

Model HRDT High Resolution Digital Telemetry Rotary Torque Transducer

- Capacities from 250 to 10K Nm (2,200 to 88,500 lb-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)



HRDT Rotary Torque Transducer
Stator, Rotor & Output Module Shown

STANDARD COMPONENTS

Rotor, stator, output module, software & cables

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



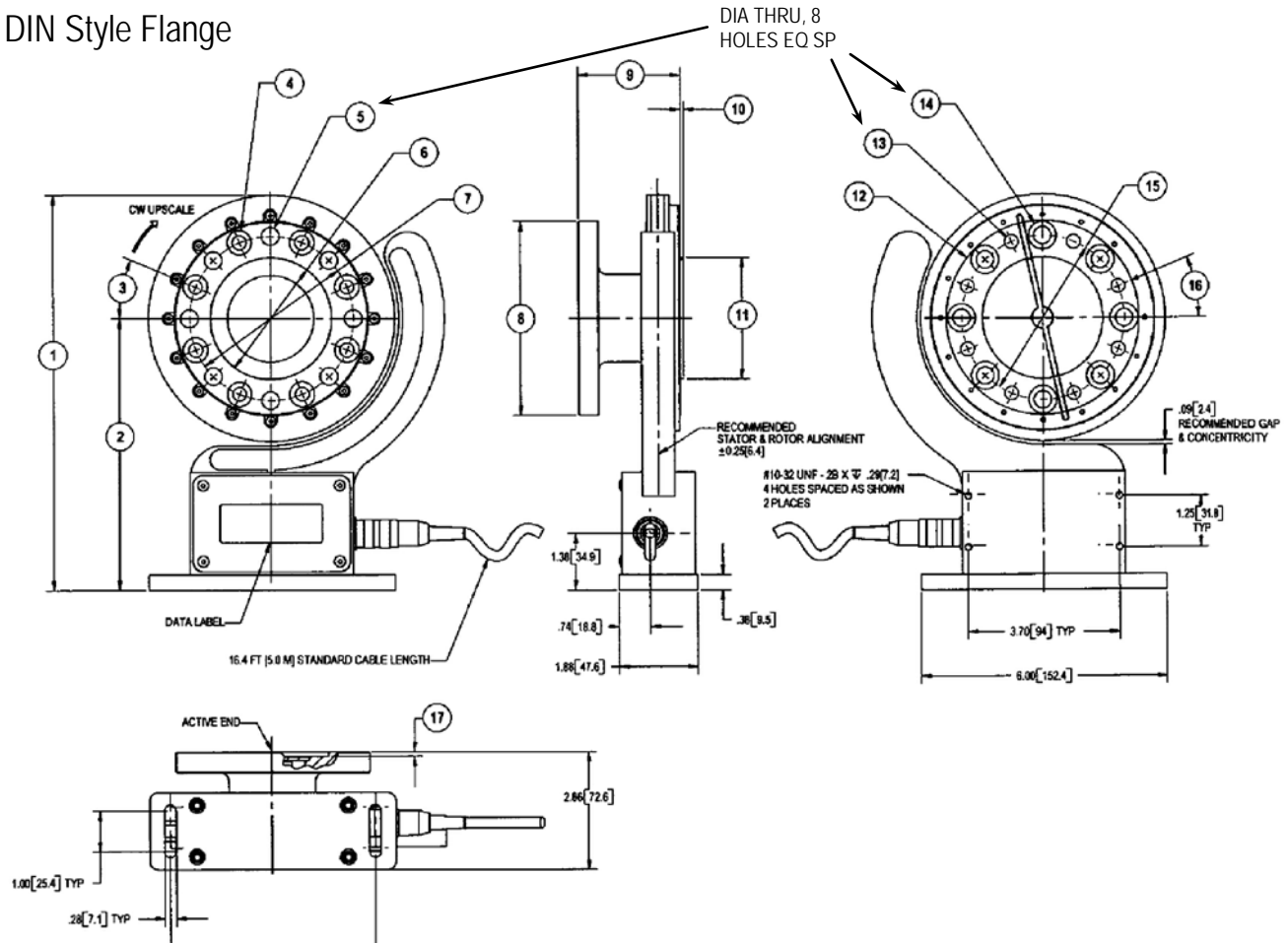
HRDTC Integral Coupling Option

SPECIFICATIONS

ACCURACY	
Nonlinearity - % FS	± 0.05
Linear Overrange - % FS	120
Resolution	18-bit
Data Rate - Fully Processed	2,000 results/sec
TEMPERATURE	
Operating Range °C	-18 to 70
Compensated Range °C	-9 to +50
Effect on Zero - %RO/°C	± 0.009
Effect on Span - %/°C	± 0.009
ELECTRICAL	
VDC Output	$\pm 10, \pm 5$
mA Output	12 ± 8
kHz Output	$10 \pm 5, 60 \pm 20$ or 60 ± 30
Power Supply - VDC	24V
Linearization	9-point
MECHANICAL	
Protection Class	
Rotor and Stator	IP54
Control Module	IP40 (IP66 option)

Model	DIN Size	Capacity (Nm)	Material	RPM
HRDT1	90	250, 500	Aluminum	15K
HRDT2	120	1K, 2K	Steel	15K
HRDT3	150	3K, 4K	Steel	12K
HRDT4	180	5K	Steel	10K
HRDT5	225	10K	Steel	8K

HRDT Stator & Rotor DIN Style Flange

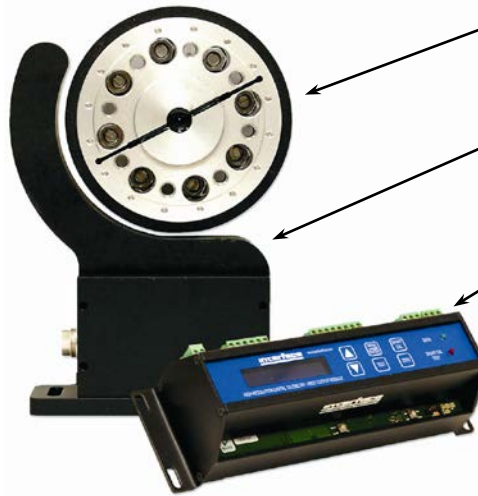


DIMENSIONS

