

1. COLONNA-10

Resistenza della colonna con FRP (flessione deviata)

(EC2 EN1992-1-1:2004, UNI EN1990-1-1:2004,)

$b = 0.500 \text{ m}$, $h = 0.500 \text{ m}$

$A_s = 4\phi 20 + 8\phi 18$ (32.88 cm^2)

FRP+epoxy, $t(\text{FRP}) = 1.00 \text{ mm}$

Classe del CA : C25/30-B450C (EC2 §4.4.1)

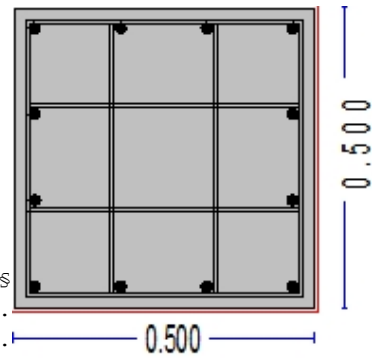
Classe di esposizione ambientale : XC1 (EC2 §4.4.1)

Copriferro : $C_{nom} = 20 \text{ mm}$ (EC2 §4.4.1)

$\gamma_c = 1.50$, $\gamma_s = 1.15$ (EC2 Tabella 2.1)

$f_{cd} = \alpha_{cc} \cdot f_{ck} / \gamma_c = 0.85 \times 25 / 1.50 = 14.17 \text{ MPa}$ (EC2 §3.1.6)

$f_{yd} = f_{yk} / \gamma_s = 450 / 1.15 = 391 \text{ MPa}$ (EC2 §3.2.7)



Dimensioni e carichi

Colonna di sezione rettangolare $b = 0.500 \text{ m}$, $h = 0.500 \text{ m}$

Armatura $4\phi 20 + 8\phi 18$ (32.88 cm^2) $A_{stot}/A_c = 1.32\%$

Spessore efficace della sezione $d = h - d_1$, $d_1 = d_2 = C_{nom} + \phi_s + \phi / 2 = 20 + 8 + 20 / 2 = 38 \text{ mm}$, $d_x = 462 \text{ mm}$, $d_y = 462 \text{ mm}$

Carico assiale della colonna con il carico di servizio $N_{osd} = 100.00 \text{ kN}$

Deformazione iniziale a compressione con carico di servizio $\epsilon_{co} = 0.01\%$

Materiale composito (FRP)

Nome caratteristico : FRP+epoxy

Spessore totale : 1.00 mm

Modulo elastico : 100 GPa

Resistenza a trazione : 1000 MPa

1.1. Incremento della resistenza a taglio della colonna

$V_{sf} = a \cdot \epsilon_f \cdot E_f \cdot t_f \cdot b = 2.86 \times 0.002 \times 100.0 \times 1.000 \times 500 = 286 \text{ kN}$

(coefficiente di forma $a = 2.86$, deformazione di progetto effettiva $\epsilon_f = 0.002$)

1.2. Portata della sezione della colonna rinforzata con fasciatura di FRP (flessione deviata)

(EC2 EN1992-1-1:2004, §6.1)

Abaco di calcolo per la portata della
ottenuto da integrazione
numerica usando una
griglia di $10 \times 10 = 100$
suddivisioni della sezione

