20	4.94	4.52	6.46	5.98	5.42	6.26	5.82	0.38
		6.66	6.24	5.61	5.28	4.76	7.17	6.53	5.81	6.86	6.38	0.46 1.66
		7.71	7.42	6.66	6.25	5.60	8.39	7.79	6.89	7.92	7.61	2.30
FRG 411		3.53	3.53	3.53	3.53	3.53	3.53	3.53	3.53	3.53	3.53	0.21
		6.24	6.11	5.96	5.66	5.18	6.84	6.66	6.22	6.44	6.30	0.47
		6.74	6.54	6.28	6.05	5.46	7.38	7.09	6.67	6.96	6.73	0.54 1.91
		7.82	7.53	7.18	6.99	6.42	8.55	8.15	7.71	8.05	7.73	2.62
FRG 511		3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	0.22
		6.30	6.18	6.01	5.92	5.70	6.92	6.74	6.47	6.49	6.36	0.56
		6.82	6.61	6.36	6.21	5.96	7.48	7.19	6.84	7.03	6.80	0.61 2.15
		7.94	7.63	7.26	7.07	6.74	8.69	8.28	7.80	8.17	7.84	2.84



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
23637	19.66	6.34	4.90	19.58	2366	2700	2836	1.13

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5588	3	1682	2201	4.11	60.0	4.2	1.80
	4	2080	2891	4.53	60.0	4.2	1.80
	5	2420	3554	5.24	60.0	4.2	1.80
	6	2472	4107	6.32	60.0	4.2	1.80

POIDS DU MONTAGE= 360 daN/m²

G1= 33 daN/m²

G2= 327 daN/m²

BETON CHANTIER= 95.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



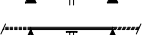



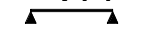




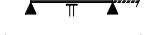
CAS DE CHARGE [daN/m²]

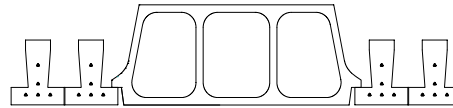
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	8.50	7.54	6.47	5.92	5.07	9.60	8.39	7.07	9.01	7.94	6.75	τ _{bu} =0.75
Limite V _{bu}	8.50	7.54	6.47	5.92	5.07	9.60	8.39	7.07	9.01	7.94	6.75	τ _{bu} =0.75
Limite V _{pu}	7.50	6.66	5.72	5.24	4.50	8.47	7.40	6.25	7.95	7.01	5.97	τ _{pu} =1.80
Limite V _{cu}	8.90	7.90	6.77	6.19	5.30	10.07	8.79	7.40	9.45	8.32	7.07	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	2.95	2.95	2.95	2.95	2.85	2.95	2.95	2.95	2.95	2.95	2.95	0.23
FRG 313	2.95	2.95	2.95	2.95	2.85	2.95	2.95	2.95	2.95	2.95	2.95	0.23
	4.77	4.44	4.05	3.84	3.50	5.07	4.68	4.23	4.91	4.55	4.14	0.37
	5.31	4.86	4.36	4.09	3.68	5.62	5.10	4.52	5.46	4.98	4.44	0.46 1.66
	6.40	5.81	5.17	4.84	4.33	6.76	6.08	5.35	6.57	5.94	5.26	2.46
FRG 413	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	0.27
	5.47	5.09	4.64	4.40	4.02	5.81	5.36	4.85	5.63	5.22	4.74	0.49
	6.07	5.57	4.99	4.69	4.22	6.45	5.84	5.18	6.25	5.70	5.09	0.60 2.19
	7.01	6.66	5.93	5.55	4.96	7.67	6.97	6.13	7.23	6.81	6.03	3.20
FRG 513	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	0.29
	5.67	5.55	5.14	4.88	4.45	6.23	5.95	5.37	5.85	5.73	5.26	0.59
	6.13	5.94	5.54	5.20	4.68	6.72	6.46	5.75	6.32	6.11	5.64	0.69 2.51
	7.09	6.82	6.49	6.15	5.50	7.77	7.40	6.80	7.32	7.01	6.65	3.48
FRG 613	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	0.28
	5.71	5.59	5.40	5.20	4.79	6.28	6.02	5.63	5.90	5.76	5.51	0.65
	6.17	5.98	5.74	5.55	5.03	6.78	6.51	6.02	6.37	6.15	5.88	0.74 2.67
	7.17	6.88	6.55	6.38	5.92	7.86	7.48	7.05	7.38	7.07	6.71	3.78



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
20779	18.11	7.89	4.68	19.31	2282	2128	2131	1.13

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3950	3	1605	2176	6.84	60.0	4.2	1.80
	4	1985	2848	7.54	60.0	4.2	1.80
	5	2309	3485	8.72	60.0	4.2	1.80
	6	2359	4009	8.93	60.0	4.2	1.80

POIDS DU MONTAGE= 399 daN/m²

G1= 56 daN/m²

G2= 343 daN/m²

BETON CHANTIER=109.1 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}









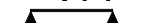







CAS DE CHARGE [daN/m²]

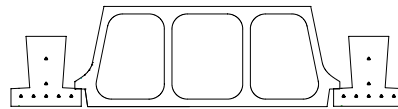
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	10.69	9.52	8.20	7.51	6.45	12.03	10.56	8.94	11.32	10.01	8.55	
Limite V _{pu}	11.43	10.18	8.76	8.02	6.88	12.87	11.29	9.56	12.10	10.70	9.14	
Limite V _{cu}	10.70	9.54	8.21	7.52	6.45	12.04	10.57	8.95	11.33	10.03	8.56	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 313												
	3.95	3.87	3.75	3.68	3.55	4.04	3.95	3.83	3.99	3.91	3.79	0.22
	5.99	5.63	5.15	4.89	4.48	6.27	5.92	5.37	6.12	5.77	5.26	0.36
	6.68	6.18	5.56	5.23	4.72	7.11	6.47	5.76	6.90	6.32	5.66	0.45 1.64
	7.75	7.40	6.60	6.19	5.55	8.44	7.72	6.82	7.96	7.55	6.71	2.33
FRG 413												
	4.35	4.30	4.17	4.09	3.95	4.35	4.35	4.26	4.35	4.35	4.21	0.27
	6.26	6.15	5.89	5.60	5.12	6.88	6.66	6.15	6.47	6.33	6.01	0.46
	6.78	6.57	6.32	5.98	5.40	7.42	7.13	6.59	6.99	6.76	6.47	0.53 1.89
	7.86	7.55	7.21	7.01	6.35	8.57	8.19	7.73	8.09	7.76	7.38	2.64
FRG 513												
	4.55	4.55	4.50	4.42	4.26	4.55	4.55	4.55	4.55	4.55	4.55	0.31
	6.34	6.21	6.05	5.96	5.66	6.96	6.77	6.53	6.53	6.40	6.21	0.55
	6.86	6.65	6.39	6.24	5.97	7.51	7.23	6.88	7.07	6.84	6.55	0.62 2.16
	7.98	7.67	7.30	7.11	6.78	8.73	8.30	7.84	8.21	7.87	7.48	2.88
FRG 613												
	4.46	4.46	4.46	4.46	4.30	4.46	4.46	4.46	4.46	4.46	4.46	0.32
	6.38	6.26	6.09	5.99	5.81	7.01	6.83	6.59	6.59	6.46	6.26	0.58
	6.92	6.71	6.44	6.28	6.03	7.59	7.29	6.94	7.14	6.90	6.61	0.63 2.21
	8.05	7.75	7.37	7.17	6.84	8.82	8.41	7.93	8.30	7.96	7.55	2.93



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
30393	18.83	7.17	4.30	18.99	4143	3102	3780	1.13

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
6357	5	2628	3584	5.73	60.0	4.2	1.80
	6	3209	4328	4.47	60.0	4.2	1.80
	7	3584	4981	5.00	60.0	4.2	1.80
	8	3550	5464	7.37	60.0	4.2	1.80

POIDS DU MONTAGE= 370 daN/m²

G1= 47 daN/m²

G2= 323 daN/m²

BETON CHANTIER= 96.0 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

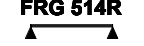


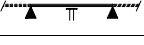

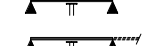

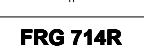


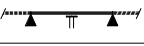


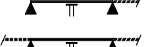
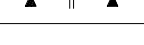

CAS DE CHARGE [daN/m²]

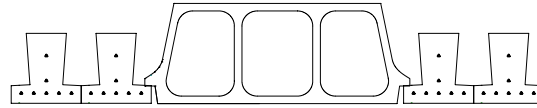
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	9.15	8.13	6.98	6.38	5.47	10.33	9.03	7.62	9.70	8.55	7.28	τ _{bu} =0.75
Limite V _{bu}	9.15	8.13	6.98	6.38	5.47	10.33	9.03	7.62	9.70	8.55	7.28	τ _{bu} =0.75
Limite V _{pu}	12.07	10.71	9.17	8.38	7.16	13.65	11.92	10.04	12.81	11.28	9.58	τ _{pu} =1.80
Limite V _{cu}	11.05	9.81	8.41	7.68	6.57	12.49	10.91	9.19	11.73	10.33	8.78	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	0.36
FRG 514R 	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	0.36
	5.90	5.50	5.02	4.76	4.35	6.28	5.79	5.24	6.08	5.64	5.13	0.60
	6.41	6.03	5.41	5.08	4.58	6.96	6.32	5.61	6.61	6.17	5.51	0.74 2.70
	7.40	7.12	6.42	6.01	5.38	8.09	7.54	6.64	7.63	7.30	6.53	3.79
FRG 614R 	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	0.39
	5.98	5.86	5.52	5.23	4.78	6.57	6.37	5.76	6.17	6.04	5.64	0.71
	6.47	6.26	5.94	5.59	5.03	7.09	6.80	6.16	6.67	6.44	6.05	0.82 2.96
	7.50	7.21	6.86	6.60	5.91	8.20	7.80	7.30	7.71	7.40	7.02	4.23
FRG 714R 	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	0.44
	6.02	5.91	5.74	5.62	5.13	6.63	6.46	6.18	6.23	6.09	5.91	0.81
	6.51	6.31	6.06	5.92	5.40	7.15	6.87	6.53	6.73	6.49	6.22	0.91 3.26
	7.56	7.26	6.92	6.73	6.34	8.28	7.90	7.44	7.79	7.47	7.09	4.59
FRG 814R 	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68	0.41
	6.05	5.94	5.77	5.68	5.37	6.67	6.49	6.24	6.24	6.11	5.94	0.87
	6.55	6.34	6.09	5.95	5.65	7.19	6.90	6.57	6.76	6.53	6.24	0.97 3.47
	7.61	7.30	6.96	6.76	6.46	8.34	7.94	7.49	7.84	7.51	7.13	4.80



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
26404	17.26	8.74	4.08	18.81	3964	2524	2781	1.13

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4533	5	2491	3524	9.55	60.0	4.2	1.80
	6	3041	4241	9.92	60.0	4.2	1.80
	7	3397	4864	10.57	60.0	4.2	1.80
	8	3363	5310	10.16	60.0	4.2	1.80

POIDS DU MONTAGE= 414 daN/m²

G1= 77 daN/m²

G2= 337 daN/m²

BETON CHANTIER=109.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



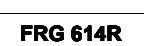
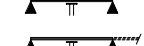

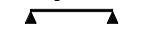
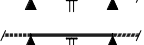


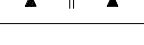
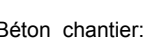
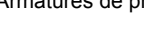
CAS DE CHARGE [daN/m²]

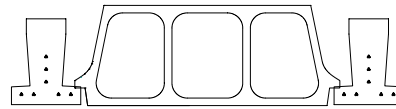
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	11.46	10.22	8.81	8.08	6.94	12.87	11.32	9.61	12.12	10.74	9.19	τ _{bu} =0.75
Limite V _{bu}	11.46	10.22	8.81	8.08	6.94	12.87	11.32	9.61	12.12	10.74	9.19	τ _{bu} =0.75
Limite V _{pu}	17.75	15.81	13.60	12.45	10.66	19.97	17.53	14.84	18.79	16.63	14.19	τ _{pu} =1.80
Limite V _{cu}	12.58	11.22	9.67	8.86	7.61	14.14	12.43	10.54	13.31	11.79	10.08	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.78	4.78	4.65	4.56	4.39	4.78	4.78	4.75	4.78	4.78	4.70	0.36
FRG 514R	4.78	4.78	4.65	4.56	4.39	4.78	4.78	4.75	4.78	4.78	4.70	0.36
	6.53	6.42	6.24	5.95	5.44	7.17	6.98	6.52	6.74	6.60	6.38	0.57
	7.07	6.86	6.59	6.36	5.74	7.73	7.44	7.00	7.28	7.05	6.75	0.66 2.32
	8.19	7.88	7.51	7.32	6.76	8.94	8.53	8.05	8.42	8.09	7.69	3.16
FRG 614R	4.96	4.96	4.96	4.96	4.85	4.96	4.96	4.96	4.96	4.96	4.96	0.45
	6.60	6.48	6.30	6.21	5.97	7.25	7.05	6.81	6.81	6.67	6.48	0.67
	7.15	6.94	6.67	6.51	6.24	7.82	7.53	7.17	7.37	7.13	6.82	0.74 2.59
	8.30	7.98	7.61	7.40	7.07	9.07	8.65	8.17	8.55	8.21	7.78	3.43
FRG 714R	5.29	5.29	5.29	5.29	5.12	5.29	5.29	5.29	5.29	5.29	5.29	0.50
	6.65	6.53	6.36	6.24	6.05	7.31	7.12	6.87	6.87	6.73	6.53	0.69
	7.22	6.99	6.72	6.56	6.30	7.92	7.61	7.23	7.44	7.19	6.88	0.75 2.65
	8.40	8.07	7.69	7.48	7.13	9.20	8.76	8.26	8.65	8.28	7.88	3.48
FRG 814R	5.08	5.08	5.08	5.08	5.08	5.08	5.08	5.08	5.08	5.08	5.08	0.49
	6.69	6.55	6.38	6.28	6.09	7.36	7.17	6.90	6.90	6.76	6.55	0.70
	7.26	7.03	6.74	6.59	6.32	7.96	7.65	7.27	7.49	7.23	6.92	0.76 2.66
	8.46	8.13	7.73	7.51	7.17	9.27	8.82	8.32	8.71	8.34	7.92	3.53



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
30666	18.69	7.31	3.06	18.48	4216	3186	4437	1.13

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
6290	6	2829	4165	7.60	60.0	4.2	1.80
	7	3219	4819	7.45	60.0	4.2	1.80
	8	3606	5464	7.33	60.0	4.2	1.80

POIDS DU MONTAGE= 370 daN/m²

G1= 56 daN/m²

G2= 314 daN/m²

BETON CHANTIER= 92.2 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

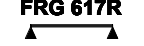


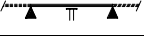

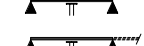

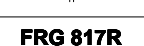




CAS DE CHARGE [daN/m²]

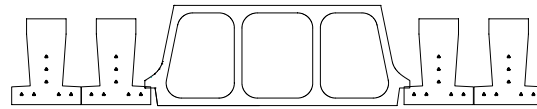
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	9.38	8.33	7.15	6.54	5.61	10.60	9.27	7.82	9.95	8.77	7.47		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	12.28	10.89	9.33	8.52	7.28	13.88	12.12	10.20	13.03	11.47	9.74		
Limite V _{cu}	12.90	11.44	9.79	8.95	7.64	14.59	12.74	10.72	13.69	12.05	10.23		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R												
	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	0.50
	5.98	5.87	5.41	5.14	4.69	6.57	6.25	5.65	6.18	6.05	5.53	0.69
	6.47	6.26	5.83	5.48	4.93	7.09	6.81	6.05	6.67	6.44	5.94	0.82 2.96
	7.48	7.19	6.86	6.48	5.80	8.19	7.80	7.16	7.71	7.38	7.01	4.10
FRG 717R												
	4.38	4.38	4.38	4.38	4.38	4.38	4.38	4.38	4.38	4.38	4.38	0.57
	6.03	5.91	5.74	5.52	5.04	6.63	6.46	6.08	6.23	6.09	5.91	0.78
	6.51	6.31	6.06	5.89	5.31	7.15	6.87	6.50	6.73	6.49	6.22	0.90 3.23
	7.55	7.26	6.92	6.73	6.24	8.28	7.88	7.44	7.78	7.46	7.07	4.44
FRG 817R												
	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	0.64
	6.07	5.95	5.78	5.69	5.37	6.69	6.50	6.26	6.26	6.13	5.95	0.87
	6.57	6.36	6.11	5.96	5.65	7.21	6.93	6.58	6.77	6.54	6.26	0.97 3.47
	7.63	7.32	6.98	6.78	6.47	8.36	7.96	7.50	7.86	7.53	7.15	4.82



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
26493	17.16	8.84	2.87	18.51	4003	2567	3116	1.13

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4498	6	2661	4079	11.25	60.0	4.2	1.80
	7	3027	4701	12.07	60.0	4.2	1.80
	8	3392	5310	12.72	60.0	4.2	1.80

POIDS DU MONTAGE= 414 daN/m²

G1= 92 daN/m²

G2= 323 daN/m²

BETON CHANTIER=103.3 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}









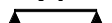



CAS DE CHARGE [daN/m²]

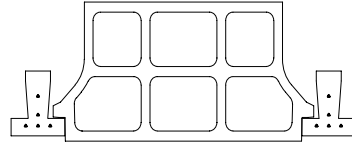
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	11.64	10.39	8.96	8.21	7.05	13.08	11.51	9.76	12.32	10.92	9.34		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	17.92	15.96	13.73	12.56	10.76	20.16	17.70	14.98	18.97	16.78	14.33		
Limite V _{cu}	14.04	12.52	10.78	9.87	8.47	15.79	13.87	11.76	14.86	13.16	11.25		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R    	5.63	5.63	5.41	5.27	5.02	5.63	5.63	5.56	5.63	5.63	5.48	0.72 2.54
	6.59	6.48	6.30	6.21	5.86	7.25	7.05	6.81	6.81	6.67	6.48	
	7.15	6.93	6.65	6.50	6.18	7.82	7.53	7.17	7.36	7.13	6.82	
	8.28	7.98	7.59	7.40	7.05	9.07	8.65	8.17	8.53	8.19	7.78	
FRG 717R    	6.03	6.01	5.77	5.62	5.36	6.03	6.03	5.93	6.03	6.03	5.85	0.75 2.64
	6.65	6.52	6.35	6.24	6.05	7.32	7.13	6.87	6.87	6.73	6.52	
	7.21	6.99	6.71	6.55	6.29	7.92	7.61	7.23	7.44	7.19	6.88	
	8.38	8.05	7.67	7.46	7.12	9.19	8.75	8.25	8.63	8.28	7.86	
FRG 817R    	6.36	6.36	6.11	5.95	5.67	6.36	6.36	6.27	6.36	6.36	6.19	0.76 2.68
	6.71	6.57	6.40	6.29	6.10	7.38	7.19	6.94	6.94	6.78	6.57	
	7.28	7.05	6.76	6.61	6.34	8.00	7.68	7.30	7.51	7.25	6.94	
	8.48	8.15	7.75	7.53	7.19	9.30	8.86	8.34	8.75	8.38	7.94	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
31211	21.78	7.22	5.85	22.50	2787	3102	3260	1.09

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
6481	3	2005	2495	3.75	60.0	4.2	1.80
	4	2479	3284	4.13	60.0	4.2	1.80
	5	2884	4044	4.77	60.0	4.2	1.80
	6	2947	4696	6.11	60.0	4.2	1.80

POIDS DU MONTAGE= 400 daN/m²

G1= 33 daN/m²

G2= 367 daN/m²

BETON CHANTIER= 92.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

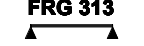


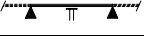

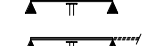

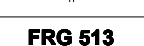


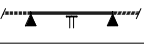


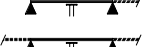
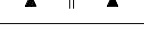

CAS DE CHARGE [daN/m²]

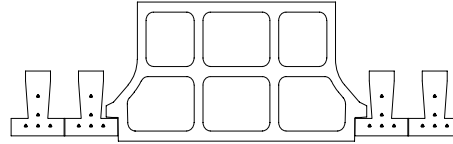
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	9.32	8.32	7.18	6.58	5.67	10.48	9.21	7.82	9.86	8.74	7.48	τ _{bu} =0.75
Limite V _{pu}	8.42	7.52	6.50	5.96	5.14	9.46	8.32	7.07	8.91	7.90	6.77	τ _{pu} =1.80
Limite V _{cu}	9.77	8.72	7.52	6.89	5.93	10.98	9.65	8.19	10.34	9.16	7.84	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 313	PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)											
	2.85	2.85	2.85	2.85	2.83	2.85	2.85	2.85	2.85	2.85	2.85	0.20
	4.96	4.63	4.24	4.03	3.69	5.27	4.88	4.42	5.11	4.75	4.33	0.37
	5.54	5.09	4.58	4.31	3.88	5.85	5.32	4.74	5.69	5.20	4.66	0.47 1.68
	6.68	6.09	5.43	5.10	4.57	7.04	6.36	5.62	6.85	6.22	5.52	2.46
FRG 413												
	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98	0.23
	5.70	5.32	4.87	4.62	4.23	6.04	5.59	5.08	5.86	5.45	4.97	0.49
	6.36	5.84	5.25	4.94	4.46	6.71	6.11	5.44	6.53	5.97	5.34	0.61 2.21
	7.46	6.99	6.23	5.85	5.24	8.07	7.29	6.45	7.67	7.13	6.34	3.27
FRG 513												
	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12	0.25
	6.01	5.90	5.40	5.13	4.69	6.57	6.21	5.63	6.20	6.05	5.51	0.59
	6.50	6.30	5.82	5.48	4.95	7.11	6.78	6.04	6.71	6.48	5.93	0.71 2.54
	7.55	7.26	6.92	6.49	5.82	8.23	7.86	7.15	7.76	7.46	7.03	3.58
FRG 613												
	3.06	3.06	3.06	3.06	3.06	3.06	3.06	3.06	3.06	3.06	3.06	0.24
	6.05	5.94	5.67	5.48	5.06	6.63	6.46	6.07	6.24	6.11	5.77	0.67
	6.55	6.36	6.11	5.86	5.33	7.17	6.90	6.51	6.75	6.53	6.26	0.78 2.78
	7.62	7.32	6.98	6.80	6.27	8.32	7.94	7.50	7.84	7.52	7.15	3.87



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
27275	19.92	9.08	5.58	22.18	2690	2444	2448	1.09

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4506	3	1915	2471	5.84	60.0	4.2	1.80
	4	2368	3240	6.43	60.0	4.2	1.80
	5	2756	3976	7.43	60.0	4.2	1.80
	6	2815	4597	8.55	60.0	4.2	1.80

POIDS DU MONTAGE= 444 daN/m²

G1= 56 daN/m²

G2= 388 daN/m²

BETON CHANTIER=111.2 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m²]

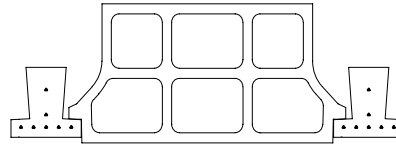
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	11.69	10.47	9.07	8.33	7.19	13.07	11.55	9.86	12.34	10.98	9.44	τ _{bu} =0.75
Limite V _{bu}	11.69	10.47	9.07	8.33	7.19	13.07	11.55	9.86	12.34	10.98	9.44	τ _{bu} =0.75
Limite V _{pu}	12.81	11.47	9.93	9.12	7.86	14.33	12.66	10.80	13.53	12.04	10.35	τ _{pu} =1.80
Limite V _{cu}	11.71	10.49	9.08	8.35	7.20	13.09	11.57	9.87	12.36	11.00	9.46	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.84	3.78	3.69	3.63	3.52	3.91	3.84	3.74	3.87	3.81	3.71	0.19	
FRG 313	3.84	3.78	3.69	3.63	3.52	3.91	3.84	3.74	3.87	3.81	3.71	0.46 1.67	
	6.27	5.87	5.39	5.13	4.70	6.63	6.16	5.62	6.44	6.01	5.50		0.37
	7.01	6.46	5.83	5.50	4.97	7.38	6.75	6.04	7.19	6.60	5.93		2.40
	8.21	7.74	6.93	6.51	5.86	8.89	8.07	7.16	8.44	7.90	7.04		
FRG 413	4.16	4.16	4.10	4.04	3.92	4.16	4.16	4.16	4.16	4.16	4.13	0.24	
	6.63	6.51	6.17	5.87	5.39	7.24	7.06	6.43	6.83	6.69	6.30	0.48	
	7.19	6.98	6.68	6.30	5.69	7.82	7.53	6.91	7.40	7.16	6.79	0.55 1.94	
	8.32	8.03	7.67	7.46	6.71	9.05	8.67	8.20	8.57	8.23	7.84	2.72	
FRG 513	4.36	4.36	4.36	4.35	4.23	4.36	4.36	4.36	4.36	4.36	4.36	0.28	
	6.70	6.57	6.41	6.30	5.97	7.32	7.14	6.90	6.90	6.76	6.57	0.56	
	7.26	7.05	6.78	6.63	6.31	7.92	7.63	7.28	7.48	7.25	6.94	0.63 2.19	
	8.46	8.13	7.76	7.55	7.21	9.21	8.78	8.31	8.69	8.34	7.94	2.93	
FRG 613	4.28	4.28	4.28	4.28	4.27	4.28	4.28	4.28	4.28	4.28	4.28	0.28	
	6.74	6.63	6.46	6.35	6.17	7.38	7.21	6.96	6.96	6.82	6.63	0.60	
	7.33	7.11	6.84	6.69	6.42	8.00	7.71	7.34	7.55	7.30	6.99	0.65 2.27	
	8.54	8.23	7.84	7.63	7.28	9.32	8.90	8.40	8.80	8.44	8.01	3.01	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
40204	20.71	8.29	5.18	21.88	4936	3573	4356	1.09

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
7274	5	3161	4075	5.02	60.0	4.2	1.80
	6	3860	4916	3.91	60.0	4.2	1.80
	7	4311	5668	4.38	60.0	4.2	1.80
	8	4269	6249	7.11	60.0	4.2	1.80

POIDS DU MONTAGE= 411 daN/m²

G1= 47 daN/m²

G2= 364 daN/m²

BETON CHANTIER= 94.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



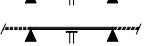

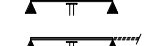

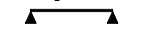

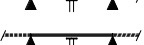


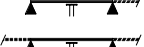
CAS DE CHARGE [daN/m²]

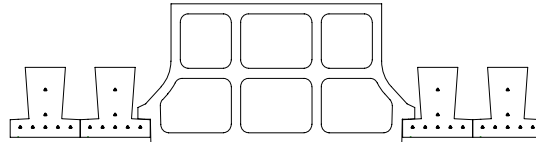
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	10.05	8.98	7.75	7.11	6.13	11.28	9.93	8.44	10.63	9.43	8.08	τ _{bu} =0.75
Limite V _{bu}	10.05	8.98	7.75	7.11	6.13	11.28	9.93	8.44	10.63	9.43	8.08	τ _{bu} =0.75
Limite V _{pu}	13.70	12.22	10.52	9.64	8.28	15.40	13.54	11.48	14.50	12.84	10.98	τ _{pu} =1.80
Limite V _{cu}	12.15	10.84	9.35	8.57	7.36	13.65	12.00	10.19	12.85	11.39	9.75	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	0.30
FRG 514R	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	0.30
	6.15	5.75	5.26	5.00	4.58	6.52	6.04	5.49	6.33	5.89	5.37	0.61
	6.80	6.31	5.68	5.35	4.83	7.25	6.60	5.89	7.00	6.46	5.78	0.75 2.71
	7.88	7.56	6.75	6.33	5.69	8.57	7.89	6.98	8.09	7.72	6.86	3.94
FRG 614R	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	3.48	0.33
	6.34	6.23	5.78	5.50	5.03	6.94	6.64	6.03	6.53	6.40	5.90	0.72
	6.86	6.66	6.24	5.88	5.31	7.50	7.21	6.47	7.07	6.84	6.35	0.85 3.06
	7.96	7.67	7.30	6.96	6.25	8.68	8.28	7.67	8.19	7.86	7.48	4.23
FRG 714R	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	0.37
	6.38	6.26	6.11	5.90	5.40	6.99	6.82	6.47	6.59	6.46	6.26	0.81
	6.92	6.71	6.46	6.30	5.70	7.55	7.27	6.93	7.13	6.90	6.61	0.94 3.35
	8.03	7.73	7.37	7.17	6.71	8.76	8.36	7.90	8.26	7.94	7.53	4.58
FRG 814R	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	0.34
	6.42	6.29	6.13	6.03	5.67	7.03	6.86	6.61	6.61	6.48	6.29	0.88
	6.96	6.74	6.48	6.33	5.98	7.61	7.32	6.97	7.17	6.93	6.64	0.99 3.50
	8.09	7.78	7.42	7.21	6.88	8.84	8.42	7.96	8.32	7.99	7.59	4.89



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
34770	18.93	10.07	4.90	21.55	4713	2891	3186	1.09

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5178	5	2991	4015	9.14	60.0	4.2	1.80
	6	3652	4830	7.62	60.0	4.2	1.80
	7	4079	5551	8.53	60.0	4.2	1.80
	8	4039	6095	9.72	60.0	4.2	1.80

POIDS DU MONTAGE= 461 daN/m²

G1= 77 daN/m²

G2= 384 daN/m²

BETON CHANTIER=113.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



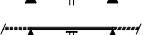



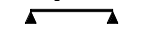


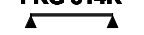

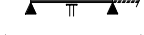
CAS DE CHARGE [daN/m²]

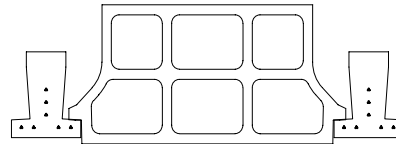
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	12.48	11.20	9.71	8.93	7.71	13.93	12.34	10.55	13.16	11.74	10.11	τ _{bu} =0.75
Limite V _{bu}	12.48	11.20	9.71	8.93	7.71	13.93	12.34	10.55	13.16	11.74	10.11	τ _{bu} =0.75
Limite V _{pu}	20.04	17.95	15.53	14.26	12.27	22.40	19.81	16.89	21.15	18.83	16.18	τ _{pu} =1.80
Limite V _{cu}	13.70	12.29	10.66	9.80	8.45	15.30	13.55	11.58	14.46	12.89	11.10	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.57	4.57	4.57	4.51	4.37	4.57	4.57	4.57	4.57	4.57	4.57	0.33
FRG 514R	4.57	4.57	4.57	4.51	4.37	4.57	4.57	4.57	4.57	4.57	4.57	0.33
	6.92	6.78	6.56	6.24	5.73	7.54	7.32	6.82	7.13	6.98	6.69	0.58
	7.50	7.27	6.99	6.70	6.06	8.15	7.86	7.35	7.71	7.47	7.17	0.67 2.36
	8.67	8.36	8.00	7.78	7.14	9.44	9.03	8.55	8.92	8.57	8.17	3.26
FRG 614R	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	0.39
	6.98	6.85	6.68	6.57	6.28	7.63	7.44	7.19	7.19	7.05	6.85	0.68
	7.57	7.34	7.07	6.92	6.65	8.25	7.96	7.59	7.79	7.55	7.25	0.76 2.67
	8.78	8.48	8.09	7.88	7.52	9.57	9.15	8.67	9.05	8.69	8.26	3.51
FRG 714R	5.06	5.06	5.06	5.06	5.06	5.06	5.06	5.06	5.06	5.06	5.06	0.44
	7.03	6.90	6.73	6.63	6.43	7.69	7.50	7.25	7.25	7.11	6.90	0.71
	7.63	7.42	7.13	6.97	6.69	8.34	8.03	7.65	7.86	7.61	7.30	0.77 2.70
	8.90	8.56	8.17	7.96	7.59	9.71	9.27	8.76	9.15	8.78	8.36	3.58
FRG 814R	4.86	4.86	4.86	4.86	4.86	4.86	4.86	4.86	4.86	4.86	4.86	0.41
	7.07	6.94	6.76	6.65	6.46	7.75	7.55	7.29	7.29	7.15	6.94	0.72
	7.69	7.46	7.17	6.99	6.73	8.40	8.07	7.71	7.92	7.66	7.34	0.78 2.74
	8.96	8.63	8.23	8.00	7.63	9.78	9.34	8.82	9.23	8.86	8.42	3.62



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
40843	20.47	8.53	3.72	21.21	5079	3653	5092	1.09

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
7179	6	3440	4754	6.30	60.0	4.2	1.80
	7	3914	5506	6.18	60.0	4.2	1.80
	8	4385	6249	6.08	60.0	4.2	1.80

POIDS DU MONTAGE= 411 daN/m²

G1= 56 daN/m²

G2= 355 daN/m²

BETON CHANTIER= 90.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

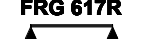


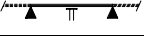

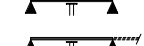

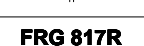




CAS DE CHARGE [daN/m²]

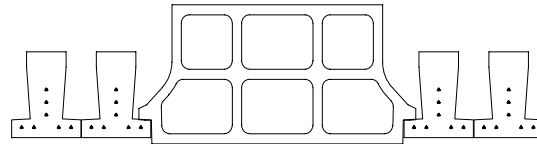
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	10.27	9.17	7.91	7.26	6.25	11.52	10.14	8.62	10.86	9.63	8.25		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	14.09	12.56	10.82	9.91	8.50	15.84	13.92	11.80	14.91	13.20	11.28		
Limite V _{cu}	14.12	12.59	10.84	9.93	8.52	15.87	13.95	11.82	14.94	13.23	11.31		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)													
FRG 617R 	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	0.42	
		6.36	6.21	5.69	5.40	4.95	6.96	6.53	5.93	6.55	6.36	5.80	0.70
		6.88	6.67	6.14	5.78	5.22	7.50	7.13	6.36	7.08	6.85	6.25	0.83 2.99
		7.96	7.67	7.29	6.84	6.14	8.69	8.28	7.54	8.19	7.86	7.41	4.21
FRG 717R 	4.23	4.23	4.23	4.23	4.23	4.23	4.23	4.23	4.23	4.23	4.23	0.49	
		6.40	6.28	6.11	5.82	5.32	7.01	6.83	6.38	6.59	6.46	6.25	0.79
		6.93	6.73	6.46	6.22	5.62	7.57	7.28	6.85	7.13	6.90	6.61	0.91 3.26
		8.03	7.73	7.38	7.18	6.61	8.76	8.37	7.91	8.26	7.94	7.55	4.56
FRG 817R 	4.46	4.46	4.46	4.46	4.46	4.46	4.46	4.46	4.46	4.46	4.46	0.54	
		6.44	6.32	6.15	6.05	5.67	7.06	6.88	6.65	6.65	6.50	6.32	0.88
		6.98	6.76	6.49	6.36	5.98	7.63	7.34	6.99	7.19	6.96	6.67	0.99 3.50
		8.11	7.80	7.44	7.23	6.90	8.86	8.46	7.98	8.35	8.01	7.61	4.92



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
35054	18.73	10.27	3.48	21.04	4806	2916	3542	1.09

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5121	6	3226	4667	10.77	60.0	4.2	1.80
	7	3670	5388	11.54	60.0	4.2	1.80
	8	4112	6095	12.17	60.0	4.2	1.80

POIDS DU MONTAGE= 461 daN/m²

G1= 92 daN/m²

G2= 369 daN/m²

BETON CHANTIER=107.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

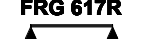


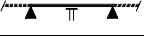

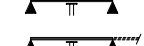

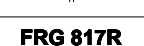




CAS DE CHARGE [daN/m²]

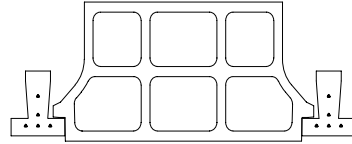
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	12.58	11.29	9.79	9.01	7.78	14.04	12.44	10.64	13.27	11.83	10.20	
Limite V _{pu}	20.42	18.29	15.83	14.53	12.50	22.83	20.19	17.22	21.56	19.19	16.49	
Limite V _{cu}	15.18	13.61	11.79	10.84	9.34	16.95	15.00	12.81	16.02	14.27	12.28	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)													
FRG 617R 	5.38	5.38	5.38	5.28	5.07	5.38	5.38	5.38	5.38	5.38	5.38	0.44	
		6.99	6.86	6.69	6.57	6.18	7.63	7.44	7.21	7.21	7.05		6.86
		7.57	7.34	7.07	6.92	6.53	8.26	7.96	7.59	7.80	7.55	7.25	0.74 2.58
		8.78	8.46	8.07	7.86	7.51	9.57	9.15	8.65	9.03	8.69	8.26	
FRG 717R 	5.77	5.77	5.75	5.63	5.41	5.77	5.77	5.77	5.77	5.77	5.77	0.51	
		7.03	6.91	6.73	6.63	6.44	7.71	7.51	7.26	7.26	7.11		6.91
		7.63	7.42	7.13	6.98	6.69	8.34	8.03	7.65	7.86	7.61	7.30	0.77 2.70
		8.88	8.55	8.16	7.94	7.59	9.69	9.27	8.75	9.15	8.78	8.35	
FRG 817R 	6.08	6.08	6.08	5.96	5.73	6.08	6.08	6.08	6.08	6.08	6.08	0.57	
		7.09	6.96	6.78	6.67	6.48	7.76	7.57	7.32	7.32	7.17		6.96
		7.71	7.48	7.19	7.01	6.74	8.42	8.11	7.73	7.94	7.69	7.36	0.78 2.75
		8.98	8.65	8.25	8.01	7.65	9.82	9.36	8.84	9.25	8.88	8.44	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
34321	22.81	7.19	6.14	23.28	2911	3209	3372	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
7159	3	2105	2593	3.57	60.0	4.2	1.80
	4	2603	3415	3.94	60.0	4.2	1.80
	5	3028	4208	4.55	60.0	4.2	1.80
	6	3094	4892	6.00	60.0	4.2	1.80

POIDS DU MONTAGE= 423 daN/m²

G1= 33 daN/m²

G2= 390 daN/m²

BETON CHANTIER=102.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



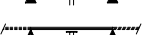



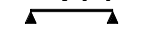




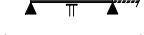
CAS DE CHARGE [daN/m²]

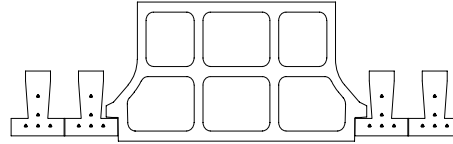
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	9.40	8.41	7.28	6.69	5.78	10.53	9.29	7.92	9.93	8.83	7.59	τ _{bu} =0.75
Limite V _{bu}	9.40	8.41	7.28	6.69	5.78	10.53	9.29	7.92	9.93	8.83	7.59	τ _{bu} =0.75
Limite V _{pu}	8.58	7.68	6.65	6.12	5.29	9.60	8.48	7.23	9.06	8.06	6.93	τ _{pu} =1.80
Limite V _{cu}	9.85	8.82	7.63	7.01	6.05	11.04	9.74	8.30	10.41	9.25	7.95	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	2.80	2.80	2.80	2.80	2.79	2.80	2.80	2.80	2.80	2.80	2.80	0.19
FRG 313	2.80	2.80	2.80	2.80	2.79	2.80	2.80	2.80	2.80	2.80	2.80	0.19
	5.00	4.67	4.28	4.07	3.73	5.29	4.91	4.46	5.14	4.79	4.37	0.37
	5.58	5.14	4.63	4.36	3.94	5.89	5.37	4.79	5.73	5.25	4.71	0.47 1.68
	6.73	6.15	5.50	5.16	4.64	7.08	6.41	5.68	6.90	6.28	5.59	2.46
FRG 413	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	0.21
	5.73	5.36	4.91	4.67	4.28	6.07	5.63	5.12	5.89	5.49	5.02	0.49
	6.40	5.89	5.31	5.00	4.52	6.75	6.16	5.50	6.57	6.02	5.40	0.61 2.22
	7.59	7.06	6.31	5.92	5.32	8.13	7.36	6.52	7.81	7.20	6.41	3.29
FRG 513	3.06	3.06	3.06	3.06	3.06	3.06	3.06	3.06	3.06	3.06	3.06	0.23
	6.11	5.95	5.46	5.19	4.75	6.68	6.25	5.69	6.30	6.10	5.57	0.60
	6.63	6.43	5.89	5.55	5.02	7.23	6.84	6.11	6.82	6.60	6.00	0.71 2.55
	7.69	7.40	7.00	6.57	5.90	8.37	8.00	7.24	7.91	7.59	7.12	3.65
FRG 613	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	0.22
	6.16	6.04	5.70	5.52	5.12	6.73	6.57	6.13	6.34	6.23	6.00	0.68
	6.68	6.48	6.23	5.99	5.41	7.28	7.01	6.58	6.88	6.65	6.38	0.78 2.80
	7.76	7.48	7.13	6.94	6.37	8.46	8.07	7.63	8.00	7.67	7.28	3.95



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
30197	20.93	9.07	5.89	22.97	2818	2530	2535	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4991	3	2018	2569	5.45	60.0	4.2	1.80
	4	2496	3371	6.01	60.0	4.2	1.80
	5	2904	4139	6.95	60.0	4.2	1.80
	6	2967	4794	8.37	60.0	4.2	1.80

POIDS DU MONTAGE= 467 daN/m²

G1= 56 daN/m²

G2= 411 daN/m²

BETON CHANTIER=121.2 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



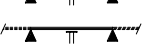

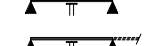

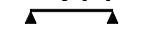

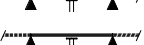


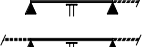
CAS DE CHARGE [daN/m²]

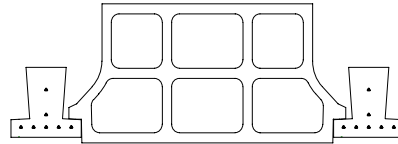
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	11.81	10.60	9.21	8.48	7.33	13.16	11.67	10.00	12.45	11.11	9.59	τ _{bu} =0.75
Limite V _{bu}	11.81	10.60	9.21	8.48	7.33	13.16	11.67	10.00	12.45	11.11	9.59	τ _{bu} =0.75
Limite V _{pu}	13.09	11.75	10.21	9.39	8.11	14.60	12.95	11.08	13.81	12.32	10.62	τ _{pu} =1.80
Limite V _{cu}	11.83	10.62	9.23	8.50	7.35	13.19	11.69	10.02	12.47	11.13	9.61	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.77	3.71	3.63	3.58	3.48	3.83	3.77	3.68	3.80	3.74	3.66	0.18	
FRG 313	3.77	3.71	3.63	3.58	3.48	3.83	3.77	3.68	3.80	3.74	3.66	0.46 1.67	
	6.32	5.92	5.45	5.19	4.76	6.67	6.21	5.67	6.49	6.06	5.56		0.37
	7.06	6.52	5.90	5.57	5.04	7.43	6.81	6.11	7.24	6.66	6.00		0.46 1.67
	8.38	7.82	7.02	6.60	5.94	8.95	8.14	7.24	8.61	7.98	7.13		2.41
FRG 413	4.07	4.07	4.04	3.98	3.87	4.07	4.07	4.07	4.07	4.07	4.07	0.23	
	6.76	6.65	6.24	5.94	5.46	7.36	7.11	6.49	6.96	6.82	6.36	0.48	
	7.32	7.12	6.76	6.38	5.77	7.96	7.69	6.99	7.53	7.30	6.87	0.55 1.99	
	8.50	8.21	7.83	7.56	6.80	9.23	8.84	8.30	8.75	8.40	8.01	2.74	
FRG 513	4.27	4.27	4.27	4.27	4.18	4.27	4.27	4.27	4.27	4.27	4.27	0.27	
	6.82	6.71	6.53	6.44	6.05	7.45	7.26	7.03	7.03	6.90	6.71	0.56	
	7.42	7.20	6.93	6.77	6.40	8.07	7.78	7.42	7.63	7.38	7.09	0.63 2.20	
	8.61	8.30	7.94	7.73	7.38	9.38	8.98	8.50	8.87	8.51	8.11	3.01	
FRG 613	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	0.27	
	6.88	6.76	6.59	6.49	6.30	7.51	7.34	7.09	7.09	6.96	6.76	0.61	
	7.48	7.26	6.99	6.82	6.56	8.15	7.86	7.50	7.71	7.46	7.15	0.66 2.32	
	8.73	8.40	8.01	7.80	7.46	9.50	9.07	8.58	8.98	8.61	8.20	3.08	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
44512	21.74	8.26	5.46	22.63	5182	3695	4505	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
8082	5	3334	4238	4.71	60.0	4.2	1.80
	6	4071	5113	3.67	60.0	4.2	1.80
	7	4547	5897	4.12	60.0	4.2	1.80
	8	4502	6511	6.68	60.0	4.2	1.80

POIDS DU MONTAGE= 435 daN/m²

G1= 47 daN/m²

G2= 388 daN/m²

BETON CHANTIER=104.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

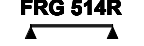


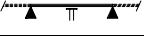

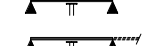

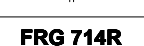


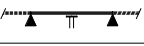


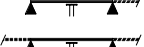
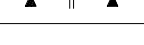

CAS DE CHARGE [daN/m²]

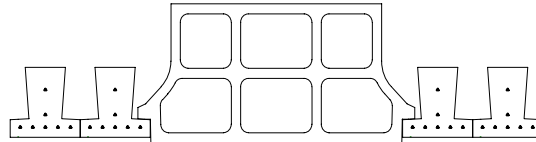
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	10.14	9.08	7.87	7.23	6.24	11.34	10.02	8.55	10.70	9.53	8.19	τ _{bu} =0.75
Limite V _{pu}	14.02	12.53	10.83	9.94	8.56	15.70	13.85	11.79	14.81	13.16	11.29	τ _{pu} =1.80
Limite V _{cu}	12.25	10.96	9.48	8.71	7.50	13.72	12.11	10.32	12.94	11.50	9.88	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 514R    	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	0.29
	6.19	5.80	5.32	5.06	4.64	6.56	6.09	5.54	6.37	5.94	5.43	0.61
	6.92	6.38	5.75	5.42	4.90	7.30	6.66	5.96	7.10	6.51	5.85	0.76 2.76
	8.03	7.64	6.83	6.42	5.77	8.73	7.96	7.06	8.26	7.79	6.95	4.05
FRG 614R    	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41	0.31
	6.47	6.34	5.84	5.56	5.09	7.05	6.69	6.09	6.67	6.52	5.96	0.72
	7.00	6.80	6.31	5.95	5.38	7.63	7.32	6.54	7.21	6.98	6.43	0.87 3.12
	8.13	7.82	7.48	7.05	6.34	8.84	8.45	7.76	8.36	8.03	7.63	4.35
FRG 714R    	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	0.35
	6.51	6.39	6.23	5.97	5.47	7.11	6.94	6.54	6.71	6.57	6.39	0.81
	7.05	6.84	6.59	6.39	5.78	7.69	7.42	7.02	7.26	7.03	6.74	0.95 3.39
	8.21	7.90	7.53	7.33	6.80	8.94	8.53	8.07	8.44	8.10	7.71	4.68
FRG 814R    	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	0.32
	6.53	6.42	6.25	6.16	5.75	7.15	6.98	6.74	6.74	6.61	6.42	0.89
	7.09	6.88	6.62	6.48	6.07	7.75	7.46	7.11	7.30	7.07	6.78	0.99 3.52
	8.26	7.94	7.57	7.38	7.04	9.00	8.59	8.12	8.50	8.15	7.75	5.01



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
38691	19.88	10.12	5.19	22.32	4967	2994	3300	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5736	5	3169	4178	8.54	60.0	4.2	1.80
	6	3869	5026	6.66	60.0	4.2	1.80
	7	4321	5779	7.46	60.0	4.2	1.80
	8	4279	6357	9.52	60.0	4.2	1.80

POIDS DU MONTAGE= 484 daN/m²

G1= 77 daN/m²

G2= 407 daN/m²

BETON CHANTIER=123.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}


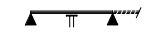




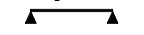


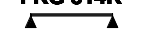
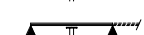
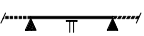
CAS DE CHARGE [daN/m²]

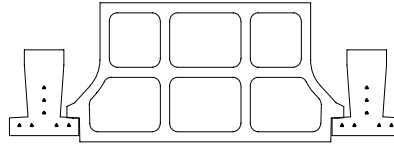
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	12.62	11.35	9.88	9.10	7.88	14.04	12.48	10.71	13.29	11.88	10.28	τ _{bu} =0.75
Limite V _{bu}	12.62	11.35	9.88	9.10	7.88	14.04	12.48	10.71	13.29	11.88	10.28	τ _{bu} =0.75
Limite V _{pu}	20.60	18.50	16.06	14.77	12.74	22.96	20.37	17.43	21.72	19.39	16.72	τ _{pu} =1.80
Limite V _{cu}	13.85	12.46	10.84	9.98	8.63	15.42	13.70	11.75	14.60	13.05	11.27	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.47	4.47	4.47	4.46	4.33	4.47	4.47	4.47	4.47	4.47	4.47	0.31
FRG 514R	4.47	4.47	4.47	4.46	4.33	4.47	4.47	4.47	4.47	4.47	4.47	0.31
	7.05	6.94	6.63	6.32	5.81	7.64	7.37	6.89	7.26	7.13	6.76	0.59
	7.65	7.44	7.17	6.78	6.15	8.32	8.01	7.43	7.87	7.63	7.30	0.68 2.42
	8.86	8.55	8.19	7.98	7.25	9.63	9.23	8.75	9.11	8.76	8.36	3.36
FRG 614R	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	0.36
	7.13	6.99	6.82	6.73	6.37	7.76	7.58	7.34	7.34	7.19	6.99	0.68
	7.73	7.51	7.23	7.07	6.74	8.42	8.11	7.75	7.96	7.71	7.40	0.77 2.69
	8.98	8.67	8.28	8.05	7.71	9.77	9.34	8.86	9.25	8.88	8.46	3.60
FRG 714R	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	0.41
	7.19	7.05	6.88	6.76	6.57	7.84	7.65	7.40	7.40	7.25	7.05	0.73
	7.80	7.57	7.28	7.13	6.85	8.50	8.19	7.82	8.03	7.78	7.47	0.79 2.77
	9.07	8.76	8.36	8.14	7.78	9.90	9.46	8.96	9.36	8.99	8.55	3.68
FRG 814R	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	0.38
	7.23	7.09	6.92	6.80	6.61	7.88	7.69	7.44	7.44	7.29	7.09	0.73
	7.84	7.62	7.33	7.17	6.88	8.55	8.25	7.86	8.09	7.82	7.51	0.80 2.80
	9.15	8.82	8.42	8.19	7.82	9.98	9.53	9.01	9.42	9.05	8.61	3.73



