

HRDT HIGH RESOLUTION DIGITAL TELEMETRY ROTARY TORQUE TRANSDUCER (U.S. & METRIC)

FEATURES & BENEFITS

- Capacities from 250 to 10K Nm (2.2K to 88.5K lbf-in)
- Full 18-bit useable resolution (24-bit internal)
- 2,000 fully processed results per second
- 4x safe overload (2x for DIN 90 size)
- Easy stator alignment
- Push button configuration – No PC required for basic set-up and installation
- Output module with digital display
- Bearingless non-contact design
- Outputs include fully scalable $\pm 5V$, $\pm 10V$, 4-20 mA, frequency
- Short, stiff design with low rotational inertia
- Full selection of filters including Bessel, Butterworth, Chebychev, Exponential, Triggered average
- Reliable digital data transmission
- Multiple independent outputs option
- Power calculation (requires speed input)

SPECIFICATIONS

ACCURACY – (MAX ERROR)		
Nonlinearity – %FS		± 0.05
Linear Overrange – %FS		120
Resolution		18-bit
Data Rate – Fully Processed – results/sec		2,000
TEMPERATURE		
Operating Range	$^{\circ}C$	-18 to +70
	$^{\circ}F$	0 to +158
Compensated Range	$^{\circ}C$	-9 to +50
	$^{\circ}F$	+15 to +122
Effect on Zero – %RO / $^{\circ}F$		± 0.005
Effect on Span – % / $^{\circ}F$		± 0.005
ELECTRICAL		
Output – VDC		± 5 , ± 10
Output – mA		12 ± 8
Output – kHz		10 ± 5 , 60 ± 20 , 60 ± 30
Power Supply – VDC		24V
Linearization		9-point
MECHANICAL		
Protection Class	Rotor and Stator	IP54
	Control Module	IP40 (IP66 option)
Material	250 - 500 Nm	Aluminum
	2.21K - 4.43K lbf-in	
	1K - 10KNm	Alloy steel
	8.85K - 88.5K lbf-in	

STANDARD CONFIGURATION



Model HRDT (Shown)

OPTIONS

- Two or more output modules to deliver multiple simultaneous outputs or independent ranges
- Integral couplings
- NEMA 4x enclosure for output module
- Balancing
- Speed measurement

