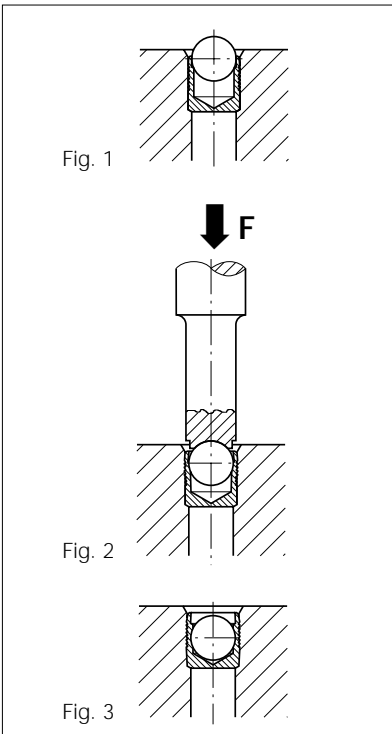


Installation Instruction for MB Series

Drilled Hole

- The drilled hole must be within the tolerances shown on the preceding dimensional sheets.
- The counterbored hole (d_2) must be properly sized for the through hole (d_3) according to the dimensional sheets.
- Holes must be round within 0.05 mm.
- With hard materials the bore roughness should be from $R_z = 10 - 30 \mu\text{m}$ for best results.
- Longitudinal rifles and spiral grooves should be avoided. These influence the sealing effectiveness.
- The bore must be free of oil, grease and chips.



Setting Procedure

- With the ball facing out the KOENIG-Expander is inserted in the counterbored hole. The top sleeve should not be above the surface of the base material (Fig. 1).
- With only a slight or no counterbore, the base of the sleeve must be adequately supported during installation.
- The ball can now be pressed in until the top of the ball is below the edge of the sleeve (Fig. 2 and 3). Corresponding approximate values for stroke S as well as the dimensions X are from the Table below.

Note:

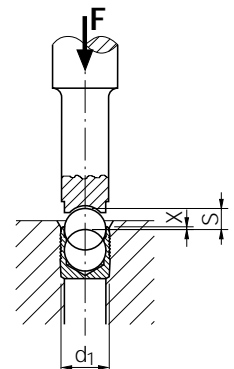
- Use the proper size setting tool for the KOENIG-Expander according to the data sheet.
- Cleaning/degreasing of plugs before installation, only spray cleaning with air drying allowed. (No dipping and vacuum drying).

Press

Small quantities or single parts can be installed with a hammer and setting tool. Installation can also be done with an arbor press. It is preferred to limit travel when using a press because insertion force is difficult to control. KOENIG-Expanders are also ideal for automated installation because they are problem free.

Installation Chart

		MB 600 / MB 700 / MB 800 Series														
d_1 [mm]		3	4	5	6	7	8	9	10	12	14	16	18	20	22	
S [mm]	Stroke	1.2	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.5	6.35	7.0	8.0	9.0	10.0	
X [mm]	Position of top of ball relative to top of sleeve ± 0.2	0.4	0.2	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.6	0.6	0.8	0.8	
		MB 600 Series Inch-Version														
d_1 [in]		.093	.125	.156	.187	.218	.250	.281								
S [in]	Stroke	.031	.047	.059	.079	.094	.109	.118								
X [in]	Position of top of ball relative to top of sleeve	Flush to .012 below the sleeve														



Installation Instructions MB Series

Plug Removal

With KOENIG-Expander MB Series removal of the plug is possible. The plug can be drilled out with a carbide tipped drill or with a high speed steel drill.

MB 600-030 to 140,	Ball HB ~200:	High Speed Steel Drill
MB 600-093 A,	Ball HRC ~ 55:	Carbide Tipped Drill
MB 600-125 A to 281 A,	Ball HB ~200:	High Speed Steel Drill
MB 700-030 to 220,	Ball HRC ~ 45:	Carbide Tipped Drill
MB 800-040 to 220,	Ball HRC ~ 45:	Carbide Tipped Drill

Procedure

- To Expander-Diameter 6 mm or .250 inch:
Drill out, in one process, to the **next larger diameter** according to the data sheet.
- Expander-Diameter over 6 mm or .250 inch:
Drill out in several steps with last step to the **next larger diameter** according to the data sheet.
- Clear chips, remnants of the sleeve, and oil and grease from the bore.
- Install a new KOENIG-Expander.
- **Note:** After plug removal always use the next larger size plug.