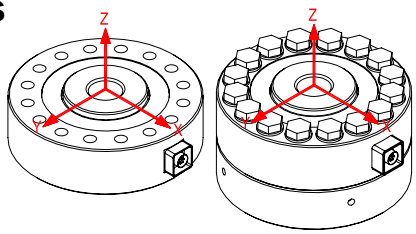
Extraneous Load Factors



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

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
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:

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

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

*Where β values are obtained by Futek Engineers

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