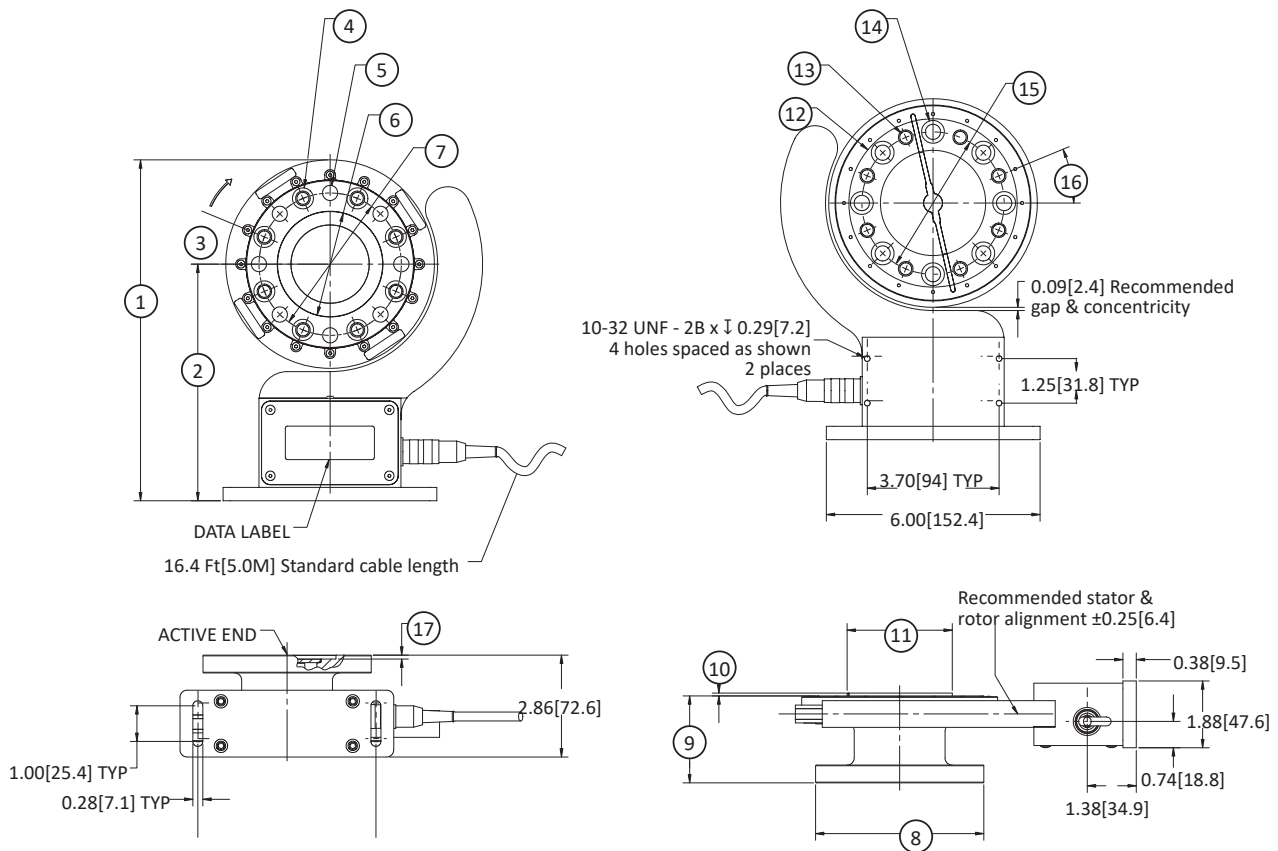
STANDARD COMPONENTS

- Rotor, stator, output module, software & cables

PERFORMANCE PARAMETERS

Model	DIN Size	Capacity		Material	RPM
		Metric (Nm)	U.S. (lbf-in)		
HRDT1	90	250, 500	2.21K, 4.43K	Aluminum	15K
HRDT2	120	1K, 2K	8.85K, 17.7K	Steel	15K
HRDT3	150	3K, 4K	26.6K, 35.4K	Steel	12K
HRDT4	180	5K	44.3K	Steel	10K
HRDT5	225	10K	88.5K	Steel	8K

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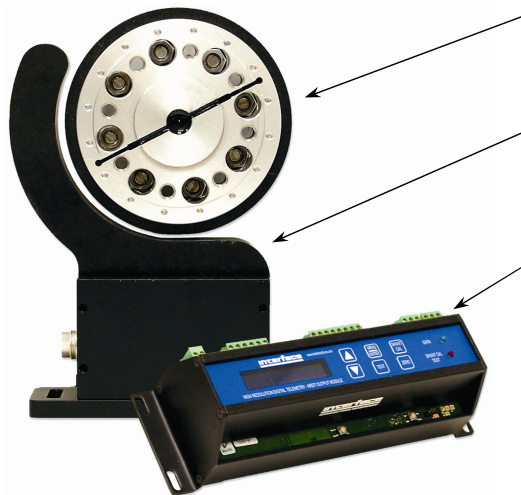
STATOR & ROTOR DIMENSIONS

See Drawing	DIN 90		DIN 120		DIN 150		DIN 180		DIN 225	
	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)
	250, 500	2.21K, 4.43K	1K, 2K	8.85K, 17.7K	3K, 4K	26.6K, 35.4K	5K	44.3K	10K	88.5K
	mm	in	mm	in	mm	in	mm	in	mm	in
(1)	215.1	8.47	244.3	9.62	274.8	11.82	295.4	11.63	357.3	14.07
(2)	154.8	6.09	168.1	6.62	183.3	7.22	193.9	7.63	224.6	8.84
(3)	N/A		22.5°		22.5°		22.5°		22.5°	
(4)	N/A		15	0.59	17	0.67	20	0.79	25.5	1.00
(5)	8.80	0.35	10.8	0.43	12.8	0.50	14.8	0.58	16.7	0.66
(6)	47 H7	1.8504	75 H7	2.9528	90 H7	3.5433	110 H7	4.3307	140 H7	5.5118
(7)	74.5	2.93	101.5	4.00	130	5.12	155.5	6.12	196	7.72
(8)	90	3.54	120	4.72	150	5.91	180	7.09	225	8.86
(9)	54.8	2.16	62	2.44	62	2.44	63.5	2.50	75.7	2.98
(10)	2	0.08	2	0.08	2	0.08	2	0.08	2	0.08
(11)	47g6	1.8504	75g6	2.9528	90g6	3.5433	110g6	4.3307	140g6	5.5118
(12)	90	3.54	120	4.72	90	5.91	180	7.09	225	8.86
(13)	M8x1.25-6H		M10x1.5-6H		M12x1.75-6H		M14x2.0-6H		M16x2-6H	
(14)	14.2	0.56	17.3	0.68	19.2	0.76	22.5	0.89	25.5	1.00
(15)	74.5	2.93	101.5	4.00	130	5.12	155.5	6.12	196	7.72
(16)	22.5°		22.5°		22.5°		22.5°		22.5°	
(17)	2.50	0.10	2.80	0.11	3.20	0.13	3.80	0.15	5.3	0.21

