

**Table 2B (Cont'd)**  
**Section III, Division 1, Classes 1, MC, and CS; Section III, Division 3; and Section III, Division 5**  
**Design Stress Intensity Values,  $S_m$ , and Section VIII, Division 2, Class 1 Maximum Allowable**  
**Stress Values,  $S$ , for Nonferrous Materials**

Line No.	Design Stress Intensity or Maximum Allowable Stress, MPa (Multiply by 1000 to Obtain kPa), for Metal Temperature, °C, Not Exceeding																
	40	65	100	125	150	175	200	225	250	275	300	325	350	375	400	425	
1	161	161	161	161	161	161	160	...	...	...	...	...	...	...	...	...	(23)
2	68.9	66.9	65.2	63.9	62.0	60.7	60.1	59.1	56.8	...	...	...	...	...	...	...	
3	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	...	...	...	...	...	...	...	
4	68.9	66.9	65.2	63.9	62.0	60.7	60.1	59.1	56.8	...	...	...	...	...	...	...	
5	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	...	...	...	...	...	...	...	
6	68.9	66.9	65.2	63.9	62.0	60.7	60.1	59.1	56.8	...	...	...	...	...	...	...	(23)
7	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	...	...	...	...	...	...	...	
8	68.9	66.9	65.2	63.9	62.0	60.7	60.1	59.1	56.8	...	...	...	...	...	...	...	
9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	...	...	...	...	...	...	...	
10	68.9	66.9	65.2	63.9	62.0	60.7	60.1	59.1	56.8	...	...	...	...	...	...	...	
11	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	...	...	...	...	...	...	...	(23)
12	68.9	66.9	65.2	63.9	62.0	60.7	60.1	59.1	56.8	...	...	...	...	...	...	...	(23)
13	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	...	...	...	...	...	...	...	(23)
14	82.7	80.0	77.4	75.6	74.4	72.5	71.2	70.0	68.7	67.9	67.0	65.9	65.4	...	...	...	
15	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	...	...	...	
16	91.9	89.0	86.4	84.5	82.6	80.8	79.5	77.7	76.3	75.1	74.1	73.6	72.8	...	...	...	
17	91.9	91.9	91.9	91.9	91.9	91.9	91.9	91.9	91.9	91.9	91.9	91.9	91.9	...	...	...	
18	82.7	80.0	77.4	75.6	74.4	72.5	71.2	70.0	68.7	67.9	67.0	65.9	65.4	...	...	...	
19	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	...	...	...	
20	82.7	80.0	77.4	75.6	74.4	72.5	71.2	70.0	68.7	67.9	67.0	65.9	65.4	...	...	...	
21	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	...	...	...	(23)
22	165	165	165	165	165	164	161	159	157	155	...	...	...	...	...	...	
23	82.7	80.0	77.4	75.6	74.4	72.5	71.2	70.0	68.7	67.9	67.0	65.9	65.4	...	...	...	
24	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	...	...	...	
25	91.9	89.0	86.4	84.5	82.6	80.8	79.5	77.7	76.3	75.1	74.1	73.6	72.8	...	...	...	
26	82.7	80.0	77.4	75.6	74.4	72.5	71.2	70.0	68.7	67.9	...	...	...	...	...	...	
27	82.7	80.0	77.4	75.6	74.4	72.5	71.2	70.0	68.7	67.9	67.0	65.9	65.4	...	...	...	
28	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	...	...	...	
29	82.7	80.0	77.4	75.6	74.4	72.5	71.2	70.0	68.7	67.9	67.0	65.9	65.4	...	...	...	
30	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	...	...	...	
31	165	165	165	165	165	164	161	159	157	155	...	...	...	...	...	...	(23)
32	55.2	51.0	48.8	47.8	47.1	46.6	46.1	45.7	...	...	...	...	...	...	...	...	
33	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	...	...	...	...	...	...	...	...	
34	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	...	...	...	...	
35	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	...	...	...	...	
36	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	...	...	...	...	
37	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	...	...	...	...	
38	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	...	...	...	...	
39	91.7	91.7	91.7	91.7	91.7	91.7	91.7	90.9	88.3	84.6	81.2	78.1	...	...	...	...	
40	46.2	44.8	43.9	43.4	43.4	42.8	42.7	42.7	42.7	42.7	42.7	42.7	42.7	42.7	42.0	41.4	
41	46.2	44.8	43.9	43.4	43.4	42.8	42.7	42.7	42.7	42.7	42.7	42.7	42.7	42.7	42.0	41.4	
42	46.2	44.8	43.9	43.4	43.4	42.8	42.7	42.7	42.7	42.7	42.7	42.7	42.7	42.7	42.0	41.4	
43	55.2	53.8	52.9	52.3	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.6	51.0	51.0	49.7	
44	55.2	53.8	52.9	52.3	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.6	51.0	51.0	49.7	
45	55.2	53.8	52.9	52.3	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.6	51.0	51.0	49.7	