Model	DIN 90		DIN 120		DIN 150		DIN 180		DIN 225	
Capacity (Nm)	250, 500		1K, 2K		3K, 4K		5K		10K	
Equivalent (lb-in)	2.2K, 4.43K		8.85K, 17.7K		26.5K, 35.4K		44.3K		88.5K	
	Inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
(1)	8.47	215.1	9.62	244.3	11.82	274.8	11.63	295.4	14.07	357.3
(2)	6.09	154.8	6.62	168.1	7.22	183.3	7.63	193.9	8.84	224.6
(3)	N/A		22.5°		22.5°		22.5°		22.5°	
(4)	N/A	N/A	0.59	15	0.67	17	0.79	20	1.00	25.5
(5)	0.35	8.80	0.43	10.8	0.50	12.8	0.58	14.8	0.66	16.7
(6)	1.8504	47 H7	2.9528	75 H7	3.5433	90 H7	4.3307	110 H7	5.5118	140 H7
(7)	2.93	74.5	4.00	101.5	5.12	130	6.12	155.5	7.72	196
(8)	3.54	90	4.72	120	5.91	150	7.09	180	8.86	225
(9)	2.16	54.8	2.44	62	2.44	62	2.50	63.5	2.52	64
(10)	0.08	2	0.08	2	0.08	2	0.08	2	0.08	2
(11)	1.8504	47g6	2.9528	75g6	3.5433	90g6	4.3307	110g6	5.5118	140g6
(12)	3.54	90	4.72	120	5.91	90	7.09	180	8.86	225
(13)	M8x1.25-6H		M10x1.5-6H		M12x1.75-6H		M14x2.0-6H		M16x2-6H	
(14)	0.56	14.2	0.68	17.3	0.76	19.2	0.89	22.5	1.00	25.5
(15)	2.93	74.5	4.00	101.5	5.12	130	6.12	155.5	7.72	196
(16)	22.5°		22.5°		22.5°		22.5°		22.5°	
(17)	0.10	2.50	0.11	2.80	0.13	3.20	0.15	3.80	0.21	5.3

HRDT High Resolution Digital Telemetry 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.