$b = 0.50 \text{ m}$, $h = 0.50 \text{ m}$

$d_1/h = 0.08$, $d_1/b = 0.08$

$F_e = 4\phi 20 + 8\phi 18$

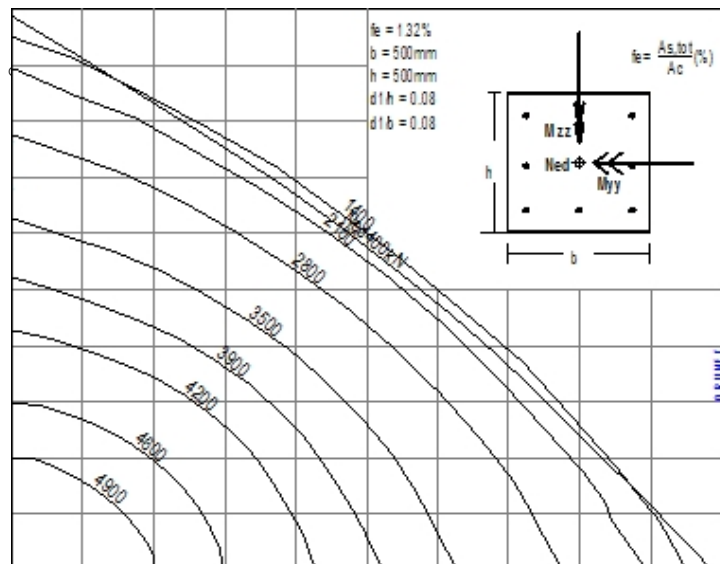
$A_{stot} = (32.88 \text{ cm}^2)$

$A_{stot}/A_c = 1.32\%$

FRP: FRP+epoxy

FRP: $t = 1.00 \text{ mm}$

FRP: $E_f = 100 \text{ GPa}$



pendenza dell'asse neutro $\theta=0.00^\circ$				pendenza dell'asse neutro $\theta=7.50^\circ$			
N= 5522	Myy= 1	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/-3.47$)	N= 5523	Myy= 0	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/-3.47$)
N= 5519	Myy= 1	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/-3.44$)	N= 5520	Myy= 1	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/-3.45$)
N= 5512	Myy= 2	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/-3.37$)	N= 5515	Myy= 2	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/-3.40$)
N= 5491	Myy= 6	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/-3.18$)	N= 5498	Myy= 4	Mzz= 1	($\epsilon c2/\epsilon s1=-3.50/-3.24$)
N= 5456	Myy= 12	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/-2.85$)	N= 5470	Myy= 8	Mzz= 1	($\epsilon c2/\epsilon s1=-3.50/-2.99$)
N= 5409	Myy= 19	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/-2.42$)	N= 5433	Myy= 14	Mzz= 2	($\epsilon c2/\epsilon s1=-3.50/-2.64$)
N= 4060	Myy= 260	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/-0.27$)	N= 4865	Myy= 115	Mzz= 18	($\epsilon c2/\epsilon s1=-3.50/-0.93$)
N= 3832	Myy= 298	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/-0.10$)	N= 4754	Myy= 134	Mzz= 20	($\epsilon c2/\epsilon s1=-3.50/-0.80$)
N= 3629	Myy= 327	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/ 0.09$)	N= 4620	Myy= 157	Mzz= 23	($\epsilon c2/\epsilon s1=-3.50/-0.65$)
N= 3383	Myy= 362	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/ 0.30$)	N= 4454	Myy= 185	Mzz= 26	($\epsilon c2/\epsilon s1=-3.50/-0.48$)
N= 3159	Myy= 388	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/ 0.54$)	N= 4248	Myy= 219	Mzz= 30	($\epsilon c2/\epsilon s1=-3.50/-0.29$)
N= 2876	Myy= 419	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/ 0.81$)	N= 3988	Myy= 261	Mzz= 35	($\epsilon c2/\epsilon s1=-3.50/-0.08$)
N= 2616	Myy= 445	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/ 1.12$)	N= 3686	Myy= 305	Mzz= 38	($\epsilon c2/\epsilon s1=-3.50/ 0.17$)
N= 1988	Myy= 502	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/ 1.89$)	N= 3022	Myy= 386	Mzz= 44	($\epsilon c2/\epsilon s1=-3.50/ 0.78$)
N= 1445	Myy= 522	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/ 2.97$)	N= 2248	Myy= 457	Mzz= 50	($\epsilon c2/\epsilon s1=-3.50/ 1.63$)
N= 810	Myy= 536	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/ 4.59$)	N= 1413	Myy= 501	Mzz= 48	($\epsilon c2/\epsilon s1=-3.50/ 2.91$)
N= 125	Myy= 548	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/ 7.28$)	N= 563	Myy= 505	Mzz= 50	($\epsilon c2/\epsilon s1=-3.50/ 5.05$)
(Ned [kN], Med [kNm], $\epsilon c2$ $\epsilon s1$ [o/oo])							

