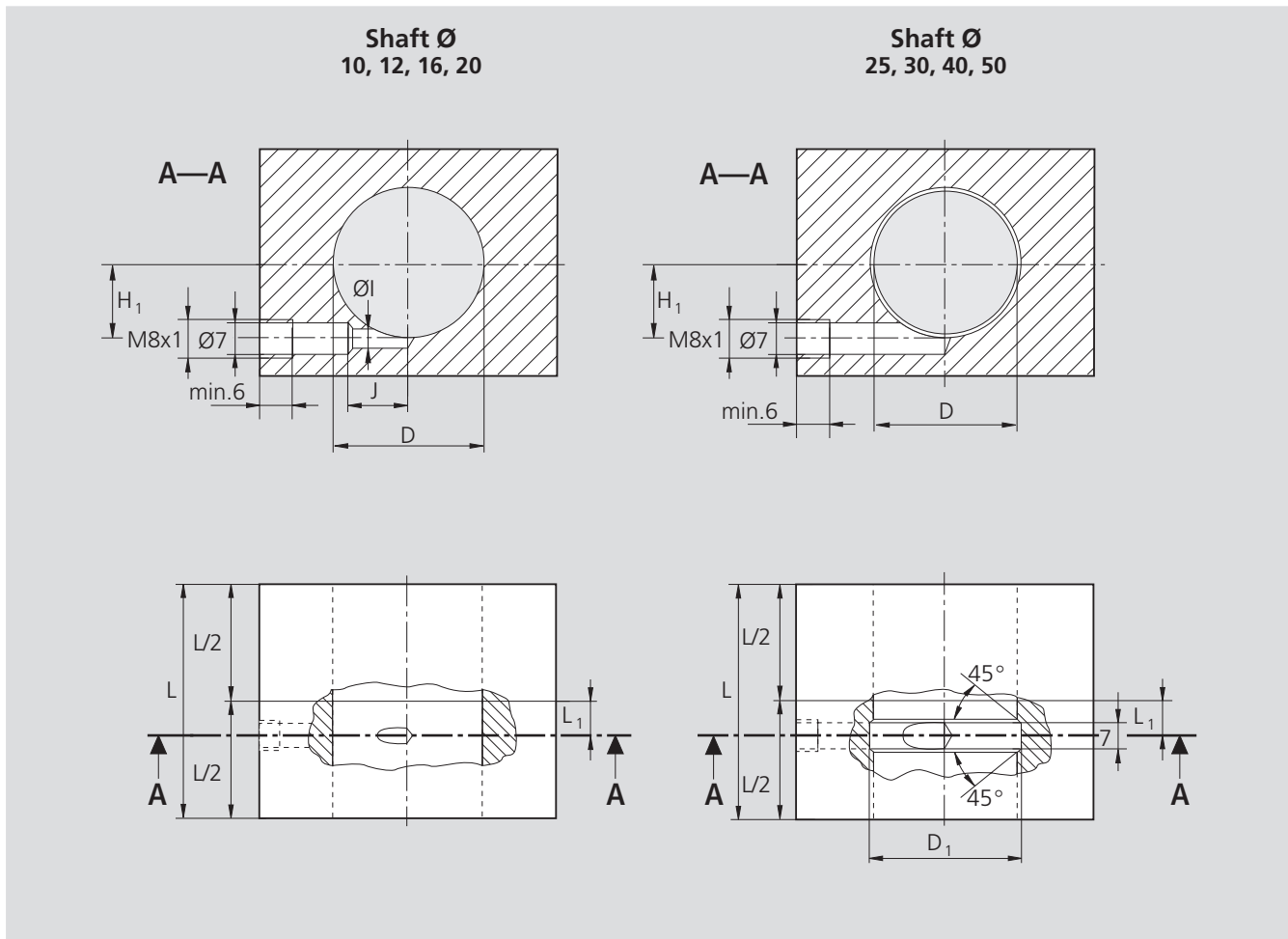


# STAR – Super Linear Bushings **A** and **B** Customer-Built Housings

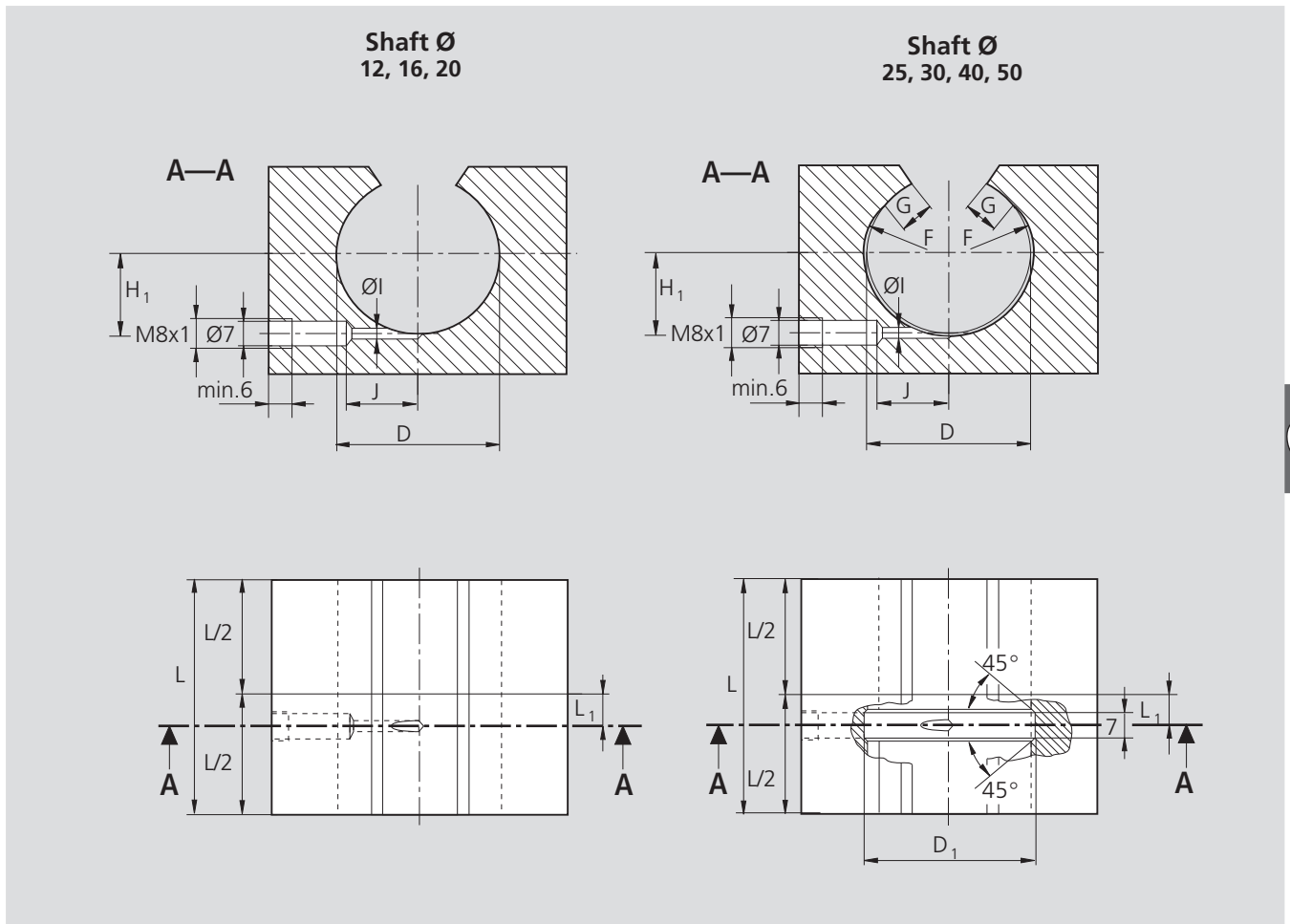
Lube groove and lube hole for  
Super Linear Bushings **A**, **B**,  
closed type – with external seals



The lube channels shown in the illustration have been designed for grease lubricants.

| Linear Bushing with separate seals<br>Part numbers |             | Shaft diameter<br>d<br>(mm) | Dimensions (mm) |       |         |    |       |   |      |
|--|-------------|-----------------------------|-----------------|-------|---------|----|-------|---|------|
| <b>A</b>   | <b>B</b>    |                             | $L_1$           | $H_1$ | L (min) | D  | $D_1$ | l | J    |
| 0670-210-00  | 0672-210-00 | 10                          | 7.5             | 6     | 36      | 19 | –     | 3 | 11.5 |
| 0670-212-00  | 0672-212-00 | 12                          | 9               | 8     | 39      | 22 | –     | 5 | 13   |
| 0670-216-00  | 0672-216-00 | 16                          | 10              | 12    | 43      | 26 | –     | 5 | 18   |
| 0670-220-00  | 0672-220-00 | 20                          | 13.5            | 15    | 54      | 32 | –     | 2 | 15.5 |
| 0670-225-00  | 0672-225-00 | 25                          | 18.5            | 20    | 67      | 40 | 42    | – | –    |
| 0670-230-00  | 0672-230-00 | 30                          | 23.5            | 23.5  | 79      | 47 | 49    | – | –    |
| 0670-240-00  | 0672-240-00 | 40                          | 27.5            | 31    | 91      | 62 | 66    | – | –    |
| 0670-250-00  | 0672-250-00 | 50                          | 34.5            | 37.5  | 113     | 75 | 79    | – | –    |