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PARTS GUIDE

Out of the Box: The HRDT system is configured ready-to-run. Simply connect the components together and apply power. Rotor calibration data and system configuration files are backed-up on a supplied USB memory stick. Multiple output modules can be used to provide independently scalable simultaneous dual outputs. Stator-to-output module and PC interconnect cables are included.

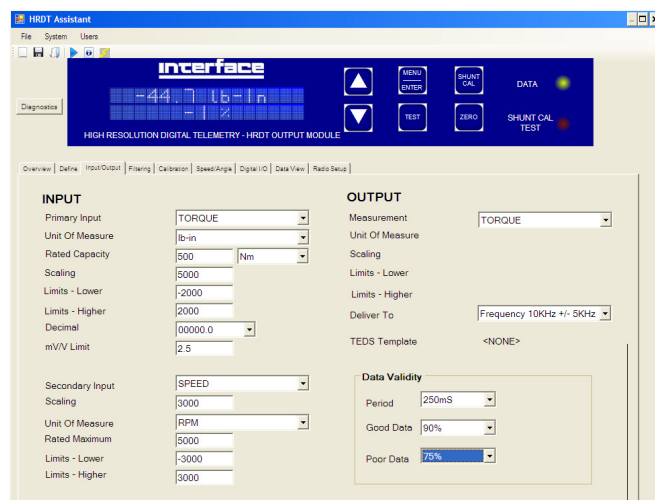
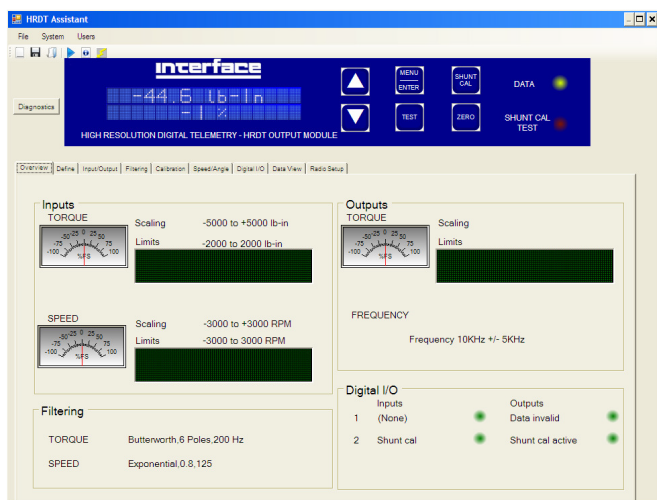


Rotor Module: Strain gage based rotary torque sensor with inductive power loop and on-board 2.4GHz radio transceiver for data transfer.

Stator Module: Supplies inductive power to the Rotor Module and houses a 2.4GHz radio transceiver for communication with the Rotor.

Output & Control Module: Windows CE computer providing system control, scaled outputs, digital readout for torque, speed or power and menu commands. The Output Module is connected to the Stator by a 5m (16ft) cable. Longer cable lengths are optional. No minimum cable length.