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**Table 2B (Cont'd)**  
**Section III, Division 1, Classes 1, MC, and CS; Section III, Division 3; and Section III, Division 5**  
**Design Stress Intensity Values,  $S_m$ , and Section VIII, Division 2, Class 1 Maximum Allowable**  
**Stress Values,  $S$ , for Nonferrous Materials**

Line No.	Nominal Composition	Product Form	Spec. No.	Type/Grade	Alloy Desig./UNS No.	Class/Condition/ Temper	Size/ Thickness, mm	P-No.
(23)	1 67Ni-30Cu	Bar, rod	SB-164	...	N04400	HW or CW ann.	All	42
	2 67Ni-30Cu	Smls. pipe & tube	SB-165	...	N04400	Annealed	>125 O.D.	42
	3 67Ni-30Cu	Forgings	SB-564	...	N04400	Annealed	...	42
	4 67Ni-30Cu	Plate	SB-127	...	N04400	Annealed	...	42
	5 67Ni-30Cu	Smls. tube	SB-163	...	N04400	Annealed	...	42
(23)	6 67Ni-30Cu	Smls. pipe & tube	SB-165	...	N04400	Annealed	≤125 O.D.	42
	7 67Ni-30Cu	Hexagons, rings, discs	SB-164	...	N04400	Hot worked	54 < t ≤ 102	42
	8 67Ni-30Cu	Plate	SB-127	...	N04400	As rolled	...	42
(23)	9 67Ni-30Cu	Rounds, squares, rectangles	SB-164	...	N04400	Hot worked	305 < t ≤ 356	42
	10 67Ni-30Cu	Smls. tube	SB-163	...	N04400	Stress rel.	...	42
	11 67Ni-30Cu	Smls. pipe & tube	SB-165	...	N04400	Stress rel.	...	42
	12 67Ni-30Cu-S	Bar, rod	SB-164	...	N04405	Annealed	...	42
	13 67Ni-30Cu-S	Bar, rod	SB-164	...	N04405	Hot worked	...	42
	14 47Ni-22Cr-9Mo-18Fe	Plate	SB-435	...	N06002	Annealed	5 < t ≤ 64	43
	15 47Ni-22Cr-9Mo-18Fe	Sheet	SB-435	...	N06002	Annealed	1.5 < t ≤ 5	43
	16 47Ni-22Cr-9Mo-18Fe	Rod	SB-572	...	N06002	Solution ann.	≥5	43
	17 47Ni-22Cr-9Mo-18Fe	Wld. pipe	SB-619	...	N06002	Solution ann.	...	43
	18 47Ni-22Cr-9Mo-18Fe	Wld. pipe	SB-619	...	N06002	Solution ann.	...	43
	19 47Ni-22Cr-9Mo-18Fe	Smls. pipe & tube	SB-622	...	N06002	Solution ann.	...	43
	20 47Ni-22Cr-9Mo-18Fe	Wld. tube	SB-626	...	N06002	Solution ann.	...	43
	21 47Ni-22Cr-9Mo-18Fe	Wld. tube	SB-626	...	N06002	Solution ann.	...	43
	22 47Ni-22Cr-19Fe-6Mo	Rod	SB-581	...	N06007	Solution ann.	>19	45
	23 47Ni-22Cr-19Fe-6Mo	Plate, sheet, strip	SB-582	...	N06007	Solution ann.	>19	45
	24 47Ni-22Cr-19Fe-6Mo	Rod	SB-581	...	N06007	Solution ann.	8 < t ≤ 19	45
	25 47Ni-22Cr-19Fe-6Mo	Plate, sheet, strip	SB-582	...	N06007	Solution ann.	5 < t ≤ 19	45
	26 47Ni-22Cr-19Fe-6Mo	Wld. pipe	SB-619	...	N06007	Solution ann.	...	45
	27 47Ni-22Cr-19Fe-6Mo	Smls. pipe & tube	SB-622	...	N06007	Solution ann.	...	45
	28 47Ni-22Cr-19Fe-6Mo	Wld. tube	SB-626	...	N06007	Solution ann.	...	45
	29 55Ni-21Cr-13.5Mo	Smls. & wld. fittings	SB-366	...	N06022	Solution ann.	...	43
	30 55Ni-21Cr-13.5Mo	Forgings	SB-462	...	N06022	Solution ann.	...	43
	31 55Ni-21Cr-13.5Mo	Forgings	SB-564	...	N06022	Solution ann.	...	43
	32 55Ni-21Cr-13.5Mo	Rod	SB-574	...	N06022	Solution ann.	...	43
	33 55Ni-21Cr-13.5Mo	Plate, sheet, strip	SB-575	...	N06022	Solution ann.	...	43
	34 55Ni-21Cr-13.5Mo	Wld. pipe	SB-619	...	N06022	Solution ann.	...	43
	35 55Ni-21Cr-13.5Mo	Smls. pipe & tube	SB-622	...	N06022	Solution ann.	...	43
	36 55Ni-21Cr-13.5Mo	Wld. tube	SB-626	...	N06022	Solution ann.	...	43
	37 59Ni-23Cr-16Mo	Wld. fittings	SB-366	...	N06059	Solution ann.	...	43
	38 59Ni-23Cr-16Mo	Wld. fittings	SB-366	...	N06059	Solution ann.	...	43
	39 59Ni-23Cr-16Mo	Smls. fittings	SB-366	...	N06059	Solution ann.	...	43
	40 59Ni-23Cr-16Mo	Forged fittings	SB-462	...	N06059	Solution ann.	...	43
	41 59Ni-23Cr-16Mo	Forgings	SB-564	...	N06059	Solution ann.	...	43
	42 59Ni-23Cr-16Mo	Rod	SB-574	...	N06059	Solution ann.	...	43
	43 59Ni-23Cr-16Mo	Plate, sheet, strip	SB-575	...	N06059	Solution ann.	...	43
	44 59Ni-23Cr-16Mo	Wld. pipe	SB-619	...	N06059	Solution ann.	...	43
	45 59Ni-23Cr-16Mo	Wld. pipe	SB-619	...	N06059	Solution ann.	...	43