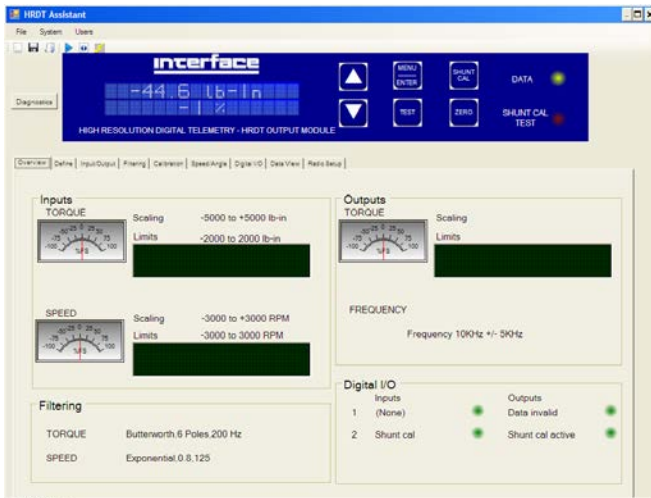


Rotor Module: Strain gage based rotary torque sensor with inductive power loop and on-board 2.4GHz radio transceiver for data transfer.

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

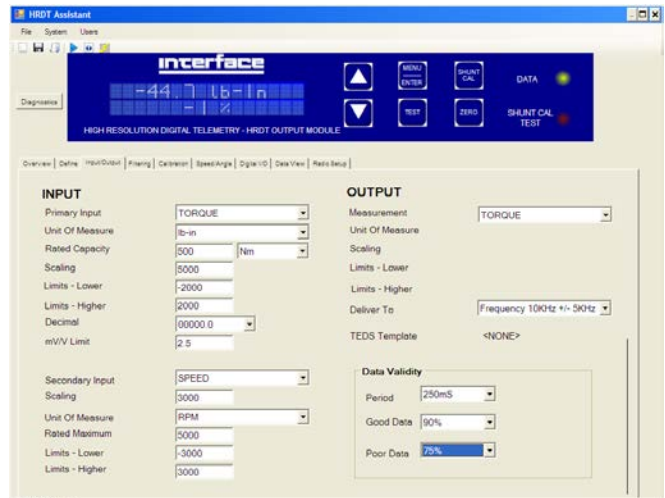
Output & Control Module: Windows CE computer providing system control, scaled outputs, digital readout for torque, speed or power and menu commands. The Output Module is connected to the Stator by a 5m cable. Longer cable lengths are optional. No minimum cable length.

HRDT Assistant Software



OVERVIEW

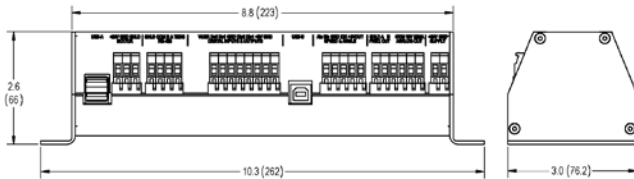
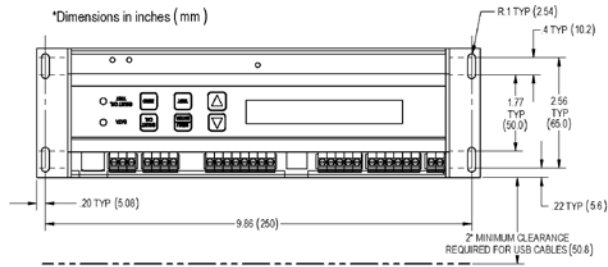
Overview screen shows specific details of the current configuration such as scaling, filter and output settings.



