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5AR70 3-AXIS FORCE/TORQUE LOAD CELLS (U.S. & METRIC)

SPECIFICATIONS

ACCURACY – (MAX ERROR*)		
Nonlinearity – %FS		±0.2
Hysteresis – %FS		±0.5
Creep, in 30 min – %		±0.05
TEMPERATURE		
Effect on Zero – %RO / deg	°C	±0.05
Effect on Output – % / def	°C	±0.05
Operating Range	°C	-20 to +70
	°F	-4 to +185
ELECTRICAL		
Rated Output (Nominal) – mV/V		0.5
Max. Excitation Voltage – V		10
Zero Balance – mV/V		<0.1
Input Resistance, x, y, & z axis – Ω		350
Output Resistance, x, y, & z axis – Ω		350
MECHANICAL		
Rated Capacity (FS)	N	20N/200mNm, 50N/500mNm, 100N/1Nm
	lbf	4.5lbf/1.77lbf-in, 11.2lbf/4.4lbf-in, 22.5lbf/8.85lbf-in
Cable length	m	3
	ft	9.8
Material		Aluminum Alloy
Total Weight	g	85
	lbs	0.18
Safe Overload – %CAP		150
Ultimate Overload – %RO		300
Dimensions		Ø 70 mm x 12 mm
Standard Connector		SubD44HD
Protection Level		IP66
ECCENTRICITY AND MOMENT*		
x into y - %FS		0.5
y into x - %FS		0.5
z into x - %FS		1
z into y - %FS		1
x into z - %FS		1
y into z - %FS		1
Influence of Eccentric load %FS/2Nm		0.5

The 5AR70 3-Axis Force/Torque Load Cells are ideal for inspection tasks in quality assurance and material testing due to their compact and low-profile design, with a thickness of just 12 mm. This precision force sensor features four independently wired strain gauge measuring springs. The strain gauge signals enable the calculation of axial force (Fz) and bending moments (Mx and My) around the x- and y-axes. Additionally, the sensor's design allows for the determination of horizontal forces (Fx and Fy) and bending moments based on the distance of the force transmission from the sensor surface. A simple calibration matrix ensures the easy processing of sensor signals, allowing for accurate conversion into forces and moments.

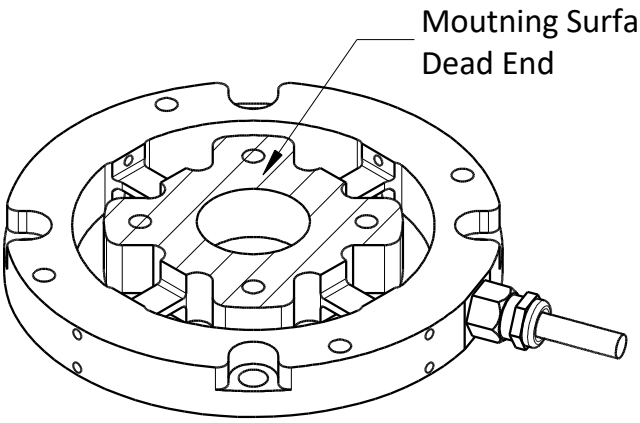
STANDARD CONFIGURATION

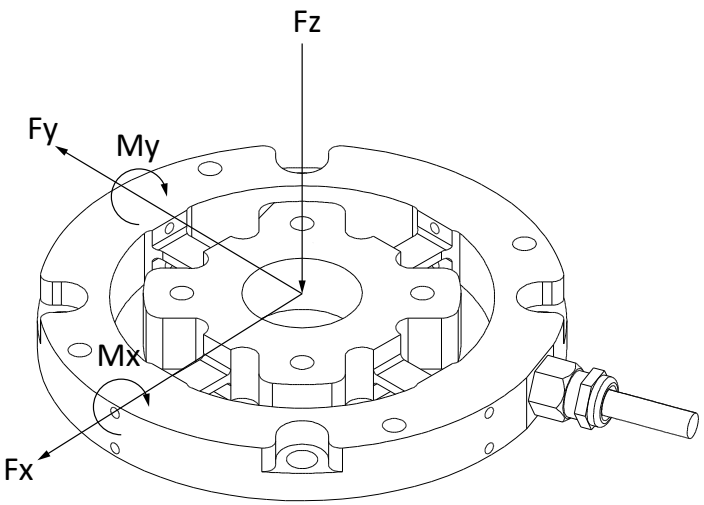
Model 5AR70 (Shown)

