

TS12 SHAFT STYLE REACTION TORQUE TRANSDUCER (U.S. & METRIC)

FEATURES & BENEFITS

- Capacities from 0.005 to 20K Nm (0.04 to 177K lbf-in)
- Stainless steel shafts
- Compact

SPECIFICATIONS

ACCURACY – (MAX ERROR)		
Combined Error – %FS		± 0.1
Nonrepeatability – %		± 0.02
TEMPERATURE		
Effect on Zero – %RO / deg	°C	±0.02
Effect on Output – % / deg	°C	±0.01
Rated Range	°C	-5 to +45
	°F	+23 to +113
Operating Range	°C	-15 to +55
	°F	+5 to +131
ELECTRICAL		
Output – mV/V	0.005 to 0.1 Nm	0.5
	0.04 to 0.89 lbf-in	
	0.2 to 5K Nm	0.8
	1.77 to 44.3K lbf-in	
	10K to 20K Nm	
88.5K to 17.7K lbf-in	1.5	
Excitation Voltage – VDC MAX		12
Bridge Resistance – Ohm		1,000
Electrical Connection		6 or 7 pin
MECHANICAL		
Safe Overload – %RO	0.005 to 0.1 Nm	300
	0.04 to 0.89 lbf-in	
	0.2 to 5K Nm	200
	1.77 to 44.3K lbf-in	
	10K to 20K Nm	
88.5K to 17.7K lbf-in	150	
Safe Overhung Moment – %FS		50
Material	Shaft	Alloy steel
	Housing	Aluminum

STANDARD CONFIGURATION



MODEL TS12 (Shown)

ELECTRICAL CONNECTION

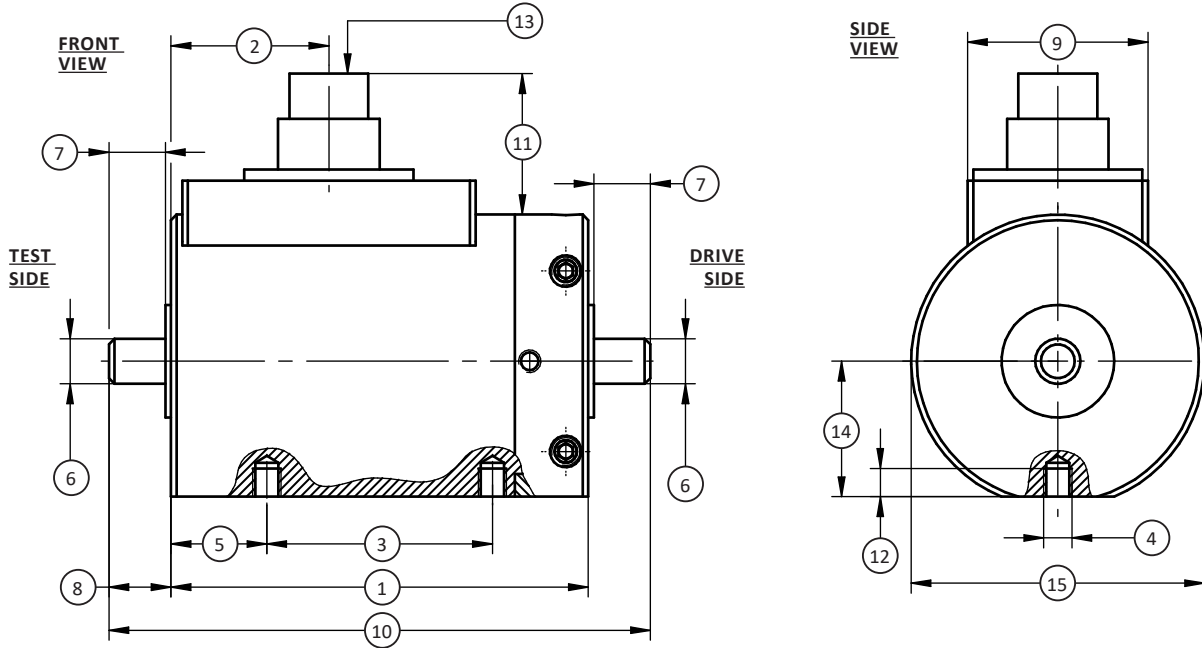
6-PIN TS12 ELECTRICAL CONNECTION		7-PIN TS12 ELECTRICAL CONNECTION	
PIN	FUNCTION	PIN	FUNCTION
1	Excitation (-)	1	Excitation (-)
2	Excitation (+)	2	Excitation (+)
3	Shield	3	Shield
4	Signal (+)	4	Signal (+)
5	Signal (-)	5	Signal (-)
6	Cal. Control (Option)	6	Cal. Control (Option) Connect to Pin 2
		7	NC

