

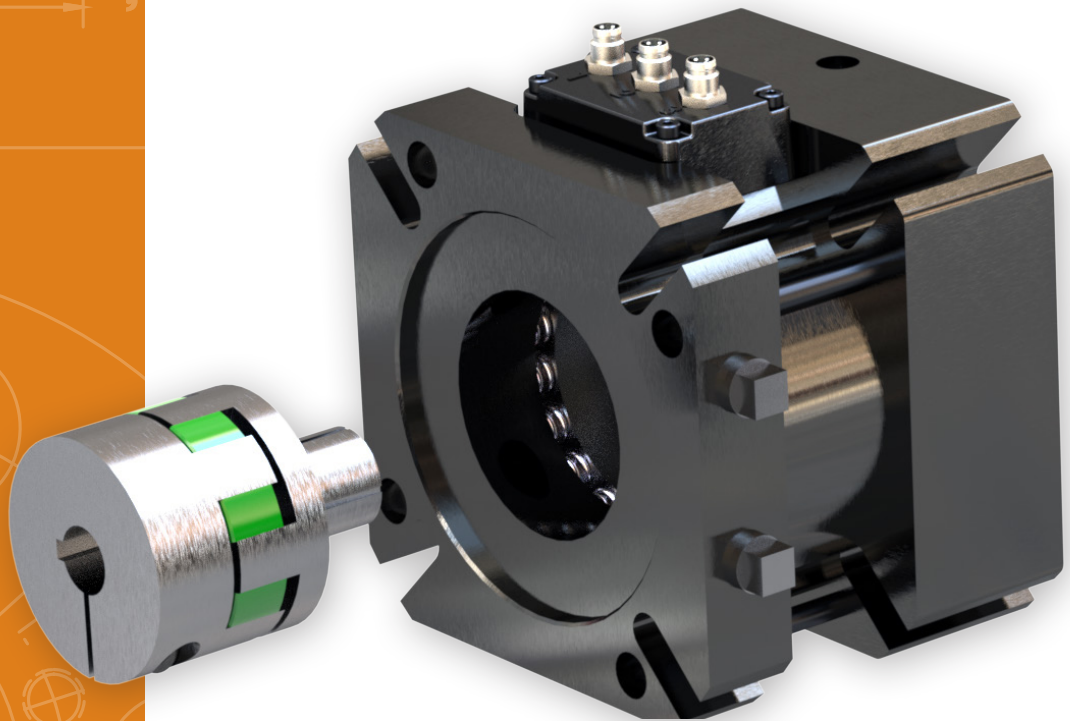


Ball Screw Brake

Technical Data Sheet

The Nexen Ball Screw Brake is a high-torque, spring-engaged brake acting on the machined end of a ball screw. It is a primary or redundant safety brake to prevent back driving if a power loss or mechanical defect occurs in the driveline.

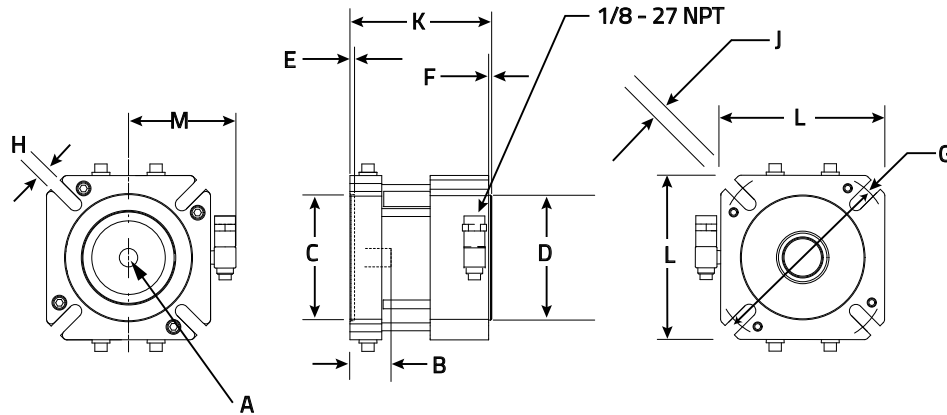
The zero backlash brake and coupling combination provide a high degree of accuracy for holding the ball screw position. The coupling incorporates a high-stiffness elastomer insert to accommodate misalignment and axial growth of the ball screw.



