UPN 100 ④
$h = 10$ cm
$b = 5.0$ cm
$t_w = 0.6$ cm
$t_f = 0.85$ cm
$A = 13.50$ cm^2
$I_y = 206$ cm^4
$I_z = 29.3$ cm^4
$y_s = 1.55$ cm

UPN 120 ①
$h = 12$ cm
$b = 5.5$ cm
$t_w = 0.7$ cm
$t_f = 0.9$ cm
$A = 17.00$ cm^2
$I_y = 364$ cm^4
$I_z = 43.2$ cm^4
$y_s = 1.60$ cm

8x200 ③
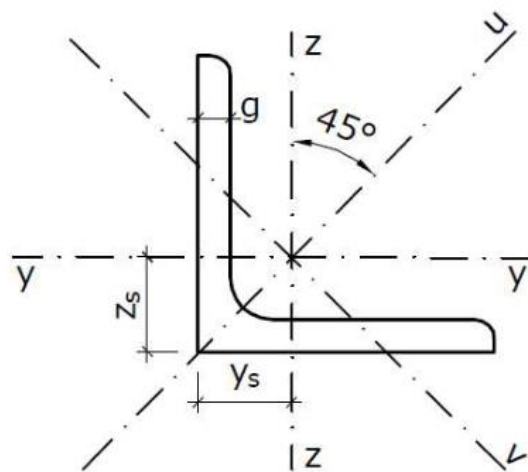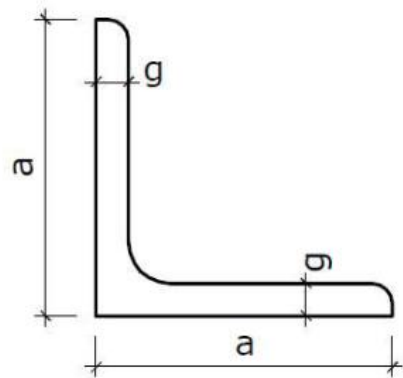
L 35x35x4 ②
$a = 3.5$ cm
$g = 0.4$ cm
$A = 2.67$ cm^2
$I_y = I_z = 2.95$ cm^4
$y_s = z_s = 1.00$ cm

[mm]

