JR3 Multi-Axis Force-Torque Sensor Technical Specifications

Sensor Model: **Mechanical Load Rating:**	**75E20A4** **250 lb**	**75E20A4** **500 lb**
Diameter (in)	7.50	7.50
Thickness (in)	2.00	2.00
Material	AL 2024	AL 2024
Weight (lb)	7.5	7.5
Nominal Accuracy, all axes (% measuring range)	±0.25	±0.25
Operating Temp. Range, non-condensing (°F)	-40 to +150	-40 to +150
F_x, F_y		
Standard Measurement Range (lb)	±250	±500
Digital Resolution (lb)	0.031	0.063
Stiffness (lb/in)	0.36e6	0.60e6
Single-axis Overload (lb)	1550	2900
Multi-axis Overload Coefficient, a (lb)	1700	3000
Multi-axis Overload Coefficient, b (lb)	1550	2900
F_z		
Standard Measurement Range (lb)	±500	±1000
Digital Resolution (lb)	0.63	0.13
Stiffness (lb/in)	2.83e6	4.48e6
Single-axis Overload (lb)	4800	9200
Multi-axis Overload Coefficient, c (lb)	4800	9200
M_x, M_y		
Standard Measurement Range (in-lb)	±1875	±3750
Digital Resolution (in-lb)	0.23	0.47
Stiffness (in-lb/rad)	15.2e6	23.5e6
Single-axis Overload (in-lb)	7850	14,900
Multi-axis Overload Coefficient, d (in-lb)	7850	14,900
M_z		
Standard Measurement Range (in-lb)	±1875	±3750
Digital Resolution (in-lb)	0.23	0.47
Stiffness (in-lb/rad)	4.73e6	7.87e6
Single-axis Overload (in-lb)	6700	12,200
Multi-axis Overload Coefficient, e (in-lb)	6700	12,200

Standard Measurement Range

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

Bolt Patterns

- The 75E20A4 sensors are available standard with the ISO 9409-1 ∅125mm bolt pattern.
- Alternate standard and custom bolt patterns are also available.

Multi-axis Overloads

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

$$F_x/a + F_y/b + F_z/c + M_x/d + M_z/e \leq 1$$

and

$$F_x/b + F_y/a + F_z/c + M_y/d + M_z/e \leq 1$$

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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