**Lube groove and lube hole for  
Super Linear Bushings **A**, **B**,  
open type – with external seals**



The lube channels shown in the illustration have been designed for grease lubricants. Seals must be secured axially.

| Linear Bushing with separate seals<br>Part numbers |             | Shaft diameter<br>d<br>(mm) | Dimensions (mm) |       |         |    |       |      |     |   |    |
|--|-------------|-----------------------------|-----------------|-------|---------|----|-------|------|-----|---|----|
| <b>A</b>   | <b>B</b>    |                             | $L_1$           | $H_1$ | L (min) | D  | $D_1$ | F    | G   | I | J  |
| 0671-212-00  | 0673-212-00 | 12                          | 9               | 8     | 39      | 22 | –     | –    | –   | 2 | 13 |
| 0671-216-00  | 0673-216-00 | 16                          | 10              | 12    | 43      | 26 | –     | –    | –   | 2 | 14 |
| 0671-220-00  | 0673-220-00 | 20                          | 13.5            | 15    | 54      | 32 | –     | –    | –   | 2 | 16 |
| 0671-225-00  | 0673-225-00 | 25                          | 18.5            | 20    | 67      | 40 | 42    | R 15 | 4   | 7 | –  |
| 0671-230-00  | 0673-230-00 | 30                          | 23.5            | 23.5  | 79      | 47 | 49    | R 18 | 4.5 | 7 | –  |
| 0671-240-00  | 0673-240-00 | 40                          | 27.5            | 31    | 91      | 62 | 66    | R 23 | 6   | 7 | –  |
| 0671-250-00  | 0673-250-00 | 50                          | 34.5            | 37.5  | 113     | 75 | 79    | R 28 | 7   | 4 | 30 |

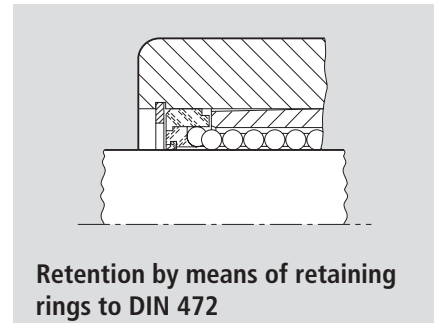
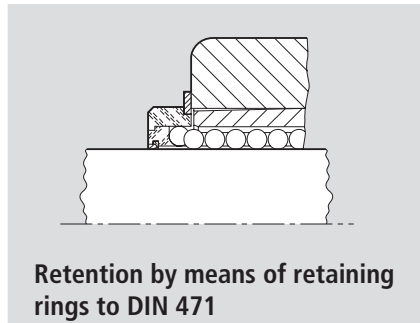
# STAR – Super Linear Bushings **A** and **B** Customer-Built Housings

## Retention

### Super Linear Bushings

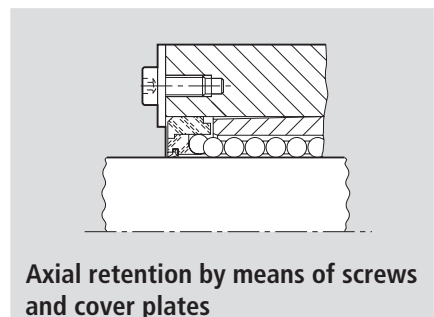
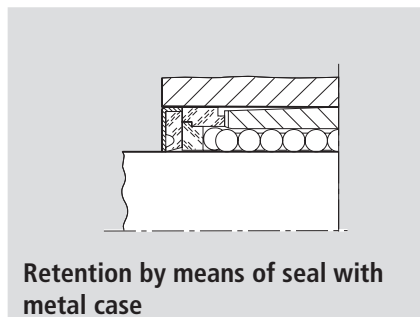
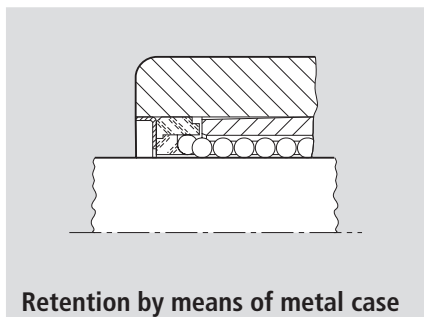
#### closed type