UPN 120
L 35x35x4
UPN 100

20
55
10
78
55
92
88
68
95
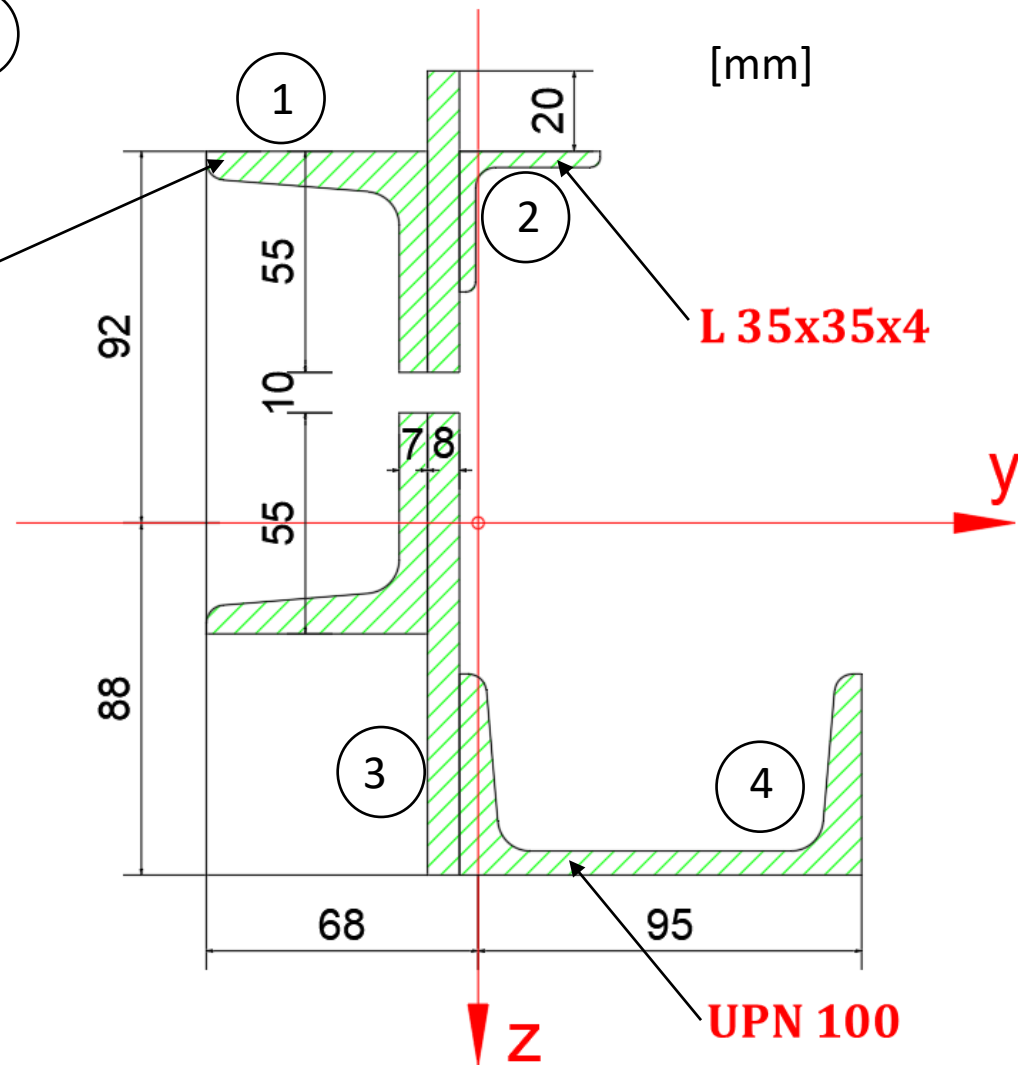
$$I_y = I_y^{(1)} + A^{(1)} \cdot d_{z(1)}^2 + I_y^{(2)} + A^{(2)} \cdot d_{z(2)}^2 + I_y^{(3)} +$$

$$+ A^{(3)} \cdot d_{z(3)}^2 + I_y^{(4)} + A^{(4)} \cdot d_{z(4)}^2 - \left[I_y^{gol} + A^{(gol)} \cdot d_{z(gol)}^2 \right]$$