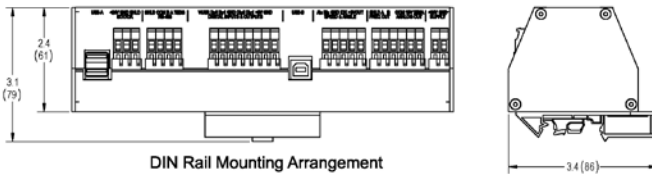
INPUT/OUTPUT

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

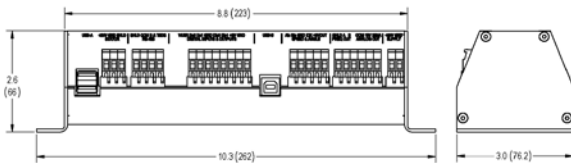
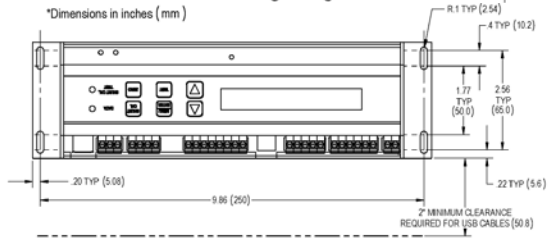
Output Module Dimensions



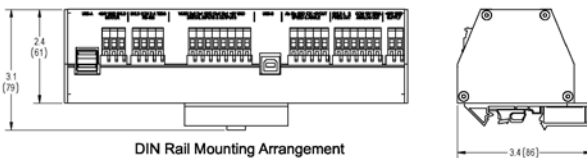
Standard Mounting Arrangement



DIN Rail Mounting Arrangement



Standard Mounting Arrangement



DIN Rail Mounting Arrangement



Keyed Hubs



Shrink-Disk Hubs
(for smooth shafts)

