

Positioning Bushings • with collar, DIN 172 A EH 23112.



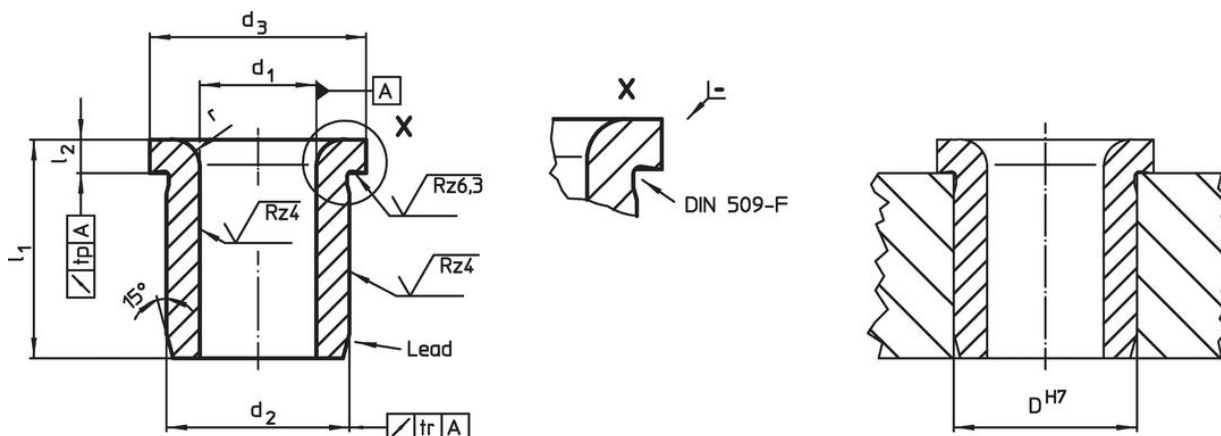
Product Description

Positioning or drill bushings are used to drill repetitive holes in the same location to ensure repeatability. The hardened and ground positioning bushings can be used as wear-resistant guide for drills, shafts etc.

Material


- Case-hardened steel, case-hardened


Drawing



Order information

| Dimensions | | | | | | Location hole | [g] | Art. No. |
|----------------------|----------------|----------------------|----------------|----------------|-----|-----------------|-----|------------|
| d ₁ F7 | l ₁ | d ₂ n6 | d ₃ | l ₂ | r | D H7 [mm] | | |
| [mm] | | | | | | | | |
| 2.0 | 6 | 5 | 8 | 2.0 | 1.0 | 5 | 1.2 | 23112.0020 |
| 2.0 | 9 | 5 | 8 | 2.0 | 1.0 | 5 | 1.6 | 23112.0021 |
| 2.1 | 6 | 5 | 8 | 2.0 | 1.0 | 5 | 1.2 | 23112.0022 |
| 2.1 | 9 | 5 | 8 | 2.0 | 1.0 | 5 | 1.5 | 23112.0023 |
| 2.5 | 6 | 5 | 8 | 2.0 | 1.0 | 5 | 1.1 | 23112.0024 |
| 2.5 | 9 | 5 | 8 | 2.0 | 1.0 | 5 | 1.4 | 23112.0025 |
| 3.0 | 8 | 6 | 9 | 2.5 | 1.0 | 6 | 1.9 | 23112.0030 |
| 3.0 | 12 | 6 | 9 | 2.5 | 1.0 | 6 | 2.6 | 23112.0031 |
| 3.0 | 16 | 6 | 9 | 2.5 | 1.0 | 6 | 3.2 | 23112.0032 |
| 3.1 | 8 | 6 | 9 | 2.5 | 1.0 | 6 | 1.9 | 23112.0033 |
| 3.1 | 12 | 6 | 9 | 2.5 | 1.0 | 6 | 2.5 | 23112.0034 |
| 3.1 | 16 | 6 | 9 | 2.5 | 1.0 | 6 | 3.2 | 23112.0035 |
| 3.5 | 8 | 7 | 10 | 2.5 | 1.0 | 7 | 2.4 | 23112.0036 |
| 3.5 | 12 | 7 | 10 | 2.5 | 1.0 | 7 | 3.4 | 23112.0037 |
| 3.5 | 16 | 7 | 10 | 2.5 | 1.0 | 7 | 4.3 | 23112.0038 |
| 4.0 | 8 | 7 | 10 | 2.5 | 1.0 | 7 | 2.3 | 23112.0040 |
| 4.0 | 12 | 7 | 10 | 2.5 | 1.0 | 7 | 3.1 | 23112.0041 |
| 4.0 | 16 | 7 | 10 | 2.5 | 1.0 | 7 | 3.9 | 23112.0042 |
| 4.1 | 8 | 8 | 11 | 2.5 | 1.0 | 8 | 3.0 | 23112.0043 |
| 4.1 | 12 | 8 | 11 | 2.5 | 1.0 | 8 | 4.2 | 23112.0044 |
| 4.1 | 16 | 8 | 11 | 2.5 | 1.0 | 8 | 5.3 | 23112.0045 |
| 4.5 | 8 | 8 | 11 | 2.5 | 1.0 | 8 | 2.9 | 23112.0046 |
| 4.5 | 12 | 8 | 11 | 2.5 | 1.0 | 8 | 3.9 | 23112.0047 |
| 4.5 | 16 | 8 | 11 | 2.5 | 1.0 | 8 | 5.0 | 23112.0048 |
| 5.0 | 8 | 8 | 11 | 2.5 | 1.0 | 8 | 1.8 | 23112.0050 |
| 5.0 | 12 | 8 | 11 | 2.5 | 1.0 | 8 | 3.6 | 23112.0051 |
| 5.0 | 16 | 8 | 11 | 2.5 | 1.0 | 8 | 4.5 | 23112.0052 |