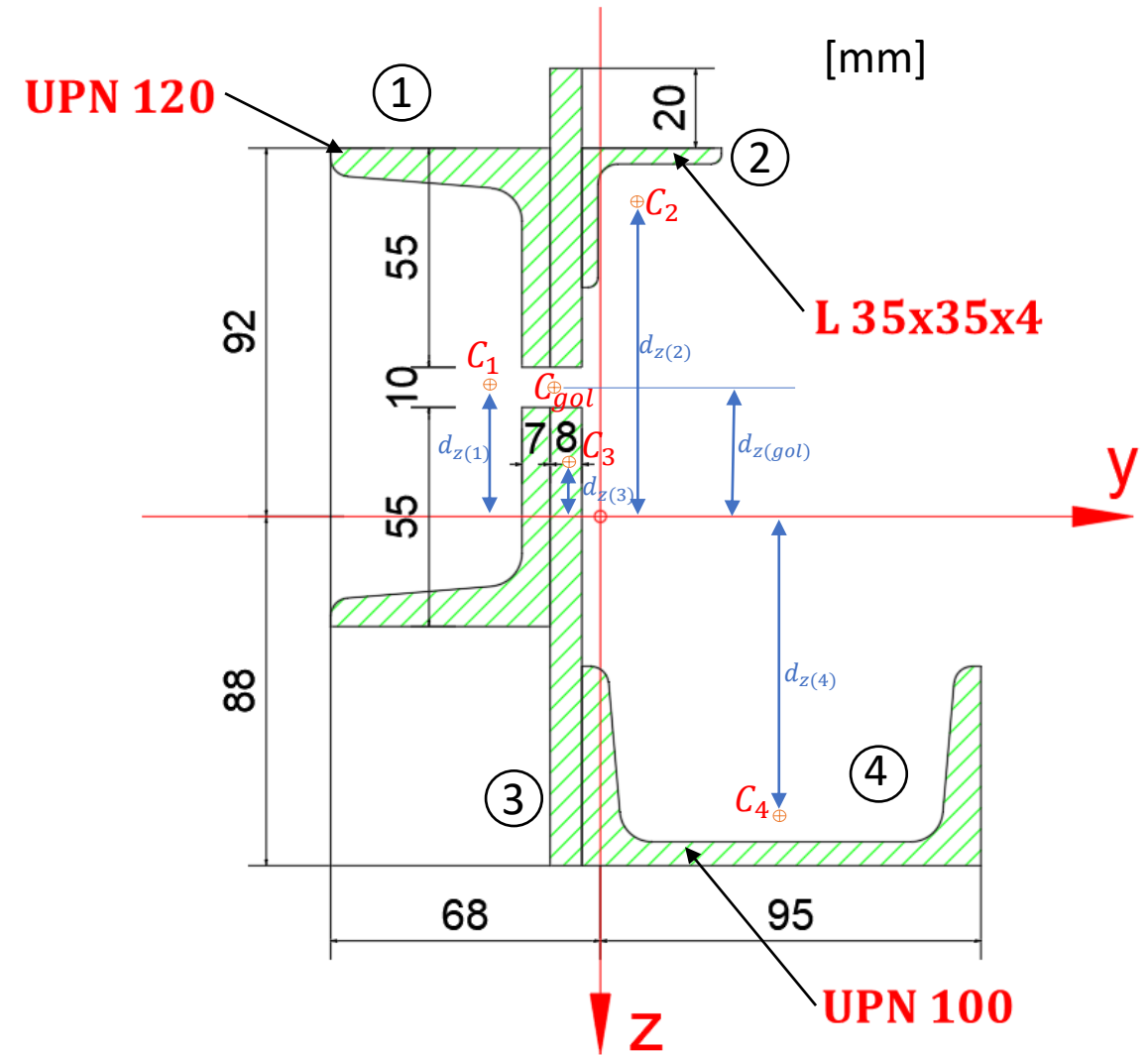$$I_y = 364 + 17 \cdot \left(9.2 - \frac{12.0}{2} \right)^2 +$$

$$2.95 + 2.67 \cdot (9.2 - 1.00)^2 +$$

$$+ \frac{0.8 \cdot 20.0^3}{12} + 0.8 \cdot 20.0 \cdot \left(\frac{20.0}{2} - 8.8 \right)^2 +$$

$$+ 29.3 + 13.5 \cdot (8.8 - 1.55)^2 -$$

$$- \left[\frac{(0.7 + 0.8) \cdot 1.0^3}{12} + (0.7 + 0.8) \cdot 1.0 \cdot \left(9.2 - 5.5 - \frac{1.0}{2} \right)^2 \right]$$

$$= 2000.34 \ [\text{cm}^4]$$

$$I_z = I_z^{(1)} + A^{(1)} \cdot d_{y(1)}^2 + I_z^{(2)} + A^{(2)} \cdot d_{y(2)}^2 + I_z^{(3)} +$$

$$+A^{(3)} \cdot d_{y(3)}^2 + I_z^{(4)} + A^{(4)} \cdot d_{y(4)}^2 - \left[I_z^{gol} + A^{(gol)} \cdot d_{y(gol)}^2\right]$$

$$I_z = 43.2 + 17 \cdot (0.5 + 0.8 + 1.60)^2 +$$

$$2.95 + 2.67 \cdot (1.0 - 0.5)^2 +$$

$$+\frac{20.0 \cdot 0.8^3}{12} + 20.0 \cdot 0.8 \cdot \left(0.5 + \frac{0.8}{2}\right)^2 +$$

$$+206 + 13.5 \cdot \left(9.5 - \frac{10.0}{2}\right)^2 -$$

$$-\left[\frac{1.0 \cdot (0.7 + 0.8)^3}{12} + 1.0 \cdot (0.7 + 0.8) \cdot \left(0.5 + \frac{0.7 + 0.8}{2}\right)^2\right]$$

$$= 680.35 \ [cm^4]$$