

6.1.1.2 Fixed bearing unit for Ball Screws in block design type BSTK

The fixed bearing units for ball screws of the BSTK series are block type bearing units for high loads, especially in vertical applications. The bearing units are equipped with NTN axial angular contact ball bearings with a 60 ° contact angle from the BST series (Chapter 6.1.1.1). Depending on the size, the bearing units BSTK can contain bearings in a DB, DBT, DTBT and DBTT arrangement (Figure 6.3). The specially ground side surfaces give the bearings the required preload when installed.

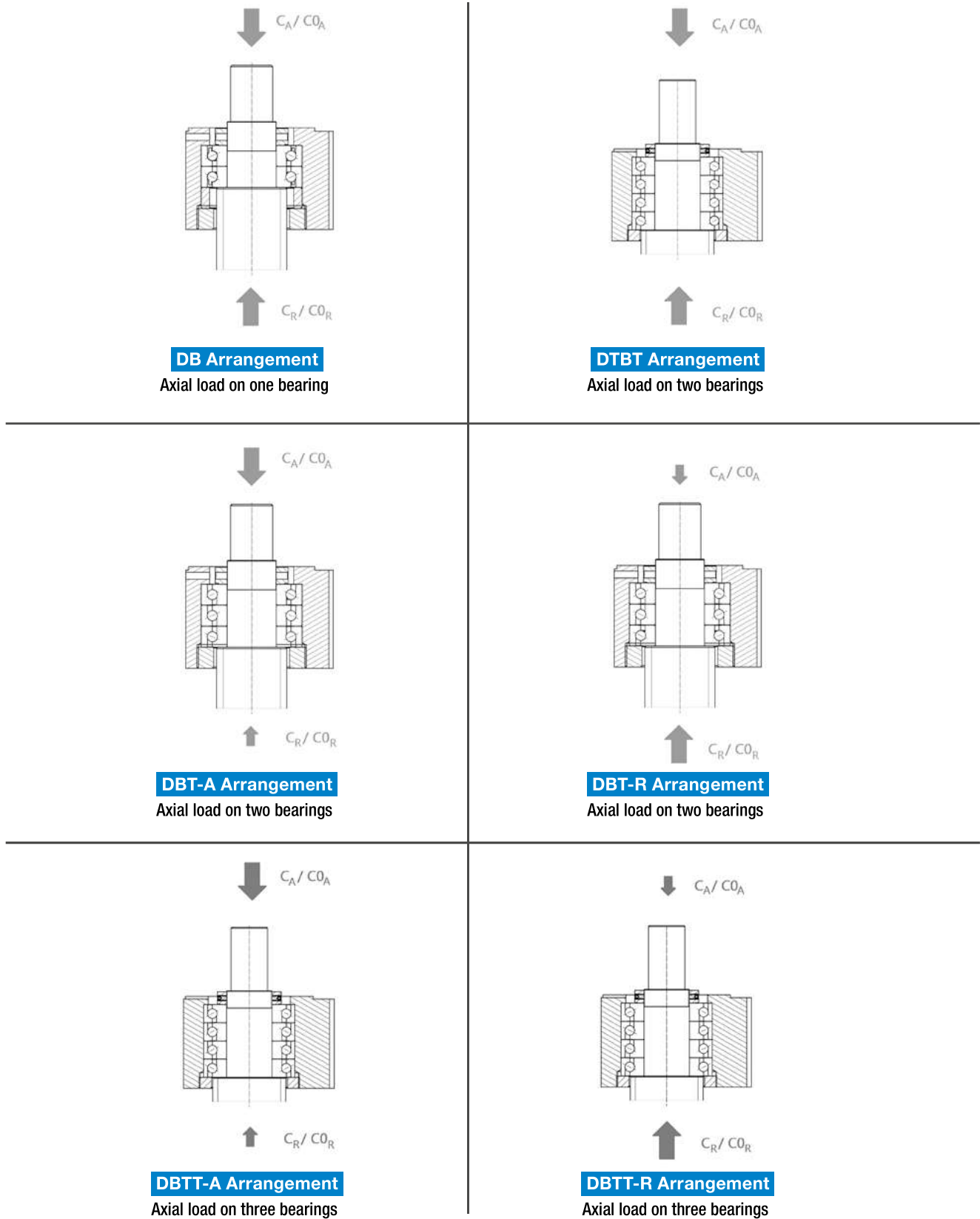


Figure 6.3 Bearing arrangement in fixed bearing units BSTK

The bearings of the fixed bearing units of the BSTK series are equipped with light-contact seals (LXL) as standard and filled with a special grease (L588).

The instructions in Chapter 3.3.2.2 must be observed for assembly.

