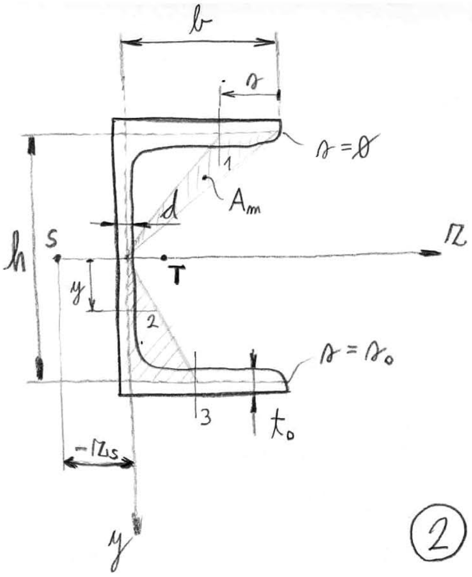

$$z_S = -\frac{2}{J_z}\int_0^{s_0} y\, t\, A_m\, ds$$

(1) $$\int_0^b -\frac{h}{2}\, t_0\, \frac{h}{2}\, s\, \frac{1}{2}\, ds = -\frac{1}{8} h^2 t_0 \frac{s^2}{2}\Big|_0^b = \underline{\underline{-\frac{1}{16} b^2 h^2 t_0}}$$

$$0 \le s \le b \quad , \quad A_m = \frac{1}{4} h s$$

(2) $$b \le s \le b+h \quad , \quad A_m = \frac{1}{4} h b \quad , \quad s = b + \frac{h}{2} + y$$

$$y = s - b - h/2$$

$$\int_b^{b+h} y\, d\, \frac{1}{4} h b\, ds = \int_b^{b+h} \left(s - b - \frac{h}{2}\right) d\, \frac{1}{4} b h\, ds =$$

$$= \frac{1}{4} h b d \left(\frac{s^2}{2} - b s - \frac{1}{2} h s\right)\Big|_b^{b+h} = \frac{1}{4} h b d \left[\frac{1}{2}(b+h)^2 - b(b+h) - \frac{1}{2} h (b+h) - \frac{b^2}{2} + b^2 + \frac{1}{2} h b\right] =$$

$$= \frac{1}{4} h b d \left[\cancel{\frac{b^2}{2}} + \cancel{bh} + \cancel{\frac{h^2}{2}} - \cancel{b^2} - \cancel{bh} - \cancel{\frac{1}{2} bh} - \cancel{\frac{h^2}{2}} + \cancel{\frac{b^2}{2}} + \cancel{\frac{1}{2} bh}\right] = \underline{\underline{0}}$$

(3) $$b + h \le s \le 2b + h \quad , \quad A_m = \frac{1}{4} b h + z \frac{h}{2} \frac{1}{2} \quad , \quad s = b + h + z$$

$$A_m = \frac{1}{4} b h + \frac{1}{4}(s - b - h) \cdot h \qquad z = s - b - h$$

$$\int_{b+h}^{2b+h} \frac{h}{2}\, t_0\, \frac{1}{4} h \left[b + s - b - h\right] ds = \frac{1}{8} h^2 t_0 \int_{b+h}^{2b+h} (s - h)\, ds = \frac{1}{8} h^2 t_0 \left(\frac{s^2}{2} - h s\right)\Big|_{b+h}^{2b+h} =$$

$$= \frac{1}{8} h^2 t_0 \left[\frac{1}{2}(2b+h)^2 - h(2b+h) - \frac{1}{2}(b+h)^2 + h(b+h)\right] =$$

$$= \frac{1}{8} h^2 t_0 \left[2b^2 + 2bh + \frac{h^2}{2} - 2bh - h^2 - \frac{b^2}{2} - bh - \frac{h^2}{2} + bh + h^2\right] = \frac{1}{8} h^2 t_0 \frac{3}{2} b^2 =$$

$$= \frac{3}{16} b^2 h^2 t_0$$

$$z_S = -\frac{2}{J_z}\left(-\frac{1}{16} b^2 h^2 t_0 + 0 + \frac{3}{16} b^2 h^2 t_0\right) = \frac{-b^2 h^2 t_0}{4 J_z}$$

$$z_S = -\frac{b^2 h^2 t_0}{4 J_z}$$

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$J_z = 364 \cdot 10^4\ mm^4$

$e = 16\ mm$

$h = 111\ mm$

$b = 51{,}5\ mm$

$t_0 = 9\ mm$

$d = 7\ mm$

$z_S = -20{,}2\ mm$

T in S sta narazen $20{,}2 - \frac{7}{2} + 16 = 32{,}7\ mm$