FLNC-4408

Density: 6.91 g/cm^3

Material: Prealloyed Steel (0.85% Mo, 0.20% Mn, balance Fe) + mixed additions of 2%Cu, 2%Ni, 0.90% graphite and 0.60% lubricant

Treatment: Die Compact, Sinter at 1120^{o}C, Sinter harden (cooling rate 2^{o}C/sec), Temper at 204^{o}C for 1 hour,

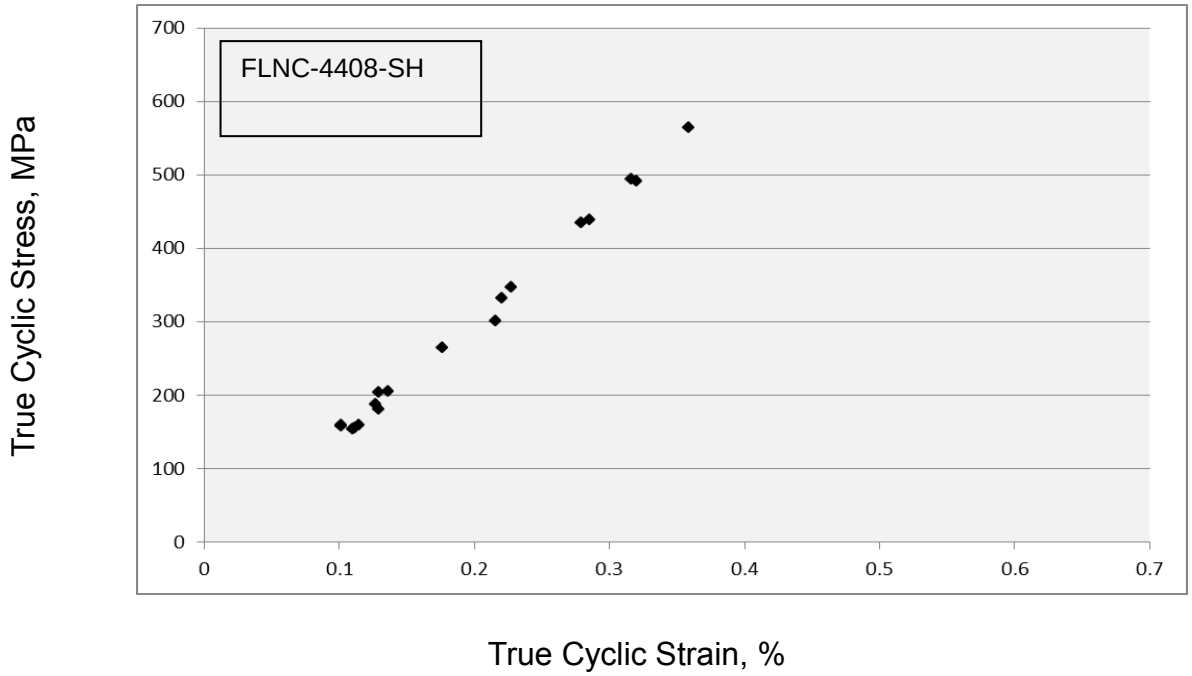
Table – Strain and Stress Amplitudes vs. Reversals to Failure

FLNC-4408 - Density 6.91 g/cm^3

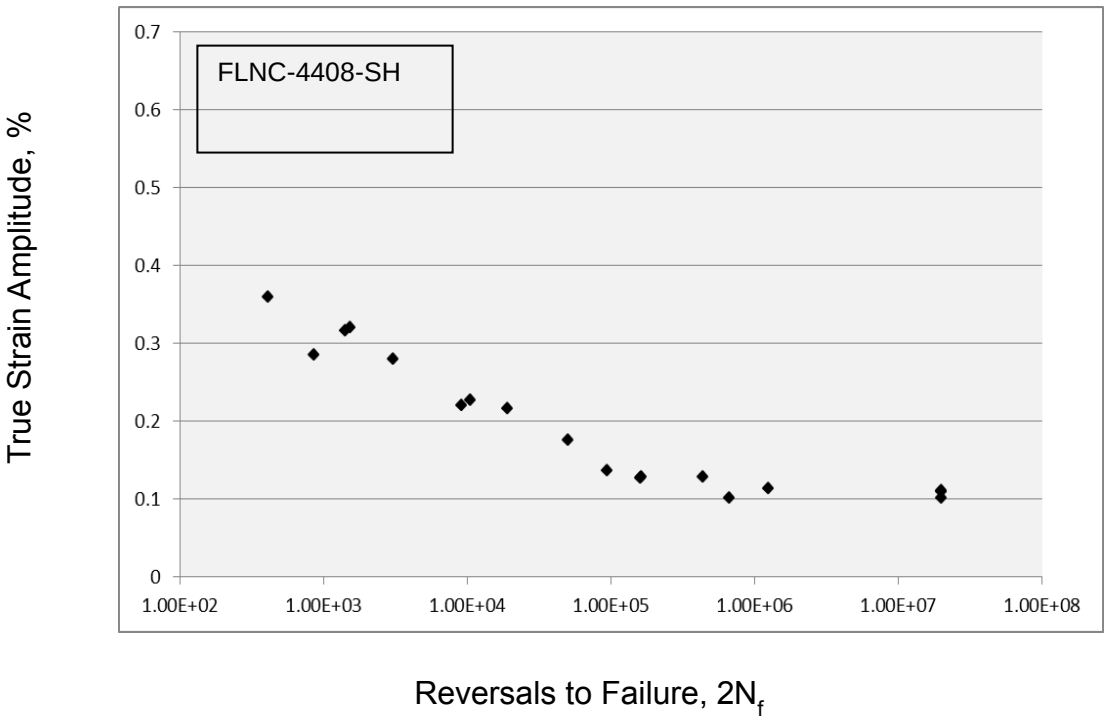
Sp. #	Stress Amplitude (MPa)	Strain Amplitude	Life (2Nf)	Hardness (HRC)	Notes
1	301.74	0.216	18980		
2	204.85	0.136	93508		
3	188.38	0.127	159608		
4	159.84	0.101	663966		
5	158.21	0.101	20000000	31.5*	Runout
6	153.69	0.11	20000000	33.0*	Runout
7	155.15	0.111	20000000		Runout
8	331.67	0.22	9152		
9	435.07	0.279	3060		
10	494.1	0.316	1416		
11	180.85	0.129	432494		
12	159.4	0.114	1242986		
13	204.46	0.129	162060		
14	264.09	0.176	50000		
15	346.44	0.227	10420	32*	
5B	563.9	0.359	412		
6B	491.58	0.32	1532		
7B	438.48	0.285	858		

** Hardness obtained from average of four tests*

True Cyclic Stress-Strain Curve



Constant amplitude Strain-Life Curve



Cyclic Properties

FLNC-4408 - Density 6.91 g/cm^3

Cyclic Yield Strength, (0.2% offset) = K' $(0.002)^{n'}$ (MPa)	No plastic deformation
Cyclic strength coefficient, K' (MPa)	No plastic deformation
Cyclic strain hardening exponent, n'	No plastic deformation
Fatigue strength coefficient, σ'_f (MPa)	1621
Fatigue strength exponent, b	-0.18
Fatigue ductility coefficient, ε'_f	No plastic deformation
Fatigue ductility exponent, c	No plastic deformation