**Table 2B (Cont'd)**  
**Section III, Division 1, Classes 1, MC, and CS; Section III, Division 3; and Section III, Division 5**  
**Design Stress Intensity Values,  $S_m$ , and Section VIII, Division 2, Class 1 Maximum Allowable**  
**Stress Values,  $S$ , for Nonferrous Materials**

Line No.	Min. Tensile Strength, MPa	Min. Yield Strength, MPa	Applicability and Max. Temperature Limits (NP = Not Permitted) (SPT = Supports Only)		External Pressure Chart No.	Notes
			III	VIII-2		
1	480	170	427	427	NFN-3	G1, G2, G4
2	485	170	427	427	NFN-3	G1, G4
3	485	170	427	427	NFN-3	G1, G2, G4
4	485	195	427	427	NFN-3	G1, G4
5	485	195	427	427	NFN-3	G1, G4
6	485	195	427	427	NFN-3	G1, G4
7	517	207	427	NP	NFN-3	E1, G1
8	515	275	427	427	NFN-3	E1, G1, G4
9	517	276	427	NP	NFN-3	E1, G1
10	585	380	260	427	NFN-3	E4, G1, G4, W1
11	585	380	260	NP	NFN-3	G1
12	485	170	427	427	NFN-3	G1, G2, G4
13	515	240	427	NP	NFN-3	G1
14	655	240	427	427	NFN-15	G1, G4
15	655	240	427	427	NFN-15	G1, G4
16	655	240	427	427	NFN-15	G1, G2, G4
17	690	275	427	NP	NFN-15	G1
18	690	275	NP	427	NFN-15	G1, G4, G5
19	690	275	427	427	NFN-15	G1, G4
20	690	275	427	NP	NFN-15	G1
21	690	275	NP	427	NFN-15	G1, G4, G5
22	585	205	NP	427	NFN-11	G1, G2, G4
23	585	205	NP	427	NFN-11	G1, G4
24	620	240	NP	427	NFN-11	G1, G2, G4
25	620	240	NP	427	NFN-11	G1, G4
26	620	240	NP	427	NFN-11	G1, G4, G5
27	620	240	NP	427	NFN-11	G1, G4
28	620	240	NP	427	NFN-11	G1, G4, G5
29	690	310	427	427	NFN-10	G1
30	690	310	427	427	NFN-10	G1
31	690	310	427	427	NFN-10	G1
32	690	310	427	427	NFN-10	G1
33	690	310	427	427	NFN-10	G1
34	690	310	427	427	NFN-10	G1
35	690	310	427	427	NFN-10	G1
36	690	310	427	427	NFN-10	G1
37	690	310	427	NP	NFN-14	G1, G4
38	690	310	NP	427	NFN-14	G1, G4, G5
39	690	310	427	427	NFN-14	G1, G4
40	690	310	427	427	NFN-14	G1, G4
41	690	310	427	427	NFN-14	G1, G4
42	690	310	427	427	NFN-14	G1, G4
43	690	310	427	427	NFN-14	G1, G4
44	690	310	427	NP	NFN-14	G1, G4
45	690	310	NP	427	NFN-14	G1, G4, G5