- Retaining rings
- Metal case
- Seal with metal case
- Special arrangement



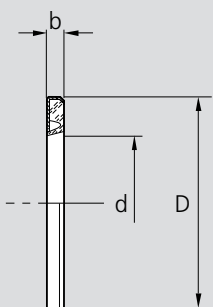
| Shaft<br>Ø d<br>(mm) | Retaining rings DIN 471 |                        | Retaining rings DIN 472 |                    |
|----------------------|-------------------------|------------------------|-------------------------|--------------------|
|                      | Part numbers            | Dimensions<br>(mm)     | Part numbers            | Dimensions<br>(mm) |
| 10                   | 8410-763-00             | 19 x 1.2               | 8410-221-00             | 19 x 1             |
| 12                   | 8410-714-00             | 22 x 1.2               | 8410-209-00             | 22 x 1             |
| 16                   | 8410-715-00             | 27 x 1.2 <sup>1)</sup> | 8410-210-00             | 26 x 1.2           |
| 20                   | 8410-716-00             | 33 x 1.5 <sup>1)</sup> | 8410-211-00             | 32 x 1.2           |
| 25                   | 8410-717-00             | 42 x 1.75              | 8410-212-00             | 40 x 1.75          |
| 30                   | 8410-718-00             | 48 x 1.75              | 8410-213-00             | 47 x 1.75          |
| 40                   | 8410-719-00             | 62 x 2                 | 8410-214-00             | 62 x 2             |
| 50                   | 8410-720-00             | 75 x 2.5               | 8410-215-00             | 75 x 2.5           |

<sup>1)</sup> not to DIN 471



## Separate seals

### Seal with metal case (closed type)



**Materials:** elastomer seal, steel case

| Shaft<br>Ø d<br>(mm) | Dimensions (mm) |           | Part numbers            |             |
|----------------------|-----------------|-----------|-------------------------|-------------|
|                      | D <sup>2)</sup> | b<br>+0.3 | seal with<br>metal case | metal case  |
| 10                   | 19              | 3         | 1331-610-00             | 0901-184-00 |
| 12                   | 22              | 3         | 1331-612-00             | 0901-074-00 |
| 16                   | 26              | 3         | 1331-616-00             | 0901-075-00 |
| 20                   | 32              | 4         | 1331-620-00             | 0901-076-00 |
| 25                   | 40              | 4         | 1331-625-00             | 0901-077-00 |
| 30                   | 47              | 5         | 1331-630-00             | 0901-078-00 |
| 40                   | 62              | 5         | 1331-640-00             | 0901-079-00 |
| 50                   | 75              | 6         | 1331-650-00             | 0901-115-00 |

<sup>2)</sup> The outside diameter D has been manufactured with an oversize of approx. 0.1 mm. No additional retention required.

## Super Linear Bushings open type

- axial and rotary retention by means of grooved taper pins

Notes for mounting:

Open-type Super Linear Bushings are delivered with a ready-made locating pin hole. This hole is marked with a "⊛" from shaft diameter 25 upwards.

The grooved locating pin must be driven in to the depth shown in the illustrations, as applicable, at the time of mounting.

The outer diameter of the Super Linear Bushing must then be reduced until the bushing can be slipped past the pin. When the linear bushing is aligned in the housing bore, the taper pin will engage in the retaining hole.

Size of the hole through housing for grooved locating pin:

Shaft diameters 12 to 40:

Ø 3.0 H11

(Grooved pin ISO 8744-3x ...-St)

Shaft diameter 50:

