



M425 Torque Transducer Product Overview

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The Datum Connect (DC) Series Torque Transducers are the latest offering from Datum Electronics range of cutting-edge non-contact torque monitoring solutions.

The DC Torque Transducers are Wi-Fi enabled to communicate with the Datum Connect app (available on both Android and IOS) and have been designed to fit with most applications and solutions requiring rotary torque measurement.

The M425 DC Torque Transducer fits in line with the drive train or test bed, using standard Male-Male keyway shafts.

The high-tech non-contact communication system provides data directly proportional to torque, offering a comprehensive range of available digital and analogue outputs.

Performance and Benefits:

Ranges 0-10Nm up to 0-60,000Nm
High resolution torque sampling
High data rate
Cutting edge wireless output of torque speed and power
Non-contact data transmission
Static and rotary torque measurement
Magnetic speed sensor
Simple to integrate
Robust construction
Low power consumption
Compatible with industry standard couplings supplied with DIN rail mountable Datum Connect Interface (DCI)
USB to PC with FOC software for display and logging of test data
RS485 output
Calibrated analogue data for torque speed and power

Performance			
Non-Linearity	+/-0.1% FSD		
Non-Repeatability	+/-0.05% FSD		
Noise-free Resolution	20 bit to 13.5 bit (dependent on sample rate)		
Sample Rate	Standard 100sps Up to 4000 please enquire		
Output Baud Rate	3Mbaud as standard		
RPM Measurement			
Included as	Up to 30 pulses per rev		
Transducer Output Interfaces:			
Serial data via RS485			
Wifi 2.4 Ghz transmission			
Transducer Output Data:			
Torque	Shaft RPM	Shaft Temp.	Diagnostics

Power Supply	
12-24Vdc - 400	Via Datum Connect

Environment	
Thermal Stability of Gain per 10°C	0.02%
Thermal Stability of Zero per 10°C	0.02%
Normal Specification Range	10 to 60°C
Operating Range	-10 to +70°C
Storage Range	-35 to +75°C
Environmental Protection	IP54 (see RS425 for IP67/68 options)
Electromagnetic Compatibility	EN61326-1:2006 (IEC61000-4), IEC60945)

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Performance Characteristics

M425 model size	Rated load (Nm)	Rated load (Lbft)	Standard max RPM	Pulse per rev	Overall length (mm)	Moment length
Size 1 - A	10	7.4	0-10,000	30	184	154
Size 1 - B	20	14.8	0-10,000	30	184	154
Size 1 - C	50	36.9	0-10,000	30	184	154
Size 1 - D	100	73.8	0-10,000	30	184	154
Size 2 - A	250	184	0-8,000	30	240	175.5
Size 2 - B	500	369	0-8,000	30	240	175.5
Size 3 - A	1,000	738	0-6,000	30/60	315	132.75
Size 3 - B	2,000	1,475.1	0-6,000	30/60	315	132.75
Size 4 - A	5,000	3,687.9	0-5,000	15	425	218.75
Size 4 - B	10,000	7,375.7	0-5,000	15	425	218.75
Size 5 - A	15,000	11,064	0-2,000	15	416	191
Size 5 - B	20,000	14,751	0-2,000	15	416	191
Size 5 - C	25,000	18,439	0-2,000	15	416	191
Size 5 - D	30,000	22,127	0-2,000	15	416	191
Size 6 - A	40,000	29,503	0-1,500	15	410	185
Size 6 - B	60,000	44,254	0-1,500	15	410	185



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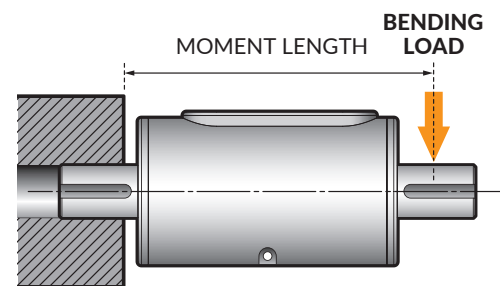
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M425 Tech Specifications