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
45423	21.47	8.53	3.94	21.88	5361	3769	5253	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
7986	6	3648	4950	5.80	60.0	4.2	1.80
	7	4150	5735	5.69	60.0	4.2	1.80
	8	4649	6511	5.60	60.0	4.2	1.80

POIDS DU MONTAGE= 435 daN/m²

G1= 56 daN/m²

G2= 379 daN/m²

BETON CHANTIER=100.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}









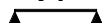



CAS DE CHARGE [daN/m²]

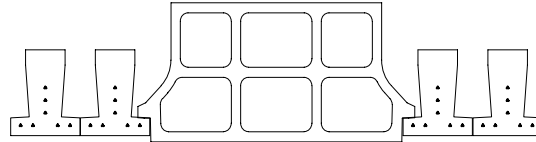
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	10.33	9.25	8.01	7.37	6.36	11.56	10.21	8.71	10.91	9.71	8.35	
Limite V _{pu}	14.48	12.95	11.19	10.27	8.83	16.23	14.31	12.18	15.30	13.60	11.66	
Limite V _{cu}	14.20	12.70	10.97	10.07	8.67	15.91	14.04	11.95	15.01	13.33	11.44	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)													
FRG 617R 	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87	0.40	
		6.49	6.26	5.75	5.47	5.01	7.08	6.58	5.99	6.69	6.41	5.86	0.71
		7.01	6.82	6.21	5.86	5.29	7.65	7.20	6.44	7.23	6.99	6.32	0.84 3.01
		8.13	7.84	7.39	6.94	6.23	8.84	8.46	7.63	8.36	8.03	7.51	4.34
FRG 717R 	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	0.46	
		6.53	6.41	6.19	5.89	5.39	7.13	6.96	6.45	6.73	6.59	6.31	0.80
		7.07	6.86	6.61	6.30	5.70	7.71	7.43	6.93	7.28	7.05	6.76	0.92 3.28
		8.21	7.90	7.54	7.34	6.71	8.94	8.53	8.07	8.44	8.11	7.72	4.68
FRG 817R 	4.38	4.38	4.38	4.38	4.38	4.38	4.38	4.38	4.38	4.38	4.38	0.51	
		6.57	6.46	6.28	6.19	5.75	7.19	7.01	6.77	6.77	6.63	6.46	0.89
		7.13	6.92	6.65	6.49	6.07	7.78	7.50	7.13	7.34	7.10	6.80	0.99 3.52
		8.28	7.98	7.61	7.40	7.07	9.03	8.63	8.15	8.53	8.19	7.78	5.06



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
39145	19.64	10.36	3.71	21.71	5092	3010	3655	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5670	6	3435	4863	10.54	60.0	4.2	1.80
	7	3908	5617	11.30	60.0	4.2	1.80
	8	4379	6357	11.91	60.0	4.2	1.80

POIDS DU MONTAGE= 484 daN/m²

G1= 92 daN/m²

G2= 393 daN/m²

BETON CHANTIER=117.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}









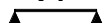



CAS DE CHARGE [daN/m²]

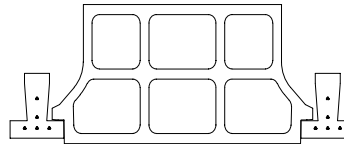
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	12.68	11.40	9.93	9.14	7.91	14.11	12.54	10.76	13.35	11.94	10.32		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	21.11	18.95	16.45	15.13	13.04	23.53	20.87	17.86	22.25	19.86	17.12		
Limite V _{cu}	15.29	13.74	11.95	11.00	9.50	17.03	15.12	12.96	16.11	14.40	12.43		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R    	5.27	5.27	5.27	5.24	5.05	5.27	5.27	5.27	5.27	5.27	5.27	0.43
	7.13	7.01	6.84	6.73	6.26	7.78	7.59	7.34	7.34	7.21	7.01	0.66
	7.74	7.51	7.25	7.07	6.63	8.42	8.13	7.76	7.96	7.72	7.41	0.74 2.60
	8.98	8.67	8.27	8.05	7.71	9.77	9.34	8.85	9.25	8.88	8.46	3.60
FRG 717R    	5.65	5.65	5.65	5.59	5.39	5.65	5.65	5.65	5.65	5.65	5.65	0.49
	7.19	7.06	6.88	6.78	6.58	7.85	7.67	7.42	7.42	7.26	7.06	0.73
	7.80	7.58	7.30	7.13	6.86	8.51	8.21	7.82	8.03	7.78	7.48	0.79 2.78
	9.07	8.75	8.36	8.13	7.77	9.90	9.46	8.95	9.34	8.98	8.55	3.67
FRG 817R    	5.96	5.96	5.96	5.92	5.70	5.96	5.96	5.96	5.96	5.96	5.96	0.55
	7.25	7.11	6.94	6.82	6.63	7.92	7.73	7.48	7.48	7.32	7.11	0.74
	7.88	7.65	7.36	7.19	6.91	8.59	8.28	7.90	8.11	7.86	7.53	0.80 2.82
	9.17	8.84	8.44	8.21	7.84	10.02	9.57	9.04	9.46	9.07	8.63	3.75



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
37443	23.75	7.25	6.43	24.09	3037	3320	3489	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
7750	3	2205	2692	3.42	60.0	4.2	1.80
	4	2727	3545	3.77	60.0	4.2	1.80
	5	3172	4371	4.35	60.0	4.2	1.80
	6	3241	5088	5.89	60.0	4.2	1.80

POIDS DU MONTAGE= 447 daN/m²

G1= 33 daN/m²

G2= 414 daN/m²

BETON CHANTIER=112.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



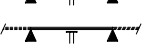

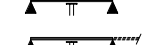

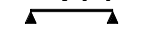

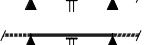


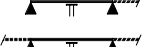
CAS DE CHARGE [daN/m²]

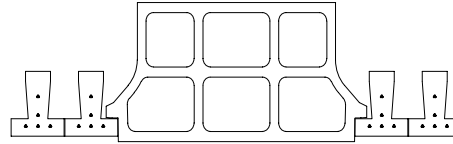
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	9.49	8.52	7.40	6.81	5.89	10.59	9.38	8.03	10.01	8.93	7.70	τ _{bu} =0.75
Limite V _{bu}	9.49	8.52	7.40	6.81	5.89	10.59	9.38	8.03	10.01	8.93	7.70	τ _{bu} =0.75
Limite V _{pu}	8.72	7.83	6.81	6.27	5.43	9.73	8.63	7.39	9.20	8.21	7.09	τ _{pu} =1.80
Limite V _{cu}	9.95	8.92	7.75	7.13	6.17	11.11	9.83	8.41	10.49	9.36	8.06	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	0.18
FRG 313	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	0.18
	5.03	4.71	4.32	4.11	3.77	5.31	4.94	4.50	5.16	4.82	4.41	0.37
	5.62	5.18	4.68	4.41	3.99	5.92	5.41	4.84	5.76	5.29	4.76	0.47 1.69
	6.78	6.20	5.56	5.22	4.70	7.12	6.47	5.74	6.94	6.33	5.65	2.47
FRG 413	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87	0.20
	5.77	5.40	4.96	4.72	4.33	6.10	5.67	5.17	5.93	5.53	5.06	0.49
	6.45	5.95	5.37	5.06	4.58	6.79	6.21	5.56	6.61	6.07	5.46	0.62 2.23
	7.75	7.12	6.38	6.00	5.39	8.18	7.42	6.59	7.96	7.27	6.48	3.33
FRG 513	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	0.22
	6.23	6.00	5.51	5.24	4.81	6.77	6.30	5.74	6.42	6.14	5.62	0.60
	6.74	6.55	5.96	5.62	5.08	7.34	6.90	6.17	6.95	6.73	6.06	0.72 2.58
	7.84	7.55	7.08	6.66	5.99	8.51	8.15	7.32	8.05	7.75	7.20	3.75
FRG 613	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	0.21
	6.27	6.16	5.94	5.55	5.19	6.84	6.68	6.19	6.46	6.33	6.06	0.68
	6.80	6.61	6.36	6.06	5.48	7.41	7.14	6.66	7.00	6.78	6.51	0.79 2.82
	7.92	7.63	7.28	7.09	6.46	8.61	8.23	7.78	8.15	7.82	7.44	4.06



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
33134	21.87	9.13	6.18	23.75	2944	2617	2621	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5445	3	2119	2667	5.14	60.0	4.2	1.80
	4	2620	3502	5.66	60.0	4.2	1.80
	5	3049	4303	6.55	60.0	4.2	1.80
	6	3114	4990	8.20	60.0	4.2	1.80

POIDS DU MONTAGE= 491 daN/m²

G1= 56 daN/m²

G2= 435 daN/m²

BETON CHANTIER=131.2 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

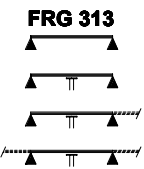
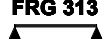


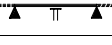
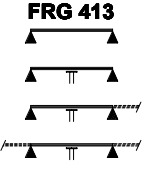
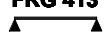
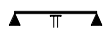


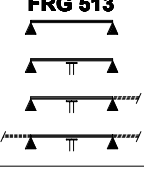
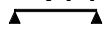

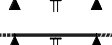

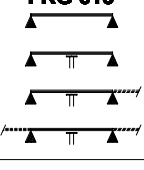

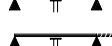
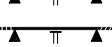

CAS DE CHARGE [daN/m²]

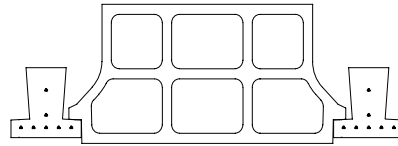
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	11.92	10.74	9.36	8.63	7.48	13.25	11.79	10.14	12.55	11.24	9.73	τ _{bu} =0.75
Limite V _{pu}	13.35	12.01	10.46	9.64	8.35	14.84	13.20	11.34	14.05	12.58	10.88	τ _{pu} =1.80
Limite V _{cu}	11.94	10.75	9.37	8.64	7.49	13.27	11.81	10.15	12.57	11.26	9.75	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)													
FRG 313 		3.70	3.65	3.58	3.53	3.44	3.76	3.70	3.63	3.73	3.68	3.60	0.18
		6.36	5.97	5.50	5.24	4.82	6.71	6.25	5.72	6.53	6.11	5.61	0.37
		7.11	6.58	5.96	5.63	5.11	7.48	6.87	6.17	7.29	6.72	6.06	0.47 1.68
		8.55	7.89	7.10	6.68	6.02	9.01	8.21	7.33	8.78	8.05	7.21	2.44
FRG 413 		3.99	3.99	3.98	3.93	3.83	3.99	3.99	3.99	3.99	3.99	3.99	0.22
		6.90	6.78	6.30	6.01	5.52	7.50	7.17	6.56	7.09	6.96	6.43	0.48
		7.48	7.27	6.83	6.46	5.85	8.11	7.84	7.07	7.69	7.46	6.95	0.57 2.04
		8.67	8.38	8.01	7.65	6.90	9.42	9.01	8.39	8.92	8.59	8.19	2.75
FRG 513 		4.18	4.18	4.18	4.18	4.13	4.18	4.18	4.18	4.18	4.18	4.18	0.25
		6.98	6.84	6.69	6.57	6.12	7.59	7.41	7.17	7.17	7.03	6.84	0.56
		7.57	7.36	7.08	6.93	6.49	8.23	7.94	7.57	7.78	7.55	7.25	0.63 2.22
		8.80	8.50	8.11	7.90	7.55	9.57	9.15	8.67	9.05	8.71	8.30	3.08
FRG 613 		4.10	4.10	4.10	4.10	4.10	4.10	4.10	4.10	4.10	4.10	4.10	0.25
		7.03	6.90	6.73	6.63	6.41	7.65	7.48	7.17	7.24	7.09	6.90	0.62
		7.63	7.42	7.15	6.99	6.71	8.30	8.01	7.65	7.86	7.61	7.30	0.68 2.37
		8.90	8.59	8.20	7.98	7.63	9.69	9.27	8.76	9.17	8.80	8.38	3.16



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
48829	22.69	8.31	5.74	23.40	5425	3820	4658	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
8818	5	3504	4402	4.46	60.0	4.2	1.80
	6	4278	5309	3.48	60.0	4.2	1.80
	7	4778	6126	3.89	60.0	4.2	1.80
	8	4731	6772	6.32	60.0	4.2	1.80

POIDS DU MONTAGE= 458 daN/m²

G1= 47 daN/m²

G2= 411 daN/m²

BETON CHANTIER=114.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



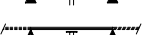



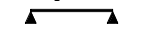


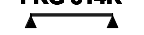

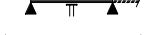
CAS DE CHARGE [daN/m²]

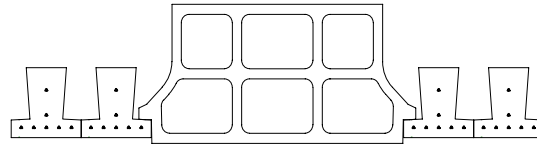
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	10.23	9.19	7.98	7.35	6.36	11.40	10.11	8.66	10.78	9.63	8.31	τ _{bu} =0.75
Limite V _{bu}	10.23	9.19	7.98	7.35	6.36	11.40	10.11	8.66	10.78	9.63	8.31	τ _{bu} =0.75
Limite V _{pu}	14.31	12.83	11.12	10.23	8.82	15.98	14.14	12.08	15.09	13.45	11.58	τ _{pu} =1.80
Limite V _{cu}	12.36	11.09	9.62	8.85	7.65	13.79	12.22	10.45	13.03	11.62	10.02	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	0.27
FRG 514R	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	0.27
	6.24	5.84	5.37	5.11	4.69	6.59	6.13	5.59	6.40	5.98	5.48	0.61
	6.97	6.43	5.81	5.48	4.96	7.34	6.72	6.02	7.15	6.57	5.91	0.76 2.77
	8.21	7.71	6.91	6.50	5.85	8.84	8.03	7.14	8.44	7.87	7.02	4.12
FRG 614R	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	0.29
	6.59	6.42	5.90	5.62	5.15	7.19	6.73	6.14	6.78	6.57	6.02	0.72
	7.15	6.94	6.38	6.02	5.45	7.76	7.38	6.61	7.36	7.13	6.49	0.87 3.13
	8.29	8.00	7.59	7.14	6.42	9.01	8.61	7.84	8.53	8.21	7.71	4.45
FRG 714R	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	0.33
	6.64	6.51	6.34	6.03	5.54	7.25	7.07	6.60	6.84	6.71	6.46	0.82
	7.21	6.99	6.73	6.47	5.86	7.84	7.55	7.10	7.42	7.18	6.89	0.95 3.40
	8.38	8.07	7.71	7.50	6.90	9.11	8.71	8.25	8.61	8.27	7.88	4.82
FRG 814R	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	0.31
	6.67	6.55	6.39	6.28	5.82	7.28	7.11	6.88	6.88	6.74	6.55	0.89
	7.25	7.03	6.76	6.61	6.16	7.88	7.60	7.25	7.46	7.22	6.92	1.00 3.56
	8.44	8.12	7.75	7.55	7.21	9.17	8.76	8.29	8.67	8.32	7.92	5.14



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
42664	20.79	10.21	5.47	23.09	5214	3097	3413	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
6270	5	3341	4342	7.68	60.0	4.2	1.80
	6	4079	5222	5.99	60.0	4.2	1.80
	7	4556	6008	6.71	60.0	4.2	1.80
	8	4512	6618	9.33	60.0	4.2	1.80

POIDS DU MONTAGE= 508 daN/m²

G1= 77 daN/m²

G2= 431 daN/m²

BETON CHANTIER=133.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

















CAS DE CHARGE [daN/m²]

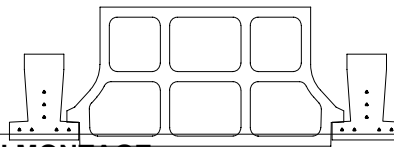
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	12.75	11.49	10.03	9.26	8.03	14.14	12.61	10.86	13.41	12.02	10.43	
Limite V _{pu}	21.11	19.00	16.54	15.23	13.17	23.46	20.87	17.93	22.22	19.89	17.21	
Limite V _{cu}	13.99	12.61	11.00	10.15	8.80	15.54	13.84	11.91	14.72	13.20	11.44	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 514R    	4.38	4.38	4.38	4.38	4.29	4.38	4.38	4.38	4.38	4.38	4.38	0.30
	7.21	7.09	6.70	6.39	5.88	7.84	7.40	6.96	7.42	7.27	6.83	0.59
	7.82	7.61	7.27	6.87	6.23	8.48	8.19	7.51	8.03	7.80	7.39	0.68 2.46
	9.05	8.76	8.38	8.15	7.35	9.84	9.42	8.93	9.32	8.98	8.57	3.44
FRG 614R    	4.55	4.55	4.55	4.55	4.55	4.55	4.55	4.55	4.55	4.55	4.55	0.34
	7.28	7.15	6.98	6.88	6.45	7.92	7.75	7.50	7.50	7.34	7.15	0.68
	7.90	7.69	7.40	7.25	6.84	8.59	8.28	7.92	8.13	7.88	7.57	0.77 2.69
	9.17	8.87	8.48	8.26	7.90	9.98	9.55	9.05	9.46	9.09	8.67	3.70
FRG 714R    	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	0.39
	7.34	7.21	7.03	6.92	6.73	8.00	7.80	7.55	7.55	7.41	7.21	0.74
	7.98	7.75	7.46	7.30	7.01	8.67	8.36	8.00	8.21	7.96	7.64	0.81 2.85
	9.28	8.96	8.55	8.34	7.98	10.09	9.67	9.15	9.55	9.19	8.76	3.78
FRG 814R    	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	0.36
	7.38	7.25	7.07	6.96	6.76	8.03	7.85	7.60	7.60	7.46	7.25	0.75
	8.01	7.80	7.50	7.34	7.05	8.73	8.42	8.03	8.26	8.00	7.69	0.82 2.88
	9.34	9.03	8.62	8.40	8.01	10.19	9.75	9.23	9.63	9.27	8.82	3.83



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
50039	22.40	8.60	4.16	22.58	5638	3889	5422	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
8731	6	3851	5146	5.41	60.0	4.2	1.80
	7	4381	5963	5.30	60.0	4.2	1.80
	8	4908	6772	5.22	60.0	4.2	1.80

POIDS DU MONTAGE= 458 daN/m²

G1= 56 daN/m²

G2= 403 daN/m²

BETON CHANTIER=110.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

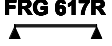


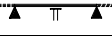
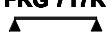
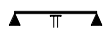


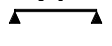

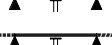

CAS DE CHARGE [daN/m²]

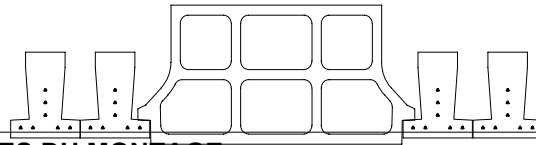
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	10.40	9.34	8.12	7.48	6.47	11.60	10.28	8.81	10.97	9.79	8.45	τ _{bu} =0.75
Limite V _{pu}	14.85	13.31	11.54	10.61	9.15	16.58	14.68	12.54	15.67	13.96	12.02	τ _{pu} =1.80
Limite V _{cu}	14.30	12.82	11.11	10.22	8.82	15.97	14.13	12.08	15.08	13.44	11.57	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R    	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	0.38
	6.63	6.32	5.81	5.53	5.07	7.12	6.63	6.05	6.82	6.47	5.92	0.71
	7.17	6.96	6.29	5.93	5.37	7.80	7.26	6.51	7.38	7.11	6.39	0.86 3.11
	8.31	8.01	7.47	7.03	6.32	9.03	8.64	7.72	8.55	8.23	7.59	4.49
FRG 717R    	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	0.43
	6.67	6.55	6.25	5.95	5.46	7.26	7.09	6.51	6.86	6.73	6.38	0.80
	7.23	7.01	6.76	6.38	5.78	7.86	7.58	7.00	7.44	7.21	6.88	0.94 3.38
	8.39	8.09	7.73	7.51	6.81	9.13	8.73	8.26	8.63	8.29	7.90	4.85
FRG 817R    	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	0.48
	6.71	6.59	6.42	6.32	5.82	7.32	7.15	6.92	6.92	6.77	6.59	0.90
	7.28	7.07	6.80	6.65	6.16	7.94	7.65	7.28	7.50	7.26	6.96	1.00 3.60
	8.47	8.15	7.78	7.58	7.25	9.22	8.80	8.34	8.71	8.36	7.96	5.21



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
43320	20.52	10.48	3.93	22.40	5372	3105	3770	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
6201	6	3639	5060	10.33	60.0	4.2	1.80
	7	4140	5846	11.08	60.0	4.2	1.80
	8	4639	6618	11.67	60.0	4.2	1.80

POIDS DU MONTAGE= 508 daN/m²

G1= 92 daN/m²

G2= 416 daN/m²

BETON CHANTIER=127.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}









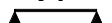



CAS DE CHARGE [daN/m²]

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	12.78	11.52	10.06	9.28	8.05	14.18	12.64	10.88	13.44	12.05	10.45	
Limite V _{pu}	21.73	19.56	17.02	15.68	13.55	24.15	21.49	18.46	22.87	20.48	17.71	
Limite V _{cu}	15.41	13.88	12.10	11.16	9.67	17.11	15.24	13.11	16.21	14.53	12.58	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R    	5.17	5.17	5.17	5.17	5.02	5.17	5.17	5.17	5.17	5.17	5.17	0.42
	7.30	7.17	6.99	6.89	6.34	7.94	7.76	7.51	7.51	7.36	7.17	0.67
	7.92	7.70	7.42	7.25	6.73	8.60	8.30	7.94	8.15	7.90	7.59	0.75 2.67
	9.18	8.88	8.48	8.26	7.90	9.98	9.55	9.05	9.46	9.09	8.67	3.70
FRG 717R    	5.54	5.54	5.54	5.54	5.36	5.54	5.54	5.54	5.54	5.54	5.54	0.47
	7.36	7.23	7.05	6.94	6.74	8.01	7.82	7.57	7.57	7.42	7.23	0.75
	7.98	7.76	7.48	7.30	7.03	8.69	8.38	8.00	8.23	7.97	7.65	0.82 2.86
	9.28	8.96	8.57	8.34	7.98	10.11	9.67	9.15	9.55	9.19	8.76	3.78
FRG 817R    	5.84	5.84	5.84	5.84	5.67	5.84	5.84	5.84	5.84	5.84	5.84	0.53
	7.42	7.28	7.09	6.99	6.78	8.08	7.89	7.63	7.63	7.48	7.28	0.76
	8.05	7.82	7.53	7.36	7.08	8.76	8.46	8.07	8.29	8.03	7.71	0.83 2.90
	9.38	9.05	8.65	8.42	8.05	10.23	9.78	9.27	9.67	9.29	8.84	3.87



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
8598	13.35	4.65	3.66	13.24	1294	1762	1544	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2772	2	644	953	3.65	60.0	4.2	1.80
	3	982	1457	3.53	60.0	4.2	1.80
	4	1230	1912	3.86	60.0	4.2	1.80
	5	1327	2286	5.14	60.0	4.2	1.80

POIDS DU MONTAGE= 343 daN/m²

G1= 28 daN/m²

G2= 314 daN/m²

BETON CHANTIER=103.4 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



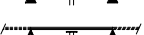







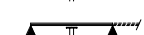
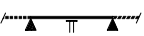
CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	5.68	5.03	4.30	3.93	3.36	6.43	5.60	4.71	6.03	5.30	4.50	τ _{bu} =0.75
Limite V _{bu}	5.68	5.03	4.30	3.93	3.36	6.43	5.60	4.71	6.03	5.30	4.50	τ _{bu} =0.75
Limite V _{pu}	4.25	3.77	3.24	2.97	2.55	4.81	4.20	3.54	4.51	3.97	3.38	τ _{pu} =1.80
Limite V _{cu}	5.01	4.44	3.81	3.48	2.98	5.68	4.95	4.16	5.32	4.68	3.98	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	0.14
FRG 211	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	0.14
	3.17	2.95	2.68	2.54	2.32	3.38	3.11	2.81	3.27	3.03	2.74	0.25
	3.53	3.23	2.89	2.71	2.44	3.74	3.38	3.00	3.63	3.30	2.94	0.30 1.10
	4.25	3.86	3.42	3.20	2.86	4.49	4.03	3.54	4.37	3.94	3.48	1.63
FRG 311	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	0.21
	3.92	3.64	3.32	3.15	2.87	4.18	3.85	3.47	4.04	3.74	3.39	0.38
	4.37	3.99	3.57	3.35	3.01	4.63	4.18	3.70	4.49	4.08	3.63	0.47 1.73
	5.26	4.77	4.23	3.96	3.54	5.56	4.99	4.38	5.40	4.87	4.30	2.64
FRG 411	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	2.54	0.28
	4.22	4.13	3.80	3.60	3.28	4.72	4.40	3.97	4.39	4.28	3.88	0.49
	4.62	4.46	4.09	3.84	3.45	5.12	4.79	4.24	4.78	4.60	4.16	0.58 2.13
	5.40	5.19	4.85	4.53	4.05	5.90	5.63	5.02	5.55	5.32	4.93	3.15
FRG 511	2.57	2.57	2.57	2.57	2.57	2.57	2.57	2.57	2.57	2.57	2.57	0.28
	4.26	4.17	4.04	3.94	3.59	4.77	4.63	4.30	4.44	4.32	4.17	0.57
	4.67	4.49	4.29	4.17	3.77	5.17	4.96	4.59	4.84	4.65	4.42	0.64 2.35
	5.46	5.24	4.99	4.83	4.43	5.98	5.69	5.36	5.62	5.38	5.11	3.51



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
7494	12.31	5.69	3.45	13.05	1243	1407	1256	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
1976	2	608	942	5.43	60.0	4.2	1.80
	3	928	1433	6.08	60.0	4.2	1.80
	4	1163	1868	6.64	60.0	4.2	1.80
	5	1254	2218	7.50	60.0	4.2	1.80

POIDS DU MONTAGE= 355 daN/m²

G1= 48 daN/m²

G2= 307 daN/m²

BETON CHANTIER=105.0 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	7.44	6.59	5.64	5.15	4.40	8.43	7.35	6.17	7.91	6.95	5.89	τ _{bu} =0.75
Limite V _{bu}	7.44	6.59	5.64	5.15	4.40	8.43	7.35	6.17	7.91	6.95	5.89	τ _{bu} =0.75
Limite V _{pu}	6.61	5.86	5.02	4.58	3.92	7.49	6.53	5.49	7.02	6.17	5.24	τ _{pu} =1.80
Limite V _{cu}	6.68	5.92	5.07	4.63	3.96	7.56	6.59	5.54	7.09	6.24	5.30	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	2.71	2.71	2.67	2.60	2.48	2.71	2.71	2.71	2.71	2.71	2.70	0.16
FRG 211	2.71	2.71	2.67	2.60	2.48	2.71	2.71	2.71	2.71	2.71	2.70	0.16
	3.98	3.78	3.45	3.27	2.99	4.20	3.98	3.61	4.09	3.87	3.53	0.24
	4.43	4.14	3.71	3.49	3.14	4.66	4.33	3.85	4.54	4.23	3.78	0.29 1.04
	5.33	4.95	4.41	4.12	3.69	5.60	5.16	4.56	5.45	5.05	4.48	1.54
FRG 311	3.25	3.25	3.25	3.21	3.06	3.25	3.25	3.25	3.25	3.25	3.25	0.24
	4.76	4.65	4.26	4.04	3.68	5.19	4.91	4.45	4.94	4.78	4.35	0.36
	5.17	5.01	4.58	4.30	3.87	5.67	5.35	4.75	5.32	5.15	4.66	0.43 1.54
	5.96	5.73	5.43	5.08	4.55	6.51	6.22	5.62	6.14	5.88	5.53	2.16
FRG 411	3.70	3.70	3.69	3.60	3.43	3.70	3.70	3.70	3.70	3.70	3.70	0.30
	4.82	4.72	4.57	4.48	4.20	5.34	5.20	5.01	5.01	4.89	4.72	0.46
	5.24	5.07	4.86	4.72	4.42	5.74	5.52	5.25	5.40	5.23	4.99	0.51 1.80
	6.06	5.82	5.55	5.40	5.15	6.65	6.32	5.97	6.24	5.98	5.69	2.55
FRG 511	3.75	3.75	3.75	3.73	3.56	3.75	3.75	3.75	3.75	3.75	3.75	0.33
	4.88	4.76	4.62	4.53	4.36	5.40	5.24	5.06	5.06	4.94	4.76	0.49
	5.29	5.13	4.91	4.78	4.55	5.82	5.59	5.30	5.46	5.27	5.05	0.54 1.92
	6.14	5.90	5.61	5.46	5.21	6.74	6.42	6.04	6.33	6.06	5.74	2.62



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
8682	13.28	4.72	2.67	13.01	1363	2023	1873	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2761	3	914	1416	4.31	60.0	4.2	1.80
	4	1130	1845	4.75	60.0	4.2	1.80
	5	1315	2246	5.49	60.0	4.2	1.80
	6	1344	2538	6.42	60.0	4.2	1.80

POIDS DU MONTAGE= 343 daN/m²

G1= 33 daN/m²

G2= 309 daN/m²

BETON CHANTIER=101.4 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



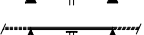



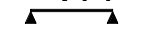




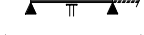
CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	6.47	5.73	4.89	4.47	3.82	7.34	6.39	5.36	6.88	6.04	5.12	τ _{bu} =0.75
Limite V _{bu}	6.47	5.73	4.89	4.47	3.82	7.34	6.39	5.36	6.88	6.04	5.12	τ _{bu} =0.75
Limite V _{pu}	4.46	3.96	3.40	3.11	2.67	5.05	4.40	3.71	4.73	4.17	3.55	τ _{pu} =1.80
Limite V _{cu}	6.01	5.32	4.55	4.16	3.56	6.82	5.94	4.98	6.39	5.61	4.76	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	2.99	2.89	2.75	2.67	2.52	3.00	2.99	2.84	3.00	2.94	2.79	0.27
FRG 313	2.99	2.89	2.75	2.67	2.52	3.00	2.99	2.84	3.00	2.94	2.79	0.27
	3.87	3.59	3.27	3.10	2.83	4.12	3.79	3.42	3.99	3.69	3.34	0.37
	4.30	3.93	3.52	3.30	2.97	4.56	4.13	3.65	4.43	4.03	3.58	0.46 1.68
	5.18	4.70	4.17	3.90	3.49	5.48	4.92	4.32	5.32	4.80	4.24	2.55
FRG 413	3.12	3.12	3.06	2.97	2.81	3.12	3.12	3.12	3.12	3.12	3.11	0.34
	4.22	4.10	3.73	3.54	3.23	4.64	4.33	3.90	4.40	4.21	3.82	0.47
	4.63	4.46	4.02	3.77	3.39	5.08	4.71	4.17	4.78	4.59	4.09	0.56 2.09
	5.40	5.19	4.76	4.45	3.98	5.90	5.58	4.93	5.55	5.32	4.84	3.07
FRG 513	3.27	3.27	3.27	3.20	3.03	3.27	3.27	3.27	3.27	3.27	3.27	0.40
	4.27	4.18	4.05	3.90	3.56	4.78	4.63	4.31	4.44	4.32	4.18	0.56
	4.67	4.50	4.30	4.16	3.74	5.18	4.97	4.60	4.84	4.65	4.42	0.64 2.36
	5.46	5.24	4.99	4.84	4.39	5.98	5.69	5.37	5.62	5.38	5.11	3.52
FRG 613	3.21	3.21	3.21	3.21	3.06	3.21	3.21	3.21	3.21	3.21	3.21	0.40
	4.30	4.21	4.07	3.98	3.68	4.82	4.67	4.37	4.47	4.36	4.21	0.59
	4.71	4.53	4.32	4.21	3.86	5.21	5.00	4.67	4.88	4.69	4.46	0.66 2.45
	5.49	5.28	5.03	4.88	4.54	6.03	5.74	5.41	5.67	5.43	5.15	3.62



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
7543	12.27	5.73	2.51	12.94	1303	1544	1426	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
1974	3	860	1392	8.64	60.0	4.2	1.80
	4	1063	1801	9.11	60.0	4.2	1.80
	5	1237	2177	9.54	60.0	4.2	1.80
	6	1264	2439	9.36	60.0	4.2	1.80

POIDS DU MONTAGE= 355 daN/m²

G1= 56 daN/m²

G2= 299 daN/m²

BETON CHANTIER=101.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



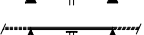



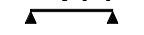




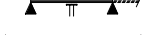
CAS DE CHARGE [daN/m²]

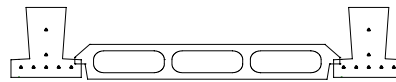
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	8.14	7.20	6.16	5.62	4.80	9.22	8.03	6.74	8.65	7.60	6.44	τ _{bu} =0.75
Limite V _{bu}	8.14	7.20	6.16	5.62	4.80	9.22	8.03	6.74	8.65	7.60	6.44	τ _{bu} =0.75
Limite V _{pu}	6.92	6.13	5.25	4.79	4.10	7.84	6.83	5.74	7.35	6.46	5.48	τ _{pu} =1.80
Limite V _{cu}	7.54	6.68	5.71	5.22	4.45	8.54	7.44	6.25	8.01	7.04	5.97	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.80	3.67	3.49	3.39	3.20	3.95	3.80	3.61	3.88	3.73	3.55	0.26
FRG 313	3.80	3.67	3.49	3.39	3.20	3.95	3.80	3.61	3.88	3.73	3.55	0.26
	4.76	4.56	4.19	3.98	3.63	5.11	4.81	4.38	4.96	4.68	4.29	0.35
	5.18	5.00	4.51	4.24	3.81	5.67	5.24	4.68	5.34	5.11	4.60	0.42 1.52
	5.96	5.73	5.35	5.01	4.48	6.52	6.23	5.54	6.15	5.89	5.45	2.16
FRG 413	4.23	4.08	3.88	3.76	3.56	4.40	4.23	4.01	4.31	4.15	3.94	0.32
	4.83	4.72	4.57	4.48	4.13	5.34	5.21	4.94	5.01	4.89	4.72	0.44
	5.24	5.07	4.86	4.72	4.34	5.74	5.52	5.25	5.40	5.23	4.99	0.50 1.79
	6.05	5.82	5.55	5.40	5.10	6.64	6.32	5.96	6.24	5.98	5.68	2.49
FRG 513	4.56	4.40	4.19	4.06	3.84	4.74	4.56	4.33	4.65	4.48	4.25	0.38
	4.89	4.78	4.63	4.53	4.38	5.41	5.26	5.07	5.07	4.95	4.78	0.50
	5.30	5.13	4.92	4.78	4.55	5.82	5.59	5.31	5.48	5.28	5.05	0.54 1.92
	6.15	5.90	5.61	5.46	5.21	6.74	6.42	6.05	6.34	6.07	5.75	2.62
FRG 613	4.61	4.45	4.23	4.10	3.88	4.68	4.61	4.37	4.68	4.53	4.30	0.39
	4.92	4.80	4.66	4.57	4.40	5.45	5.29	5.10	5.10	4.98	4.80	0.50
	5.34	5.17	4.96	4.82	4.59	5.88	5.63	5.35	5.51	5.32	5.09	0.55 1.96
	6.19	5.95	5.66	5.49	5.24	6.81	6.48	6.09	6.39	6.11	5.80	2.66



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
10879	12.81	5.19	2.27	12.81	2294	2438	2568	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3143	5	1383	2276	6.37	60.0	4.2	1.80
	6	1689	2758	4.97	60.0	4.2	1.80
	7	1886	3150	5.56	60.0	4.2	1.80
	8	1868	3371	7.54	60.0	4.2	1.80

POIDS DU MONTAGE= 344 daN/m²

G1= 47 daN/m²

G2= 297 daN/m²

BETON CHANTIER= 97.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



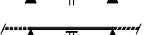



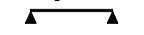


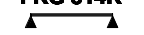

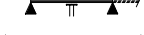
CAS DE CHARGE [daN/m²]

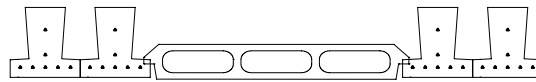
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	7.37	6.52	5.57	5.08	4.33	8.36	7.27	6.10	7.83	6.87	5.82	τ _{bu} =0.75
Limite V _{bu}	7.37	6.52	5.57	5.08	4.33	8.36	7.27	6.10	7.83	6.87	5.82	τ _{bu} =0.75
Limite V _{pu}	6.95	6.15	5.25	4.80	4.09	7.89	6.86	5.76	7.39	6.49	5.49	τ _{pu} =1.80
Limite V _{cu}	7.74	6.85	5.85	5.33	4.55	8.79	7.64	6.41	8.23	7.22	6.11	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.54	3.54	3.44	3.33	3.14	3.54	3.54	3.54	3.54	3.54	3.50	0.45
FRG 514R	3.54	3.54	3.44	3.33	3.14	3.54	3.54	3.54	3.54	3.54	3.50	0.45
	4.49	4.38	4.05	3.83	3.49	4.98	4.67	4.23	4.67	4.54	4.13	0.58
	4.90	4.72	4.35	4.08	3.67	5.39	5.08	4.52	5.07	4.88	4.43	0.69 2.52
	5.67	5.46	5.16	4.83	4.31	6.21	5.92	5.34	5.84	5.60	5.25	3.64
FRG 614R	3.68	3.68	3.68	3.68	3.47	3.68	3.68	3.68	3.68	3.68	3.68	0.55
	4.53	4.44	4.30	4.21	3.85	5.07	4.92	4.65	4.71	4.59	4.44	0.69
	4.96	4.78	4.55	4.44	4.04	5.46	5.23	4.97	5.13	4.94	4.69	0.79 2.92
	5.74	5.51	5.25	5.11	4.75	6.30	5.99	5.65	5.92	5.67	5.38	4.08
FRG 714R	3.92	3.92	3.92	3.89	3.67	3.92	3.92	3.92	3.92	3.92	3.92	0.61
	4.57	4.47	4.33	4.24	4.09	5.11	4.97	4.75	4.75	4.63	4.47	0.77
	5.00	4.82	4.59	4.47	4.26	5.50	5.28	5.01	5.17	4.98	4.73	0.84 3.09
	5.80	5.57	5.30	5.15	4.90	6.37	6.06	5.71	5.98	5.73	5.43	4.48
FRG 814R	3.77	3.77	3.77	3.77	3.65	3.77	3.77	3.77	3.77	3.77	3.77	0.61
	4.59	4.48	4.34	4.26	4.11	5.13	4.97	4.76	4.76	4.65	4.48	0.78
	5.02	4.84	4.61	4.48	4.27	5.52	5.30	5.03	5.19	5.00	4.74	0.84 3.10
	5.82	5.59	5.32	5.17	4.92	6.40	6.09	5.73	6.00	5.74	5.45	4.53



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
9402	11.81	6.19	2.12	12.76	2180	1925	1935	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2279	5	1296	2216	10.13	60.0	4.2	1.80
	6	1583	2672	10.52	60.0	4.2	1.80
	7	1767	3033	11.21	60.0	4.2	1.80
	8	1750	3218	10.77	60.0	4.2	1.80

POIDS DU MONTAGE= 359 daN/m²

G1= 77 daN/m²

G2= 282 daN/m²

BETON CHANTIER= 96.4 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}


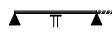

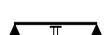

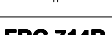



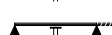
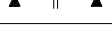

CAS DE CHARGE [daN/m²]

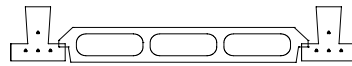
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	9.27	8.21	7.01	6.40	5.45	10.51	9.15	7.68	9.85	8.65	7.33	τ _{bu} =0.75
Limite V _{bu}	9.27	8.21	7.01	6.40	5.45	10.51	9.15	7.68	9.85	8.65	7.33	τ _{bu} =0.75
Limite V _{pu}	10.46	9.26	7.90	7.21	6.14	11.86	10.33	8.66	11.12	9.76	8.26	τ _{pu} =1.80
Limite V _{cu}	9.32	8.25	7.05	6.43	5.48	10.56	9.20	7.72	9.90	8.70	7.37	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.71	4.53	4.29	4.15	3.91	4.92	4.71	4.45	4.81	4.62	4.37	0.43
FRG 514R	4.71	4.53	4.29	4.15	3.91	4.92	4.71	4.45	4.81	4.62	4.37	0.43
	5.06	4.96	4.80	4.71	4.39	5.57	5.43	5.20	5.23	5.11	4.96	0.54
	5.46	5.29	5.08	4.96	4.62	6.00	5.76	5.48	5.63	5.44	5.21	0.60 2.14
	6.31	6.07	5.78	5.62	5.36	6.94	6.59	6.23	6.51	6.24	5.92	3.00
FRG 614R	5.12	5.01	4.74	4.59	4.32	5.26	5.21	4.91	5.26	5.10	4.83	0.52
	5.12	5.01	4.86	4.76	4.59	5.65	5.49	5.29	5.29	5.17	5.01	0.59
	5.53	5.36	5.14	5.01	4.78	6.09	5.84	5.55	5.71	5.51	5.27	0.65 2.31
	6.42	6.16	5.86	5.70	5.44	7.05	6.71	6.32	6.61	6.33	6.00	3.10
FRG 714R	5.16	5.05	4.90	4.80	4.57	5.60	5.51	5.19	5.34	5.22	5.05	0.59
	5.16	5.05	4.90	4.80	4.63	5.71	5.54	5.34	5.34	5.22	5.05	0.60
	5.59	5.40	5.19	5.05	4.82	6.16	5.90	5.60	5.76	5.56	5.32	0.66 2.35
	6.49	6.23	5.92	5.75	5.48	7.15	6.79	6.39	6.70	6.40	6.07	3.16
FRG 814R	5.17	5.07	4.92	4.82	4.54	5.39	5.39	5.17	5.35	5.23	5.07	0.58
	5.17	5.07	4.92	4.82	4.65	5.73	5.56	5.35	5.35	5.23	5.07	0.61
	5.60	5.42	5.20	5.07	4.84	6.19	5.92	5.62	5.78	5.58	5.33	0.66 2.37
	6.51	6.24	5.94	5.76	5.49	7.19	6.82	6.42	6.73	6.43	6.09	3.18



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
11427	14.95	5.05	4.34	14.92	1506	1986	1741	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3393	2	764	1084	3.48	60.0	4.2	1.80
	3	1165	1654	3.18	60.0	4.2	1.80
	4	1460	2173	3.47	60.0	4.2	1.80
	5	1574	2613	4.80	60.0	4.2	1.80

POIDS DU MONTAGE= 390 daN/m²

G1= 28 daN/m²

G2= 361 daN/m²

BETON CHANTIER=123.4 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



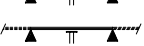

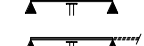

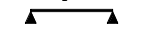

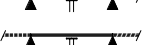


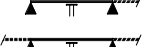
CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	6.06	5.40	4.66	4.27	3.68	6.82	5.99	5.08	6.42	5.68	4.86	τ _{bu} =0.75
Limite V _{bu}	6.06	5.40	4.66	4.27	3.68	6.82	5.99	5.08	6.42	5.68	4.86	τ _{bu} =0.75
Limite V _{pu}	4.67	4.18	3.61	3.32	2.87	5.25	4.62	3.93	4.94	4.39	3.76	τ _{pu} =1.80
Limite V _{cu}	5.35	4.78	4.12	3.78	3.26	6.02	5.29	4.49	5.66	5.02	4.30	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	0.12
FRG 211	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	0.12
	3.29	3.07	2.81	2.67	2.44	3.49	3.23	2.93	3.39	3.15	2.87	0.25
	3.67	3.37	3.03	2.85	2.57	3.88	3.53	3.14	3.77	3.45	3.08	0.31 1.12
	4.42	4.03	3.59	3.37	3.02	4.66	4.21	3.72	4.54	4.12	3.65	1.63
FRG 311	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14	0.18
	4.06	3.79	3.47	3.29	3.01	4.31	3.99	3.62	4.18	3.89	3.54	0.38
	4.53	4.16	3.74	3.52	3.17	4.79	4.36	3.88	4.66	4.26	3.81	0.47 1.72
	5.46	4.98	4.44	4.16	3.73	5.76	5.20	4.59	5.61	5.08	4.51	2.62
FRG 411	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	0.23
	4.57	4.35	3.97	3.77	3.45	4.95	4.57	4.15	4.72	4.46	4.06	0.50
	4.99	4.77	4.29	4.03	3.63	5.46	4.99	4.44	5.15	4.88	4.36	0.61 2.25
	5.78	5.56	5.09	4.77	4.28	6.30	5.96	5.26	5.95	5.71	5.17	3.25
FRG 511	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	0.24
	4.61	4.51	4.33	4.14	3.78	5.11	4.94	4.51	4.78	4.67	4.42	0.58
	5.04	4.88	4.66	4.42	3.99	5.51	5.30	4.87	5.20	5.02	4.75	0.67 2.44
	5.84	5.62	5.36	5.23	4.69	6.38	6.08	5.74	6.01	5.76	5.48	3.68



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
10006	13.80	6.20	4.12	14.67	1448	1581	1412	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2421	2	725	1073	5.16	60.0	4.2	1.80
	3	1105	1629	5.11	60.0	4.2	1.80
	4	1385	2130	5.59	60.0	4.2	1.80
	5	1493	2545	7.13	60.0	4.2	1.80

POIDS DU MONTAGE= 402 daN/m²

G1= 48 daN/m²

G2= 354 daN/m²

BETON CHANTIER=125.0 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}













CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	7.93	7.07	6.09	5.58	4.79	8.91	7.83	6.64	8.39	7.43	6.35	τ _{bu} =0.75
Limite V _{bu}	7.93	7.07	6.09	5.58	4.79	8.91	7.83	6.64	8.39	7.43	6.35	τ _{bu} =0.75
Limite V _{pu}	7.29	6.50	5.60	5.14	4.42	8.19	7.20	6.11	7.71	6.83	5.84	τ _{pu} =1.80
Limite V _{cu}	7.11	6.35	5.47	5.02	4.31	8.00	7.03	5.96	7.53	6.67	5.71	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	2.58	2.58	2.58	2.58	2.48	2.58	2.58	2.58	2.58	2.58	2.58	0.14
FRG 211	2.58	2.58	2.58	2.58	2.48	2.58	2.58	2.58	2.58	2.58	2.58	0.14
	4.14	3.95	3.61	3.43	3.14	4.35	4.14	3.77	4.24	4.04	3.69	0.24
	4.62	4.33	3.90	3.67	3.31	4.83	4.52	4.04	4.72	4.43	3.97	0.29 1.06
	5.63	5.19	4.63	4.34	3.90	5.92	5.41	4.79	5.77	5.30	4.71	1.59
FRG 311	3.09	3.09	3.09	3.09	3.06	3.09	3.09	3.09	3.09	3.09	3.09	0.22
	5.13	4.86	4.45	4.23	3.87	5.47	5.11	4.64	5.28	4.98	4.54	0.37
	5.54	5.34	4.80	4.52	4.08	6.03	5.59	4.98	5.71	5.46	4.89	0.44 1.61
	6.40	6.17	5.70	5.35	4.80	6.96	6.65	5.90	6.57	6.32	5.80	2.28
FRG 411	3.52	3.52	3.52	3.52	3.43	3.52	3.52	3.52	3.52	3.52	3.52	0.28
	5.19	5.09	4.96	4.83	4.42	5.69	5.53	5.31	5.35	5.24	5.09	0.47
	5.61	5.45	5.24	5.12	4.66	6.13	5.90	5.63	5.78	5.59	5.36	0.53 1.89
	6.50	6.26	5.98	5.81	5.49	7.09	6.77	6.40	6.69	6.42	6.11	2.61
FRG 511	3.57	3.57	3.57	3.57	3.56	3.57	3.57	3.57	3.57	3.57	3.57	0.29
	5.24	5.14	5.00	4.92	4.74	5.74	5.59	5.40	5.40	5.29	5.14	0.53
	5.67	5.49	5.28	5.17	4.96	6.21	5.98	5.69	5.84	5.65	5.42	0.58 2.07
	6.59	6.34	6.03	5.88	5.61	7.21	6.86	6.48	6.78	6.50	6.19	2.75



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
11614	14.84	5.16	3.19	14.53	1600	2260	2092	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3375	3	1095	1612	3.83	60.0	4.2	1.80
	4	1354	2107	4.22	60.0	4.2	1.80
	5	1575	2573	4.88	60.0	4.2	1.80
	6	1609	2930	6.16	60.0	4.2	1.80

