

BK2 SERIES

METAL BELLOWS COUPLINGS

FEATURES

- Metal Bellows Couplings for use with Magtrol TM, TMB, TMHS and TS Series In-Line Torque Transducers and Sensors
- Dedicated for transmission of High Torques
- High Torsional Stiffness
- Diameter Range: 10 ... 90mm
- Radial Clamping Screw hub for smooth shaft.
- Easy to mount.



Fig. 1: BK2-80-94 | Metal Bellow Coupling

DESCRIPTION

BK2 Series Metal Bellows Couplings provide the ideal complement to Magtrol's s TM/TMB/TMHS/TS In-Line Torque Transducers and Sensors, when these are to be mounted in a drive train.

The torque transmission element consists of a metal bellows and 2 clamping hubs. The couplings are both torsionally stiff and flexible in order to compensate for axial, angular and radial misalignment when connecting two shaft ends. The high torsional spring rate of the couplings ensures a high torsional stiffness and angular precision.

DESIGN & MATERIAL

Bellows are made of highly flexible and high-grade stainless steel. The hub material is made of aluminium or steel (please see "Specifications" section).

Clamping is done by a single ISO 4762 radial clamping screw per hub. For model 1500 and 4000, the clamping is performed by two opposite screws at 180 degrees.

SELECTION TABLE

In order to ensure a sufficient safety margin, Magtrol recommends that couplings be sized according to the maximum torque supported by the torque transducer. It is strongly recommended to protect all rotating machine parts according

to Safety Machine Norms for avoiding injuries. For further information, please contact our sales network who will be able to provide you with personal advice.

COUPLING	DIAMETER RANGE	TORQUE TRANSDUCER STANDARD MODELS						
		TM/TMB/ TMHS 309	TM/TMB/ TMHS 310	TM/TMB/ TMHS 311	TM/TMB/ TMHS 312	TM/TMB/ TMHS 313	TM/ TMHS 314	TM/ TMHS 315
		TS 109	TS 110	TS 111	TS 112	TS 113		
BK2-30-69	10 ... 30 mm	X						
BK2-60-83	12 ... 35 mm	X						
BK2-80-94	14 ... 42 mm	(X)	X					
BK2-150-95	19 ... 42 mm			X				
BK2-300-111	24 ... 60 mm				X			
BK2-1500-166	50 ... 80 mm						X	
BK2-4000-225	50 ... 90 mm							X

SPECIFICATION

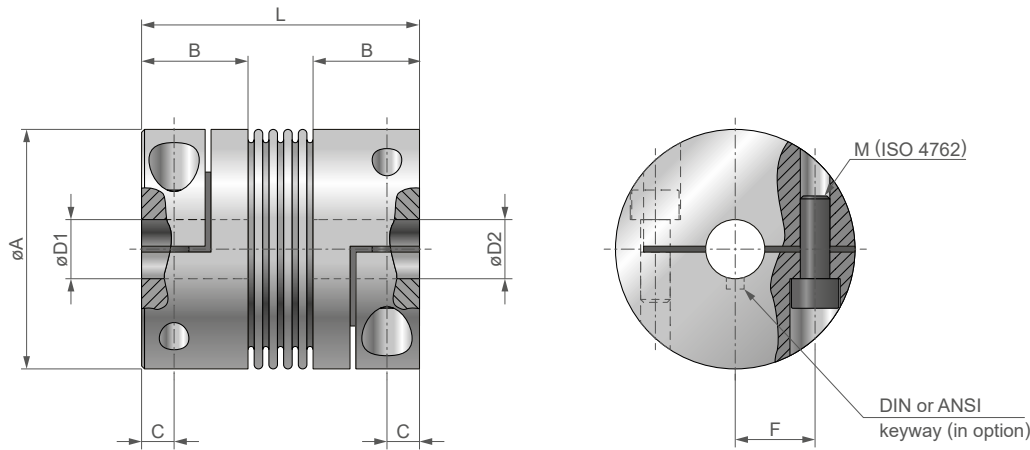
MODEL		BK2-30-69	BK2-60-83	BK2-80-94	BK2-150-95	BK2-300-111	BK2-1500-166	BK2-4000-225
RATINGS								
Rated Torque	[N·m]	30	60	80	150	300	1500	4000
Maximum Torque ^{a)}	[N·m]	45	90	120	225	450	2250	6000
Maximum Speed ^{b)}	[rpm] or [min ⁻¹]	10000						
MISALIGNMENT								
Axial	[mm]	1	1.5	2	2	2.5	3.5	3.5
Radial	[mm]	0.2	0.2	0.2	0.2	0.25	0.35	0.40
Angular	[°]	1	1	1	1	1	1.5	1.5
STIFENESS & INERTIA								
Torsional Stiffness/ Torsional Spring Rate	[N·m/rad] x 10 ³	39	76	129	175	450	1304	3400
Axial spring stiffness	[N/mm]	50	72	48	82	105	320	565
Lateral spring stiffness	[N/mm]	900	1200	920	1550	3750	3600	6070
Moment of Inertia	[kg·m ²] x 10 ⁻³	0.12	0.32	0.8	1.9	7.6	43	165
MECHANICAL CHARACTERISTICS & ENVIRONMENT								
Temperature Range	[°C]	-30 ... +100						
Diameter Range ^{c)}	ø[mm]H7	10 ... 30	12 ... 35	14 ... 42	19 ... 42	24 ... 60	50 ... 80	50 ... 90
Hub Material		aluminium					steel	
Approximate Weight	[kg]	0.26	0.48	0.8	1.85	4	11.5	28.8

