

Grupa A

b	30 cm	g	15.0 kN
h	50 cm	q	20.0 kN
d ₁ , d ₂	5 cm	l	5 m
d	45 cm	w _g	0.3 mm
f _{ck}	30 Mpa	E _{c, rac}	31938.8 Mpa
f _{cd}	20 Mpa	E _{c, od}	32000.0 Mpa
f _{yk}	500 Mpa	E _s	200000.0 Mpa
f _{yd}	434.78 Mpa	n	6.25

M _{sd,c}	157.0 kNm	ε _{s1}	10.0 ‰
M _{Rd,c}	193.2 kNm	ε _{c2}	2.9 ‰
μ _{sd}	0.129	ξ	0.225
x	10.13 cm	ζ	0.91
z	40.95 cm		
A _{s1}	8.82 cm ²		
A _{s1,od}	9.42 cm ²	3Ø 20	

M _{sd,r}	109.4 kNm	β = 1.7
x	11.47 cm	
σ _s	281.98 MN/m ²	

f _{ck} =	30.0 MN/m ²	f _{ctm} =	2.90 MN/m ²	
M _{cr} =	36.2 kNm			β ₁ = 1.00
σ _{sr} =	93.34 MN/m ²			β ₂ = 1.00
ζ =	0.890			
ε _{sm} =	0.00126	=	1.26 ‰	

Ø =	20.0 mm	ρ _r =	0.0251	k ₁ = 0.80
s _{rm} =	129.62 mm			k ₂ = 0.50

$$w_k = \beta \cdot \varepsilon_{sm} \cdot s_{rm} = 0.277 \text{ mm} < w_g$$

Grupa B

b	30 cm	g	15.0 kN
h	50 cm	q	21.0 kN
d ₁ , d ₂	5 cm	l	5 m
d	45 cm	w _g	0.3 mm
f _{ck}	30 Mpa	E _{c, rac}	31938.8 Mpa
f _{cd}	20 Mpa	E _{c, od}	32000.0 Mpa
f _{yk}	500 Mpa	E _s	200000.0 Mpa
f _{yd}	434.78 Mpa	n	6.25

M _{sd,c}	161.7 kNm	ε _{s1}	10.0 ‰
M _{Rd,c}	193.2 kNm	ε _{c2}	2.9 ‰
μ _{sd}	0.133	ξ	0.225
x	10.13 cm	ζ	0.91
z	40.95 cm		
A _{s1}	9.08 cm ²		
A _{s1,od}	9.42 cm ²	3Ø 20	

M _{sd,r}	112.5 kNm	β = 1.7
x	11.47 cm	
σ _s	290.04 MN/m ²	

f _{ck} =	30.0 MN/m ²	f _{ctm} =	2.90 MN/m ²	
M _{cr} =	36.2 kNm			β ₁ = 1.00
σ _{sr} =	93.34 MN/m ²			β ₂ = 1.00
ζ =	0.896			
ε _{sm} =	0.00130	=	1.30 ‰	

Ø =	20.0 mm	ρ _r =	0.0251	k ₁ = 0.80
s _{rm} =	129.62 mm			k ₂ = 0.50

$$w_k = \beta \cdot \varepsilon_{sm} \cdot s_{rm} = 0.286 \text{ mm} < w_g$$

Grupa C

b	30 cm	g	16.0 kN
h	50 cm	q	18.0 kN
d ₁ , d ₂	5 cm	l	5 m
d	45 cm	w _g	0.3 mm
f _{ck}	30 Mpa	E _{c, rac}	31938.8 Mpa
f _{cd}	20 Mpa	E _{c, od}	32000.0 Mpa
f _{yk}	500 Mpa	E _s	200000.0 Mpa
f _{yd}	434.78 Mpa	n	6.25

M _{sd,c}	151.9 kNm	ε _{s1}	10.0 ‰
M _{Rd,c}	193.2 kNm	ε _{c2}	2.8 ‰
μ _{sd}	0.125	ξ	0.219
x	9.86 cm	ζ	0.913
z	41.09 cm		
A _{s1}	8.50 cm ²		
A _{s1,od}	9.42 cm ²	3Ø 20	

M _{sd,r}	106.3 kNm	β = 1.7
x	11.47 cm	
σ _s	273.93 MN/m ²	

f _{ck} =	30.0 MN/m ²	f _{ctm} =	2.90 MN/m ²	
M _{cr} =	36.2 kNm			β ₁ = 1.00
σ _{sr} =	93.34 MN/m ²			β ₂ = 1.00
ζ =	0.884			
ε _{sm} =	0.00121	=	1.21 ‰	

Ø =	20.0 mm	ρ _r =	0.0251	k ₁ = 0.80
s _{rm} =	129.62 mm			k ₂ = 0.50

$$w_k = \beta \cdot \varepsilon_{sm} \cdot s_{rm} = 0.267 \text{ mm} < w_g$$

Grupa D

b	30 cm	g	13.0 kN
h	50 cm	q	22.0 kN
d ₁ , d ₂	5 cm	l	5 m
d	45 cm	w _g	0.3 mm
f _{ck}	30 Mpa	E _{c, rac}	31938.8 Mpa
f _{cd}	20 Mpa	E _{c, od}	32000.0 Mpa
f _{yk}	500 Mpa	E _s	200000.0 Mpa
f _{yd}	434.78 Mpa	n	6.25

M _{sd,c}	158.0 kNm	ε _{s1}	10.0 ‰
M _{Rd,c}	193.2 kNm	ε _{c2}	2.9 ‰
μ _{sd}	0.130	ξ	0.225
x	10.13 cm	ζ	0.91
z	40.95 cm		
A _{s1}	8.87 cm ²		
A _{s1,od}	9.42 cm ²	3Ø 20	

M _{sd,r}	109.4 kNm	β = 1.7
x	11.47 cm	
σ _s	281.98 MN/m ²	

f _{ck} =	30.0 MN/m ²	f _{ctm} =	2.90 MN/m ²	
M _{cr} =	36.2 kNm			β ₁ = 1.00
σ _{sr} =	93.34 MN/m ²			β ₂ = 1.00
ζ =	0.890			
ε _{sm} =	0.00126	=	1.26 ‰	

Ø =	20.0 mm	ρ _r =	0.0251	k ₁ = 0.80
s _{rm} =	129.62 mm			k ₂ = 0.50

$$w_k = \beta \cdot \varepsilon_{sm} \cdot s_{rm} = 0.277 \text{ mm} < w_g$$