**Table 2B (Cont'd)**  
**Section III, Division 1, Classes 1, MC, and CS; Section III, Division 3; and Section III, Division 5**  
**Design Stress Intensity Values,  $S_m$ , and Section VIII, Division 2, Class 1 Maximum Allowable**  
**Stress Values,  $S$ , for Nonferrous Materials**

Line No.	Design Stress Intensity or Maximum Allowable Stress, MPa (Multiply by 1000 to Obtain kPa), for Metal Temperature, °C, Not Exceeding																
	40	65	100	125	150	175	200	225	250	275	300	325	350	375	400	425	
1	115	106	99.7	96.1	93.7	91.8	91.1	90.4	90.3	90.3	90.3	90.3	90.2	89.5	88.9	87.7	(23)
2	115	106	99.7	96.1	93.7	91.8	91.1	90.4	90.3	90.3	90.3	90.3	90.2	89.5	88.9	87.7	
3	115	106	99.7	96.1	93.7	91.8	91.1	90.4	90.3	90.3	90.3	90.3	90.2	89.5	88.9	87.7	
4	129	119	112	108	105	103	101	101	101	101	101	101	101	101	99.9	98.7	
5	129	119	112	108	105	103	101	101	101	101	101	101	101	101	99.9	98.7	
6	129	119	112	108	105	103	101	101	101	101	101	101	101	101	99.9	98.7	(23)
7	138	136	133	131	128	126	124	122	122	121	120	119	118	117	116	106	
8	172	172	172	172	171	168	165	164	162	161	160	159	158	156	144	140	
9	172	172	172	172	171	168	165	164	162	161	160	159	158	156	144	140	(23)
10	195	195	195	195	195	195	195	195	195	195	194	191	188	179	122	89.3	
11	195	195	195	195	195	195	195	195	195	195	...	...	...	...	...	...	
12	115	106	99.7	96.1	93.7	91.8	91.1	90.4	90.3	90.3	90.3	90.3	90.2	89.5	88.9	87.7	
13	161	151	140	136	132	129	128	128	128	128	128	128	128	127	125	122	
14	161	151	143	138	132	127	123	119	115	112	110	107	105	104	103	101	
15	161	151	143	138	132	127	123	119	115	112	110	107	105	104	103	101	
16	161	151	143	138	132	127	123	119	115	112	110	107	105	104	103	101	
17	184	173	164	157	151	146	141	136	132	128	125	122	120	118	117	116	
18	157	147	139	134	129	124	119	115	112	109	106	104	102	100	99.2	98.6	
19	184	173	164	157	151	146	141	136	132	128	125	122	120	118	117	116	
20	184	173	164	157	151	146	141	136	132	128	125	122	120	118	117	116	
21	157	147	139	134	129	124	119	115	112	109	106	104	102	100	99.2	98.6	
22	138	138	138	138	138	138	138	138	138	137	136	134	132	131	130	129	
23	138	138	138	138	138	138	138	138	138	137	136	134	132	131	130	129	
24	161	161	161	161	161	161	161	161	161	160	158	156	154	153	152	150	
25	161	161	161	161	161	161	161	161	161	160	158	156	154	153	152	150	
26	137	137	137	137	137	137	137	137	137	136	134	133	131	129	129	128	
27	161	161	161	161	161	161	161	161	161	160	158	156	154	153	152	150	
28	137	137	137	137	137	137	137	137	137	136	134	133	131	129	129	128	
29	207	207	207	...	207	...	207	...	202	...	193	189	185	182	180	177	
30	207	207	207	...	207	...	207	...	202	...	193	189	185	182	180	177	
31	207	207	207	...	207	...	207	...	202	...	193	189	185	182	180	177	
32	207	207	207	...	207	...	207	...	202	...	193	189	185	182	180	177	
33	207	207	207	...	207	...	207	...	202	...	193	189	185	182	180	177	
34	176	176	176	...	176	...	176	...	172	...	164	160	157	155	153	151	
35	207	207	207	...	207	...	207	...	202	...	193	189	185	182	180	177	
36	176	176	176	...	176	...	176	...	172	...	164	160	157	155	153	151	
37	207	207	207	207	207	207	207	207	207	207	202	197	192	187	183	178	
38	176	176	176	176	176	176	176	176	176	176	172	168	164	159	155	151	
39	207	207	207	207	207	207	207	207	207	207	202	197	192	187	183	178	
40	207	207	207	207	207	207	207	207	207	207	202	197	192	187	183	178	
41	207	207	207	207	207	207	207	207	207	207	202	197	192	187	183	178	
42	207	207	207	207	207	207	207	207	207	207	202	197	192	187	183	178	
43	207	207	207	207	207	207	207	207	207	207	202	197	192	187	183	178	
44	207	207	207	207	207	207	207	207	207	207	202	197	192	187	183	178	
45	176	176	176	176	176	176	176	176	176	176	172	168	164	159	155	151	

