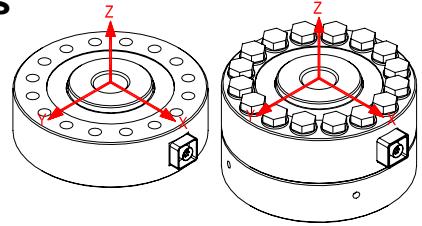


## Extraneous Load Factors

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



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

Model	Capacity (lb)	A	B	C	D	E	F
LCF550/LCF555	100,000	1.8	1.8	0.7	0.7	0.7	0.5
LCF551/LCF556	50,000	1.8	1.8	0.7	0.7	0.7	0.5

### $\sigma_{max}$ 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  $10-20 \times 10^6$  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 ( $100 \times 10^6$ ) use 75% of values shown.

## Deflection & Natural Frequency

Model	Capacity (lb)	Deflection (in.)	Natural Frequency (Hz)	$\beta$
LCF550/LCF555	100,000	0.002	8,300	7.05
LCF551/LCF556	50,000	0.001	8,300	7.05

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

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

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

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

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