

## JR3 Multi-Axis Force-Torque Sensor Technical Specifications

Sensor Model: Mechanical Load Rating:	67M25A3 25 lb	67M25A3 50 lb	67M25S3 65 lb	67M25S3 130 lb
Diameter (in)	2.64	2.64	2.64	2.64
Thickness (in)	0.984	0.984	0.984	0.984
Material	AL 2024	AL 2024	SS 15-5PH	SS 15-5PH
Weight (lb)	0.40	0.40	0.90	0.90
Nominal Accuracy, all axes (% measuring range)	±1.0	±1.0	±1.0	±1.0
Operating Temp. Range, non-condensing (°F)	-40 to +150	-40 to +150	-40 to +150	-40 to +150
<b>F<sub>x</sub>, F<sub>y</sub></b>				
Standard Measurement Range (lb)	±25	±50	±65	±130
Digital Resolution (lb)	0.0063	0.013	0.016	0.033
Stiffness (lb/in)	29,000	73,000	78,000	195,000
Single-axis Overload (lb)	105	210	280	550
Multi-axis Overload Coefficient, a (lb)	105	210	280	550
Multi-axis Overload Coefficient, b (lb)	135	270	350	720
Multi-axis Overload Coefficient, c (lb)	110	220	300	570
<b>F<sub>z</sub></b>				
Standard Measurement Range (lb)	±50	±100	±130	±260
Digital Resolution (lb)	0.013	0.025	0.033	0.065
Stiffness (lb/in)	290,000	740,000	790,000	1.98e6
Single-axis Overload (lb)	430	870	1140	2300
Multi-axis Overload Coefficient, d (lb)	430	870	1140	2300
<b>M<sub>x</sub>, M<sub>y</sub></b>				
Standard Measurement Range (in-lb)	±65	±130	±170	±340
Digital Resolution (in-lb)	0.016	0.033	0.043	0.085
Stiffness (in-lb/rad)	190,000	470,000	505,000	1.27e6
Single-axis Overload (in-lb)	250	510	670	1340
Multi-axis Overload Coefficient, e (in-lb)	350	700	910	1830
Multi-axis Overload Coefficient, f (in-lb)	950	1900	2500	5010
Multi-axis Overload Coefficient, g (in-lb)	250	510	670	1340
<b>M<sub>z</sub></b>				
Standard Measurement Range (in-lb)	±65	±130	±170	±340
Digital Resolution (in-lb)	0.016	0.033	0.043	0.085
Stiffness (in-lb/rad)	47,000	130,000	128,000	358,000
Single-axis Overload (in-lb)	190	430	500	1130
Multi-axis Overload Coefficient, h (in-lb)	190	430	500	1130

### Standard Measurement Range

- This is the range of loads that 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 67M25A3 and 67M25S3 (315N only) sensors are available standard with the ISO 9409-1 Ø40mm bolt pattern.
- 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:

$$F_x/a + F_y/a + F_z/d + M_x/e + M_y/e + M_z/h \leq 1$$

and

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

and

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

All 3 equations must be satisfied to avoid damage.

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

### JR3, INC.

22 HARTER AVENUE WOODLAND, CA 95776  
(530) 661-3677 www.jr3.info