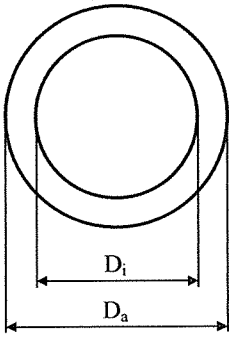
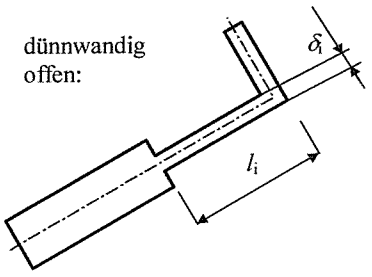
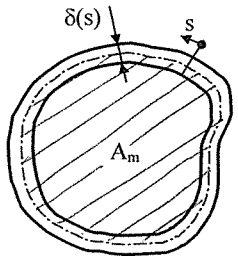
Arbeitsblatt Reine Torsion

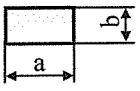
Voraussetzungen:

- Keine Wölbbehinderung bzw. wölbfreie Querschnitte,
- M_t **abschnittsweise konstant**

$$\tau_{max} = \frac{M_t}{W_t} \qquad \vartheta = \varphi' = \frac{M_t}{G I_t} \qquad (M_t \text{ ... Schnittmoment})$$

Querschnitt	I_t	W_t
Kreisring: 	$\frac{\pi}{32}\left(D_a^4 - D_i^4\right)$	$\frac{\pi}{16}\frac{D_a^4 - D_i^4}{D_a}$
dünnwandig offen: 	$\frac{1}{3}\kappa\sum_{i=1}^{n} l_i\delta_i^3$ | | L | ⊥ | I | ⊐ | | κ | 1 | 1.12 | 1.3 | 1.12 |	$\frac{I_t}{\delta_{max}}$
dünnwandig geschlossen: 	$\frac{4A_m^2}{\oint \frac{ds}{\delta(s)}}$	$2A_m\delta_{min}$

Rechteckquerschnitt: $I_t = C_1 a\, b^3 \qquad W_t = \frac{C_1}{C_2} a\, b^2 \qquad (a \geq b)$



a/b	1	1,5	2	3	4	6	8	10	∞
C_1	0,141	0,196	0,229	0,263	0,281	0,298	0,307	0,312	0,333
C_2	0,675	0,852	0,928	0,977	0,990	0,997	0,999	1,0	1,0