ASSISTANT SOFTWARE



OVERVIEW

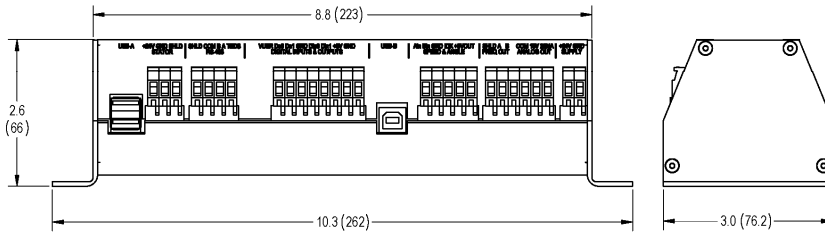
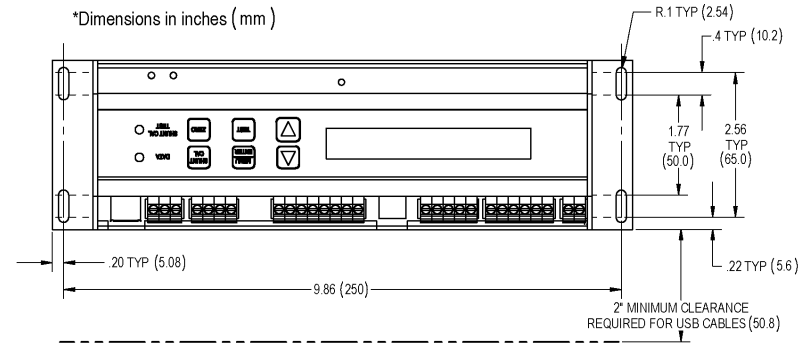
Overview screen shows specific details of the current configuration such as scaling, filter and output settings.

INPUT / OUTPUT

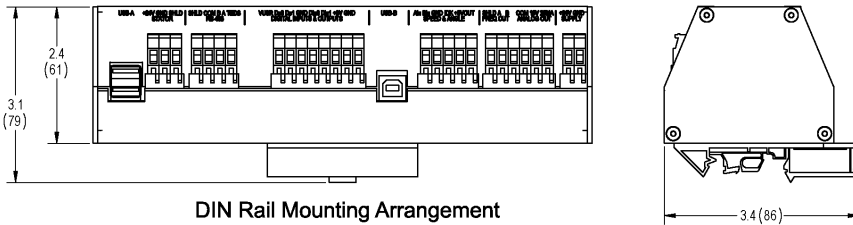
Input / Output screen allows user adjustment of scaling and output.

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OUTPUT MODULE DIMENSIONS



Standard Mounting Arrangement



DIN Rail Mounting Arrangement



HRDTC INTEGRAL COUPLING OPTIONS



KEYED HUBS (Shown)



SHRINK-DISK HUBS (Shown)



FLANGE HUB (Shown)