| d ₁ F7 | l ₁ | Dimensions | | | | r | Location hole D H7 [mm] |  [g] | Art. No. |
|----------------------|----------------|----------------------|----------------|----------------|------|----|----------------------------------|--|----------|
| | | d ₂ n6 | d ₃ | l ₂ | [mm] | | | | |
| 5.1 | 10 | 10 | 13 | 3.0 | 1.5 | 10 | 5.5 | 23112.0053 | |
| 5.1 | 16 | 10 | 13 | 3.0 | 1.5 | 10 | 8.2 | 23112.0054 | |
| 5.1 | 20 | 10 | 13 | 3.0 | 1.5 | 10 | 10.0 | 23112.0055 | |
| 5.5 | 10 | 10 | 13 | 3.0 | 1.5 | 10 | 5.3 | 23112.0056 | |
| 5.5 | 16 | 10 | 13 | 3.0 | 1.5 | 10 | 7.9 | 23112.0057 | |
| 5.5 | 20 | 10 | 13 | 3.0 | 1.5 | 10 | 9.6 | 23112.0058 | |
| 6.0 | 10 | 10 | 13 | 3.0 | 1.5 | 10 | 4.9 | 23112.0060 | |
| 6.0 | 16 | 10 | 13 | 3.0 | 1.5 | 10 | 7.3 | 23112.0061 | |
| 6.0 | 20 | 10 | 13 | 3.0 | 1.5 | 10 | 8.8 | 23112.0062 | |
| 6.1 | 10 | 12 | 15 | 3.0 | 1.5 | 12 | 7.7 | 23112.0063 | |
| 6.1 | 16 | 12 | 15 | 3.0 | 1.5 | 12 | 12.0 | 23112.0064 | |
| 6.1 | 20 | 12 | 15 | 3.0 | 1.5 | 12 | 14.0 | 23112.0065 | |
| 6.5 | 10 | 12 | 15 | 3.0 | 1.5 | 12 | 7.4 | 23112.0066 | |
| 6.5 | 16 | 12 | 15 | 3.0 | 1.5 | 12 | 11.0 | 23112.0067 | |
| 6.5 | 20 | 12 | 15 | 3.0 | 1.5 | 12 | 14.0 | 23112.0068 | |
| 7.0 | 10 | 12 | 15 | 3.0 | 1.5 | 12 | 7.0 | 23112.0070 | |
| 7.0 | 16 | 12 | 15 | 3.0 | 1.5 | 12 | 10.0 | 23112.0071 | |
| 7.0 | 20 | 12 | 15 | 3.0 | 1.5 | 12 | 13.0 | 23112.0072 | |
| 7.1 | 10 | 12 | 15 | 3.0 | 1.5 | 12 | 6.9 | 23112.0073 | |
| 7.1 | 16 | 12 | 15 | 3.0 | 1.5 | 12 | 10.0 | 23112.0074 | |
| 7.1 | 20 | 12 | 15 | 3.0 | 1.5 | 12 | 13.0 | 23112.0075 | |
| 7.5 | 10 | 12 | 15 | 3.0 | 1.5 | 12 | 6.5 | 23112.0076 | |
| 7.5 | 16 | 12 | 15 | 3.0 | 1.5 | 12 | 9.7 | 23112.0077 | |
| 7.5 | 20 | 12 | 15 | 3.0 | 1.5 | 12 | 12.0 | 23112.0078 | |
| 8.0 | 10 | 12 | 15 | 3.0 | 1.5 | 12 | 6.0 | 23112.0080 | |
| 8.0 | 16 | 12 | 15 | 3.0 | 1.5 | 12 | 9.0 | 23112.0081 | |
| 8.0 | 20 | 12 | 15 | 3.0 | 1.5 | 12 | 11.0 | 23112.0082 | |
| 8.1 | 12 | 15 | 18 | 3.0 | 2.0 | 15 | 13.0 | 23112.0083 | |
