

Technical information Pressure - temperature parameters of steels and alloys



Pressure (bar) - temperature parameters of steels and alloys

	Material	Temperature (°C)											
		T (min)	T min to 38	50	100	200	300	400	450	500	538	600	650
Class 150	A479 316/316L	-269	15.9	15.3	13.3	11.2	10.0	6.5	4.6				
	A351 CF8M/CF3M	-269	19.0	18.4	16.2	13.7	10.2	6.5	4.6	2.8	1.4		
	B 446 Inconel 625/ Alloy-C276/Alloy C 22	-196	20.0	19.5	17.7	13.8	10.2	6.5	4.6	2.8	1.4		
	A 216 WCB/A105	-29	19.6	19.2	17.7	13.8	10.2	6.5	4.6	2.8	1.4		
	A350 LF2	-60	19.6	19.2	17.7	13.8	10.2	6.5	4.6	2.8	1.4		
	A182 F22	-29	19.8	19.5	17.7	13.8	10.2	6.5	4.6	2.8	1.4	1.4	1.4
	A352 LCB	-46	18.4	18.2	17.4	13.8	10.2						
	A352 LCC	-46	19.8	19.5	17.7	13.8	10.2						
	A352 LC1	-60	18.4	18.2	17.4	13.8	10.2						
	A479 254 SMO	-196	20.0	19.5	17.7	13.8	10.2						
	A479 Super Duplex	-60	20.0	19.5	17.7	13.8	10.2						
	A479 321/321H	-196	19.0	18.6	17.0	13.8	10.2	6.5	4.6	2.8	1.4	1.4	1.4
Class 300	A479 316/316L	-269	41.4	40.0	34.8	29.2	26.1	24.3	23.4				
	A351 CF8M/CF3M	-269	49.6	48.1	42.2	35.7	31.6	29.4	28.8	28.2	25.2		
	B 446 Inconel 625/ Alloy-C276/Alloy C 22	-196	51.7	51.5	48.3	42.9	36.5	33.7	28.2	25.2			
	A 216 WCB/A105	-29	51.1	50.1	46.6	43.8	39.8	34.7	23.0	11.8	5.9		
	A350 LF2	-60	51.1	50.1	46.6	43.8	39.8	34.7	23.0	11.8	5.9		
	A182 F22	-29	51.7	51.5	48.6	42.9	36.5	33.7	28.2	18.4	6.9	2.8	
	A352 LCB	-46	48.0	47.5	45.3	42.5	38.7						
	A352 LCC	-46	51.7	51.5	48.6	42.9							
	A352 LC1	-60	48.0	47.5	45.3	42.5	38.7						
	A479 254 SMO	-196	51.7	50.7	42.7	38.9							
	A479 Super Duplex	-60	51.7	50.7	42.7	38.9							
	A479 321/321H	-196	49.6	48.6	44.2	38.3	34.1	31.6	30.8	28.2	25.2	20.3	12.6
Class 600	A479 316/316L	-269	82.7	80.0	69.6	58.1	52.1	48.6	46.8				
	A351 CF8M/CF3M	-269	99.3	96.2	84.4	71.3	63.2	58.9	57.7	56.5	50.0		
	B 446 Inconel 625/ Alloy-C276/Alloy C 22	-196	103.4	103.0	96.7	85.7	73.3	67.7	56.5	50.0			
	A 216 WCB/A105	-29	102.1	93.2	87.6	79.6	69.4	46.0	23.5	11.8			
	A350 LF2	-60	102.1	93.2	87.6	79.6	69.4	46.0	23.5	11.8			
	A182 F22	-29	103.4	103.0	97.2	85.7	73.3	67.7	56.5	36.9	13.8	5.7	
	A352 LCB	-46	96.0	90.7	85.1	77.4							
	A352 LCC	-46	103.4	103.0	97.2	85.7							
	A352 LC1	-60	96.0	90.7	85.1	77.4							