Features

- Zero Backlash for precision holding
- Spring engaged, air released
- Low inertia
- High torsional rigidity
- Bi-directional braking
- Fast engagement
- Meets IP67 dust and waterproof standards
- Operates in vertical and horizontal applications
- Allows thermal expansion of ball screw
- Optional sensors for engagement, disengagement and wear are available

Dimensions



Model Size	Coupling Bore Diameter	Max Shaft Insertion	Input Pilot Diameter	Output Pilot Diameter	Input Pilot Depth	Output Pilot Depth	Bolt Circle Diameter	Input Slot Width	Output Slot Width	Length	Width	Valve Height	Brake Bore
	A	B	C	D	E	F	G	H	J	K	L	M	
BSB2	5.0-12.7	12.1	52.0	50.0	4.1	1.5	65.0-91.5	6.3	6.0	76.0	74.2	56.0	10.0
BSB3	5.0-16.0	18.6	50.0	50.0	5.0	3.0	95.0-108.72	7.0	7.0	80.7	92.0	65.0	13.0
BSB4	12.0-32.0	23.8	96.0	95.0	3.5	2.3	115.0-150.0	10.0	10.0	108.0	125.0	82.0	23.0
BSB5	12.0-32.0	25.5	130.0	130.0	6.2	2.4	165.0-186.3	12.0	12.0	134.9	150.4	95.0	23.0
BSB7	20.0-36.0	29.6	130.0	130.0	6.1	3.5	215.0	15.0	15.0	105.9	192.0	117.0	26.0

Note:

- When selecting a brake, a coupling must also be selected.
- All dimensions shown in millimeters unless otherwise specified.
- Brake bore must match expanding shaft diameter
- See the coupling chart on the next page.
- Visit www.nexengroup.com for a complete list of dimensions.

Brake Specifications

Model Size	Min Holding Torque ⁽¹⁾	Release Pressure	Max Speed	Inertia ⁽²⁾	Torsional Rigidity ⁽²⁾	Weight ⁽²⁾
	Nm	Bar	RPM	kgm ²	Nm/rad	kg
BSB2	2	5.5	10,000	0.00002	345	1.3
BSB3	8	5.5	10,000	0.00005	589	1.6
BSB4	22	5.5	10,000	0.00038	9397	3.4
BSB5	45	5.5	10,000	0.00124	9295	6.6
BSB7	125	5.5	5,000	0.00343	9749	14.7

(1) Minimum application torque is the lesser of the ball screw brake and coupling

(2) Values of ball screw brake with coupling

Back Drive Torque Formula

Inlb

$$\text{Back Drive Torque} = \frac{PLe}{2 (\pi)}$$

Nm

$$\text{Back Drive Torque} = \frac{LPe}{2000 (\pi)}$$

Note: Select a Ball Screw Brake with holding torque that exceeds the back-drive torque by 20-30%.

L = Screw Lead in inches
P = Load in pounds
e = mechanical efficiency of 0.9
pi = 3.1416

L = Screw Lead in millimeters
P = Load in Newtons
e = mechanical efficiency of 0.9
pi = 3.1416

3-Way Valve, Air Inlet Mount

Product Number	964650
Valve	Normally Closed
Effective Orifices	0.062 Body 0.089 Exhaust Port
Port Size	1/8-27 NPT Male
Voltage	24VDC
DIN Connector	Included
Power Consumption	25 Watts