| 8.1 | 20 | 15 | 18 | 3.0 | 2.0 | 15 | 25.0 | 23112.0084 | |
| 8.1 | 25 | 15 | 18 | 3.0 | 2.0 | 15 | 26.0 | 23112.0085 | |
| 8.5 | 12 | 15 | 18 | 3.0 | 2.0 | 15 | 13.0 | 23112.0086 | |
| 8.5 | 20 | 15 | 18 | 3.0 | 2.0 | 15 | 20.0 | 23112.0087 | |
| 8.5 | 25 | 15 | 18 | 3.0 | 2.0 | 15 | 25.0 | 23112.0088 | |
| 9.0 | 12 | 15 | 18 | 3.0 | 2.0 | 15 | 12.0 | 23112.0090 | |
| 9.0 | 20 | 15 | 18 | 3.0 | 2.0 | 15 | 19.0 | 23112.0091 | |
| 9.0 | 25 | 15 | 18 | 3.0 | 2.0 | 15 | 23.0 | 23112.0092 | |
| 9.1 | 12 | 15 | 18 | 3.0 | 2.0 | 15 | 12.0 | 23112.0093 | |
| 9.1 | 20 | 15 | 18 | 3.0 | 2.0 | 15 | 19.0 | 23112.0094 | |
| 9.1 | 25 | 15 | 18 | 3.0 | 2.0 | 15 | 23.0 | 23112.0095 | |
| 9.5 | 12 | 15 | 18 | 3.0 | 2.0 | 15 | 11.0 | 23112.0096 | |
| 9.5 | 20 | 15 | 18 | 3.0 | 2.0 | 15 | 18.0 | 23112.0097 | |
| 9.5 | 25 | 15 | 18 | 3.0 | 2.0 | 15 | 22.0 | 23112.0098 | |
| 10.0 | 12 | 15 | 18 | 3.0 | 2.0 | 15 | 10.0 | 23112.0100 | |
| 10.0 | 20 | 15 | 18 | 3.0 | 2.0 | 15 | 17.0 | 23112.0101 | |
| 10.0 | 25 | 15 | 18 | 3.0 | 2.0 | 15 | 20.0 | 23112.0102 | |
| 10.1 | 12 | 18 | 22 | 4.0 | 2.0 | 18 | 19.0 | 23112.0103 | |
| 10.1 | 20 | 18 | 22 | 4.0 | 2.0 | 18 | 30.0 | 23112.0104 | |
| 10.1 | 25 | 18 | 22 | 4.0 | 2.0 | 18 | 37.0 | 23112.0105 | |
| 10.5 | 12 | 18 | 22 | 4.0 | 2.0 | 18 | 19.0 | 23112.0106 | |
| 10.5 | 20 | 18 | 22 | 4.0 | 2.0 | 18 | 29.0 | 23112.0107 | |
| 10.5 | 25 | 18 | 22 | 4.0 | 2.0 | 18 | 36.0 | 23112.0108 | |
| 11.0 | 12 | 18 | 22 | 4.0 | 2.0 | 18 | 18.0 | 23112.0110 | |
| 11.0 | 20 | 18 | 22 | 4.0 | 2.0 | 18 | 28.0 | 23112.0111 | |
| 11.0 | 25 | 18 | 22 | 4.0 | 2.0 | 18 | 34.0 | 23112.0112 | |
| 11.1 | 12 | 18 | 22 | 4.0 | 2.0 | 18 | 18.0 | 23112.0113 | |
| 11.1 | 20 | 18 | 22 | 4.0 | 2.0 | 18 | 28.0 | 23112.0114 | |
| 11.1 | 25 | 18 | 22 | 4.0 | 2.0 | 18 | 34.0 | 23112.0115 | |
| 11.5 | 12 | 18 | 22 | 4.0 | 2.0 | 18 | 17.0 | 23112.0116 | |
| 11.5 | 20 | 18 | 22 | 4.0 | 2.0 | 18 | 26.0 | 23112.0117 | |
| 11.5 | 25 | 18 | 22 | 4.0 | 2.0 | 18 | 33.0 | 23112.0118 | |
| 12.0 | 12 | 18 | 22 | 4.0 | 2.0 | 18 | 16.0 | 23112.0120 | |