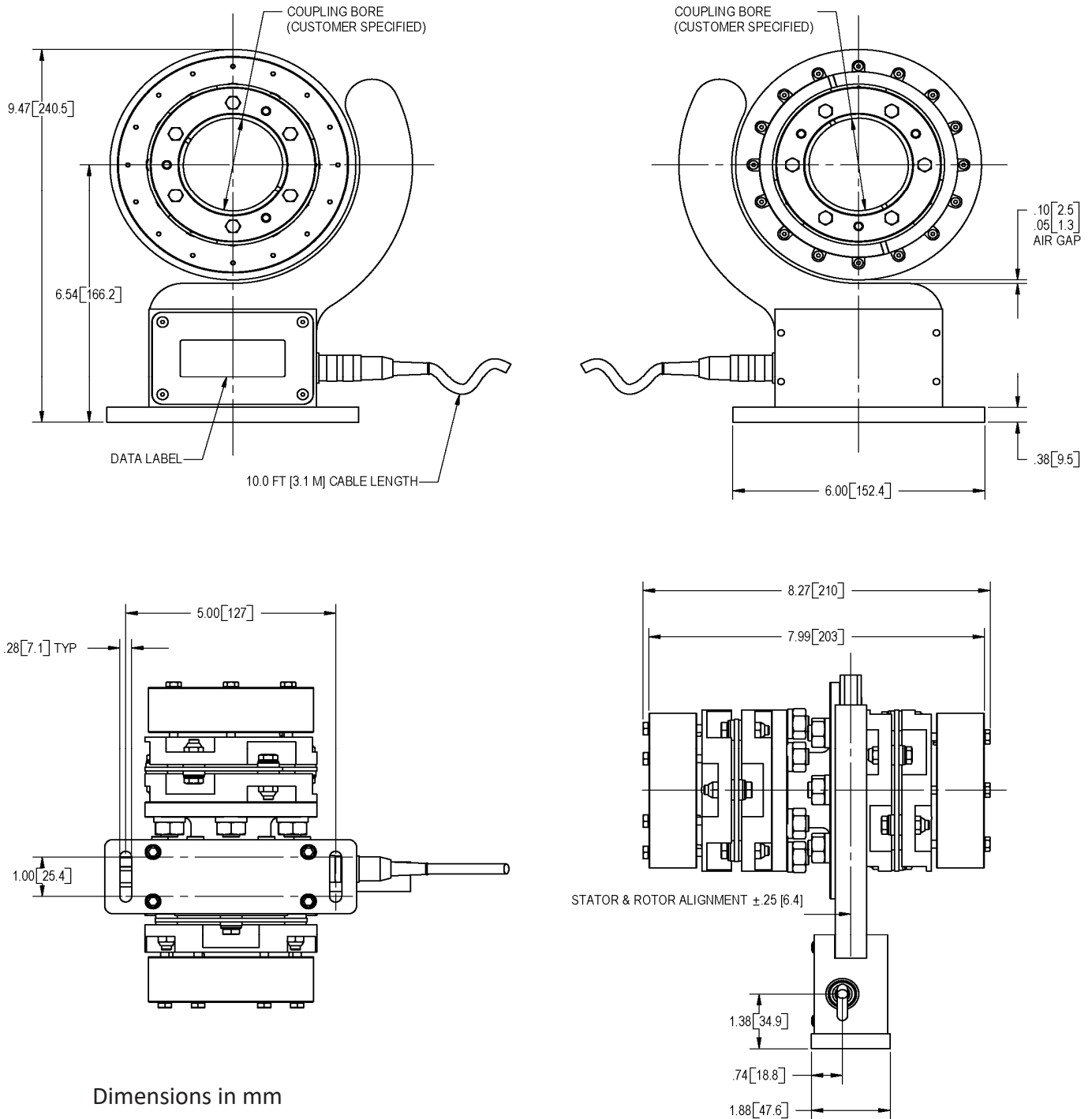
Notes:
Consult factory for hub and configuration options

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INTEGRAL COUPLING SHRINK-DISK HUBS DIMENSIONS – 250 OR 500 Nm

SAMPLE DRAWING ONLY:

