



KS PERMAGLIDE® plain bearings

Plain bearing mounting: Press-in force and joint pressure

Press-in force and joint pressure are interdependent. The joint pressure occurs between the housing bore and the surface of the bush jacket. It can be understood as a measure of how securely the bush fits in the housing. Together with other factors, the joint pressure influences the amount of press-in force.

Calculating the press-in force

The press-in force depends upon many factors, which are extremely difficult to measure accurately, for example:

- Actual press-fit
- Coefficient of friction
- Scoring
- Press-in speed

Motorservice offers the calculation of the press-in force as a service. In most cases, the estimate of press-in force as per Fig. 1 is sufficient.

Determining the bush press-in force

Figure 1 below shows the maximum required press-in force per mm of bush width. The curves represent the bush outside diameter D_o and the bush wall thickness s_3 to DIN ISO 3547.

This calculation assumes a steel housing with a diameter of D_G that has been adapted to the bush outside diameter D_o . The selected ratio is $D_G : D_o \approx 1.5...2$.

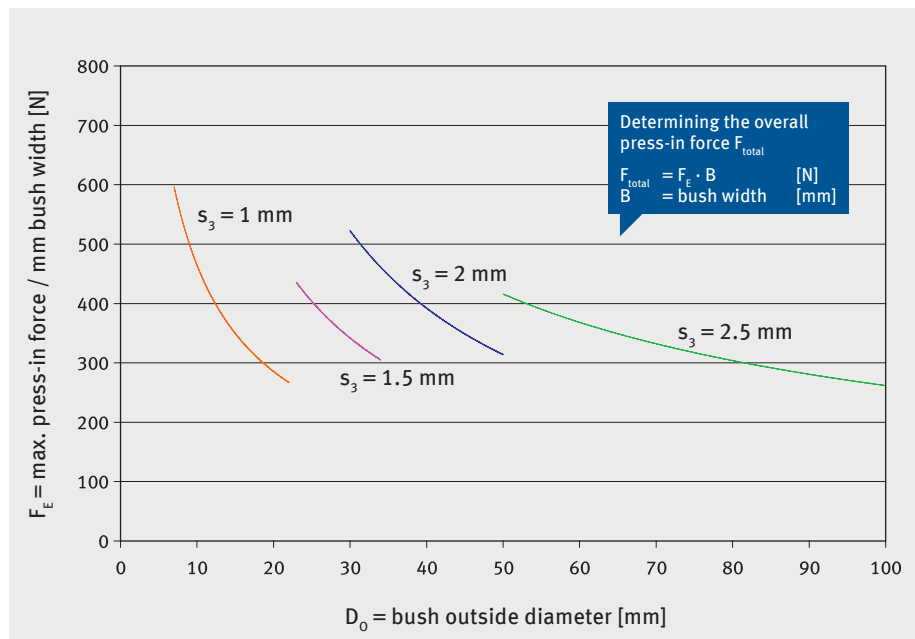


Fig. 1: Press-in force F_E

Example of estimate of press-in force F_{total}

Given:	Bush	PAP 4030 P14
	Bush outside diameter	$D_o = 44$ mm
	Bush width	$B = 30$ mm
	Bush wall thickness	$s_3 = 2$ mm

$$[14] \quad F_{total} = F_E \cdot B = 340 \text{ N/mm} \cdot 30 \text{ mm} = 10200 \text{ N}$$

$F_E = 340 \text{ N/mm}$ (from Fig. 55, $D_o = 44 \text{ mm}$, $s_3 = 2 \text{ mm}$)