

HASTELLOY[®] S alloy

Creep and Stress-Rupture Data

Average Rupture Data, Sheet*

Test Temperature		Average Rupture Life Strength for Time Indicated					
		10 h		100 h		1000 h	
°F	°C	ksi	MPa	ksi	MPa	ksi	MPa
1200	649	62.5	431	50.0	345	38.0	262
1350	732	39.0	269	28.2	194	20.2	139
1500	816	23.5	162	15.0	103	9.9	68
1700	927	9.6	66	5.8	40	-	-

*0.045 in (1.1 mm) to 0.063 in (1.6 mm) thick

Average Rupture Data, Plate*

Test Temperature		Average Rupture Life Strength for Time Indicated					
		10 h		100 h		1000 h	
°F	°C	ksi	MPa	ksi	MPa	ksi	MPa
1200	649	80.0	552	58.0	400	27.0	186
1300	704	56.0	386	38.0	262	16.0	110
1400	760	38.0	262	24.5	169	9.8	68
1500	816	25.0	172	16.0	110	5.8	40
1600	871	16.5	114	9.8	68	3.0	21

*1-in. (25.4mm) thick plate

Average Creep Data, Sheet*

Test Temperature			Approximate Initial Stress to Produce Specified Creep in:					
			10 h		100 h		1,000 h	
°F	°C	Creep %	ksi	MPa	ksi	MPa	ksi	MPa
1200	649	0.2	45.0	310	31.5	217	21.0	145
		0.5	50.0	345	35.5	245	24.0	165
		1.0	56.5	390	40.0	276	27.0	186
1350	732	0.2	22.0	152	14.1	97	9.0	62
		0.5	25.0	172	16.2	112	10.4	72
		1.0	29.0	200	19.0	131	12.2	84
1500	816	0.2	10.2	70	5.9	41	-	-
		0.5	11.8	81	7.0	48	-	-
		1.0	13.8	95	8.4	58	-	-

*0.045 in (1.1 mm) to 0.063 (1.6 mm) thick

Average Creep Data, Plate*

Test 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	0.2	45.0	310	27.0	186	17.0**	117**	-	-
		0.5	54.0	372	32.6	255	19.0	131	-	-
		1.0	56.0	386	34.0	234	20.8	143	13.5	93
1300	704	0.2	24.0	165	12.5	86	6.7**	46**	-	-
		0.5	29.0	200	16.5	114	9.0	62	-	-
		1.0	34.0	234	20.0	138	12.0	83	7.2	50
1400	760	0.2	13.0	90	6.5	45	3.3**	23**	-	-
		0.5	16.9	117	9.2	63	4.8	33	-	-
		1.0	20.7	143	11.8	81	6.7	46	3.7	26
1500	816	0.2	7.8	54	3.8	26	1.9**	13**	-	-
		0.5	10.0	69	5.7	39	3.0	21	-	-
		1.0	12.5	86	6.9	48	3.8	26	2.2	15
1600	871	0.2	4.7	32	2.2	15	1.1**	7.6**	-	-
		0.5	6.3	43	3.5	24	1.9	13	-	-
		1.0	7.6	52	4.1	28	2.2	15	1.1	8

*1 in (25.4 mm) thick plate

**Extrapolated