Table 2.6.6.0(b). Design Mechanical and Physical Properties of PH13-8Mo Stainless Steel

Specification	AMS 5629							
Form	Round, hex, square and flat bar							
Condition	H950		H1000		H1025	H1050	H1100	H1150
Thickness or diameter, in.	≤9.0		≤8.0		≤12.0			
Basis	A	B	A	B	S	S	S	S
Mechanical Properties:[a]								
F_{tu}, ksi:								
L	217	221	201	208	185	175	150	135
T	217	221	201	208	185	175	150	135
F_{ty}, ksi:								
L	198	205	190[b]	200	175	165	135	90
T	198	205	190[b]	200	175	165	135	90
F_{cy}, ksi:								
L	...	...	200	211	...	...	...	...
T	...	...	200	211	...	...	...	...
F_{su}, ksi	...	...	117	122	...	...	...	...
F_{bru}, ksi:								
(e/D = 1.5)	...	...	302	313	...	...	...	...
(e/D = 2.0)	...	...	402	416	...	...	...	...
F_{bry}, ksi:								
(e/D = 1.5)	...	...	263	277	...	...	...	...
(e/D = 2.0)	...	...	338	356	...	...	...	...
e, percent (S-basis):								
L	10	...	10	...	11	12	14	14
T	10	...	10	...	11	12	14	14
RA, percent (S-basis):								
L	45	...	50	...	50	50	50	50
T	35	...	40	...	45	45	50	50
E, 10^3 ksi	28.3							
E_c, 10^3 ksi	29.4							
G, 10^3 ksi	11.0							
μ	0.28							
Physical Properties:								
ω, lb/in.^{3}	0.279							
C, Btu/(lb)(°F)	0.11 (32 to 212°F) (Est.)							
K and α	See Figure 2.6.6.0							

a Design allowables were based mainly upon data from samples of material, supplied in the solution treated condition, which were aged to demonstrate response to heat treatment by suppliers.

b S-basis. Rounded T_{99} value = 193 ksi.

Table 2.6.5.0(d). Design Mechanical and Physical Properties of Custom 465 Stainless Steel Bar

Specification	AMS 5936			
Form	Bar			
Condition	H950		H1000	
Thickness or diameter, in.	≤12.000		≤12.000	
Basis	A	B	A	B
Mechanical Properties:				
F_{tu}, ksi:				
L	240[a]	251	220[b]	226
T	240[a]	251	220[b]	226
F_{ty}, ksi:				
L	220[a]	236	200[b]	212
T	220[a]	236	200[b]	213
F_{cy}, ksi:				
L	233	249	210	223
T	233	250	211	224
F_{su}, ksi	134	140	129	132
F_{bru}[c], ksi:				
(e/D = 1.5)	359	375	333	342
(e/D = 2.0)	462	484	428	440
F_{bry}[c], ksi:				
(e/D = 1.5)	321	344	294	312
(e/D = 2.0)	365	391	353	374
e, percent: (S-basis)				
L	10	...	10	...
T	8	...	10	...
RA, percent: (S-basis)				
L	45	...	50	...
T	35	...	40	...
E, 10^3 ksi	28.7		28.4	
E_c, 10^3 ksi	28.9		29.4	
G, 10^3 ksi	11.2		11.3	
μ	0.28		0.28	
Physical Properties:				
ω, lb/in.^{3}	0.28		0.28	
C, Btu/(lb)(°F)	...		see Figure 2.6.5.0(a)	
K, Btu/[(hr)(ft^2)(°F)/ft]	...		see Figure 2.6.5.0(a)	
α, 10^{-6} in./in./°F	...		see Figure 2.6.5.0(a)	

a S-basis. The rounded T99 value for F_{tu} (L) = 246 ksi, F_{tu} (T) = 249, F_{ty} (L) = 230 ksi, and F_{ty} (T) = 231 ksi

b S-basis. The rounded T99 value for F_{tu} (L) = 221 ksi, F_{tu} (T) = 221, F_{ty} (L) = 206 ksi, and F_{ty} (T) = 208 ksi

c Bearing values are "dry pin" values per Section 1.4.7.1

TYPE 440 C

Analysis		Thermal Treatment	
Carbon	.95/1.20	**Forge**	1900° - 2100°F. Cool slowly.
Manganese	1.00 Max.	**Process Anneal**	1350° - 1450°F. (Brinell 255-285.)
Phosphorus	.04 Max.	**Full Anneal**	1550° - 1650°F. Furnace cool. (Brinell 229-255.)
Sulphur	.03 Max.	**Harden**	1850° - 1950°F. Cool rapidly.
Silicon	1.00 Max.	**Temper**	300° - 800°F.
Chromium	16.00/18.00		
Molybdenum	.65 Max.		

TYPICAL MECHANICAL PROPERTIES

	Tensile Strength	Yield Strength	Elongation in 2"	Red.Area	Brinell	Izod
Annealed Bars	110,000	65,000	14	25	235	2