

JR3 Multi-Axis Force-Torque Sensor Technical Specifications

Sensor Model: Mechanical Load Rating:	160M50A3 400N	160M50A3 1000N
Diameter (mm)	160	160
Thickness (mm)	50	50
Material	AL 2024	AL 2024
Mass (g)	2300	2300
Nominal Accuracy, all axes (% measuring range)	±0,25	±0,25
Operating Temp. Range, non-condensing (°C)	-40 to +65	-40 to +65
F_x F_y		
Standard Measurement Range (N)	±400	±1000
Standard Resolution (N)	0,050	0,13
Stiffness (N/m)	28,2e6	58e6
Single-Axis Maximum Load (N)	2520	5550
Multi-Axis Overload Coefficients, a (N)	3140	8450
[see notes] b (N)	2720	5550
c (N)	4170	6900
d (N)	2520	5550
F_z		
Standard Measurement Range (N)	±800	±2000
Standard Resolution (N)	0,10	0,25
Stiffness (N/m)	246e6	470e6
Single-Axis Maximum Load (N)	11 400	24 200
Multi-Axis Overload Coefficient, e (N)	11 400	24 200
M_x M_y		
Standard Measurement Range (Nm)	±63	±160
Standard Resolution (Nm)	0,008	0,02
Stiffness (Nm/rad)	0,567e6	1,03e6
Single-Axis Maximum Load (Nm)	390	800
Multi-Axis Overload Coefficients, f (Nm)	450	925
g (Nm)	390	800
h (Nm)	780	1600
M_z		
Standard Measurement Range (Nm)	±63	±160
Standard Resolution (Nm)	0,008	0,02
Stiffness (Nm/rad)	0,175e6	0,35e6
Single-Axis Maximum Load (Nm)	340	650
Multi-Axis Overload Coefficient, i (Nm)	340	650

Standard Measurement Range

- This is the range of loads each sensor model is ideally suited to measure. Factory adjustments to internal electronics allow custom measurement ranges to meet application-specific needs.

Bolt Patterns

- The 160M50A3 sensors are available standard with the ISO 9409-1, Ø100mm and Ø80mm bolt patterns.
- Alternate and custom bolt patterns are also available.

Multi-axis Overloads

- Insert your applied loads and the coefficients from the above table into the equations below to determine safe loading:

$$F_x/a + F_y/c + F_z/e + M_y/g + M_z/i \leq 1$$

and

$$F_x/b + F_y/d + F_z/e + M_x/f + M_y/h + M_z/i \leq 1$$

Both equations must be satisfied to avoid damage.

- If additional overload capability is desired we recommend using a higher-rated sensor with its measuring ranges electronically lowered.

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