pendenza dell'asse neutro $\theta=10.00^\circ$				pendenza dell'asse neutro $\theta=15.00^\circ$			
N= 5523	Myy= 0	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/-3.47$)	N= 5523	Myy= 0	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/-3.47$)
N= 5520	Myy= 1	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/-3.45$)	N= 5520	Myy= 1	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/-3.44$)
N= 5514	Myy= 2	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/-3.39$)	N= 5514	Myy= 2	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/-3.39$)
N= 5497	Myy= 4	Mzz= 1	($\epsilon c2/\epsilon s1=-3.50/-3.24$)	N= 5495	Myy= 4	Mzz= 1	($\epsilon c2/\epsilon s1=-3.50/-3.22$)
N= 5469	Myy= 8	Mzz= 1	($\epsilon c2/\epsilon s1=-3.50/-2.97$)	N= 5465	Myy= 8	Mzz= 2	($\epsilon c2/\epsilon s1=-3.50/-2.94$)
N= 5430	Myy= 13	Mzz= 2	($\epsilon c2/\epsilon s1=-3.50/-2.62$)	N= 5425	Myy= 13	Mzz= 4	($\epsilon c2/\epsilon s1=-3.50/-2.57$)
N= 4822	Myy= 121	Mzz= 25	($\epsilon c2/\epsilon s1=-3.50/-0.85$)	N= 4741	Myy= 130	Mzz= 38	($\epsilon c2/\epsilon s1=-3.50/-0.70$)
N= 4705	Myy= 140	Mzz= 28	($\epsilon c2/\epsilon s1=-3.50/-0.71$)	N= 4611	Myy= 151	Mzz= 43	($\epsilon c2/\epsilon s1=-3.50/-0.55$)
N= 4562	Myy= 164	Mzz= 31	($\epsilon c2/\epsilon s1=-3.50/-0.56$)	N= 4449	Myy= 176	Mzz= 50	($\epsilon c2/\epsilon s1=-3.50/-0.39$)
N= 4386	Myy= 193	Mzz= 36	($\epsilon c2/\epsilon s1=-3.50/-0.38$)	N= 4250	Myy= 207	Mzz= 58	($\epsilon c2/\epsilon s1=-3.50/-0.21$)
N= 4166	Myy= 228	Mzz= 42	($\epsilon c2/\epsilon s1=-3.50/-0.19$)	N= 4007	Myy= 243	Mzz= 67	($\epsilon c2/\epsilon s1=-3.50/ 0.00$)
N= 3894	Myy= 270	Mzz= 48	($\epsilon c2/\epsilon s1=-3.50/ 0.03$)	N= 3726	Myy= 283	Mzz= 75	($\epsilon c2/\epsilon s1=-3.50/ 0.23$)
N= 3587	Myy= 313	Mzz= 52	($\epsilon c2/\epsilon s1=-3.50/ 0.28$)	N= 3413	Myy= 324	Mzz= 80	($\epsilon c2/\epsilon s1=-3.50/ 0.50$)
N= 2916	Myy= 391	Mzz= 59	($\epsilon c2/\epsilon s1=-3.50/ 0.92$)	N= 2722	Myy= 396	Mzz= 89	($\epsilon c2/\epsilon s1=-3.50/ 1.17$)
N= 2126	Myy= 459	Mzz= 67	($\epsilon c2/\epsilon s1=-3.50/ 1.80$)	N= 1917	Myy= 456	Mzz= 98	($\epsilon c2/\epsilon s1=-3.50/ 2.10$)
N= 1299	Myy= 496	Mzz= 64	($\epsilon c2/\epsilon s1=-3.50/ 3.12$)	N= 1062	Myy= 476	Mzz= 102	($\epsilon c2/\epsilon s1=-3.50/ 3.50$)
N= 427	Myy= 490	Mzz= 70	($\epsilon c2/\epsilon s1=-3.50/ 5.33$)	N= 147	Myy= 452	Mzz= 111	($\epsilon c2/\epsilon s1=-3.50/ 5.84$)
(Ned [kN], Med [kNm], $\epsilon c2$ $\epsilon s1$ [o/oo])							