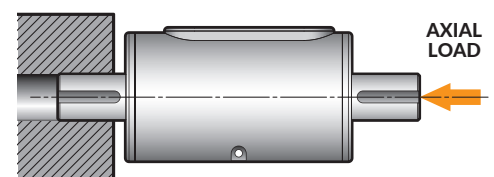
M425 model size	Bending loads at the moment length(N)	Shaft proof load (Nm)	Shaft ultimate (breaking) load (Nm)	Axial loads (N)	Total stiffness (Rad/Nm)	Total stiffness (Nm/Rad)	Rota mass Kgs	Total mass Kgs
Size 1 - A	8	18	32	442	2.06E-03	485	232	1,132
Size 1 - B	14	31	55	636	1.12E-03	891	241	1,141
Size 1 - C	33	74	131	1,131	5.25E-04	1,904	263	1,162
Size 1 - D	65	144	257	1,767	3.62E-04	2,761	287	1,185
Size 2 - A	153	389	694	3,431	6.09E-05	16,418	1,188	2,806
Size 2 - B	330	838	1,497	5,726	3.74E-05	26,749	1,296	2,913
Size 3 - A	797	1,530	2,732	8,553	1.07E-05	93,458	4,499	7,332
Size 3 - B	1,644	3,155	5,633	13,854	4.99E-06	200,573	4,720	7,552
Size 4 - A	2,364	7,477	13,353	24,630	2.22E-06	450,056	14,068	17,692
Size 4 - B	4,618	14,604	26,079	38,485	1.27E-06	789,591	14,638	18,291
Size 5 - A	8,502	23,477	41,922	52,810	3.82E-07	2614,430	28,562	33,968
Size 5 - B	11,241	31,040	55,428	63,617	2.95E-07	3390,520	29,107	34,513
Size 5 - C	14,513	40,075	71,562	75,430	2.39E-07	4185,528	29,536	34,942
Size 5 - D	17,851	49,290	88,018	86,590	2.06E-07	4863,152	29,869	35,275
Size 6 - A	21,190	56,672	101,200	95,033	1.67E-07	5986,531	53,550	62,114
Size 6 - B	34,977	93,545	167,045	132,732	1.25E-07	8021,991	55,804	64,298

Bending loads



Where possible moments at the end on the shaft should be avoided. The table contains values for the moments that can be exerted without damage with the transducer not rotating. These values should be reduced if the shaft is rotating.

Axial loads



Direct Axial loads will have little effect on performance, however offset Axial loads that apply a cross moment to the shaft will have an effect on the smaller size 1 transducers below 50Nm and should be avoided.

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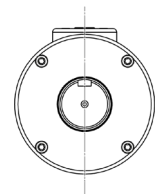
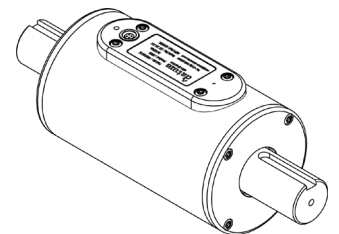
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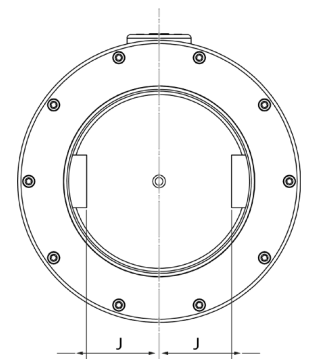
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M425 model size	A	B	C	D	E	F	G		H	I	J
	Overall length	Body length	Body dia.	Output module length	Output module height	Exposed shaft length	Shaft dia. G6 fit	Numer of keyways	Keyway length (BS 4235-1: 1972)	Keyway width (BS 4235-1: 1972)	Keyway depth off centre
Size 1 - A	184	130	66	112	3.5	27	15	1 keyway	22.5	5	4.3
Size 1 - B	184	130	66	112	3.5	27	15	1 keyway	22.5	5	4.3
Size 1 - C	184	130	66	112	35	27	15	1 keyway	22.5	5	4.3
Size 1 - D	184	130	66	112	3.5	27	15	1 keyway	22.5	5	4.3
Size 2 - A	240	150	85	112	3.5	45	30	1 keyway	44	8	11
Size 2 - B	240	150	85	112	3.5	45	30	1 keyway	44	8	11
Size 3 - A	315	150	110	112	5.5	82.5	50	1 keyway	78.5	12*	20
Size 3 - B	315	150	110	112	5.5	82.5	50	1 keyway	78.5	12*	20
Size 4 - A	425	150	135	112	5.5	137.5	75	1 keyway	78.5	20	30
Size 4 - B	425	150	135	112	5.5	137.5	75	1 keyway	78.5	20	30
Size 5 - A	416	168	170	112	5.5	124	110	2 keyway	116	32	44
Size 5 - B	416	168	170	112	5.5	124	110	2 keyway	116	32	44
Size 5 - C	416	168	170	112	5.5	124	110	2 keyway	116	32	44
Size 5 - D	416	168	170	112	5.5	124	110	2 keyway	116	32	44

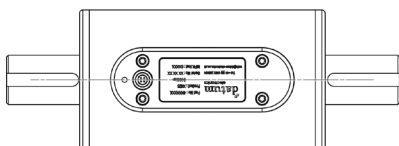
Model sizes 1-4



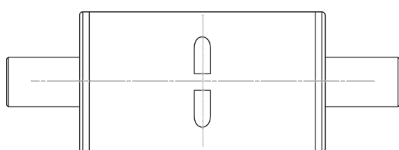
Model size 5



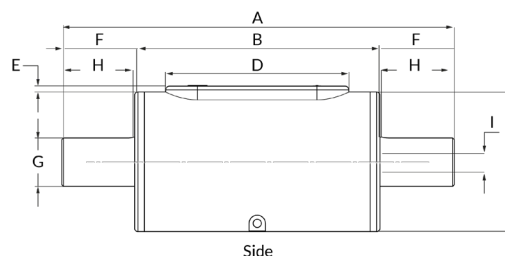
Alphabet key for M425



Top



Bottom



Side

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