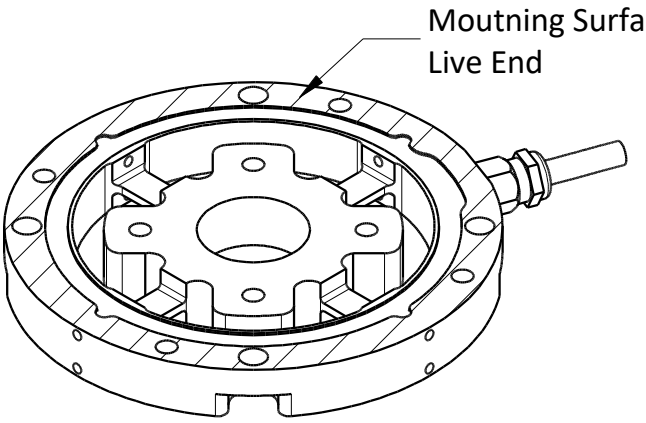
FEATURES & BENEFITS

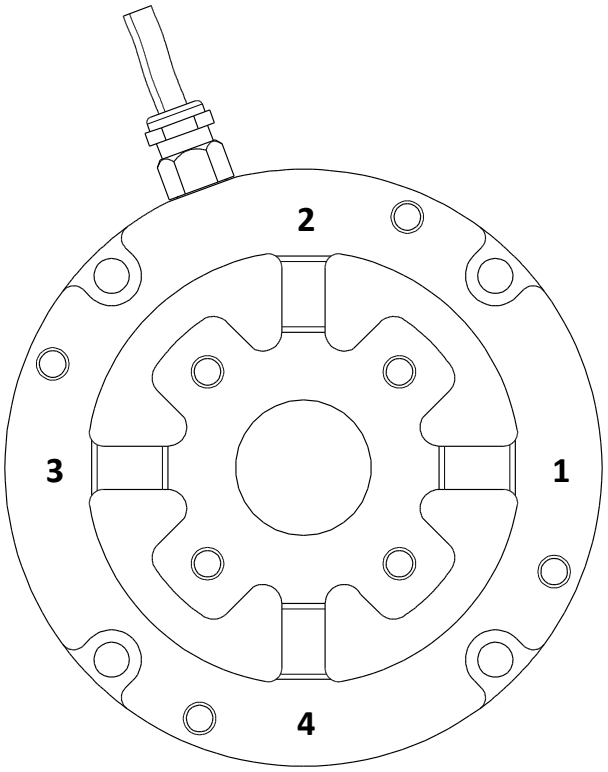
- 70 mm Diameter
- Low 12 mm Height
- Measures Fx, My, Mz
- Stainless Steel or Aluminum Alloy Construction
- IP 66

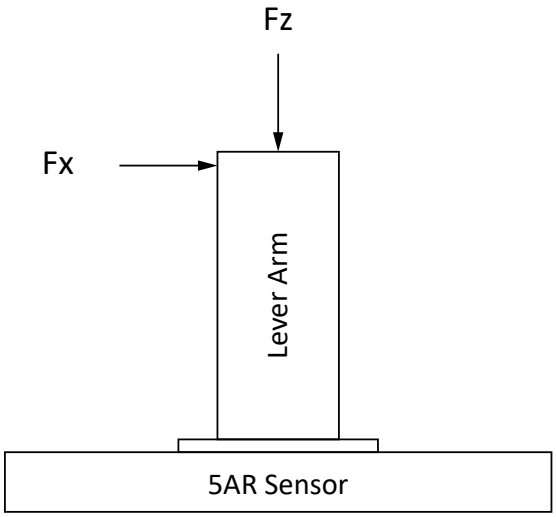
5AR70 3-AXIS FORCE/TORQUE LOAD CELLS (U.S. & METRIC)