POIDS DU MONTAGE= 390 daN/m²

G1= 33 daN/m²

G2= 356 daN/m²

BETON CHANTIER=121.4 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



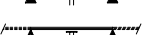



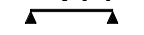




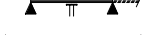
CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	6.85	6.10	5.25	4.81	4.14	7.71	6.77	5.73	7.25	6.41	5.48	τ _{bu} =0.75
Limite V _{bu}	6.85	6.10	5.25	4.81	4.14	7.71	6.77	5.73	7.25	6.41	5.48	τ _{bu} =0.75
Limite V _{pu}	4.95	4.42	3.82	3.51	3.03	5.56	4.89	4.15	5.23	4.64	3.98	τ _{pu} =1.80
Limite V _{cu}	6.37	5.67	4.89	4.48	3.85	7.16	6.29	5.33	6.74	5.96	5.10	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	2.88	2.85	2.74	2.67	2.55	2.88	2.88	2.81	2.88	2.88	2.78	0.26
FRG 313	2.88	2.85	2.74	2.67	2.55	2.88	2.88	2.81	2.88	2.88	2.78	0.26
	4.01	3.74	3.42	3.25	2.97	4.26	3.94	3.57	4.13	3.84	3.50	0.37
	4.48	4.11	3.69	3.47	3.13	4.73	4.30	3.83	4.60	4.20	3.76	0.46 1.68
	5.39	4.92	4.38	4.11	3.68	5.69	5.13	4.53	5.54	5.02	4.46	2.53
FRG 413	3.00	3.00	3.00	2.97	2.84	3.00	3.00	3.00	3.00	3.00	3.00	0.31
	4.57	4.28	3.91	3.72	3.40	4.86	4.50	4.08	4.71	4.39	4.00	0.48
	5.01	4.70	4.22	3.97	3.58	5.40	4.92	4.37	5.16	4.80	4.29	0.60 2.20
	5.78	5.57	5.01	4.70	4.21	6.30	5.87	5.18	5.96	5.72	5.09	3.19
FRG 513	3.14	3.14	3.14	3.14	3.06	3.14	3.14	3.14	3.14	3.14	3.14	0.37
	4.63	4.53	4.32	4.11	3.75	5.12	4.93	4.51	4.79	4.68	4.42	0.57
	5.05	4.89	4.66	4.39	3.95	5.51	5.31	4.83	5.21	5.03	4.75	0.67 2.45
	5.85	5.63	5.37	5.19	4.65	6.38	6.09	5.73	6.02	5.78	5.49	3.64
FRG 613	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08	0.37
	4.66	4.55	4.42	4.26	3.95	5.15	5.00	4.64	4.82	4.71	4.54	0.62
	5.09	4.92	4.71	4.55	4.16	5.56	5.35	4.97	5.24	5.07	4.84	0.70 2.56
	5.90	5.67	5.41	5.26	4.90	6.44	6.15	5.80	6.07	5.82	5.53	3.79



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
10113	13.71	6.29	3.01	14.38	1530	1711	1581	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2410	3	1032	1588	6.76	60.0	4.2	1.80
	4	1276	2063	7.45	60.0	4.2	1.80
	5	1485	2504	8.61	60.0	4.2	1.80
	6	1517	2832	8.90	60.0	4.2	1.80

POIDS DU MONTAGE= 402 daN/m²

G1= 56 daN/m²

G2= 346 daN/m²

BETON CHANTIER=121.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}






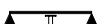


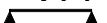






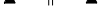
CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	8.55	7.62	6.56	6.01	5.16	9.62	8.45	7.16	9.05	8.01	6.85	τ _{bu} =0.75
Limite V _{bu}	8.55	7.62	6.56	6.01	5.16	9.62	8.45	7.16	9.05	8.01	6.85	τ _{bu} =0.75
Limite V _{pu}	7.68	6.85	5.90	5.41	4.65	8.64	7.59	6.43	8.13	7.20	6.16	τ _{pu} =1.80
Limite V _{cu}	7.93	7.07	6.09	5.58	4.79	8.91	7.83	6.64	8.39	7.43	6.35	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.74	3.63	3.49	3.40	3.24	3.86	3.74	3.58	3.80	3.69	3.54	0.25
FRG 313 	3.74	3.63	3.49	3.40	3.24	3.86	3.74	3.58	3.80	3.69	3.54	0.25
	5.07	4.80	4.39	4.17	3.82	5.35	5.05	4.58	5.20	4.92	4.49	0.36
	5.55	5.27	4.74	4.46	4.03	5.95	5.52	4.91	5.71	5.39	4.83	0.43 1.56
	6.40	6.17	5.63	5.28	4.74	6.98	6.59	5.82	6.59	6.32	5.72	2.23
FRG 413 	4.16	4.04	3.88	3.78	3.61	4.29	4.16	3.99	4.23	4.10	3.93	0.30
	5.20	5.10	4.96	4.76	4.35	5.69	5.55	5.22	5.36	5.24	5.10	0.45
	5.62	5.46	5.24	5.09	4.59	6.13	5.90	5.60	5.78	5.59	5.37	0.52 1.87
	6.49	6.26	5.98	5.81	5.40	7.09	6.76	6.40	6.69	6.42	6.11	2.52
FRG 513 	4.49	4.36	4.19	4.08	3.89	4.54	4.49	4.30	4.54	4.42	4.24	0.35
	5.24	5.15	5.01	4.92	4.75	5.75	5.61	5.42	5.42	5.30	5.15	0.53
	5.69	5.51	5.29	5.17	4.97	6.22	5.98	5.69	5.86	5.67	5.43	0.58 2.08
	6.59	6.34	6.04	5.88	5.61	7.21	6.88	6.49	6.78	6.51	6.19	2.75
FRG 613 	4.45	4.41	4.23	4.12	3.93	4.45	4.45	4.35	4.45	4.45	4.29	0.36
	5.28	5.19	5.05	4.96	4.78	5.80	5.65	5.46	5.46	5.34	5.19	0.54
	5.73	5.55	5.33	5.21	4.99	6.26	6.03	5.73	5.90	5.71	5.46	0.59 2.10
	6.65	6.40	6.09	5.93	5.66	7.28	6.94	6.55	6.86	6.57	6.24	2.80



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
14630	14.28	5.72	2.73	14.22	2720	2687	2830	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3839	5	1668	2603	5.33	60.0	4.2	1.80
	6	2036	3151	4.15	60.0	4.2	1.80
	7	2274	3608	4.65	60.0	4.2	1.80
	8	2252	3895	7.24	60.0	4.2	1.80

POIDS DU MONTAGE= 392 daN/m²

G1= 47 daN/m²

G2= 345 daN/m²

BETON CHANTIER=117.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

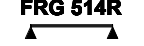


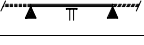

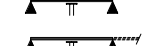

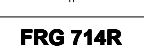


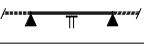


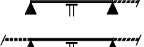
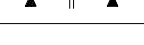

CAS DE CHARGE [daN/m²]

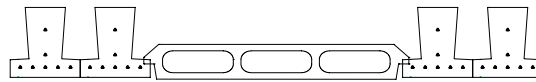
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	7.70	6.85	5.90	5.40	4.63	8.67	7.60	6.43	8.15	7.21	6.15	τ _{bu} =0.75
Limite V _{bu}	7.70	6.85	5.90	5.40	4.63	8.67	7.60	6.43	8.15	7.21	6.15	τ _{bu} =0.75
Limite V _{pu}	7.79	6.93	5.96	5.46	4.69	8.77	7.69	6.51	8.25	7.29	6.22	τ _{pu} =1.80
Limite V _{cu}	8.09	7.20	6.19	5.67	4.86	9.11	7.99	6.76	8.57	7.57	6.46	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.40	3.40	3.40	3.37	3.20	3.40	3.40	3.40	3.40	3.40	3.40	0.42
FRG 514R 	3.40	3.40	3.40	3.37	3.20	3.40	3.40	3.40	3.40	3.40	3.40	0.42
	4.86	4.64	4.24	4.03	3.68	5.24	4.88	4.43	5.03	4.75	4.33	0.59
	5.27	5.09	4.57	4.30	3.88	5.75	5.33	4.74	5.43	5.21	4.66	0.71 2.63
	6.09	5.86	5.43	5.09	4.56	6.63	6.34	5.62	6.26	6.01	5.52	3.87
FRG 614R 	3.53	3.53	3.53	3.53	3.53	3.53	3.53	3.53	3.53	3.53	3.53	0.52
	4.92	4.80	4.67	4.43	4.05	5.40	5.26	4.87	5.08	4.97	4.76	0.70
	5.32	5.17	4.96	4.73	4.27	5.82	5.59	5.22	5.48	5.30	5.09	0.80 2.93
	6.17	5.93	5.65	5.50	5.02	6.73	6.42	6.06	6.34	6.09	5.78	4.27
FRG 714R 	3.76	3.76	3.76	3.76	3.74	3.76	3.76	3.76	3.76	3.76	3.76	0.58
	4.96	4.84	4.70	4.61	4.34	5.44	5.30	5.11	5.11	5.01	4.84	0.79
	5.36	5.21	4.99	4.86	4.57	5.87	5.65	5.38	5.53	5.34	5.12	0.88 3.20
	6.23	5.98	5.71	5.55	5.30	6.80	6.49	6.12	6.40	6.15	5.84	4.72
FRG 814R 	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	0.54
	4.97	4.86	4.71	4.63	4.47	5.46	5.32	5.13	5.13	5.02	4.86	0.84
	5.38	5.23	5.01	4.88	4.67	5.90	5.67	5.40	5.55	5.36	5.14	0.92 3.37
	6.24	6.01	5.73	5.57	5.32	6.84	6.51	6.15	6.44	6.17	5.86	4.77



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
12659	13.19	6.81	2.56	14.16	2581	2089	2100	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2787	5	1563	2543	9.63	60.0	4.2	1.80
	6	1909	3064	10.01	60.0	4.2	1.80
	7	2132	3490	10.66	60.0	4.2	1.80
	8	2111	3741	10.24	60.0	4.2	1.80

POIDS DU MONTAGE= 406 daN/m²

G1= 77 daN/m²

G2= 329 daN/m²

BETON CHANTIER=116.4 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



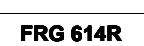
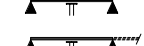

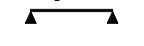
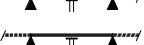


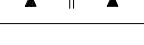
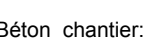
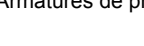
CAS DE CHARGE [daN/m²]

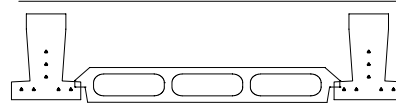
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	9.54	8.50	7.32	6.70	5.75	10.73	9.43	7.98	10.10	8.94	7.64	τ _{bu} =0.75
Limite V _{bu}	9.54	8.50	7.32	6.70	5.75	10.73	9.43	7.98	10.10	8.94	7.64	τ _{bu} =0.75
Limite V _{pu}	11.71	10.43	8.97	8.21	7.03	13.19	11.57	9.79	12.41	10.97	9.36	τ _{pu} =1.80
Limite V _{cu}	9.59	8.55	7.36	6.74	5.78	10.79	9.48	8.03	10.16	8.99	7.68	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.67	4.52	4.32	4.20	3.99	4.82	4.67	4.45	4.75	4.59	4.38	0.40
FRG 514R	4.67	4.52	4.32	4.20	3.99	4.82	4.67	4.45	4.75	4.59	4.38	0.40
	5.42	5.32	5.18	5.07	4.64	5.94	5.78	5.53	5.59	5.48	5.32	0.56
	5.86	5.69	5.46	5.34	4.89	6.40	6.17	5.87	6.03	5.84	5.59	0.62 2.24
	6.77	6.51	6.23	6.05	5.75	7.40	7.06	6.67	6.98	6.69	6.36	3.12
FRG 614R	5.00	5.00	4.78	4.64	4.41	5.00	5.00	4.92	5.00	5.00	4.85	0.49
	5.48	5.37	5.23	5.15	4.99	6.01	5.86	5.65	5.65	5.53	5.37	0.64
	5.93	5.74	5.51	5.40	5.18	6.49	6.24	5.94	6.11	5.91	5.66	0.69 2.45
	6.88	6.61	6.30	6.13	5.86	7.53	7.17	6.76	7.09	6.79	6.46	3.26
FRG 714R	5.33	5.28	5.05	4.91	4.66	5.33	5.33	5.20	5.33	5.33	5.12	0.55
	5.51	5.42	5.26	5.19	5.02	6.07	5.91	5.71	5.71	5.57	5.42	0.65
	5.98	5.80	5.57	5.44	5.23	6.56	6.30	5.99	6.17	5.96	5.71	0.70 2.50
	6.96	6.69	6.36	6.19	5.91	7.63	7.26	6.84	7.17	6.87	6.51	3.32
FRG 814R	5.12	5.12	5.02	4.88	4.64	5.12	5.12	5.12	5.12	5.12	5.10	0.55
	5.53	5.44	5.28	5.20	5.04	6.09	5.94	5.73	5.73	5.59	5.44	0.65
	6.00	5.82	5.59	5.46	5.23	6.59	6.33	6.01	6.20	5.98	5.73	0.70 2.51
	6.99	6.72	6.40	6.22	5.93	7.67	7.30	6.88	7.21	6.90	6.55	3.35



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
14630	14.28	5.72	1.91	14.21	2721	3336	3513	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3839	6	1766	2988	6.84	60.0	4.2	1.80
	7	2009	3446	6.71	60.0	4.2	1.80
	8	2251	3895	6.60	60.0	4.2	1.80

POIDS DU MONTAGE= 392 daN/m²

G1= 56 daN/m²

G2= 336 daN/m²

BETON CHANTIER=114.0 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

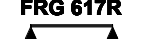


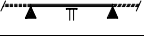

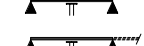

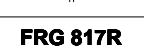




CAS DE CHARGE [daN/m²]

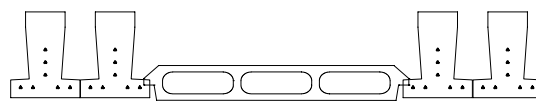
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	9.47	8.43	7.24	6.62	5.67	10.68	9.36	7.90	10.04	8.87	7.56	τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	9.47	8.43	7.24	6.62	5.67	10.68	9.36	7.90	10.04	8.87	7.56	
Limite V _{pu}	7.79	6.93	5.97	5.46	4.69	8.77	7.69	6.51	8.25	7.29	6.22	
Limite V _{cu}	9.96	8.86	7.61	6.96	5.96	11.23	9.84	8.31	10.56	9.32	7.94	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.01	4.01	3.94	3.81	3.58	4.01	4.01	4.01	4.01	4.01	4.01	0.77 2.85
FRG 617R 	4.01	4.01	3.94	3.81	3.58	4.01	4.01	4.01	4.01	4.01	4.01	
	4.92	4.80	4.53	4.32	3.95	5.40	5.15	4.74	5.07	4.97	4.64	
	5.32	5.16	4.89	4.61	4.16	5.82	5.59	5.08	5.48	5.30	4.99	
	6.15	5.92	5.65	5.45	4.89	6.73	6.42	6.02	6.34	6.07	5.78	
FRG 717R 	4.30	4.30	4.20	4.06	3.82	4.30	4.30	4.30	4.30	4.30	4.27	0.86 3.15
	4.96	4.84	4.69	4.61	4.24	5.44	5.30	5.07	5.11	5.01	4.84	
	5.36	5.20	4.99	4.86	4.46	5.87	5.65	5.38	5.52	5.34	5.12	
	6.21	5.98	5.70	5.54	5.25	6.80	6.48	6.11	6.40	6.13	5.83	
FRG 817R 	4.53	4.53	4.44	4.30	4.05	4.53	4.53	4.53	4.53	4.53	4.52	0.92 3.37
	4.99	4.88	4.72	4.64	4.47	5.48	5.34	5.15	5.15	5.04	4.88	
	5.40	5.23	5.03	4.90	4.67	5.92	5.69	5.42	5.57	5.38	5.16	
	6.27	6.03	5.74	5.59	5.33	6.87	6.54	6.17	6.46	6.20	5.88	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
12659	13.19	6.81	1.79	14.16	2581	2522	2551	1.20

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2787	6	1655	2901	11.35	60.0	4.2	1.80
	7	1883	3328	12.17	60.0	4.2	1.80
	8	2109	3741	12.82	60.0	4.2	1.80

POIDS DU MONTAGE= 406 daN/m²

G1= 92 daN/m²

G2= 314 daN/m²

BETON CHANTIER=110.2 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

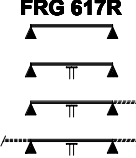
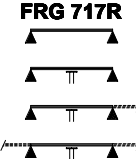
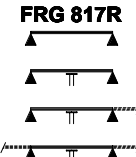
CAS DE CHARGE [daN/m²]

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	11.46	10.20	8.77	8.03	6.87	12.89	11.32	9.57	12.13	10.73	9.15		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	11.71	10.43	8.97	8.21	7.03	13.19	11.57	9.79	12.41	10.97	9.36		
Limite V _{cu}	11.58	10.31	8.86	8.11	6.95	13.04	11.44	9.68	12.26	10.84	9.25		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												0.69 2.45	
FRG 617R 	5.41	5.19	4.91	4.75	4.46	5.65	5.41	5.09	5.53	5.30	5.00		0.51 0.62 0.69 2.45 3.26
	5.48	5.38	5.23	5.15	4.90	6.03	5.87	5.67	5.67	5.53	5.38		
	5.94	5.75	5.53	5.40	5.17	6.51	6.25	5.96	6.12	5.92	5.67		
	6.88	6.61	6.30	6.13	5.86	7.53	7.19	6.78	7.09	6.80	6.46		
FRG 717R 	5.53	5.42	5.24	5.06	4.76	6.03	5.77	5.43	5.71	5.59	5.33	0.58 0.65 0.70 2.50 3.32	
	5.53	5.42	5.27	5.19	5.03	6.09	5.92	5.71	5.71	5.59	5.42		
	5.99	5.80	5.57	5.44	5.23	6.57	6.32	6.01	6.19	5.98	5.72		
	6.96	6.69	6.37	6.20	5.91	7.64	7.28	6.86	7.18	6.88	6.53		
FRG 817R 	5.57	5.47	5.32	5.23	5.04	6.15	5.98	5.75	5.76	5.63	5.47	0.65 0.66 0.71 2.55 3.39	
	5.57	5.47	5.32	5.23	5.07	6.15	5.98	5.76	5.76	5.63	5.47		
	6.05	5.86	5.62	5.48	5.26	6.65	6.38	6.06	6.24	6.03	5.76		
	7.04	6.76	6.44	6.25	5.96	7.75	7.36	6.94	7.26	6.96	6.59		



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
14725	16.57	5.43	5.04	16.66	1722	2218	1944	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4070	2	888	1215	3.34	60.0	4.2	1.80
	3	1354	1850	2.91	60.0	4.2	1.80
	4	1697	2435	3.18	60.0	4.2	1.80
	5	1830	2940	4.40	60.0	4.2	1.80

POIDS DU MONTAGE= 437 daN/m²

G1= 28 daN/m²

G2= 408 daN/m²

BETON CHANTIER=143.4 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

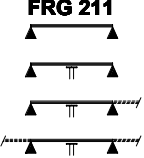
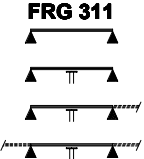
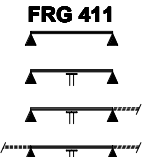
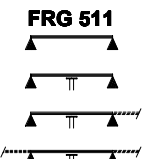
CAS DE CHARGE [daN/m²]

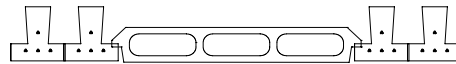
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												
Limite V _{bu}	6.43	5.76	5.00	4.60	3.98	7.18	6.36	5.43	6.78	6.04	5.21	τ _{bu} =0.75
Limite V _{pu}	5.07	4.56	3.97	3.66	3.17	5.66	5.02	4.30	5.35	4.77	4.13	τ _{pu} =1.80
Limite V _{cu}	5.68	5.10	4.43	4.08	3.54	6.34	5.61	4.81	5.99	5.34	4.61	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 211 	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	0.10
	3.40	3.18	2.92	2.77	2.54	3.59	3.34	3.04	3.49	3.25	2.98	0.25
	3.79	3.50	3.15	2.97	2.69	4.00	3.65	3.27	3.89	3.57	3.21	0.31 1.12
	4.58	4.19	3.75	3.52	3.16	4.81	4.36	3.87	4.69	4.27	3.81	1.64
FRG 311 	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	0.15
	4.19	3.92	3.60	3.42	3.14	4.43	4.12	3.75	4.31	4.01	3.67	0.38
	4.68	4.31	3.89	3.67	3.31	4.93	4.51	4.03	4.80	4.41	3.96	0.47 1.72
	5.65	5.16	4.62	4.34	3.90	5.94	5.38	4.78	5.79	5.27	4.70	2.60
FRG 411 	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	0.20
	4.81	4.50	4.13	3.93	3.60	5.09	4.72	4.30	4.94	4.61	4.21	0.50
	5.28	4.95	4.46	4.21	3.80	5.66	5.17	4.62	5.43	5.06	4.54	0.62 2.29
	6.11	5.89	5.30	4.98	4.48	6.63	6.18	5.48	6.28	6.03	5.39	3.32
FRG 511 	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38	0.20
	4.90	4.80	4.54	4.32	3.96	5.36	5.19	4.73	5.06	4.96	4.63	0.59
	5.32	5.17	4.90	4.62	4.18	5.78	5.58	5.08	5.48	5.30	4.99	0.69 2.53
	6.18	5.96	5.69	5.48	4.92	6.71	6.42	6.02	6.35	6.10	5.80	3.71



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
12955	15.32	6.68	4.80	16.35	1659	1762	1574	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2908	2	845	1204	4.93	60.0	4.2	1.80
	3	1289	1825	4.50	60.0	4.2	1.80
	4	1616	2391	4.91	60.0	4.2	1.80
	5	1742	2872	6.79	60.0	4.2	1.80

POIDS DU MONTAGE= 449 daN/m²

G1= 48 daN/m²

G2= 401 daN/m²

BETON CHANTIER=145.0 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

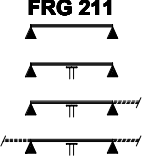



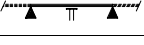
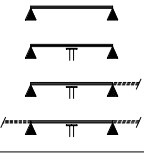

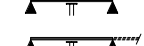

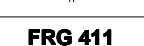
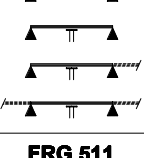


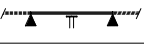

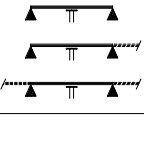

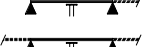
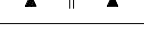

CAS DE CHARGE [daN/m²]

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	8.40	7.53	6.53	6.00	5.18	9.38	8.30	7.09	8.86	7.89	6.80	τ _{bu} =0.75
Limite V _{pu}	7.93	7.11	6.17	5.67	4.90	8.85	7.83	6.70	8.36	7.45	6.42	τ _{pu} =1.80
Limite V _{cu}	7.54	6.76	5.87	5.40	4.67	8.41	7.45	6.37	7.95	7.09	6.11	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)													
FRG 211 		2.47	2.47	2.47	2.47	2.46	2.47	2.47	2.47	2.47	2.47	0.13	
		4.26	4.09	3.76	3.57	3.28	4.45	4.26	3.91	4.35	4.18	0.24	
		4.76	4.50	4.06	3.83	3.47	5.14	4.67	4.21	5.00	4.59	4.13	0.31 1.11
		5.89	5.39	4.83	4.54	4.08	6.19	5.62	4.99	6.03	5.50	4.91	1.63
FRG 311 		2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	0.19	
		5.37	5.03	4.62	4.40	4.04	5.68	5.28	4.82	5.52	5.15	4.72	0.37
		5.86	5.54	5.00	4.72	4.27	6.33	5.79	5.18	6.02	5.66	5.09	0.46 1.68
		6.76	6.53	5.95	5.59	5.03	7.34	6.92	6.14	6.96	6.69	6.04	2.32
FRG 411 		3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	0.24	
		5.48	5.38	5.24	5.04	4.62	5.98	5.83	5.51	5.65	5.53	5.38	0.47
		5.94	5.76	5.55	5.40	4.88	6.46	6.23	5.93	6.11	5.92	5.68	0.55 1.95
		6.88	6.63	6.34	6.17	5.75	7.48	7.15	6.77	7.07	6.80	6.48	2.62
FRG 511 		3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41	0.25	
		5.53	5.44	5.29	5.21	5.05	6.03	5.89	5.70	5.70	5.59	5.44	0.55
		5.99	5.82	5.61	5.48	5.26	6.53	6.30	6.00	6.17	5.98	5.73	0.60 2.14
		6.98	6.72	6.41	6.24	5.97	7.59	7.25	6.86	7.17	6.89	6.55	2.85



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
15078	16.42	5.58	3.74	16.15	1846	2512	2326	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4055	3	1284	1809	3.48	60.0	4.2	1.80
	4	1588	2368	3.84	60.0	4.2	1.80
	5	1848	2900	4.43	60.0	4.2	1.80
	6	1888	3322	5.94	60.0	4.2	1.80

POIDS DU MONTAGE= 437 daN/m²

G1= 33 daN/m²

G2= 404 daN/m²

BETON CHANTIER=141.4 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

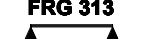


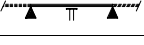

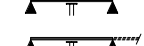

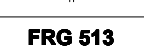


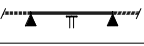


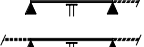
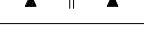

CAS DE CHARGE [daN/m²]

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	7.23	6.48	5.62	5.17	4.46	8.09	7.15	6.10	7.63	6.80	5.85	
Limite V _{pu}	5.41	4.86	4.23	3.89	3.38	6.04	5.35	4.58	5.71	5.09	4.40	
Limite V _{cu}	6.72	6.03	5.23	4.81	4.16	7.51	6.65	5.68	7.10	6.32	5.44	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												k _a	
FRG 313													
	2.77	2.77	2.71	2.65	2.55	2.77	2.77	2.77	2.77	2.77	2.74		0.23 0.37 0.46 1.68 2.53
	4.14	3.88	3.56	3.38	3.10	4.38	4.07	3.71	4.26	3.97	3.63		
	4.63	4.26	3.85	3.63	3.28	4.88	4.46	3.98	4.75	4.36	3.91		
	5.58	5.11	4.57	4.29	3.86	5.87	5.32	4.72	5.72	5.21	4.65		
FRG 413													
	2.89	2.89	2.89	2.89	2.83	2.89	2.89	2.89	2.89	2.89	2.89	0.29 0.49 0.61 2.25 3.35	
	4.74	4.44	4.07	3.87	3.55	5.02	4.66	4.24	4.87	4.54	4.15		
	5.30	4.88	4.40	4.15	3.75	5.58	5.10	4.56	5.43	4.99	4.48		
	6.13	5.84	5.23	4.91	4.42	6.65	6.09	5.41	6.29	5.96	5.32		
FRG 513													
	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	0.33 0.58 0.70 2.56 3.64	
	4.93	4.82	4.50	4.29	3.93	5.38	5.15	4.69	5.09	4.97	4.60		
	5.34	5.19	4.87	4.59	4.15	5.81	5.61	5.04	5.49	5.32	4.95		
	6.20	5.98	5.71	5.44	4.89	6.73	6.44	5.98	6.37	6.12	5.83		
FRG 613													
	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	0.32 0.64 0.73 2.65 3.93	
	4.96	4.86	4.67	4.49	4.19	5.42	5.20	4.86	5.11	5.01	4.76		
	5.38	5.23	5.03	4.81	4.43	5.86	5.65	5.22	5.53	5.36	5.13		
	6.24	6.01	5.74	5.59	5.21	6.80	6.49	6.15	6.42	6.17	5.88		



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
13173	15.17	6.83	3.54	15.92	1768	1894	1750	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2894	3	1214	1784	5.74	60.0	4.2	1.80
	4	1502	2324	6.32	60.0	4.2	1.80
	5	1747	2831	7.31	60.0	4.2	1.80
	6	1785	3224	8.51	60.0	4.2	1.80

POIDS DU MONTAGE= 449 daN/m²

G1= 56 daN/m²

G2= 393 daN/m²

BETON CHANTIER=141.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

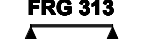


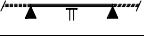

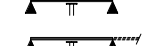

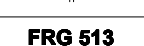


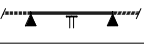


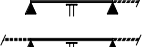
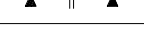

CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	9.00	8.06	6.99	6.43	5.54	10.05	8.89	7.59	9.50	8.46	7.28	τ _{bu} =0.75
Limite V _{bu}	9.00	8.06	6.99	6.43	5.54	10.05	8.89	7.59	9.50	8.46	7.28	τ _{bu} =0.75
Limite V _{pu}	8.42	7.55	6.55	6.02	5.20	9.41	8.33	7.11	8.89	7.92	6.82	τ _{pu} =1.80
Limite V _{cu}	8.34	7.48	6.48	5.96	5.15	9.32	8.24	7.04	8.80	7.84	6.75	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.66	3.58	3.46	3.38	3.25	3.75	3.66	3.53	3.71	3.62	3.49	0.23
FRG 313												
	3.66	3.58	3.46	3.38	3.25	3.75	3.66	3.53	3.71	3.62	3.49	0.23
	5.28	4.98	4.57	4.35	3.99	5.54	5.22	4.76	5.40	5.09	4.66	0.36
	5.88	5.48	4.95	4.66	4.22	6.21	5.72	5.12	6.03	5.60	5.03	0.45 1.62
	6.78	6.55	5.88	5.53	4.97	7.36	6.84	6.07	6.98	6.70	5.97	2.33
FRG 413												
	4.07	3.98	3.84	3.76	3.61	4.14	4.07	3.93	4.12	4.02	3.89	0.28
	5.49	5.40	5.22	4.97	4.56	5.98	5.84	5.43	5.65	5.54	5.32	0.46
	5.95	5.77	5.56	5.32	4.82	6.47	6.24	5.84	6.11	5.93	5.69	0.53 1.89
	6.88	6.64	6.34	6.18	5.67	7.48	7.16	6.78	7.07	6.80	6.49	2.63
FRG 513												
	4.34	4.29	4.15	4.06	3.90	4.34	4.34	4.24	4.34	4.34	4.19	0.33
	5.55	5.45	5.31	5.23	5.03	6.05	5.91	5.72	5.72	5.60	5.45	0.55
	6.01	5.84	5.62	5.49	5.28	6.55	6.31	6.02	6.19	5.99	5.74	0.61 2.16
	6.99	6.73	6.42	6.25	5.98	7.61	7.26	6.88	7.19	6.90	6.57	2.86
FRG 613												
	4.25	4.25	4.19	4.10	3.94	4.25	4.25	4.25	4.25	4.25	4.24	0.34
	5.59	5.48	5.34	5.26	5.11	6.11	5.96	5.75	5.75	5.64	5.48	0.57
	6.06	5.88	5.66	5.53	5.32	6.61	6.36	6.07	6.24	6.03	5.79	0.62 2.19
	7.05	6.78	6.48	6.30	6.02	7.69	7.34	6.94	7.26	6.98	6.63	2.91



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
19122	15.78	6.22	3.23	15.70	3175	2969	3127	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4613	5	1973	2930	4.67	60.0	4.2	1.80
	6	2409	3543	3.64	60.0	4.2	1.80
	7	2690	4066	4.08	60.0	4.2	1.80
	8	2664	4418	6.62	60.0	4.2	1.80

POIDS DU MONTAGE= 439 daN/m²

G1= 47 daN/m²

G2= 392 daN/m²

BETON CHANTIER=137.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



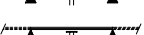



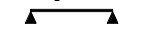


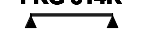

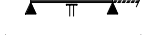
CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	8.08	7.23	6.27	5.76	4.97	9.04	7.98	6.81	8.53	7.59	6.53	τ _{bu} =0.75
Limite V _{bu}	8.08	7.23	6.27	5.76	4.97	9.04	7.98	6.81	8.53	7.59	6.53	τ _{bu} =0.75
Limite V _{pu}	8.61	7.71	6.68	6.14	5.29	9.64	8.51	7.26	9.10	8.09	6.96	τ _{pu} =1.80
Limite V _{cu}	8.49	7.60	6.58	6.05	5.22	9.50	8.39	7.15	8.96	7.97	6.86	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.28	3.28	3.28	3.28	3.22	3.28	3.28	3.28	3.28	3.28	3.28	0.40
FRG 514R	3.28	3.28	3.28	3.28	3.22	3.28	3.28	3.28	3.28	3.28	3.28	0.40
	5.14	4.81	4.42	4.20	3.85	5.44	5.05	4.60	5.28	4.93	4.51	0.60
	5.59	5.29	4.78	4.50	4.07	6.05	5.53	4.95	5.74	5.41	4.86	0.75 2.76
	6.46	6.23	5.68	5.33	4.79	7.00	6.61	5.86	6.63	6.38	5.77	3.90
FRG 614R	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	0.44
	5.21	5.11	4.86	4.62	4.24	5.68	5.54	5.06	5.36	5.25	4.95	0.71
	5.63	5.48	5.25	4.95	4.47	6.13	5.92	5.44	5.80	5.61	5.34	0.83 3.02
	6.53	6.28	6.01	5.86	5.27	7.09	6.78	6.42	6.71	6.46	6.15	4.42
FRG 714R	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	0.50
	5.24	5.15	5.01	4.94	4.54	5.73	5.58	5.40	5.40	5.29	5.15	0.80
	5.68	5.51	5.30	5.19	4.79	6.19	5.96	5.69	5.84	5.66	5.44	0.89 3.27
	6.59	6.34	6.05	5.90	5.64	7.17	6.86	6.49	6.78	6.51	6.20	4.85
FRG 814R	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	0.46
	5.26	5.17	5.03	4.96	4.73	5.74	5.61	5.42	5.42	5.31	5.17	0.86
	5.71	5.53	5.32	5.21	5.00	6.22	5.98	5.71	5.87	5.69	5.46	0.97 3.54
	6.63	6.38	6.09	5.93	5.67	7.22	6.90	6.51	6.82	6.55	6.23	4.92



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
16571	14.56	7.44	3.03	15.57	3014	2289	2302	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3343	5	1853	2870	9.20	60.0	4.2	1.80
	6	2262	3457	8.03	60.0	4.2	1.80
	7	2527	3948	9.00	60.0	4.2	1.80
	8	2502	4264	9.79	60.0	4.2	1.80

POIDS DU MONTAGE= 453 daN/m²

G1= 77 daN/m²

G2= 376 daN/m²

BETON CHANTIER=136.4 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}


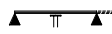

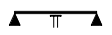




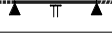

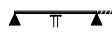
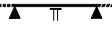
CAS DE CHARGE [daN/m²]

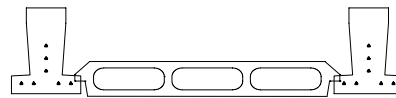
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	9.94	8.91	7.72	7.10	6.12	11.11	9.83	8.39	10.49	9.35	8.04	τ _{bu} =0.75
Limite V _{bu}	9.94	8.91	7.72	7.10	6.12	11.11	9.83	8.39	10.49	9.35	8.04	τ _{bu} =0.75
Limite V _{pu}	12.98	11.62	10.05	9.23	7.94	14.51	12.83	10.93	13.70	12.19	10.47	τ _{pu} =1.80
Limite V _{cu}	10.00	8.96	7.76	7.13	6.15	11.17	9.88	8.44	10.55	9.40	8.09	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.59	4.47	4.31	4.21	4.03	4.60	4.59	4.42	4.60	4.53	4.36	0.38
FRG 514R	4.59	4.47	4.31	4.21	4.03	4.60	4.59	4.42	4.60	4.53	4.36	0.65 2.34
	5.73	5.63	5.48	5.29	4.86	6.24	6.10	5.79	5.90	5.78	5.63	
	6.21	6.02	5.80	5.67	5.13	6.74	6.51	6.22	6.38	6.19	5.94	
	7.19	6.92	6.61	6.44	6.05	7.80	7.48	7.07	7.38	7.09	6.76	
FRG 614R	4.78	4.78	4.76	4.65	4.45	4.78	4.78	4.78	4.78	4.78	4.78	0.46
	5.78	5.69	5.53	5.46	5.29	6.32	6.17	5.97	5.97	5.84	5.69	0.66
	6.27	6.09	5.86	5.73	5.51	6.84	6.59	6.28	6.46	6.25	5.99	0.72 2.56
	7.28	7.01	6.70	6.51	6.23	7.94	7.59	7.17	7.50	7.21	6.85	3.37
FRG 714R	5.09	5.09	5.03	4.91	4.70	5.09	5.09	5.09	5.09	5.09	5.09	0.52
	5.84	5.73	5.58	5.49	5.33	6.38	6.23	6.01	6.01	5.90	5.73	0.67
	6.33	6.15	5.91	5.77	5.55	6.92	6.65	6.34	6.51	6.31	6.05	0.73 2.60
	7.36	7.09	6.76	6.59	6.28	8.03	7.67	7.25	7.59	7.28	6.92	3.44
FRG 814R	4.89	4.89	4.89	4.89	4.68	4.89	4.89	4.89	4.89	4.89	4.89	0.51
	5.86	5.74	5.60	5.51	5.35	6.42	6.25	6.04	6.04	5.92	5.74	0.68
	6.36	6.17	5.94	5.80	5.57	6.96	6.69	6.38	6.55	6.34	6.07	0.74 2.62
	7.41	7.13	6.80	6.61	6.32	8.09	7.73	7.29	7.63	7.32	6.96	3.49



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
19137	15.76	6.24	2.26	15.60	3183	3573	3764	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4599	6	2094	3380	5.73	60.0	4.2	1.80
	7	2382	3903	5.62	60.0	4.2	1.80
	8	2669	4418	5.53	60.0	4.2	1.80

POIDS DU MONTAGE= 439 daN/m²

G1= 56 daN/m²

G2= 383 daN/m²

BETON CHANTIER=134.0 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}









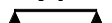



CAS DE CHARGE [daN/m²]

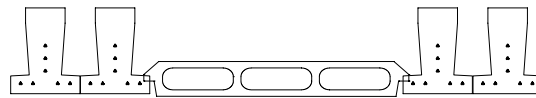
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	9.65	8.63	7.47	6.86	5.91	10.80	9.54	8.13	10.19	9.06	7.78	
Limite V _{pu}	8.63	7.73	6.69	6.15	5.30	9.66	8.53	7.28	9.12	8.11	6.97	
Limite V _{cu}	10.14	9.07	7.85	7.21	6.20	11.36	10.02	8.54	10.71	9.53	8.18	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R    	3.86	3.86	3.86	3.85	3.65	3.86	3.86	3.86	3.86	3.86	3.86	0.51
	5.21	5.11	4.74	4.51	4.14	5.67	5.43	4.94	5.36	5.24	4.84	0.68
	5.63	5.47	5.13	4.83	4.37	6.13	5.86	5.31	5.78	5.61	5.22	0.80 2.93
	6.51	6.28	5.99	5.73	5.15	7.08	6.77	6.30	6.70	6.44	6.13	4.21
FRG 717R    	4.14	4.14	4.14	4.11	3.90	4.14	4.14	4.14	4.14	4.14	4.14	0.58
	5.23	5.15	5.01	4.85	4.45	5.72	5.57	5.31	5.40	5.28	5.15	0.77
	5.67	5.50	5.30	5.19	4.70	6.18	5.96	5.69	5.84	5.65	5.42	0.89 3.27
	6.57	6.34	6.05	5.89	5.53	7.16	6.84	6.48	6.76	6.49	6.19	4.60
FRG 817R    	4.36	4.36	4.36	4.35	4.12	4.36	4.36	4.36	4.36	4.36	4.36	0.65
	5.27	5.18	5.04	4.96	4.73	5.76	5.62	5.44	5.44	5.32	5.18	0.86
	5.72	5.55	5.34	5.22	5.00	6.23	5.99	5.73	5.88	5.70	5.46	0.97 3.54
	6.64	6.40	6.09	5.94	5.67	7.24	6.92	6.53	6.83	6.55	6.24	4.92



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
16572	14.56	7.44	2.12	15.56	3015	2649	2679	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3341	6	1962	3294	10.84	60.0	4.2	1.80
	7	2232	3786	11.62	60.0	4.2	1.80
	8	2501	4264	12.25	60.0	4.2	1.80

POIDS DU MONTAGE= 453 daN/m²

G1= 92 daN/m²

G2= 361 daN/m²

BETON CHANTIER=130.2 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

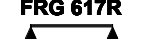


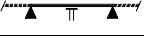
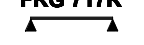
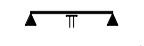


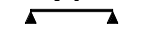

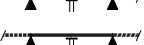

CAS DE CHARGE [daN/m²]

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	11.45	10.26	8.88	8.16	7.03	12.80	11.32	9.65	12.09	10.76	9.25	
Limite V _{pu}	12.98	11.62	10.05	9.23	7.94	14.52	12.83	10.94	13.70	12.19	10.48	
Limite V _{cu}	11.57	10.37	8.97	8.24	7.10	12.94	11.44	9.76	12.22	10.88	9.35	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												k _a
FRG 617R												
	5.38	5.20	4.96	4.81	4.56	5.42	5.38	5.11	5.42	5.28	5.03	0.49
	5.78	5.69	5.53	5.46	5.20	6.33	6.17	5.98	5.98	5.84	5.69	0.64
	6.27	6.09	5.86	5.73	5.50	6.84	6.59	6.28	6.46	6.25	5.99	0.72 2.54
	7.28	7.01	6.69	6.51	6.23	7.94	7.58	7.17	7.50	7.19	6.84	3.37
FRG 717R												
	5.74	5.54	5.29	5.13	4.86	5.81	5.74	5.45	5.81	5.64	5.37	0.56
	5.84	5.73	5.58	5.49	5.33	6.40	6.23	6.01	6.01	5.90	5.73	0.67
	6.33	6.15	5.91	5.77	5.55	6.92	6.66	6.34	6.52	6.31	6.05	0.73 2.60
	7.36	7.09	6.76	6.57	6.28	8.03	7.67	7.25	7.57	7.28	6.92	3.44
FRG 817R												
	5.88	5.77	5.59	5.43	5.15	6.13	6.07	5.77	6.07	5.95	5.68	0.62
	5.88	5.77	5.63	5.53	5.37	6.46	6.28	6.07	6.07	5.95	5.77	0.68
	6.39	6.20	5.96	5.82	5.59	6.99	6.73	6.40	6.59	6.37	6.11	0.74 2.64
	7.44	7.17	6.82	6.65	6.34	8.15	7.76	7.33	7.67	7.36	6.99	3.52



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
18498	18.22	5.78	5.76	18.44	1942	2455	2151	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4799	2	1015	1346	3.12	60.0	4.2	1.80
	3	1548	2046	2.70	60.0	4.2	1.80
	4	1940	2697	2.95	60.0	4.2	1.80
	5	2091	3267	4.08	60.0	4.2	1.80

POIDS DU MONTAGE= 484 daN/m²

G1= 28 daN/m²

G2= 455 daN/m²

BETON CHANTIER=163.4 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



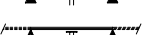







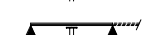
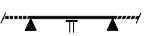
CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	6.78	6.11	5.33	4.92	4.28	7.53	6.70	5.77	7.13	6.39	5.54	τ _{bu} =0.75
Limite V _{bu}	6.78	6.11	5.33	4.92	4.28	7.53	6.70	5.77	7.13	6.39	5.54	τ _{bu} =0.75
Limite V _{pu}	5.44	4.92	4.30	3.98	3.47	6.04	5.39	4.65	5.72	5.14	4.47	τ _{pu} =1.80
Limite V _{cu}	5.99	5.40	4.72	4.36	3.80	6.64	5.92	5.11	6.30	5.65	4.91	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	0.09
FRG 211	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	0.09
	3.49	3.27	3.01	2.87	2.64	3.68	3.43	3.13	3.58	3.35	3.07	0.25
	3.90	3.61	3.27	3.08	2.80	4.10	3.76	3.38	4.00	3.68	3.32	0.31 1.13
	4.70	4.32	3.89	3.66	3.30	4.94	4.50	4.01	4.82	4.41	3.95	1.65
FRG 311	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	0.13
	4.30	4.03	3.72	3.54	3.25	4.54	4.23	3.87	4.41	4.13	3.79	0.38
	4.81	4.45	4.03	3.80	3.45	5.06	4.64	4.17	4.93	4.54	4.10	0.47 1.72
	5.80	5.33	4.79	4.51	4.06	6.09	5.55	4.95	5.95	5.44	4.87	2.58
FRG 411	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27	0.17
	4.94	4.63	4.27	4.07	3.74	5.21	4.85	4.44	5.07	4.74	4.35	0.50
	5.52	5.11	4.62	4.37	3.96	5.81	5.33	4.78	5.66	5.21	4.70	0.63 2.32
	6.40	6.12	5.50	5.18	4.66	6.94	6.37	5.68	6.58	6.24	5.59	3.46
FRG 511	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	0.18
	5.15	5.06	4.70	4.47	4.11	5.59	5.34	4.88	5.29	5.20	4.79	0.60
	5.58	5.43	5.09	4.81	4.36	6.05	5.84	5.27	5.73	5.56	5.18	0.72 2.63
	6.48	6.25	5.98	5.70	5.13	7.01	6.73	6.25	6.66	6.41	6.11	3.71



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
16349	16.86	7.14	5.50	18.07	1874	1948	1740	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3435	2	969	1335	4.68	60.0	4.2	1.80
	3	1478	2021	4.06	60.0	4.2	1.80
	4	1852	2653	4.44	60.0	4.2	1.80
	5	1997	3199	6.13	60.0	4.2	1.80

POIDS DU MONTAGE= 496 daN/m²

G1= 48 daN/m²

G2= 448 daN/m²

BETON CHANTIER=165.0 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}









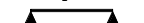







CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	8.84	7.97	6.95	6.41	5.56	9.82	8.75	7.53	9.30	8.34	7.23	τ _{bu} =0.75
Limite V _{pu}	8.52	7.68	6.70	6.19	5.37	9.46	8.43	7.26	8.97	8.04	6.97	τ _{pu} =1.80
Limite V _{cu}	7.94	7.16	6.25	5.77	5.01	8.81	7.85	6.76	8.35	7.49	6.50	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	0.11
FRG 211												
	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	0.11
	4.34	4.19	3.88	3.70	3.40	4.73	4.34	4.04	4.60	4.26	3.96	0.25
	5.02	4.65	4.21	3.98	3.61	5.28	4.85	4.36	5.15	4.74	4.28	0.31 1.12
	6.05	5.57	5.01	4.72	4.26	6.36	5.80	5.17	6.21	5.68	5.09	1.64
FRG 311												
	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	0.16
	5.52	5.18	4.78	4.56	4.19	5.82	5.43	4.97	5.66	5.30	4.87	0.38
	6.15	5.72	5.18	4.90	4.44	6.49	5.96	5.36	6.32	5.84	5.27	0.47 1.69
	7.11	6.86	6.17	5.81	5.24	7.69	7.14	6.37	7.30	6.99	6.26	2.42
FRG 411												
	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	0.21
	5.74	5.65	5.47	5.22	4.80	6.24	6.09	5.69	5.91	5.80	5.58	0.48
	6.23	6.05	5.84	5.61	5.09	6.74	6.51	6.14	6.40	6.21	5.98	0.55 1.97
	7.23	6.98	6.67	6.51	6.00	7.83	7.50	7.12	7.44	7.15	6.82	2.72
FRG 511												
	3.27	3.27	3.27	3.27	3.27	3.27	3.27	3.27	3.27	3.27	3.27	0.21
	5.80	5.71	5.56	5.48	5.25	6.30	6.16	5.98	5.98	5.86	5.71	0.56
	6.29	6.12	5.90	5.76	5.55	6.84	6.59	6.30	6.48	6.28	6.03	0.62 2.21
	7.32	7.07	6.75	6.58	6.30	7.96	7.61	7.21	7.53	7.25	6.90	2.95



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
19084	18.03	5.97	4.32	17.84	2100	2774	2569	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4794	3	1480	2005	3.21	60.0	4.2	1.80
	4	1831	2630	3.54	60.0	4.2	1.80
	5	2130	3227	4.09	60.0	4.2	1.80
	6	2176	3715	5.55	60.0	4.2	1.80

POIDS DU MONTAGE= 484 daN/m²

G1= 33 daN/m²

G2= 451 daN/m²

BETON CHANTIER=161.4 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}




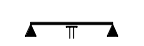

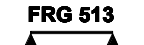

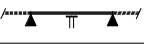

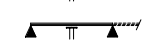
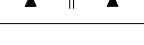
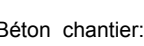
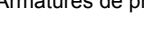


CAS DE CHARGE [daN/m²]

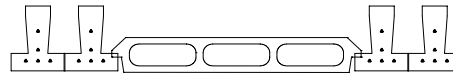
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	7.61	6.85	5.98	5.51	4.79	8.45	7.52	6.47	8.01	7.17	6.21	τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	7.61	6.85	5.98	5.51	4.79	8.45	7.52	6.47	8.01	7.17	6.21	
Limite V _{pu}	5.85	5.28	4.62	4.27	3.72	6.50	5.79	5.00	6.16	5.53	4.80	
Limite V _{cu}	7.07	6.37	5.56	5.14	4.46	7.86	7.00	6.02	7.44	6.67	5.78	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	2.68	2.68	2.66	2.61	2.53	2.68	2.68	2.68	2.68	2.68	2.68	0.21 0.37 0.46 1.69 2.53
FRG 313	2.68	2.68	2.66	2.61	2.53	2.68	2.68	2.68	2.68	2.68	2.68	
	4.26	3.99	3.68	3.51	3.22	4.49	4.19	3.83	4.37	4.09	3.75	
	4.76	4.40	3.99	3.76	3.41	5.01	4.59	4.12	4.88	4.50	4.05	
	5.74	5.28	4.74	4.46	4.02	6.03	5.49	4.90	5.89	5.38	4.82	
FRG 413	2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79	0.26 0.49 0.61 2.25 3.42
	2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79	
	4.87	4.57	4.21	4.01	3.69	5.14	4.79	4.38	5.00	4.68	4.30	
	5.45	5.04	4.57	4.31	3.91	5.74	5.26	4.72	5.59	5.15	4.64	
	6.44	6.05	5.43	5.11	4.61	6.91	6.29	5.61	6.61	6.17	5.52	
FRG 513	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	0.29 0.59 0.71 2.61 3.76
	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	
	5.19	5.07	4.67	4.45	4.09	5.63	5.31	4.85	5.32	5.18	4.76	
	5.61	5.46	5.06	4.78	4.33	6.08	5.83	5.23	5.76	5.59	5.14	
	6.51	6.28	6.01	5.66	5.10	7.05	6.76	6.21	6.69	6.44	6.11	
FRG 613	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87	0.28 0.65 0.74 2.71 4.06
	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87	2.87	
	5.21	5.13	4.85	4.68	4.39	5.67	5.35	5.03	5.36	5.24	4.94	
	5.65	5.49	5.26	5.03	4.64	6.13	5.92	5.43	5.81	5.63	5.34	
	6.56	6.34	6.05	5.90	5.47	7.13	6.82	6.47	6.74	6.49	6.19	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
16736	16.67	7.33	4.09	17.54	2014	2087	1928	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3424	3	1404	1980	5.07	60.0	4.2	1.80
	4	1737	2586	5.59	60.0	4.2	1.80
	5	2021	3158	6.46	60.0	4.2	1.80
	6	2064	3616	8.16	60.0	4.2	1.80