pendenza dell'asse neutro $\theta=22.50^\circ$				pendenza dell'asse neutro $\theta=30.00^\circ$			
N= 5522	Myy= 0	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/-3.47$)	N= 5522	Myy= 0	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/-3.47$)
N= 5519	Myy= 1	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/-3.44$)	N= 5519	Myy= 1	Mzz= 0	($\epsilon c2/\epsilon s1=-3.50/-3.44$)
N= 5513	Myy= 2	Mzz= 1	($\epsilon c2/\epsilon s1=-3.50/-3.38$)	N= 5512	Myy= 1	Mzz= 1	($\epsilon c2/\epsilon s1=-3.50/-3.38$)
N= 5493	Myy= 4	Mzz= 2	($\epsilon c2/\epsilon s1=-3.50/-3.20$)	N= 5492	Myy= 4	Mzz= 2	($\epsilon c2/\epsilon s1=-3.50/-3.19$)
N= 5461	Myy= 8	Mzz= 3	($\epsilon c2/\epsilon s1=-3.50/-2.90$)	N= 5458	Myy= 7	Mzz= 4	($\epsilon c2/\epsilon s1=-3.50/-2.88$)
N= 5418	Myy= 13	Mzz= 5	($\epsilon c2/\epsilon s1=-3.50/-2.50$)	N= 5413	Myy= 12	Mzz= 7	($\epsilon c2/\epsilon s1=-3.50/-2.46$)
N= 4630	Myy= 139	Mzz= 62	($\epsilon c2/\epsilon s1=-3.50/-0.51$)	N= 4543	Myy= 142	Mzz= 85	($\epsilon c2/\epsilon s1=-3.50/-0.38$)
N= 4479	Myy= 161	Mzz= 71	($\epsilon c2/\epsilon s1=-3.50/-0.35$)	N= 4383	Myy= 164	Mzz= 98	($\epsilon c2/\epsilon s1=-3.50/-0.21$)
N= 4296	Myy= 188	Mzz= 81	($\epsilon c2/\epsilon s1=-3.50/-0.18$)	N= 4186	Myy= 191	Mzz= 111	($\epsilon c2/\epsilon s1=-3.50/-0.03$)
N= 4076	Myy= 220	Mzz= 93	($\epsilon c2/\epsilon s1=-3.50/ 0.02$)	N= 3956	Myy= 221	Mzz= 126	($\epsilon c2/\epsilon s1=-3.50/ 0.18$)
N= 3820	Myy= 254	Mzz= 104	($\epsilon c2/\epsilon s1=-3.50/ 0.23$)	N= 3688	Myy= 251	Mzz= 141	($\epsilon c2/\epsilon s1=-3.50/ 0.40$)
N= 3529	Myy= 291	Mzz= 114	($\epsilon c2/\epsilon s1=-3.50/ 0.48$)	N= 3385	Myy= 283	Mzz= 154	($\epsilon c2/\epsilon s1=-3.50/ 0.67$)
N= 3208	Myy= 327	Mzz= 121	($\epsilon c2/\epsilon s1=-3.50/ 0.77$)	N= 3049	Myy= 314	Mzz= 166	($\epsilon c2/\epsilon s1=-3.50/ 0.96$)
N= 2474	Myy= 391	Mzz= 137	($\epsilon c2/\epsilon s1=-3.50/ 1.48$)	N= 2276	Myy= 369	Mzz= 188	($\epsilon c2/\epsilon s1=-3.50/ 1.71$)
N= 1632	Myy= 433	Mzz= 150	($\epsilon c2/\epsilon s1=-3.50/ 2.48$)	N= 1401	Myy= 396	Mzz= 204	($\epsilon c2/\epsilon s1=-3.50/ 2.75$)
N= 738	Myy= 433	Mzz= 155	($\epsilon c2/\epsilon s1=-3.50/ 3.97$)	N= 494	Myy= 383	Mzz= 208	($\epsilon c2/\epsilon s1=-3.50/ 4.31$)
(Ned [kN], Med [kNm], $\epsilon c2$ $\epsilon s1$ [o/oo])							

