JR3 Multi-Axis Force-Torque Sensor Technical Specifications

Sensor Model: **Mechanical Load Rating:**	**75E20S4** **650 lb**	**75E20S4** **1300 lb**
Diameter (in)	7.50	7.50
Thickness (in)	2.00	2.00
Material	15-5PH SS	15-5PH SS
Weight (lb)	15.0	15.0
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)	±650	±1300
Digital Resolution (lb)	0.081	0.16
Stiffness (lb/in)	0.98e6	1.6e6
Single-axis Overload (lb)	4150	7600
Multi-axis Overload Coefficient, a (lb)	4450	7850
Multi-axis Overload Coefficient, b (lb)	4150	7600
F_z		
Standard Measurement Range (lb)	±1300	±2600
Digital Resolution (lb)	0.16	0.32
Stiffness (lb/in)	7.61e6	12.0e6
Single-axis Overload (lb)	12,500	24,100
Multi-axis Overload Coefficient, c (lb)	12,500	24,100
M_x, M_y		
Standard Measurement Range (in-lb)	±5000	±9800
Digital Resolution (in-lb)	0.63	1.23
Stiffness (in-lb/rad)	38.2e6	64.4e6
Single-axis Overload (in-lb)	19,900	39,500
Multi-axis Overload Coefficient, d (in-lb)	19,900	39,500
M_z		
Standard Measurement Range (in-lb)	±5000	±9800
Digital Resolution (in-lb)	0.63	1.23
Stiffness (in-lb/rad)	11.9e6	21.6e6
Single-axis Overload (in-lb)	17,000	32,300
Multi-axis Overload Coefficient, e (in-lb)	17,000	32,300

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 75E20S4 sensors are available standard with English or metric bolt patterns.
- Customer-specified bolt patterns are possible at additional cost.

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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