

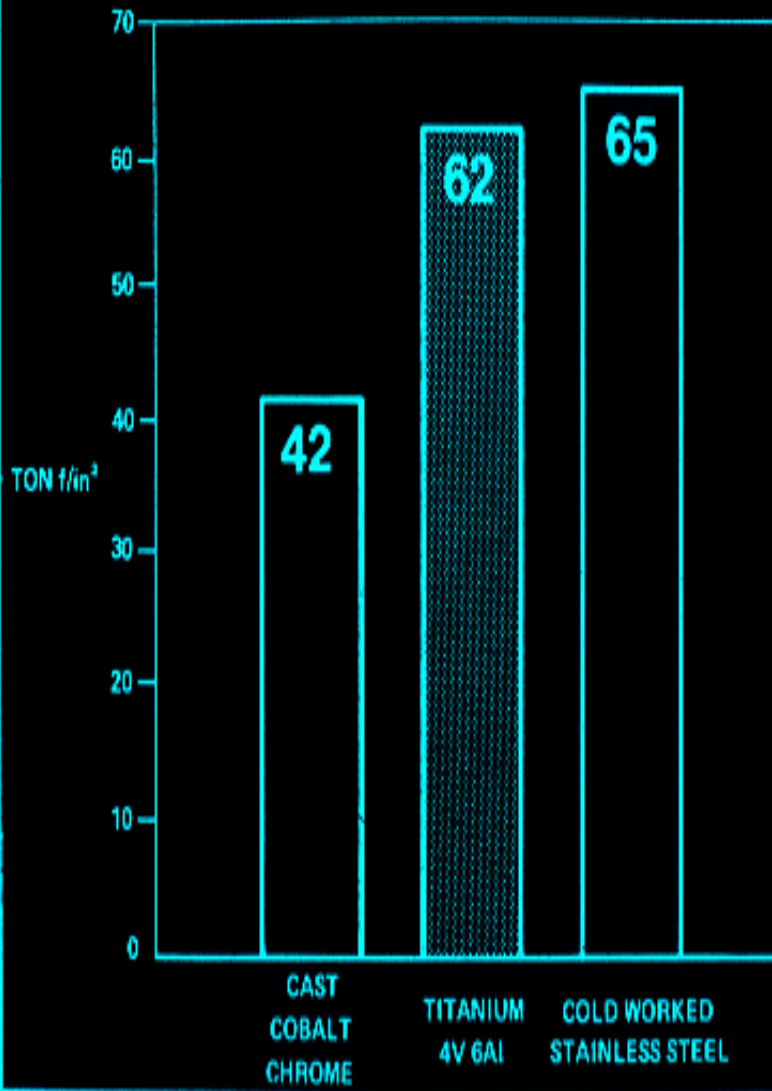
SUMMARY OF UNDERCUT HIP STEM CANTILEVER FATIGUE TEST
RESULTS BY HOWMEDICA

<u>Material</u>	<u>Fatigue Strength* 10⁷ Cycles (Ksi)</u>
Cast Vitallium® Alloy	90-94
Zimaloy® Alloy	70-76
Zimmer Stainless (T-28)	60-64
Zimmer Stainless (Charnley)	84-88
Titanium Alloy (Ti-6Al4V)	100
Protasul® 10 (MP35N)	96-112
Forged Vitallium® FHS™ Alloy	130-135