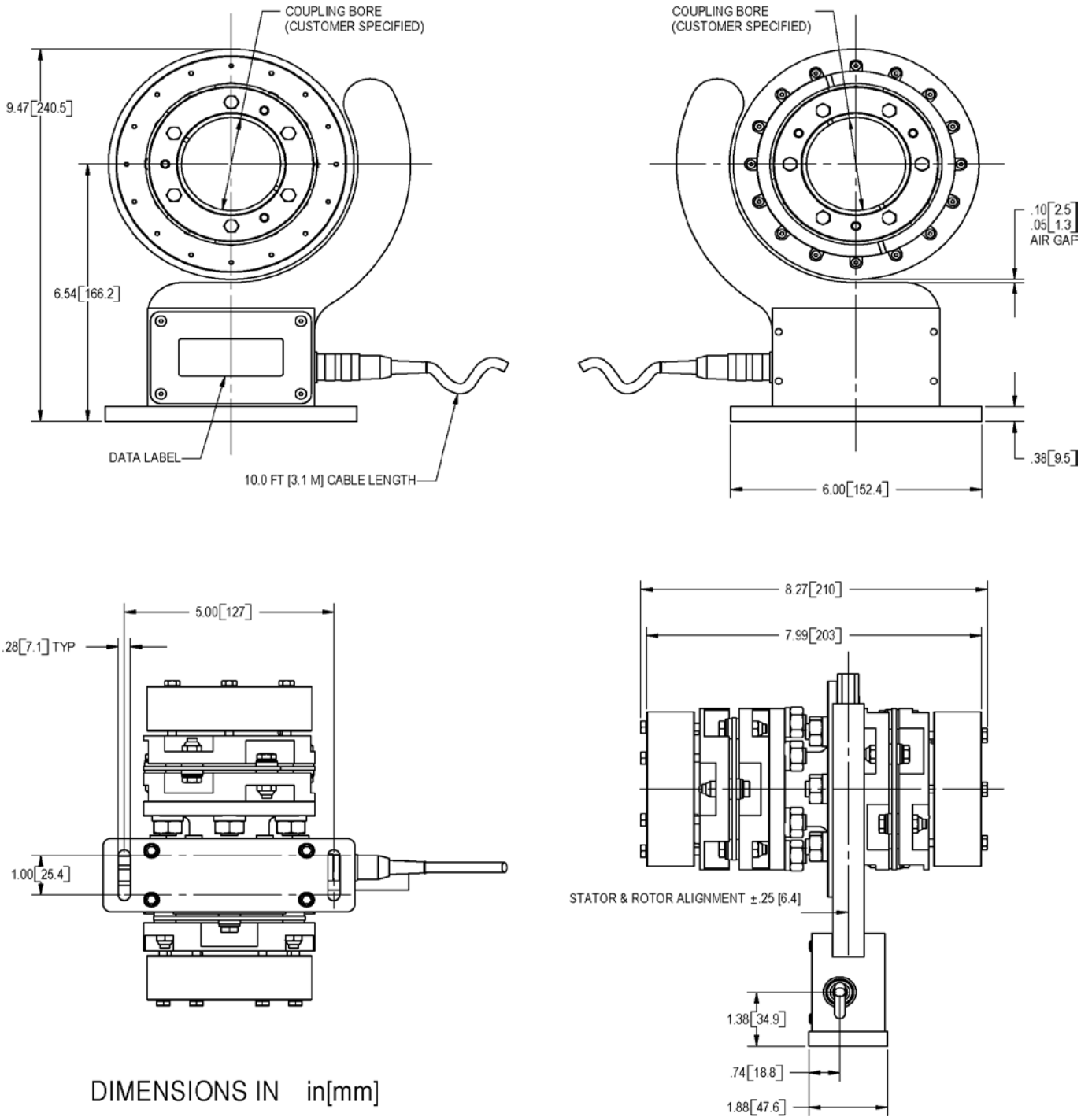


Flange Hub

Consult Factory for Hub and Configuration Options

HRDTC Integral Coupling Option 250 or 500 Nm with Shrink-Disk Hubs

SAMPLE DRAWING ONLY:
Consult Factory for Hub and Configuration Options

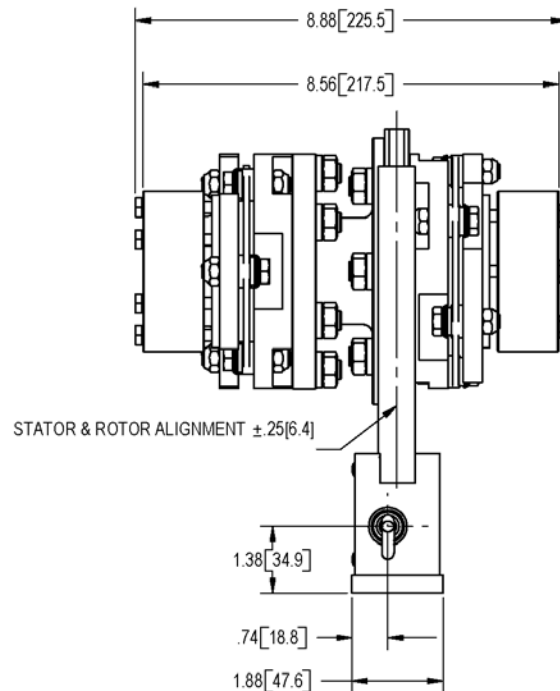
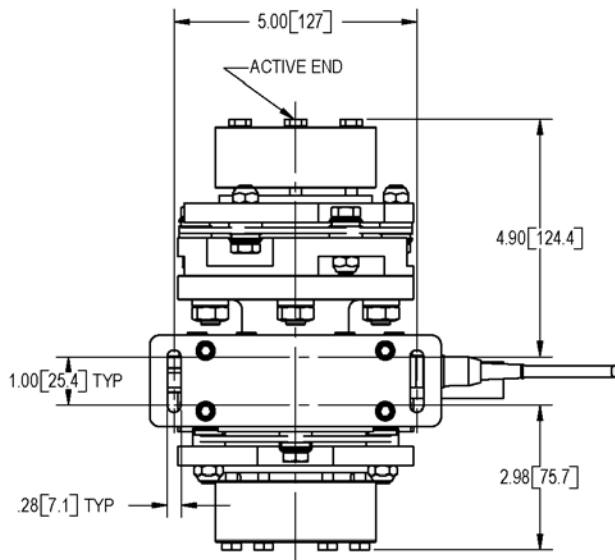
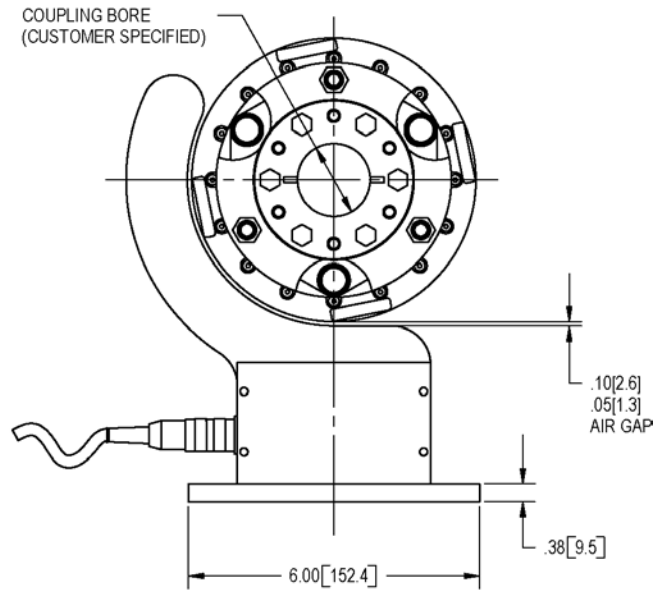
