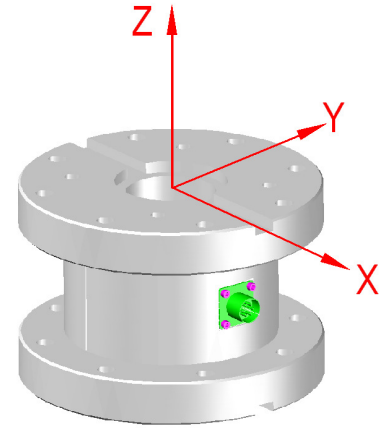## Extraneous Load Factors

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

Material: 17-4 P.H. Stainless Steel (S.S.*), 2024-T4 Aluminum (AL*)

Material	Capacity (in-lb)	A	B	C	D	E	F
(AL*)	1000	46.0	46.0	12.0	24.0	24.0	13.0
	2000	31.0	31.0	6.0	14.0	14.0	6.0
(S.S.*)	5000	34.0	34.0	5.0	14.0	14.0	4.0
	10000	19.0	19.0	4.0	9.0	9.0	2.0

σ_{max} Table

Material	Static Load (=60% Y.S.)	Fatigue (Non Reversing Loads)	Fatigue (Full Reversing Loads)
2024-T4/T351	28,000	18,000	15,000
17-4PH S.S	87,000	78,000	62,000*

*Value is 75% of Fatigue Strength based on $10\text{-}20 \times 10^6$ 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

Material	Capacity (in-lb)	Torsional Stiffness (ft-lb/rad)	Natural Frequency (Hz)
(AL*)	1000	26000	1100
	2000	45300	1600
(S.S.*)	5000	96500	1700
	10000	215000	2200

*FN results are based on calculation of deflection & weight scene on Sensor arm.