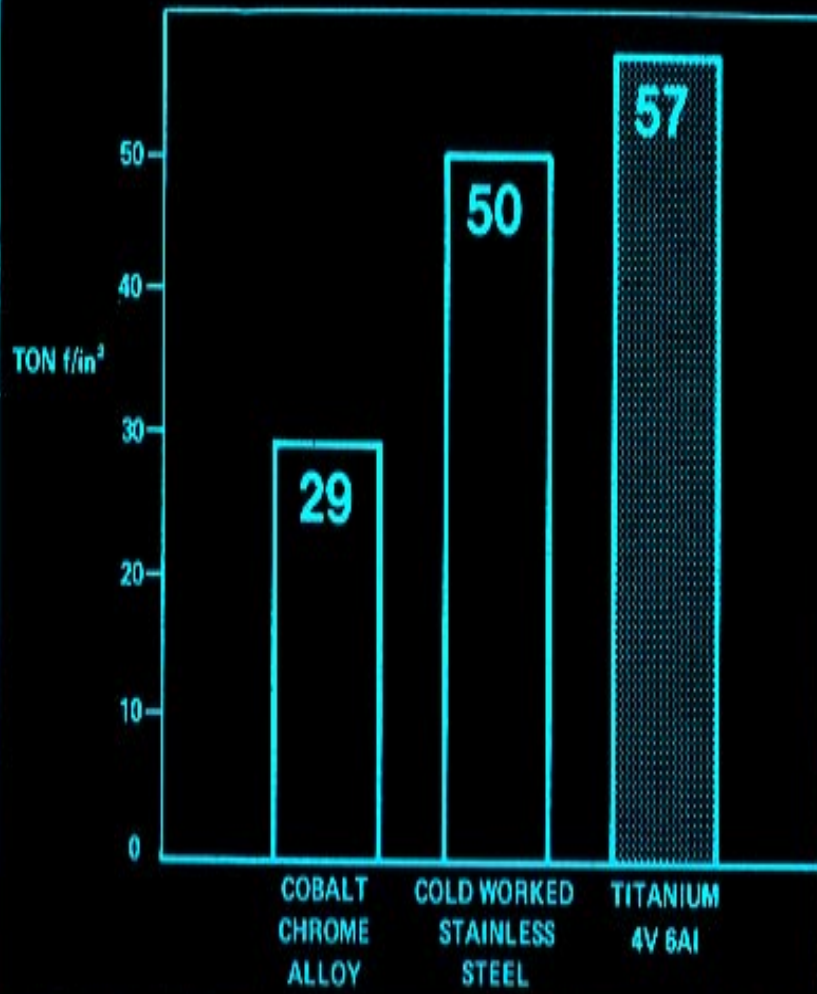
*A Ratio = .95

IMI DESIGNATION	Ti	O	N	H	C	Fe	Al	V
T115	99.0	0.07	0.0075	0.003	0.02	0.025	0.05	0.05
125		0.13	0.008	0.003	0.02	0.03	0.05	0.05
130		0.20	0.009	0.003	0.02	0.03	0.05	0.05
160		0.30	0.01	0.003	0.02	0.04	0.05	0.05
318	89.0	0.13	0.008	0.003	0.02	0.03	6.0	4.0