| d ₁ F7 | l ₁ | Dimensions | | | | r | Location hole D H7 [mm] |  [g] | Art. No. |
|----------------------|----------------|----------------------|----------------|----------------|------|----|----------------------------------|--|----------|
| | | d ₂ n6 | d ₃ | l ₂ | [mm] | | | | |
| 12.0 | 20 | 18 | 22 | 4.0 | 2.0 | 18 | 25.0 | 23112.0121 | |
| 12.0 | 25 | 18 | 22 | 4.0 | 2.0 | 18 | 31.0 | 23112.0122 | |
| 12.1 | 16 | 22 | 26 | 4.0 | 2.0 | 22 | 37.0 | 23112.0123 | |
| 12.1 | 28 | 22 | 26 | 4.0 | 2.0 | 22 | 62.0 | 23112.0124 | |
| 12.1 | 36 | 22 | 26 | 4.0 | 2.0 | 22 | 78.0 | 23112.0125 | |
| 12.5 | 16 | 22 | 26 | 4.0 | 2.0 | 22 | 36.0 | 23112.0126 | |
| 12.5 | 28 | 22 | 26 | 4.0 | 2.0 | 22 | 60.0 | 23112.0127 | |
| 12.5 | 36 | 22 | 26 | 4.0 | 2.0 | 22 | 76.0 | 23112.0128 | |
| 13.0 | 16 | 22 | 26 | 4.0 | 2.0 | 22 | 34.0 | 23112.0130 | |
| 13.0 | 28 | 22 | 26 | 4.0 | 2.0 | 22 | 58.0 | 23112.0131 | |
| 13.0 | 36 | 22 | 26 | 4.0 | 2.0 | 22 | 73.0 | 23112.0132 | |
| 14.0 | 16 | 22 | 26 | 4.0 | 2.0 | 22 | 32.0 | 23112.0140 | |
| 14.0 | 28 | 22 | 26 | 4.0 | 2.0 | 22 | 198.0 | 23112.0141 | |
| 14.0 | 36 | 22 | 26 | 4.0 | 2.0 | 22 | 67.0 | 23112.0142 | |
| 15.0 | 16 | 22 | 26 | 4.0 | 2.0 | 22 | 29.0 | 23112.0150 | |
| 15.0 | 28 | 22 | 26 | 4.0 | 2.0 | 22 | 48.0 | 23112.0151 | |
| 15.0 | 36 | 22 | 26 | 4.0 | 2.0 | 22 | 61.0 | 23112.0152 | |
| 16.0 | 16 | 26 | 30 | 4.0 | 2.0 | 26 | 45.0 | 23112.0160 | |
| 16.0 | 28 | 26 | 30 | 4.0 | 2.0 | 26 | 76.0 | 23112.0161 | |
| 16.0 | 36 | 26 | 30 | 4.0 | 2.0 | 26 | 97.0 | 23112.0162 | |
| 16.1 | 16 | 26 | 30 | 4.0 | 2.0 | 26 | 45.0 | 23112.0163 | |
| 16.1 | 28 | 26 | 30 | 4.0 | 2.0 | 26 | 76.0 | 23112.0164 | |
| 16.1 | 36 | 26 | 30 | 4.0 | 2.0 | 26 | 96.0 | 23112.0165 | |
| 16.5 | 16 | 26 | 30 | 4.0 | 2.0 | 26 | 44.0 | 23112.0166 | |
| 16.5 | 28 | 26 | 30 | 4.0 | 2.0 | 26 | 73.0 | 23112.0167 | |
| 16.5 | 36 | 26 | 30 | 4.0 | 2.0 | 26 | 93.0 | 23112.0168 | |
| 17.0 | 16 | 26 | 30 | 4.0 | 2.0 | 26 | 42.0 | 23112.0171 | |