Coupling Specifications

BSB Brake Model	Coupling Product Number	Coupling Bore mm [in]	Expanding Shaft mm [in]	Torque Nm [inlb]	Axial Misalignment mm [in]
BSB2	964641	8.00 [.315]	10.00 [.394]	8 [71]	1.0 [.04]
BSB2	964643	10.00 [.394]	10.00 [.394]	12 [106]	1.0 [.04]
BSB2	964642	10.31 [.406]	10.00 [.394]	12 [106]	1.0 [.04]
BSB3	964743	7.94 [.313]	13.00 [.512]	12 [106]	1.0 [.04]
BSB3	964747	8.00 [.315]	13.00 [.512]	12 [106]	1.0 [.04]
BSB3	964746	10.00 [.394]	13.00 [.512]	16 [142]	1.0 [.04]
BSB3	964742	12.70 [.500]	13.00 [.512]	16 [142]	1.0 [.04]
BSB3	964741	14.00 [.551]	13.00 [.512]	16 [142]	1.0 [.04]
BSB3	964744	15.88 [.625]	13.00 [.512]	16 [142]	1.0 [.04]
BSB4/5	964872	12.00 [.472]	23.00 [.906]	40 [354]	2.0 [.08]
BSB4/5	964869	12.70 [.500]	23.00 [.906]	40 [354]	2.0 [.08]
BSB4/5	964896	15.00 [.591]	23.00 [.906]	40 [354]	2.0 [.08]
BSB4/5	964893	15.88 * [.625]	23.00 [.906]	75 [664]	2.0 [.08]
BSB4/5	964898	18.00 * [.709]	23.00 [.906]	75 [664]	2.0 [.08]
BSB4/5	964881	17.00 * [.669]	23.00 [.906]	75 [664]	2.0 [.08]
BSB4/5	964876	18.00 [.709]	23.00 [.906]	70 [620]	2.0 [.08]
BSB4/5	964862	19.00 [.748]	23.00 [.906]	75 [664]	2.0 [.08]
BSB4/5	964875	19.05 * [.750]	23.00 [.906]	75 [664]	2.0 [.08]
BSB4/5	964841	20.00 [.787]	23.00 [.906]	75 [664]	2.0 [.08]
BSB4/5	964847	20.00 * [.787]	23.00 [.906]	75 [664]	2.0 [.08]
BSB4/5	964868	22.23 [.875]	23.00 [.906]	75 [664]	2.0 [.08]
BSB4/5	964859	23.00 [.906]	23.00 [.906]	75 [664]	2.0 [.08]
BSB4/5	964885	24.00 [.945]	23.00 [.906]	75 [664]	2.0 [.08]
BSB4/5	964882	25.00 * [.984]	23.00 [.906]	75 [664]	2.0 [.08]
BSB4/5	964854	25.40 [1.000]	23.00 [.906]	75 [664]	2.0 [.08]
BSB4/5	964863	28.58 [1.125]	23.00 [.906]	75 [664]	2.0 [.08]
BSB4/5	964870	30.00 [1.181]	23.00 [.906]	75 [664]	2.0 [.08]
BSB7	965044	20.00 [.787]	26.00 [1.024]	127 [1124]	2.0 [.08]
BSB7	965045	25.00 [.984]	26.00 [1.024]	160 [1416]	2.0 [.08]
BSB7	965043	25.40 [1.000]	26.00 [1.024]	162 [1434]	2.0 [.08]
BSB7	965047	26.00 [1.024]	26.00 [1.024]	164 [1452]	2.0 [.08]
BSB7	965049	28.00 [1.102]	26.00 [1.024]	172 [1522]	2.0 [.08]
BSB7	965041	30.00 [1.181]	26.00 [1.024]	180 [1593]	2.0 [.08]
BSB7	965046	34.93 [1.375]	26.00 [1.024]	200 [1770]	2.0 [.08]
BSB7	965042	35.00 [1.378]	26.00 [1.024]	200 [1770]	2.0 [.08]

Note: Select a coupling with a bore matching the machined end of the ball screw. Custom bores available on request. *Keyed Bore

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