a) Brief overloads, acceptable up to 1.5 times the rated torque

b) Higher speed available on request

c) The standard versions are manufactured with integer values; the standard tolerance is H7. All diameters and tolerances are possible, within the defined max. range. Please contact our sales department.

DIMENSIONS



NOTE: Original dimensions are in metric units. Dimensions converted to imperial units have been rounded up to 3 decimal places.

MODEL	UNITS	øA	B	C	øD1 or øD2 min - max ^{a)}	F	L	M	FASTENING TORQUE	WEIGHT
BK2-30-69	mm	55	27	7.5	10...30	19	69	M6	15 N·m	0.26 kg
	in	2.17	1.06	0.30	0.39... 1.18	0.75	2.72			0.57 lb
BK2-60-83	mm	66	31	9.5	12...35	23	83	M8	40 N·m	0.48 kg
	in	2.60	1.22	0.37	0.47... 1.38	0.91	3.27			1.06 lb
BK2-80-94	mm	81	36	11.0	14...42	27	94	M10	50 N·m	0.80 kg
	in	3.19	1.42	0.43	0.5... 1.65	1.06	3.70			1.76 lb
BK2-150-95	mm	81	36	11.0	19...42	27	95	M10	70 N·m	1.85 kg
	in	3.19	1.42	0.43	0.75... 1.65	1.06	3.74			4.08 lb
BK2-300-111	mm	110	43	13.0	24...60	39	111	M12	130 N·m	4.00 kg
	in	4.33	1.69	0.51	0.94... 2.36	1.54	4.37			8.82 lb
BK2-1500-166	mm	157	55	22.5	50...80	55	166	2x M20 ^{b)}	470 N·m	11.50 kg
	in	6.18	2.17	0.86	1.97... 3.15	2.17	6.54			25.35 lb
BK2-4000-225	mm	200	85	28.0	50...90	65	225	2x M24 ^{b)}	1200 N·m	28.80 kg
	in	7.87	3.35	1.10	1.97... 3.54	2.56	8.86			63.49 lb

a) The standard versions are manufactured with integer values; the standard tolerance is H7. All diameters and tolerances are possible. Please contact our sales department.

b) For each clamp, the tightening is done by two screws. That means 4 screws in total for a coupling.

ORDERING INFORMATION

ORDERING NUMBER	BK2 -	-	/
30-69, 60-83, , 4000-225	: coupling models		
XX	: øD1 diameter in mm ^{a)}		
H7, XX	: Tolerance for øD1 ^{b)}		
XX	: øD2 diameter in mm ^{a)}		
H7, XX	: Tolerance for øD2 ^{b)}		

a) Standard diameters are expressed in integer numbers and must be contained within the diameter range. For other diameters, please contact our sales department.

b) The standard bore tolerance is H7 (ISO tolerance system). For other tolerances, please contact our sales department.

Example: BK2 Series Coupling, model 30-69, ø13 H7 and ø21 H7 would be ordered as follows: **BK2-30-69-13H7/21H7**

BK2 Series coupling, model 150-95, ø19.5 H7 and ø21 JS6: **please contact our sales department**