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**Table 2B (Cont'd)**  
**Section III, Division 1, Classes 1, MC, and CS; Section III, Division 3; and Section III, Division 5**  
**Design Stress Intensity Values,  $S_m$ , and Section VIII, Division 2, Class 1 Maximum Allowable**  
**Stress Values,  $S$ , for Nonferrous Materials**

Line No.	Nominal Composition	Product Form	Spec. No.	Type/Grade	Alloy Desig./UNS No.	Class/Condition/ Temper	Size/ Thickness, mm	P-No.
1	59Ni-23Cr-16Mo	Smls. pipe & tube	SB-622	...	N06059	Solution ann.	...	43
2	59Ni-23Cr-16Mo	Wld. tube	SB-626	...	N06059	Solution ann.	...	43
3	59Ni-23Cr-16Mo	Wld. tube	SB-626	...	N06059	Solution ann.	...	43
4	61Ni-16Mo-16Cr	Rod	SB-574	...	N06455	Solution ann.	...	43
5	61Ni-16Mo-16Cr	Plate, sheet, strip	SB-575	...	N06455	Solution ann.	...	43
6	61Ni-16Mo-16Cr	Wld. pipe	SB-619	...	N06455	Solution ann.	...	43
7	61Ni-16Mo-16Cr	Wld. pipe & tube	SB-622	...	N06455	Solution ann.	...	43
8	61Ni-16Mo-16Cr	Wld. tube	SB-626	...	N06455	Solution ann.	...	43
9	72Ni-15Cr-8Fe	Smls. pipe & tube	SB-167	...	N06600	Hot fin.	>125 O.D.	43
10	72Ni-15Cr-8Fe	Smls. pipe & tube	SB-167	...	N06600	Cold worked/ann.	>125 O.D.	43
11	72Ni-15Cr-8Fe	Smls. tube	SB-163	...	N06600	Annealed	...	43
12	72Ni-15Cr-8Fe	Bar, rod	SB-166	...	N06600	Annealed	...	43
13	72Ni-15Cr-8Fe	Smls. pipe & tube	SB-167	...	N06600	Cold worked/ann.	≤125 O.D.	43
14	72Ni-15Cr-8Fe	Plate	SB-168	...	N06600	Annealed	...	43
15	72Ni-15Cr-8Fe	Forgings	SB-564	...	N06600	Annealed	...	43
16	72Ni-15Cr-8Fe	Wld. tube	SB-516	...	N06600	Cold drawn/ann.	≤114	43
17	72Ni-15Cr-8Fe	Wld. pipe	SB-517	...	N06600	Cold drawn/ann.	≤114	43
18	72Ni-15Cr-8Fe	Smls. tube	SB-163	...	N06600	Annealed	6 < t ≤ 22	43
19	60Ni-22Cr-9Mo-3.5Cb	Bar, rod	SB-446	...	N06625	Annealed	100 < t ≤ 250	43
20	60Ni-22Cr-9Mo-3.5Cb	Plate, sheet	SB-443	...	N06625	Hot rolled/ann.	≤70	43
21	60Ni-22Cr-9Mo-3.5Cb	Plate	SB-443	...	N06625	Cold rolled/ann.	≤9.5	43
22	60Ni-22Cr-9Mo-3.5Cb	Smls. pipe & tube	SB-444	...	N06625	Annealed	...	43
23	60Ni-22Cr-9Mo-3.5Cb	Bar, rod	SB-446	...	N06625	Annealed	≤100	43
24	58Ni-29Cr-9Fe	Smls. pipe & tube	SB-167	...	N06690	Hot worked/ann.	>127 O.D.	43
25	58Ni-29Cr-9Fe	Smls. tube	SB-163	...	N06690	Annealed	...	43
26	58Ni-29Cr-9Fe	Plate	SB-168	...	N06690	Annealed	...	43
27	58Ni-29Cr-9Fe	Forgings	SB-564	...	N06690	Annealed	...	43
28	58Ni-29Cr-9Fe	Bar, rod	SB-166	...	N06690	Cold worked/ann.	...	43
29	58Ni-29Cr-9Fe	Bar, rod	SB-166	...	N06690	Hot worked	...	43
30	58Ni-29Cr-9Fe	Bar, rod	SB-166	...	N06690	Hot worked/ann.	...	43
31	58Ni-29Cr-9Fe	Smls. tube	SB-163	...	N06690	Annealed	6 < t ≤ 22	43
32	58Ni-29Cr-9Fe	Smls. pipe & tube	SB-167	...	N06690	Cold worked/ann.	>127 O.D.	43
33	58Ni-29Cr-9Fe	Smls. pipe & tube	SB-167	...	N06690	Hot worked/ann.	≤127 O.D.	43
34	58Ni-29Cr-9Fe	Smls. pipe & tube	SB-167	...	N06690	Cold worked/ann.	≤127 O.D.	43
35	35Ni-19Cr-1 1/4Si	Bar	SB-511	...	N08330	Annealed	...	46
36	35Ni-19Cr-1 1/4Si	Smls. & wld. pipe	SB-535	...	N08330	Annealed	...	46
37	35Ni-19Cr-1 1/4Si	Plate, sheet, strip	SB-536	...	N08330	Annealed	...	46
38	42Fe-33Ni-21Cr	Smls. tube	SB-163	...	N08800	Annealed	...	45
39	42Fe-33Ni-21Cr	Smls. pipe & tube	SB-407	...	N08800	Annealed	...	45
40	42Fe-33Ni-21Cr	Plate	SB-409	...	N08800	Annealed	...	45
41	42Fe-33Ni-21Cr	Wld. pipe	SB-514	...	N08800	Annealed	...	45
42	42Fe-33Ni-21Cr	Wld. tube	SB-515	...	N08800	Annealed	...	45
43	42Fe-33Ni-21Cr	Forgings	SB-564	...	N08800	Annealed	...	45
44	42Fe-33Ni-21Cr	Bar, rod	SB-408	...	N08800	Hot fin.	...	45
45	42Fe-33Ni-21Cr	Smls. tube	SB-163	...	N08800	Annealed	6 < t ≤ 22	45

