

# BK3 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: 12... 100mm
- Clamping to a smooth shaft by tapered conical sleeves.
- Easy to mount

### DESCRIPTION

BK3 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 a conical clamp connection. 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.



Fig. 1: BK3-200-78 | Metal Bellow Coupling

### DESIGN & MATERIAL

Bellows made of highly flexible high-grade stainless steel, the hub material is made of steel

The clamping hubs each consist of 2 conical parts, one of which, in contact with the shaft, is slotted. The clamping is done by means of 6 screws ISO 4017 per side.

### 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		
BK3-60-66	12... 29mm	X						
BK3-150-75	15... 38mm	X	X					
BK3-200-78	15... 44mm	(X)	(X)	X				
BK3-500-97	24... 60mm				X			
BK3-800-114	30... 60mm					X		
BK3-1500-141	35... 70mm						X	
BK3-4000-195	50... 100mm							X

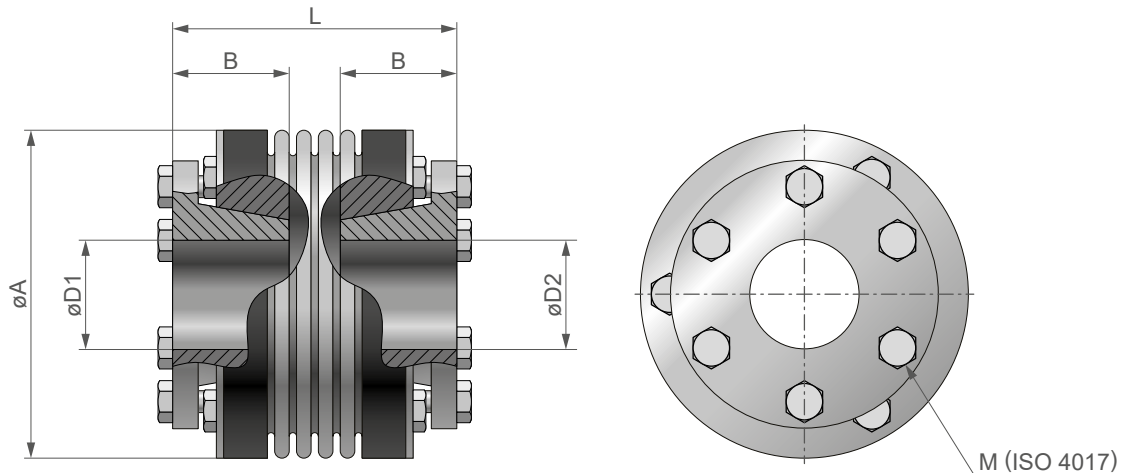
**SPECIFICATION**

MODEL		BK3-60-66	BK3-150-75	BK3-200-78	BK3-500-97	BK3-800-114	BK3-1500-141	BK3-4000-195	
<b>RATINGS</b>									
Rated Torque	[N·m]	60	150	200	500	800	1500	4000	
Maximum Torque <sup>a)</sup>	[N·m]	90	225	300	750	1200	2250	6000	
Maximum Speed <sup>b)</sup>	[rpm] or [min <sup>-1</sup> ]	10000							
<b>MISALIGNMENT</b>									
Axial	[mm]	1.5	2	2.5	3.5				
Radial	[mm]	0.2	0.25	0.3	0.35		0.40		
Angular	[°]	1				1.5			
<b>STIFENESS &amp; INERTIA</b>									
Torsional Stiffness/ Torsional Spring Rate	[N·m/rad] x 10 <sup>3</sup>	76	175	191	510	780	1304	3400	
Axial spring stiffness	[N/mm]	72	82	90	70	100	320	565	
Lateral spring stiffness	[N/mm]	1200	1500	2040	2500	2000	3600	6070	
Moment of Inertia	[kg·m <sup>2</sup> ] x 10 <sup>-3</sup>	0.39	1.2	1.7	9.1	13.2	34.9	85.5	
<b>MECHANICAL CHARACTERISTICS &amp; ENVIRONMENT</b>									
Temperature Range	[°C]	-30 ... +100							
Diameter Range <sup>c)</sup>	ø[mm]H7	12 ... 29	15 ... 38	15 ... 44	24 ... 60	30 ... 60	35 ... 70	50 ... 100	
Balancing Quality		2.5Q							
Hub Material		Bellows made of highly flexible high-grade stainless steel; hub material is steel							
Approximate Weight	[kg]	0.8	1.2	1.8	4.2	5.6	8.2	23	

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	øD1 or øD2 min - max <sup>a)</sup>	L	M	FASTENING TORQUE	WEIGHT
BK3-60-66	mm	66	27	12 ... 29	66	6x M5	8 N·m	0.8 kg
	in	2.60	1.06	0.47 ... 1.14	2.60			1.76 lb
BK3-150-75	mm	81	32	15 ... 38	75	6x M6	12 N·m	1.2 kg
	in	3.19	1.26	0.59 ... 1.50	2.95			2.65 lb
BK3-200-78	mm	90	32	15 ... 44	78	6x M6	14 N·m	1.8 kg
	in	3.54	1.26	0.59 ... 1.73	3.07			3.97 lb
BK3-500-97	mm	122	41	24 ... 60	97	6x M8	25 N·m	4.2 kg
	in	4.80	1.61	0.94 ... 2.36	3.82			9.26 lb
BK3-800-114	mm	116	50	30 ... 60	114	6x M10	40 N·m	5.6 kg
	in	4.57	1.97	1.18 ... 2.36	4.49			12.35 lb
BK3-1500-141	mm	135	61	35 ... 70	141	6x M12	70 N·m	8.2 kg
	in	5.31	2.40	1.38 ... 2.76	5.55			18.08 lb
BK3-4000-195	mm	180	80	50 ... 100	195	6x M16	120 N·m	23 kg
	in	7.08	3.15	1.97 ... 3.94	7.68			50.71 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.

**ORDERING INFORMATION**

ORDERING NUMBER	BK3 -	-	-	-	-	-	-	-
<b>60-66, 150-75, .... , 4000-195</b>	: coupling models							
<b>XX</b>	: øD1 diameter in mm <sup>a)</sup>							
<b>H7, XX</b>	: Tolerance for øD1 <sup>b)</sup>							
<b>XX</b>	: øD2 diameter in mm <sup>a)</sup>							
<b>H7, XX</b>	: Tolerance for øD2 <sup>b)</sup>							

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: BK3 Series Coupling, model 60-66, ø13H7 and ø21H7 would be ordered as follows: **BK3-60-66-13H7/21H7**

BK3 Series coupling, model 200-78, ø9.4H7 and ø8JS6: **please contact our sales department**