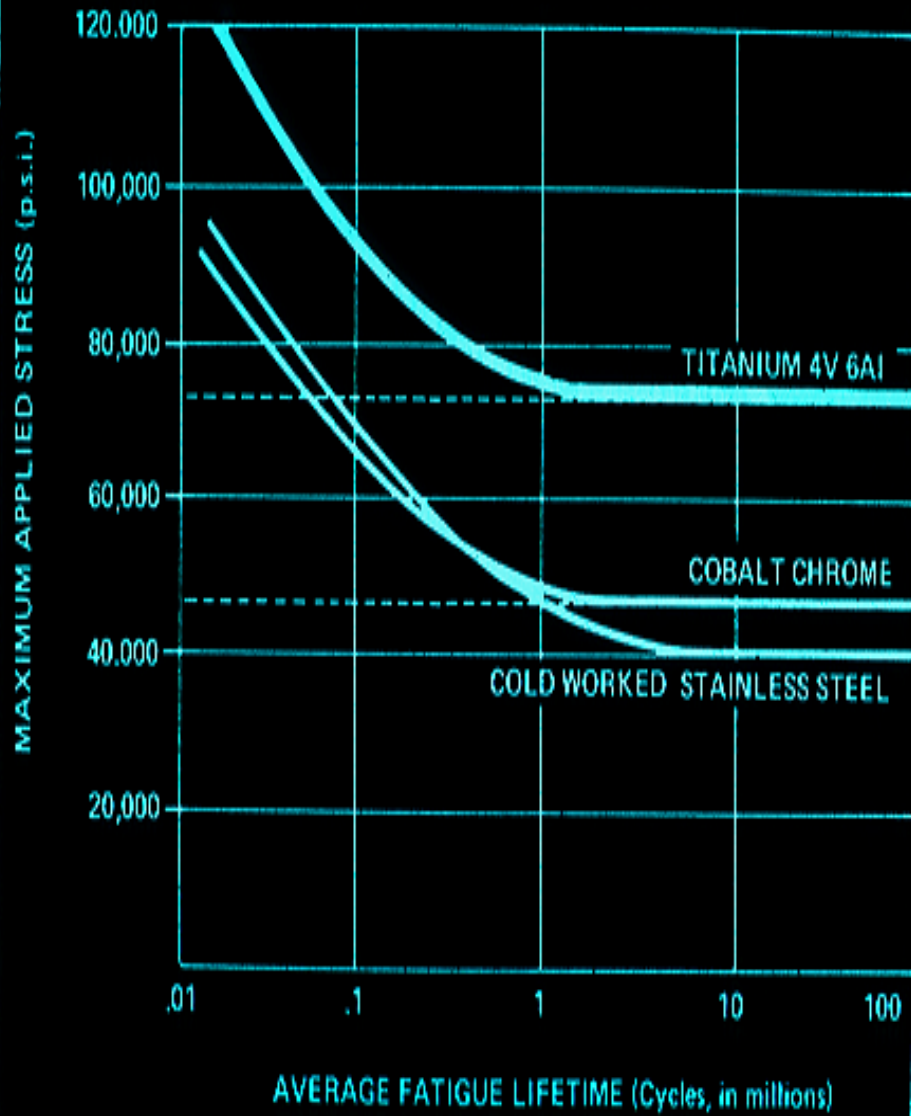
TENSILE STRENGTH



YIELD POINT

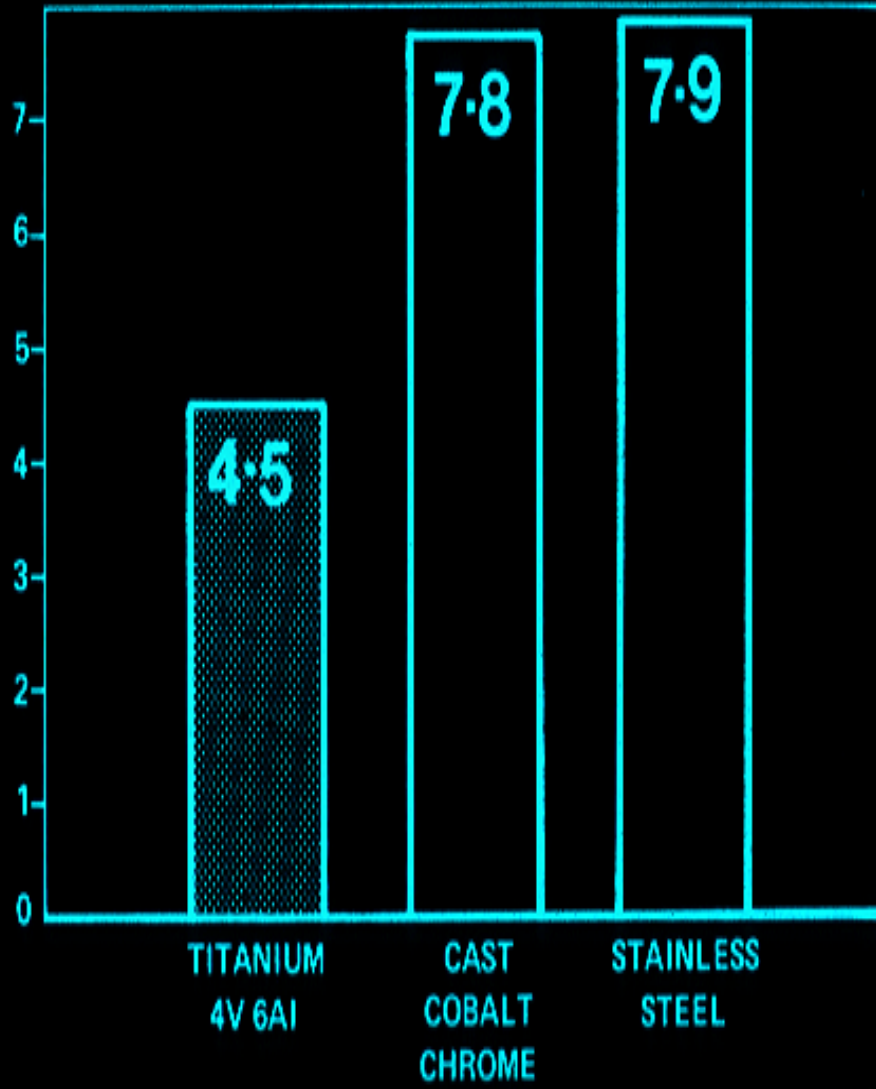


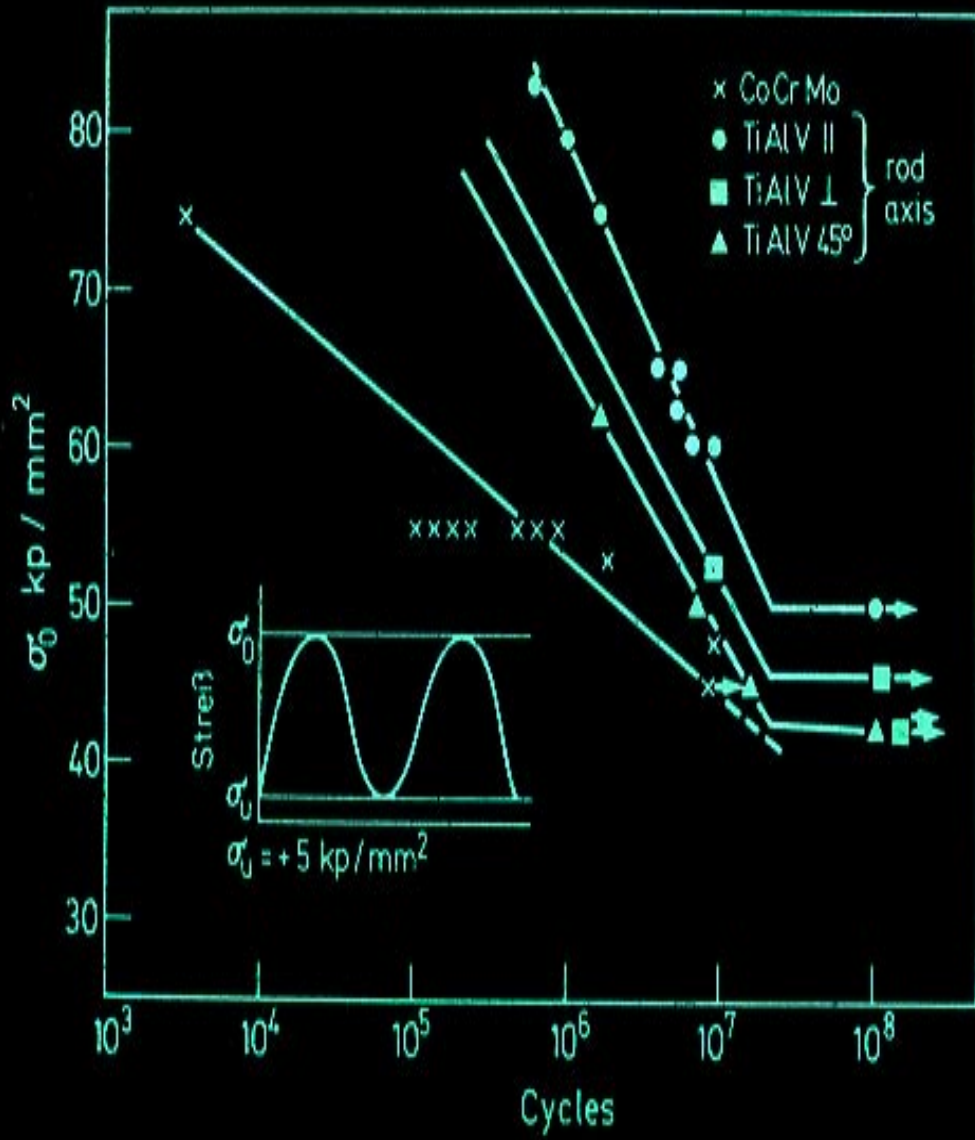
FATIGUE STRENGTH



NOMINAL SCREW diam. mm.	ULTIMATE TORSIONAL MOMENT lb. in.		
	En 58J ss	Cast Co-Cr-Mo	Titanium 4V 6Al
2.75	18.5	16.4	17.5
	21.5	18.6	20.0
3.50	32.5	28.5	30.5
	37.5	32.8	35.5
4.0	48.0	42.0	45.5
	54.0	47.0	50.5

SPECIFIC GRAVITY





STRAIN ENERGY TO FRACTURE FOR VARIOUS
TYPES OF CARBON

Carbon Type	Fracture Stress, σ ($\times 10^3$ psi)	Elastic Modulus, E ($\times 10^6$ psi)	Strain Energy to Fracture, $\sigma^2/2E$ ($\times 10^2$ in.-lb/in. ³)
LTI Pyrolite carbon	75	4	7
Vitreous carbon (a)	25	3.5	0.9
Pyrolytic graphite (b)	20	3.5	0.6
Strongest polycrystalline artificial graphite (c)	11	1.7	0.4