POIDS DU MONTAGE= 496 daN/m²

G1= 56 daN/m²

G2= 440 daN/m²

BETON CHANTIER=161.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}







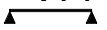





CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	9.44	8.51	7.42	6.84	5.93	10.49	9.34	8.03	9.94	8.90	7.71	τ _{bu} =0.75
Limite V _{bu}	9.44	8.51	7.42	6.84	5.93	10.49	9.34	8.03	9.94	8.90	7.71	τ _{bu} =0.75
Limite V _{pu}	9.13	8.23	7.17	6.62	5.74	10.14	9.03	7.77	9.61	8.61	7.46	τ _{pu} =1.80
Limite V _{cu}	8.75	7.89	6.88	6.35	5.51	9.72	8.66	7.45	9.21	8.26	7.16	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.57	3.50	3.40	3.34	3.23	3.64	3.57	3.47	3.61	3.53	3.43	0.21
FRG 313	3.57	3.50	3.40	3.34	3.23	3.64	3.57	3.47	3.61	3.53	3.43	0.21
	5.46	5.13	4.73	4.51	4.15	5.76	5.37	4.92	5.61	5.25	4.82	0.37
	6.11	5.66	5.13	4.85	4.40	6.43	5.90	5.31	6.27	5.78	5.22	0.46 1.67
	7.13	6.79	6.10	5.75	5.18	7.73	7.06	6.30	7.34	6.92	6.20	2.45
FRG 413	3.97	3.89	3.78	3.72	3.59	3.97	3.97	3.86	3.97	3.93	3.82	0.26
	5.76	5.67	5.41	5.15	4.74	6.26	6.12	5.62	5.94	5.82	5.51	0.47
	6.24	6.08	5.86	5.54	5.02	6.77	6.54	6.06	6.42	6.23	5.96	0.55 1.95
	7.25	6.99	6.69	6.53	5.92	7.84	7.51	7.13	7.45	7.17	6.84	2.73
FRG 513	4.16	4.16	4.08	4.01	3.87	4.16	4.16	4.16	4.16	4.16	4.12	0.30
	5.82	5.73	5.59	5.50	5.24	6.33	6.19	5.99	5.99	5.88	5.73	0.55
	6.32	6.15	5.92	5.79	5.55	6.86	6.63	6.33	6.49	6.30	6.05	0.62 2.21
	7.34	7.09	6.78	6.61	6.32	7.98	7.63	7.24	7.55	7.26	6.93	2.97
FRG 613	4.08	4.08	4.08	4.05	3.92	4.08	4.08	4.08	4.08	4.08	4.08	0.31
	5.87	5.76	5.63	5.53	5.38	6.38	6.24	6.03	6.03	5.92	5.76	0.59
	6.37	6.20	5.97	5.84	5.61	6.92	6.69	6.38	6.55	6.36	6.11	0.64 2.26
	7.42	7.17	6.84	6.67	6.37	8.07	7.72	7.30	7.63	7.34	6.99	3.02



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
24376	17.31	6.69	3.76	17.29	3649	3269	3442	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5466	5	2293	3257	4.21	60.0	4.2	1.80
	6	2800	3935	3.28	60.0	4.2	1.80
	7	3127	4524	3.68	60.0	4.2	1.80
	8	3097	4941	5.96	60.0	4.2	1.80

POIDS DU MONTAGE= 486 daN/m²

G1= 47 daN/m²

G2= 439 daN/m²

BETON CHANTIER=157.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



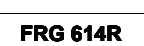
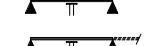

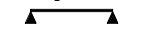
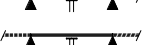


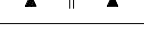
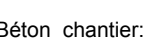
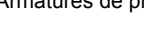
CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	8.47	7.63	6.65	6.13	5.32	9.42	8.38	7.20	8.92	7.98	6.91	τ _{bu} =0.75
Limite V _{bu}	8.47	7.63	6.65	6.13	5.32	9.42	8.38	7.20	8.92	7.98	6.91	τ _{bu} =0.75
Limite V _{pu}	9.41	8.47	7.37	6.80	5.89	10.47	9.30	7.99	9.91	8.87	7.67	τ _{pu} =1.80
Limite V _{cu}	8.90	8.01	6.98	6.44	5.58	9.90	8.80	7.56	9.37	8.39	7.26	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	0.36
FRG 514R	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	0.36
	5.29	4.96	4.57	4.36	4.01	5.58	5.20	4.76	5.43	5.08	4.66	0.60
	5.88	5.47	4.96	4.68	4.24	6.22	5.71	5.13	6.03	5.59	5.04	0.75 2.77
	6.78	6.56	5.90	5.55	5.00	7.35	6.83	6.09	6.98	6.69	5.99	4.08
FRG 614R	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	0.38
	5.48	5.38	5.03	4.79	4.40	5.94	5.72	5.23	5.63	5.51	5.12	0.72
	5.92	5.76	5.45	5.14	4.66	6.42	6.21	5.64	6.09	5.91	5.54	0.85 3.12
	6.86	6.63	6.34	6.10	5.50	7.44	7.13	6.69	7.06	6.80	6.48	4.48
FRG 714R	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	0.44
	5.51	5.42	5.28	5.13	4.72	5.98	5.84	5.60	5.67	5.55	5.42	0.81
	5.98	5.80	5.59	5.48	5.00	6.48	6.25	5.98	6.15	5.96	5.73	0.93 3.39
	6.94	6.69	6.40	6.24	5.89	7.52	7.21	6.82	7.13	6.86	6.53	4.84
FRG 814R	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	0.40
	5.53	5.44	5.30	5.23	4.93	6.01	5.88	5.69	5.69	5.58	5.44	0.87
	5.99	5.83	5.61	5.49	5.22	6.51	6.28	6.01	6.17	5.98	5.74	0.98 3.58
	6.98	6.73	6.43	6.26	5.99	7.57	7.25	6.86	7.17	6.90	6.57	5.08



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
21181	15.97	8.03	3.54	17.06	3470	2509	2523	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3957	5	2160	3197	7.93	60.0	4.2	1.80
	6	2637	3849	6.18	60.0	4.2	1.80
	7	2945	4406	6.93	60.0	4.2	1.80
	8	2916	4787	9.39	60.0	4.2	1.80

POIDS DU MONTAGE= 500 daN/m²

G1= 77 daN/m²

G2= 423 daN/m²

BETON CHANTIER=156.4 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}













CAS DE CHARGE [daN/m²]

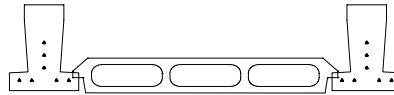
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	10.38	9.36	8.16	7.52	6.52	11.54	10.27	8.83	10.93	9.79	8.48	τ _{bu} =0.75
Limite V _{bu}	10.38	9.36	8.16	7.52	6.52	11.54	10.27	8.83	10.93	9.79	8.48	τ _{bu} =0.75
Limite V _{pu}	14.21	12.79	11.13	10.25	8.86	15.80	14.05	12.07	14.96	13.39	11.58	τ _{pu} =1.80
Limite V _{cu}	10.44	9.41	8.20	7.56	6.55	11.60	10.33	8.88	10.99	9.84	8.53	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.41	4.40	4.26	4.18	4.03	4.41	4.41	4.35	4.41	4.41	4.31	0.35
FRG 514R	4.41	4.40	4.26	4.18	4.03	4.41	4.41	4.35	4.41	4.41	4.31	0.35
	6.03	5.92	5.76	5.50	5.05	6.55	6.40	5.99	6.21	6.08	5.87	0.57
	6.52	6.35	6.12	5.91	5.36	7.08	6.84	6.47	6.71	6.51	6.26	0.67 2.37
	7.55	7.30	6.99	6.80	6.32	8.20	7.86	7.46	7.77	7.48	7.14	3.25
FRG 614R	4.58	4.58	4.58	4.58	4.45	4.58	4.58	4.58	4.58	4.58	4.58	0.43
	6.09	5.98	5.84	5.74	5.55	6.62	6.47	6.26	6.26	6.15	5.98	0.68
	6.59	6.42	6.19	6.05	5.82	7.17	6.92	6.61	6.78	6.59	6.32	0.75 2.65
	7.66	7.40	7.07	6.90	6.59	8.32	7.98	7.55	7.88	7.59	7.23	3.50
FRG 714R	4.88	4.88	4.88	4.88	4.70	4.88	4.88	4.88	4.88	4.88	4.88	0.48
	6.13	6.03	5.88	5.78	5.63	6.69	6.52	6.32	6.32	6.19	6.03	0.70
	6.66	6.48	6.24	6.09	5.86	7.25	6.99	6.67	6.86	6.65	6.38	0.76 2.69
	7.75	7.48	7.15	6.96	6.65	8.44	8.07	7.64	7.98	7.67	7.30	3.57
FRG 814R	4.69	4.69	4.69	4.69	4.68	4.69	4.69	4.69	4.69	4.69	4.69	0.48
	6.17	6.05	5.90	5.81	5.65	6.72	6.55	6.34	6.34	6.23	6.05	0.70
	6.69	6.50	6.26	6.13	5.89	7.28	7.03	6.71	6.90	6.68	6.42	0.76 2.72
	7.79	7.52	7.19	6.99	6.69	8.50	8.12	7.69	8.03	7.73	7.34	3.62



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
24470	17.23	6.77	2.64	16.97	3680	3869	4075	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5425	6	2448	3773	5.04	60.0	4.2	1.80
	7	2785	4361	4.94	60.0	4.2	1.80
	8	3120	4941	4.86	60.0	4.2	1.80

POIDS DU MONTAGE= 486 daN/m²

G1= 56 daN/m²

G2= 430 daN/m²

BETON CHANTIER=154.0 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

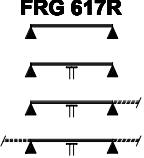
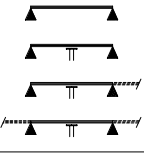
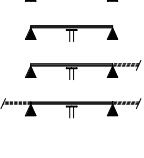
CAS DE CHARGE [daN/m²]

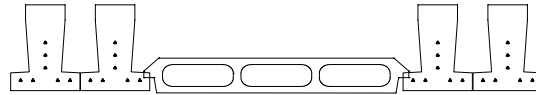
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	9.95	8.95	7.80	7.18	6.22	11.07	9.84	8.45	10.48	9.38	8.11	
Limite V _{pu}	9.49	8.54	7.44	6.85	5.94	10.55	9.38	8.06	9.99	8.94	7.73	
Limite V _{cu}	10.46	9.41	8.19	7.54	6.53	11.64	10.35	8.88	11.02	9.85	8.52	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R 	3.73	3.73	3.73	3.73	3.69	3.73	3.73	3.73	3.73	3.73	3.73	0.48
	5.47	5.34	4.92	4.69	4.31	5.93	5.60	5.12	5.63	5.47	5.02	0.69
	5.92	5.76	5.33	5.04	4.57	6.42	6.14	5.52	6.09	5.90	5.42	0.83 3.05
	6.85	6.62	6.33	5.97	5.38	7.44	7.11	6.55	7.05	6.78	6.45	4.35
FRG 717R 	4.00	4.00	4.00	4.00	3.93	4.00	4.00	4.00	4.00	4.00	4.00	0.55
	5.50	5.41	5.28	5.04	4.63	5.98	5.84	5.50	5.67	5.55	5.39	0.79
	5.96	5.80	5.59	5.42	4.91	6.48	6.24	5.93	6.13	5.95	5.72	0.92 3.33
	6.92	6.69	6.38	6.23	5.79	7.51	7.19	6.82	7.11	6.84	6.53	4.71
FRG 817R 	4.21	4.21	4.21	4.21	4.16	4.21	4.21	4.21	4.21	4.21	4.21	0.62
	5.53	5.44	5.31	5.23	4.93	6.03	5.89	5.71	5.71	5.59	5.44	0.87
	6.01	5.84	5.63	5.50	5.22	6.53	6.30	6.01	6.19	5.99	5.75	0.98 3.58
	6.98	6.74	6.44	6.27	5.99	7.59	7.26	6.88	7.19	6.91	6.58	5.08



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
21201	15.94	8.06	2.48	16.93	3482	2830	2861	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3943	6	2294	3686	10.40	60.0	4.2	1.80
	7	2609	4244	11.15	60.0	4.2	1.80
	8	2923	4787	11.75	60.0	4.2	1.80

POIDS DU MONTAGE= 500 daN/m²

G1= 92 daN/m²

G2= 409 daN/m²

BETON CHANTIER=150.2 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

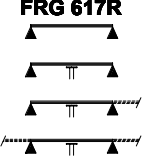
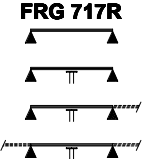
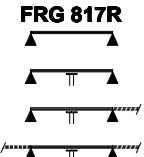
CAS DE CHARGE [daN/m²]

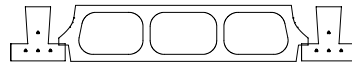
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	11.66	10.50	9.15	8.43	7.30	12.96	11.53	9.91	12.28	10.99	9.51		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	14.26	12.83	11.16	10.28	8.89	15.86	14.10	12.11	15.01	13.43	11.62		
Limite V _{cu}	11.79	10.61	9.25	8.52	7.38	13.10	11.66	10.02	12.41	11.11	9.62		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R 	5.20	5.16	4.96	4.83	4.61	5.20	5.20	5.09	5.20	5.20	5.02	0.73 2.58
	6.09	5.98	5.83	5.74	5.43	6.62	6.47	6.26	6.26	6.14	5.98	
	6.59	6.42	6.18	6.04	5.75	7.17	6.92	6.61	6.78	6.57	6.32	
	7.65	7.38	7.05	6.88	6.58	8.32	7.96	7.55	7.88	7.57	7.23	
FRG 717R 	5.57	5.51	5.29	5.16	4.92	5.57	5.57	5.43	5.57	5.57	5.36	0.76 2.69
	6.13	6.02	5.88	5.78	5.62	6.69	6.52	6.32	6.32	6.19	6.02	
	6.65	6.48	6.23	6.09	5.86	7.25	6.99	6.67	6.85	6.64	6.38	
	7.73	7.47	7.13	6.95	6.64	8.42	8.05	7.63	7.97	7.66	7.29	
FRG 817R 	5.88	5.83	5.60	5.46	5.21	5.88	5.88	5.75	5.88	5.88	5.67	0.77 2.73
	6.19	6.07	5.92	5.82	5.66	6.74	6.58	6.36	6.36	6.24	6.07	
	6.71	6.52	6.28	6.14	5.90	7.32	7.05	6.73	6.92	6.70	6.43	
	7.82	7.55	7.21	7.01	6.71	8.53	8.15	7.71	8.05	7.75	7.37	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
14725	16.57	5.43	5.04	16.66	1721	2081	1942	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4070	2	888	1215	3.54	60.0	4.2	1.80
	3	1354	1850	3.29	60.0	4.2	1.80
	4	1697	2435	3.59	60.0	4.2	1.80
	5	1830	2940	4.96	60.0	4.2	1.80

POIDS DU MONTAGE= 374 daN/m²

G1= 28 daN/m²

G2= 345 daN/m²

BETON CHANTIER=112.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}




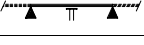

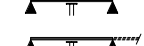

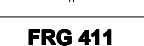


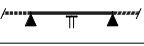


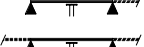
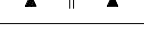

CAS DE CHARGE [daN/m²]

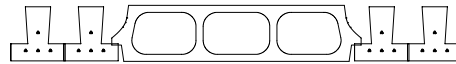
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	6.48	5.77	4.96	4.55	3.91	7.31	6.40	5.41	6.87	6.07	5.18	τ _{bu} =0.75
Limite V _{bu}	6.48	5.77	4.96	4.55	3.91	7.31	6.40	5.41	6.87	6.07	5.18	τ _{bu} =0.75
Limite V _{pu}	5.42	4.83	4.17	3.82	3.30	6.11	5.36	4.54	5.74	5.08	4.35	τ _{pu} =1.80
Limite V _{cu}	6.07	5.41	4.66	4.27	3.67	6.84	6.00	5.08	6.43	5.69	4.86	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	0.11
FRG 211 	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	0.11
	3.52	3.27	2.99	2.84	2.59	3.74	3.45	3.12	3.62	3.36	3.06	0.25
	3.92	3.59	3.22	3.03	2.73	4.15	3.76	3.34	4.03	3.67	3.28	0.31 1.11
	4.72	4.30	3.82	3.58	3.21	4.98	4.49	3.96	4.85	4.39	3.89	1.62
FRG 311 	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	0.16
	4.34	4.04	3.69	3.50	3.20	4.61	4.26	3.85	4.47	4.15	3.77	0.38
	4.84	4.43	3.98	3.74	3.37	5.12	4.64	4.12	4.97	4.53	4.05	0.47 1.71
	5.83	5.30	4.72	4.42	3.96	6.15	5.54	4.88	5.98	5.42	4.80	2.57
FRG 411 	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	0.21
	4.96	4.64	4.23	4.02	3.67	5.29	4.89	4.42	5.12	4.76	4.33	0.50
	5.36	5.09	4.56	4.29	3.86	5.86	5.33	4.73	5.52	5.20	4.64	0.61 2.25
	6.21	5.97	5.41	5.07	4.54	6.76	6.35	5.60	6.38	6.13	5.51	3.16
FRG 511 	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	0.22
	5.00	4.90	4.64	4.42	4.03	5.49	5.35	4.83	5.17	5.05	4.73	0.59
	5.42	5.24	5.01	4.71	4.24	5.92	5.69	5.20	5.57	5.40	5.10	0.68 2.47
	6.27	6.03	5.74	5.57	4.99	6.86	6.53	6.16	6.46	6.19	5.88	3.62



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
12955	15.32	6.68	4.80	16.35	1659	1695	1573	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2908	2	845	1204	5.19	60.0	4.2	1.80
	3	1289	1825	5.22	60.0	4.2	1.80
	4	1616	2391	5.70	60.0	4.2	1.80
	5	1742	2872	7.18	60.0	4.2	1.80

POIDS DU MONTAGE= 396 daN/m²

G1= 48 daN/m²

G2= 348 daN/m²

BETON CHANTIER=119.2 Litres/m²

CHARGE DE CHANTIER MAXI (50 daN/ml , 100 daN)



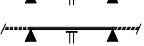

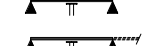

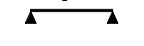

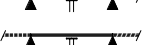


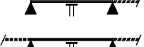
CAS DE CHARGE [daN/m²]

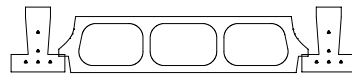
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	8.57	7.63	6.57	6.02	5.17	9.64	8.46	7.16	9.07	8.02	6.85	
Limite V _{pu}	8.39	7.47	6.44	5.90	5.06	9.44	8.29	7.02	8.88	7.86	6.71	
Limite V _{cu}	7.98	7.11	6.12	5.61	4.82	8.97	7.88	6.68	8.44	7.47	6.39	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												k _a	
FRG 211	2.60	2.60	2.60	2.60	2.56	2.60	2.60	2.60	2.60	2.60	2.60		0.30 1.08
	4.39	4.19	3.84	3.64	3.33	4.60	4.39	4.00	4.49	4.29	3.92		
	4.90	4.60	4.14	3.89	3.51	5.27	4.79	4.29	5.00	4.70	4.21		
	6.03	5.51	4.91	4.61	4.13	6.34	5.75	5.08	6.18	5.63	5.00		
FRG 311	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	0.45 1.63	
	5.49	5.16	4.72	4.49	4.10	5.86	5.43	4.93	5.67	5.29	4.82		
	5.94	5.67	5.09	4.79	4.32	6.48	5.93	5.28	6.11	5.80	5.19		
	6.86	6.61	6.05	5.67	5.09	7.48	7.08	6.26	7.05	6.78	6.15		
FRG 411	3.55	3.55	3.55	3.55	3.54	3.55	3.55	3.55	3.55	3.55	3.55	0.54 1.92	
	5.56	5.46	5.32	5.13	4.70	6.09	5.94	5.64	5.74	5.62	5.46		
	6.01	5.84	5.61	5.48	4.95	6.57	6.33	6.03	6.21	5.99	5.74		
	6.98	6.71	6.40	6.23	5.82	7.61	7.26	6.86	7.19	6.89	6.55		
FRG 511	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	0.59 2.11	
	5.62	5.51	5.36	5.28	5.12	6.17	6.00	5.80	5.80	5.67	5.51		
	6.09	5.90	5.67	5.53	5.32	6.67	6.40	6.09	6.26	6.06	5.80		
	7.07	6.80	6.48	6.30	6.01	7.73	7.37	6.96	7.28	6.98	6.63		



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
15078	16.42	5.58	3.74	16.15	1845	2095	2323	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4055	3	1284	1809	3.98	60.0	4.2	1.80
	4	1588	2368	4.38	60.0	4.2	1.80
	5	1848	2900	5.06	60.0	4.2	1.80
	6	1888	3322	6.25	60.0	4.2	1.80

POIDS DU MONTAGE= 374 daN/m²

G1= 33 daN/m²

G2= 340 daN/m²

BETON CHANTIER=110.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



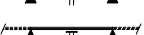







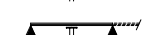
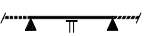
CAS DE CHARGE [daN/m²]

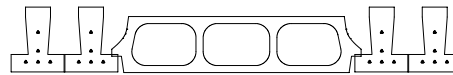
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	6.52	5.80	4.99	4.58	3.93	7.35	6.44	5.45	6.91	6.11	5.21	τ _{bu} =0.75
Limite V _{bu}	6.52	5.80	4.99	4.58	3.93	7.35	6.44	5.45	6.91	6.11	5.21	τ _{bu} =0.75
Limite V _{pu}	5.79	5.16	4.44	4.07	3.51	6.52	5.72	4.84	6.13	5.42	4.63	τ _{pu} =1.80
Limite V _{cu}	7.19	6.39	5.50	5.03	4.32	8.11	7.10	6.00	7.62	6.73	5.74	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	2.92	2.92	2.86	2.79	2.67	2.92	2.92	2.92	2.92	2.92	2.89	0.25
FRG 313	2.92	2.92	2.86	2.79	2.67	2.92	2.92	2.92	2.92	2.92	2.89	0.25
	4.29	4.00	3.65	3.46	3.16	4.56	4.21	3.81	4.42	4.10	3.73	0.37
	4.78	4.38	3.93	3.70	3.33	5.06	4.59	4.08	4.91	4.48	4.00	0.46 1.67
	5.76	5.24	4.67	4.37	3.91	6.08	5.48	4.83	5.91	5.36	4.74	2.50
FRG 413	3.04	3.04	3.04	3.04	2.97	3.04	3.04	3.04	3.04	3.04	3.04	0.31
	4.91	4.57	4.18	3.96	3.62	5.22	4.82	4.36	5.06	4.69	4.27	0.49
	5.38	5.02	4.50	4.23	3.81	5.79	5.25	4.67	5.54	5.13	4.58	0.60 2.19
	6.23	5.98	5.34	5.00	4.48	6.78	6.27	5.52	6.40	6.13	5.43	3.16
FRG 513	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	0.35
	5.03	4.92	4.62	4.39	4.00	5.51	5.33	4.83	5.19	5.08	4.72	0.58
	5.44	5.26	4.98	4.68	4.21	5.95	5.72	5.16	5.60	5.42	5.07	0.67 2.46
	6.29	6.05	5.76	5.53	4.96	6.88	6.55	6.11	6.48	6.21	5.90	3.55
FRG 613	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12	0.34
	5.06	4.96	4.80	4.61	4.28	5.55	5.39	5.01	5.23	5.11	4.90	0.64
	5.48	5.30	5.09	4.92	4.51	5.99	5.76	5.36	5.64	5.46	5.23	0.72 2.61
	6.34	6.10	5.81	5.66	5.30	6.95	6.61	6.24	6.53	6.26	5.96	3.83



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
13173	15.17	6.83	3.54	15.92	1767	1689	1749	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
2894	3	1214	1784	6.94	60.0	4.2	1.80
	4	1502	2324	7.65	60.0	4.2	1.80
	5	1747	2831	8.84	60.0	4.2	1.80
	6	1785	3224	8.96	60.0	4.2	1.80

POIDS DU MONTAGE= 396 daN/m²

G1= 56 daN/m²

G2= 340 daN/m²

BETON CHANTIER=115.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



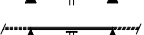







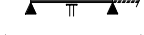
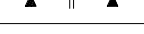
CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	8.54	7.61	6.55	6.00	5.15	9.61	8.43	7.14	9.04	8.00	6.83	τ _{bu} =0.75
Limite V _{bu}	8.54	7.61	6.55	6.00	5.15	9.61	8.43	7.14	9.04	8.00	6.83	τ _{bu} =0.75
Limite V _{pu}	8.91	7.94	6.83	6.26	5.37	10.04	8.81	7.45	9.44	8.35	7.13	τ _{pu} =1.80
Limite V _{cu}	8.83	7.86	6.77	6.20	5.32	9.93	8.72	7.38	9.35	8.27	7.06	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.84	3.74	3.61	3.53	3.38	3.95	3.84	3.70	3.90	3.79	3.65	0.24
FRG 313	3.84	3.74	3.61	3.53	3.38	3.95	3.84	3.70	3.90	3.79	3.65	0.24
	5.42	5.10	4.67	4.44	4.06	5.71	5.37	4.87	5.56	5.23	4.77	0.36
	5.96	5.60	5.04	4.74	4.27	6.34	5.86	5.22	6.13	5.73	5.13	0.43 1.57
	6.88	6.62	5.98	5.61	5.03	7.50	7.00	6.18	7.07	6.78	6.08	2.25
FRG 413	4.27	4.16	4.01	3.92	3.75	4.36	4.27	4.11	4.33	4.22	4.06	0.29
	5.57	5.48	5.33	5.06	4.63	6.11	5.96	5.56	5.74	5.63	5.44	0.46
	6.03	5.84	5.63	5.41	4.88	6.59	6.34	5.96	6.21	6.01	5.76	0.52 1.87
	6.98	6.72	6.40	6.24	5.74	7.62	7.26	6.87	7.19	6.90	6.55	2.55
FRG 513	4.57	4.49	4.33	4.23	4.05	4.57	4.57	4.43	4.57	4.55	4.38	0.34
	5.63	5.53	5.38	5.29	5.11	6.19	6.02	5.81	5.81	5.69	5.53	0.55
	6.10	5.92	5.69	5.55	5.33	6.68	6.42	6.11	6.28	6.07	5.82	0.60 2.11
	7.07	6.80	6.49	6.31	6.02	7.75	7.38	6.97	7.29	6.99	6.64	2.79
FRG 613	4.48	4.48	4.37	4.27	4.09	4.48	4.48	4.48	4.48	4.48	4.43	0.35
	5.67	5.57	5.42	5.32	5.17	6.24	6.07	5.86	5.86	5.73	5.57	0.56
	6.15	5.96	5.73	5.59	5.36	6.74	6.48	6.17	6.34	6.13	5.86	0.60 2.14
	7.15	6.87	6.54	6.36	6.07	7.84	7.46	7.03	7.37	7.05	6.71	2.84



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
19122	15.78	6.22	3.23	15.70	3175	2465	3127	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4613	5	1973	2930	5.56	60.0	4.2	1.80
	6	2409	3543	4.34	60.0	4.2	1.80
	7	2690	4066	4.86	60.0	4.2	1.80
	8	2664	4418	7.32	60.0	4.2	1.80

POIDS DU MONTAGE= 379 daN/m²

G1= 47 daN/m²

G2= 332 daN/m²

BETON CHANTIER=108.7 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

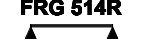


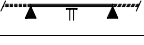

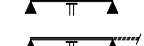

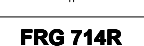


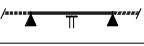


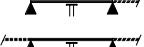
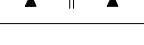

CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	7.22	6.43	5.53	5.06	4.35	8.14	7.13	6.03	7.65	6.76	5.77	τ _{bu} =0.75
Limite V _{bu}	7.22	6.43	5.53	5.06	4.35	8.14	7.13	6.03	7.65	6.76	5.77	τ _{bu} =0.75
Limite V _{pu}	9.20	8.17	7.01	6.42	5.49	10.39	9.09	7.66	9.76	8.60	7.32	τ _{pu} =1.80
Limite V _{cu}	9.07	8.05	6.91	6.32	5.42	10.23	8.95	7.55	9.61	8.48	7.22	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.44	3.44	3.44	3.44	3.36	3.44	3.44	3.44	3.44	3.44	3.44	0.41
FRG 514R 	3.44	3.44	3.44	3.44	3.36	3.44	3.44	3.44	3.44	3.44	3.44	0.41
	5.25	4.95	4.52	4.29	3.92	5.64	5.22	4.72	5.42	5.08	4.62	0.60
	5.67	5.43	4.88	4.58	4.13	6.21	5.69	5.06	5.84	5.56	4.96	0.73 2.67
	6.55	6.30	5.79	5.42	4.86	7.15	6.79	5.99	6.74	6.48	5.88	3.82
FRG 614R 	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	0.46
	5.30	5.20	4.97	4.72	4.31	5.81	5.67	5.19	5.47	5.35	5.08	0.70
	5.73	5.55	5.34	5.04	4.54	6.26	6.03	5.56	5.90	5.71	5.46	0.81 2.95
	6.63	6.38	6.07	5.92	5.34	7.25	6.91	6.52	6.82	6.55	6.23	4.27
FRG 714R 	3.81	3.81	3.81	3.81	3.81	3.81	3.81	3.81	3.81	3.81	3.81	0.53
	5.34	5.23	5.09	5.01	4.62	5.86	5.71	5.50	5.50	5.39	5.23	0.79
	5.76	5.59	5.37	5.24	4.86	6.32	6.07	5.78	5.96	5.74	5.50	0.88 3.17
	6.69	6.44	6.13	5.96	5.69	7.32	6.98	6.59	6.90	6.61	6.27	4.68
FRG 814R 	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	0.49
	5.36	5.24	5.11	5.03	4.82	5.88	5.73	5.53	5.53	5.41	5.24	0.86
	5.80	5.61	5.40	5.26	5.05	6.36	6.11	5.80	5.98	5.77	5.53	0.95 3.46
	6.73	6.47	6.16	5.99	5.72	7.37	7.01	6.62	6.94	6.65	6.30	4.75



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
16571	14.56	7.44	3.03	15.57	3014	2039	2302	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3343	5	1853	2870	9.65	60.0	4.2	1.80
	6	2262	3457	10.03	60.0	4.2	1.80
	7	2527	3948	10.68	60.0	4.2	1.80
	8	2502	4264	10.27	60.0	4.2	1.80

POIDS DU MONTAGE= 404 daN/m²

G1= 77 daN/m²

G2= 327 daN/m²

BETON CHANTIER=112.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



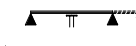
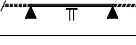

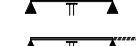

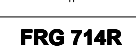
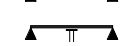

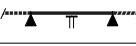


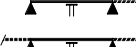
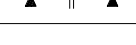

CAS DE CHARGE [daN/m²]

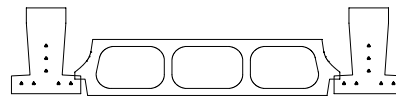
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	9.38	8.36	7.20	6.60	5.66	10.55	9.27	7.85	9.93	8.79	7.51	τ _{bu} =0.75
Limite V _{bu}	9.38	8.36	7.20	6.60	5.66	10.55	9.27	7.85	9.93	8.79	7.51	τ _{bu} =0.75
Limite V _{pu}	13.69	12.18	10.47	9.57	8.19	15.42	13.52	11.43	14.50	12.81	10.93	τ _{pu} =1.80
Limite V _{cu}	10.54	9.39	8.08	7.40	6.34	11.86	10.41	8.82	11.16	9.87	8.43	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 514R	4.79	4.66	4.47	4.36	4.16	4.83	4.79	4.59	4.83	4.72	4.53	0.39
	4.79	4.66	4.47	4.36	4.16	4.83	4.79	4.59	4.83	4.72	4.53	0.39
	5.81	5.71	5.55	5.39	4.93	6.38	6.21	5.91	5.99	5.87	5.71	0.56
	6.28	6.09	5.86	5.73	5.20	6.88	6.61	6.30	6.48	6.26	6.00	0.64 2.29
	7.26	6.99	6.67	6.49	6.11	7.94	7.57	7.17	7.49	7.19	6.82	3.10
FRG 614R	5.01	5.01	4.94	4.82	4.60	5.01	5.01	5.01	5.01	5.01	5.01	0.48
	5.01	5.01	4.94	4.82	4.60	5.01	5.01	5.01	5.01	5.01	5.01	0.48
	5.88	5.76	5.61	5.51	5.35	6.46	6.28	6.06	6.06	5.94	5.76	0.65
	6.36	6.17	5.92	5.78	5.55	6.97	6.70	6.38	6.55	6.34	6.07	0.71 2.50
	7.38	7.09	6.76	6.57	6.28	8.07	7.70	7.26	7.60	7.28	6.92	3.30
FRG 714R	5.34	5.34	5.22	5.09	4.86	5.34	5.34	5.34	5.34	5.34	5.29	0.54
	5.34	5.34	5.22	5.09	4.86	5.34	5.34	5.34	5.34	5.34	5.29	0.54
	5.92	5.80	5.65	5.55	5.39	6.51	6.34	6.11	6.11	5.98	5.80	0.66
	6.42	6.22	5.98	5.83	5.59	7.04	6.76	6.44	6.62	6.40	6.13	0.72 2.54
	7.46	7.17	6.82	6.65	6.34	8.19	7.79	7.34	7.69	7.37	6.99	3.38
FRG 814R	5.13	5.13	5.13	5.07	4.83	5.13	5.13	5.13	5.13	5.13	5.13	0.53
	5.13	5.13	5.13	5.07	4.83	5.13	5.13	5.13	5.13	5.13	5.13	0.53
	5.95	5.83	5.67	5.57	5.41	6.54	6.37	6.15	6.15	6.01	5.83	0.67
	6.45	6.24	5.99	5.86	5.62	7.07	6.80	6.47	6.65	6.42	6.15	0.72 2.57
	7.50	7.21	6.86	6.67	6.36	8.25	7.84	7.39	7.75	7.42	7.03	3.40



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
19137	15.76	6.24	2.26	15.60	3183	2872	3764	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4599	6	2094	3380	7.27	60.0	4.2	1.80
	7	2382	3903	7.14	60.0	4.2	1.80
	8	2669	4418	7.02	60.0	4.2	1.80

POIDS DU MONTAGE= 379 daN/m²

G1= 56 daN/m²

G2= 323 daN/m²

BETON CHANTIER=104.9 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

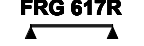


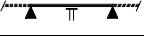

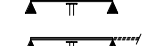

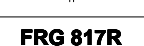




CAS DE CHARGE [daN/m²]

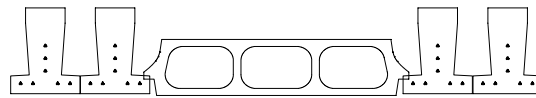
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	8.36	7.43	6.38	5.84	5.00	9.43	8.25	6.97	8.86	7.82	6.66		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	9.22	8.19	7.03	6.43	5.51	10.41	9.11	7.68	9.78	8.62	7.34		
Limite V _{cu}	10.84	9.62	8.25	7.54	6.44	12.24	10.70	9.02	11.50	10.13	8.62		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R												
	4.05	4.05	4.05	4.01	3.78	4.05	4.05	4.05	4.05	4.05	4.05	0.52
	5.29	5.19	4.86	4.61	4.21	5.81	5.60	5.07	5.46	5.34	4.96	0.68
	5.73	5.54	5.24	4.92	4.44	6.26	6.01	5.43	5.90	5.70	5.33	0.79 2.87
	6.61	6.36	6.06	5.82	5.22	7.23	6.90	6.43	6.80	6.53	6.21	4.11
FRG 717R												
	4.34	4.34	4.34	4.27	4.04	4.34	4.34	4.34	4.34	4.34	4.34	0.60
	5.33	5.23	5.09	4.96	4.53	5.86	5.71	5.45	5.50	5.38	5.23	0.77
	5.76	5.59	5.36	5.24	4.77	6.32	6.07	5.78	5.94	5.74	5.49	0.87 3.17
	6.68	6.42	6.11	5.96	5.61	7.31	6.97	6.57	6.88	6.59	6.26	4.50
FRG 817R												
	4.58	4.58	4.58	4.52	4.27	4.58	4.58	4.58	4.58	4.58	4.58	0.67
	5.36	5.26	5.12	5.03	4.82	5.90	5.74	5.54	5.54	5.42	5.26	0.86
	5.80	5.63	5.40	5.28	5.07	6.38	6.12	5.82	5.99	5.78	5.53	0.96 3.49
	6.74	6.48	6.17	5.99	5.73	7.40	7.03	6.63	6.96	6.66	6.32	4.77



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
16572	14.56	7.44	2.12	15.56	3015	2293	2679	1.18

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3341	6	1962	3294	11.37	60.0	4.2	1.80
	7	2232	3786	12.19	60.0	4.2	1.80
	8	2501	4264	12.85	60.0	4.2	1.80

POIDS DU MONTAGE= 404 daN/m²

G1= 92 daN/m²

G2= 312 daN/m²

BETON CHANTIER=106.3 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}


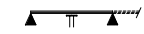

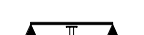

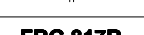



CAS DE CHARGE [daN/m²]

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	10.50	9.35	8.05	7.37	6.32	11.82	10.37	8.78	11.12	9.84	8.40	
Limite V _{pu}	13.69	12.18	10.47	9.58	8.20	15.42	13.52	11.43	14.50	12.82	10.93	
Limite V _{cu}	12.21	10.87	9.34	8.55	7.32	13.74	12.06	10.20	12.93	11.43	9.75	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												0.71 2.50 0.72 2.54 0.73 2.59	
FRG 617R	5.59	5.39	5.12	4.96	4.69	5.69	5.59	5.29	5.69	5.48	5.20		0.50 0.64 3.28
	5.88	5.76	5.61	5.51	5.28	6.46	6.28	6.07	6.07	5.94	5.76		
	6.36	6.17	5.92	5.78	5.55	6.98	6.71	6.38	6.55	6.34	6.07		
	7.37	7.09	6.75	6.57	6.26	8.07	7.70	7.26	7.59	7.28	6.92		
FRG 717R	5.92	5.74	5.46	5.29	5.00	6.10	5.96	5.64	6.08	5.85	5.55	0.57 0.66 3.36	
	5.92	5.80	5.65	5.55	5.39	6.52	6.34	6.12	6.12	5.98	5.80		
	6.42	6.23	5.98	5.83	5.59	7.05	6.76	6.44	6.63	6.40	6.13		
	7.46	7.17	6.82	6.63	6.33	8.19	7.79	7.34	7.69	7.36	6.99		
FRG 817R	5.98	5.86	5.70	5.60	5.29	6.43	6.31	5.97	6.17	6.03	5.86	0.64 0.67 3.44	
	5.98	5.86	5.70	5.60	5.43	6.59	6.40	6.17	6.17	6.03	5.86		
	6.48	6.27	6.01	5.88	5.64	7.13	6.84	6.49	6.69	6.46	6.18		
	7.54	7.25	6.90	6.71	6.39	8.29	7.89	7.43	7.78	7.46	7.07		



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
18498	18.22	5.78	5.76	18.44	1941	2302	2149	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4799	2	1015	1346	3.38	60.0	4.2	1.80
	3	1548	2046	3.00	60.0	4.2	1.80
	4	1940	2697	3.27	60.0	4.2	1.80
	5	2091	3267	4.52	60.0	4.2	1.80

POIDS DU MONTAGE= 421 daN/m²

G1= 28 daN/m²

G2= 392 daN/m²

BETON CHANTIER=132.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



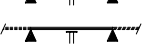

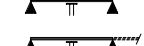

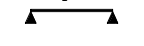

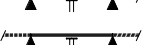


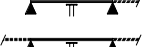
CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	6.81	6.09	5.28	4.85	4.19	7.62	6.73	5.74	7.19	6.39	5.50	τ _{bu} =0.75
Limite V _{bu}	6.81	6.09	5.28	4.85	4.19	7.62	6.73	5.74	7.19	6.39	5.50	τ _{bu} =0.75
Limite V _{pu}	5.80	5.20	4.51	4.16	3.60	6.49	5.74	4.90	6.12	5.45	4.70	τ _{pu} =1.80
Limite V _{cu}	6.38	5.71	4.95	4.56	3.94	7.14	6.31	5.38	6.74	5.99	5.16	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	0.09
FRG 211	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	0.09
	3.60	3.37	3.09	2.94	2.69	3.82	3.54	3.22	3.71	3.45	3.15	0.25
	4.03	3.70	3.34	3.14	2.84	4.25	3.87	3.46	4.13	3.79	3.39	0.31 1.12
	4.85	4.43	3.96	3.72	3.34	5.11	4.63	4.10	4.98	4.53	4.03	1.64
FRG 311	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	0.14
	4.44	4.15	3.81	3.62	3.32	4.71	4.37	3.97	4.57	4.26	3.89	0.38
	4.96	4.57	4.11	3.88	3.50	5.24	4.77	4.26	5.09	4.67	4.19	0.47 1.71
	5.98	5.47	4.89	4.59	4.12	6.30	5.70	5.05	6.14	5.58	4.97	2.56
FRG 411	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38	0.18
	5.10	4.77	4.37	4.16	3.81	5.40	5.01	4.56	5.25	4.89	4.46	0.50
	5.63	5.24	4.72	4.45	4.02	6.01	5.48	4.89	5.78	5.36	4.81	0.62 2.26
	6.51	6.26	5.61	5.27	4.73	7.07	6.55	5.80	6.69	6.41	5.70	3.29
FRG 511	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	0.19
	5.24	5.15	4.81	4.58	4.19	5.73	5.52	5.02	5.40	5.28	4.91	0.59
	5.67	5.50	5.20	4.90	4.42	6.19	5.96	5.39	5.84	5.65	5.29	0.70 2.54
	6.58	6.34	6.05	5.80	5.21	7.17	6.84	6.38	6.76	6.49	6.19	3.63



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
16349	16.86	7.14	5.50	18.07	1874	1874	1739	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3435	2	969	1335	4.96	60.0	4.2	1.80
	3	1478	2021	4.57	60.0	4.2	1.80
	4	1852	2653	4.99	60.0	4.2	1.80
	5	1997	3199	6.86	60.0	4.2	1.80

POIDS DU MONTAGE= 443 daN/m²

G1= 48 daN/m²

G2= 395 daN/m²

BETON CHANTIER=139.2 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}









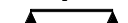






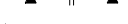
CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	9.00	8.06	6.98	6.42	5.54	10.06	8.89	7.59	9.50	8.45	7.27	τ _{bu} =0.75
Limite V _{bu}	9.00	8.06	6.98	6.42	5.54	10.06	8.89	7.59	9.50	8.45	7.27	τ _{pu} =1.80
Limite V _{pu}	9.00	8.06	6.98	6.42	5.54	10.06	8.89	7.59	9.50	8.45	7.27	τ _{cu} =0.69
Limite V _{cu}	8.38	7.51	6.51	5.99	5.17	9.36	8.28	7.07	8.84	7.87	6.78	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	0.12
FRG 211												
	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	0.12
	4.47	4.30	3.96	3.77	3.46	4.65	4.47	4.13	4.56	4.39	4.04	0.24
	5.15	4.74	4.29	4.04	3.65	5.43	4.96	4.44	5.29	4.85	4.36	0.31 1.12
	6.22	5.69	5.10	4.79	4.30	6.54	5.93	5.26	6.37	5.81	5.18	1.63
FRG 311												
	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	0.17
	5.67	5.31	4.88	4.64	4.26	6.00	5.58	5.08	5.83	5.44	4.98	0.38
	6.24	5.85	5.28	4.97	4.50	6.68	6.11	5.46	6.42	5.97	5.37	0.46 1.67
	7.21	6.96	6.27	5.89	5.30	7.82	7.30	6.48	7.41	7.13	6.37	2.34
FRG 411												
	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.39	0.22
	5.83	5.73	5.58	5.32	4.88	6.36	6.21	5.82	6.00	5.88	5.70	0.47
	6.32	6.13	5.90	5.70	5.15	6.88	6.63	6.26	6.49	6.30	6.04	0.55 1.94
	7.32	7.05	6.74	6.57	6.07	7.98	7.61	7.21	7.53	7.25	6.90	2.65
FRG 511												
	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	0.23
	5.89	5.78	5.63	5.55	5.35	6.44	6.27	6.07	6.07	5.95	5.78	0.56
	6.39	6.20	5.96	5.82	5.60	6.96	6.71	6.40	6.57	6.36	6.11	0.61 2.17
	7.43	7.15	6.82	6.65	6.34	8.09	7.73	7.30	7.65	7.34	6.98	2.86



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
19084	18.03	5.97	4.32	17.84	2098	2314	2565	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4794	3	1480	2005	3.59	60.0	4.2	1.80
	4	1831	2630	3.96	60.0	4.2	1.80
	5	2130	3227	4.57	60.0	4.2	1.80
	6	2176	3715	6.01	60.0	4.2	1.80

POIDS DU MONTAGE= 421 daN/m²

G1= 33 daN/m²

G2= 387 daN/m²

BETON CHANTIER=130.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m²]

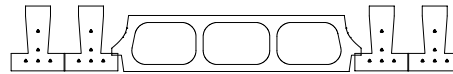
	100	100	100	100	100	0	0	0	100	100	100	Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	6.84	6.12	5.30	4.88	4.21	7.66	6.76	5.76	7.22	6.42	5.52	τ _{bu} =0.75
Limite V _{bu}	6.84	6.12	5.30	4.88	4.21	7.66	6.76	5.76	7.22	6.42	5.52	τ _{bu} =0.75
Limite V _{pu}	6.24	5.59	4.85	4.46	3.86	6.98	6.17	5.26	6.59	5.86	5.05	τ _{pu} =1.80
Limite V _{cu}	7.54	6.74	5.84	5.36	4.63	8.44	7.45	6.35	7.96	7.08	6.08	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	2.81	2.81	2.80	2.75	2.65	2.81	2.81	2.81	2.81	2.81	2.81	0.23
FRG 313	2.81	2.81	2.80	2.75	2.65	2.81	2.81	2.81	2.81	2.81	2.81	0.23
	4.40	4.11	3.77	3.58	3.28	4.66	4.32	3.93	4.52	4.21	3.85	0.37
	4.91	4.52	4.07	3.84	3.46	5.18	4.73	4.22	5.04	4.62	4.14	0.46 1.68
	5.92	5.41	4.84	4.54	4.08	6.24	5.65	5.00	6.07	5.52	4.92	2.51
FRG 413	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	0.28
	5.04	4.71	4.32	4.10	3.76	5.34	4.95	4.50	5.18	4.83	4.41	0.49
	5.63	5.18	4.66	4.39	3.97	5.94	5.41	4.83	5.78	5.29	4.75	0.61 2.24
	6.53	6.20	5.54	5.20	4.67	7.11	6.47	5.73	6.73	6.33	5.63	3.33
FRG 513	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	0.30
	5.27	5.18	4.78	4.55	4.16	5.75	5.48	4.99	5.44	5.32	4.88	0.59
	5.71	5.53	5.17	4.87	4.39	6.22	5.99	5.35	5.88	5.69	5.26	0.71 2.58
	6.61	6.37	6.08	5.76	5.17	7.20	6.88	6.34	6.80	6.53	6.23	3.61
FRG 613	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	0.29
	5.30	5.21	4.99	4.81	4.47	5.80	5.54	5.19	5.47	5.36	5.09	0.65
	5.74	5.57	5.36	5.14	4.72	6.26	6.03	5.57	5.92	5.73	5.48	0.74 2.67
	6.67	6.42	6.13	5.97	5.55	7.26	6.94	6.56	6.86	6.59	6.26	3.89



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
16736	16.67	7.33	4.09	17.54	2013	1861	1926	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3424	3	1404	1980	5.85	60.0	4.2	1.80
	4	1737	2586	6.45	60.0	4.2	1.80
	5	2021	3158	7.45	60.0	4.2	1.80
	6	2064	3616	8.56	60.0	4.2	1.80

POIDS DU MONTAGE= 443 daN/m²

G1= 56 daN/m²

G2= 387 daN/m²

BETON CHANTIER=135.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	8.94	8.01	6.94	6.38	5.51	9.99	8.83	7.54	9.43	8.40	7.23	τ _{bu} =0.75
Limite V _{bu}	8.94	8.01	6.94	6.38	5.51	9.99	8.83	7.54	9.43	8.40	7.23	τ _{bu} =0.75
Limite V _{pu}	9.63	8.63	7.47	6.87	5.92	10.78	9.52	8.13	10.17	9.05	7.79	τ _{pu} =1.80
Limite V _{cu}	9.24	8.28	7.17	6.59	5.69	10.33	9.13	7.79	9.75	8.68	7.47	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.74	3.66	3.55	3.48	3.35	3.82	3.74	3.62	3.78	3.70	3.58	0.22
FRG 313	3.74	3.66	3.55	3.48	3.35	3.82	3.74	3.62	3.78	3.70	3.58	0.22
	5.58	5.26	4.83	4.59	4.21	5.94	5.52	5.03	5.71	5.38	4.93	0.37
	6.26	5.79	5.22	4.92	4.45	6.61	6.04	5.41	6.44	5.91	5.31	0.46 1.65
	7.24	6.93	6.21	5.83	5.24	7.85	7.22	6.41	7.44	7.07	6.31	2.36
FRG 413	4.16	4.07	3.95	3.87	3.73	4.16	4.16	4.03	4.16	4.11	3.99	0.27
	5.86	5.74	5.52	5.25	4.81	6.38	6.21	5.75	6.03	5.91	5.63	0.46
	6.34	6.15	5.92	5.63	5.09	6.90	6.65	6.18	6.51	6.32	6.07	0.54 1.91
	7.34	7.07	6.76	6.59	5.99	7.99	7.63	7.23	7.55	7.26	6.92	2.67
FRG 513	4.36	4.36	4.26	4.17	4.02	4.36	4.36	4.34	4.36	4.36	4.30	0.32
	5.92	5.80	5.66	5.57	5.32	6.46	6.30	6.09	6.09	5.98	5.80	0.55
	6.42	6.23	5.98	5.85	5.62	6.99	6.73	6.42	6.60	6.39	6.13	0.62 2.19
	7.46	7.17	6.84	6.67	6.36	8.11	7.75	7.32	7.67	7.36	6.99	2.88
FRG 613	4.28	4.28	4.28	4.22	4.07	4.28	4.28	4.28	4.28	4.28	4.28	0.32
	5.96	5.84	5.70	5.61	5.45	6.51	6.36	6.15	6.15	6.01	5.84	0.58
	6.47	6.27	6.03	5.90	5.67	7.05	6.79	6.48	6.66	6.44	6.18	0.63 2.23
	7.53	7.25	6.91	6.73	6.42	8.21	7.84	7.40	7.75	7.44	7.07	2.95



