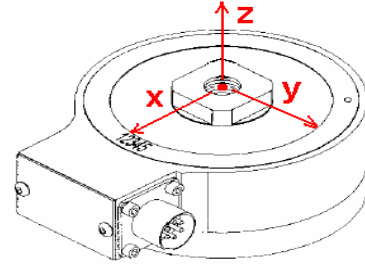


Extraneous Load Factors



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

Material: 17-4 PH Stainless Steel

Model #	Capacity (lb)	A	B	C	D	E	F
LCF400	250	62.87	62.87	159.40	73.29	73.29	34.59
	500	45.12	45.12	66.47	40.79	40.79	29.26
	1,000	39.26	39.26	54.59	33.05	33.05	23.51
	2,000	33.34	33.34	29.42	27.54	27.54	17.48
	3,000	24.46	24.46	17.18	19.75	19.75	14.45
	5,000	21.43	21.43	12.45	14.91	14.91	13.12

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 10⁶ 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 10⁶) use 75% of values shown.

Deflection & Natural Frequency

Model #	Capacity (lb)	Deflection (in.)	Natural Frequency (Hz)	β
LCF400	250	0.003	900	0.9500
	500	0.002	1,600	0.9500
	1,000	0.004	1,600	0.9500
	2,000	0.004	2,300	0.9500
	3,000	0.004	2,800	0.9500
	5,000	0.005	3,200	0.9500

Natural Frequency & Frequency Response Equation's:

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

This documentation was generated and completed to the best ability of FUTEK's Engineering Team using FEA Analysis, Empirical data and Multiple Testing Simulations. The information and recommendations on this document are presented in good faith and believed to be correct however, FUTEK Advanced Sensor Technology makes no representations or warranties as to the completeness or accuracy of the information.

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

*Where β values are obtained by Futek Engineers

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