

Extraneous Load Factors

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

Material: 17-4 P.H. Stainless Steel

Model #	Capacity (lb)	Α	В	С	D	E	F
LCF650/655	250,000	0.478	0.478	0.173	0.304	0.304	0.067
LCF651/656	125,000	0.478	0.478	0.173	0.304	0.304	0.067
All force and moments to be calculated using the sin-th units							

All force and moments to be calculated using lb & in-lb units

σ_{\max} <u>Table</u>

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 (100×10^6) use 75% of values shown.

Deflection & Natural Frequency

Model # Capacity (Ib)		Deflection (in.)	Natural Frequency (Hz)	β
LCF650/655	250,000	0.005	4,700	21.60
LCF651/656	125,000	0.0025	4,700	21.60

Natural Frequency & Frequency Response Equation's:

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

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

*Where eta values are obtained by Futek Engineers

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Page 1 of 1