

Tekanan Ijin Maksimal SA 516 Gr.70 (ASME B.31.3)

Table A-1 Basic Allowable Stresses in Tension for Metals¹
(Cont'd)

Numbers in Parentheses Refer to Notes for Appendix A Tables; Specifications Are ASTM Unless Otherwise Indicated

Material	Spec. No.	Type/ Grade	UNS No.	Class/ Condition/ Temper	Size, in.	P-No. (5)	Notes	Specified					
								Min. Temp., °F (6)	Min. Strength, ksi Tensile	Min. Yield to 100 Temp.	200	300	
Carbon Steel (Cont'd)													
Pipes and Tubes (2) (Cont'd)													
...	A139	C	K03004	...	...	1	(8b)	A	60	42	20.0	20.0	20.0
...	A139	D	K03010	...	...	1	(8b)	A	60	46	20.0	20.0	20.0
...	API 5L	X42	...	...	...	1	(55)(77)	A	60	42	20.0	20.0	20.0
...	A381	Y42	...	...	...	1	...	A	60	42	20.0	20.0	20.0
...	A381	Y48	...	...	...	1	...	A	62	48	20.7	20.7	20.7
...	API 5L	X46	...	...	...	1	(55)(77)	A	63	46	21.0	21.0	21.0
...	A381	Y46	...	...	...	1	...	A	63	46	21.0	21.0	21.0
...	A381	Y50	...	...	...	1	...	A	64	50	21.3	21.3	21.3
A516 Gr. 65	A671	CC65	K02403	...	...	1	(57)(67)	B	65	35	21.7	21.4	20.6
A515 Gr. 65	A671	CB65	K02800	...	...	1	(57)(67)	A	65	35	21.7	21.4	20.6
A515 Gr. 65	A672	B65	K02800	...	...	1	(57)(67)	A	65	35	21.7	21.4	20.6
A516 Gr. 65	A672	C65	K02403	...	...	1	(57)(67)	B	65	35	21.7	21.4	20.6
...	A139	E	K03012	...	...	1	(8b)	A	66	52	22.0	22.0	22.0
...	API 5L	X52	...	...	...	1	(55)(77)	A	66	52	22.0	22.0	22.0
...	A381	Y52	...	...	...	1	...	A	66	52	22.0	22.0	22.0
A516 Gr. 70	A671	CC70	K02700	...	...	1	(57)(67)	B	70	38	23.3	23.2	22.4
A515 Gr. 70	A671	CB70	K03101	...	...	1	(57)(67)	A	70	38	23.3	23.2	22.4
A515 Gr. 70	A672	B70	K03101	...	...	1	(57)(67)	A	70	38	23.3	23.2	22.4
A516 Gr. 70	A672	C70	K02700	...	...	1	(57)(67)	B	70	38	23.3	23.2	22.4
...	A106	C	K03501	...	...	1	(57)	B	70	40	23.3	23.3	23.3
A537 Cl. 1	A671	CD70	K12437	...	≤ 2½ thk.	1	(67)	D	70	50	23.3	23.3	22.8
A537 Cl. 1	A672	D70	K12437	...	≤ 2½ thk.	1	(67)	D	70	50	23.3	23.3	22.8
A537 Cl. 1	A691	CMSH-70	K12437	...	≤ 2½ thk.	1	(67)	D	70	50	23.3	23.3	22.8
...	API 5L	X56	...	...	...	1	(51)(55)(71)(77)	A	71	56	23.7	23.7	23.7
...	A381	Y56	...	...	...	1	(51)(55)(71)	A	71	56	23.7	23.7	23.7
A299	A671	CK75	K02803	...	> 1 thk.	1	(57)(67)	A	75	40	25.0	24.4	23.6
A299	A672	N75	K02803	...	> 1 thk.	1	(57)(67)	A	75	40	25.0	24.4	23.6
A299	A691	CMS-75	K02803	...	> 1 thk.	1	(57)(67)	A	75	40	25.0	24.4	23.6
A299	A671	CK75	K02803	...	≤ 1 thk.	1	(57)(67)	A	75	42	25.0	25.0	24.8
A299	A672	N75	K02803	...	≤ 1 thk.	1	(57)(67)	A	75	42	25.0	25.0	24.8
A299	A691	CMS-75	K02803	...	≤ 1 thk.	1	(57)(67)	A	75	42	25.0	25.0	24.8

Tekanan Ijin Maksimal SA 105 (ASME B.31.3)

Table A-1 Basic Allowable Stresses in Tension for Metals¹
(Cont'd)

Numbers in Parentheses Refer to Notes for Appendix A Tables; Specifications Are ASTM Unless Otherwise Indicated