**Table 2B (Cont'd)**  
**Section III, Division 1, Classes 1, MC, and CS; Section III, Division 3; and Section III, Division 5**  
**Design Stress Intensity Values,  $S_m$ , and Section VIII, Division 2, Class 1 Maximum Allowable**  
**Stress Values,  $S$ , for Nonferrous Materials**

Line No.	Min. Tensile Strength, MPa	Min. Yield Strength, MPa	Applicability and Max. Temperature Limits (NP = Not Permitted) (SPT = Supports Only)		External Pressure Chart No.	Notes
			III	VIII-2		
1	690	310	427	427	NFN-14	G1, G4
2	690	310	427	NP	NFN-14	G1, G4
3	690	310	NP	427	NFN-14	G1, G4, G5
4	690	275	NP	427	NFN-14	G1, G2, G4
5	690	275	NP	427	NFN-14	G1, G4
6	690	275	NP	427	NFN-14	G1, G4, G5
7	690	275	NP	427	NFN-14	G1, G4
8	690	275	NP	427	NFN-14	G1, G4, G5
9	515	170	427	NP	NFN-4	G1
10	550	205	427	427	NFN-4	G1, G4
11	550	240	427	427	NFN-4	G1, G4
12	550	240	427	427	NFN-4	G1, G2, G4
13	550	240	427	427	NFN-4	G1, G4
14	550	240	427	427	NFN-4	G1, G4
15	550	240	427	427	NFN-4	G1, G2, G4
16	550	240	NP	427	NFN-4	G1, G4
17	550	240	NP	427	NFN-4	G1, G4
18	550	275	427	NP	NFN-21	G1, G3, S1
19	760	345	427	NP	NFN-17	...
20	758	379	427	NP	NFN-17	...
21	758	379	427	NP	NFN-17	...
22	825	415	427	NP	NFN-17	...
23	825	415	427	NP	NFN-17	...
24	515	170	427	NP	NFN-4	G1
25	585	240	427	NP	NFN-4	G1
26	585	240	427	NP	NFN-4	G1
27	585	240	427	NP	NFN-4	G1
28	585	240	427	NP	NFN-4	G1
29	585	240	427	NP	NFN-4	G1
30	585	240	427	NP	NFN-4	G1
31	585	275	427	NP	NFN-21	G1, G3, S1
32	586	205	427	NP	NFN-4	G1
33	586	205	427	NP	NFN-4	G1
34	586	240	427	NP	NFN-4	G1
35	485	205	NP	427	NFN-13	G1, G2, G4
36	485	205	NP	427	NFN-13	G1, G4, G5
37	485	205	NP	427	NFN-13	G1, G4
38	515	205	427	427	NFN-8	G1, G4
39	515	205	427	427	NFN-8	G1, G4
40	515	205	427	427	NFN-8	G1, G4
41	515	205	NP	427	NFN-8	G1, G4
42	515	205	NP	427	NFN-8	G1, G4
43	515	205	427	427	NFN-8	G1, G2, G4
44	515	205	427	427	NFN-8	G1, G2, G4
45	515	275	427	NP	NFN-8	G1, G3, S1