pendenza dell'asse neutro $\theta=37.50^\circ$

N= 5522 Myy= 0 Mzz= 0 ($\epsilon c2/\epsilon s1=-3.50/-3.47$)
 N= 5519 Myy= 1 Mzz= 0 ($\epsilon c2/\epsilon s1=-3.50/-3.44$)
 N= 5512 Myy= 1 Mzz= 1 ($\epsilon c2/\epsilon s1=-3.50/-3.37$)
 N= 5491 Myy= 3 Mzz= 2 ($\epsilon c2/\epsilon s1=-3.50/-3.18$)
 N= 5457 Myy= 7 Mzz= 5 ($\epsilon c2/\epsilon s1=-3.50/-2.86$)
 N= 5410 Myy= 11 Mzz= 8 ($\epsilon c2/\epsilon s1=-3.50/-2.43$)
 N= 4492 Myy= 137 Mzz= 105 ($\epsilon c2/\epsilon s1=-3.50/-0.29$)
 N= 4320 Myy= 158 Mzz= 122 ($\epsilon c2/\epsilon s1=-3.50/-0.12$)
 N= 4117 Myy= 182 Mzz= 140 ($\epsilon c2/\epsilon s1=-3.50/ 0.06$)
 N= 3878 Myy= 208 Mzz= 159 ($\epsilon c2/\epsilon s1=-3.50/ 0.27$)
 N= 3605 Myy= 235 Mzz= 177 ($\epsilon c2/\epsilon s1=-3.50/ 0.51$)
 N= 3298 Myy= 262 Mzz= 195 ($\epsilon c2/\epsilon s1=-3.50/ 0.78$)
 N= 2953 Myy= 289 Mzz= 211 ($\epsilon c2/\epsilon s1=-3.50/ 1.08$)
 N= 2145 Myy= 334 Mzz= 240 ($\epsilon c2/\epsilon s1=-3.50/ 1.84$)
 N= 1246 Myy= 353 Mzz= 257 ($\epsilon c2/\epsilon s1=-3.50/ 2.91$)
 N= 332 Myy= 335 Mzz= 254 ($\epsilon c2/\epsilon s1=-3.50/ 4.52$)
 (Ned [kN], Med [kNm], $\epsilon c2$ $\epsilon s1$ [o/oo])

pendenza dell'asse neutro $\theta=45.00^\circ$

N= 5522 Myy= 0 Mzz= 0 ($\epsilon c2/\epsilon s1=-3.50/-3.47$)
 N= 5519 Myy= 1 Mzz= 1 ($\epsilon c2/\epsilon s1=-3.50/-3.44$)
 N= 5512 Myy= 1 Mzz= 1 ($\epsilon c2/\epsilon s1=-3.50/-3.37$)
 N= 5491 Myy= 3 Mzz= 3 ($\epsilon c2/\epsilon s1=-3.50/-3.18$)
 N= 5456 Myy= 6 Mzz= 6 ($\epsilon c2/\epsilon s1=-3.50/-2.85$)
 N= 5409 Myy= 10 Mzz= 10 ($\epsilon c2/\epsilon s1=-3.50/-2.42$)
 N= 4471 Myy= 124 Mzz= 124 ($\epsilon c2/\epsilon s1=-3.50/-0.27$)
 N= 4296 Myy= 143 Mzz= 143 ($\epsilon c2/\epsilon s1=-3.50/-0.10$)
 N= 4090 Myy= 165 Mzz= 165 ($\epsilon c2/\epsilon s1=-3.50/ 0.09$)
 N= 3852 Myy= 187 Mzz= 187 ($\epsilon c2/\epsilon s1=-3.50/ 0.30$)
 N= 3579 Myy= 210 Mzz= 210 ($\epsilon c2/\epsilon s1=-3.50/ 0.54$)
 N= 3264 Myy= 232 Mzz= 232 ($\epsilon c2/\epsilon s1=-3.50/ 0.81$)
 N= 2912 Myy= 253 Mzz= 253 ($\epsilon c2/\epsilon s1=-3.50/ 1.12$)
 N= 2094 Myy= 290 Mzz= 290 ($\epsilon c2/\epsilon s1=-3.50/ 1.89$)
 N= 1180 Myy= 308 Mzz= 308 ($\epsilon c2/\epsilon s1=-3.50/ 2.97$)
 N= 266 Myy= 294 Mzz= 294 ($\epsilon c2/\epsilon s1=-3.50/ 4.58$)

