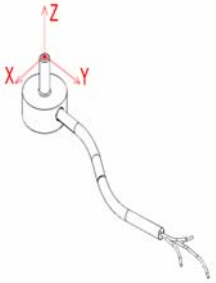
Extraneous Load Factors

Equation: $\sigma_{max} \geq$ (A)Fx +(B)Fy +(C)Fz +(D)Mx +(E)My +(F)Mz



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

σ_{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 10^6 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 10^6) use 75% of values shown.

Deflection & Natural Frequency

Model#	Capacity (lb)	Deflection (in.)	Natural Frequency (Hz)	β
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:

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

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

*Where β values are obtained by Futek Engineers