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
24376	17.31	6.69	3.76	17.29	3649	2714	3442	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5466	5	2293	3257	4.83	60.0	4.2	1.80
	6	2800	3935	3.76	60.0	4.2	1.80
	7	3127	4524	4.22	60.0	4.2	1.80
	8	3097	4941	6.84	60.0	4.2	1.80

POIDS DU MONTAGE= 426 daN/m²

G1= 47 daN/m²

G2= 379 daN/m²

BETON CHANTIER=128.7 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

















CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	7.55	6.76	5.85	5.38	4.64	8.45	7.46	6.36	7.98	7.09	6.10	τ _{bu} =0.75
Limite V _{bu}	7.55	6.76	5.85	5.38	4.64	8.45	7.46	6.36	7.98	7.09	6.10	τ _{bu} =0.75
Limite V _{pu}	10.02	8.95	7.73	7.10	6.11	11.23	9.90	8.42	10.59	9.40	8.06	τ _{pu} =1.80
Limite V _{cu}	9.47	8.47	7.32	6.72	5.78	10.62	9.36	7.96	10.01	8.89	7.63	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.31	3.31	3.31	3.31	3.31	3.31	3.31	3.31	3.31	3.31	3.31	0.37
FRG 514R 	3.31	3.31	3.31	3.31	3.31	3.31	3.31	3.31	3.31	3.31	3.31	0.37
	5.46	5.10	4.68	4.45	4.08	5.78	5.36	4.88	5.61	5.23	4.78	0.60
	5.97	5.61	5.06	4.76	4.30	6.43	5.87	5.24	6.13	5.73	5.15	0.75 2.74
	6.90	6.65	6.01	5.64	5.07	7.50	7.01	6.21	7.09	6.82	6.11	3.90
FRG 614R 	3.44	3.44	3.44	3.44	3.44	3.44	3.44	3.44	3.44	3.44	3.44	0.41
	5.56	5.46	5.14	4.89	4.48	6.07	5.89	5.36	5.73	5.61	5.25	0.72
	6.01	5.84	5.56	5.24	4.73	6.55	6.32	5.76	6.20	5.99	5.66	0.83 3.02
	6.98	6.73	6.42	6.20	5.57	7.59	7.25	6.83	7.17	6.90	6.55	4.38
FRG 714R 	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	0.46
	5.60	5.49	5.36	5.24	4.80	6.13	5.98	5.75	5.77	5.65	5.49	0.81
	6.07	5.88	5.67	5.53	5.07	6.61	6.38	6.07	6.24	6.05	5.80	0.91 3.29
	7.04	6.78	6.47	6.30	5.97	7.67	7.32	6.93	7.25	6.96	6.61	4.75
FRG 814R 	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	0.42
	5.63	5.51	5.38	5.29	5.02	6.15	5.99	5.80	5.80	5.68	5.51	0.87
	6.09	5.92	5.69	5.55	5.30	6.65	6.40	6.11	6.28	6.07	5.82	0.97 3.53
	7.09	6.82	6.49	6.32	6.04	7.73	7.38	6.98	7.28	6.99	6.65	4.90



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
21181	15.97	8.03	3.54	17.06	3470	2235	2523	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3957	5	2160	3197	9.22	60.0	4.2	1.80
	6	2637	3849	8.16	60.0	4.2	1.80
	7	2945	4406	9.14	60.0	4.2	1.80
	8	2916	4787	9.81	60.0	4.2	1.80

POIDS DU MONTAGE= 451 daN/m²

G1= 77 daN/m²

G2= 374 daN/m²

BETON CHANTIER=132.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



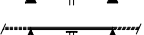



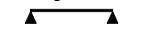


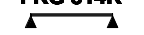

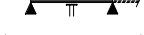
CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	9.77	8.76	7.59	6.98	6.03	10.92	9.66	8.25	10.31	9.19	7.91	τ _{bu} =0.75
Limite V _{bu}	9.77	8.76	7.59	6.98	6.03	10.92	9.66	8.25	10.31	9.19	7.91	τ _{bu} =0.75
Limite V _{pu}	14.95	13.38	11.57	10.62	9.13	16.73	14.78	12.59	15.79	14.04	12.06	τ _{pu} =1.80
Limite V _{cu}	10.98	9.84	8.52	7.83	6.75	12.27	10.85	9.26	11.59	10.32	8.88	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.61	4.57	4.42	4.33	4.16	4.61	4.61	4.52	4.61	4.61	4.47	0.37
FRG 514R	4.61	4.57	4.42	4.33	4.16	4.61	4.61	4.52	4.61	4.61	4.47	0.37
	6.11	5.99	5.84	5.59	5.13	6.67	6.50	6.12	6.29	6.17	5.99	0.57
	6.61	6.42	6.19	5.99	5.42	7.21	6.94	6.58	6.80	6.59	6.32	0.66 2.34
	7.66	7.38	7.05	6.86	6.39	8.32	7.97	7.54	7.88	7.57	7.21	3.17
FRG 614R	4.79	4.79	4.79	4.78	4.60	4.79	4.79	4.79	4.79	4.79	4.79	0.45
	6.17	6.05	5.90	5.81	5.63	6.74	6.57	6.36	6.36	6.23	6.05	0.67
	6.69	6.49	6.24	6.11	5.87	7.30	7.03	6.71	6.88	6.67	6.40	0.73 2.60
	7.76	7.48	7.13	6.96	6.64	8.46	8.09	7.65	8.00	7.67	7.30	3.42
FRG 714R	5.10	5.10	5.10	5.05	4.86	5.10	5.10	5.10	5.10	5.10	5.10	0.50
	6.23	6.11	5.95	5.86	5.69	6.80	6.64	6.42	6.42	6.28	6.11	0.69
	6.74	6.55	6.30	6.15	5.92	7.38	7.09	6.76	6.96	6.73	6.46	0.75 2.65
	7.86	7.55	7.21	7.01	6.71	8.57	8.19	7.73	8.09	7.76	7.38	3.51
FRG 814R	4.90	4.90	4.90	4.90	4.83	4.90	4.90	4.90	4.90	4.90	4.90	0.49
	6.24	6.13	5.98	5.88	5.71	6.84	6.67	6.45	6.45	6.31	6.13	0.69
	6.78	6.58	6.32	6.19	5.94	7.42	7.13	6.80	6.99	6.76	6.48	0.75 2.67
	7.90	7.61	7.25	7.05	6.74	8.63	8.25	7.78	8.15	7.81	7.42	3.54



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
24470	17.23	6.77	2.64	16.97	3680	3109	4075	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5425	6	2448	3773	5.98	60.0	4.2	1.80
	7	2785	4361	5.87	60.0	4.2	1.80
	8	3120	4941	5.78	60.0	4.2	1.80

POIDS DU MONTAGE= 426 daN/m²

G1= 56 daN/m²

G2= 370 daN/m²

BETON CHANTIER=124.9 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



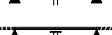



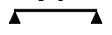


CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	8.59	7.69	6.65	6.11	5.26	9.63	8.49	7.23	9.08	8.07	6.93	τ _{bu} =0.75
Limite V _{bu}	8.59	7.69	6.65	6.11	5.26	9.63	8.49	7.23	9.08	8.07	6.93	τ _{bu} =0.75
Limite V _{pu}	10.10	9.03	7.80	7.16	6.16	11.32	9.98	8.49	10.68	9.48	8.13	τ _{pu} =1.80
Limite V _{cu}	11.14	9.95	8.59	7.88	6.77	12.49	11.01	9.35	11.78	10.45	8.96	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.90	3.90	3.90	3.90	3.82	3.90	3.90	3.90	3.90	3.90	3.90	0.50
FRG 617R	3.90	3.90	3.90	3.90	3.82	3.90	3.90	3.90	3.90	3.90	3.90	0.50
	5.55	5.46	5.04	4.79	4.39	6.07	5.77	5.25	5.73	5.61	5.14	0.69
	6.01	5.84	5.44	5.13	4.63	6.55	6.31	5.64	6.19	5.99	5.54	0.83 3.01
	6.96	6.71	6.40	6.07	5.45	7.57	7.25	6.68	7.16	6.88	6.55	4.19
FRG 717R	4.18	4.18	4.18	4.18	4.08	4.18	4.18	4.18	4.18	4.18	4.18	0.57
	5.59	5.49	5.36	5.15	4.72	6.12	5.97	5.64	5.76	5.65	5.49	0.78
	6.06	5.88	5.66	5.51	4.98	6.61	6.36	6.06	6.24	6.03	5.79	0.90 3.28
	7.03	6.76	6.46	6.28	5.86	7.66	7.32	6.92	7.23	6.94	6.61	4.53
FRG 817R	4.41	4.41	4.41	4.41	4.32	4.41	4.41	4.41	4.41	4.41	4.41	0.64
	5.63	5.53	5.39	5.30	5.02	6.17	6.01	5.80	5.80	5.69	5.53	0.87
	6.11	5.92	5.70	5.57	5.30	6.67	6.42	6.11	6.28	6.09	5.84	0.97 3.53
	7.09	6.82	6.51	6.34	6.05	7.75	7.39	6.98	7.30	7.01	6.67	4.93



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
21201	15.94	8.06	2.48	16.93	3482	2449	2861	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3943	6	2294	3686	10.86	60.0	4.2	1.80
	7	2609	4244	11.65	60.0	4.2	1.80
	8	2923	4787	12.28	60.0	4.2	1.80

POIDS DU MONTAGE= 451 daN/m²

G1= 92 daN/m²

G2= 359 daN/m²

BETON CHANTIER=126.3 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

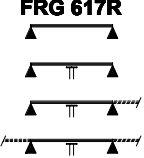
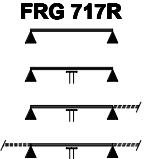
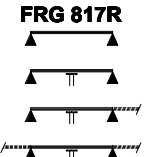
CAS DE CHARGE [daN/m²]

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	10.67	9.56	8.28	7.61	6.56	11.93	10.55	9.00	11.26	10.03	8.63	τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	15.00	13.42	11.61	10.65	9.16	16.79	14.83	12.63	15.84	14.09	12.10	
Limite V _{cu}	12.40	11.10	9.61	8.83	7.60	13.87	12.26	10.45	13.09	11.65	10.01	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R 	5.43	5.35	5.12	4.99	4.74	5.43	5.43	5.27	5.43	5.43	5.19	0.47
	6.17	6.05	5.90	5.80	5.51	6.74	6.57	6.36	6.36	6.23	6.05	
	6.69	6.49	6.24	6.10	5.82	7.29	7.03	6.71	6.88	6.67	6.40	0.72 2.55
	7.75	7.47	7.13	6.94	6.63	8.46	8.07	7.63	7.98	7.67	7.28	
FRG 717R 	5.82	5.70	5.46	5.32	5.06	5.82	5.82	5.62	5.82	5.79	5.54	0.54
	6.23	6.11	5.95	5.85	5.68	6.80	6.64	6.42	6.42	6.28	6.11	
	6.74	6.54	6.29	6.15	5.91	7.38	7.09	6.76	6.96	6.73	6.45	0.74 2.63
	7.84	7.55	7.20	7.01	6.69	8.57	8.17	7.73	8.07	7.75	7.36	
FRG 817R 	6.14	6.04	5.78	5.63	5.36	6.14	6.14	5.95	6.14	6.13	5.86	0.61
	6.26	6.15	5.99	5.90	5.73	6.88	6.71	6.48	6.48	6.33	6.15	
	6.80	6.60	6.34	6.21	5.96	7.46	7.17	6.82	7.01	6.78	6.49	0.76 2.68
	7.94	7.63	7.26	7.07	6.74	8.67	8.27	7.80	8.17	7.84	7.45	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
22752	19.88	6.12	6.50	20.25	2164	2528	2359	1.13

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5576	2	1144	1477	3.19	60.0	4.2	1.80
	3	1744	2242	2.77	60.0	4.2	1.80
	4	2186	2958	3.03	60.0	4.2	1.80
	5	2357	3594	4.18	60.0	4.2	1.80

POIDS DU MONTAGE= 468 daN/m²

G1= 28 daN/m²

G2= 439 daN/m²

BETON CHANTIER=152.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m²]

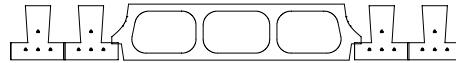
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	7.11	6.40	5.58	5.15	4.47	7.91	7.03	6.04	7.49	6.70	5.80	τ _{bu} =0.75
Limite V _{bu}	7.11	6.40	5.58	5.15	4.47	7.91	7.03	6.04	7.49	6.70	5.80	τ _{bu} =0.75
Limite V _{pu}	6.15	5.54	4.84	4.47	3.89	6.84	6.08	5.24	6.48	5.80	5.03	τ _{pu} =1.80
Limite V _{cu}	6.67	6.00	5.24	4.84	4.20	7.41	6.59	5.67	7.02	6.28	5.45	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	0.08
FRG 211	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	0.08
	3.68	3.45	3.18	3.02	2.78	3.89	3.62	3.31	3.78	3.53	3.24	0.25
	4.12	3.80	3.44	3.25	2.94	4.33	3.97	3.56	4.22	3.88	3.50	0.31 1.13
	4.97	4.56	4.09	3.85	3.46	5.22	4.75	4.22	5.09	4.65	4.16	1.65
FRG 311	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	0.12
	4.54	4.25	3.91	3.73	3.42	4.79	4.46	4.07	4.66	4.35	3.99	0.38
	5.07	4.69	4.24	4.00	3.62	5.34	4.89	4.39	5.20	4.79	4.31	0.47 1.72
	6.12	5.62	5.04	4.74	4.27	6.43	5.85	5.21	6.27	5.73	5.12	2.56
FRG 411	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	0.16
	5.21	4.89	4.50	4.28	3.93	5.50	5.12	4.68	5.35	5.00	4.58	0.50
	5.83	5.38	4.87	4.59	4.16	6.14	5.62	5.04	5.98	5.50	4.95	0.63 2.29
	6.78	6.45	5.79	5.44	4.90	7.36	6.72	5.98	6.98	6.58	5.88	3.44
FRG 511	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	0.16
	5.46	5.36	4.96	4.72	4.33	5.93	5.65	5.16	5.61	5.50	5.05	0.60
	5.92	5.74	5.37	5.06	4.59	6.42	6.19	5.55	6.07	5.90	5.46	0.72 2.62
	6.86	6.62	6.32	6.00	5.40	7.45	7.13	6.59	7.05	6.78	6.47	3.68



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
20194	18.43	7.57	6.22	19.83	2092	2056	1908	1.13

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3999	2	1095	1466	4.74	60.0	4.2	1.80
	3	1670	2218	4.11	60.0	4.2	1.80
	4	2094	2914	4.49	60.0	4.2	1.80
	5	2257	3526	6.21	60.0	4.2	1.80

POIDS DU MONTAGE= 490 daN/m²

G1= 48 daN/m²

G2= 442 daN/m²

BETON CHANTIER=159.2 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}




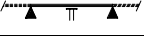

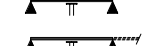

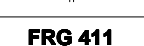


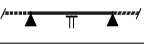


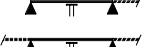
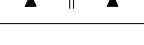

CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	9.40	8.47	7.38	6.81	5.91	10.45	9.30	8.00	9.90	8.86	7.68	τ _{bu} =0.75
Limite V _{bu}	9.40	8.47	7.38	6.81	5.91	10.45	9.30	8.00	9.90	8.86	7.68	τ _{bu} =0.75
Limite V _{pu}	9.56	8.61	7.51	6.92	6.00	10.62	9.45	8.13	10.06	9.01	7.80	τ _{pu} =1.80
Limite V _{cu}	8.76	7.89	6.88	6.35	5.51	9.73	8.66	7.45	9.21	8.26	7.16	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38	0.10
FRG 211 	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38	0.10
	4.72	4.37	4.08	3.89	3.57	4.97	4.64	4.24	4.84	4.53	4.16	0.25
	5.27	4.88	4.42	4.18	3.79	5.55	5.09	4.57	5.41	4.98	4.50	0.31 1.12
	6.36	5.85	5.26	4.95	4.46	6.68	6.09	5.43	6.52	5.97	5.34	1.64
FRG 311 	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	0.15
	5.80	5.45	5.02	4.78	4.40	6.12	5.71	5.22	5.95	5.57	5.11	0.38
	6.49	6.01	5.44	5.14	4.66	6.82	6.26	5.63	6.65	6.13	5.53	0.47 1.70
	7.51	7.20	6.47	6.09	5.49	8.15	7.49	6.68	7.74	7.34	6.57	2.44
FRG 411 	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	0.19
	6.07	5.98	5.75	5.48	5.04	6.61	6.46	5.98	6.25	6.13	5.86	0.48
	6.59	6.41	6.18	5.89	5.34	7.15	6.90	6.45	6.78	6.57	6.32	0.55 1.97
	7.65	7.38	7.05	6.88	6.30	8.30	7.94	7.53	7.86	7.57	7.22	2.75
FRG 511 	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	0.20
	6.14	6.03	5.88	5.79	5.51	6.67	6.51	6.32	6.32	6.20	6.03	0.56
	6.67	6.48	6.24	6.10	5.83	7.25	6.98	6.67	6.86	6.65	6.38	0.63 2.20
	7.75	7.48	7.15	6.96	6.66	8.42	8.05	7.63	7.98	7.67	7.30	2.96



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
23637	19.66	6.34	4.90	19.58	2357	2539	2815	1.13

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5589	3	1682	2201	3.30	60.0	4.2	1.80
	4	2080	2891	3.63	60.0	4.2	1.80
	5	2420	3554	4.20	60.0	4.2	1.80
	6	2472	4107	5.70	60.0	4.2	1.80

POIDS DU MONTAGE= 468 daN/m²

G1= 33 daN/m²

G2= 435 daN/m²

BETON CHANTIER=150.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

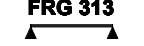


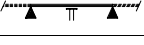

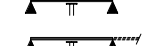

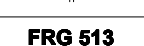


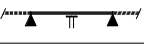


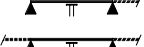
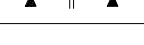

CAS DE CHARGE [daN/m²]

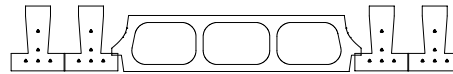
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	7.14	6.43	5.60	5.17	4.49	7.95	7.06	6.07	7.52	6.73	5.83	τ _{bu} =0.75
Limite V _{bu}	7.14	6.43	5.60	5.17	4.49	7.95	7.06	6.07	7.52	6.73	5.83	τ _{bu} =0.75
Limite V _{pu}	6.66	6.00	5.23	4.83	4.20	7.41	6.59	5.67	7.01	6.28	5.44	τ _{pu} =1.80
Limite V _{cu}	7.87	7.08	6.17	5.68	4.93	8.76	7.78	6.68	8.29	7.41	6.41	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 313	2.71	2.71	2.71	2.69	2.61	2.71	2.71	2.71	2.71	2.71	2.71	0.21
	2.71	2.71	2.71	2.69	2.61	2.71	2.71	2.71	2.71	2.71	2.71	0.21
	4.50	4.22	3.88	3.69	3.39	4.75	4.42	4.04	4.62	4.31	3.95	0.37
	5.03	4.64	4.20	3.96	3.59	5.29	4.85	4.35	5.16	4.74	4.27	0.46 1.69
	6.06	5.57	4.99	4.70	4.23	6.37	5.80	5.16	6.22	5.68	5.07	2.50
FRG 413	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	0.24
	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	0.24
	5.15	4.83	4.44	4.23	3.89	5.44	5.07	4.63	5.29	4.94	4.53	0.49
	5.76	5.32	4.81	4.54	4.11	6.07	5.56	4.98	5.91	5.44	4.89	0.61 2.24
	6.82	6.38	5.72	5.38	4.85	7.30	6.64	5.91	7.01	6.51	5.82	3.37
FRG 513	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	0.27
	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	0.27
	5.49	5.36	4.93	4.69	4.31	5.98	5.62	5.13	5.65	5.48	5.02	0.59
	5.96	5.78	5.34	5.04	4.56	6.46	6.16	5.52	6.13	5.94	5.43	0.71 2.60
	6.91	6.67	6.35	5.97	5.37	7.50	7.17	6.55	7.11	6.83	6.45	3.72
FRG 613	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	0.26
	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	0.26
	5.53	5.43	5.14	4.97	4.63	6.01	5.88	5.33	5.69	5.59	5.23	0.66
	5.99	5.83	5.61	5.33	4.90	6.51	6.28	5.92	6.17	5.98	5.74	0.78 2.82
	6.98	6.73	6.42	6.26	5.78	7.57	7.25	6.86	7.17	6.90	6.57	4.03



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
20810	18.19	7.81	4.67	19.21	2265	2039	2110	1.13

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3996	3	1600	2176	5.15	60.0	4.2	1.80
	4	1979	2848	5.67	60.0	4.2	1.80
	5	2302	3485	6.56	60.0	4.2	1.80
	6	2352	4009	8.20	60.0	4.2	1.80

POIDS DU MONTAGE= 490 daN/m²

G1= 56 daN/m²

G2= 434 daN/m²

BETON CHANTIER=155.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

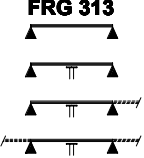
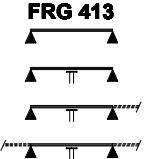
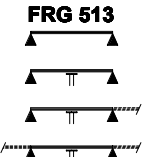
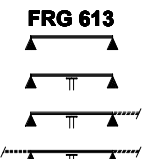
CAS DE CHARGE [daN/m²]

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	9.32	8.40	7.32	6.76	5.86	10.36	9.22	7.93	9.81	8.79	7.61	τ _{bu} =0.75
Limite V _{pu}	10.31	9.29	8.09	7.46	6.46	11.47	10.20	8.77	10.86	9.72	8.41	τ _{pu} =1.80
Limite V _{cu}	9.64	8.68	7.57	6.98	6.05	10.71	9.53	8.20	10.15	9.09	7.87	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 313 	3.63	3.57	3.47	3.42	3.31	3.70	3.63	3.53	3.66	3.60	3.50	0.20
	5.75	5.39	4.97	4.74	4.36	6.06	5.65	5.17	5.90	5.52	5.07	0.37
	6.42	5.95	5.39	5.09	4.61	6.76	6.20	5.57	6.59	6.07	5.48	0.46 1.67
	7.55	7.13	6.41	6.03	5.44	8.15	7.42	6.62	7.77	7.27	6.51	2.44
FRG 413 	3.99	3.96	3.86	3.80	3.68	3.99	3.99	3.93	3.99	3.99	3.90	0.25
	6.11	6.01	5.69	5.42	4.98	6.64	6.47	5.91	6.28	6.17	5.80	0.47
	6.62	6.44	6.16	5.82	5.28	7.19	6.94	6.38	6.80	6.61	6.27	0.55 1.95
	7.67	7.42	7.09	6.90	6.22	8.32	7.98	7.57	7.90	7.59	7.25	2.78
FRG 513 	4.18	4.18	4.17	4.10	3.97	4.18	4.18	4.18	4.18	4.18	4.18	0.29
	6.17	6.07	5.92	5.82	5.51	6.72	6.55	6.36	6.36	6.23	6.07	0.56
	6.70	6.51	6.27	6.13	5.84	7.28	7.01	6.71	6.90	6.69	6.42	0.63 2.21
	7.78	7.51	7.19	6.99	6.69	8.46	8.09	7.67	8.01	7.71	7.34	2.99
FRG 613 	4.10	4.10	4.10	4.10	4.02	4.10	4.10	4.10	4.10	4.10	4.10	0.29
	6.23	6.11	5.96	5.87	5.71	6.77	6.61	6.40	6.40	6.28	6.11	0.60
	6.75	6.57	6.32	6.19	5.95	7.34	7.09	6.76	6.96	6.74	6.48	0.65 2.30
	7.86	7.59	7.25	7.05	6.74	8.55	8.19	7.75	8.10	7.78	7.42	3.05



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
30405	18.86	7.14	4.30	18.94	4137	2973	3772	1.13

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
6389	5	2625	3584	4.32	60.0	4.2	1.80
	6	3205	4328	3.37	60.0	4.2	1.80
	7	3580	4981	3.78	60.0	4.2	1.80
	8	3545	5464	6.12	60.0	4.2	1.80

POIDS DU MONTAGE= 473 daN/m²

G1= 47 daN/m²

G2= 426 daN/m²

BETON CHANTIER=148.7 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



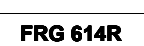
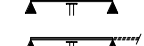

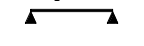
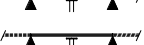


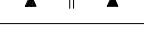
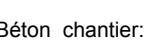
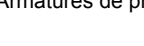
CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	7.88	7.09	6.18	5.70	4.94	8.76	7.79	6.69	8.29	7.42	6.42	τ _{bu} =0.75
Limite V _{bu}	7.88	7.09	6.18	5.70	4.94	8.76	7.79	6.69	8.29	7.42	6.42	τ _{bu} =0.75
Limite V _{pu}	10.79	9.69	8.43	7.76	6.71	12.02	10.67	9.14	11.37	10.16	8.77	τ _{pu} =1.80
Limite V _{cu}	9.87	8.88	7.72	7.11	6.15	11.00	9.76	8.37	10.41	9.30	8.03	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	0.33
FRG 514R	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	0.33
	5.59	5.24	4.82	4.59	4.22	5.90	5.49	5.02	5.73	5.36	4.92	0.61
	6.24	5.77	5.22	4.93	4.46	6.57	6.02	5.40	6.41	5.89	5.31	0.76 2.79
	7.21	6.92	6.21	5.84	5.26	7.82	7.20	6.41	7.42	7.06	6.31	4.10
FRG 614R	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.32	0.35
	5.80	5.71	5.30	5.05	4.63	6.32	6.03	5.51	5.98	5.86	5.40	0.72
	6.29	6.12	5.74	5.42	4.91	6.83	6.59	5.94	6.48	6.27	5.83	0.86 3.15
	7.30	7.04	6.73	6.42	5.78	7.92	7.57	7.05	7.50	7.22	6.88	4.39
FRG 714R	3.53	3.53	3.53	3.53	3.53	3.53	3.53	3.53	3.53	3.53	3.53	0.40
	5.85	5.74	5.61	5.41	4.97	6.36	6.22	5.91	6.01	5.90	5.74	0.81
	6.34	6.17	5.94	5.80	5.26	6.90	6.65	6.35	6.52	6.32	6.07	0.94 3.43
	7.36	7.11	6.78	6.61	6.20	8.00	7.65	7.25	7.57	7.28	6.94	4.75
FRG 814R	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	0.37
	5.88	5.76	5.63	5.54	5.21	6.40	6.24	6.05	6.05	5.94	5.76	0.88
	6.38	6.19	5.96	5.83	5.51	6.93	6.69	6.38	6.55	6.36	6.10	0.99 3.56
	7.41	7.15	6.82	6.65	6.36	8.05	7.71	7.30	7.63	7.32	6.98	5.07



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
26506	17.41	8.59	4.06	18.64	3943	2442	2756	1.13

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4626	5	2480	3524	8.00	60.0	4.2	1.80
	6	3028	4241	6.24	60.0	4.2	1.80
	7	3382	4864	6.99	60.0	4.2	1.80
	8	3349	5310	9.40	60.0	4.2	1.80

POIDS DU MONTAGE= 498 daN/m²

G1= 77 daN/m²

G2= 421 daN/m²

BETON CHANTIER=152.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}


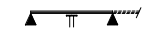

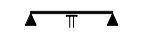






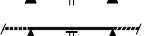
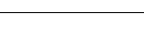
CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	10.17	9.17	7.99	7.37	6.40	11.30	10.06	8.66	10.70	9.59	8.31	τ _{bu} =0.75
Limite V _{bu}	10.17	9.17	7.99	7.37	6.40	11.30	10.06	8.66	10.70	9.59	8.31	τ _{bu} =0.75
Limite V _{pu}	16.16	14.54	12.64	11.64	10.06	17.98	15.98	13.71	17.02	15.22	13.16	τ _{pu} =1.80
Limite V _{cu}	11.43	10.29	8.97	8.27	7.16	12.70	11.30	9.72	12.03	10.77	9.33	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.42	4.42	4.35	4.27	4.13	4.42	4.42	4.42	4.42	4.42	4.39	0.34
FRG 514R	4.42	4.42	4.35	4.27	4.13	4.42	4.42	4.42	4.42	4.42	4.39	0.34
	6.39	6.28	6.06	5.77	5.31	6.94	6.77	6.30	6.57	6.45	6.17	0.57
	6.92	6.73	6.49	6.21	5.63	7.51	7.25	6.79	7.11	6.90	6.63	0.67 2.37
	8.01	7.75	7.40	7.23	6.64	8.69	8.33	7.90	8.25	7.94	7.57	3.30
FRG 614R	4.59	4.59	4.59	4.59	4.56	4.59	4.59	4.59	4.59	4.59	4.59	0.42
	6.46	6.34	6.19	6.09	5.83	7.01	6.86	6.64	6.64	6.51	6.34	0.68
	6.99	6.80	6.55	6.41	6.17	7.61	7.34	7.01	7.21	6.98	6.71	0.76 2.69
	8.12	7.84	7.50	7.30	6.99	8.82	8.46	8.01	8.36	8.04	7.67	3.55
FRG 714R	4.89	4.89	4.89	4.89	4.82	4.89	4.89	4.89	4.89	4.89	4.89	0.47
	6.49	6.38	6.23	6.13	5.96	7.09	6.92	6.69	6.69	6.56	6.38	0.71
	7.05	6.86	6.61	6.46	6.21	7.69	7.41	7.07	7.26	7.04	6.76	0.77 2.73
	8.21	7.94	7.57	7.38	7.05	8.94	8.55	8.09	8.46	8.13	7.75	3.63
FRG 814R	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	0.44
	6.53	6.42	6.26	6.17	5.98	7.13	6.96	6.73	6.73	6.59	6.42	0.72
	7.09	6.90	6.64	6.49	6.24	7.73	7.46	7.11	7.30	7.08	6.80	0.78 2.76
	8.26	7.98	7.62	7.42	7.09	9.01	8.61	8.15	8.51	8.19	7.79	3.68



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
30684	18.73	7.27	3.05	18.42	4208	3375	4423	1.13

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
6329	6	2824	4165	5.20	60.0	4.2	1.80
	7	3213	4819	5.10	60.0	4.2	1.80
	8	3600	5464	5.02	60.0	4.2	1.80

POIDS DU MONTAGE= 473 daN/m²

G1= 56 daN/m²

G2= 417 daN/m²

BETON CHANTIER=144.9 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}









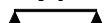



CAS DE CHARGE [daN/m²]

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	8.88	7.99	6.95	6.41	5.55	9.89	8.78	7.54	9.36	8.37	7.23		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	10.97	9.85	8.56	7.88	6.82	12.22	10.84	9.29	11.56	10.32	8.91		
Limite V _{cu}	11.51	10.33	8.98	8.26	7.14	12.83	11.38	9.74	12.13	10.83	9.35		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R    	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	0.46
	5.81	5.65	5.20	4.95	4.55	6.32	5.92	5.41	5.98	5.78	5.30	0.70
	6.29	6.11	5.63	5.31	4.81	6.83	6.49	5.82	6.48	6.27	5.72	0.84 3.04
	7.28	7.03	6.69	6.30	5.67	7.90	7.57	6.91	7.50	7.21	6.80	4.36
FRG 717R    	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03	0.52
	5.85	5.74	5.59	5.32	4.89	6.36	6.23	5.82	6.02	5.90	5.70	0.79
	6.34	6.17	5.94	5.71	5.18	6.89	6.65	6.26	6.52	6.32	6.07	0.92 3.32
	7.36	7.09	6.78	6.61	6.10	8.00	7.65	7.25	7.57	7.28	6.94	4.71
FRG 817R    	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	0.58
	5.89	5.78	5.65	5.55	5.21	6.42	6.26	6.06	6.06	5.95	5.78	0.88
	6.39	6.21	5.98	5.84	5.51	6.95	6.71	6.40	6.57	6.37	6.11	0.99 3.56
	7.42	7.16	6.84	6.67	6.36	8.07	7.73	7.30	7.64	7.34	6.99	5.07



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
26607	17.31	8.69	2.86	18.31	3982	2638	3082	1.13

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4593	6	2650	4079	10.42	60.0	4.2	1.80
	7	3015	4701	11.17	60.0	4.2	1.80
	8	3377	5310	11.77	60.0	4.2	1.80

POIDS DU MONTAGE= 498 daN/m²

G1= 92 daN/m²

G2= 406 daN/m²

BETON CHANTIER=146.3 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

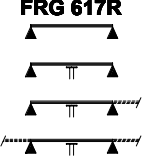
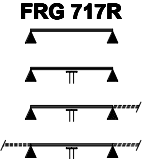
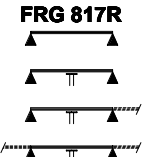
CAS DE CHARGE [daN/m²]

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	10.96	9.87	8.60	7.93	6.88	12.17	10.84	9.32	11.53	10.33	8.95		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	16.32	14.68	12.77	11.75	10.16	18.15	16.14	13.85	17.19	15.37	13.28		
Limite V _{cu}	12.73	11.46	9.98	9.20	7.96	14.15	12.59	10.81	13.40	11.99	10.38		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R 	5.21	5.21	5.09	4.97	4.76	5.21	5.21	5.21	5.21	5.21	5.15	0.73 2.58
	6.46	6.34	6.19	6.09	5.71	7.01	6.86	6.64	6.64	6.51	6.34	
	6.99	6.80	6.55	6.40	6.05	7.60	7.34	7.01	7.19	6.98	6.71	
	8.11	7.83	7.48	7.29	6.98	8.82	8.44	8.00	8.34	8.03	7.65	
FRG 717R 	5.58	5.58	5.43	5.31	5.08	5.58	5.58	5.56	5.58	5.58	5.49	0.77 2.73
	6.49	6.38	6.23	6.13	5.96	7.09	6.92	6.69	6.69	6.56	6.38	
	7.05	6.86	6.60	6.46	6.21	7.69	7.40	7.07	7.26	7.03	6.76	
	8.19	7.92	7.55	7.36	7.03	8.93	8.53	8.09	8.44	8.11	7.73	
FRG 817R 	5.89	5.89	5.75	5.62	5.38	5.89	5.89	5.89	5.89	5.89	5.82	0.78 2.77
	6.55	6.44	6.27	6.18	5.99	7.15	6.98	6.74	6.74	6.61	6.44	
	7.11	6.92	6.65	6.51	6.25	7.76	7.48	7.13	7.33	7.10	6.82	
	8.28	8.00	7.63	7.44	7.10	9.03	8.65	8.17	8.54	8.21	7.80	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
28744	21.30	6.70	5.50	21.35	2620	2768	3069	1.10

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
6435	3	1888	2397	3.07	60.0	4.2	1.80
	4	2334	3153	3.38	60.0	4.2	1.80
	5	2716	3881	3.91	60.0	4.2	1.80
	6	2774	4500	5.30	60.0	4.2	1.80

POIDS DU MONTAGE= 515 daN/m²

G1= 33 daN/m²

G2= 482 daN/m²

BETON CHANTIER=170.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



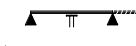
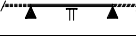

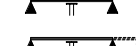

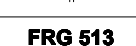
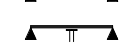

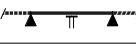


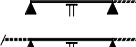
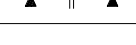

CAS DE CHARGE [daN/m²]

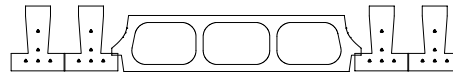
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	7.43	6.72	5.89	5.45	4.76	8.22	7.35	6.36	7.80	7.02	6.12	τ _{bu} =0.75
Limite V _{bu}	7.43	6.72	5.89	5.45	4.76	8.22	7.35	6.36	7.80	7.02	6.12	τ _{bu} =0.75
Limite V _{pu}	7.06	6.39	5.60	5.19	4.53	7.81	6.98	6.05	7.41	6.67	5.82	τ _{pu} =1.80
Limite V _{cu}	8.19	7.40	6.48	6.00	5.22	9.06	8.10	7.00	8.60	7.73	6.73	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 313	2.62	2.62	2.62	2.62	2.56	2.62	2.62	2.62	2.62	2.62	2.62	0.19
	2.62	2.62	2.62	2.62	2.56	2.62	2.62	2.62	2.62	2.62	2.62	0.19
	4.58	4.31	3.98	3.79	3.49	4.83	4.51	4.13	4.70	4.40	4.05	0.37
	5.12	4.76	4.32	4.08	3.70	5.39	4.96	4.46	5.25	4.85	4.39	0.47 1.69
	6.18	5.70	5.14	4.84	4.37	6.50	5.93	5.30	6.34	5.81	5.22	2.50
FRG 413	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	0.21
	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	2.73	0.21
	5.26	4.94	4.56	4.35	4.00	5.53	5.17	4.74	5.39	5.05	4.65	0.49
	5.88	5.45	4.95	4.68	4.25	6.18	5.68	5.12	6.03	5.57	5.03	0.62 2.24
	7.09	6.54	5.89	5.55	5.01	7.45	6.80	6.08	7.27	6.67	5.98	3.42
FRG 513	2.86	2.86	2.86	2.86	2.86	2.86	2.86	2.86	2.86	2.86	2.86	0.24
	2.86	2.86	2.86	2.86	2.86	2.86	2.86	2.86	2.86	2.86	2.86	0.24
	5.71	5.48	5.06	4.83	4.44	6.14	5.74	5.26	5.86	5.60	5.15	0.60
	6.19	6.02	5.49	5.19	4.71	6.69	6.31	5.68	6.36	6.17	5.58	0.72 2.63
	7.17	6.94	6.54	6.16	5.56	7.76	7.46	6.74	7.38	7.11	6.64	3.87
FRG 613	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	0.23
	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	0.23
	5.74	5.65	5.45	5.09	4.78	6.23	6.09	5.66	5.90	5.79	5.55	0.68
	6.23	6.07	5.84	5.59	5.07	6.74	6.51	6.11	6.40	6.22	5.98	0.79 2.87
	7.25	7.00	6.71	6.53	5.99	7.84	7.52	7.14	7.45	7.17	6.84	4.16



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
25402	19.73	8.27	5.25	20.93	2523	2221	2299	1.10

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4608	3	1801	2373	4.65	60.0	4.2	1.80
	4	2227	3109	5.13	60.0	4.2	1.80
	5	2591	3812	5.92	60.0	4.2	1.80
	6	2647	4401	7.89	60.0	4.2	1.80

POIDS DU MONTAGE= 537 daN/m²

G1= 56 daN/m²

G2= 481 daN/m²

BETON CHANTIER=175.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

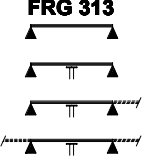
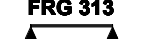


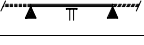
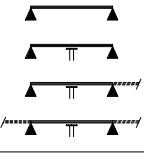

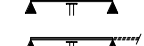

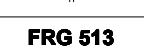
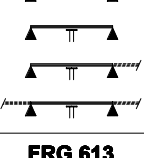


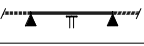

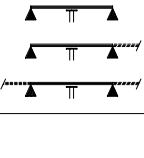

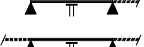
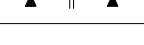

CAS DE CHARGE [daN/m²]

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	9.70	8.78	7.70	7.12	6.20	10.72	9.60	8.31	10.18	9.17	7.99	τ _{bu} =0.75
Limite V _{pu}	10.95	9.91	8.68	8.02	6.98	12.11	10.84	9.38	11.50	10.35	9.01	τ _{pu} =1.80
Limite V _{cu}	10.02	9.07	7.95	7.35	6.41	11.08	9.92	8.59	10.52	9.47	8.26	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)													
FRG 313 		3.52	3.47	3.39	3.35	3.26	3.58	3.52	3.44	3.55	3.50	3.42	0.18 0.37 0.46 1.68 2.45
		5.86	5.52	5.10	4.87	4.49	6.17	5.77	5.30	6.01	5.64	5.20	
		6.55	6.10	5.54	5.24	4.77	6.89	6.35	5.73	6.72	6.22	5.63	
		7.86	7.32	6.60	6.22	5.62	8.31	7.60	6.81	8.07	7.46	6.70	
FRG 413 		3.84	3.84	3.78	3.72	3.62	3.84	3.84	3.83	3.84	3.84	3.80	0.23 0.47 0.57 2.03 2.80
		6.36	6.24	5.84	5.57	5.14	6.88	6.61	6.06	6.53	6.41	5.95	
		6.88	6.71	6.34	6.00	5.45	7.46	7.21	6.56	7.07	6.88	6.45	
		7.98	7.73	7.40	7.12	6.44	8.65	8.28	7.79	8.21	7.92	7.55	
FRG 513 		4.02	4.02	4.02	4.02	3.91	4.02	4.02	4.02	4.02	4.02	4.02	0.26 0.56 0.63 2.23 3.09
		6.42	6.30	6.16	6.07	5.69	6.96	6.80	6.59	6.59	6.48	6.30	
		6.96	6.78	6.53	6.40	6.04	7.54	7.28	6.98	7.15	6.96	6.69	
		8.09	7.84	7.50	7.30	6.99	8.78	8.42	8.00	8.32	8.03	7.66	
FRG 613 		3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	0.27 0.61 0.67 2.36 3.15
		6.47	6.36	6.21	6.11	5.94	7.01	6.86	6.65	6.65	6.52	6.36	
		7.01	6.84	6.59	6.46	6.21	7.61	7.36	7.03	7.23	7.01	6.74	
		8.19	7.92	7.57	7.38	7.05	8.88	8.51	8.07	8.42	8.11	7.74	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
37220	20.43	7.57	4.86	20.64	4637	3240	4110	1.10

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
7380	5	2966	3911	3.95	60.0	4.2	1.80
	6	3621	4720	3.08	60.0	4.2	1.80
	7	4045	5439	3.45	60.0	4.2	1.80
	8	4005	5987	5.59	60.0	4.2	1.80

POIDS DU MONTAGE= 520 daN/m²

G1= 47 daN/m²

G2= 473 daN/m²

BETON CHANTIER=168.7 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

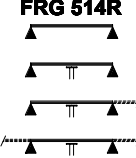


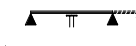
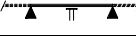
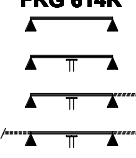

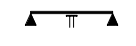


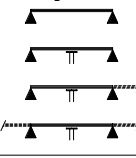
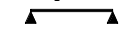

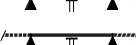

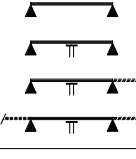

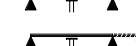
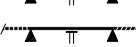

CAS DE CHARGE [daN/m²]

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	8.19	7.41	6.49	6.01	5.24	9.06	8.10	7.01	8.60	7.74	6.74		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	11.52	10.40	9.09	8.39	7.29	12.77	11.40	9.83	12.11	10.88	9.45		
Limite V _{cu}	10.26	9.27	8.11	7.49	6.52	11.37	10.16	8.77	10.79	9.69	8.43		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)													
FRG 514R 		3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09		0.29 0.61 0.76 2.79 4.22
		5.70	5.36	4.95	4.72	4.35	6.00	5.61	5.14	5.84	5.48		
		6.37	5.92	5.37	5.08	4.61	6.70	6.16	5.55	6.53	6.04	5.46	
		7.51	7.10	6.40	6.03	5.44	8.08	7.38	6.60	7.71	7.23	6.49	
FRG 614R 		3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	0.31 0.73 0.88 3.19 4.54	
		6.03	5.89	5.43	5.18	4.77	6.54	6.16	5.65	6.21	6.02		5.54
		6.54	6.38	5.90	5.58	5.07	7.09	6.77	6.10	6.73	6.53		6.00
		7.59	7.34	7.03	6.62	5.98	8.23	7.88	7.25	7.80	7.51		7.13
FRG 714R 		3.42	3.42	3.42	3.42	3.42	3.42	3.42	3.42	3.42	3.42	0.35 0.82 0.96 3.48 4.89	
		6.08	5.98	5.83	5.57	5.12	6.59	6.44	6.06	6.24	6.13		5.94
		6.59	6.42	6.19	5.99	5.44	7.15	6.90	6.55	6.78	6.58		6.33
		7.66	7.42	7.09	6.92	6.42	8.30	7.96	7.55	7.88	7.59		7.25
FRG 814R 		3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	3.29	0.33 0.89 1.00 3.60 5.22	
		6.11	6.00	5.86	5.77	5.38	6.63	6.48	6.28	6.28	6.17		6.00
		6.63	6.46	6.23	6.09	5.71	7.19	6.94	6.65	6.82	6.61		6.36
		7.71	7.46	7.13	6.95	6.65	8.36	8.01	7.60	7.93	7.64		7.28



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
32560	18.87	9.13	4.60	20.28	4429	2656	2998	1.10

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5348	5	2810	3851	6.73	60.0	4.2	1.80
	6	3431	4634	5.25	60.0	4.2	1.80
	7	3832	5322	5.88	60.0	4.2	1.80
	8	3795	5834	9.05	60.0	4.2	1.80

POIDS DU MONTAGE= 545 daN/m²

G1= 77 daN/m²

G2= 468 daN/m²

BETON CHANTIER=172.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



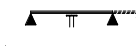
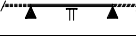

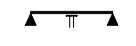


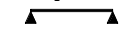

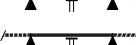


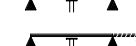
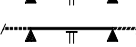

CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	10.57	9.57	8.39	7.76	6.76	11.67	10.46	9.06	11.09	9.99	8.71	τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	17.31	15.64	13.68	12.63	10.97	19.16	17.13	14.79	18.19	16.35	14.21	
Limite V _{cu}	11.87	10.74	9.41	8.70	7.58	13.12	11.74	10.16	12.46	11.22	9.77	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 514R												
	4.25	4.25	4.25	4.20	4.08	4.25	4.25	4.25	4.25	4.25	4.25	0.31
	6.65	6.53	6.22	5.94	5.48	7.21	7.03	6.46	6.84	6.71	6.34	0.59
	7.21	7.01	6.76	6.40	5.82	7.80	7.53	6.99	7.40	7.19	6.87	0.69 2.44
	8.34	8.09	7.75	7.55	6.87	9.03	8.67	8.25	8.57	8.28	7.91	3.44
FRG 614R												
	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	0.37
	6.71	6.60	6.44	6.35	6.01	7.27	7.11	6.90	6.90	6.77	6.60	0.68
	7.28	7.09	6.84	6.70	6.38	7.90	7.63	7.30	7.48	7.26	6.99	0.77 2.72
	8.46	8.19	7.84	7.64	7.31	9.17	8.80	8.36	8.69	8.39	8.00	3.68
FRG 714R												
	4.71	4.71	4.71	4.71	4.71	4.71	4.71	4.71	4.71	4.71	4.71	0.42
	6.76	6.65	6.49	6.40	6.23	7.34	7.17	6.96	6.96	6.82	6.65	0.73
	7.34	7.15	6.90	6.74	6.49	7.98	7.71	7.36	7.55	7.34	7.05	0.80 2.82
	8.55	8.28	7.92	7.71	7.38	9.28	8.90	8.44	8.79	8.48	8.09	3.76
FRG 814R												
	4.52	4.52	4.52	4.52	4.52	4.52	4.52	4.52	4.52	4.52	4.52	0.39
	6.80	6.69	6.52	6.43	6.24	7.38	7.22	6.99	6.99	6.86	6.69	0.74
	7.38	7.20	6.94	6.78	6.53	8.02	7.75	7.42	7.59	7.38	7.09	0.81 2.86
	8.61	8.34	7.97	7.76	7.42	9.36	8.98	8.50	8.86	8.53	8.15	3.80



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
37801	20.25	7.75	3.48	19.97	4757	3658	4794	1.10

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
7314	6	3219	4557	4.66	60.0	4.2	1.80
	7	3662	5277	4.57	60.0	4.2	1.80
	8	4102	5987	4.50	60.0	4.2	1.80

POIDS DU MONTAGE= 520 daN/m²

G1= 56 daN/m²

G2= 464 daN/m²

BETON CHANTIER=164.9 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}




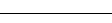



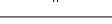
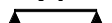



CAS DE CHARGE [daN/m²]

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	9.19	8.30	7.27	6.72	5.85	10.17	9.09	7.85	9.65	8.68	7.55		0.86 3.13
Limite V _{pu}	11.81	10.66	9.31	8.60	7.47	13.09	11.68	10.07	12.41	11.14	9.68		
Limite V _{cu}	11.90	10.74	9.38	8.66	7.52	13.18	11.77	10.15	12.51	11.23	9.75		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R    	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	0.40
	6.05	5.78	5.34	5.09	4.69	6.48	6.05	5.55	6.23	5.91	5.44	0.71
	6.55	6.38	5.80	5.48	4.98	7.09	6.65	5.99	6.74	6.52	5.89	0.86 3.13
	7.59	7.34	6.90	6.50	5.87	8.23	7.88	7.12	7.80	7.52	7.01	4.54
FRG 717R    	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	0.47
	6.09	5.99	5.75	5.48	5.05	6.60	6.46	5.97	6.26	6.15	5.85	0.80
	6.60	6.43	6.21	5.90	5.36	7.15	6.92	6.45	6.78	6.59	6.34	0.94 3.39
	7.66	7.42	7.09	6.92	6.32	8.30	7.96	7.55	7.88	7.59	7.25	4.89
FRG 817R    	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11	4.11	0.52
	6.13	6.02	5.88	5.80	5.38	6.65	6.49	6.30	6.30	6.19	6.02	0.89
	6.65	6.48	6.24	6.11	5.71	7.21	6.97	6.67	6.84	6.63	6.38	1.00 3.62
	7.73	7.48	7.15	6.98	6.67	8.38	8.03	7.63	7.96	7.67	7.30	5.26