pendenza dell'asse neutro $\theta=52.50^\circ$

N= 5522 Myy= 0 Mzz= 0 ($\epsilon c2/\epsilon s1=-3.50/-3.47$)
 N= 5519 Myy= 0 Mzz= 1 ($\epsilon c2/\epsilon s1=-3.50/-3.44$)
 N= 5512 Myy= 1 Mzz= 1 ($\epsilon c2/\epsilon s1=-3.50/-3.37$)
 N= 5491 Myy= 2 Mzz= 3 ($\epsilon c2/\epsilon s1=-3.50/-3.18$)
 N= 5457 Myy= 5 Mzz= 7 ($\epsilon c2/\epsilon s1=-3.50/-2.86$)
 N= 5410 Myy= 8 Mzz= 11 ($\epsilon c2/\epsilon s1=-3.50/-2.43$)
 N= 4492 Myy= 105 Mzz= 137 ($\epsilon c2/\epsilon s1=-3.50/-0.29$)
 N= 4320 Myy= 122 Mzz= 158 ($\epsilon c2/\epsilon s1=-3.50/-0.12$)
 N= 4117 Myy= 140 Mzz= 182 ($\epsilon c2/\epsilon s1=-3.50/ 0.06$)
 N= 3878 Myy= 159 Mzz= 208 ($\epsilon c2/\epsilon s1=-3.50/ 0.27$)
 N= 3605 Myy= 177 Mzz= 235 ($\epsilon c2/\epsilon s1=-3.50/ 0.51$)
 N= 3298 Myy= 195 Mzz= 262 ($\epsilon c2/\epsilon s1=-3.50/ 0.78$)
 N= 2953 Myy= 211 Mzz= 289 ($\epsilon c2/\epsilon s1=-3.50/ 1.08$)
 N= 2145 Myy= 240 Mzz= 334 ($\epsilon c2/\epsilon s1=-3.50/ 1.84$)
 N= 1246 Myy= 257 Mzz= 353 ($\epsilon c2/\epsilon s1=-3.50/ 2.91$)
 N= 332 Myy= 254 Mzz= 335 ($\epsilon c2/\epsilon s1=-3.50/ 4.52$)
 (Ned [kN], Med [kNm], $\epsilon c2$ $\epsilon s1$ [o/oo])

pendenza dell'asse neutro $\theta=60.00^\circ$

N= 5522 Myy= 0 Mzz= 0 ($\epsilon c2/\epsilon s1=-3.50/-3.47$)
 N= 5519 Myy= 0 Mzz= 1 ($\epsilon c2/\epsilon s1=-3.50/-3.44$)
 N= 5512 Myy= 1 Mzz= 1 ($\epsilon c2/\epsilon s1=-3.50/-3.38$)
 N= 5492 Myy= 2 Mzz= 4 ($\epsilon c2/\epsilon s1=-3.50/-3.19$)
 N= 5458 Myy= 4 Mzz= 7 ($\epsilon c2/\epsilon s1=-3.50/-2.88$)
 N= 5413 Myy= 7 Mzz= 12 ($\epsilon c2/\epsilon s1=-3.50/-2.46$)
 N= 4543 Myy= 85 Mzz= 142 ($\epsilon c2/\epsilon s1=-3.50/-0.38$)
 N= 4383 Myy= 98 Mzz= 164 ($\epsilon c2/\epsilon s1=-3.50/-0.21$)
 N= 4186 Myy= 111 Mzz= 191 ($\epsilon c2/\epsilon s1=-3.50/-0.03$)
 N= 3956 Myy= 126 Mzz= 221 ($\epsilon c2/\epsilon s1=-3.50/ 0.18$)
 N= 3688 Myy= 141 Mzz= 251 ($\epsilon c2/\epsilon s1=-3.50/ 0.40$)
 N= 3385 Myy= 154 Mzz= 283 ($\epsilon c2/\epsilon s1=-3.50/ 0.67$)
 N= 3049 Myy= 166 Mzz= 314 ($\epsilon c2/\epsilon s1=-3.50/ 0.96$)
 N= 2276 Myy= 188 Mzz= 369 ($\epsilon c2/\epsilon s1=-3.50/ 1.71$)
 N= 1401 Myy= 204 Mzz= 396 ($\epsilon c2/\epsilon s1=-3.50/ 2.75$)
 N= 494 Myy= 208 Mzz= 383 ($\epsilon c2/\epsilon s1=-3.50/ 4.31$)