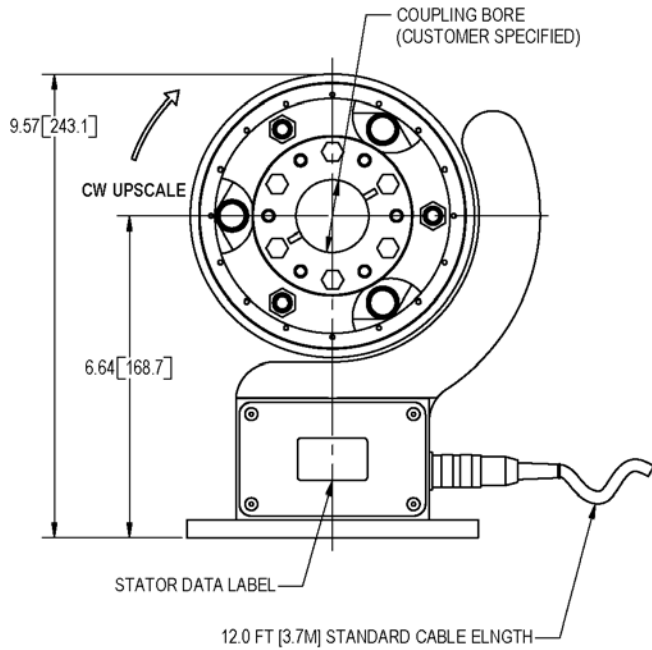


DIMENSIONS IN in[mm]

Note: 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.

HRDTC Integral Coupling Option 1K Nm with Shrink-Disk Hubs

SAMPLE DRAWING ONLY:
Consult Factory for Hub and Configuration Options



DIMENSIONS IN in[mm]

Note: Refer to Roba DS Coupling Catalog for details.
1000 Nm uses size 64 HT coupling, pages 12-25.