OPTIONS

- 100% Control Signal (RCAL)
- Key DIN 6885-1

U.S. dimensions and capacities are provided for conversion only. Standard products have International System of Units (SI) capacities and dimensions.

TS12 SHAFT STYLE REACTION TORQUE TRANSDUCER (U.S. & METRIC)



DIMENSIONS

See Drawing	CAPACITY									
	Metric (Nm)	U.S. (lbf-in)	Metric (Nm)	U.S. (lbf-in)	Metric (Nm)	U.S. (lbf-in)	Metric (Nm)	U.S. (lbf-in)	Metric (Nm)	U.S. (lbf-in)
	0.005, 0.001, 0.02	0.044, 0.089, 0.177	0.05	0.44	0.1, 0.2, 0.5, 1, 2, 5	0.85, 1.77, 4.43, 8.85, 17.7, 44.3	10	88.5	20	177
mm	in	mm	in	mm	in	mm	in	mm	in	
(1)	37	1.6	48	1.9	48	1.9	48	1.9	73	2.9
(2)	14	0.6	25	1.0	25	1.0	25	1.0	40	1.6
(3)	20	0.8	-	-	-	-	-	-	-	-
(4)	M2.5		-		-		-		-	
(5)	8.5	0.33	-	-	-	-	-	-	-	-
(6)	∅4 g6	∅(0.1573/0.1570)	∅6 g6	∅(0.2361/0.2357)	∅8 g6	∅(0.3148/0.3148)	∅10 g6	∅(0.3935/0.3931)	∅18 h6	∅(0.7087/0.7082)
(7)	5	0.2	7	0.3	17	0.7	17	0.7	18	0.7
(8)	5.5	0.22	8	0.3	18	0.7	18	0.7	19	0.7
(9)	16	0.6	-	-	-	-	-	-	-	-
(10)	48	1.9	65	2.6	85	3.3	85	3.3	111.5	4.39
(11)	12.5	0.5	8	0.3	8	0.3	8	0.3	7	0.3
(12)	25	1.0	-	-	-	-	-	-	-	-
(13)	Connector 7-pin		Connector 7-pin		Connector 7-pin		Connector 7-pin		Connector 6-pin	
(14)	12	0.5	-	-	-	-	-	-	-	-
(15)	∅26	∅1.0	∅32	∅1.3	∅32	∅1.3	∅32	∅1.3	∅51	∅2.0

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TS12 SHAFT STYLE REACTION TORQUE TRANSDUCER (U.S. & METRIC)

DIMENSIONS (CONTINUED)

See Drawing	CAPACITY									
	Metric (Nm)	U.S. (lbf-in)	Metric (Nm)	U.S. (lbf-in)	Metric (Nm)	U.S. (lbf-in)	Metric (Nm)	U.S. (lbf-in)	Metric (Nm)	U.S. (lbf-in)
	50, 100	443, 885	200, 500	1.77K, 4.43K	1K	8.85K	2K, 5K	17K, 44.3K	10K, 20K	85.5K 177K
	mm	in	mm	in	mm	in	mm	in	mm	in
(1)	73	2.9	79.5	3.1	107	4.2	107	4.2	140	5.5
(2)	40	1.6	40	1.6	53.5	2.1	53.5	2.1	53.5	2.1
(3)	–	–	–	–	–	–	–	–	–	–
(4)	–	–	–	–	–	–	–	–	–	–
(5)	–	–	–	–	–	–	–	–	–	–
(6)	∅18 h6	∅(0.7087/ 0.7082)	∅32 h6	∅(1.2598/ 1.2592)	∅50 h7	∅(1.9685/ 1.9675)	∅70 h7	∅(2.7559/ 2.7549)	∅110 h7	∅(4.3307/ 4.3293)
(7)	36	1.4	38	1.5	58	2.3	110	4.3	120	4.7
(8)	37	1.5	40	1.6	66	2.6	126	5.0	160	6.3
(9)	–	–	–	–	–	–	–	–	–	–
(10)	147.5	5.81	159.5	6.28	262	10.3	377	14.8	470	18.5
(11)	7	0.3	7	0.3	8	0.3	8	0.3	8	0.3
(12)	–	–	–	–	–	–	–	–	–	–
(13)	Connector 6-pin		Connector 6-pin		Connector 6-pin		Connector 6-pin		Connector 6-pin	
(14)	–	–	–	–	–	–	–	–	–	–
(15)	∅51	∅2.0	∅66	∅2.6	∅97	∅3.8	∅112	∅4.4	∅173	∅6.8