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
32837	18.71	9.29	3.27	19.75	4509	2846	3325	1.10

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5300	6	3026	4471	9.90	60.0	4.2	1.80
	7	3443	5159	9.71	60.0	4.2	1.80
	8	3857	5834	9.56	60.0	4.2	1.80

POIDS DU MONTAGE= 545 daN/m²

G1= 92 daN/m²

G2= 454 daN/m²

BETON CHANTIER=166.3 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

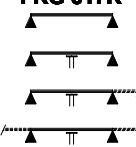
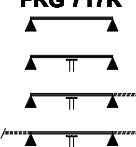
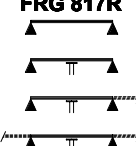
CAS DE CHARGE [daN/m²]

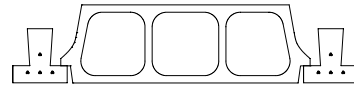
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	11.29	10.22	8.96	8.29	7.22	12.48	11.17	9.67	11.85	10.67	9.30	τ _{bu} =0.75
Limite V _{pu}	17.61	15.92	13.92	12.85	11.16	19.49	17.43	15.05	18.51	16.64	14.46	τ _{pu} =1.80
Limite V _{cu}	13.11	11.86	10.39	9.60	8.35	14.50	12.98	11.22	13.77	12.39	10.79	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 617R 	5.01	5.01	5.01	4.94	4.75	5.01	5.01	5.01	5.01	5.01	5.01	0.74 2.63	
	6.72	6.61	6.45	6.35	5.90	7.28	7.12	6.90	6.90	6.78	6.61		0.43
	7.28	7.09	6.84	6.70	6.27	7.90	7.63	7.30	7.48	7.26	6.99		0.66
	8.44	8.19	7.82	7.63	7.30	9.17	8.78	8.34	8.69	8.38	8.00		3.67
FRG 717R 	5.37	5.37	5.37	5.26	5.07	5.37	5.37	5.37	5.37	5.37	5.37	0.80 2.82	
	6.76	6.65	6.49	6.40	6.23	7.34	7.19	6.96	6.96	6.83	6.65		0.49
	7.34	7.15	6.90	6.74	6.49	7.98	7.71	7.37	7.55	7.34	7.05		0.73
	8.53	8.26	7.90	7.71	7.38	9.28	8.90	8.44	8.78	8.48	8.07		3.76
FRG 817R 	5.66	5.66	5.66	5.57	5.37	5.66	5.66	5.66	5.66	5.66	5.66	0.81 2.88	
	6.82	6.71	6.54	6.44	6.26	7.42	7.25	7.01	7.01	6.88	6.71		0.55
	7.41	7.22	6.96	6.80	6.55	8.05	7.78	7.44	7.63	7.40	7.11		0.74
	8.63	8.36	7.98	7.78	7.44	9.40	9.00	8.53	8.88	8.57	8.17		3.83



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
22752	19.88	6.12	6.50	20.25	2164	2540	2359	1.13

FLEXION

M _b	m	M _{fl}	M _{RA}	POSE 2 ETAIS			
				si L > à	fc28	ft28	τ _{pu}
5576	2	1144	1477	3.41	60.0	4.2	1.80
	3	1744	2242	3.05	60.0	4.2	1.80
	4	2186	2958	3.33	60.0	4.2	1.80
	5	2357	3594	4.61	60.0	4.2	1.80

POIDS DU MONTAGE= 411 daN/m²

G1= 28 daN/m²

G2= 382 daN/m²

BETON CHANTIER=123.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}




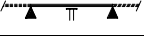

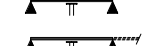

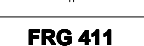


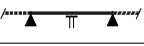


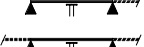
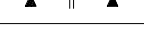

CAS DE CHARGE [daN/m²]

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	7.58	6.78	5.86	5.39	4.65	8.50	7.49	6.38	8.02	7.12	6.11		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	6.53	5.84	5.06	4.65	4.02	7.31	6.45	5.50	6.89	6.13	5.27		
Limite V _{cu}	7.07	6.33	5.48	5.03	4.35	7.93	6.99	5.95	7.48	6.64	5.71		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												0.31 1.12 0.47 1.71 0.62 2.24 0.70 2.54	
FRG 211 	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71		0.31 1.12 0.47 1.71 0.62 2.24 0.70 2.54
	3.80	3.55	3.25	3.09	2.83	4.02	3.73	3.39	3.91	3.63	3.32		
	4.24	3.90	3.51	3.30	2.98	4.47	4.08	3.63	4.35	3.98	3.57		
	5.11	4.66	4.17	3.91	3.51	5.38	4.87	4.31	5.24	4.76	4.23		
FRG 311 	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	0.47 1.71 0.62 2.24 0.70 2.54	
	4.68	4.37	4.00	3.80	3.48	4.96	4.60	4.17	4.81	4.48	4.09		
	5.22	4.80	4.32	4.07	3.67	5.51	5.02	4.48	5.36	4.91	4.40		
	6.30	5.75	5.13	4.82	4.32	6.63	6.00	5.31	6.46	5.87	5.22		
FRG 411 	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	0.62 2.24 0.70 2.54	
	5.37	5.02	4.60	4.37	4.00	5.70	5.28	4.79	5.53	5.14	4.69		
	5.95	5.52	4.96	4.67	4.22	6.33	5.77	5.14	6.11	5.64	5.05		
	6.88	6.60	5.90	5.53	4.96	7.50	6.89	6.10	7.07	6.74	5.99		
FRG 511 	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	0.70 2.54	
	5.54	5.44	5.07	4.82	4.41	6.05	5.82	5.29	5.71	5.59	5.17		
	5.99	5.82	5.47	5.15	4.65	6.54	6.30	5.67	6.18	5.98	5.57		
	6.96	6.71	6.40	6.10	5.47	7.59	7.25	6.72	7.17	6.88	6.53		



CARACTERISTIQUES DU MONTAGE								
I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
20194	18.43	7.57	6.22	19.83	2092	2062	1908	1.13

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3999	2	1095	1466	4.97	60.0	4.2	1.80
	3	1670	2218	4.58	60.0	4.2	1.80
	4	2094	2914	5.01	60.0	4.2	1.80
	5	2257	3526	6.86	60.0	4.2	1.80

POIDS DU MONTAGE= 442 daN/m²

G1= 48 daN/m²

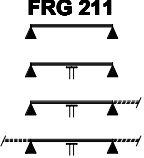
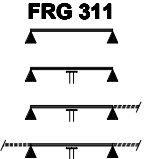
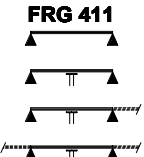
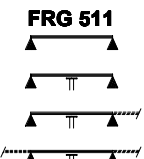
G2= 394 daN/m²

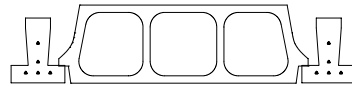
BETON CHANTIER=134.4 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]												
Limite V _{bu}	9.91	8.87	7.69	7.07	6.10	11.08	9.79	8.36	10.46	9.31	8.01	τ _{bu} =0.75
Limite V _{pu}	10.04	9.00	7.79	7.16	6.18	11.23	9.93	8.47	10.60	9.44	8.12	τ _{pu} =1.80
Limite V _{cu}	9.20	8.24	7.15	6.57	5.67	10.28	9.09	7.76	9.71	8.65	7.44	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 211 	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	0.11
	4.64	4.48	4.16	3.95	3.63	5.11	4.64	4.33	4.97	4.56	4.24	0.25
	5.40	4.98	4.49	4.24	3.83	5.69	5.20	4.65	5.54	5.09	4.57	0.31 1.11
	6.52	5.96	5.34	5.02	4.51	6.85	6.22	5.52	6.68	6.09	5.43	1.63
FRG 311 	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	0.15
	5.95	5.57	5.11	4.86	4.46	6.29	5.85	5.32	6.11	5.70	5.21	0.38
	6.59	6.13	5.53	5.21	4.71	7.00	6.40	5.72	6.78	6.26	5.62	0.46 1.67
	7.63	7.34	6.57	6.17	5.55	8.26	7.65	6.79	7.83	7.49	6.68	2.36
FRG 411 	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.39	0.20
	6.16	6.05	5.86	5.58	5.11	6.73	6.55	6.10	6.34	6.23	5.98	0.47
	6.67	6.48	6.24	5.97	5.40	7.26	7.00	6.56	6.87	6.65	6.38	0.55 1.93
	7.75	7.46	7.13	6.94	6.36	8.42	8.05	7.63	7.97	7.65	7.28	2.69
FRG 511 	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	0.21
	6.23	6.11	5.96	5.86	5.60	6.80	6.63	6.32	6.42	6.28	6.11	0.56
	6.74	6.55	6.30	6.16	5.92	7.36	7.09	6.76	6.96	6.73	6.46	0.62 2.19
	7.86	7.55	7.21	7.01	6.71	8.55	8.17	7.73	8.08	7.76	7.38	2.90



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
23637	19.66	6.34	4.90	19.58	2357	2566	2815	1.13

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5589	3	1682	2201	3.66	60.0	4.2	1.80
	4	2080	2891	4.04	60.0	4.2	1.80
	5	2420	3554	4.67	60.0	4.2	1.80
	6	2472	4107	6.06	60.0	4.2	1.80

POIDS DU MONTAGE= 411 daN/m²

G1= 33 daN/m²

G2= 377 daN/m²

BETON CHANTIER=121.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

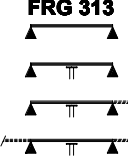


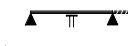
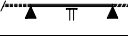
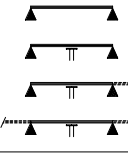

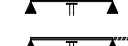


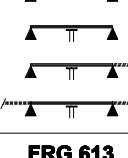
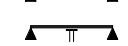

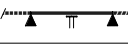

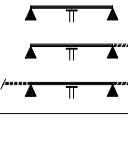

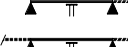
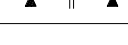

CAS DE CHARGE [daN/m²]

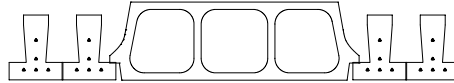
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75
Limite V _{bu}	7.66	6.84	5.92	5.44	4.69	8.58	7.57	6.44	8.09	7.19	6.17	τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	7.07	6.32	5.47	5.03	4.34	7.92	6.99	5.95	7.47	6.64	5.70	
Limite V _{cu}	8.36	7.47	6.45	5.92	5.10	9.38	8.26	7.02	8.83	7.84	6.72	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)													
FRG 313 		2.83	2.83	2.83	2.82	2.73	2.83	2.83	2.83	2.83	2.83	0.46 1.68	
		4.64	4.33	3.97	3.77	3.45	4.91	4.55	4.14	4.77	4.44		0.37
		5.18	4.76	4.28	4.03	3.64	5.46	4.98	4.44	5.31	4.86		4.36
		6.24	5.69	5.09	4.77	4.28	6.57	5.94	5.26	6.40	5.81		5.17
FRG 413 		2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	0.61 2.22	
		5.31	4.96	4.55	4.32	3.95	5.63	5.22	4.74	5.47	5.09		0.49
		5.93	5.45	4.91	4.62	4.17	6.26	5.70	5.09	6.09	5.57		4.99
		6.93	6.53	5.83	5.47	4.91	7.53	6.81	6.03	7.13	6.66		5.93
FRG 513 		3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	0.71 2.56	
		5.59	5.48	5.04	4.79	4.38	6.11	5.78	5.25	5.75	5.64		0.59
		6.05	5.86	5.44	5.12	4.62	6.59	6.32	5.64	6.23	6.02		5.54
		7.01	6.74	6.44	6.06	5.44	7.63	7.29	6.68	7.21	6.92		6.57
FRG 613 		3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	0.75 2.69	
		5.63	5.51	5.28	5.09	4.71	6.15	5.84	5.48	5.80	5.68		0.66
		6.09	5.91	5.69	5.44	4.97	6.65	6.40	5.88	6.27	6.07		5.79
		7.07	6.80	6.49	6.32	5.85	7.73	7.36	6.96	7.28	6.99		6.65



CARACTERISTIQUES DU MONTAGE								
I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
20810	18.19	7.81	4.67	19.21	2265	2052	2110	1.13

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
3996	3	1600	2176	5.87	60.0	4.2	1.80
	4	1979	2848	6.47	60.0	4.2	1.80
	5	2302	3485	7.48	60.0	4.2	1.80
	6	2352	4009	8.57	60.0	4.2	1.80

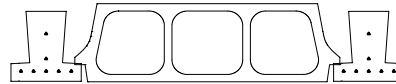
POIDS DU MONTAGE= 442 daN/m²G1= 56 daN/m²G2= 386 daN/m²BETON CHANTIER=131.0 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]												
Limite V _{bu}	9.86	8.83	7.65	7.03	6.07	11.02	9.74	8.32	10.41	9.26	7.97	τ _{bu} =0.75
Limite V _{pu}	10.84	9.71	8.40	7.72	6.66	12.13	10.71	9.14	11.45	10.18	8.75	τ _{pu} =1.80
Limite V _{cu}	10.13	9.07	7.86	7.22	6.23	11.33	10.01	8.54	10.69	9.52	8.18	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)													
FRG 313 		3.79	3.72	3.61	3.55	3.43	3.87	3.79	3.68	3.83	3.75	3.65	0.21 0.37 0.46 1.66 2.40
		5.89	5.51	5.06	4.82	4.42	6.23	5.79	5.27	6.06	5.65	5.17	
		6.59	6.07	5.48	5.16	4.67	6.94	6.34	5.67	6.76	6.20	5.57	
		7.67	7.27	6.51	6.12	5.50	8.32	7.58	6.73	7.88	7.42	6.62	
FRG 413 		4.17	4.13	4.02	3.95	3.82	4.17	4.17	4.09	4.17	4.17	4.06	0.26 0.46 0.54 1.93 2.70
		6.19	6.08	5.79	5.51	5.05	6.76	6.59	6.03	6.38	6.25	5.91	
		6.71	6.51	6.26	5.91	5.34	7.30	7.03	6.49	6.90	6.69	6.37	
		7.78	7.50	7.15	6.98	6.29	8.46	8.09	7.65	8.00	7.69	7.32	
FRG 513 		4.37	4.37	4.33	4.26	4.12	4.37	4.37	4.37	4.37	4.37	4.37	0.30 0.56 0.62 2.18 2.94
		6.26	6.15	5.99	5.90	5.59	6.84	6.67	6.46	6.46	6.32	6.15	
		6.78	6.59	6.34	6.19	5.91	7.40	7.13	6.80	6.99	6.76	6.49	
		7.88	7.59	7.25	7.05	6.74	8.59	8.21	7.76	8.11	7.79	7.42	
FRG 613 		4.28	4.28	4.28	4.28	4.16	4.28	4.28	4.28	4.28	4.28	4.28	0.31 0.59 0.64 2.25 2.99
		6.30	6.19	6.03	5.94	5.76	6.90	6.73	6.50	6.50	6.37	6.19	
		6.84	6.65	6.38	6.24	5.99	7.48	7.20	6.86	7.05	6.82	6.53	
		7.98	7.67	7.32	7.12	6.80	8.71	8.30	7.84	8.21	7.88	7.50	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
30405	18.86	7.14	4.30	18.94	4137	2960	3772	1.13

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
6389	5	2625	3584	4.92	60.0	4.2	1.80
	6	3205	4328	3.84	60.0	4.2	1.80
	7	3580	4981	4.30	60.0	4.2	1.80
	8	3545	5464	6.98	60.0	4.2	1.80

POIDS DU MONTAGE= 418 daN/m²

G1= 47 daN/m²

G2= 371 daN/m²

BETON CHANTIER=120.7 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m²]

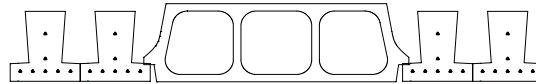
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	8.30	7.42	6.42	5.90	5.09	9.30	8.20	6.98	8.77	7.79	6.69	τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	11.43	10.20	8.80	8.07	6.94	12.83	11.29	9.59	12.09	10.72	9.18	
Limite V _{cu}	10.46	9.34	8.06	7.40	6.36	11.73	10.33	8.78	11.06	9.81	8.40	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 514R 	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	0.34 0.60 0.75 2.72 3.93
	5.75	5.37	4.92	4.68	4.29	6.09	5.65	5.13	5.91	5.50	5.03	
	6.32	5.91	5.32	5.01	4.52	6.77	6.17	5.51	6.51	6.04	5.41	
	7.32	7.05	6.32	5.93	5.32	7.96	7.37	6.53	7.51	7.22	6.42	
FRG 614R 	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	0.37 0.72 0.84 3.05 4.31
	5.90	5.78	5.41	5.14	4.71	6.46	6.21	5.64	6.08	5.96	5.52	
	6.38	6.20	5.84	5.50	4.97	6.96	6.71	6.05	6.57	6.36	5.95	
	7.40	7.13	6.80	6.52	5.85	8.05	7.71	7.18	7.61	7.30	6.96	
FRG 714R 	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68	0.42 0.81 0.92 3.33 4.67
	5.94	5.83	5.69	5.52	5.05	6.49	6.34	6.05	6.13	5.99	5.83	
	6.44	6.24	5.99	5.86	5.33	7.02	6.76	6.44	6.63	6.42	6.15	
	7.48	7.19	6.86	6.67	6.28	8.15	7.78	7.35	7.69	7.38	7.01	
FRG 814R 	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	0.39 0.88 0.98 3.51 4.92
	5.97	5.86	5.71	5.61	5.29	6.53	6.37	6.15	6.15	6.02	5.86	
	6.47	6.26	6.03	5.90	5.58	7.07	6.80	6.48	6.67	6.44	6.18	
	7.51	7.23	6.90	6.71	6.41	8.21	7.82	7.40	7.75	7.42	7.05	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
26506	17.41	8.59	4.06	18.64	3943	2435	2756	1.13

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4626	5	2480	3524	9.20	60.0	4.2	1.80
	6	3028	4241	8.01	60.0	4.2	1.80
	7	3382	4864	8.98	60.0	4.2	1.80
	8	3349	5310	9.78	60.0	4.2	1.80

POIDS DU MONTAGE= 453 daN/m²

G1= 77 daN/m²

G2= 377 daN/m²

BETON CHANTIER=129.7 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

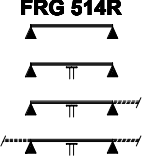



CAS DE CHARGE [daN/m²]

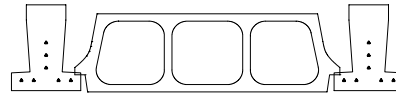
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	10.62	9.52	8.26	7.59	6.55	11.86	10.50	8.97	11.20	9.98	8.60	τ _{bu} =0.75
Limite V _{pu}	16.92	15.15	13.10	12.02	10.34	18.93	16.73	14.25	17.87	15.90	13.65	τ _{pu} =1.80
Limite V _{cu}	11.96	10.72	9.29	8.54	7.36	13.37	11.82	10.09	12.62	11.24	9.67	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 514R 	4.60	4.60	4.50	4.42	4.26	4.60	4.60	4.59	4.60	4.60	4.55	0.66 2.35
	6.47	6.35	6.16	5.86	5.38	7.05	6.88	6.41	6.67	6.53	6.28	
	7.00	6.80	6.55	6.29	5.69	7.63	7.35	6.90	7.21	6.98	6.71	
	8.11	7.82	7.47	7.27	6.70	8.82	8.44	8.00	8.34	8.01	7.63	
FRG 614R 	4.78	4.78	4.78	4.78	4.71	4.78	4.78	4.78	4.78	4.78	4.78	0.75 2.64
	6.53	6.42	6.24	6.15	5.90	7.14	6.96	6.73	6.73	6.59	6.42	
	7.08	6.88	6.61	6.47	6.21	7.73	7.44	7.09	7.28	7.05	6.76	
	8.23	7.92	7.55	7.36	7.03	8.96	8.56	8.09	8.46	8.13	7.73	
FRG 714R 	5.09	5.09	5.09	5.09	4.97	5.09	5.09	5.09	5.09	5.09	5.09	0.76 2.69
	6.59	6.46	6.30	6.20	6.01	7.21	7.03	6.78	6.78	6.65	6.46	
	7.15	6.94	6.67	6.51	6.26	7.80	7.51	7.17	7.36	7.13	6.83	
	8.32	8.01	7.63	7.44	7.09	9.07	8.67	8.19	8.57	8.23	7.82	
FRG 814R 	4.89	4.89	4.89	4.89	4.89	4.89	4.89	4.89	4.89	4.89	4.89	0.77 2.71
	6.62	6.49	6.32	6.23	6.04	7.25	7.07	6.82	6.82	6.69	6.49	
	7.19	6.98	6.71	6.55	6.28	7.86	7.55	7.21	7.40	7.17	6.86	
	8.38	8.05	7.69	7.48	7.13	9.15	8.73	8.25	8.63	8.28	7.86	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
30684	18.73	7.27	3.05	18.42	4208	3032	4423	1.13

FLEXION				POSE 2 ET AIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
6329	6	2824	4165	6.14	60.0	4.2	1.80
	7	3213	4819	6.03	60.0	4.2	1.80
	8	3600	5464	5.93	60.0	4.2	1.80

POIDS DU MONTAGE= 418 daN/m²

G1= 56 daN/m²

G2= 362 daN/m²

BETON CHANTIER=116.9 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m²]

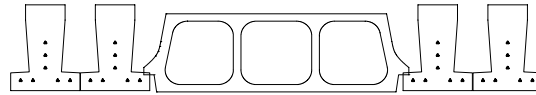
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	8.49	7.59	6.57	6.03	5.20	9.52	8.39	7.14	8.97	7.97	6.84		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	11.62	10.37	8.94	8.20	7.05	13.04	11.48	9.75	12.29	10.89	9.33		
Limite V _{cu}	12.19	10.88	9.38	8.60	7.39	13.69	12.04	10.22	12.89	11.43	9.78		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R 	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	0.48
	5.90	5.79	5.31	5.05	4.62	6.46	6.09	5.53	6.08	5.93	5.42	0.69
	6.38	6.20	5.73	5.40	4.88	6.96	6.66	5.94	6.57	6.36	5.83	0.83 3.00
	7.39	7.11	6.79	6.39	5.74	8.05	7.69	7.04	7.61	7.30	6.92	4.22
FRG 717R 	4.21	4.21	4.21	4.21	4.21	4.21	4.21	4.21	4.21	4.21	4.21	0.55
	5.94	5.83	5.69	5.43	4.97	6.49	6.34	5.95	6.13	5.99	5.83	0.79
	6.44	6.24	5.99	5.81	5.24	7.02	6.76	6.39	6.63	6.42	6.15	0.91 3.28
	7.46	7.19	6.85	6.67	6.17	8.13	7.76	7.34	7.68	7.37	7.01	4.56
FRG 817R 	4.43	4.43	4.43	4.43	4.43	4.43	4.43	4.43	4.43	4.43	4.43	0.61
	5.98	5.87	5.72	5.63	5.29	6.55	6.38	6.17	6.17	6.04	5.87	0.88
	6.48	6.28	6.04	5.90	5.58	7.09	6.82	6.49	6.68	6.46	6.19	0.98 3.51
	7.53	7.25	6.91	6.73	6.42	8.23	7.84	7.42	7.75	7.44	7.07	4.94



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
26607	17.31	8.69	2.86	18.31	3982	2468	3082	1.13

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4593	6	2650	4079	10.84	60.0	4.2	1.80
	7	3015	4701	11.62	60.0	4.2	1.80
	8	3377	5310	12.25	60.0	4.2	1.80

POIDS DU MONTAGE= 453 daN/m²

G1= 92 daN/m²

G2= 362 daN/m²

BETON CHANTIER=123.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}


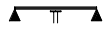

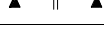



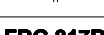
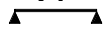
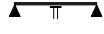


CAS DE CHARGE [daN/m²]

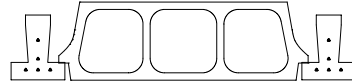
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	10.75	9.64	8.36	7.69	6.63	12.01	10.63	9.08	11.35	10.11	8.71	τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	17.09	15.29	13.23	12.14	10.44	19.12	16.89	14.39	18.04	16.05	13.78	
Limite V _{cu}	13.32	11.93	10.33	9.49	8.18	14.89	13.17	11.24	14.06	12.52	10.77	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 617R    	5.42	5.42	5.25	5.12	4.90	5.42	5.42	5.39	5.42	5.42	5.32	0.73 2.56	
	6.53	6.42	6.24	6.15	5.79	7.15	6.96	6.73	6.73	6.59	6.42		0.65
	7.07	6.86	6.61	6.46	6.12	7.73	7.44	7.09	7.28	7.05	6.76		3.47
	8.21	7.90	7.55	7.34	7.01	8.96	8.55	8.09	8.46	8.11	7.73		
FRG 717R    	5.81	5.81	5.60	5.46	5.22	5.81	5.81	5.75	5.81	5.81	5.67	0.76 2.68	
	6.59	6.46	6.30	6.19	6.01	7.21	7.03	6.78	6.78	6.65	6.46		0.70
	7.15	6.94	6.67	6.51	6.25	7.80	7.51	7.16	7.36	7.12	6.82		3.55
	8.30	8.00	7.63	7.42	7.09	9.07	8.65	8.18	8.55	8.21	7.80		
FRG 817R    	6.12	6.12	5.93	5.78	5.53	6.12	6.12	6.08	6.12	6.12	6.00	0.77 2.73	
	6.64	6.51	6.34	6.24	6.05	7.28	7.09	6.84	6.84	6.71	6.51		0.59
	7.21	6.99	6.73	6.57	6.30	7.88	7.59	7.23	7.43	7.19	6.88		0.71
	8.40	8.07	7.71	7.50	7.15	9.19	8.76	8.26	8.65	8.30	7.88		3.62



CARACTERISTIQUES DU MONTAGE								
I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
28744	21.30	6.70	5.50	21.35	2620	2797	3069	1.10

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
6435	3	1888	2397	3.35	60.0	4.2	1.80
	4	2334	3153	3.70	60.0	4.2	1.80
	5	2716	3881	4.27	60.0	4.2	1.80
	6	2774	4500	5.79	60.0	4.2	1.80

POIDS DU MONTAGE= 458 daN/m²

G1= 33 daN/m²

G2= 424 daN/m²

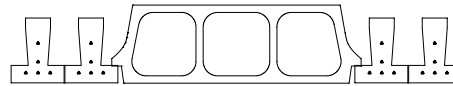
BETON CHANTIER=141.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m ²]												Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	7.94	7.14	6.21	5.73	4.97	8.85	7.85	6.73	8.37	7.48	6.46	
Limite V _{pu}	7.47	6.71	5.85	5.39	4.68	8.32	7.38	6.34	7.87	7.03	6.08	
Limite V _{cu}	8.66	7.78	6.77	6.24	5.40	9.66	8.57	7.34	9.13	8.16	7.04	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 313 	2.73	2.73	2.73	2.73	2.67	2.73	2.73	2.73	2.73	2.73	2.73	0.20
	4.72	4.42	4.06	3.87	3.55	4.98	4.64	4.23	4.85	4.52	4.14	0.37
	5.27	4.87	4.40	4.15	3.75	5.55	5.08	4.55	5.41	4.97	4.47	0.46 1.69
	6.36	5.83	5.23	4.92	4.42	6.69	6.08	5.40	6.52	5.95	5.31	2.49
FRG 413 	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	0.22
	5.41	5.07	4.66	4.44	4.07	5.72	5.32	4.85	5.56	5.19	4.75	0.49
	6.05	5.58	5.04	4.76	4.31	6.37	5.83	5.22	6.20	5.70	5.13	0.62 2.23
	7.21	6.69	6.00	5.64	5.07	7.67	6.97	6.19	7.40	6.82	6.09	3.34
FRG 513 	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98	0.25
	5.79	5.62	5.17	4.92	4.52	6.30	5.90	5.38	5.96	5.76	5.27	0.60
	6.28	6.10	5.59	5.28	4.78	6.82	6.47	5.79	6.46	6.26	5.69	0.71 2.58
	7.28	7.03	6.65	6.25	5.63	7.91	7.57	6.87	7.50	7.21	6.76	3.72
FRG 613 	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	0.24
	5.83	5.73	5.39	5.22	4.86	6.36	6.21	5.80	6.00	5.89	5.48	0.67
	6.32	6.15	5.92	5.59	5.14	6.88	6.63	6.24	6.51	6.30	6.05	0.78 2.83
	7.36	7.09	6.76	6.59	6.06	8.00	7.65	7.24	7.57	7.26	6.92	4.03



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
25402	19.73	8.27	5.25	20.93	2523	2235	2299	1.10

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
4608	3	1801	2373	5.16	60.0	4.2	1.80
	4	2227	3109	5.69	60.0	4.2	1.80
	5	2591	3812	6.58	60.0	4.2	1.80
	6	2647	4401	8.21	60.0	4.2	1.80

POIDS DU MONTAGE= 489 daN/m²

G1= 56 daN/m²

G2= 433 daN/m²

BETON CHANTIER=151.0 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m²]

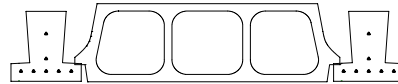
	100	100	100	100	100	0	0	0	100	100	100	Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	cm ² HA / p
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	FeE400
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	10.23	9.21	8.03	7.40	6.42	11.37	10.12	8.70	10.77	9.64	8.35	τ _{bu} =0.75
Limite V _{bu}	10.23	9.21	8.03	7.40	6.42	11.37	10.12	8.70	10.77	9.64	8.35	τ _{bu} =0.75
Limite V _{pu}	11.48	10.34	9.00	8.30	7.19	12.77	11.36	9.76	12.09	10.82	9.36	τ _{pu} =1.80
Limite V _{cu}	10.51	9.46	8.25	7.60	6.59	11.68	10.39	8.93	11.06	9.90	8.57	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.67	3.61	3.52	3.47	3.37	3.73	3.67	3.58	3.70	3.64	3.55	0.19
FRG 313 	3.67	3.61	3.52	3.47	3.37	3.73	3.67	3.58	3.70	3.64	3.55	0.19
	6.00	5.64	5.19	4.95	4.55	6.33	5.91	5.40	6.16	5.77	5.29	0.37
	6.71	6.22	5.63	5.32	4.82	7.06	6.48	5.82	6.89	6.34	5.72	0.46 1.67
	7.96	7.45	6.70	6.30	5.68	8.51	7.75	6.91	8.19	7.60	6.80	2.43
FRG 413 	4.00	4.00	3.92	3.86	3.75	4.00	4.00	3.98	4.00	4.00	3.95	0.23
	6.44	6.32	5.94	5.67	5.21	6.99	6.76	6.18	6.62	6.49	6.06	0.47
	6.98	6.78	6.44	6.09	5.52	7.57	7.30	6.67	7.17	6.96	6.55	0.55 1.98
	8.09	7.80	7.47	7.22	6.50	8.76	8.40	7.91	8.32	8.00	7.63	2.76
FRG 513 	4.19	4.19	4.19	4.16	4.05	4.19	4.19	4.19	4.19	4.19	4.19	0.27
	6.49	6.38	6.23	6.13	5.77	7.07	6.91	6.69	6.69	6.56	6.38	0.56
	7.05	6.86	6.61	6.46	6.11	7.67	7.40	7.07	7.26	7.03	6.76	0.63 2.21
	8.21	7.92	7.56	7.36	7.04	8.92	8.53	8.07	8.44	8.11	7.73	3.03
FRG 613 	4.11	4.11	4.11	4.11	4.09	4.11	4.11	4.11	4.11	4.11	4.11	0.28
	6.55	6.44	6.28	6.19	6.00	7.13	6.98	6.74	6.74	6.61	6.44	0.61
	7.11	6.92	6.66	6.51	6.26	7.75	7.47	7.13	7.32	7.09	6.81	0.66 2.33
	8.28	8.00	7.63	7.44	7.11	9.02	8.63	8.17	8.53	8.21	7.80	3.09



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
37220	20.43	7.57	4.86	20.64	4637	3226	4110	1.10

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
7380	5	2966	3911	4.39	60.0	4.2	1.80
	6	3621	4720	3.42	60.0	4.2	1.80
	7	4045	5439	3.84	60.0	4.2	1.80
	8	4005	5987	6.22	60.0	4.2	1.80

POIDS DU MONTAGE= 465 daN/m²

G1= 47 daN/m²

G2= 418 daN/m²

BETON CHANTIER=140.7 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

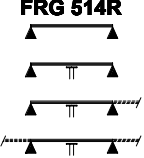



CAS DE CHARGE [daN/m²]

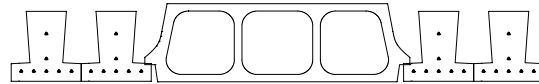
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	8.61	7.74	6.74	6.21	5.38	9.59	8.51	7.30	9.07	8.11	7.01	
Limite V _{pu}	12.17	10.92	9.48	8.72	7.53	13.57	12.03	10.29	12.83	11.45	9.87	
Limite V _{cu}	10.84	9.73	8.46	7.78	6.73	12.08	10.72	9.18	11.43	10.20	8.80	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 514R 	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	0.30
	5.86	5.49	5.05	4.81	4.42	6.19	5.76	5.26	6.01	5.62	5.15	0.61
	6.55	6.05	5.47	5.16	4.67	6.89	6.31	5.66	6.72	6.18	5.56	0.76 2.78
	7.61	7.25	6.50	6.11	5.50	8.26	7.55	6.72	7.82	7.39	6.61	4.13
FRG 614R 	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34	0.33
	6.13	6.01	5.55	5.28	4.85	6.67	6.33	5.77	6.30	6.17	5.66	0.72
	6.65	6.46	6.01	5.67	5.13	7.21	6.94	6.22	6.83	6.62	6.11	0.87 3.15
	7.71	7.43	7.09	6.72	6.05	8.36	8.00	7.38	7.92	7.61	7.26	4.40
FRG 714R 	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	0.37
	6.17	6.06	5.92	5.67	5.21	6.73	6.56	6.20	6.36	6.23	6.06	0.82
	6.69	6.49	6.26	6.08	5.51	7.28	7.01	6.67	6.88	6.67	6.40	0.95 3.43
	7.77	7.50	7.16	6.98	6.49	8.46	8.08	7.65	8.00	7.69	7.32	4.74
FRG 814R 	3.42	3.42	3.42	3.42	3.42	3.42	3.42	3.42	3.42	3.42	3.42	0.34
	6.21	6.09	5.94	5.84	5.46	6.76	6.59	6.38	6.38	6.26	6.09	0.88
	6.73	6.53	6.28	6.15	5.78	7.32	7.05	6.74	6.92	6.71	6.44	0.99 3.55
	7.82	7.53	7.21	7.01	6.71	8.51	8.13	7.71	8.05	7.74	7.36	5.09



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
32560	18.87	9.13	4.60	20.28	4429	2649	2998	1.10

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5348	5	2810	3851	7.92	60.0	4.2	1.80
	6	3431	4634	6.17	60.0	4.2	1.80
	7	3832	5322	6.92	60.0	4.2	1.80
	8	3795	5834	9.38	60.0	4.2	1.80

POIDS DU MONTAGE= 501 daN/m²G1= 77 daN/m²G2= 424 daN/m²BETON CHANTIER=149.7 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m²]

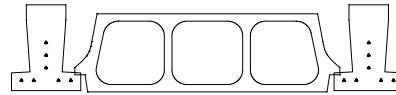
CAS DE CHARGE [daN/m ²]											Section	
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												
Limite V _{bu}	11.01	9.92	8.65	7.98	6.93	12.22	10.89	9.37	11.58	10.38	9.00	τ _{bu} =0.75
Limite V _{pu}	18.09	16.27	14.16	13.03	11.26	20.12	17.89	15.35	19.05	17.04	14.73	τ _{pu} =1.80
Limite V _{cu}	12.39	11.17	9.73	8.97	7.78	13.77	12.26	10.54	13.04	11.69	10.12	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)													
FRG 514R 	4.41	4.41	4.41	4.34	4.20	4.41	4.41	4.41	4.41	4.41	4.41	0.68 2.41	
		6.73	6.61	6.32	6.03	5.55	7.31	7.05	6.58	6.92	6.78		0.58
		7.28	7.09	6.84	6.48	5.88	7.92	7.65	7.09	7.50	7.27		6.97
		8.44	8.17	7.80	7.61	6.93	9.17	8.78	8.32	8.69	8.36		7.98
FRG 614R 	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	0.77 2.69	
		6.79	6.67	6.51	6.42	6.08	7.40	7.23	6.99	6.99	6.86		6.67
		7.36	7.17	6.90	6.74	6.45	8.01	7.73	7.38	7.59	7.35		7.06
		8.55	8.26	7.90	7.70	7.36	9.30	8.90	8.44	8.80	8.48		8.07
FRG 714R 	4.88	4.88	4.88	4.88	4.88	4.88	4.88	4.88	4.88	4.88	4.88	0.79 2.79	
		6.84	6.73	6.56	6.46	6.28	7.46	7.28	7.05	7.05	6.92		6.73
		7.44	7.23	6.96	6.80	6.55	8.09	7.80	7.46	7.65	7.42		7.13
		8.65	8.36	7.98	7.76	7.43	9.42	9.01	8.53	8.92	8.57		8.17
FRG 814R 	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	0.80 2.80	
		6.88	6.76	6.59	6.49	6.30	7.50	7.32	7.09	7.09	6.96		6.76
		7.48	7.26	6.99	6.84	6.57	8.15	7.86	7.50	7.71	7.46		7.17
		8.72	8.42	8.03	7.82	7.48	9.50	9.09	8.59	8.98	8.63		8.22



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
37801	20.25	7.75	3.48	19.97	4757	3286	4794	1.10

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
7314	6	3219	4557	5.31	60.0	4.2	1.80
	7	3662	5277	5.20	60.0	4.2	1.80
	8	4102	5987	5.12	60.0	4.2	1.80

POIDS DU MONTAGE= 465 daN/m²

G1= 56 daN/m²

G2= 409 daN/m²

BETON CHANTIER=136.9 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

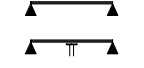
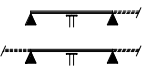

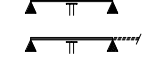
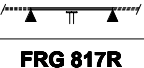
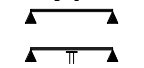
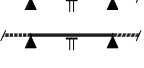


CAS DE CHARGE [daN/m²]

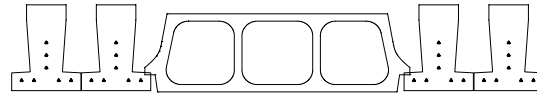
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	8.76	7.87	6.85	6.32	5.47	9.75	8.66	7.43	9.23	8.25	7.13	
Limite V _{pu}	12.47	11.19	9.71	8.94	7.72	13.91	12.33	10.55	13.15	11.73	10.11	
Limite V _{cu}	12.56	11.28	9.79	9.00	7.77	14.02	12.42	10.63	13.25	11.82	10.19	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												0.84 3.04 0.92 3.31 0.99 3.55	
FRG 617R	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78		0.42 0.71 4.38
	6.14	5.93	5.45	5.19	4.77	6.68	6.22	5.67	6.32	6.07	5.56		
	6.65	6.46	5.90	5.57	5.04	7.23	6.81	6.11	6.84	6.63	6.00		
	7.71	7.44	7.02	6.60	5.94	8.36	8.00	7.25	7.92	7.61	7.13		
FRG 717R	4.06	4.06	4.06	4.06	4.06	4.06	4.06	4.06	4.06	4.06	4.06	0.49 0.80 4.74	
	6.19	6.07	5.87	5.59	5.13	6.73	6.57	6.10	6.36	6.24	5.98		
	6.71	6.51	6.26	5.99	5.43	7.28	7.03	6.57	6.90	6.68	6.42		
	7.77	7.50	7.17	6.98	6.39	8.46	8.08	7.65	8.00	7.69	7.32		
FRG 817R	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	0.54 0.88 5.13	
	6.23	6.11	5.96	5.86	5.46	6.78	6.63	6.41	6.41	6.28	6.11		
	6.74	6.55	6.30	6.17	5.78	7.34	7.08	6.76	6.95	6.73	6.46		
	7.84	7.56	7.23	7.03	6.73	8.53	8.17	7.73	8.07	7.76	7.38		



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
32837	18.71	9.29	3.27	19.75	4509	2662	3325	1.10

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5300	6	3026	4471	10.40	60.0	4.2	1.80
	7	3443	5159	11.14	60.0	4.2	1.80
	8	3857	5834	11.75	60.0	4.2	1.80

POIDS DU MONTAGE= 501 daN/m²

G1= 92 daN/m²

G2= 409 daN/m²

BETON CHANTIER=143.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

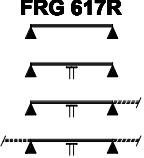
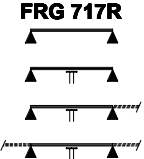
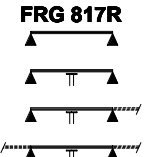
CAS DE CHARGE [daN/m²]

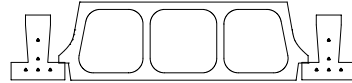
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	11.06	9.97	8.70	8.02	6.96	12.28	10.94	9.41	11.64	10.43	9.04		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	18.41	16.56	14.40	13.26	11.46	20.47	18.20	15.62	19.38	17.34	14.99		
Limite V _{cu}	13.70	12.33	10.74	9.90	8.57	15.22	13.55	11.64	14.42	12.91	11.17		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R 	5.20	5.20	5.19	5.08	4.88	5.20	5.20	5.20	5.20	5.20	5.20	0.44
	6.80	6.68	6.51	6.42	5.98	7.40	7.23	6.99	6.99	6.86	6.68	
	7.36	7.17	6.90	6.75	6.34	8.01	7.73	7.39	7.59	7.36	7.07	0.74 2.59
	8.55	8.26	7.90	7.69	7.36	9.29	8.90	8.44	8.80	8.47	8.07	
FRG 717R 	5.57	5.57	5.53	5.42	5.21	5.57	5.57	5.57	5.57	5.57	5.57	0.50
	6.86	6.73	6.57	6.46	6.28	7.48	7.28	7.05	7.05	6.92	6.73	
	7.44	7.23	6.96	6.80	6.55	8.09	7.80	7.46	7.65	7.42	7.13	0.79 2.79
	8.65	8.34	7.98	7.76	7.42	9.42	9.00	8.53	8.90	8.55	8.15	
FRG 817R 	5.87	5.87	5.86	5.74	5.51	5.87	5.87	5.87	5.87	5.87	5.87	0.56
	6.91	6.78	6.61	6.51	6.32	7.53	7.36	7.11	7.11	6.98	6.78	
	7.50	7.28	7.01	6.86	6.59	8.18	7.88	7.52	7.73	7.49	7.19	0.80 2.82
	8.75	8.44	8.05	7.84	7.50	9.53	9.11	8.62	9.01	8.65	8.24	



CARACTERISTIQUES DU MONTAGE								
I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
34412	22.96	7.04	6.11	23.14	2886	3032	3327	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
7331	3	2096	2593	3.11	60.0	4.2	1.80
	4	2592	3415	3.43	60.0	4.2	1.80
	5	3016	4208	3.96	60.0	4.2	1.80
	6	3081	4892	5.38	60.0	4.2	1.80

POIDS DU MONTAGE= 505 daN/m²

G1= 33 daN/m²

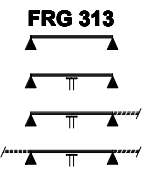
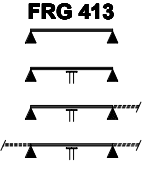
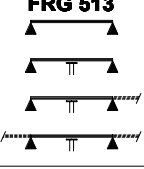
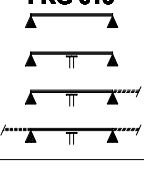
G2= 471 daN/m²

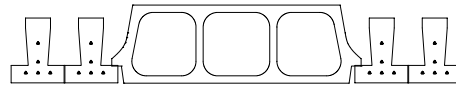
BETON CHANTIER=161.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m ²]												Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	8.21	7.42	6.49	6.00	5.23	9.09	8.12	7.02	8.63	7.75	6.74		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	7.84	7.08	6.21	5.74	5.00	8.68	7.75	6.70	8.23	7.40	6.44		
Limite V _{cu}	8.96	8.09	7.08	6.54	5.69	9.93	8.86	7.65	9.41	8.46	7.35		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 313 	2.64	2.64	2.64	2.64	2.62	2.64	2.64	2.64	2.64	2.64	2.64	0.18
	4.79	4.50	4.15	3.96	3.64	5.05	4.71	4.32	4.91	4.60	4.23	0.37
	5.36	4.97	4.50	4.26	3.86	5.63	5.18	4.66	5.49	5.07	4.58	0.47 1.69
	6.46	5.96	5.36	5.05	4.55	6.79	6.20	5.53	6.63	6.07	5.44	2.48
FRG 413 	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	0.20
	5.50	5.16	4.76	4.54	4.18	5.79	5.41	4.95	5.64	5.28	4.85	0.50
	6.15	5.70	5.17	4.88	4.43	6.47	5.94	5.34	6.30	5.82	5.25	0.62 2.23
	7.41	6.83	6.15	5.79	5.23	7.79	7.11	6.35	7.60	6.97	6.25	3.39
FRG 513 	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88	0.22
	5.98	5.73	5.29	5.04	4.64	6.43	6.00	5.50	6.15	5.86	5.39	0.61
	6.49	6.32	5.74	5.42	4.92	7.03	6.59	5.93	6.67	6.46	5.83	0.73 2.65
	7.53	7.28	6.83	6.43	5.80	8.17	7.82	7.05	7.75	7.46	6.93	3.85
FRG 613 	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	0.21
	6.03	5.92	5.70	5.44	5.00	6.53	6.40	5.93	6.20	6.08	5.81	0.68
	6.53	6.36	6.13	5.85	5.30	7.09	6.84	6.40	6.73	6.52	6.26	0.80 2.86
	7.61	7.35	7.03	6.84	6.25	8.25	7.90	7.50	7.82	7.53	7.19	4.16



CARACTERISTIQUES DU MONTAGE								
I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
30521	21.29	8.71	5.85	22.68	2783	2421	2491	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5257	3	2005	2569	4.66	60.0	4.2	1.80
	4	2479	3371	5.14	60.0	4.2	1.80
	5	2885	4139	5.94	60.0	4.2	1.80
	6	2947	4794	7.90	60.0	4.2	1.80

POIDS DU MONTAGE= 536 daN/m²

G1= 56 daN/m²

G2= 480 daN/m²

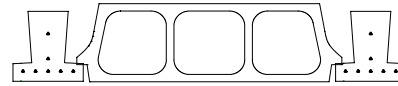
BETON CHANTIER=171.0 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m ²]											Section	
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITEES AU TRANCHANT [m]												
Limite V _{bu}	10.58	9.57	8.39	7.76	6.76	11.70	10.47	9.06	11.11	10.00	8.71	τ _{bu} =0.75
Limite V _{pu}	12.09	10.93	9.57	8.85	7.70	13.37	11.96	10.34	12.69	11.42	9.94	τ _{pu} =1.80
Limite V _{cu}	10.87	9.83	8.62	7.97	6.94	12.02	10.75	9.31	11.41	10.27	8.95	τ _{cu} =0.69

PORTEES LIMITEES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 313 	3.55	3.50	3.43	3.39	3.31	3.60	3.55	3.48	3.58	3.53	3.46	0.17 0.37 0.47 1.68 2.46
	6.10	5.75	5.31	5.07	4.67	6.42	6.01	5.51	6.26	5.87	5.41	
	6.82	6.35	5.77	5.46	4.96	7.18	6.61	5.96	6.99	6.48	5.86	
	8.23	7.62	6.87	6.48	5.85	8.65	7.92	7.09	8.44	7.76	6.98	
FRG 413 	3.85	3.85	3.82	3.77	3.68	3.85	3.85	3.85	3.85	3.85	3.84	0.21 0.48 0.57 2.06 2.79
	6.66	6.55	6.08	5.81	5.35	7.21	6.88	6.32	6.84	6.72	6.20	
	7.21	7.03	6.61	6.25	5.68	7.80	7.55	6.83	7.42	7.21	6.72	
	8.36	8.11	7.76	7.42	6.70	9.05	8.69	8.12	8.60	8.30	7.92	
FRG 513 	4.03	4.03	4.03	4.03	3.97	4.03	4.03	4.03	4.03	4.03	4.03	0.25 0.56 0.64 2.23 3.12
	6.73	6.61	6.46	6.36	5.93	7.28	7.13	6.92	6.92	6.78	6.61	
	7.30	7.11	6.86	6.71	6.30	7.91	7.65	7.32	7.50	7.28	7.01	
	8.48	8.22	7.86	7.67	7.33	9.21	8.82	8.38	8.73	8.42	8.03	
FRG 613 	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	0.25 0.61 0.68 2.40 3.19
	6.78	6.67	6.50	6.41	6.18	7.36	7.19	6.91	6.98	6.84	6.67	
	7.36	7.17	6.92	6.76	6.51	8.00	7.73	7.38	7.57	7.36	7.07	
	8.57	8.30	7.94	7.74	7.40	9.32	8.94	8.48	8.82	8.51	8.11	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
44832	22.03	7.97	5.43	22.38	5146	3498	4456	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
8433	5	3314	4238	4.00	60.0	4.2	1.80
	6	4047	5113	3.12	60.0	4.2	1.80
	7	4520	5897	3.49	60.0	4.2	1.80
	8	4476	6511	5.67	60.0	4.2	1.80

POIDS DU MONTAGE= 512 daN/m²

G1= 47 daN/m²

G2= 465 daN/m²

BETON CHANTIER=160.7 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

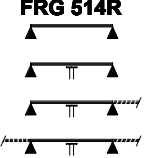



CAS DE CHARGE [daN/m²]

