

FAG



High Speed, High Load Capacity: Ball Screw Support Bearings BSB..-SU

Single row axial angular contact ball bearings,
universal, with 60° contact angle

SCHAEFFLER

Universal bearings BSB..-SU for high speed screw drives

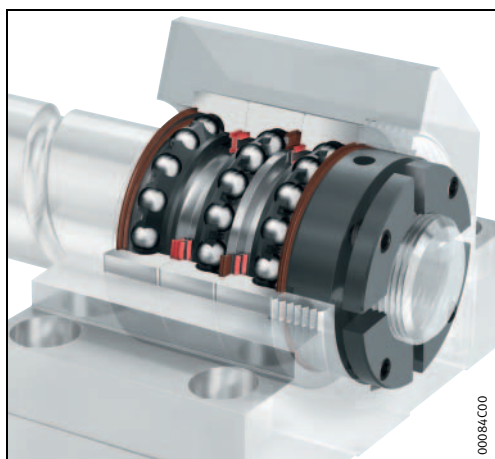


Figure 1: Screw drive bearing arrangement with one bearing set, comprising three sealed and greased universal bearings BSB..-2Z-SU, located by means of an INA precision locknut AM

Universal bearings BSB..-SU for screw drives are single row axial angular contact ball bearings of a universal design. They can be used in sets in any combination required, Figure 1 and Figure 2. The universal bearings thus offer considerable advantages in terms of availability, stockholding and inventory optimisation.

Simple mounting of bearings

The arrow markings on the lateral surface of the bearing outer rings indicate the contact angle pattern and give the fitter a simple means of assembling the bearings in the correct combination, Figure 2.

The correct mounting position can be seen not only from the arrow markings but also from the different seal colours. As a result, the contact angle pattern can be seen and checked at any time even in the mounted condition.

Solutions matched to specific requirements achievable with a modular concept

The modular concept offers three different standard designs:

- open bearing, suitable for oil lubrication or grease filling by the user
- open bearing, greased using the special grease FAG Arcanol MULTITOP
- bearing with seals on both sides and greased for life.

The detailed features of the sealed bearings BSB..-2Z-SU are as follows:

- They are supplied greased with the high performance grease Arcanol MULTITOP for optimum running characteristics, low friction and long operating life.
- Integrated seals give reliable protection against grease loss and the ingress of contaminants.
- Integrated seals prevent contamination of the bearings during mounting. In contrast to open bearings, initial greasing by manual means is not necessary.
- The FKM seals have strong chemical resistance to environmental influences, such as synthetic cooling lubricants, oils and greases.

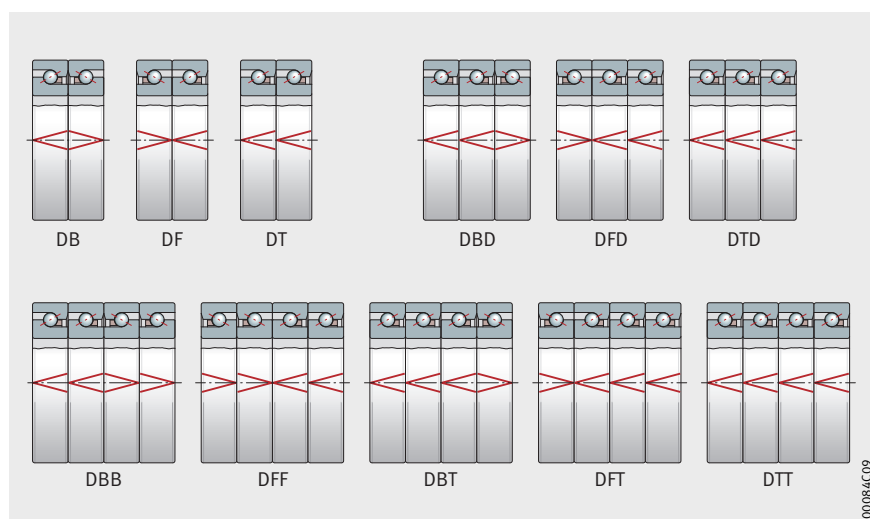


Figure 2: Arrow marks on FAG universal bearings

DB = 0 arrangement, DF = X arrangement, DT = tandem arrangement

Good reliability with low frictional torques and low heat generation

The universal bearings BSB...-SU for screw drives have consistently lower frictional torque and are therefore extremely suitable not only for the precise positioning of linear axes but also for operation at very high speeds.