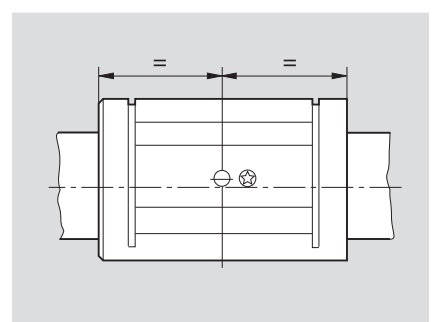
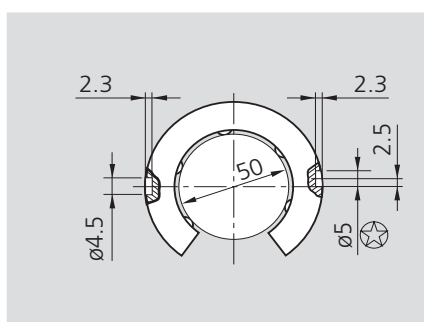
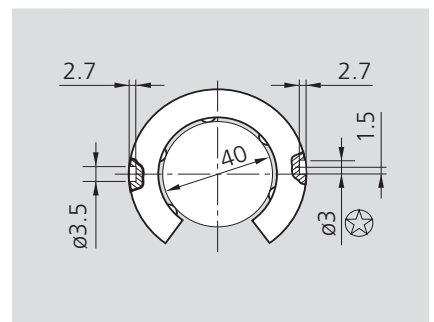
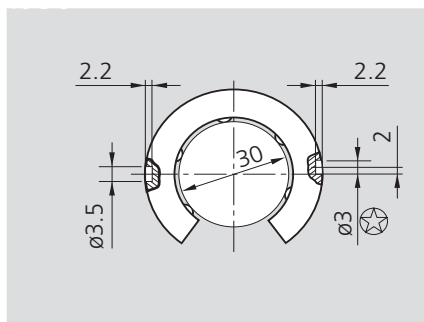
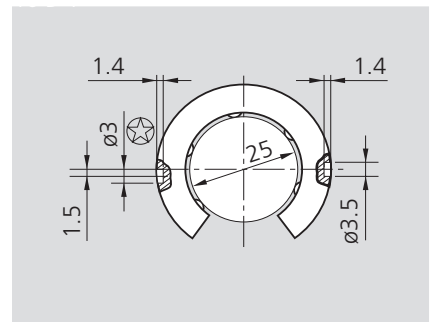
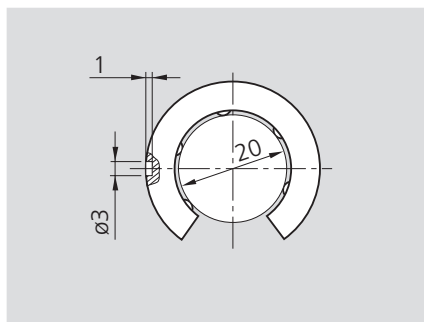
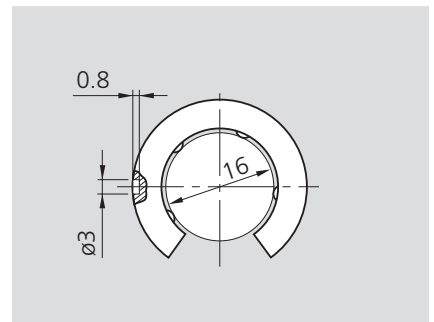
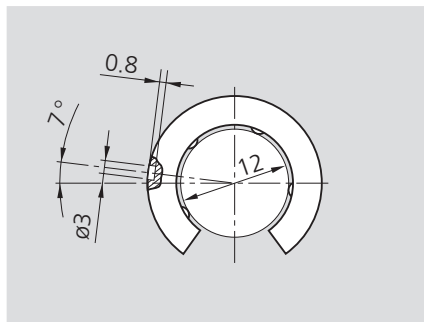
Ø 5.0 H11

(Grooved pin ISO 8744-5x ...-SA)

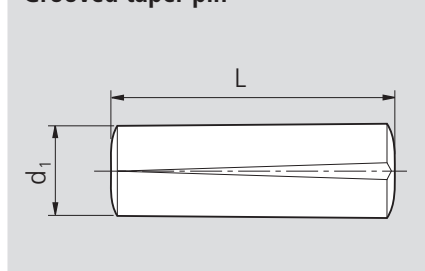
Super Linear Bushings for shaft diameters 25 to 50 are provided with 2 locating pin holes.

The second locating pin hole (Ø 3.5 for shaft diameters 25, 30 and 40 and Ø 4.5 for shaft diameter 50) is provided as an alternative means for retention of the Linear Bushing.

The original locating pin holes are marked with a star "⊛" (see illustration).