pendenza dell'asse neutro $\theta=67.50^\circ$

N= 5522 Myy= 0 Mzz= 0 ($\epsilon c2/\epsilon s1=-3.50/-3.47$)
 N= 5519 Myy= 0 Mzz= 1 ($\epsilon c2/\epsilon s1=-3.50/-3.44$)
 N= 5513 Myy= 1 Mzz= 2 ($\epsilon c2/\epsilon s1=-3.50/-3.38$)
 N= 5493 Myy= 2 Mzz= 4 ($\epsilon c2/\epsilon s1=-3.50/-3.20$)
 N= 5461 Myy= 3 Mzz= 8 ($\epsilon c2/\epsilon s1=-3.50/-2.90$)
 N= 5418 Myy= 5 Mzz= 13 ($\epsilon c2/\epsilon s1=-3.50/-2.50$)
 N= 4630 Myy= 62 Mzz= 139 ($\epsilon c2/\epsilon s1=-3.50/-0.51$)
 N= 4479 Myy= 71 Mzz= 161 ($\epsilon c2/\epsilon s1=-3.50/-0.35$)
 N= 4296 Myy= 81 Mzz= 188 ($\epsilon c2/\epsilon s1=-3.50/-0.18$)
 N= 4076 Myy= 93 Mzz= 220 ($\epsilon c2/\epsilon s1=-3.50/ 0.02$)
 N= 3820 Myy= 104 Mzz= 254 ($\epsilon c2/\epsilon s1=-3.50/ 0.23$)
 N= 3529 Myy= 114 Mzz= 291 ($\epsilon c2/\epsilon s1=-3.50/ 0.48$)
 N= 3208 Myy= 121 Mzz= 327 ($\epsilon c2/\epsilon s1=-3.50/ 0.77$)
 N= 2474 Myy= 137 Mzz= 391 ($\epsilon c2/\epsilon s1=-3.50/ 1.48$)
 N= 1632 Myy= 150 Mzz= 433 ($\epsilon c2/\epsilon s1=-3.50/ 2.48$)
 N= 738 Myy= 155 Mzz= 433 ($\epsilon c2/\epsilon s1=-3.50/ 3.97$)
 (Ned [kN], Med [kNm], $\epsilon c2$ $\epsilon s1$ [o/oo])

pendenza dell'asse neutro $\theta=75.00^\circ$

N= 5523 Myy= 0 Mzz= 0 ($\epsilon c2/\epsilon s1=-3.50/-3.47$)
 N= 5520 Myy= 0 Mzz= 1 ($\epsilon c2/\epsilon s1=-3.50/-3.44$)
 N= 5514 Myy= 0 Mzz= 2 ($\epsilon c2/\epsilon s1=-3.50/-3.39$)
 N= 5495 Myy= 1 Mzz= 4 ($\epsilon c2/\epsilon s1=-3.50/-3.22$)
 N= 5465 Myy= 2 Mzz= 8 ($\epsilon c2/\epsilon s1=-3.50/-2.94$)
 N= 5425 Myy= 4 Mzz= 13 ($\epsilon c2/\epsilon s1=-3.50/-2.57$)
 N= 4741 Myy= 38 Mzz= 130 ($\epsilon c2/\epsilon s1=-3.50/-0.70$)
 N= 4611 Myy= 43 Mzz= 151 ($\epsilon c2/\epsilon s1=-3.50/-0.55$)
 N= 4449 Myy= 50 Mzz= 176 ($\epsilon c2/\epsilon s1=-3.50/-0.39$)
 N= 4250 Myy= 58 Mzz= 207 ($\epsilon c2/\epsilon s1=-3.50/-0.21$)
 N= 4007 Myy= 67 Mzz= 243 ($\epsilon c2/\epsilon s1=-3.50/ 0.00$)
 N= 3726 Myy= 75 Mzz= 283 ($\epsilon c2/\epsilon s1=-3.50/ 0.23$)
 N= 3413 Myy= 80 Mzz= 324 ($\epsilon c2/\epsilon s1=-3.50/ 0.50$)
 N= 2722 Myy= 89 Mzz= 396 ($\epsilon c2/\epsilon s1=-3.50/ 1.17$)
 N= 1917 Myy= 98 Mzz= 456 ($\epsilon c2/\epsilon s1=-3.50/ 2.10$)
 N= 1062 Myy= 102 Mzz= 476 ($\epsilon c2/\epsilon s1=-3.50/ 3.50$)