The type code has the following structure:

BSTK 20 - DBT - A

1 2 3 4

1	BSTK	Product BSTK: SNR Fixed bearing unit for Ball Screws
2	20	Bore diameter [mm]
3	DBT	Bearing arrangement see Figure 6.3
4	A	Bearing installation direction (only for Bearing arrangement DBT and DBTT) A: for tensile load R: for pressure load

The dimensions and load ratings of the for suitable for SNR ball screws bearing units BSTK are summarized in Figure 6.4, Table 6.5 and Table 6.6.

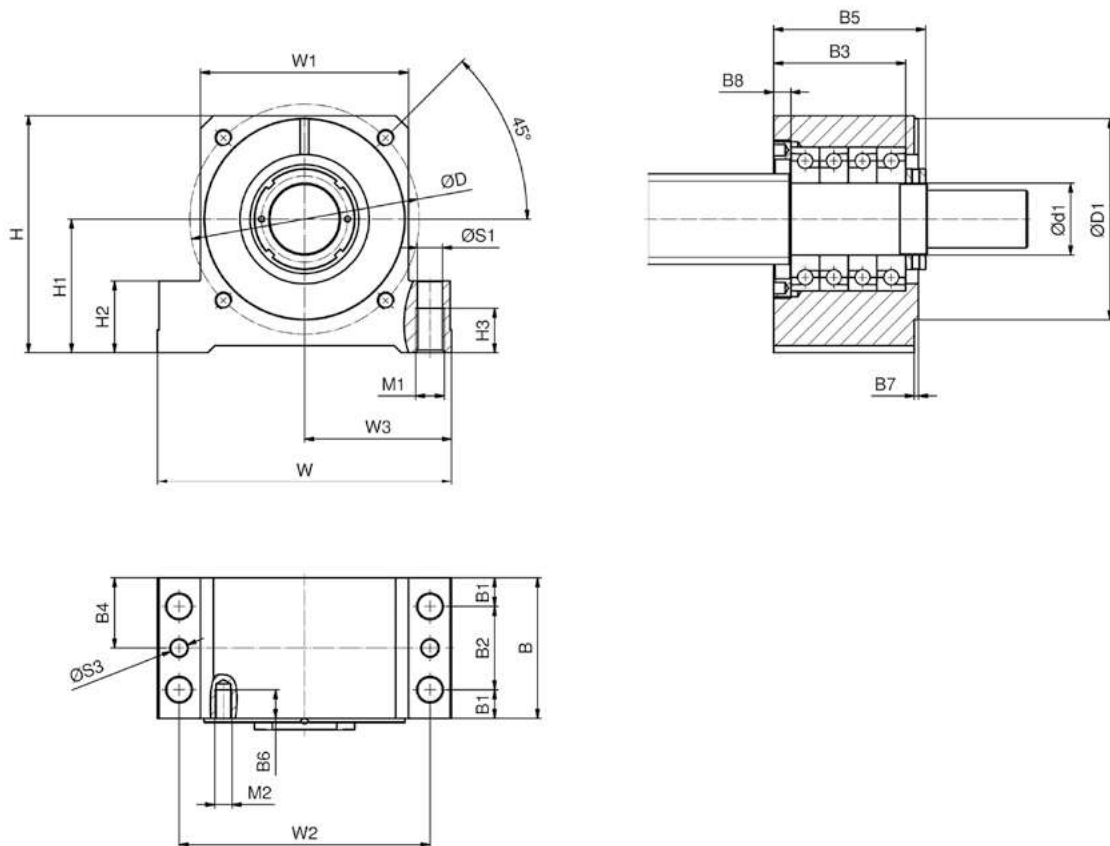


Figure 6.4 SNR Fixed bearing unit BSTK

Table 6.5 Dimension SNR Fixed bearing unit BSTK

Type	ID Number	d ₀ [mm]	P [mm]	d ₁ [mm]	H [mm]	H ₁ ±0,02 [mm]	H ₂ [mm]	H ₃ [mm]	W [mm]	W ₃ [mm]	W ₁ [mm]	W ₂ [mm]	B [mm]	B ₁ [mm]	B ₂ [mm]	B ₃ [mm]	B ₄ [mm]	B ₅ [mm]	B ₇ [mm]	B ₈ [mm]	H ₄ [mm]	S ₁ [mm]	S ₃ [mm]	M ₁ [mm]	D ₁ g6 [mm]	B ₅ [mm]	M ₂ [mm]	D [mm]	B ₆ [mm]	α °	Mass [g]	
BSTK17-DB	478433	25	5/10/25	17	72	39	27	18	108	54,0	66	88	46	8,5	29	38,0	23,0	48,0	2,0	8,0	10	10,2	9,7	M12	55	2,0	M6	70	12	45	1,8	
BSTK20-DB	478434	32	10	20	77	42	27	18	112	56,0	70	92	49	10,0	29	38,0	24,5	48,0	2,0	8,0	10	10,2	9,7	M12	65	2,0	M6	75	12	45	2,1	
BSTK25-DB	478435	32	4/5/20/32	25	77	42	27	18	112	56,0	71	92	49	10,0	29	39,0	24,5	51,0	2,0	9,0	10	10,2	9,7	M12	65	2,0	M8	75	20	45	1,9	
BSTK30-DB	478436	40	5/10/25	30	91	50	32	21	126	63,0	82	105	53	10,5	32	42,0	26,5	54,0	2,5	12,0	12	11,0	9,7	M14	80	2,5	M10	95	20	45	2,9	
BSTK30-DTBT	478437							24					83											12,5							58	72,0
BSTK35-DB	478439	50	10/20	35	105	58	38	24	144	72,0	92	118	70	13,5	43	60,0	35,0	72,5	2,5	30,0	12	13,0	9,7	M16	90	2,5	M10	110	17	45	5,0	
BSTK35-DBT-A	478440																														15,0	5,2
BSTK35-DBT-R	478441																														15,0	5,2
BSTK40-DB	478442	50	50	40	138	73	50	25	190	95,0	130	160	85	13,5	58	76,0	42,5	90,0	3,0	36,0	16	13,0	9,7	M16	110	3,0	M10	130	17	45	11,6	
BSTK40-DBT-A	478443																														16,0	11,9
BSTK40-DBT-R	478445																														16,0	11,9
BSTK50-DTBT	478446																														16,0	11,9