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PERFORMANCE PARAMETERS

CAPACITY		Rated Characteristic Value [mV/V] ±0.1%	SPRING RATE	MOMENT OF INERTIA – J (Kg•m ²)		MAX THRUST LOAD		MAX SHEAR FORCE	
Nm	lbf-in			in	NM/rad	Drive Side	Test Side	N	lbf
0.005	0.04	0.3	0.46	3.9x10 ⁻⁶	1.1x10 ⁻⁸	35	7.9	0.9	0.2
0.01	0.09	0.5	0.46	3.9x10 ⁻⁶	1.1x10 ⁻⁸	35	7.9	0.9	0.2
0.02	0.18	0.5	3.6	3.9x10 ⁻⁶	1.1x10 ⁻⁸	35	7.9	0.9	0.2
0.05	0.44	0.5	3.7	1.1x10 ⁻⁵	1.9x10 ⁻⁷	40	9.0	0.9	0.2
0.1	0.88	0.5	1.8x10 ¹	1.1x10 ⁻⁵	6.1x10 ⁻⁷	42	9.4	0.9	0.2
0.2	1.77	0.8	1.8x10 ¹	1.1x10 ⁻⁵	6.1x10 ⁻⁷	58	13.0	1.2	0.27
0.5	4.43	0.8	9.7x10 ¹	1.1x10 ⁻⁵	6.1x10 ⁻⁷	172	38.7	1.9	0.43
1	8.85	0.8	1.2x10 ²	1.1x10 ⁻⁵	6.1x10 ⁻⁷	227	51.0	2.9	0.65
2	17.7	0.8	3.6x10 ²	1.1x10 ⁻⁵	6.3x10 ⁻⁷	348	78.2	5.5	1.24
5	44.3	0.8	4.1x10 ²	1.1x10 ⁻⁵	6.3x10 ⁻⁷	650	146	14	3.1
10	88.5	0.8	9.1x10 ²	1.1x10 ⁻⁵	7.4x10 ⁻⁷	1K	245	26	5.8
20	177	0.8	4.2x10 ³	1.0x10 ⁻⁴	7.0x10 ⁻⁶	1.68K	378	43	9.7
50	443	0.8	6.1x10 ³	1.1x10 ⁻⁴	8.6x10 ⁻⁶	3.1K	697	80	18
100	885	0.8	8.5x10 ³	1.1x10 ⁻⁴	8.8x10 ⁻⁶	4.8K	1.08K	160	36
200	1.77K	0.8	6.6x10 ⁴	3.6x10 ⁻⁴	7.9x10 ⁻⁵	8K	1.8K	290	65.2
500	4.43K	0.8	7.1x10 ⁴	7.1x10 ⁻⁴	8.0x10 ⁻⁵	14K	3.15K	700	157
1K	8.85K	0.8	3.1x10 ⁵	3.1x10 ⁻³	1.1x10 ⁻³	23K	5.17K	900	202
2K	17.7K	0.8	7.2x10 ⁵	7.2x10 ⁻³	4.1x10 ⁻³	33K	7.42K	1200	270
5K	44.3K	0.8	8.0x10 ⁵	8.0x10 ⁻³	4.2x10 ⁻³	57K	12.8K	2800	629
10K	88.5K	1.5	3.1x10 ⁶	3.1x10 ⁻²	3.0x10 ⁻²	90K	20.2K	4400	989
20K	177K	1.5	3.7x10 ⁶	3.7x10 ⁻²	3.0x10 ⁻²	130K	29.2K	8200	1.84K