**Table 2B (Cont'd)**  
**Section III, Division 1, Classes 1, MC, and CS; Section III, Division 3; and Section III, Division 5**  
**Design Stress Intensity Values,  $S_m$ , and Section VIII, Division 2, Class 1 Maximum Allowable**  
**Stress Values,  $S$ , for Nonferrous Materials**

Line No.	Design Stress Intensity or Maximum Allowable Stress, MPa (Multiply by 1000 to Obtain kPa), for Metal Temperature, °C, Not Exceeding															
	40	65	100	125	150	175	200	225	250	275	300	325	350	375	400	425
1	207	207	207	207	207	207	207	207	207	207	202	197	192	187	183	178
2	207	207	207	207	207	207	207	207	207	207	202	197	192	187	183	178
3	176	176	176	176	176	176	176	176	176	176	172	168	164	159	155	151
4	184	184	184	184	184	184	184	184	184	184	184	184	184	182	180	178
5	184	184	184	184	184	184	184	184	184	184	184	184	184	182	180	178
6	157	157	157	157	157	157	157	157	157	157	157	157	156	155	153	151
7	184	184	184	184	184	184	184	184	184	184	184	184	184	182	180	178
8	157	157	157	157	157	157	157	157	157	157	157	157	156	155	153	151
9	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
10	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138
11	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161
12	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161
13	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161
14	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161
15	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161
16	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137
17	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137
18	184	184	184	184	184	184	184	184	184	184	184	184	184	184	184	184
19	230	225	221	218	215	212	209	206	204	201	199	197	194	192	191	189
20	253	247	243	239	236	233	230	227	224	221	219	216	214	212	210	208
21	253	247	243	239	236	233	230	227	224	221	219	216	214	212	210	208
22	276	270	265	261	258	254	251	248	245	242	239	236	233	231	229	227
23	276	270	265	261	258	254	251	248	245	242	239	236	233	231	229	227
24	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
25	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161
26	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161
27	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161
28	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161
29	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161
30	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161
31	184	184	184	184	184	184	184	184	184	184	184	184	184	183	183	182
32	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138
33	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138
34	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161
35	138	138	138	138	138	138	138	138	137	135	132	129	127	124	122	120
36	117	117	117	117	117	117	117	117	117	115	113	110	108	106	104	102
37	138	138	138	138	138	138	138	138	137	135	132	129	127	124	122	120
38	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138
39	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138
40	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138
41	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117
42	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117
43	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138
44	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138
45	172	172	172	172	172	172	172	172	172	172	172	171	171	171	170	170

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**Table 2B (Cont'd)**  
**Section III, Division 1, Classes 1, MC, and CS; Section III, Division 3; and Section III, Division 5**  
**Design Stress Intensity Values,  $S_m$ , and Section VIII, Division 2, Class 1 Maximum Allowable**  
**Stress Values,  $S$ , for Nonferrous Materials**