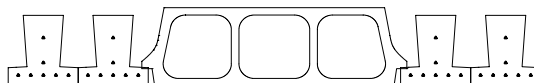
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	8.90	8.05	7.04	6.51	5.67	9.86	8.81	7.61	9.35	8.41	7.32	
Limite V _{pu}	12.86	11.60	10.13	9.35	8.11	14.27	12.72	10.96	13.52	12.13	10.53	
Limite V _{cu}	11.20	10.11	8.84	8.16	7.09	12.42	11.08	9.56	11.78	10.57	9.18	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 514R 	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	0.27
	5.95	5.60	5.16	4.93	4.53	6.27	5.86	5.37	6.11	5.72	5.26	0.61
	6.66	6.18	5.60	5.30	4.81	7.00	6.44	5.79	6.83	6.30	5.70	0.77 2.78
	7.88	7.41	6.67	6.28	5.67	8.44	7.71	6.88	8.11	7.55	6.78	4.19
FRG 614R 	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	0.29
	6.34	6.15	5.67	5.41	4.98	6.88	6.43	5.89	6.51	6.29	5.78	0.73
	6.88	6.69	6.16	5.82	5.28	7.44	7.07	6.36	7.07	6.86	6.26	0.88 3.17
	7.98	7.71	7.33	6.90	6.23	8.63	8.28	7.56	8.21	7.90	7.44	4.56
FRG 714R 	3.44	3.44	3.44	3.44	3.44	3.44	3.44	3.44	3.44	3.44	3.44	0.33
	6.38	6.28	6.09	5.81	5.35	6.93	6.76	6.33	6.57	6.44	6.21	0.82
	6.92	6.74	6.49	6.25	5.67	7.51	7.25	6.83	7.13	6.92	6.65	0.96 3.45
	8.05	7.78	7.44	7.25	6.69	8.73	8.36	7.94	8.28	7.98	7.61	4.91
FRG 814R 	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	0.30
	6.42	6.30	6.15	6.06	5.62	6.96	6.80	6.59	6.59	6.48	6.30	0.89
	6.96	6.78	6.53	6.39	5.96	7.55	7.30	6.98	7.17	6.95	6.68	1.01 3.62
	8.09	7.83	7.49	7.30	6.98	8.79	8.42	8.00	8.34	8.02	7.65	5.22



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
39355	20.35	9.65	5.16	21.96	4925	2869	3246	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
6118	5	3149	4178	6.68	60.0	4.2	1.80
	6	3845	5026	5.21	60.0	4.2	1.80
	7	4294	5779	5.83	60.0	4.2	1.80
	8	4252	6357	9.03	60.0	4.2	1.80

POIDS DU MONTAGE= 548 daN/m²

G1= 77 daN/m²

G2= 471 daN/m²

BETON CHANTIER=169.7 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m²]

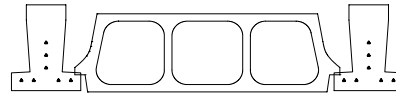
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	11.38	10.31	9.04	8.37	7.29	12.57	11.26	9.76	11.95	10.76	9.39	τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	11.38	10.31	9.04	8.37	7.29	12.57	11.26	9.76	11.95	10.76	9.39	
Limite V _{pu}	19.18	17.34	15.17	14.01	12.16	21.23	18.98	16.40	20.15	18.12	15.76	
Limite V _{cu}	12.82	11.60	10.17	9.40	8.19	14.16	12.68	10.98	13.45	12.12	10.56	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.25	4.25	4.25	4.25	4.14	4.25	4.25	4.25	4.25	4.25	4.25	0.30
FRG 514R ▲—▲	4.25	4.25	4.25	4.25	4.14	4.25	4.25	4.25	4.25	4.25	4.25	
▲—▲	6.98	6.86	6.47	6.18	5.70	7.55	7.32	6.72	7.17	7.03	6.59	
▲—▲	7.55	7.36	7.04	6.66	6.06	8.19	7.92	7.27	7.76	7.55	7.15	
▲—▲	8.75	8.50	8.13	7.91	7.15	9.48	9.11	8.65	9.00	8.69	8.30	
FRG 614R ▲—▲	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41	0.77 2.72
▲—▲	7.03	6.92	6.76	6.66	6.25	7.63	7.46	7.24	7.24	7.10	6.92	
▲—▲	7.63	7.44	7.17	7.02	6.64	8.28	8.00	7.65	7.84	7.63	7.34	
▲—▲	8.86	8.59	8.23	8.01	7.67	9.63	9.23	8.76	9.11	8.80	8.40	
FRG 714R ▲—▲	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	0.82 2.87
▲—▲	7.09	6.98	6.80	6.71	6.52	7.70	7.52	7.30	7.30	7.16	6.98	
▲—▲	7.71	7.50	7.24	7.07	6.82	8.36	8.07	7.73	7.92	7.69	7.40	
▲—▲	8.96	8.69	8.30	8.09	7.75	9.75	9.34	8.86	9.23	8.90	8.49	
FRG 814R ▲—▲	4.51	4.51	4.51	4.51	4.51	4.51	4.51	4.51	4.51	4.51	4.51	0.82 2.89
▲—▲	7.13	7.01	6.84	6.74	6.55	7.75	7.57	7.34	7.34	7.21	7.01	
▲—▲	7.75	7.55	7.27	7.11	6.84	8.42	8.13	7.77	7.98	7.75	7.44	
▲—▲	9.03	8.75	8.36	8.15	7.78	9.82	9.42	8.92	9.30	8.96	8.55	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
45834	21.79	8.21	3.92	21.58	5323	3551	5181	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
8372	6	3627	4950	4.74	60.0	4.2	1.80
	7	4126	5735	4.65	60.0	4.2	1.80
	8	4623	6511	4.57	60.0	4.2	1.80

POIDS DU MONTAGE= 512 daN/m²

G1= 56 daN/m²

G2= 456 daN/m²

BETON CHANTIER=156.9 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

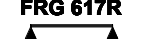


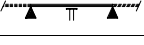

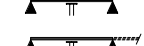

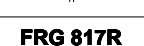




CAS DE CHARGE [daN/m²]

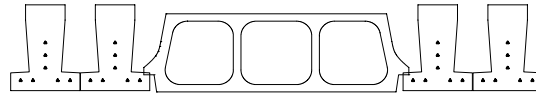
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	9.03	8.16	7.14	6.60	5.75	10.00	8.93	7.72	9.49	8.53	7.42		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	13.29	11.98	10.46	9.65	8.37	14.74	13.14	11.32	13.97	12.53	10.87		
Limite V _{cu}	12.95	11.68	10.19	9.41	8.16	14.36	12.81	11.03	13.62	12.21	10.60		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R    	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	0.37
	6.36	6.05	5.58	5.32	4.90	6.78	6.33	5.80	6.54	6.18	5.69	0.71
	6.90	6.68	6.06	5.73	5.20	7.48	6.96	6.26	7.09	6.81	6.16	0.87 3.18
	7.98	7.73	7.21	6.79	6.13	8.65	8.30	7.44	8.21	7.92	7.32	4.59
FRG 717R    	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	0.43
	6.40	6.30	6.01	5.73	5.27	6.96	6.79	6.24	6.59	6.46	6.12	0.81
	6.94	6.76	6.51	6.16	5.59	7.53	7.27	6.74	7.15	6.94	6.63	0.95 3.41
	8.05	7.80	7.46	7.26	6.60	8.75	8.38	7.96	8.28	7.99	7.61	4.94
FRG 817R    	4.13	4.13	4.13	4.13	4.13	4.13	4.13	4.13	4.13	4.13	4.13	0.48
	6.45	6.34	6.19	6.09	5.62	6.99	6.84	6.63	6.63	6.51	6.34	0.90
	6.99	6.80	6.56	6.42	5.96	7.59	7.33	7.01	7.20	6.98	6.71	1.01 3.66
	8.13	7.86	7.51	7.32	7.01	8.82	8.46	8.01	8.36	8.05	7.69	5.30



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
39912	20.13	9.87	3.69	21.28	5055	2868	3583	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
6065	6	3418	4863	9.76	60.0	4.2	1.80
	7	3889	5617	9.58	60.0	4.2	1.80
	8	4357	6357	9.42	60.0	4.2	1.80

POIDS DU MONTAGE= 548 daN/m²

G1= 92 daN/m²

G2= 456 daN/m²

BETON CHANTIER=163.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



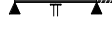
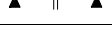



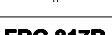
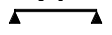



CAS DE CHARGE [daN/m²]

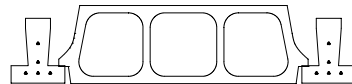
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	11.38	10.31	9.04	8.37	7.29	12.57	11.26	9.76	11.95	10.76	9.39	τ _{bu} =0.75
Limite V _{pu}	19.68	17.78	15.55	14.36	12.47	21.78	19.47	16.82	20.67	18.59	16.16	τ _{pu} =1.80
Limite V _{cu}	14.09	12.75	11.17	10.33	8.98	15.58	13.94	12.07	14.80	13.32	11.60	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 617R    	5.00	5.00	5.00	5.00	4.85	5.00	5.00	5.00	5.00	5.00	5.00	0.41
	7.05	6.94	6.76	6.67	6.15	7.65	7.48	7.25	7.25	7.11	6.94	0.67
	7.65	7.46	7.19	7.03	6.54	8.28	8.01	7.67	7.86	7.63	7.34	0.76 2.69
	8.86	8.59	8.23	8.01	7.67	9.61	9.23	8.76	9.11	8.80	8.40	3.73
FRG 717R    	5.36	5.36	5.36	5.35	5.17	5.36	5.36	5.36	5.36	5.36	5.36	0.47
	7.11	6.99	6.82	6.72	6.53	7.71	7.53	7.30	7.30	7.17	6.99	0.75
	7.71	7.51	7.25	7.09	6.82	8.37	8.09	7.75	7.94	7.71	7.40	0.82 2.87
	8.96	8.69	8.30	8.09	7.75	9.75	9.34	8.86	9.23	8.90	8.49	3.82
FRG 817R    	5.65	5.65	5.65	5.65	5.47	5.65	5.65	5.65	5.65	5.65	5.65	0.53
	7.17	7.03	6.87	6.76	6.57	7.78	7.61	7.36	7.36	7.23	7.03	0.76
	7.78	7.57	7.30	7.15	6.88	8.46	8.17	7.80	8.00	7.76	7.48	0.83 2.93
	9.05	8.76	8.38	8.17	7.81	9.86	9.44	8.96	9.32	9.00	8.57	3.89



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
40643	24.63	7.37	6.73	24.95	3155	3270	3587	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
8274	3	2308	2790	2.92	60.0	4.2	1.80
	4	2854	3676	3.21	60.0	4.2	1.80
	5	3321	4535	3.71	60.0	4.2	1.80
	6	3392	5284	5.04	60.0	4.2	1.80

POIDS DU MONTAGE= 552 daN/m²

G1= 33 daN/m²

G2= 519 daN/m²

BETON CHANTIER=181.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

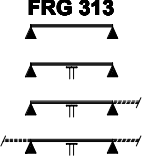
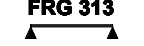


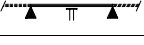
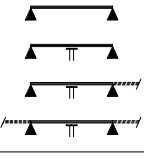

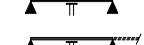

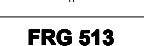
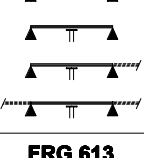


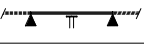

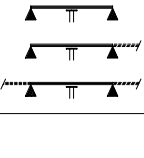

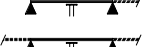
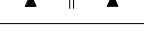

CAS DE CHARGE [daN/m²]

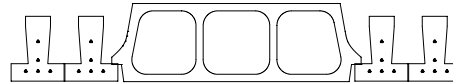
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												
Limite V _{bu}	8.46	7.68	6.76	6.27	5.49	9.32	8.38	7.28	8.87	8.01	7.01	τ _{bu} =0.75
Limite V _{pu}	8.18	7.43	6.54	6.07	5.31	9.02	8.10	7.05	8.58	7.75	6.78	τ _{pu} =1.80
Limite V _{cu}	9.23	8.37	7.37	6.83	5.97	10.18	9.14	7.94	9.68	8.74	7.64	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)													
FRG 313 		2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	0.17	
		4.86	4.57	4.23	4.04	3.73	5.10	4.78	4.39	4.98	4.67	0.38	
		5.43	5.06	4.60	4.36	3.96	5.71	5.26	4.75	5.56	5.16	4.67	0.47 1.70
		6.55	6.07	5.48	5.17	4.68	6.88	6.30	5.65	6.71	6.18	5.56	2.48
FRG 413 		2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	0.18	
		5.57	5.25	4.86	4.64	4.28	5.86	5.49	5.04	5.71	5.37	4.95	0.50
		6.23	5.81	5.28	5.00	4.55	6.55	6.04	5.46	6.39	5.92	5.37	0.62 2.24
		7.52	6.97	6.29	5.93	5.37	7.90	7.24	6.49	7.70	7.10	6.39	3.38
FRG 513 		2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79	0.20	
		6.19	5.83	5.39	5.15	4.75	6.51	6.09	5.60	6.34	5.96	5.49	0.61
		6.73	6.45	5.87	5.55	5.05	7.26	6.71	6.06	6.90	6.58	5.96	0.76 2.77
		7.80	7.57	6.99	6.59	5.96	8.44	8.04	7.20	8.01	7.75	7.09	3.96
FRG 613 		2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	0.19	
		6.24	6.15	5.82	5.56	5.13	6.74	6.58	6.05	6.42	6.30	5.93	0.70
		6.78	6.61	6.33	5.99	5.45	7.32	7.09	6.54	6.96	6.76	6.43	0.82 2.96
		7.88	7.65	7.32	7.12	6.44	8.53	8.19	7.78	8.10	7.82	7.48	4.33



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
36172	22.87	9.13	6.45	24.45	3047	2610	2685	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5943	3	2212	2765	4.28	60.0	4.2	1.80
	4	2736	3632	4.72	60.0	4.2	1.80
	5	3183	4466	5.46	60.0	4.2	1.80
	6	3252	5186	7.40	60.0	4.2	1.80

POIDS DU MONTAGE= 583 daN/m²

G1= 56 daN/m²

G2= 527 daN/m²

BETON CHANTIER=191.0 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}




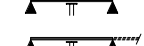

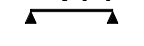
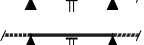


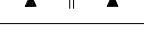
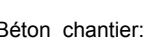
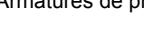
CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	10.91	9.92	8.74	8.11	7.09	12.00	10.80	9.41	11.43	10.34	9.06	τ _{bu} =0.75
Limite V _{pu}	12.65	11.49	10.11	9.37	8.19	13.92	12.52	10.89	13.25	11.98	10.49	τ _{pu} =1.80
Limite V _{cu}	11.21	10.19	8.97	8.32	7.28	12.33	11.10	9.66	11.74	10.62	9.30	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 313	3.44	3.40	3.34	3.31	3.24	3.48	3.44	3.38	3.46	3.42	3.36	0.16
	6.19	5.84	5.42	5.18	4.78	6.50	6.10	5.62	6.34	5.97	5.51	0.37
	6.92	6.47	5.90	5.59	5.09	7.27	6.73	6.09	7.09	6.59	5.99	0.47 1.69
	8.35	7.77	7.03	6.64	6.01	8.77	8.06	7.24	8.55	7.91	7.13	2.46
FRG 413	3.71	3.71	3.71	3.68	3.60	3.71	3.71	3.71	3.71	3.71	3.71	0.20
	6.91	6.70	6.21	5.93	5.48	7.45	6.99	6.44	7.09	6.84	6.32	0.49
	7.50	7.32	6.76	6.40	5.83	8.08	7.71	6.98	7.69	7.49	6.87	0.58 2.10
	8.69	8.44	8.06	7.61	6.89	9.38	9.03	8.30	8.92	8.63	8.18	2.92
FRG 513	3.88	3.88	3.88	3.88	3.88	3.88	3.88	3.88	3.88	3.88	3.88	0.23
	6.98	6.86	6.71	6.58	6.08	7.53	7.38	7.14	7.17	7.03	6.86	0.58
	7.57	7.40	7.13	6.99	6.47	8.19	7.92	7.59	7.78	7.57	7.28	0.65 2.33
	8.80	8.55	8.19	8.00	7.64	9.53	9.17	8.71	9.05	8.75	8.36	3.25
FRG 613	3.81	3.81	3.81	3.81	3.81	3.81	3.81	3.81	3.81	3.81	3.81	0.22
	7.03	6.92	6.76	6.61	6.30	7.61	7.44	7.23	7.23	7.09	6.87	0.61
	7.65	7.46	7.19	7.04	6.70	8.26	8.00	7.67	7.85	7.64	7.36	0.69 2.42
	8.90	8.65	8.27	8.07	7.73	9.65	9.27	8.80	9.15	8.85	8.46	3.33



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
53248	23.63	8.37	6.01	24.15	5662	3774	4807	1.08

FLEXION				POSE 2 ET AIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
9546	5	3669	4565	3.70	60.0	4.2	1.80
	6	4480	5505	2.88	60.0	4.2	1.80
	7	5003	6355	3.23	60.0	4.2	1.80
	8	4954	7034	5.24	60.0	4.2	1.80

POIDS DU MONTAGE= 559 daN/m²

G1= 47 daN/m²

G2= 512 daN/m²

BETON CHANTIER=180.7 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

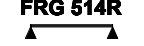



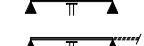



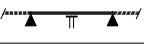

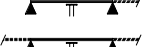
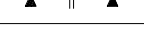
CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	9.18	8.34	7.34	6.80	5.95	10.12	9.09	7.90	9.62	8.70	7.61	τ _{bu} =0.75
Limite V _{bu}	9.18	8.34	7.34	6.80	5.95	10.12	9.09	7.90	9.62	8.70	7.61	τ _{bu} =0.75
Limite V _{pu}	13.51	12.24	10.74	9.94	8.67	14.91	13.37	11.59	14.17	12.78	11.15	τ _{pu} =1.80
Limite V _{cu}	11.55	10.47	9.20	8.52	7.44	12.74	11.43	9.92	12.11	10.93	9.55	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	0.24
FRG 514R	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	0.24
	6.04	5.69	5.27	5.03	4.64	6.35	5.95	5.47	6.19	5.82	5.37	0.62
	6.75	6.30	5.73	5.43	4.94	7.10	6.55	5.92	6.92	6.42	5.82	0.77 2.79
	8.14	7.56	6.83	6.44	5.83	8.56	7.85	7.04	8.34	7.70	6.93	4.22
FRG 614R	3.13	3.13	3.13	3.13	3.13	3.13	3.13	3.13	3.13	3.13	3.13	0.26
	6.59	6.25	5.78	5.53	5.10	6.97	6.53	6.00	6.76	6.39	5.89	0.74
	7.13	6.91	6.29	5.96	5.42	7.71	7.19	6.50	7.32	7.05	6.39	0.91 3.31
	8.28	8.03	7.50	7.07	6.40	8.96	8.59	7.73	8.50	8.23	7.61	4.79
FRG 714R	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	0.29
	6.63	6.51	6.22	5.94	5.48	7.17	7.01	6.45	6.80	6.69	6.33	0.84
	7.19	7.01	6.76	6.40	5.82	7.76	7.51	6.98	7.38	7.19	6.87	0.98 3.55
	8.36	8.11	7.76	7.57	6.88	9.03	8.69	8.25	8.59	8.29	7.92	5.13
FRG 814R	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	0.27
	6.66	6.55	6.40	6.25	5.76	7.21	7.05	6.79	6.84	6.72	6.55	0.91
	7.23	7.05	6.80	6.66	6.13	7.82	7.57	7.25	7.42	7.23	6.96	1.05 3.78
	8.41	8.15	7.80	7.61	7.23	9.11	8.75	8.30	8.65	8.34	7.98	5.36



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
46902	21.85	10.15	5.72	23.67	5429	3092	3500	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
6934	5	3495	4505	5.88	60.0	4.2	1.80
	6	4267	5419	4.59	60.0	4.2	1.80
	7	4766	6237	5.14	60.0	4.2	1.80
	8	4719	6880	8.33	60.0	4.2	1.80

POIDS DU MONTAGE= 595 daN/m²

G1= 77 daN/m²

G2= 518 daN/m²

BETON CHANTIER=189.7 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

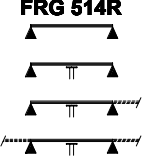



CAS DE CHARGE [daN/m²]

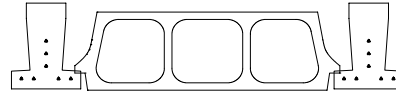
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	11.74	10.68	9.42	8.74	7.65	12.91	11.63	10.14	12.30	11.13	9.76		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	20.22	18.35	16.13	14.94	13.02	22.26	20.01	17.39	21.19	19.15	16.74		
Limite V _{cu}	13.22	12.02	10.59	9.82	8.58	14.54	13.09	11.40	13.85	12.53	10.98		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 514R 	4.10	4.10	4.10	4.10	4.06	4.10	4.10	4.10	4.10	4.10	4.10	0.27
	7.25	7.13	6.61	6.32	5.84	7.82	7.44	6.86	7.44	7.28	6.73	0.60
	7.86	7.67	7.20	6.83	6.22	8.48	8.21	7.43	8.06	7.86	7.32	0.72 2.60
	9.11	8.84	8.48	8.11	7.35	9.82	9.46	8.85	9.34	9.05	8.65	3.52
FRG 614R 	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	0.30
	7.32	7.19	7.03	6.93	6.41	7.90	7.73	7.51	7.51	7.38	7.19	0.70
	7.94	7.75	7.48	7.32	6.82	8.57	8.30	7.96	8.15	7.94	7.65	0.79 2.80
	9.21	8.96	8.57	8.36	8.01	9.96	9.59	9.13	9.48	9.17	8.76	3.90
FRG 714R 	4.53	4.53	4.53	4.53	4.53	4.53	4.53	4.53	4.53	4.53	4.53	0.34
	7.38	7.25	7.09	6.98	6.80	7.97	7.80	7.57	7.57	7.44	7.25	0.78
	8.00	7.81	7.53	7.38	7.11	8.65	8.38	8.03	8.23	8.00	7.71	0.85 2.99
	9.32	9.05	8.67	8.46	8.09	10.09	9.71	9.23	9.57	9.27	8.84	3.99
FRG 814R 	4.36	4.36	4.36	4.36	4.36	4.36	4.36	4.36	4.36	4.36	4.36	0.32
	7.42	7.28	7.12	7.01	6.82	8.01	7.84	7.61	7.61	7.48	7.28	0.78
	8.05	7.86	7.58	7.42	7.15	8.71	8.44	8.09	8.27	8.05	7.75	0.86 3.02
	9.38	9.11	8.73	8.51	8.14	10.17	9.78	9.28	9.65	9.34	8.92	4.05



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
54797	23.35	8.65	4.37	23.24	5903	3825	5581	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
9501	6	4046	5342	4.32	60.0	4.2	1.80
	7	4603	6192	4.24	60.0	4.2	1.80
	8	5157	7034	4.17	60.0	4.2	1.80

POIDS DU MONTAGE= 559 daN/m²

G1= 56 daN/m²

G2= 503 daN/m²

BETON CHANTIER=176.9 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}









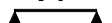



CAS DE CHARGE [daN/m²]

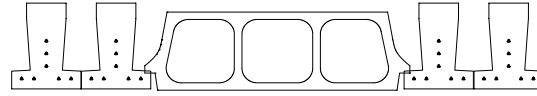
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	9.30	8.44	7.43	6.89	6.03	10.25	9.21	8.00	9.75	8.81	7.71	
Limite V _{pu}	14.06	12.74	11.18	10.34	9.01	15.52	13.92	12.06	14.76	13.30	11.60	
Limite V _{cu}	13.32	12.07	10.60	9.81	8.55	14.70	13.19	11.43	13.98	12.60	11.00	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R    	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	0.34 0.72 0.90 3.28 4.69
	6.53	6.16	5.70	5.44	5.02	6.87	6.43	5.91	6.69	6.29	5.80	
	7.17	6.81	6.20	5.87	5.34	7.68	7.09	6.40	7.36	6.94	6.30	
	8.30	8.05	7.39	6.97	6.30	8.98	8.49	7.61	8.53	8.25	7.50	
FRG 717R    	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	0.39 0.82 0.98 3.55 5.06
	6.67	6.55	6.14	5.86	5.41	7.20	6.93	6.37	6.84	6.73	6.25	
	7.23	7.04	6.67	6.32	5.75	7.80	7.55	6.89	7.42	7.21	6.78	
	8.38	8.13	7.78	7.50	6.79	9.07	8.71	8.20	8.61	8.32	7.96	
FRG 817R    	4.01	4.01	4.01	4.01	4.01	4.01	4.01	4.01	4.01	4.01	4.01	0.43 0.91 1.06 3.84 5.36
	6.71	6.59	6.44	6.25	5.76	7.25	7.09	6.79	6.88	6.76	6.59	
	7.26	7.09	6.84	6.71	6.13	7.86	7.61	7.29	7.48	7.26	6.99	
	8.46	8.21	7.84	7.65	7.23	9.16	8.78	8.36	8.69	8.40	8.01	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
47847	21.57	10.43	4.13	22.87	5617	3083	3850	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
6884	6	3823	5256	7.90	60.0	4.2	1.80
	7	4350	6075	7.75	60.0	4.2	1.80
	8	4873	6880	7.63	60.0	4.2	1.80

POIDS DU MONTAGE= 595 daN/m²

G1= 92 daN/m²

G2= 503 daN/m²

BETON CHANTIER=183.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



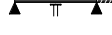
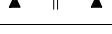



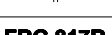
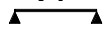



CAS DE CHARGE [daN/m²]

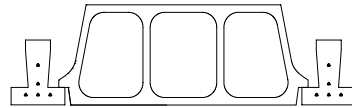
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	11.71	10.65	9.39	8.71	7.63	12.87	11.59	10.11	12.26	11.10	9.73	
Limite V _{pu}	20.90	18.97	16.67	15.44	13.46	23.02	20.69	17.98	21.90	19.79	17.30	
Limite V _{cu}	14.49	13.17	11.60	10.75	9.39	15.94	14.35	12.49	15.18	13.73	12.03	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R    	4.83	4.83	4.83	4.83	4.79	4.83	4.83	4.83	4.83	4.83	4.83	0.38
	7.34	7.23	7.05	6.83	6.31	7.92	7.76	7.40	7.53	7.40	7.23	0.68
	7.96	7.76	7.50	7.34	6.72	8.59	8.32	7.99	8.17	7.96	7.67	0.79 2.82
	9.23	8.98	8.59	8.38	7.94	9.98	9.61	9.13	9.48	9.17	8.76	3.82
FRG 717R    	5.17	5.17	5.17	5.17	5.11	5.17	5.17	5.17	5.17	5.17	5.17	0.44
	7.40	7.26	7.11	6.99	6.78	8.00	7.82	7.59	7.59	7.46	7.26	0.77
	8.01	7.83	7.55	7.40	7.13	8.67	8.40	8.05	8.25	8.01	7.73	0.85 3.01
	9.32	9.05	8.67	8.46	8.10	10.09	9.71	9.23	9.59	9.28	8.86	4.00
FRG 817R    	5.45	5.45	5.45	5.45	5.41	5.45	5.45	5.45	5.45	5.45	5.45	0.49
	7.46	7.32	7.15	7.05	6.86	8.06	7.88	7.65	7.65	7.51	7.32	0.79
	8.09	7.90	7.61	7.46	7.19	8.76	8.48	8.13	8.32	8.09	7.78	0.87 3.06
	9.42	9.15	8.76	8.53	8.17	10.21	9.82	9.32	9.69	9.38	8.94	4.08



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
34412	22.96	7.04	6.11	23.14	2898	3191	3352	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
7331	3	2096	2593	3.37	60.0	4.2	1.80
	4	2592	3415	3.72	60.0	4.2	1.80
	5	3016	4208	4.30	60.0	4.2	1.80
	6	3081	4892	5.83	60.0	4.2	1.80

POIDS DU MONTAGE= 454 daN/m²

G1= 33 daN/m²

G2= 421 daN/m²

BETON CHANTIER=135.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m²]

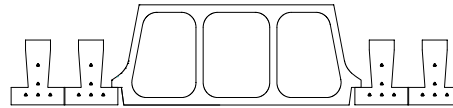
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	9.05	8.13	7.07	6.51	5.64	10.10	8.95	7.67	9.54	8.52	7.36		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	8.27	7.43	6.47	5.96	5.17	9.21	8.18	7.01	8.71	7.78	6.73		
Limite V _{cu}	9.48	8.52	7.40	6.82	5.90	10.58	9.38	8.03	10.00	8.93	7.70		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)													
FRG 313	2.74	2.74	2.74	2.74	2.72	2.74	2.74	2.74	2.74	2.74	2.74		0.47 1.69
	4.91	4.60	4.23	4.03	3.70	5.19	4.83	4.41	5.05	4.71	4.32		
	5.49	5.07	4.58	4.32	3.91	5.79	5.29	4.74	5.64	5.18	4.66		
	6.63	6.07	5.44	5.12	4.60	6.97	6.33	5.62	6.79	6.20	5.53		
FRG 413	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	0.62 2.23	
	5.64	5.28	4.85	4.62	4.24	5.96	5.54	5.06	5.79	5.41	4.95		
	6.30	5.82	5.25	4.96	4.48	6.64	6.07	5.44	6.47	5.94	5.34		
	7.55	6.97	6.25	5.87	5.28	7.99	7.26	6.45	7.75	7.11	6.35		
FRG 513	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	0.72 2.57	
	6.07	5.86	5.39	5.13	4.71	6.61	6.15	5.61	6.24	6.00	5.50		
	6.57	6.39	5.83	5.50	4.98	7.15	6.74	6.04	6.76	6.55	5.93		
	7.63	7.36	6.93	6.52	5.86	8.28	7.94	7.16	7.84	7.55	7.05		
FRG 613	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	0.79 2.82	
	6.11	5.99	5.81	5.43	5.08	6.66	6.49	6.05	6.29	6.17	5.93		
	6.63	6.44	6.19	5.93	5.37	7.21	6.96	6.51	6.82	6.61	6.34		
	7.71	7.43	7.09	6.90	6.32	8.38	8.01	7.59	7.94	7.61	7.25		



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
30521	21.29	8.71	5.85	22.68	2794	2499	2503	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5257	3	2005	2569	5.11	60.0	4.2	1.80
	4	2479	3371	5.63	60.0	4.2	1.80
	5	2885	4139	6.50	60.0	4.2	1.80
	6	2947	4794	8.18	60.0	4.2	1.80

POIDS DU MONTAGE= 493 daN/m²

G1= 56 daN/m²

G2= 437 daN/m²

BETON CHANTIER=149.1 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



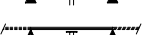



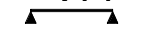




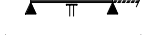
CAS DE CHARGE [daN/m²]

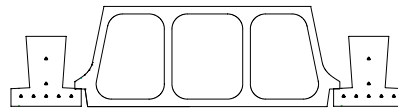
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	11.36	10.24	8.92	8.23	7.14	12.62	11.24	9.67	11.96	10.71	9.28		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	12.64	11.38	9.92	9.14	7.92	14.06	12.51	10.75	13.31	11.92	10.32		
Limite V _{cu}	11.38	10.25	8.94	8.24	7.15	12.64	11.25	9.68	11.98	10.73	9.29		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)													
FRG 313	3.68	3.63	3.55	3.50	3.41	3.74	3.68	3.60	3.71	3.65	3.58		0.47 1.68
	6.23	5.85	5.39	5.14	4.73	6.57	6.13	5.61	6.40	5.99	5.50		
	6.97	6.46	5.85	5.52	5.01	7.33	6.73	6.05	7.15	6.59	5.95		
	8.34	7.74	6.96	6.55	5.91	8.84	8.05	7.18	8.57	7.89	7.07		
FRG 413	3.98	3.98	3.95	3.89	3.79	3.98	3.98	3.98	3.98	3.98	3.98	0.56 2.02	
	6.73	6.61	6.18	5.89	5.42	7.32	7.02	6.42	6.93	6.80	6.30		
	7.30	7.09	6.70	6.33	5.74	7.92	7.65	6.93	7.51	7.28	6.81		
	8.46	8.18	7.82	7.50	6.77	9.19	8.80	8.23	8.71	8.38	8.00		
FRG 513	4.17	4.17	4.17	4.17	4.09	4.17	4.17	4.17	4.17	4.17	4.17	0.63 2.21	
	6.80	6.69	6.51	6.42	6.00	7.40	7.23	6.99	6.99	6.86	6.69		
	7.38	7.18	6.92	6.76	6.36	8.01	7.75	7.40	7.59	7.36	7.07		
	8.59	8.28	7.92	7.71	7.38	9.32	8.94	8.46	8.84	8.50	8.09		
FRG 613	4.09	4.09	4.09	4.09	4.09	4.09	4.09	4.09	4.09	4.09	4.09	0.67 2.35	
	6.86	6.74	6.57	6.48	6.27	7.48	7.29	7.04	7.06	6.92	6.74		
	7.46	7.25	6.98	6.82	6.55	8.11	7.82	7.46	7.67	7.44	7.13		
	8.69	8.38	8.00	7.78	7.44	9.46	9.03	8.55	8.94	8.59	8.19		



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
44832	22.03	7.97	5.43	22.38	5146	3657	4456	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
8433	5	3314	4238	4.40	60.0	4.2	1.80
	6	4047	5113	3.43	60.0	4.2	1.80
	7	4520	5897	3.84	60.0	4.2	1.80
	8	4476	6511	6.23	60.0	4.2	1.80

POIDS DU MONTAGE= 464 daN/m²

G1= 47 daN/m²

G2= 417 daN/m²

BETON CHANTIER=136.0 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

















CAS DE CHARGE [daN/m²]

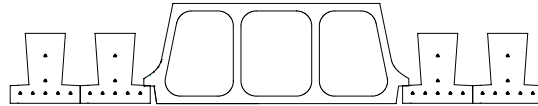
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	9.73	8.75	7.61	7.01	6.08	10.85	9.63	8.25	10.26	9.17	7.92		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	13.49	12.11	10.51	9.67	8.35	15.06	13.34	11.41	14.23	12.69	10.94		
Limite V _{cu}	11.75	10.55	9.17	8.44	7.29	13.11	11.62	9.95	12.39	11.06	9.54		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 514R    	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	0.28
	6.10	5.72	5.26	5.01	4.60	6.44	6.00	5.47	6.26	5.85	5.36	0.61
	6.82	6.30	5.69	5.37	4.86	7.18	6.57	5.89	6.99	6.43	5.79	0.76 2.77
	8.00	7.55	6.77	6.37	5.73	8.65	7.86	6.99	8.21	7.70	6.88	4.14
FRG 614R    	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34	3.34	0.30
	6.42	6.28	5.77	5.50	5.05	6.99	6.59	6.01	6.61	6.43	5.89	0.72
	6.96	6.76	6.25	5.90	5.34	7.57	7.22	6.47	7.17	6.94	6.36	0.87 3.14
	8.07	7.78	7.44	6.99	6.29	8.76	8.40	7.68	8.30	7.99	7.56	4.44
FRG 714R    	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	0.34
	6.48	6.36	6.20	5.91	5.42	7.05	6.88	6.46	6.67	6.53	6.33	0.82
	7.01	6.82	6.56	6.34	5.74	7.63	7.36	6.95	7.23	6.99	6.71	0.95 3.41
	8.15	7.86	7.51	7.31	6.76	8.86	8.48	8.03	8.38	8.05	7.67	4.79
FRG 814R    	3.42	3.42	3.42	3.42	3.42	3.42	3.42	3.42	3.42	3.42	3.42	0.32
	6.49	6.38	6.23	6.13	5.70	7.09	6.92	6.69	6.69	6.56	6.38	0.89
	7.05	6.85	6.59	6.45	6.03	7.68	7.40	7.07	7.26	7.03	6.74	1.00 3.55
	8.21	7.92	7.55	7.36	7.03	8.94	8.53	8.07	8.44	8.11	7.73	5.12



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
39355	20.35	9.65	5.16	21.96	4925	2946	3246	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
6118	5	3149	4178	7.66	60.0	4.2	1.80
	6	3845	5026	5.97	60.0	4.2	1.80
	7	4294	5779	6.69	60.0	4.2	1.80
	8	4252	6357	9.32	60.0	4.2	1.80

POIDS DU MONTAGE= 508 daN/m²

G1= 77 daN/m²

G2= 432 daN/m²

BETON CHANTIER=149.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}


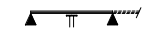

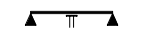






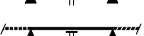
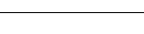
CAS DE CHARGE [daN/m²]

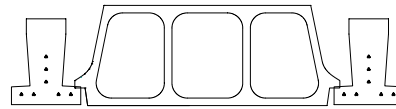
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	12.13	10.94	9.55	8.81	7.65	13.46	12.00	10.33	12.76	11.44	9.93	τ _{bu} =0.75
Limite V _{bu}	12.13	10.94	9.55	8.81	7.65	13.46	12.00	10.33	12.76	11.44	9.93	τ _{bu} =0.75
Limite V _{pu}	19.93	17.95	15.63	14.39	12.45	22.16	19.72	16.94	20.98	18.79	16.25	τ _{pu} =1.80
Limite V _{cu}	13.31	12.00	10.47	9.66	8.38	14.77	13.17	11.34	14.00	12.55	10.88	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.38	4.38	4.38	4.37	4.25	4.38	4.38	4.38	4.38	4.38	4.38	0.31
FRG 514R	4.38	4.38	4.38	4.37	4.25	4.38	4.38	4.38	4.38	4.38	4.38	0.31
	7.05	6.92	6.57	6.26	5.76	7.65	7.27	6.83	7.25	7.11	6.69	0.59
	7.63	7.44	7.13	6.74	6.11	8.28	8.00	7.37	7.86	7.61	7.25	0.68 2.44
	8.84	8.55	8.19	7.98	7.21	9.59	9.21	8.73	9.09	8.76	8.36	3.43
FRG 614R	4.55	4.55	4.55	4.55	4.55	4.55	4.55	4.55	4.55	4.55	4.55	0.35
	7.11	6.99	6.82	6.72	6.32	7.73	7.55	7.32	7.32	7.18	6.99	0.68
	7.71	7.50	7.23	7.07	6.70	8.38	8.09	7.74	7.94	7.71	7.40	0.77 2.70
	8.96	8.67	8.28	8.07	7.71	9.75	9.32	8.84	9.23	8.88	8.46	3.66
FRG 714R	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	0.40
	7.17	7.04	6.87	6.76	6.57	7.80	7.63	7.38	7.38	7.25	7.04	0.74
	7.78	7.57	7.28	7.13	6.86	8.48	8.17	7.80	8.01	7.76	7.46	0.81 2.83
	9.06	8.76	8.36	8.15	7.78	9.86	9.44	8.94	9.34	8.98	8.55	3.75
FRG 814R	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	0.37
	7.21	7.08	6.90	6.80	6.61	7.86	7.67	7.42	7.42	7.28	7.08	0.75
	7.84	7.61	7.33	7.17	6.90	8.53	8.23	7.86	8.07	7.82	7.50	0.82 2.86
	9.13	8.82	8.42	8.21	7.84	9.96	9.52	9.01	9.42	9.05	8.61	3.81



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
45834	21.79	8.21	3.92	21.58	5323	3720	5181	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
8372	6	3627	4950	5.32	60.0	4.2	1.80
	7	4126	5735	5.22	60.0	4.2	1.80
	8	4623	6511	5.13	60.0	4.2	1.80

POIDS DU MONTAGE= 464 daN/m²

G1= 56 daN/m²

G2= 409 daN/m²

BETON CHANTIER=132.2 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}


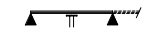




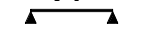


CAS DE CHARGE [daN/m²]

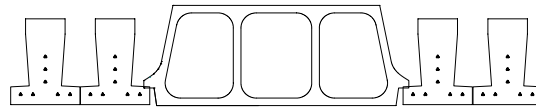
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	9.89	8.89	7.74	7.13	6.17	11.02	9.78	8.39	10.43	9.32	8.05		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	13.94	12.51	10.85	9.98	8.62	15.56	13.78	11.79	14.71	13.12	11.30		
Limite V _{cu}	13.58	12.19	10.58	9.73	8.40	15.16	13.43	11.49	14.33	12.78	11.01		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												0.85 3.08 0.93 3.35 1.00 3.57	
FRG 617R	3.79	3.79	3.79	3.79	3.79	3.79	3.79	3.79	3.79	3.79	3.79		0.39 0.71 0.85 3.08 4.44
	6.45	6.18	5.68	5.41	4.97	6.96	6.48	5.91	6.63	6.32	5.79		
	6.98	6.78	6.15	5.81	5.26	7.59	7.10	6.37	7.19	6.95	6.26		
	8.09	7.80	7.32	6.88	6.19	8.78	8.40	7.56	8.32	8.00	7.43		
FRG 717R	4.06	4.06	4.06	4.06	4.06	4.06	4.06	4.06	4.06	4.06	4.06	0.45 0.80 0.93 3.35 4.79	
	6.49	6.38	6.12	5.82	5.35	7.07	6.90	6.37	6.69	6.55	6.24		
	7.03	6.84	6.58	6.25	5.66	7.65	7.38	6.85	7.25	7.01	6.74		
	8.17	7.88	7.51	7.32	6.67	8.88	8.50	8.03	8.40	8.07	7.69		
FRG 817R	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	4.28	0.50 0.89 1.00 3.57 5.16	
	6.53	6.42	6.25	6.16	5.70	7.13	6.96	6.73	6.73	6.59	6.42		
	7.09	6.88	6.63	6.48	6.03	7.72	7.44	7.09	7.30	7.07	6.78		
	8.25	7.94	7.58	7.38	7.05	8.98	8.57	8.11	8.48	8.15	7.75		



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
39912	20.13	9.87	3.69	21.28	5055	2951	3583	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
6065	6	3418	4863	10.33	60.0	4.2	1.80
	7	3889	5617	11.07	60.0	4.2	1.80
	8	4357	6357	11.67	60.0	4.2	1.80

POIDS DU MONTAGE= 508 daN/m²

G1= 92 daN/m²

G2= 417 daN/m²

BETON CHANTIER=143.3 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



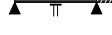
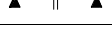



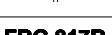
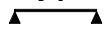



CAS DE CHARGE [daN/m²]

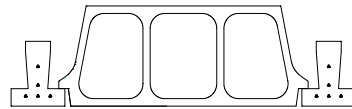
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	12.15	10.96	9.56	8.83	7.66	13.48	12.02	10.35	12.78	11.46	9.94	
Limite V _{pu}	20.45	18.41	16.03	14.76	12.76	22.73	20.22	17.37	21.53	19.27	16.67	
Limite V _{cu}	14.64	13.19	11.50	10.61	9.19	16.25	14.48	12.46	15.40	13.80	11.96	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R    	5.16	5.16	5.16	5.15	4.97	5.16	5.16	5.16	5.16	5.16	5.16	0.42
	7.13	6.99	6.83	6.73	6.22	7.75	7.57	7.34	7.34	7.19	6.99	0.67
	7.73	7.51	7.25	7.09	6.60	8.40	8.11	7.75	7.96	7.71	7.41	0.75 2.64
	8.96	8.67	8.28	8.07	7.73	9.75	9.32	8.84	9.23	8.88	8.46	3.69
FRG 717R    	5.54	5.54	5.54	5.49	5.30	5.54	5.54	5.54	5.54	5.54	5.54	0.48
	7.19	7.05	6.88	6.78	6.59	7.82	7.64	7.40	7.40	7.25	7.05	0.74
	7.79	7.57	7.30	7.14	6.86	8.48	8.19	7.82	8.02	7.78	7.48	0.81 2.83
	9.05	8.76	8.36	8.15	7.78	9.86	9.44	8.94	9.34	8.98	8.55	3.75
FRG 817R    	5.83	5.83	5.83	5.82	5.61	5.83	5.83	5.83	5.83	5.83	5.83	0.54
	7.25	7.11	6.94	6.82	6.63	7.90	7.71	7.46	7.46	7.30	7.11	0.75
	7.86	7.65	7.36	7.20	6.92	8.57	8.26	7.88	8.09	7.84	7.53	0.82 2.88
	9.17	8.84	8.44	8.23	7.86	10.00	9.55	9.03	9.44	9.07	8.64	3.84



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
40643	24.63	7.37	6.73	24.95	3168	3441	3614	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
8274	3	2308	2790	3.13	60.0	4.2	1.80
	4	2854	3676	3.45	60.0	4.2	1.80
	5	3321	4535	3.98	60.0	4.2	1.80
	6	3392	5284	5.40	60.0	4.2	1.80

POIDS DU MONTAGE= 502 daN/m²

G1= 33 daN/m²

G2= 468 daN/m²

BETON CHANTIER=155.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



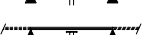







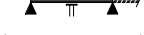
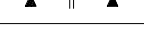
CAS DE CHARGE [daN/m²]

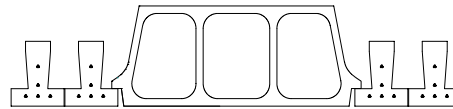
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	9.31	8.41	7.35	6.79	5.91	10.32	9.21	7.95	9.79	8.79	7.64	τ _{bu} =0.75
Limite V _{bu}	9.31	8.41	7.35	6.79	5.91	10.32	9.21	7.95	9.79	8.79	7.64	τ _{bu} =0.75
Limite V _{pu}	8.61	7.78	6.81	6.30	5.49	9.54	8.52	7.36	9.05	8.13	7.07	τ _{pu} =1.80
Limite V _{cu}	9.75	8.80	7.70	7.11	6.18	10.81	9.65	8.32	10.25	9.20	8.00	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	0.17
FRG 313	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	0.17
	4.98	4.67	4.31	4.11	3.78	5.24	4.89	4.48	5.10	4.78	4.39	0.37
	5.56	5.16	4.68	4.42	4.01	5.85	5.38	4.84	5.71	5.26	4.75	0.47 1.69
	6.71	6.18	5.56	5.24	4.73	7.05	6.43	5.74	6.88	6.31	5.65	2.47
FRG 413	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76	0.19
	5.71	5.37	4.95	4.72	4.34	6.02	5.62	5.14	5.86	5.49	5.04	0.50
	6.39	5.92	5.37	5.07	4.60	6.72	6.17	5.55	6.55	6.04	5.46	0.62 2.24
	7.70	7.10	6.39	6.01	5.43	8.10	7.39	6.59	7.90	7.24	6.49	3.37
FRG 513	2.89	2.89	2.89	2.89	2.89	2.89	2.89	2.89	2.89	2.89	2.89	0.20
	6.28	5.96	5.50	5.24	4.82	6.69	6.24	5.71	6.46	6.10	5.60	0.61
	6.81	6.58	5.96	5.63	5.11	7.38	6.86	6.16	7.01	6.71	6.06	0.74 2.70
	7.92	7.65	7.09	6.68	6.03	8.57	8.20	7.32	8.14	7.84	7.21	3.91
FRG 613	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	0.20
	6.32	6.23	5.93	5.66	5.20	6.86	6.71	6.17	6.51	6.38	6.05	0.69
	6.86	6.69	6.43	6.08	5.52	7.45	7.19	6.65	7.06	6.85	6.54	0.81 2.92
	8.00	7.73	7.38	7.19	6.50	8.67	8.30	7.88	8.23	7.92	7.53	4.24



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
36172	22.87	9.13	6.45	24.45	3059	2694	2698	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
5943	3	2212	2765	4.62	60.0	4.2	1.80
	4	2736	3632	5.09	60.0	4.2	1.80
	5	3183	4466	5.88	60.0	4.2	1.80
	6	3252	5186	7.87	60.0	4.2	1.80

POIDS DU MONTAGE= 541 daN/m²

G1= 56 daN/m²

G2= 484 daN/m²

BETON CHANTIER=169.1 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



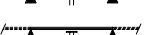



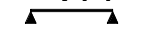




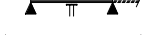
CAS DE CHARGE [daN/m²]

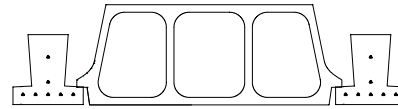
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	11.70	10.59	9.28	8.59	7.48	12.93	11.57	10.02	12.28	11.06	9.64	τ _{bu} =0.75
Limite V _{bu}	11.70	10.59	9.28	8.59	7.48	12.93	11.57	10.02	12.28	11.06	9.64	τ _{bu} =0.75
Limite V _{pu}	13.21	11.95	10.47	9.68	8.42	14.61	13.07	11.31	13.87	12.48	10.87	τ _{pu} =1.80
Limite V _{cu}	11.71	10.60	9.30	8.60	7.49	12.95	11.59	10.04	12.30	11.07	9.65	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.56	3.51	3.45	3.41	3.33	3.60	3.56	3.49	3.58	3.54	3.47	0.17	
FRG 313	3.56	3.51	3.45	3.41	3.33	3.60	3.56	3.49	3.58	3.54	3.47	0.47 1.68	
	6.32	5.95	5.50	5.25	4.84	6.65	6.22	5.71	6.48	6.08	5.60		0.37
	7.06	6.57	5.98	5.65	5.14	7.43	6.84	6.17	7.24	6.71	6.07		0.47 1.68
	8.52	7.89	7.12	6.71	6.07	8.96	8.20	7.34	8.73	8.04	7.23		2.45
FRG 413	3.83	3.83	3.83	3.79	3.71	3.83	3.83	3.83	3.83	3.83	3.83	0.20	
	6.99	6.82	6.30	6.02	5.55	7.55	7.13	6.55	7.18	6.97	6.42	0.48	
	7.57	7.38	6.85	6.48	5.89	8.19	7.84	7.08	7.78	7.55	6.96	0.58 2.08	
	8.78	8.51	8.15	7.69	6.95	9.52	9.13	8.41	9.03	8.71	8.28	2.86	
FRG 513	4.01	4.01	4.01	4.01	4.00	4.01	4.01	4.01	4.01	4.01	4.01	0.24	
	7.05	6.94	6.77	6.67	6.15	7.65	7.48	7.25	7.25	7.11	6.94	0.57	
	7.65	7.46	7.19	7.03	6.53	8.30	8.01	7.68	7.88	7.65	7.36	0.65 2.29	
	8.90	8.63	8.25	8.04	7.70	9.67	9.27	8.79	9.17	8.84	8.44	3.20	
FRG 613	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	0.23	
	7.11	6.99	6.82	6.72	6.39	7.72	7.54	7.10	7.32	7.18	6.99	0.61	
	7.73	7.53	7.25	7.09	6.79	8.38	8.10	7.75	7.95	7.72	7.42	0.69 2.42	
	9.01	8.73	8.34	8.13	7.76	9.78	9.38	8.90	9.27	8.94	8.51	3.27	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
53248	23.63	8.37	6.01	24.15	5662	3945	4807	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
9546	5	3669	4565	4.01	60.0	4.2	1.80
	6	4480	5505	3.12	60.0	4.2	1.80
	7	5003	6355	3.50	60.0	4.2	1.80
	8	4954	7034	5.68	60.0	4.2	1.80