	A479 254 SMO	-196	103.4	101.3	85.3	77.7							
	A479 Super Duplex	-60	103.4	101.3	85.3	77.7							
	A479 321/321H	-196	99.3	88.5	76.6	68.3	63.2	61.7	56.5	50.0	40.5	25.3	
Class 900	A479 316/316L	-269	124.1	120.1	104.4	87.5	78.2	72.9	70.2				
	B 446 Inconel 625/ Alloy-C276/Alloy C 22	-196	155.1	154.6	145.0	128.6	109.8	101.4	84.7	75.2			
	A105	-29	153.2	139.8	131.4	119.5	104.2	69.0	35.3	17.7			
	A350 LF2	-60	153.2	139.8	131.4	119.5	104.2	69.0	35.3	17.7			
	A182 F22	-29	155.1	154.6	145.8	128.6	109.8	101.4	84.7	55.3	20.7	8.5	
	A352 LCB	-46	144.1	136.0	127.6	116.1							
	A352 LCC	-46	155.1	154.6	145.8	128.6							
	A352 LC1	-60	144.1	136.0	127.6	116.1							
	A479 254 SMO	-196	155.1	152.0	128.0	116.6							
	A479 Super Duplex	-60	155.1	152.0	128.0	116.6							
	A479 321/321H	-196	148.9	132.7	114.9	102.4	94.8	92.5	84.7	75.2	60.8	37.9	
	Class 1500	A479 316/316L	-269	206.8	200.1	173.9	145.8	130.3	121.5	117.1			
B 446 Inconel 625/ Alloy-C276/Alloy C 22		-196	258.6	257.6	241.7	214.4	183.1	169.0	140.9	125.5			
A105		-29	255.3	223.0	219.0	199.1	173.6	115.0	58.8	29.5			
A350 LF2		-60	255.3	223.0	219.0	199.1	173.6	115.0	58.8	29.5			
A182 F22		-29	258.6	257.6	243.4	214.4	183.1	169.0	140.9	92.2	34.4	14.2	
A352 LCB		-46	240.1	226.7	212.7	193.4							
A352 LCC		-46	258.6	257.6	243.4	214.4							
A352 LC1		-60	240.1	226.7	212.7	193.4							
A479 254 SMO		-196	258.6	253.3	213.3	194.3							
A479 Super Duplex		-60	258.6	253.3	213.3	194.3							
A479 321/321H		-196	248.2	221.2	191.5	170.7	157.9	154.2	140.9	125.5	101.3	63.2	
Class 2500		A479 316/316L	-269	344.7	333.5	289.9	243.0	217.2	202.5	195.1			
	B 446 Inconel 625/ Alloy-C276/Alloy C 22	-196	430.9	429.4	402.8	357.1	304.9	281.8	235.0	208.9			
	A105	-29	425.5	388.3	365.0	331.8	289.3	191.7	97.9	49.2			
	A350 LF2	-60	425.5	388.3	365.0	331.8	289.3	191.7	97.9	49.2			
	A182 F22	-29	430.9	429.4	405.4	357.1	304.9	281.8	235.0	153.7	57.4	23.6	
	A352 LCB	-46	400.1	377.8	354.4	322.4							
	A352 LCC	-46	430.9	429.4	405.4	357.1							
	A352 LC1	-60	400.1	377.8	354.4	322.4							
	A479 254 SMO	-196	430.9	422.2	355.4	323.8							
	A479 Super Duplex	-60	430.9	422.2	355.4	323.8							
	A479 321/321H	-196	413.7	368.7	319.1	284.6	263.2	256.9	235.0	208.9	168.9	105.4	