Line No.	Nominal Composition	Product Form	Spec. No.	Type/Grade	Alloy Desig./UNS No.	Class/Condition/ Temper	Size/ Thickness, mm	P-No.
1	42Fe-33Ni-21Cr	Smls. tube	SB-163	...	N08800	Cold worked	...	45
2	42Fe-33Ni-21Cr	Smls. tube	SB-163	...	N08810	Annealed	...	45
3	42Fe-33Ni-21Cr	Smls. pipe & tube	SB-407	...	N08810	Annealed	...	45
4	42Fe-33Ni-21Cr	Bar, rod	SB-408	...	N08810	Annealed	...	45
5	42Fe-33Ni-21Cr	Plate	SB-409	...	N08810	Annealed	...	45
6	42Fe-33Ni-21Cr	Wld. pipe	SB-514	...	N08810	Annealed	...	45
7	42Fe-33Ni-21Cr	Wld. tube	SB-515	...	N08810	Annealed	...	45
8	42Fe-33Ni-21Cr	Forgings	SB-564	...	N08810	Annealed	...	45
9	42Ni-21.5Cr-3Mo-2.3Cu	Smls. tube	SB-163	...	N08825	Annealed	...	45
10	42Ni-21.5Cr-3Mo-2.3Cu	Smls. pipe & tube	SB-423	...	N08825	Annealed	...	45
11	42Ni-21.5Cr-3Mo-2.3Cu	Plate, sheet, strip	SB-424	...	N08825	Annealed	...	45
12	42Ni-21.5Cr-3Mo-2.3Cu	Bar, rod	SB-425	...	N08825	Annealed	...	45
13	62Ni-28Mo-5Fe	Plate, strip	SB-333	...	N10001	Solution ann.	5 < t ≤ 64	44
14	62Ni-28Mo-5Fe	Wld. pipe	SB-619	...	N10001	Solution ann.	...	44
15	62Ni-28Mo-5Fe	Smls. pipe & tube	SB-622	...	N10001	Solution ann.	...	44
16	62Ni-28Mo-5Fe	Wld. tube	SB-626	...	N10001	Solution ann.	...	44
17	62Ni-28Mo-5Fe	Rod	SB-335	...	N10001	Solution ann.	38 < t ≤ 89	44
18	62Ni-28Mo-5Fe	Rod	SB-335	...	N10001	Solution ann.	8 < t ≤ 38	44
19	62Ni-28Mo-5Fe	Plate, strip	SB-333	...	N10001	Solution ann.	<5	44
20	70Ni-16Mo-7Cr-5Fe	Plate, sheet, strip	SB-434	...	N10003	Annealed	<64	44
21	70Ni-16Mo-7Cr-5Fe	Rod	SB-573	...	N10003	Solution ann.	...	44
22	54Ni-16Mo-15Cr	Smls. fittings	SB-366	...	N10276	Solution ann.	...	43
23	54Ni-16Mo-15Cr	Wld. fittings	SB-366	...	N10276	Solution ann.	...	43
24	54Ni-16Mo-15Cr	Forgings	SB-462	...	N10276	Solution ann.	...	43
25	54Ni-16Mo-15Cr	Rod	SB-574	...	N10276	Solution ann.	...	43
26	54Ni-16Mo-15Cr	Plate, sheet, strip	SB-575	...	N10276	Solution ann.	...	43
27	54Ni-16Mo-15Cr	Wld. pipe	SB-619	...	N10276	Solution ann.	...	43
28	54Ni-16Mo-15Cr	Smls. pipe & tube	SB-622	...	N10276	Solution ann.	...	43
29	54Ni-16Mo-15Cr	Wld. tube	SB-626	...	N10276	Solution ann.	...	43
30	65Ni-28Mo-2Fe	Plate, strip	SB-333	...	N10665	Solution ann.	...	44
31	65Ni-28Mo-2Fe	Rod	SB-335	...	N10665	Solution ann.	...	44
32	65Ni-28Mo-2Fe	Smls. fittings	SB-366	...	N10665	Solution ann.	...	44
33	65Ni-28Mo-2Fe	Wld. fittings	SB-366	...	N10665	Solution ann.	...	44
34	65Ni-28Mo-2Fe	Forgings	SB-462	...	N10665	Solution ann.	...	44
35	65Ni-28Mo-2Fe	Wld. pipe	SB-619	...	N10665	Solution ann.	...	44
36	65Ni-28Mo-2Fe	Smls. pipe & tube	SB-622	...	N10665	Solution ann.	...	44
37	65Ni-28Mo-2Fe	Wld. tube	SB-626	...	N10665	Solution ann.	...	44
(23) 38	Ti	Plate, sheet, strip	SB-265	1	R50250	Annealed	...	51
(23) 39	Ti	Bar, billet	SB-348	1	R50250	Annealed	...	51
(23) 40	Ti	Forgings	SB-381	1	R50250	Annealed	...	51
(23) 41	Ti	Smls. tube	SB-338	1	R50250	Smls. ann.	...	51
(23) 42	Ti	Smls. pipe	SB-861	1	R50250	Smls. ann.	...	51
(23) 43	Ti	Wld. tube	SB-338	1	R50250	Wld. ann.	...	51
(23) 44	Ti	Wld. pipe	SB-862	1	R50250	Wld. ann.	...	51
(23) 45	Ti	Plate, sheet, strip	SB-265	2	R50400	Annealed	...	51