Material	Spec. No.	Type/ Grade	UNS No.	Class/ Condition/ Temper	Size, in.	P-No. (5)	Notes	Min. Temp., °F (6)	Specified			Min. Temp. 200	300
									Min. Strength, ksi	Min. Yield to 100	Min. Temp.		
Carbon Steel (Cont'd)													
Plates, Bars, Shapes, and Sheets (Structural)													
...	A283	A	K01400	...	...	1	(8c)(57)	A	45	24	15.0	14.7	14.2
...	A1011	30	K02502	...	...	1	(8c)(57)	A	49	30	16.3	16.3	16.3
...	A283	B	K01702	...	...	1	(8c)(57)	A	50	27	16.7	16.5	15.9
...	A1011	33	K02502	...	...	1	(8c)(57)	A	52	33	17.3	17.3	17.3
...	A1011	36	K02502	...	...	1	(8c)(57)	A	53	36	17.7	17.7	17.7
...	A283	C	K02401	...	...	1	(8c)(57)	A	55	30	18.3	18.3	17.7
...	A1011	40	K02502	...	...	1	(8c)(57)	A	55	40	18.3	18.3	18.3
...	A36	...	K02600	...	...	1	(8c)	A	58	36	19.3	19.3	19.3
...	A283	D	K02702	...	...	1	(8c)(57)	A	60	33	20.0	20.0	19.5
...	A1011	45	K02507	...	...	1	(8c)(57)	A	60	45	20.0	20.0	20.0
...	A1011	50	K02507	...	...	1	(8c)(57)	A	65	50	21.7	21.7	21.7
...	A992	...	...	...	...	1	(8c)(57)	A	65	50	19.9	19.9	19.9
Forgings and Fittings (2)													
...	A350	LF1	K03009	...	...	1	(9)(57)(59)	-20	60	30	20.0	18.3	17.7
...	A181	...	K03502	60	...	1	(9)(57)(59)	A	60	30	20.0	18.3	17.7
...	A420	WPL6	K03006	...	...	1	(57)	-50	60	35	20.0	20.0	20.0
...	A234	WPB	K03006	...	...	1	(57)(59)	B	60	35	20.0	20.0	20.0
...	A350	LF2	K03011	1	...	1	(9)(57)	-50	70	36	23.3	22.0	21.2
...	A350	LF2	K03011	2	...	1	(9)(57)	0	70	36	23.3	22.0	21.2
...	A105	...	K03504	...	...	1	(9)(57)(59)	-20	70	36	23.3	22.0	21.2
...	A181	...	K03502	70	...	1	(9)(57)(59)	A	70	36	23.3	22.0	21.2
...	A234	WPC	K03501	...	...	1	(57)(59)	B	70	40	23.3	23.3	23.3
Castings (2)													
...	A216	WCA	J02502	...	...	1	(57)	-20	60	30	20.0	18.3	17.7
...	A352	LCB	J03003	...	...	1	(9)(57)	-50	65	35	21.7	21.4	20.6
...	A352	LCC	J02505	...	...	1	(9)	-50	70	40	23.3	23.3	23.3
...	A216	WCB	J03002	...	...	1	(9)(57)	-20	70	36	23.3	22.0	21.2
...	A216	WCC	J02503	...	...	1	(9)(57)	-20	70	40	23.3	23.3	23.3

TABLES 2
PRESSURE-TEMPERATURE RATINGS FOR
GROUPS 1.1 THROUGH 3.16 MATERIALS

TABLE 2-1.1 RATINGS FOR GROUP 1.1
MATERIALS

Nominal Designation	Forgings	Castings	Plates
C-Si	A 105(1)	A 216 Gr. WCB(1)	A 515 Gr. 70(1)
C-Mn-Si	A 350 Gr. LF2(1)		A 516 Gr. 70(1) (2) A 537 Cl. 1 (3)

NOTES:

- (1) Upon prolonged exposure to temperatures above 800°F, the carbide phase of steel may be converted to graphite. Permissible, but not recommended for prolonged use above 800°F.
(2) Not to be used over 850°F. (3) Not to be used over 700°F.

WORKING PRESSURES BY CLASSES, psig							
Class Temp., °F	150	300	400	600	900	1500	2500
-20 to 100	285	740	990	1480	2220	3705	6170
200	260	675	900	1350	2025	3375	5625
300	230	655	875	1315	1970	3280	5470
400	200	635	845	1270	1900	3170	5280
500	170	600	800	1200	1795	2995	4990
600	140	550	730	1095	1640	2735	4560
650	125	535	715	1075	1610	2685	4475
700	110	535	710	1065	1600	2665	4440
750	95	505	670	1010	1510	2520	4200
800	80	410	550	825	1235	2060	3430
850	65	270	355	535	805	1340	2230
900	50	170	230	345	515	860	1430
950	35	105	140	205	310	515	860
1000	20	50	70	105	155	260	430