

F-08C2/FC-0208

Density: 6.84 g/cm³

Material: Iron powder + mixed additions of 2% Cu, 0.90% graphite and 0.75% lubricant.

Treatment: Die Compact, Sinter at 1120°C

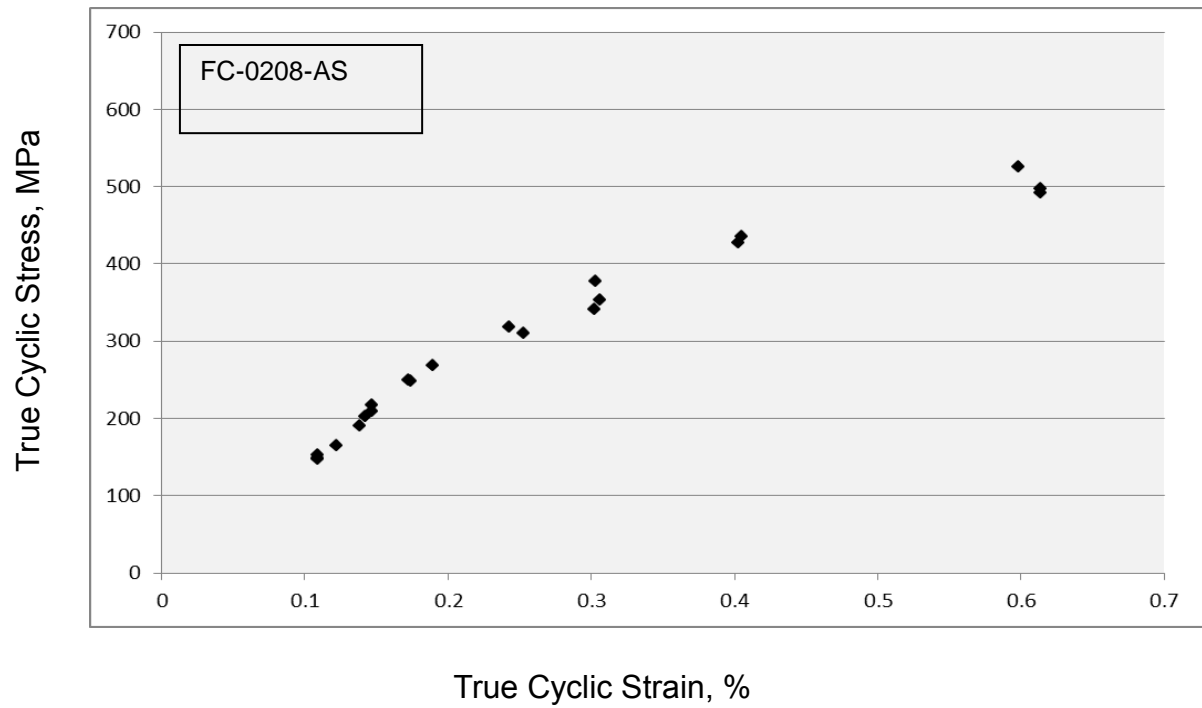
Table – Strain and Stress Amplitudes vs. Reversals to Failure

FC-0208-AS - Density 6.84 g/cm³

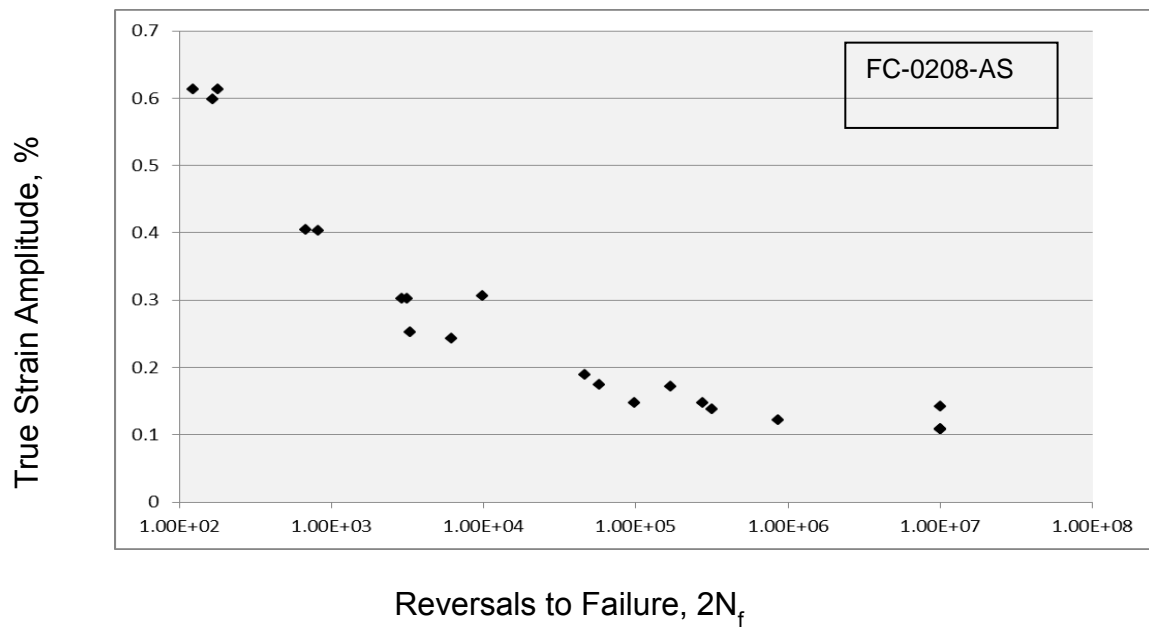
Sp. #	Stress Amplitude (MPa)	Strain Amplitude	True Elastic Strain Amplitude %	True Plastic Strain Amplitude %	Life (2Nf)	Hardness (HRB)	Notes
19	491.9	0.614	0.344	0.2701	124		
1	526.5	0.598	0.368	0.23	166		
17	497.8	0.614	0.348	0.2659	180		
2	435.3	0.405	0.304	0.1002	674	85*	
13	427.2	0.403	0.299	0.1044	820		
3	377.7	0.303	0.264	0.0386	2880		
7	341	0.302	0.238	0.0633	3124		
21	310.8	0.253	0.217	0.0355	3272		
4	318.9	0.243	0.223	0.0202	6150		
12	353.4	0.306	0.247	0.0588	9826		
5	268.1	0.189	0.187	0.0019	46450		
9	249	0.174	0.174	0	57582		
11	209.4	0.147	0.146	0.0001	98388		
8	249.7	0.172	0.172	0	168450	83*	
10	216.9	0.147	0.152	0	273734		
14	190.3	0.138	0.133	0.0048	317160		
15	165.1	0.122	0.115	0.0065	860996		
6	202.6	0.142	0.142	0	20000000	84*	Runout
16	152.6	0.109	0.107	0.0024	20000000		Runout
18	149	0.109	0.104	0.0049	20000000		Runout
20	147.9	0.109	0.103	0.0057	20000000		Runout

* Hardness obtained from average of three tests

True Cyclic Stress-Strain Curve



Constant amplitude Strain-Life Curve



Cyclic Properties

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Cyclic Yield Strength, (0.2% offset) = $K' (0.002)^{n'}$ (MPa)	478.8
Cyclic strength coefficient, K' (MPa)	1626.8
Cyclic strain hardening exponent, n'	0.197
Fatigue strength coefficient, σ'_f (MPa)	978
Fatigue strength exponent, b	-0.127
Fatigue ductility coefficient, ϵ'_f	0.274
Fatigue ductility exponent, c	-0.831