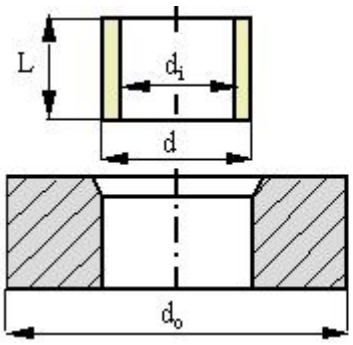
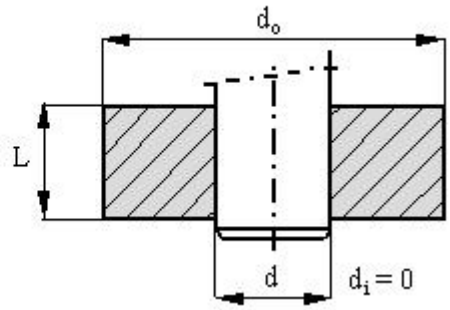
Interference fit





d_i	0	mm	L	26.83	mm	E_i	193 GPa	ν_i .27
d	12	mm	δ [1]	0.023	mm	E_o	193 GPa	ν_o .27
d_o	19.622	mm	μ [2]	.05				

Solve Reset Print (Default value bronze bushing, steel hub)

Interference pressure p	115.78	MPa
Friction force F	5.86	kN
Transmission torque T	35.13	Nm

Stresses	ring i		ring o	
	d_i	d	d	d_o
σ_t	-231.57 MPa	-115.78 MPa	254.13 MPa	138.35 MPa
σ_r	0 MPa	-115.78 MPa	-115.78 MPa	0 MPa
σ_e	231.57 MPa	115.78 MPa	327.74 MPa	138.35 MPa

1) The value of the diametrical interference is typically about δ/d=0.001. The calculator is based on elastic deformation (Lame's equation), i.e. the stresses should be smaller than the elastic limit Rp0.2 of the elements.

The interference should be corrected for the effect of surface roughness. The flattening of roughness peaks by mounting under high pressure is generally estimated at 10% of the Rz-value where Rz=6Ra (ISO 6336-2). The correction at the diametrical interference thus becomes 0.1·2·(Rz1+Rz2). If the surface roughness of the shaft Ra1=0.5μm and that of the bore Ra2=1μm then dδ=0.1·2·6·(0.5+1)=1.8μm and δeff=δm-dδ where δeff=effective value of diametrical interference, δm=measured value of diametrical interference and dδ=correction for surface roughness.

2) Approximate value for the coefficient of friction Ū are: for steel - steel contacts dry between 0.1 and 0.15, lubricated between 0.05 and 0.1, for steel - yellow metal contacts dry between 0.05 and 0.1.

3) Thin walled elements are usually press fitted in the full plastic regime of the material.

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