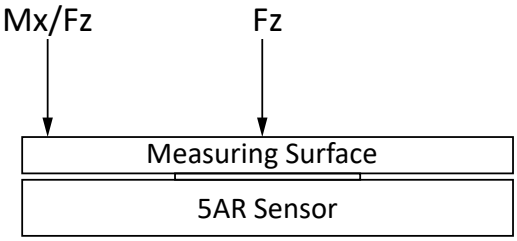








Application as a 3D Force Sensor



Application as a Force-Torque Sensor
Force-Center of Gravity Sensor

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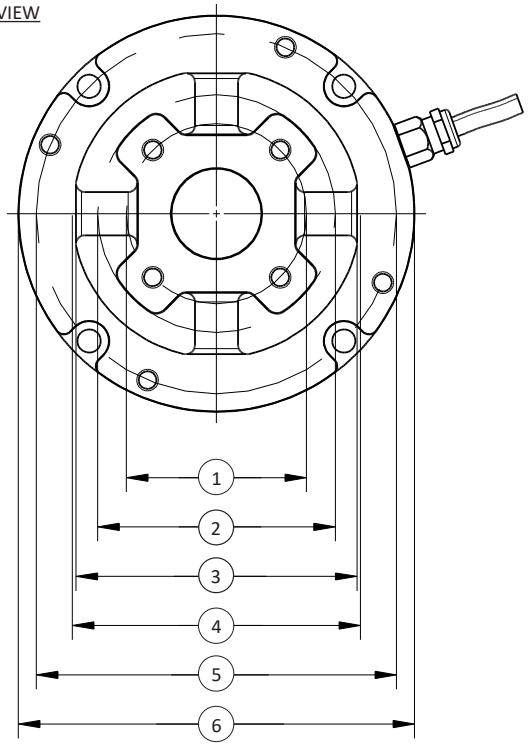
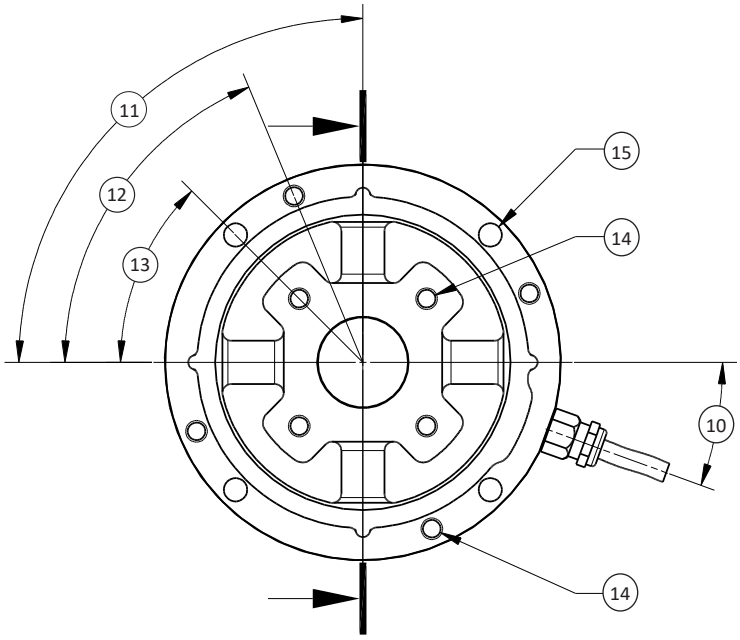
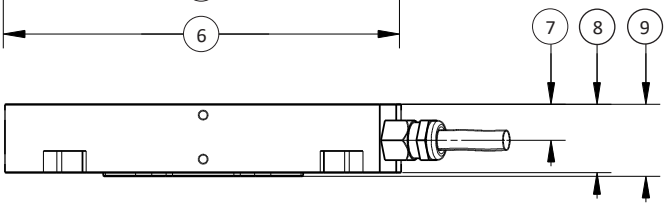
BOTTOM VIEW

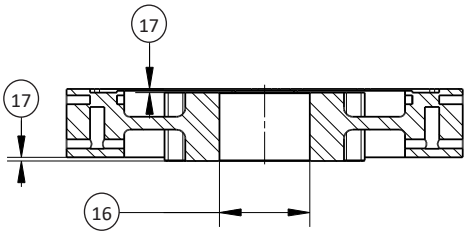


TOP VIEW





SIDE VIEW



SECTION A-A

DIMENSIONS

See Drawing	Metric	U.S.
	mm	in
(1)	Ø30	Ø1.18
(2)	Ø36	Ø1.41
(3)	□40	□1.57
(4)	Ø42	Ø1.65
(5)	Ø58	Ø2.28
(6)	Ø70 f7	Ø0.28 f7
(7)	6	0.24
(8)	11	0.43
(9)	12	0.47
(10)	20°	20°
(11)	90°	90°
(12)	67.5°	67.5°
(13)	45°	45°
(14)	4 x M4x0.7 ↧ THRU (4 x 90°)	4 x Ø0.03 ↧ THRU (4 x 90°)
(15)	4 x Ø4.2 ↧ THRU (4 x 90°)	4 x M6x1 ↧ THRU (4 x 90°)
(16)	Ø12 H7	Ø0.47 H7
(17)	1	0.04
(18)	4 x M4x0.7 ↧ THRU ⌵ 118° (4 x 90°)	4 x M4x0.03 ↧ THRU ⌵ 118° (4 x 90°)

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