### Grooved taper pin

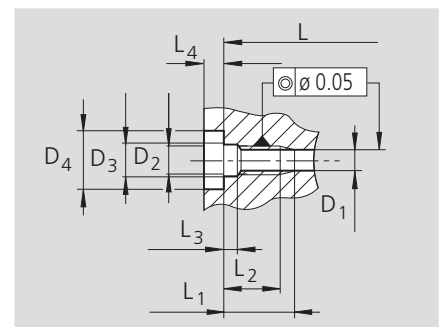
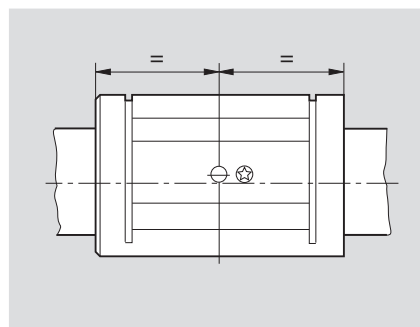
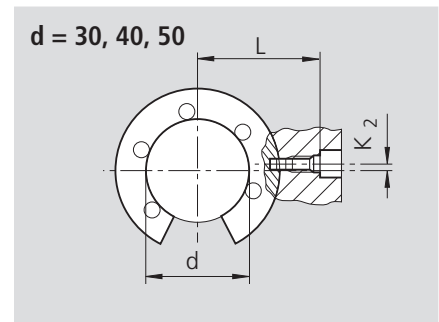
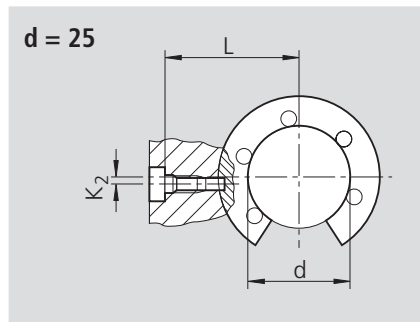
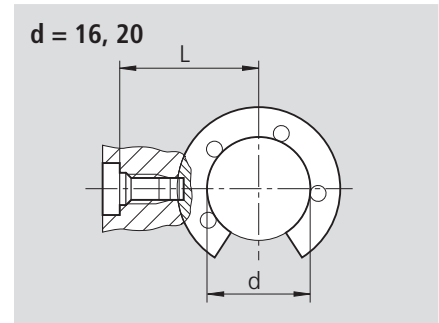
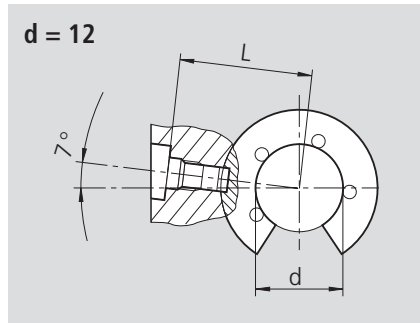


| Shaft<br>Ø d<br>(mm) | Dimensions (mm) |      | Mounting hole for<br>grooved taper pin<br>(mm) | Part numbers |
|----------------------|-----------------|------|--|--------------|
|                      | d <sub>1</sub>  | L    |  |              |
| 12 ... 40            | 3               | 5.2  | Ø 3 H11  | 8425-012-00  |
|                      | 3               | 8.2  |  | 8425-013-00  |
|                      | 3               | 10.2 |  | 8425-014-00  |
|                      | 3               | 14.2 |  | 8425-015-00  |
| 50                   | 5               | 20.4 | Ø 5 H11  | 8425-016-00  |
|                      | 5               | 14   |  | 8425-017-00  |

# STAR – Super Linear Bushings **A** and **B** Customer-Built Housings

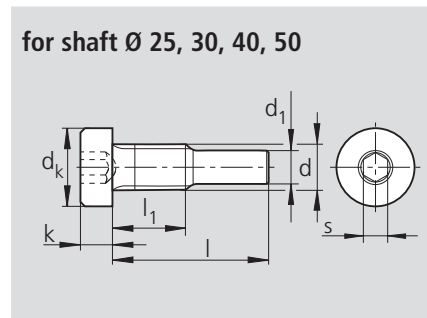
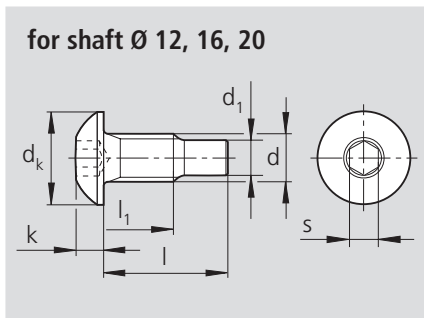
- axial and rotary retention by means of locating screw

Points to note when mounting:  
Open type Standard Linear Bushings have been provided with the necessary retention hole. This hole is marked with a "⊗" from shaft diameter 25 upwards.  
On installation, the retention hole of the Linear Bushing must be aligned with the tapped hole in the housing. The screw is then inserted, screwed down to the specified depth and tightened to the specified torque.



