HASTELLOY® X alloy

Creep and Stress-Rupture Strengths

Minimum Creep Rate, HASTELLOY® X Sheet, Solution-Annealed

Test Temperature		Average Stress for Indicated Percent/Hour Minimum Creep Rate							
		0.0001		0.001		0.01		0.1	
°F	°C	ksi	MPa	ksi	MPa	ksi	MPa	ksi	MPa
1200	649	14.7	101	21.0	145	31.0	214	44.0	303
1400	760	7.2	50	10.0	69	14.0	97	19.5	134
1600	871	2.7	19	4.1	28	6.2	43	9.2	63
1800	982	0.7	5	1.3	9	2.2	15	3.7	26
2000	1093	-	-	-	-	-	-	0.9	6

HASTELLOY® X Plate, Solution-annealed

Temperature		Creep	Approximate Initial Stress to Produce Specified Creep in							
			10 h		100 h		1,000 h		10,000 h	
°F	°C	%	ksi	MPa	ksi	MPa	ksi	MPa	ksi	MPa
1200	649	0.5	-	-	27.2	188	19	128	12.8	88
		1	-	-	30	207	21	145	15.5	107
		R	65*	448*	50	345	36	248	26	179
1300	704	0.5	25	172	16.2	112	11.1	77	8.2	57
		1	27	186	19	131	14	97	10.5	72
		R	46	317	32	221	23	159	17	117
1400	760	0.5	15	103	10.3	71	7.5	52	5.6	39
		1	18	124	13	90	9.5	66	7.1	49
		R	30	207	21	146	15.5	107	11.5	79
1500	816	0.5	9.9	68	7.2	50	5.3	37	3.85	27
		1	12.5	86	9.1	63	6.7	46	4.7	32
		R	21	141	15	103	10.5	72	7.2	50
1600	871	0.5	7.0	48	5.1	35	3.7	26	2.4	17
		1	8.9	61	6.4	44	4.5	31	2.9	20
		R	15	100	10.0	69	6.8	47	4.5	31
1700	927	0.5	5.1	35	3.6	25	2.3	16	1.3	9.0
		1	6.4	44	4.4	30	2.7	19	1.5	10
		R	10.0	69	6.6	46	4.3	30	2.6	18
1800	982	0.5	3.6	25	2.3	16	1.25	8.6	0.55	3.8
		1	4.4	30	2.7	19	1.45	10	0.65	4.5
		R	6.7	46	4.3	30	2.6	18	1.4	10
1900	1038	0.5	2.4	16	1.3	9.0	0.55	3.8	-	-
		1	2.8	19	1.5	10	0.65	4.5	-	-
		R	4.3	30	2.6	18	1.4	10	-	-
		0.5	1.4	10	0.60	4.1	0.15*	1.0*	-	-

2000	1093	1	1.6	11	0.70	4.8	0.20*	1.4*	-	-
		R	2.7	19	1.4	10	0.60*	4.1*	-	-

*Significant extrapolation

HASTELLOY® X Sheet, Solution-annealed

Temperature		Creep	Approximate Initial Stress to Produce Specified Creep in							
			10 h		100 h		1,000 h		10,000 h	
°F	°C	%	ksi	MPa	ksi	MPa	ksi	MPa	ksi	MPa
1200	649	0.5	-	-	26	178	18	124	-	-
		1	-	-	28	193	21	145	-	-
		R	66*	455*	48	331	35	241	26	179
1300	704	0.5	23.5	162	16	112	12	83	-	-
		1	26	179	19	131	14	97	-	-
		R	44	303	32	221	23	159	17	117
1400	760	0.5	15	103	11	76	8.1	56	-	-
		1	18	124	13	90	9.5	66	7.1	49
		R	30	207	21	146	16	107	11.5	79
1500	816	0.5	10.5	72	7.7	53	5.4	37	-	-
		1	12.5	86	9.1	63	6.5	45	4.3	30
		R	21	141	15	103	11	72	7.2	50
1600	871	0.5	7.5	52	5.1	35	3.2	22	-	-
		1	8.9	61	6.2	43	3.9	27	2.3	16
		R	15	100	10	69	6.8	47	4.2	29
1700	927	0.5	5.1	35	3.1	21	1.5	11	-	-
		1	6.2	43	3.8	26	2.2	15	1.1*	7.2*
		R	10	69	6.6	46	4.0	28	2.4	17
1800	982	0.5	3.1	21	1.5	11	0.48	3.3	-	-
		1	3.8	26	2.2	15	1.0	6.9	0.33*	2.3*
		R	6.7	46	4.0	28	2.3	16	1.2	8.3
1900	1038	0.5	1.6	11	-	-	-	-	-	-
		1	2.2	15	1.0	6.9	0.33*	2.3*	-	-
		R	4.1	28	2.4	17	1.2	8.3	-	-
2000	1093	0.5	0.62	4.3	-	-	-	-	-	-
		1	1.1	7.6	0.35	2.4	0.10*	0.69*	-	-
		R	2.5	17	1.3	8.6	0.40	2.8	-	-

*Significant extrapolation