Consult Factory for Hub and Configuration Options



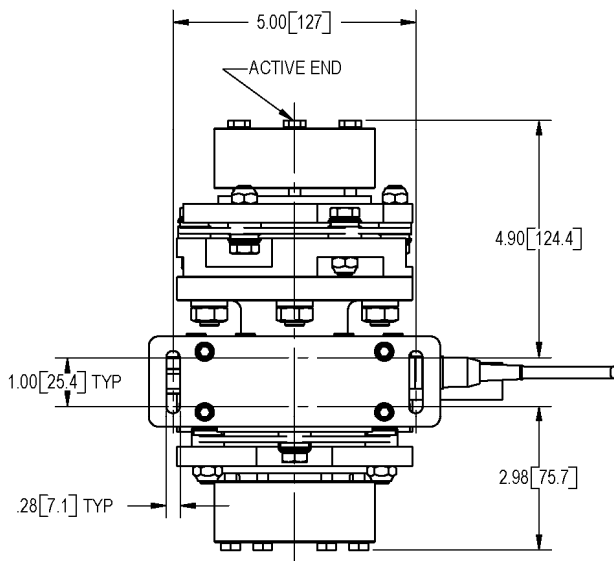
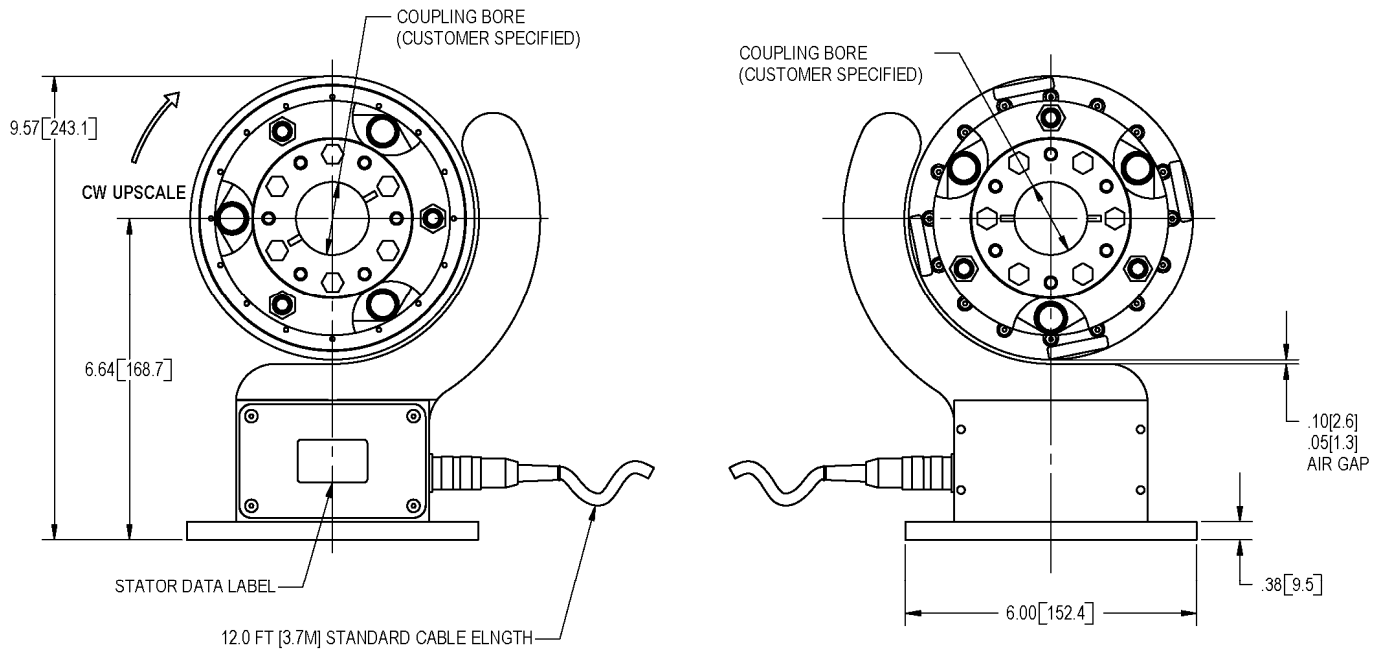
Dimensions in mm

Notes:

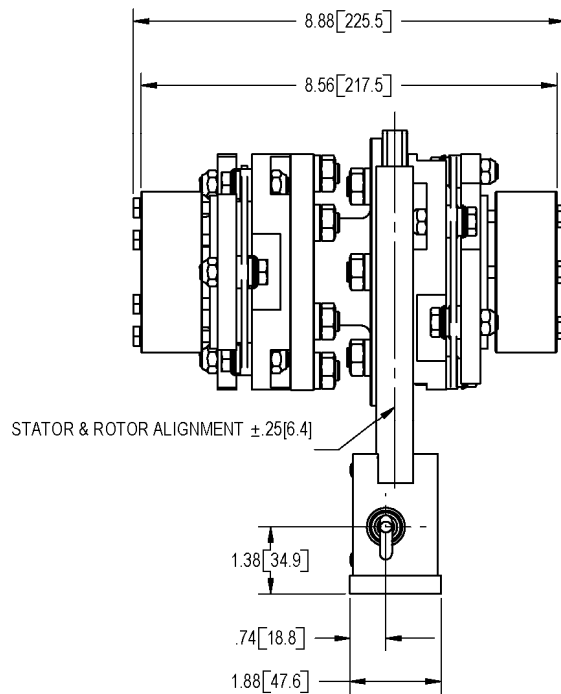
Refer to Roba DS coupling catalog for details.
 – 250 Nm uses size 40 Hf coupling, pages 26-43
 – 500 Nm uses size 40 HT coupling, pages 12-25

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SHRINK-DISC HUBS DIMENSIONS – CAPACITIES 1K Nm



Dimensions in mm



Notes:
Refer to Roba DS coupling catalog for details.
– 1000 Nm uses size 64 HT coupling, pages 12-25