| Shaft<br>Ø d<br>(mm) | Dimensions (mm)       |                |                      |                |                |                |                |                |                |                | Locating screw |                        |
|----------------------|-----------------------|----------------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------------|
|                      | L                     | K <sub>2</sub> | L <sub>1</sub>       | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub> | D <sub>1</sub> | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub> | Part numbers   | Tightening torque (Nm) |
| 12                   | 18.8 <sub>-0.1</sub>  | –              | 7.2 <sub>max</sub>   | 5.2            | 1.3            | 2.5            | 3.1            | M4             | 4.5            | 8              | 8429-008-01    | 1.9                    |
| 16                   | 22.5 <sub>-0.1</sub>  | 0              | 8.5 <sup>+0.2</sup>  | 6.5            | 1.3            | 2.5            | 3.1            | M4             | 4.5            | 8              | 8429-009-01    | 1.9                    |
| 20                   | 25.5 <sub>-0.1</sub>  | 0              | 8.5 <sup>+0.2</sup>  | 6.5            | 1.3            | 2.5            | 3.1            | M4             | 4.5            | 8              | 8429-009-01    | 1.9                    |
| 25                   | 33.05 <sub>-0.1</sub> | 1.5            | 10 <sup>+0.2</sup>   | 8              | 2              | 3.2            | 3.1            | M4             | 4.5            | 8              | 8427-009-09    | 1.9                    |
| 30                   | 36 <sub>-0.15</sub>   | 2              | 10 <sup>+0.2</sup>   | 8              | 2              | 3.2            | 3.1            | M4             | 4.5            | 8              | 8427-009-09    | 1.9                    |
| 40                   | 42.9 <sub>-0.15</sub> | 1.5            | 10 <sup>+0.2</sup>   | 8              | 2              | 3.2            | 3.1            | M4             | 4.5            | 8              | 8427-009-09    | 1.9                    |
| 50                   | 58.5 <sub>-0.2</sub>  | 2.5            | 17.5 <sup>+0.5</sup> | 13.5           | 3.7            | 6              | 5.1            | M8             | 9              | 15             | 8427-005-09    | 16                     |

## Locating screws

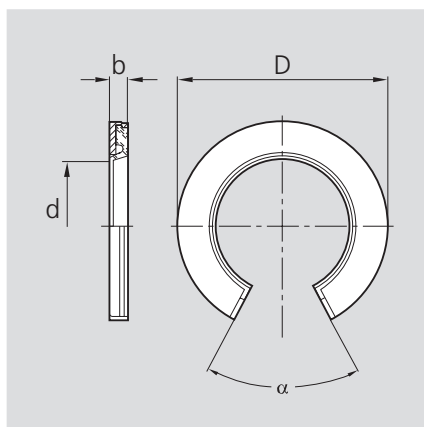


| Shaft<br>$\varnothing$ d<br>(mm) | Part numbers | Dimensions (mm) |                |                |       |                |     |     | Tightening torque<br>(Nm) |
|----------------------------------|--------------|-----------------|----------------|----------------|-------|----------------|-----|-----|---------------------------|
|                                  |              | d               | d <sub>k</sub> | d <sub>1</sub> | l     | l <sub>1</sub> | k   | s   |                           |
| 12                               | 8429-008-01  | M4              | 7.6            | 3              | 8.45  | 4.5            | 2.2 | 2.5 | 1.9                       |
| 16, 20                           | 8429-009-01  | M4              | 7.6            | 3              | 10.15 | 5.7            | 2.2 | 2.5 | 1.9                       |
| 25, 30, 40                       | 8427-009-09  | M4              | 7              | 3              | 14.1  | 6.5            | 2.8 | 2.5 | 1.9                       |
| 50                               | 8427-005-09  | M8              | 13             | 5              | 22.8  | 12.5           | 5   | 5   | 16                        |

The locating screws are of the self-locking type.

## Separate seals

seal with metal case (open type)



| Shaft<br>$\varnothing$ d<br>(mm) | Dimensions (mm) |                   | Angle (°)       | Part numbers<br>Seal with metal case |
|----------------------------------|-----------------|-------------------|-----------------|--------------------------------------|
|                                  | D <sup>1)</sup> | b<br>+0.1<br>-0.2 | α <sup>2)</sup> |                                      |
| 12                               | 22              | 3                 | 66              | 1331-712-50                          |
| 16                               | 26              | 3                 | 68              | 1331-716-50                          |
| 20                               | 32              | 4                 | 55              | 1331-720-50                          |
| 25                               | 40              | 4                 | 57              | 1331-725-50                          |
| 30                               | 47              | 5                 | 57              | 1331-730-50                          |
| 40                               | 62              | 5                 | 56              | 1331-740-50                          |
| 50                               | 75              | 6                 | 54              | 1331-750-50                          |

<sup>1)</sup> Outside diameter D is about 0.3 mm oversize. No retaining elements required. Additional means of retention recommended for applications subject to vibration or high acceleration rates.

<sup>2)</sup> Lower limit, measured when mounted in a bore of nominal diameter D.