In testing, these bearings exhibit friction values lower than those of competitor bearings by an average of 45%, *Figure 3*.

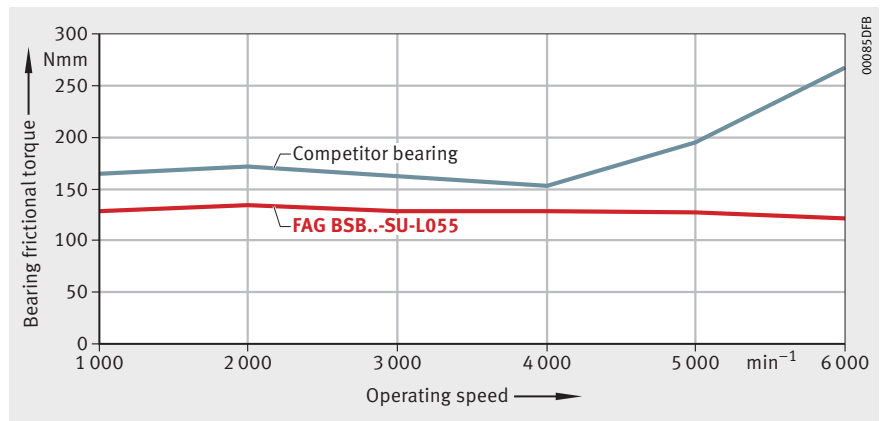


Figure 3: Comparison of frictional torque of a preloaded and greased bearing set comprising two single row universal bearings for screw drives BSB2562-SU-L055 in an X arrangement

Comparison of maximum achievable speeds based on catalogue values

Universal bearings BSB...-SU for screw drives can achieve high speeds, see *Figure 3* and *Table 1*.

Table 1: Comparison of maximum achievable speeds

Designation	Speed n		
	Competitor bearing min ⁻¹	FAG BSB...-SU min ⁻¹	Advantage of FAG bearings %
BSB1747	6 000	8 700	+45
BSB2047	6 000	8 700	+45
BSB2562	4 500	6 700	+49
BSB3062	4 300	6 700	+56
BSB3572	3 600	5 400	+50
BSB4072	3 600	5 400	+50

Bearing designation

The designations of the universal bearings BSB are constructed as follows, *Figure 4*.

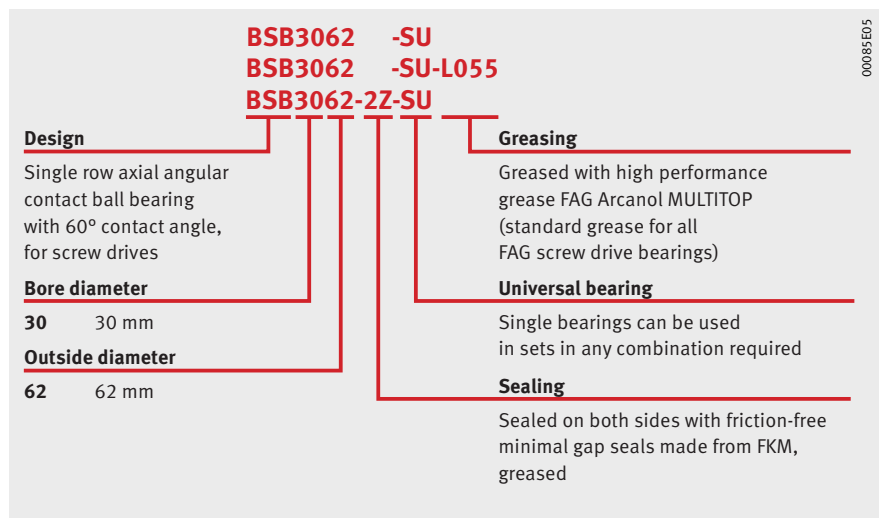


Figure 4: Bearing designation

Marking of bearings

The measured actual deviations of the inside and outside diameter are indicated not only on the box but also on the bearing itself. This means that grouping of bearings can be carried out, if necessary, even when the packaging is not present, *Figure 5*.

Further information

- Technical Product Information
TPI 123, Bearings for Screw Drives
- Fitting and maintenance manual
TPI 100, Bearings for Screw Drives
- BEARINX®-online Easy Ballscrew.

