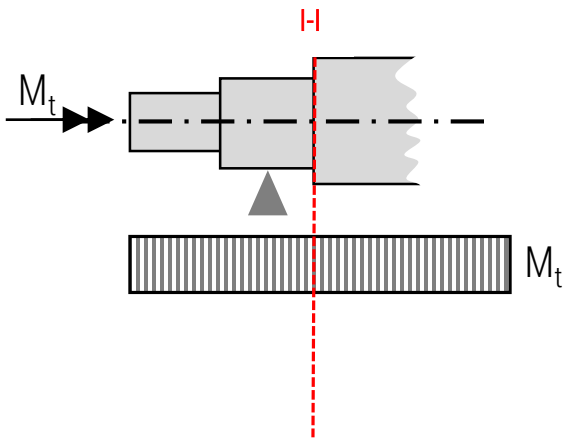
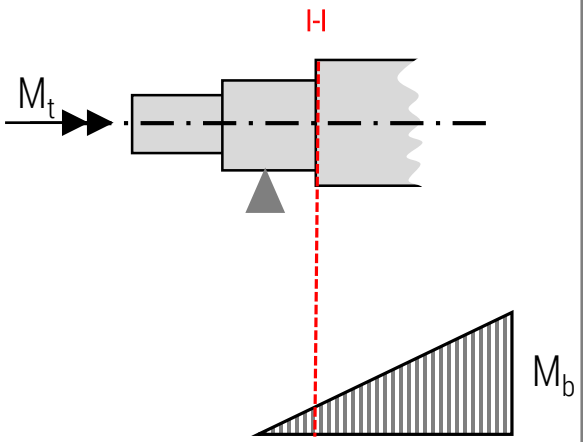
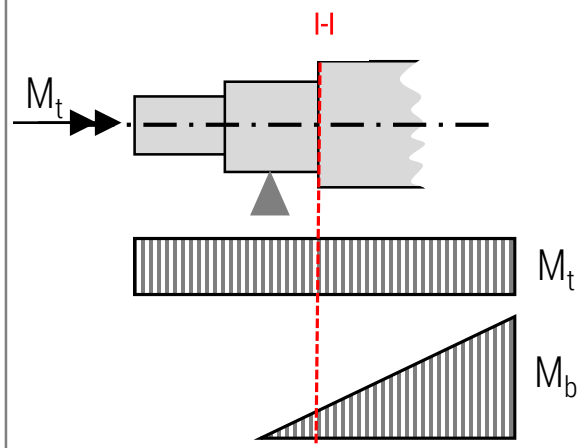
Wellenauslegung: Ermittlung des überschlägigen Wellendurchmessers

TECHNISCHE UNIVERSITÄT CHEMNITZ

Professur Konstruktionslehre

	Reine Torsionsbeanspruchung	Reine Biegebeanspruchung	Kombinierte Beanspruchung
			
Belastung	M_t	M_b	$M_v = \sqrt{M_b^2 + \frac{3}{4}M_t^2}$
Beanspruchung	$\tau_t = \frac{M_t}{W_t}$	$\sigma_b = \frac{M_b}{W_b}$	$\sigma_v = \frac{M_v}{W_b}$
Widerstandmoment	$W_t = \frac{\pi * d^3}{16}$	$W_b = \frac{\pi * d^3}{32}$	$W_b = \frac{\pi * d^3}{32}$
Werkstoffkennwert	$\tau_{tüb} = 12..25 \frac{N}{mm^2}$	$\sigma_{büb} = 30..60 \frac{N}{mm^2}$	$\sigma_{vüb} = 30..60 \frac{N}{mm^2}$
Überschlägiger Wellendurchmesser	$d_{üb} = \sqrt[3]{\frac{16 * M_t}{\pi * \tau_{tüb}}}$	$d_{üb} = \sqrt[3]{\frac{32 * M_b}{\pi * \sigma_{büb}}}$	$d_{üb} = \sqrt[3]{\frac{32 * M_v}{\pi * \sigma_{vüb}}}$

V1-20160620