BSTK50-DBTT-A	478447	63/80	10/20	50	165	93	50	31	205	102,5	145	175	98	20,0	58	92,0	49,0	106,0	3,0	12,0	16	17,5	11,7	M20	140	3,0	M12	160	20	45	17,4	
BSTK50-DBTT-R	478448																															

Table 6.6 Load ratings SNR Fixed bearing unit BSTK

Type	Basic dynamic load rating		Basic static load rating		Static axial load capacity	
	Tensile direction C _A [kN]	Pressure direction C _R [kN]	Tensile direction C _{0A} [kN]	Pressure direction C _{0R} [kN]	Tensile direction [kN]	Pressure direction [kN]
BSTK17-DB	24,3	24,3	37,5	37,5	25,7	25,7
BSTK20-DB	24,3	24,3	37,5	37,5	25,7	25,7
BSTK25-DB	29,2	29,2	59,0	59,0	40,0	40,0
BSTK30-DB	29,2	29,2	59,0	59,0	40,0	40,0
BSTK30-DTBT	47,5	47,5	118,0	118,0	80,5	80,5
BSTK35-DB	31,0	31,0	118,0	118,0	47,5	47,5
BSTK35-DBT-A	50,5	31,0	140,0	118,0	95,0	47,5
BSTK35-DBT-R	31,0	50,5	118,0	140,0	47,5	95,0
BSTK40-DB	58,5	58,5	130,0	130,0	88,5	88,5
BSTK40-DBT-A	95,0	58,5	261,0	130,0	177,0	88,5
BSTK40-DBT-R	58,5	95,0	130,0	261,0	88,5	177,0
BSTK50-DTBT	101,0	101,0	305,0	305,0	208,0	208,0
BSTK50-DBTT-A	134,0	62,0	459,0	153,0	315,0	104,0
BSTK50-DBTT-R	62,0	134,0	153,0	459,0	104,0	315,0

Bearings for ball screw drives can be exposed to axial and radial loads. To calculate the static safety and the nominal service lifetime, it is necessary to determine the static and dynamic equivalent load. To determine the equivalent loads, the instructions for calculating the BST axial angular contact ball bearings in Chapter 6.1.1.1 must be used.

For the calculation of ball screws, the rigidity and starting torque of the bearings must be considered. Depending on the bearing arrangement and the sealing, these values are summarized in Table 6.7

Table 6.7 Starting torque for SNR Fixed bearing unit BSTK

Type	Starting moment [Nm]
BSTK17-DB	0,215
BSTK20-DB	0,215
BSTK25-DB	0,365
BSTK30-DB	0,365
BSTK30-DTBT	0,745
BSTK35-DB	0,380
BSTK35-DBT-A	0,510
BSTK35-DBT-R	0,510
BSTK40-DB	1,155
BSTK40-DBT-A	1,570
BSTK40-DBT-R	1,570
BSTK50-DTBT	2,815
BSTK50-DBTT-A	2,175
BSTK50-DBTT-R	2,175

Information on the various versions of the standard end machining can be found in Chapter 6.2.1.1.