POIDS DU MONTAGE= 512 daN/m²

G1= 47 daN/m²

G2= 465 daN/m²

BETON CHANTIER=156.0 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



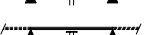



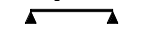


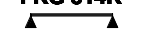

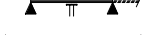
CAS DE CHARGE [daN/m²]

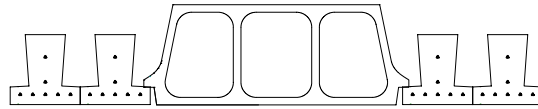
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	10.02	9.05	7.92	7.32	6.37	11.10	9.91	8.56	10.53	9.46	8.23	τ _{bu} =0.75
Limite V _{bu}	10.02	9.05	7.92	7.32	6.37	11.10	9.91	8.56	10.53	9.46	8.23	τ _{bu} =0.75
Limite V _{pu}	14.14	12.75	11.13	10.27	8.91	15.69	13.99	12.05	14.88	13.34	11.57	τ _{pu} =1.80
Limite V _{cu}	12.09	10.91	9.53	8.80	7.65	13.40	11.96	10.31	12.71	11.41	9.91	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	0.25
FRG 514R	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	0.25
	6.18	5.81	5.36	5.11	4.71	6.51	6.08	5.57	6.34	5.94	5.46	0.62
	6.91	6.41	5.82	5.50	4.99	7.27	6.68	6.02	7.09	6.54	5.91	0.77 2.78
	8.30	7.69	6.93	6.52	5.89	8.76	8.00	7.15	8.53	7.84	7.03	4.18
FRG 614R	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	0.27
	6.67	6.38	5.89	5.61	5.17	7.15	6.68	6.12	6.86	6.52	6.00	0.74
	7.23	7.03	6.39	6.04	5.48	7.82	7.34	6.61	7.44	7.19	6.49	0.89 3.22
	8.38	8.11	7.61	7.16	6.47	9.09	8.71	7.85	8.63	8.30	7.72	4.67
FRG 714R	3.44	3.44	3.44	3.44	3.44	3.44	3.44	3.44	3.44	3.44	3.44	0.31
	6.71	6.59	6.32	6.03	5.55	7.28	7.11	6.57	6.90	6.76	6.45	0.83
	7.28	7.09	6.82	6.49	5.89	7.90	7.63	7.10	7.49	7.26	6.98	0.97 3.48
	8.46	8.19	7.82	7.63	6.95	9.19	8.80	8.34	8.71	8.38	8.00	5.01
FRG 814R	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	0.28
	6.74	6.63	6.47	6.35	5.84	7.32	7.15	6.92	6.94	6.80	6.63	0.91
	7.32	7.13	6.86	6.72	6.20	7.94	7.67	7.34	7.53	7.30	7.01	1.03 3.71
	8.51	8.24	7.87	7.67	7.31	9.25	8.86	8.40	8.76	8.44	8.04	5.29



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
46902	21.85	10.15	5.72	23.67	5429	3176	3500	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
6934	5	3495	4505	6.52	60.0	4.2	1.80
	6	4267	5419	5.08	60.0	4.2	1.80
	7	4766	6237	5.69	60.0	4.2	1.80
	8	4719	6880	8.97	60.0	4.2	1.80

POIDS DU MONTAGE= 556 daN/m²

G1= 77 daN/m²

G2= 479 daN/m²

BETON CHANTIER=169.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



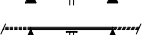



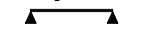


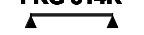

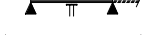
CAS DE CHARGE [daN/m²]

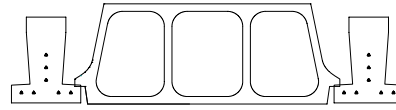
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	12.49	11.32	9.93	9.19	8.02	13.79	12.36	10.72	13.10	11.82	10.31	τ _{bu} =0.75
Limite V _{bu}	12.49	11.32	9.93	9.19	8.02	13.79	12.36	10.72	13.10	11.82	10.31	τ _{bu} =0.75
Limite V _{pu}	20.97	18.97	16.60	15.34	13.32	23.19	20.75	17.94	22.02	19.82	17.25	τ _{pu} =1.80
Limite V _{cu}	13.71	12.42	10.89	10.08	8.78	15.14	13.57	11.76	14.38	12.96	11.31	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.22	4.22	4.22	4.22	4.17	4.22	4.22	4.22	4.22	4.22	4.22	0.28
FRG 514R	4.22	4.22	4.22	4.22	4.17	4.22	4.22	4.22	4.22	4.22	4.22	0.28
	7.32	7.21	6.70	6.40	5.91	7.92	7.57	6.96	7.51	7.38	6.83	0.60
	7.94	7.75	7.29	6.90	6.28	8.59	8.30	7.53	8.15	7.92	7.41	0.71 2.57
	9.19	8.92	8.53	8.19	7.41	9.96	9.55	8.96	9.46	9.13	8.73	3.49
FRG 614R	4.38	4.38	4.38	4.38	4.38	4.38	4.38	4.38	4.38	4.38	4.38	0.31
	7.39	7.26	7.09	6.99	6.48	8.00	7.82	7.59	7.59	7.46	7.26	0.69
	8.01	7.82	7.53	7.38	6.89	8.69	8.40	8.03	8.25	8.01	7.71	0.78 2.75
	9.30	9.03	8.63	8.42	8.06	10.09	9.69	9.21	9.57	9.25	8.82	3.85
FRG 714R	4.67	4.67	4.67	4.67	4.67	4.67	4.67	4.67	4.67	4.67	4.67	0.35
	7.45	7.32	7.15	7.03	6.84	8.07	7.90	7.65	7.65	7.51	7.32	0.77
	8.09	7.88	7.59	7.44	7.16	8.76	8.48	8.11	8.32	8.07	7.76	0.84 2.95
	9.42	9.13	8.73	8.50	8.13	10.23	9.80	9.30	9.69	9.34	8.92	3.92
FRG 814R	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	0.33
	7.50	7.36	7.19	7.07	6.88	8.13	7.94	7.71	7.71	7.55	7.36	0.77
	8.13	7.93	7.65	7.48	7.19	8.84	8.53	8.17	8.36	8.13	7.82	0.85 2.98
	9.50	9.19	8.78	8.55	8.19	10.32	9.88	9.38	9.77	9.42	8.98	3.99



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
54797	23.35	8.65	4.37	23.24	5903	4007	5581	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
9501	6	4046	5342	4.75	60.0	4.2	1.80
	7	4603	6192	4.66	60.0	4.2	1.80
	8	5157	7034	4.58	60.0	4.2	1.80

POIDS DU MONTAGE= 512 daN/m²

G1= 56 daN/m²

G2= 456 daN/m²

BETON CHANTIER=152.2 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}









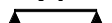



CAS DE CHARGE [daN/m²]

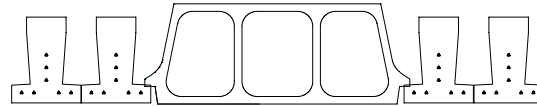
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	10.16	9.18	8.03	7.42	6.46	11.26	10.06	8.68	10.68	9.60	8.35	
Limite V _{pu}	14.72	13.28	11.59	10.69	9.27	16.34	14.56	12.54	15.49	13.89	12.04	
Limite V _{cu}	13.95	12.58	10.98	10.13	8.79	15.48	13.80	11.89	14.67	13.16	11.41	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R    	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	0.35
	6.69	6.28	5.80	5.53	5.09	7.04	6.58	6.03	6.86	6.43	5.91	0.72
	7.26	6.94	6.29	5.95	5.40	7.86	7.23	6.51	7.46	7.08	6.40	0.89 3.25
	8.42	8.14	7.49	7.06	6.37	9.11	8.65	7.73	8.65	8.34	7.61	4.60
FRG 717R    	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	0.40
	6.74	6.63	6.24	5.96	5.48	7.32	7.08	6.49	6.94	6.80	6.36	0.81
	7.30	7.11	6.78	6.41	5.81	7.94	7.66	7.01	7.51	7.30	6.89	0.96 3.47
	8.50	8.21	7.85	7.60	6.86	9.21	8.82	8.32	8.73	8.42	8.01	4.99
FRG 817R    	4.14	4.14	4.14	4.14	4.14	4.14	4.14	4.14	4.14	4.14	4.14	0.45
	6.78	6.67	6.51	6.35	5.84	7.37	7.21	6.92	6.98	6.84	6.67	0.91
	7.36	7.17	6.90	6.76	6.20	8.00	7.73	7.38	7.57	7.34	7.07	1.04 3.76
	8.56	8.28	7.92	7.71	7.31	9.30	8.90	8.44	8.81	8.48	8.09	5.29



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
47847	21.57	10.43	4.13	22.87	5617	3172	3850	1.08

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
6884	6	3823	5256	9.36	60.0	4.2	1.80
	7	4350	6075	9.18	60.0	4.2	1.80
	8	4873	6880	9.03	60.0	4.2	1.80

POIDS DU MONTAGE= 556 daN/m²

G1= 92 daN/m²

G2= 464 daN/m²

BETON CHANTIER=163.3 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



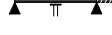
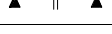



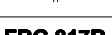




CAS DE CHARGE [daN/m²]

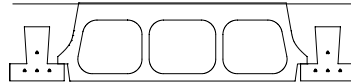
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	12.47	11.30	9.92	9.18	8.01	13.77	12.35	10.70	13.09	11.80	10.30		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	21.68	19.60	17.16	15.85	13.77	23.97	21.45	18.54	22.76	20.48	17.82		
Limite V _{cu}	15.03	13.61	11.93	11.03	9.60	16.60	14.87	12.88	15.77	14.21	12.39		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 617R    	4.97	4.97	4.97	4.97	4.91	4.97	4.97	4.97	4.97	4.97	4.97	0.39
	7.42	7.28	7.11	6.92	6.38	8.03	7.86	7.52	7.62	7.48	7.28	0.68
	8.03	7.84	7.55	7.40	6.78	8.71	8.42	8.07	8.26	8.03	7.73	0.78 2.79
	9.32	9.03	8.65	8.44	8.01	10.11	9.71	9.23	9.59	9.27	8.84	3.79
FRG 717R    	5.33	5.33	5.33	5.33	5.24	5.33	5.33	5.33	5.33	5.33	5.33	0.45
	7.48	7.34	7.17	7.06	6.86	8.11	7.92	7.69	7.69	7.53	7.34	0.77
	8.11	7.90	7.61	7.46	7.17	8.80	8.50	8.13	8.34	8.09	7.78	0.84 2.96
	9.42	9.13	8.74	8.51	8.15	10.23	9.82	9.32	9.69	9.36	8.92	3.95
FRG 817R    	5.62	5.62	5.62	5.62	5.54	5.62	5.62	5.62	5.62	5.62	5.62	0.51
	7.53	7.40	7.23	7.11	6.92	8.17	8.00	7.75	7.75	7.59	7.40	0.78
	8.17	7.97	7.68	7.51	7.23	8.88	8.57	8.21	8.42	8.17	7.86	0.86 3.01
	9.52	9.23	8.82	8.59	8.23	10.36	9.92	9.42	9.80	9.46	9.01	4.03



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
5414	10.75	5.25	2.86	11.75	1062	1608	1377	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
1030	2	504	823	4.38	60.0	4.2	1.80
	3	768	1261	5.24	60.0	4.2	1.80
	4	962	1650	5.98	60.0	4.2	1.80
	5	1038	1959	6.05	60.0	4.2	1.80

POIDS DU MONTAGE= 186 daN/m²

G1= 28 daN/m²

G2= 157 daN/m²

BETON CHANTIER= 26.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



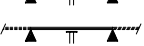

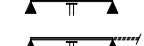

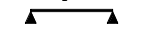

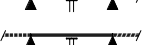


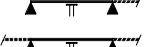
CAS DE CHARGE [daN/m²]

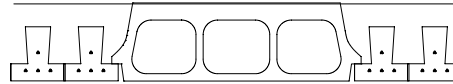
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	6.35	5.47	4.54	4.08	3.41	7.45	6.25	5.05	6.86	5.83	4.78	
Limite V _{pu}	4.29	3.70	3.09	2.79	2.34	5.01	4.22	3.43	4.62	3.94	3.25	
Limite V _{cu}	5.48	4.72	3.92	3.53	2.96	6.42	5.39	4.36	5.91	5.03	4.13	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)													
FRG 211	2.19	2.19	2.19	2.19	2.09	2.19	2.19	2.19	2.19	2.19	2.19		0.29 1.03
	3.22	2.99	2.68	2.52	2.27	3.48	3.19	2.82	3.34	3.08	2.75		
	3.55	3.24	2.85	2.65	2.36	3.81	3.42	2.97	3.67	3.33	2.91		
	4.26	3.85	3.36	3.12	2.76	4.49	4.06	3.49	4.38	3.95	3.42		
FRG 311	2.62	2.62	2.62	2.62	2.59	2.62	2.62	2.62	2.62	2.62	2.62	0.42 1.52	
	3.76	3.66	3.32	3.12	2.81	4.30	3.95	3.49	3.94	3.81	3.40		
	4.07	3.90	3.52	3.28	2.92	4.63	4.24	3.68	4.24	4.05	3.60		
	4.78	4.53	4.16	3.86	3.42	5.36	5.02	4.32	4.97	4.71	4.24		
FRG 411	2.99	2.99	2.99	2.99	2.90	2.99	2.99	2.99	2.99	2.99	2.99	0.51 1.82	
	3.80	3.71	3.57	3.49	3.22	4.37	4.21	3.98	3.98	3.86	3.71		
	4.13	3.96	3.75	3.65	3.34	4.71	4.46	4.15	4.31	4.11	3.88		
	4.86	4.61	4.34	4.19	3.91	5.46	5.15	4.78	5.05	4.78	4.47		
FRG 511	3.03	3.03	3.03	3.03	3.01	3.03	3.03	3.03	3.03	3.03	3.03	0.55 1.95	
	3.84	3.74	3.61	3.52	3.38	4.42	4.24	4.02	4.02	3.90	3.74		
	4.17	3.99	3.78	3.67	3.48	4.76	4.49	4.20	4.36	4.15	3.92		
	4.92	4.67	4.38	4.23	3.99	5.51	5.21	4.84	5.11	4.84	4.52		



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
4687	9.89	6.11	2.69	11.68	1021	1291	1136	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
767	2	474	812	6.71	60.0	4.2	1.80
	3	723	1237	8.03	60.0	4.2	1.80
	4	906	1606	9.16	60.0	4.2	1.80
	5	976	1891	9.27	60.0	4.2	1.80

POIDS DU MONTAGE= 200 daN/m²

G1= 48 daN/m²

G2= 151 daN/m²

BETON CHANTIER= 30.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

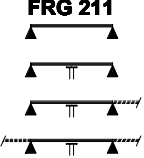
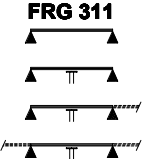
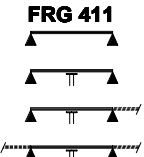
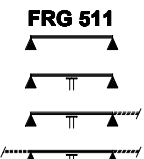
CAS DE CHARGE [daN/m²]

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	8.35	7.20	5.97	5.37	4.48	9.78	8.22	6.65	9.01	7.67	6.29		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	6.66	5.75	4.78	4.31	3.60	7.79	6.56	5.32	7.18	6.13	5.03		
Limite V _{cu}	7.38	6.37	5.29	4.76	3.98	8.64	7.27	5.88	7.96	6.79	5.57		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 211 	3.29	3.13	2.94	2.83	2.64	3.36	3.29	3.06	3.36	3.21	3.00	0.18 0.22 0.26 0.93 1.36
	3.93	3.68	3.37	3.21	2.92	4.23	3.93	3.57	4.07	3.79	3.47	
	4.34	3.99	3.59	3.38	3.03	4.64	4.22	3.76	4.48	4.10	3.67	
	5.20	4.74	4.24	3.98	3.55	5.55	5.00	4.42	5.37	4.87	4.33	
FRG 311 	4.02	3.87	3.63	3.49	3.25	4.02	4.02	3.78	4.02	3.96	3.70	0.28 0.34 0.38 1.33 1.84
	4.28	4.17	4.01	3.92	3.60	4.90	4.71	4.40	4.47	4.34	4.17	
	4.64	4.45	4.22	4.09	3.74	5.24	4.99	4.64	4.84	4.61	4.36	
	5.38	5.15	4.86	4.71	4.38	6.00	5.67	5.30	5.57	5.31	5.01	
FRG 411 	4.34	4.22	4.06	3.91	3.64	4.58	4.55	4.24	4.55	4.40	4.15	0.35 0.39 0.41 1.45 1.96
	4.34	4.22	4.07	3.97	3.81	4.99	4.78	4.55	4.55	4.40	4.22	
	4.72	4.51	4.28	4.15	3.94	5.33	5.07	4.74	4.92	4.70	4.44	
	5.48	5.23	4.96	4.78	4.51	6.13	5.78	5.40	5.68	5.40	5.10	
FRG 511 	4.39	4.26	4.11	4.01	3.78	4.64	4.64	4.40	4.59	4.46	4.26	0.38 0.39 0.42 1.47 2.01
	4.39	4.26	4.11	4.01	3.81	5.04	4.84	4.59	4.59	4.46	4.26	
	4.76	4.57	4.32	4.20	3.96	5.39	5.13	4.80	4.97	4.74	4.47	
	5.54	5.29	5.01	4.84	4.56	6.22	5.86	5.47	5.74	5.47	5.15	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
5439	10.72	5.28	2.07	11.72	1112	1800	1749	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
1030	3	710	1220	7.05	60.0	4.2	1.80
	4	877	1583	7.35	60.0	4.2	1.80
	5	1021	1919	7.70	60.0	4.2	1.80
	6	1043	2145	7.55	60.0	4.2	1.80

POIDS DU MONTAGE= 186 daN/m²

G1= 33 daN/m²

G2= 152 daN/m²

BETON CHANTIER= 24.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

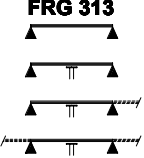
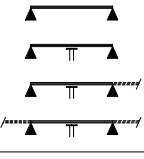
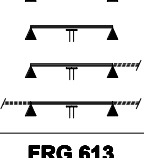
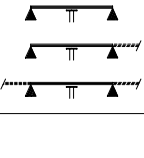
CAS DE CHARGE [daN/m²]

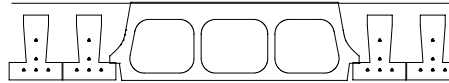
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												
Limite V _{bu}	7.08	6.09	5.04	4.53	3.78	8.31	6.96	5.62	7.64	6.50	5.32	τ _{bu} =0.75
Limite V _{pu}	4.48	3.86	3.22	2.90	2.44	5.24	4.41	3.57	4.83	4.12	3.39	τ _{pu} =1.80
Limite V _{cu}	6.89	5.92	4.91	4.42	3.69	8.09	6.78	5.47	7.44	6.32	5.17	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 313 	3.37	3.18	2.95	2.83	2.61	3.52	3.37	3.10	3.47	3.27	3.02	0.30
	3.76	3.57	3.26	3.07	2.76	4.17	3.84	3.44	3.94	3.70	3.35	
	4.07	3.87	3.46	3.23	2.87	4.56	4.12	3.62	4.25	3.99	3.54	0.40 1.47
	4.78	4.55	4.09	3.80	3.36	5.36	4.88	4.25	4.97	4.71	4.17	
FRG 413 	3.68	3.54	3.28	3.14	2.91	3.68	3.68	3.45	3.68	3.64	3.36	0.37
	3.80	3.71	3.57	3.44	3.14	4.38	4.21	3.85	3.98	3.86	3.71	
	4.13	3.96	3.75	3.62	3.26	4.71	4.46	4.05	4.31	4.11	3.88	0.48 1.73
	4.86	4.61	4.34	4.19	3.81	5.45	5.15	4.76	5.05	4.78	4.47	
FRG 513 	3.85	3.74	3.54	3.39	3.14	3.85	3.85	3.72	3.85	3.85	3.63	0.44
	3.85	3.74	3.61	3.53	3.38	4.43	4.24	4.03	4.03	3.91	3.74	
	4.19	4.00	3.79	3.69	3.49	4.78	4.51	4.21	4.36	4.17	3.92	0.55 1.96
	4.93	4.67	4.39	4.24	3.99	5.52	5.21	4.84	5.11	4.84	4.53	
FRG 613 	3.78	3.76	3.58	3.43	3.17	3.78	3.78	3.76	3.78	3.78	3.67	0.45
	3.87	3.76	3.63	3.54	3.40	4.46	4.28	4.05	4.05	3.93	3.76	
	4.21	4.03	3.82	3.71	3.51	4.80	4.53	4.22	4.39	4.19	3.95	0.55 1.99
	4.96	4.71	4.42	4.26	4.01	5.56	5.24	4.88	5.15	4.88	4.55	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
4704	9.86	6.14	1.94	11.65	1069	1442	1375	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
767	3	667	1195	10.80	60.0	4.2	1.80
	4	825	1540	11.27	60.0	4.2	1.80
	5	960	1850	11.80	60.0	4.2	1.80
	6	980	2047	11.57	60.0	4.2	1.80

POIDS DU MONTAGE= 200 daN/m²

G1= 56 daN/m²

G2= 143 daN/m²

BETON CHANTIER= 27.2 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}






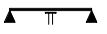


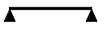


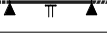


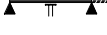
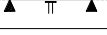
CAS DE CHARGE [daN/m²]

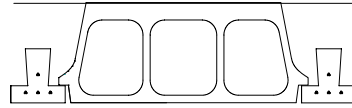
	100	100	100	100	100	0	0	0	100	100	100	Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	cm ² HA / p
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	FeE400
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	9.30	8.01	6.64	5.97	4.98	10.89	9.15	7.39	10.03	8.54	7.00	τ _{bu} =0.75
Limite V _{bu}	9.30	8.01	6.64	5.97	4.98	10.89	9.15	7.39	10.03	8.54	7.00	τ _{bu} =0.75
Limite V _{pu}	6.96	6.01	4.99	4.49	3.76	8.14	6.85	5.55	7.51	6.40	5.26	τ _{pu} =1.80
Limite V _{cu}	8.88	7.65	6.34	5.70	4.76	10.40	8.74	7.06	9.57	8.15	6.68	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.23	4.00	3.72	3.56	3.29	4.51	4.23	3.90	4.37	4.11	3.81	0.29
FRG 313 	4.23	4.00	3.72	3.56	3.29	4.51	4.23	3.90	4.37	4.11	3.81	0.29
	4.28	4.17	4.02	3.83	3.50	4.92	4.71	4.27	4.49	4.35	4.14	0.32
	4.65	4.46	4.22	4.04	3.64	5.26	5.01	4.50	4.86	4.63	4.38	0.36 1.26
	5.40	5.17	4.88	4.72	4.27	6.03	5.69	5.29	5.59	5.32	5.03	1.78
FRG 413 	4.34	4.22	4.07	3.96	3.66	4.99	4.71	4.34	4.55	4.42	4.22	0.35
	4.34	4.22	4.07	3.98	3.82	4.99	4.80	4.55	4.55	4.42	4.22	0.39
	4.72	4.52	4.28	4.16	3.95	5.34	5.08	4.75	4.94	4.71	4.44	0.41 1.46
	5.48	5.24	4.96	4.78	4.51	6.14	5.78	5.41	5.69	5.41	5.10	1.96
FRG 513 	4.40	4.28	4.13	4.03	3.86	5.06	4.86	4.61	4.61	4.47	4.28	0.40
	4.40	4.28	4.13	4.03	3.83	5.06	4.86	4.61	4.61	4.47	4.28	0.39
	4.78	4.58	4.34	4.21	3.98	5.42	5.15	4.82	4.99	4.76	4.49	0.42 1.48
	5.55	5.30	5.02	4.86	4.57	6.24	5.88	5.48	5.76	5.48	5.17	2.02
FRG 613 	4.42	4.30	4.15	4.05	3.88	5.09	4.90	4.63	4.63	4.49	4.30	0.40
	4.42	4.30	4.15	4.05	3.83	5.09	4.90	4.63	4.63	4.49	4.30	0.39
	4.81	4.61	4.36	4.22	3.98	5.44	5.17	4.84	5.02	4.78	4.51	0.42 1.48
	5.59	5.34	5.05	4.88	4.59	6.28	5.92	5.51	5.80	5.51	5.19	2.04



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
9888	13.51	6.49	4.15	14.95	1469	1986	1751	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
1523	2	732	1084	4.18	60.0	4.2	1.80
	3	1116	1654	5.00	60.0	4.2	1.80
	4	1398	2173	5.71	60.0	4.2	1.80
	5	1507	2613	5.78	60.0	4.2	1.80

POIDS DU MONTAGE= 225 daN/m²

G1= 28 daN/m²

G2= 197 daN/m²

BETON CHANTIER= 37.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

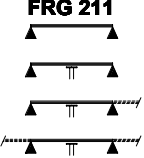
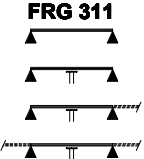
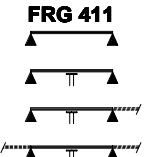
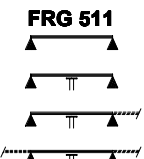
CAS DE CHARGE [daN/m²]

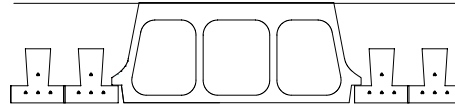
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	7.42	6.44	5.39	4.87	4.10	8.62	7.31	5.97	7.97	6.84	5.66	τ _{bu} =0.75
Limite V _{pu}	5.57	4.85	4.07	3.69	3.12	6.46	5.49	4.50	5.98	5.15	4.28	τ _{pu} =1.80
Limite V _{cu}	6.58	5.72	4.79	4.33	3.65	7.64	6.48	5.30	7.07	6.07	5.03	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 211 	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.09	0.15
	3.64	3.35	3.02	2.84	2.57	3.93	3.56	3.17	3.78	3.45	3.09	0.25
	4.03	3.64	3.22	3.00	2.68	4.31	3.84	3.35	4.17	3.74	3.28	0.30 1.08
	4.84	4.34	3.80	3.54	3.14	5.16	4.56	3.95	4.99	4.44	3.87	1.57
FRG 311 	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	0.22
	4.50	4.14	3.73	3.51	3.17	4.85	4.40	3.92	4.66	4.26	3.82	0.37
	4.90	4.50	3.97	3.71	3.31	5.33	4.74	4.14	5.08	4.61	4.05	0.45 1.62
	5.64	5.36	4.70	4.37	3.87	6.24	5.63	4.87	5.82	5.49	4.78	2.30
FRG 411 	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	0.28
	4.56	4.45	4.27	4.03	3.64	5.17	4.99	4.49	4.76	4.63	4.38	0.47
	4.96	4.76	4.52	4.25	3.79	5.52	5.27	4.74	5.14	4.94	4.65	0.53 1.91
	5.73	5.48	5.20	5.01	4.44	6.35	6.01	5.59	5.92	5.64	5.34	2.70
FRG 511 	2.89	2.89	2.89	2.89	2.89	2.89	2.89	2.89	2.89	2.89	2.89	0.29
	4.61	4.49	4.33	4.23	3.99	5.22	5.05	4.80	4.80	4.67	4.49	0.56
	5.01	4.80	4.57	4.44	4.16	5.58	5.32	5.03	5.19	4.98	4.72	0.61 2.16
	5.78	5.53	5.24	5.09	4.82	6.44	6.08	5.69	5.98	5.71	5.39	3.06



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
8613	12.45	7.55	3.93	14.74	1411	1587	1423	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
1141	2	691	1073	6.22	60.0	4.2	1.80
	3	1054	1629	7.44	60.0	4.2	1.80
	4	1321	2130	8.49	60.0	4.2	1.80
	5	1425	2545	8.60	60.0	4.2	1.80

POIDS DU MONTAGE= 248 daN/m²

G1= 48 daN/m²

G2= 200 daN/m²

BETON CHANTIER= 46.0 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

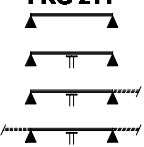
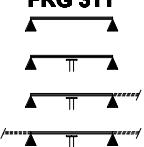
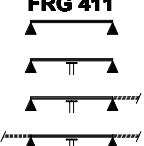
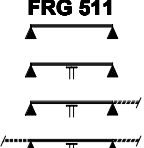
CAS DE CHARGE [daN/m²]

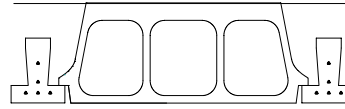
CAS DE CHARGE [daN/m ²]											Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1

PORTEES LIMITES AU TRANCHANT [m]

Limite V _{bu}	9.60	8.36	7.01	6.34	5.33	11.11	9.46	7.76	10.30	8.87	7.36	τ _{bu} =0.75
Limite V _{pu}	8.58	7.47	6.27	5.67	4.78	9.92	8.45	6.93	9.20	7.93	6.58	τ _{pu} =1.80
Limite V _{cu}	8.64	7.53	6.32	5.71	4.81	10.00	8.52	6.99	9.27	7.99	6.63	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

FRG 211 	3.11	3.11	3.05	2.96	2.81	3.11	3.11	3.11	3.11	3.11	3.10	0.28 0.99
	4.45	4.21	3.86	3.64	3.30	4.74	4.45	4.05	4.59	4.32	3.95	
	4.93	4.58	4.12	3.86	3.44	5.22	4.81	4.29	5.07	4.69	4.21	
	5.93	5.46	4.88	4.54	4.04	6.22	5.71	5.06	6.08	5.58	4.97	
FRG 311 	3.72	3.72	3.72	3.66	3.47	3.72	3.72	3.72	3.72	3.72	3.72	0.40 1.42
	5.10	4.99	4.76	4.49	4.07	5.69	5.50	4.99	5.28	5.16	4.87	
	5.48	5.29	5.07	4.75	4.24	6.09	5.82	5.29	5.67	5.46	5.18	
	6.30	6.04	5.74	5.57	4.97	6.99	6.62	6.21	6.51	6.23	5.89	
FRG 411 	4.25	4.25	4.22	4.10	3.89	4.25	4.25	4.25	4.25	4.25	4.25	0.47 1.65
	5.17	5.05	4.88	4.78	4.54	5.76	5.59	5.36	5.36	5.23	5.05	
	5.55	5.36	5.13	5.00	4.73	6.19	5.90	5.57	5.74	5.53	5.27	
	6.42	6.14	5.82	5.66	5.39	7.13	6.74	6.32	6.63	6.32	5.98	
FRG 511 	4.30	4.30	4.30	4.26	4.03	4.30	4.30	4.30	4.30	4.30	4.30	0.47 1.65
	5.21	5.09	4.94	4.82	4.54	5.83	5.65	5.41	5.41	5.27	5.09	
	5.61	5.42	5.18	5.05	4.73	6.26	5.98	5.64	5.82	5.59	5.32	
	6.49	6.21	5.89	5.73	5.44	7.24	6.84	6.40	6.73	6.41	6.05	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
9979	13.41	6.59	3.03	14.71	1553	2071	2131	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
1515	3	1041	1612	6.73	60.0	4.2	1.80
	4	1287	2107	7.02	60.0	4.2	1.80
	5	1497	2573	7.35	60.0	4.2	1.80
	6	1530	2930	7.21	60.0	4.2	1.80

POIDS DU MONTAGE= 225 daN/m²

G1= 33 daN/m²

G2= 192 daN/m²

BETON CHANTIER= 35.8 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



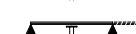

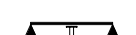


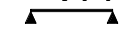




CAS DE CHARGE [daN/m²]

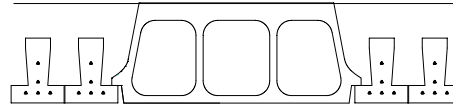
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	7.72	6.70	5.60	5.06	4.26	8.97	7.60	6.21	8.30	7.12	5.89	τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	7.72	6.70	5.60	5.06	4.26	8.97	7.60	6.21	8.30	7.12	5.89	
Limite V _{pu}	5.87	5.11	4.29	3.88	3.28	6.81	5.79	4.74	6.31	5.42	4.50	
Limite V _{cu}	7.94	6.88	5.76	5.20	4.37	9.22	7.82	6.38	8.53	7.32	6.05	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	3.36	3.35	3.17	3.06	2.87	3.36	3.36	3.29	3.36	3.36	3.22	0.44 1.61 2.30
FRG 313	3.36	3.35	3.17	3.06	2.87	3.36	3.36	3.29	3.36	3.36	3.22	
	4.44	4.09	3.68	3.47	3.13	4.79	4.35	3.87	4.61	4.21	3.77	
	4.90	4.44	3.92	3.66	3.27	5.26	4.68	4.09	5.08	4.56	4.00	
	5.65	5.29	4.64	4.31	3.83	6.24	5.56	4.81	5.83	5.42	4.72	
FRG 413	3.51	3.51	3.51	3.40	3.19	3.51	3.51	3.51	3.51	3.51	3.51	0.53 1.89 2.61
	4.57	4.46	4.21	3.96	3.58	5.17	4.96	4.42	4.76	4.63	4.31	
	4.96	4.76	4.48	4.19	3.73	5.52	5.27	4.67	5.14	4.94	4.57	
	5.72	5.48	5.20	4.93	4.37	6.34	6.00	5.50	5.91	5.64	5.33	
FRG 513	3.67	3.67	3.67	3.67	3.44	3.67	3.67	3.67	3.67	3.67	3.67	0.60 2.13 3.07
	4.61	4.49	4.34	4.24	3.96	5.23	5.05	4.82	4.82	4.68	4.49	
	5.01	4.81	4.57	4.44	4.12	5.59	5.33	5.03	5.19	4.99	4.72	
	5.78	5.53	5.24	5.10	4.83	6.44	6.08	5.70	5.98	5.71	5.39	
FRG 613	3.60	3.60	3.60	3.60	3.48	3.60	3.60	3.60	3.60	3.60	3.60	0.62 2.21 3.12
	4.65	4.52	4.36	4.26	4.04	5.25	5.09	4.85	4.85	4.71	4.52	
	5.05	4.84	4.60	4.47	4.20	5.63	5.36	5.07	5.23	5.02	4.74	
	5.82	5.57	5.28	5.13	4.86	6.49	6.13	5.74	6.03	5.74	5.43	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
8665	12.39	7.61	2.85	14.62	1483	1635	1617	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
1138	3	978	1588	10.01	60.0	4.2	1.80
	4	1210	2063	10.44	60.0	4.2	1.80
	5	1408	2504	10.94	60.0	4.2	1.80
	6	1438	2832	10.73	60.0	4.2	1.80

POIDS DU MONTAGE= 248 daN/m²

G1= 56 daN/m²

G2= 192 daN/m²

BETON CHANTIER= 42.6 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m²]

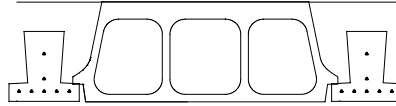
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	9.88	8.60	7.21	6.52	5.48	11.44	9.74	7.98	10.60	9.13	7.57	
Limite V _{pu}	9.00	7.83	6.57	5.94	5.00	10.41	8.87	7.27	9.65	8.32	6.90	
Limite V _{cu}	9.78	8.51	7.13	6.45	5.42	11.31	9.63	7.90	10.49	9.03	7.49	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 313												
	4.37	4.19	3.96	3.83	3.59	4.57	4.37	4.11	4.46	4.27	4.03	0.27
	5.11	4.99	4.70	4.43	4.01	5.70	5.40	4.93	5.29	5.17	4.81	0.34
	5.48	5.30	5.02	4.69	4.19	6.09	5.82	5.22	5.68	5.47	5.12	0.39 1.39
	6.30	6.05	5.74	5.53	4.91	6.99	6.63	6.16	6.51	6.23	5.90	1.92
FRG 413												
	4.85	4.66	4.40	4.25	4.00	5.08	4.85	4.57	4.96	4.75	4.48	0.33
	5.17	5.05	4.88	4.78	4.55	5.77	5.59	5.36	5.36	5.23	5.05	0.43
	5.55	5.36	5.13	5.00	4.75	6.19	5.90	5.58	5.75	5.53	5.27	0.47 1.66
	6.41	6.13	5.82	5.65	5.38	7.13	6.74	6.32	6.63	6.32	5.98	2.18
FRG 513												
	5.22	5.02	4.75	4.59	4.31	5.47	5.24	4.93	5.35	5.13	4.84	0.39
	5.22	5.10	4.94	4.83	4.55	5.84	5.65	5.42	5.42	5.28	5.10	0.43
	5.62	5.42	5.19	5.05	4.75	6.26	5.98	5.65	5.82	5.59	5.33	0.47 1.66
	6.49	6.22	5.90	5.73	5.44	7.25	6.84	6.40	6.73	6.42	6.05	2.23
FRG 613												
	5.24	5.08	4.80	4.64	4.36	5.36	5.29	4.98	5.36	5.18	4.89	0.40
	5.24	5.13	4.97	4.86	4.55	5.89	5.70	5.46	5.46	5.31	5.13	0.43
	5.66	5.46	5.22	5.08	4.75	6.32	6.02	5.69	5.86	5.63	5.36	0.47 1.66
	6.55	6.26	5.94	5.76	5.48	7.31	6.90	6.46	6.78	6.47	6.10	2.26



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
12418	12.86	7.14	2.58	14.53	2607	2432	2910	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
1738	5	1573	2603	7.91	60.0	4.2	1.80
	6	1920	3151	8.21	60.0	4.2	1.80
	7	2145	3608	8.75	60.0	4.2	1.80
	8	2124	3895	8.41	60.0	4.2	1.80

POIDS DU MONTAGE= 235 daN/m²

G1= 47 daN/m²

G2= 188 daN/m²

BETON CHANTIER= 36.3 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}

CAS DE CHARGE [daN/m²]

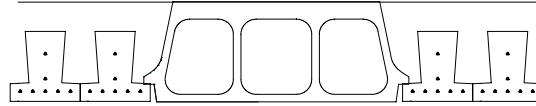
CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{bu}	8.48	7.37	6.17	5.58	4.69	9.84	8.36	6.84	9.11	7.83	6.49	
Limite V _{pu}	9.07	7.87	6.59	5.95	5.00	10.52	8.93	7.30	9.74	8.37	6.93	
Limite V _{cu}	10.08	8.75	7.32	6.61	5.55	11.70	9.93	8.11	10.83	9.30	7.69	

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												
FRG 514R 	3.95	3.95	3.91	3.77	3.53	3.95	3.95	3.95	3.95	3.95	3.95	0.64 2.28
	4.82	4.70	4.53	4.28	3.87	5.42	5.24	4.77	5.02	4.88	4.65	
	5.21	5.02	4.78	4.53	4.04	5.78	5.53	5.05	5.39	5.19	4.94	
	5.99	5.73	5.45	5.29	4.73	6.65	6.30	5.90	6.19	5.91	5.59	
FRG 614R 	4.11	4.11	4.11	4.11	3.90	4.11	4.11	4.11	4.11	4.11	4.11	0.72 2.57
	4.88	4.74	4.58	4.47	4.23	5.48	5.30	5.07	5.07	4.94	4.74	
	5.26	5.07	4.83	4.69	4.41	5.86	5.59	5.28	5.45	5.23	4.99	
	6.07	5.80	5.50	5.34	5.09	6.74	6.38	5.98	6.28	5.98	5.65	
FRG 714R 	4.37	4.37	4.37	4.37	4.12	4.37	4.37	4.37	4.37	4.37	4.37	0.72 2.57
	4.92	4.78	4.61	4.51	4.23	5.51	5.34	5.11	5.11	4.97	4.78	
	5.30	5.11	4.87	4.72	4.41	5.92	5.64	5.32	5.49	5.28	5.03	
	6.13	5.86	5.55	5.39	5.13	6.82	6.46	6.03	6.34	6.04	5.71	
FRG 814R 	4.20	4.20	4.20	4.20	4.10	4.20	4.20	4.20	4.20	4.20	4.20	0.72 2.57
	4.93	4.80	4.63	4.53	4.23	5.53	5.36	5.13	5.13	4.99	4.80	
	5.32	5.13	4.88	4.74	4.41	5.94	5.66	5.34	5.51	5.29	5.04	
	6.15	5.88	5.57	5.41	5.15	6.86	6.48	6.05	6.37	6.07	5.73	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
10844	11.95	8.05	2.42	14.42	2480	2001	2180	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
1347	5	1478	2543	11.43	60.0	4.2	1.80
	6	1804	3064	11.87	60.0	4.2	1.80
	7	2015	3490	12.64	60.0	4.2	1.80
	8	1996	3741	12.15	60.0	4.2	1.80

POIDS DU MONTAGE= 264 daN/m²

G1= 77 daN/m²

G2= 187 daN/m²

BETON CHANTIER= 43.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}



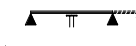
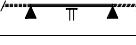

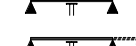

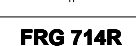
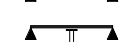

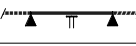


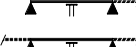
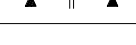

CAS DE CHARGE [daN/m²]

CAS DE CHARGE [daN/m ²]												Section
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	sur appui cm ² HA / p FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

PORTEES LIMITES AU TRANCHANT [m]												τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69	
Limite V _{bu}	10.88	9.49	7.97	7.21	6.07	12.55	10.72	8.81	11.65	10.06	8.37		τ _{bu} =0.75 τ _{pu} =1.80 τ _{cu} =0.69
Limite V _{pu}	13.40	11.68	9.80	8.86	7.45	15.48	13.21	10.85	14.37	12.40	10.30		
Limite V _{cu}	11.82	10.30	8.66	7.83	6.59	13.64	11.65	9.57	12.67	10.93	9.09		

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)												0.57 2.00	
FRG 514R    	5.31	5.08	4.79	4.62	4.33	5.58	5.31	4.98	5.44	5.20	4.88		0.57 2.00
	5.37	5.24	5.09	4.99	4.76	6.00	5.81	5.57	5.57	5.44	5.24		
	5.78	5.58	5.34	5.21	4.97	6.44	6.15	5.80	5.98	5.76	5.49		
	6.67	6.38	6.05	5.88	5.61	7.42	7.01	6.57	6.90	6.58	6.23	2.61	
FRG 614R    	5.44	5.30	5.15	5.05	4.78	5.93	5.87	5.50	5.64	5.49	5.30	0.57 2.00	
	5.44	5.30	5.15	5.05	4.76	6.09	5.89	5.64	5.64	5.49	5.30		
	5.86	5.65	5.40	5.26	4.98	6.53	6.23	5.88	6.07	5.83	5.55		
	6.77	6.48	6.15	5.96	5.67	7.55	7.13	6.68	7.01	6.69	6.31	2.66	
FRG 714R    	5.48	5.35	5.19	5.09	4.90	6.15	5.94	5.69	5.69	5.54	5.35	0.57 2.00	
	5.48	5.35	5.19	5.09	4.76	6.15	5.94	5.69	5.69	5.54	5.35		
	5.91	5.70	5.45	5.30	4.98	6.61	6.30	5.94	6.13	5.88	5.60		
	6.85	6.55	6.21	6.01	5.73	7.65	7.23	6.74	7.09	6.76	6.38	2.72	
FRG 814R    	5.49	5.36	5.21	5.10	4.92	6.08	5.96	5.71	5.71	5.55	5.36	0.57 2.00	
	5.49	5.36	5.21	5.10	4.76	6.17	5.96	5.71	5.71	5.55	5.36		
	5.93	5.72	5.46	5.32	4.98	6.63	6.32	5.96	6.15	5.90	5.62		
	6.88	6.57	6.23	6.03	5.74	7.69	7.25	6.78	7.13	6.78	6.40	2.75	



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
12418	12.86	7.14	1.80	14.53	2607	2774	3793	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
1738	6	1665	2988	9.32	60.0	4.2	1.80
	7	1894	3446	9.99	60.0	4.2	1.80
	8	2122	3895	10.53	60.0	4.2	1.80

POIDS DU MONTAGE= 235 daN/m²

G1= 56 daN/m²

G2= 179 daN/m²

BETON CHANTIER= 32.5 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}







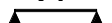


CAS DE CHARGE [daN/m²]

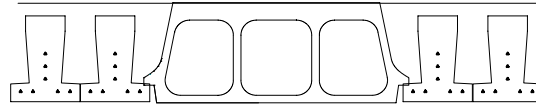
	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	9.63	8.36	6.99	6.31	5.30	11.17	9.48	7.75	10.34	8.88	7.35	τ _{bu} =0.75
Limite V _{bu}	9.63	8.36	6.99	6.31	5.30	11.17	9.48	7.75	10.34	8.88	7.35	τ _{bu} =0.75
Limite V _{pu}	9.07	7.87	6.59	5.95	5.00	10.52	8.93	7.30	9.74	8.37	6.93	τ _{pu} =1.80
Limite V _{cu}	13.04	11.30	9.44	8.51	7.13	15.15	12.84	10.47	14.02	12.02	9.93	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	4.66	4.66	4.34	4.16	3.85	4.66	4.66	4.55	4.66	4.66	4.44	0.55
FRG 617R	4.66	4.66	4.34	4.16	3.85	4.66	4.66	4.55	4.66	4.66	4.44	0.55
	4.88	4.74	4.59	4.48	4.11	5.48	5.30	4.98	5.08	4.95	4.74	0.63
	5.26	5.08	4.84	4.69	4.29	5.88	5.60	5.27	5.46	5.24	4.99	0.69 2.47
	6.07	5.80	5.51	5.35	5.03	6.76	6.40	5.98	6.28	5.99	5.66	3.48
FRG 717R	4.92	4.78	4.62	4.44	4.11	4.99	4.99	4.85	4.99	4.99	4.74	0.63
	4.92	4.78	4.62	4.51	4.25	5.53	5.35	5.12	5.12	4.99	4.78	0.67
	5.30	5.12	4.88	4.72	4.43	5.93	5.65	5.33	5.49	5.28	5.03	0.73 2.60
	6.13	5.86	5.55	5.40	5.13	6.84	6.46	6.04	6.34	6.05	5.71	3.67
FRG 817R	4.96	4.82	4.65	4.55	4.35	5.26	5.26	5.13	5.16	5.02	4.82	0.71
	4.96	4.82	4.65	4.55	4.25	5.57	5.40	5.16	5.16	5.02	4.82	0.67
	5.34	5.15	4.92	4.76	4.43	5.98	5.70	5.38	5.54	5.32	5.07	0.73 2.60
	6.19	5.92	5.61	5.44	5.17	6.92	6.53	6.10	6.42	6.11	5.76	3.74



CARACTERISTIQUES DU MONTAGE

I [cm ⁴]	V _i [cm]	V _s [cm]	α	z [cm]	V _{pu} [daN]	V _{bu} [daN]	V _{cu} [daN]	k _a
10844	11.95	8.05	1.69	14.42	2480	2340	2808	1.15

FLEXION				POSE 2 ETAIS			
M _b	m	M _{fl}	M _{RA}	si L > à	fc28	ft28	τ _{pu}
1347	6	1565	2901	13.46	60.0	4.2	1.80
	7	1780	3328	14.43	60.0	4.2	1.80
	8	1994	3741	15.21	60.0	4.2	1.80

POIDS DU MONTAGE= 264 daN/m²

G1= 92 daN/m²

G2= 172 daN/m²

BETON CHANTIER= 37.3 Litres/m²

CHARGE DE CHANTIER MAXI {50 daN/ml , 100 daN}


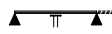







CAS DE CHARGE [daN/m²]

	100	100	100	100	100	0	0	0	100	100	100	Section sur appui cm ² HA / p FeE400
CLOISONS	100	100	100	100	100	0	0	0	100	100	100	FeE400
REV.SOLS.	200	200	200	200	200	200	200	200	150	150	150	
CH. EXPL.	150	250	400	500	700	150	250	400	150	250	400	
L. FLECHE	1	1	1	1	1	1	1	1	1	1	1	

PORTEES LIMITES AU TRANCHANT [m]

	12.67	11.04	9.27	8.38	7.05	14.62	12.48	10.25	13.57	11.71	9.73	τ _{bu} =0.75
Limite V _{bu}	12.67	11.04	9.27	8.38	7.05	14.62	12.48	10.25	13.57	11.71	9.73	τ _{bu} =0.75
Limite V _{pu}	13.40	11.68	9.80	8.86	7.45	15.48	13.21	10.85	14.37	12.40	10.30	τ _{pu} =1.80
Limite V _{cu}	15.13	13.18	11.05	9.99	8.39	17.48	14.91	12.23	16.22	13.99	11.61	τ _{cu} =0.69

PORTEES LIMITES EN FLEXION ET DEFORMATION [m] (Stockage normal)

	5.46	5.32	5.17	5.07	4.74	6.11	5.92	5.58	5.67	5.51	5.32	0.52
FRG 617R	5.46	5.32	5.17	5.07	4.74	6.11	5.92	5.58	5.67	5.51	5.32	0.52
	5.46	5.32	5.17	5.07	4.80	6.11	5.92	5.67	5.67	5.51	5.32	0.53
	5.88	5.67	5.42	5.28	5.01	6.57	6.26	5.90	6.09	5.86	5.57	0.58 2.04
	6.80	6.49	6.16	5.98	5.69	7.59	7.17	6.71	7.03	6.71	6.33	2.68
FRG 717R	5.49	5.37	5.21	5.11	4.92	6.18	5.98	5.71	5.71	5.56	5.37	0.56
	5.49	5.37	5.21	5.11	4.80	6.18	5.98	5.71	5.71	5.56	5.37	0.53
	5.93	5.72	5.46	5.32	5.01	6.65	6.32	5.96	6.15	5.91	5.62	0.58 2.04
	6.88	6.57	6.23	6.03	5.73	7.69	7.26	6.78	7.13	6.78	6.40	2.74
FRG 817R	5.54	5.42	5.24	5.15	4.96	6.24	6.03	5.76	5.76	5.61	5.42	0.57
	5.54	5.42	5.24	5.15	4.80	6.24	6.03	5.76	5.76	5.61	5.42	0.53
	5.98	5.76	5.51	5.36	5.01	6.72	6.40	6.01	6.21	5.97	5.67	0.58 2.04
	6.96	6.65	6.28	6.09	5.78	7.80	7.35	6.86	7.22	6.86	6.47	2.79