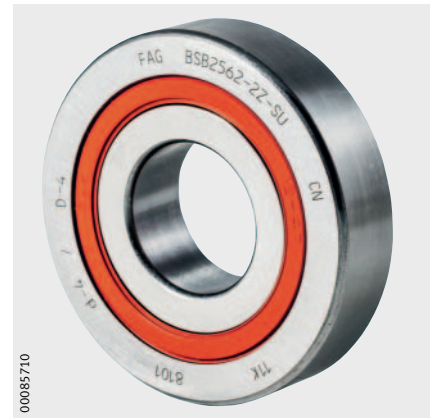


Figure 6: Sealed screw drive bearing BSB..2Z-SU



Figure 7: Technical Product Information TPI 123, fitting and maintenance manual TPI 100



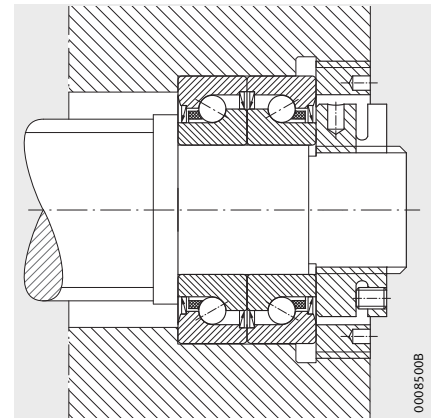
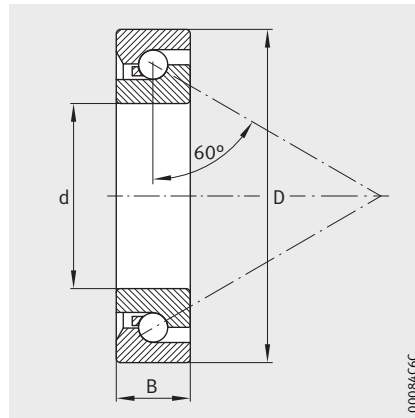
Figure 5: Marking and labelling of bearings



Figure 8: Calculation of screw drive bearings using BEARINX®-online Easy Ballscrew

Axial angular contact ball bearings

Universal bearings for screw drives



BSB...-2Z-SU, mounted in X arrangement

Dimension table · Dimensions in mm

Designation	Dimensions			Basic load ratings axial		Limiting speed ¹⁾		Rigidity axial C_{aL} N/ μ m	Bearing frictional torque ³⁾ M_{RL} Nm	Axial runout Inner ring μ m
	d	D	B	dyn. C_a N	stat. C_{0a} N	n_G grease min^{-1}	n_{\emptyset} ²⁾ min^{-1}			
BSB1747-SU	17 _{-0,004}	47 _{-0,006}	15	26 000	47 000	8 700	6 200	764	0,2	2
BSB1747-SU-L055										
BSB1747-2Z-SU										
BSB2047-SU	20 _{-0,005}	47 _{-0,006}	15	26 000	47 000	8 700	6 200	764	0,2	2
BSB2047-SU-L055										
BSB2047-2Z-SU										
BSB2562-SU	25 _{-0,005}	62 _{-0,007}	15	29 000	64 000	6 700	5 400	1 001	0,25	2
BSB2562-SU-L055										
BSB2562-2Z-SU										
BSB3062-SU	30 _{-0,005}	62 _{-0,007}	15	29 000	64 000	6 700	5 100	1 034	0,25	2,5
BSB3062-SU-L055										
BSB3062-2Z-SU										
BSB3572-SU	35 _{-0,006}	72 _{-0,007}	15	37 000	89 000	5 400	4 700	1 196	0,35	2,5
BSB3572-SU-L055										
BSB3572-2Z-SU										
BSB4072-SU	40 _{-0,006}	72 _{-0,007}	15	37 000	89 000	5 400	4 700	1 235	0,35	2,5
BSB4072-SU-L055										
BSB4072-2Z-SU										

¹⁾ Comparison of maximum achievable speeds, see Table 1.

²⁾ Guide value proven in practice for maximum speeds in applications for machine tools (approx. +50 °C bearing temperature for a proportion of 25% of the operating duration and at room temperature. The bearing is preloaded and free from external load).

³⁾ Based on a preloaded bearing set comprising two greased bearings.



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