| 17.0 | 28 | 26 | 30 | 4.0 | 2.0 | 26 | 70.0 | 23112.0172 | |
| 17.0 | 36 | 26 | 30 | 4.0 | 2.0 | 26 | 89.0 | 23112.0173 | |
| 18.0 | 16 | 26 | 30 | 4.0 | 2.0 | 26 | 39.0 | 23112.0181 | |
| 18.0 | 28 | 26 | 30 | 4.0 | 2.0 | 26 | 64.0 | 23112.0182 | |
| 18.0 | 36 | 26 | 30 | 4.0 | 2.0 | 26 | 82.0 | 23112.0183 | |
| 19.0 | 20 | 30 | 34 | 5.0 | 3.0 | 30 | 71.0 | 23112.0191 | |
| 19.0 | 36 | 30 | 34 | 5.0 | 3.0 | 30 | 125.0 | 23112.0192 | |
| 19.0 | 45 | 30 | 34 | 5.0 | 3.0 | 30 | 154.0 | 23112.0193 | |
| 20.0 | 20 | 30 | 34 | 5.0 | 3.0 | 30 | 67.0 | 23112.0201 | |
| 20.0 | 36 | 30 | 34 | 5.0 | 3.0 | 30 | 117.0 | 23112.0202 | |
| 20.0 | 45 | 30 | 34 | 5.0 | 3.0 | 30 | 143.0 | 23112.0203 | |
| 20.1 | 20 | 30 | 34 | 5.0 | 3.0 | 30 | 66.0 | 23112.0204 | |
| 20.1 | 36 | 30 | 34 | 5.0 | 3.0 | 30 | 115.0 | 23112.0205 | |
| 20.1 | 45 | 30 | 34 | 5.0 | 3.0 | 30 | 142.0 | 23112.0206 | |
| 22.0 | 20 | 30 | 34 | 5.0 | 3.0 | 30 | 56.0 | 23112.0221 | |
| 22.0 | 36 | 30 | 34 | 5.0 | 3.0 | 30 | 96.0 | 23112.0222 | |
| 22.0 | 45 | 30 | 34 | 5.0 | 3.0 | 30 | 120.0 | 23112.0223 | |
| 25.0 | 20 | 35 | 39 | 5.0 | 3.0 | 35 | 80.0 | 23112.0251 | |
| 25.0 | 36 | 35 | 39 | 5.0 | 3.0 | 35 | 138.0 | 23112.0252 | |
| 25.0 | 45 | 35 | 39 | 5.0 | 3.0 | 35 | 171.0 | 23112.0253 | |
| 30.0 | 25 | 42 | 46 | 5.0 | 3.0 | 42 | 139.0 | 23112.0301 | |
| 30.0 | 45 | 42 | 46 | 5.0 | 3.0 | 42 | 245.0 | 23112.0302 | |
| 30.0 | 56 | 42 | 46 | 5.0 | 3.0 | 42 | 303.0 | 23112.0303 | |

Compliance

RoHS compliant

Contains lead - compliant according to exceptions 6a / 6b / 6c.

Contains SVHC substances >0,1% w/w

Contains lead - SVHC list [REACH] as of 27.06.2024.

Contains Proposition 65 substances



Lead can cause cancer and reproductive harm from exposure
<https://www.P65Warnings.ca.gov/>

Free from Conflict Minerals

This product does not contain any substances designated as "conflict minerals" such as tantalum, tin, gold or tungsten from the Democratic Republic of Congo or adjacent countries.