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	Material	Temperature (°F)											
		T (min)	T to 100	122	212	392	572	752	842	932	1000	1112	1200
Class 150	A479 316/316L	-452	231	222	193	162	145	94	67				
	A351 CF8M/CF3M	-452	276	267	235	199	148	94	67	41	20		
	B 446 Inconel 625/ Alloy-C276/Alloy C 22	-321	290	283	257	200	148	94	67	41	20		
	A 216 WCB/A105	-20	284	278	257	200	148	94	67	41	20		
	A350 LF2	-76	284	278	257	200	148	94	67	41	20		
	A182 F22	-20	287	283	257	200	148	94	67	41	20	20	20
	A352 LCB	-51	267	264	252	200	148						
	A352 LCC	-51	287	283	257	200	148						
	A352 LC1	-76	267	264	252	200	148						
	A479 254 SMO	-321	290	283	257	200	148						
	A479 Super Duplex	-76	290	283	257	200	148						
A479 321/321H	-321	276	270	247	200	148	94	67	41	20	20	20	
Class 300	A479 316/316L	-452	600	580	505	423	378	352	339				
	A351 CF8M/CF3M	-452	719	697	612	518	458	426	418	409	365		
	B 446 Inconel 625/ Alloy-C276/Alloy C 22	-321	750	750	747	700	622	529	489	409	365		
	A 216 WCB/A105	-20	741	726	676	635	577	503	334	171	86		
	A350 LF2	-76	741	726	676	635	577	503	334	171	86		
	A182 F22	-20	750	750	747	705	622	529	489	409	267	100	41
	A352 LCB	-51	696	689	657	616	561						
	A352 LCC	-51	750	750	747	705	622						
	A352 LC1	-76	696	689	657	616	561						
	A479 254 SMO	-321	750	750	735	619	564						
	A479 Super Duplex	-76	750	750	735	619	564						
A479 321/321H	-321	719	705	641	555	494	458	447	409	365	294	183	
Class 600	A479 316/316L	-452	1199	1160	1009	842	755	705	679				
	A351 CF8M/CF3M	-452	1440	1395	1224	1034	916	854	837	819	725		
	B 446 Inconel 625/ Alloy-C276/Alloy C 22	-321	1499	1499	1494	1402	1243	1063	982	819	725		
	A 216 WCB/A105	-20	1480	1453	1351	1270	1154	1006	667	341	171		
	A350 LF2	-76	1480	1453	1351	1270	1154	1006	667	341	171		
	A182 F22	-20	1499	1499	1494	1409	1243	1063	982	819	535	200	83
	A352 LCB	-51	1392	1376	1315	1234	1122						
	A352 LCC	-51	1499	1499	1494	1409	1243						
	A352 LC1	-76	1392	1376	1315	1234	1122						
	A479 254 SMO	-321											
	A479 Super Duplex	-76	1499	1499	1469	1237	1127						
A479 321/321H	-321	1440	1408	1283	1111	990	916	895	819	725	587	367	
Class 900	A479 316/316L	-452	1799	1741	1514	1269	1134	1057	1018				
	B 446 Inconel 625/ Alloy-C276/Alloy C 22	-321	2249	2249	2242	2103	1865	1592	1470	1228	1090		
	A105	-20	2221	2181	2027	1905	1733	1511	1001	512	257		
	A350 LF2	-76	2221	2181	2027	1905	1733	1511	1001	512	257		
	A182 F22	-20	2249	2249	2242	2114	1865	1592	1470	1228	802	300	123
	A352 LCB	-51	2089	2065	1972	1850	1683						
	A352 LCC	-51	2249	2249	2242	2114	1865						
	A352 LC1	-76	2089	2065	1972	1850	1683						
	A479 254 SMO	-321	2249	2249	2204	1856	1691						
	A479 Super Duplex	-76	2249	2249	2204	1856	1691						
	A479 321/321H	-321	2159	2113	1924	1666	1485	1375	1341	1228	1090	882	550
Class 1500	A479 316/316L	-452	2999	2901	2522	2114	1889	1762	1698				
	B 446 Inconel 625/ Alloy-C276/Alloy C 22	-321	3750	3750	3735	3505	3109	2655	2451	2043	1820		
	A105	-20	3702	3634	3234	3176	2887	2517	1668	853	428		
	A350 LF2	-76	3702	3634	3234	3176	2887	2517	1668	853	428		
	A182 F22	-20	3750	3750	3735	3529	3109	2655	2451	2043	1337	499	206
	A352 LCB	-51	3481	3441	3287	3084	2804						
	A352 LCC	-51	3750	3750	3735	3529	3109						
	A352 LC1	-76	3481	3441	3287	3084	2804						
	A479 254 SMO	-321	3750	3750	3673	3093	2817						
	A479 Super Duplex	-76	3750	3750	3673	3093	2817						
	A479 321/321H	-321	3599	3521	3207	2777	2475	2290	2236	2043	1820	1469	916
Class 2500	A479 316/316L	-321	4998	4836	4204	3524	3149	2936	2829				
	B 446 Inconel 625/ Alloy-C276/Alloy C 22	-321	6248	6248	6226	5841	5178	4421	4086	3408	3029		
	A105	-20	6170	6057	5630	5293	4811	4195	2780	1420	713		
	A350 LF2	-76	6170	6057	5630	5293	4811	4195	2780	1420	713		
	A182 F22	-20	6248	6248	6226	5878	5178	4421	4086	3408	2229	832	342
	A352 LCB	-51	5801	5736	5478	5139	4675						
	A352 LCC	-51	6248	6248	6226	5878	5178						
	A352 LC1	-76	5801	5736	5478	5139	4675						
	A479 254 SMO	-321	6248	6248	6122	5153	4695						
	A479 Super Duplex	-76	5999	5867	5346	4627	4127						
	A479 321/321H	-321	5999	5867	5346	4627	4127	3816	3725	3408	3029	2449	1528



www.habonim.com

Habonim ISRAEL

Tel: +972-4-6914911

Fax: +972-4-6914935

sales_international@habonim.com

Habonim EUROPE

Tel: +34 640 384 759

sales_eu@habonim.com

Habonim UK

Tel: +44-1633-484554

Fax: +44-1633-482252

sales_uk@habonim.com

Habonim USA

Toll Free Phone: 1-866-261-8400

Toll Free Fax: 1-866-243-9959

sales_usa@habonim.com

Habonim CHINA

Tel: + 86 21 64453190 *146

sales_china@habonim.com

Habonim AUSTRALIA

Tel: +61 3 9556 5428

sales_au@habonimau.com



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