

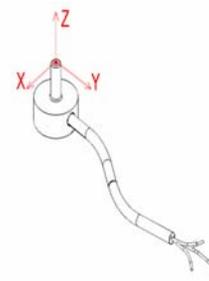
### Extraneous Load Factors

**Equation:**

$$\sigma_{max} \geq (A)F_x + (B)F_y + (C)F_z + (D)M_x + (E)M_y + (F)M_z$$



**L1613 (Vertical cable Exit Option)**



**L1614**

**Material:** 17-4 P.H. Stainless Steel S.S.

Model#	Capacity (lb)	A	B	C	D	E	F
LLB210	10	24650.1	24650.1	4907.9	113338.1	113338.1	29184.1
	25	15660.8	15660.8	2475.8	47869.5	47869.5	26372.6
	50	9056.6	9056.6	1452.0	32691.6	32691.6	34296.4

$\sigma_{max}$  **Table**

Material	Static Load (=60% Y.S.)	Fatigue (Non Reversing Loads)	Fatigue (Full Reversing Loads)
17-4PH S.S	87,000	78,000	62,000*

\*Value is 75% of Fatigue Strength based on 10-20 x 10<sup>6</sup> cycles and allow for factors that influence Fatigue such as surface finish, stress concentrations, corrosion, temperature and other variables for the production of the transducer, for infinite Fatigue Life (100 x 10<sup>6</sup>) use 75% of values shown.

### Deflection & Natural Frequency

Model#	Capacity (lb)	Deflection (in.)	Natural Frequency (Hz)	$\beta$
LLB210	10	0.0007	13,700	0.0007
	25	0.0007	22,000	0.0007
	50	0.0007	31,000	0.0007

\*FN results are based on calculation of deflection & weight scene on Sensor arm.

### Natural Frequency & Frequency Response Equation's:

$$\text{Natural Frequency (FN)} = 3.13 \sqrt{\frac{1}{\frac{\beta}{\text{Capacity}} \cdot \text{Deflection}}} \text{ (Hz)}$$

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$$\text{Frequency Response with load (FR)} = 3.13 \sqrt{\frac{1}{\frac{\beta + \text{AppliedLoad}}{\text{Capacity}} \cdot \text{Deflection}}} \text{ (Hz)}$$

\*Where  $\beta$  values are obtained by Futek Engineers