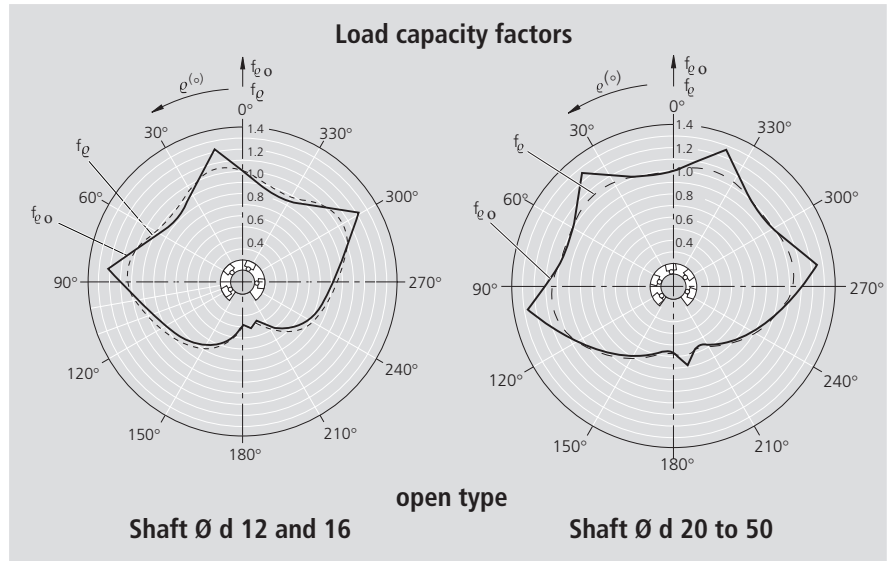
# STAR – Super Linear Bushings with self-alignment feature

Super Linear Bushings, 0670-  
closed type

Super Linear Bushings, 0671-  
open type

## Structural design

- Ball retainer with outer sleeve made of polyamide
- Hardened steel segmental load bearing plates with ground ball tracks
- Balls of anti-friction bearing steel
- Automatic compensation of alignment errors up to 30'
- Without seals
- With internal/separate seals



## Ordering data



| Shaft<br>Ø d<br>(mm) | Part numbers     |                               |   | Mass<br>(kg) |
|----------------------|------------------|-------------------------------|---|--------------|
|                      | without<br>seals | with two<br>internal<br>seals | with two<br>separate<br>seals <sup>1)</sup> |              |
| 10                   | 0670-010-00      | 0670-210-40                   | 0670-210-00                                 | 0.017        |
| 12                   | 0670-012-00      | 0670-212-40                   | 0670-212-00                                 | 0.023        |
| 16                   | 0670-016-00      | 0670-216-40                   | 0670-216-00                                 | 0.028        |
| 20                   | 0670-020-00      | 0670-220-40                   | 0670-220-00                                 | 0.061        |
| 25                   | 0670-025-00      | 0670-225-40                   | 0670-225-00                                 | 0.122        |
| 30                   | 0670-030-00      | 0670-230-40                   | 0670-230-00                                 | 0.185        |
| 40                   | 0670-040-00      | 0670-240-40                   | 0670-240-00                                 | 0.360        |
| 50                   | 0670-050-00      | 0670-250-40                   | 0670-250-00                                 | 0.580        |

With one internal seal: 0670-1..-40



| Shaft<br>Ø d<br>(mm) | Part numbers     |                               |   |   | Mass<br>(kg) |
|----------------------|------------------|-------------------------------|---|---|--------------|
|                      | without<br>seals | with two<br>internal<br>seals | with two<br>internal<br>seals and<br>seal strip | with two<br>separate<br>seals <sup>1)</sup> |              |
| 12                   | 0671-012-00      | 0671-212-40                   | 0671-212-45                                     | 0671-212-00                                 | 0.018        |
| 16                   | 0671-016-00      | 0671-216-40                   | 0671-216-45                                     | 0671-216-00                                 | 0.022        |
| 20                   | 0671-020-00      | 0671-220-40                   | 0671-220-45                                     | 0671-220-00                                 | 0.051        |
| 25                   | 0671-025-00      | 0671-225-40                   | 0671-225-45                                     | 0671-225-00                                 | 0.102        |
| 30                   | 0671-030-00      | 0671-230-40                   | 0671-230-45                                     | 0671-230-00                                 | 0.155        |
| 40                   | 0671-040-00      | 0671-240-40                   | 0671-240-45                                     | 0671-240-00                                 | 0.300        |
| 50                   | 0671-050-00      | 0671-250-40                   | 0671-250-45                                     | 0671-250-00                                 | 0.480        |

With one internal seal: 0671-1..-40

<sup>1)</sup> For dimension, see section on "Customer-Built Housings"

The figures for dynamic load-carrying capacity have been calculated assuming a nominal travel of 100,000 m. For a nominal travel of 50,000 m, the 'C' figures in the table must be multiplied by a factor of 1.26.