pendenza dell'asse neutro $\theta=82.50^\circ$				pendenza dell'asse neutro $\theta=90.00^\circ$			
N= 5523	Myy= 0	Mzz= 0	($\varepsilon c2/\varepsilon s1=-3.50/-3.47$)	N= 5522	Myy= 0	Mzz= 1	($\varepsilon c2/\varepsilon s1=-3.50/-3.47$)
N= 5520	Myy= 0	Mzz= 1	($\varepsilon c2/\varepsilon s1=-3.50/-3.45$)	N= 5519	Myy= 0	Mzz= 1	($\varepsilon c2/\varepsilon s1=-3.50/-3.44$)
N= 5515	Myy= 0	Mzz= 2	($\varepsilon c2/\varepsilon s1=-3.50/-3.40$)	N= 5512	Myy= 0	Mzz= 2	($\varepsilon c2/\varepsilon s1=-3.50/-3.37$)
N= 5498	Myy= 1	Mzz= 4	($\varepsilon c2/\varepsilon s1=-3.50/-3.24$)	N= 5491	Myy= 0	Mzz= 6	($\varepsilon c2/\varepsilon s1=-3.50/-3.18$)
N= 5470	Myy= 1	Mzz= 8	($\varepsilon c2/\varepsilon s1=-3.50/-2.99$)	N= 5456	Myy= 0	Mzz= 12	($\varepsilon c2/\varepsilon s1=-3.50/-2.85$)
N= 5433	Myy= 2	Mzz= 14	($\varepsilon c2/\varepsilon s1=-3.50/-2.64$)	N= 5409	Myy= 0	Mzz= 19	($\varepsilon c2/\varepsilon s1=-3.50/-2.42$)
N= 4865	Myy= 18	Mzz= 115	($\varepsilon c2/\varepsilon s1=-3.50/-0.93$)	N= 4060	Myy= 0	Mzz= 260	($\varepsilon c2/\varepsilon s1=-3.50/-0.27$)
N= 4754	Myy= 20	Mzz= 134	($\varepsilon c2/\varepsilon s1=-3.50/-0.80$)	N= 3832	Myy= 0	Mzz= 298	($\varepsilon c2/\varepsilon s1=-3.50/-0.10$)
N= 4620	Myy= 23	Mzz= 157	($\varepsilon c2/\varepsilon s1=-3.50/-0.65$)	N= 3629	Myy= 0	Mzz= 327	($\varepsilon c2/\varepsilon s1=-3.50/ 0.09$)
N= 4454	Myy= 26	Mzz= 185	($\varepsilon c2/\varepsilon s1=-3.50/-0.48$)	N= 3383	Myy= 0	Mzz= 362	($\varepsilon c2/\varepsilon s1=-3.50/ 0.30$)
N= 4248	Myy= 30	Mzz= 219	($\varepsilon c2/\varepsilon s1=-3.50/-0.29$)	N= 3159	Myy= 0	Mzz= 388	($\varepsilon c2/\varepsilon s1=-3.50/ 0.54$)
N= 3988	Myy= 35	Mzz= 261	($\varepsilon c2/\varepsilon s1=-3.50/-0.08$)	N= 2876	Myy= 0	Mzz= 419	($\varepsilon c2/\varepsilon s1=-3.50/ 0.81$)
N= 3686	Myy= 38	Mzz= 305	($\varepsilon c2/\varepsilon s1=-3.50/ 0.17$)	N= 2616	Myy= 0	Mzz= 445	($\varepsilon c2/\varepsilon s1=-3.50/ 1.12$)
N= 3022	Myy= 44	Mzz= 386	($\varepsilon c2/\varepsilon s1=-3.50/ 0.78$)	N= 1988	Myy= 0	Mzz= 502	($\varepsilon c2/\varepsilon s1=-3.50/ 1.89$)
N= 2248	Myy= 50	Mzz= 457	($\varepsilon c2/\varepsilon s1=-3.50/ 1.63$)	N= 1445	Myy= 0	Mzz= 522	($\varepsilon c2/\varepsilon s1=-3.50/ 2.97$)
N= 1413	Myy= 48	Mzz= 501	($\varepsilon c2/\varepsilon s1=-3.50/ 2.91$)	N= 810	Myy= 0	Mzz= 536	($\varepsilon c2/\varepsilon s1=-3.50/ 4.59$)
N= 563	Myy= 50	Mzz= 505	($\varepsilon c2/\varepsilon s1=-3.50/ 5.05$)	N= 125	Myy= 0	Mzz= 548	($\varepsilon c2/\varepsilon s1=-3.50/ 7.28$)
N= 66	Myy= 58	Mzz= 498	($\varepsilon c2/\varepsilon s1=-3.50/ 6.76$)	N= -378	Myy= 0	Mzz= 547	($\varepsilon c2/\varepsilon s1=-3.50/ 9.44$)
(Ned [kN], Med [kNm], $\varepsilon c2$ $\varepsilon s1$ [o/oo])							