Subpart 3

CHARTS AND TABLES FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE

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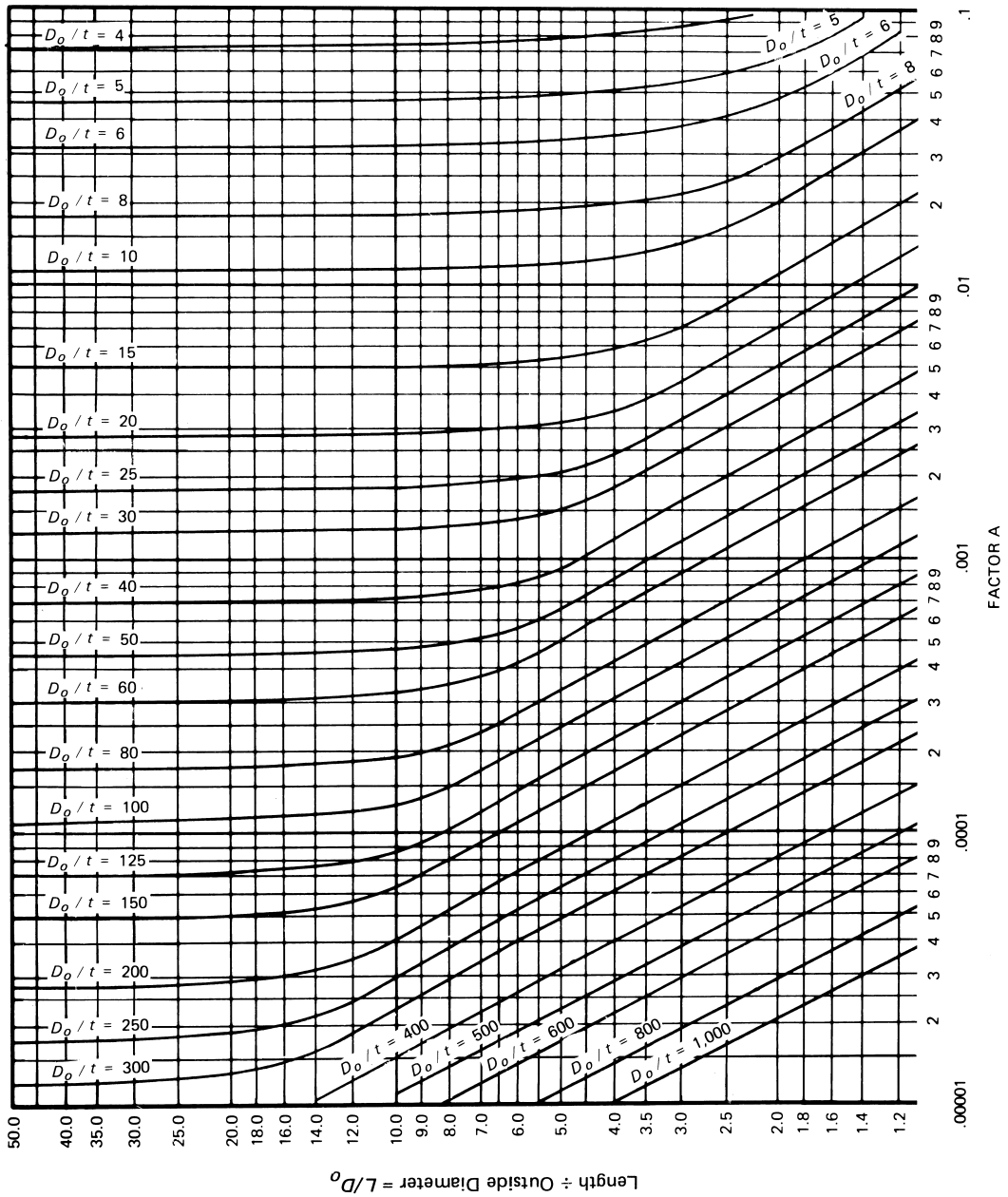

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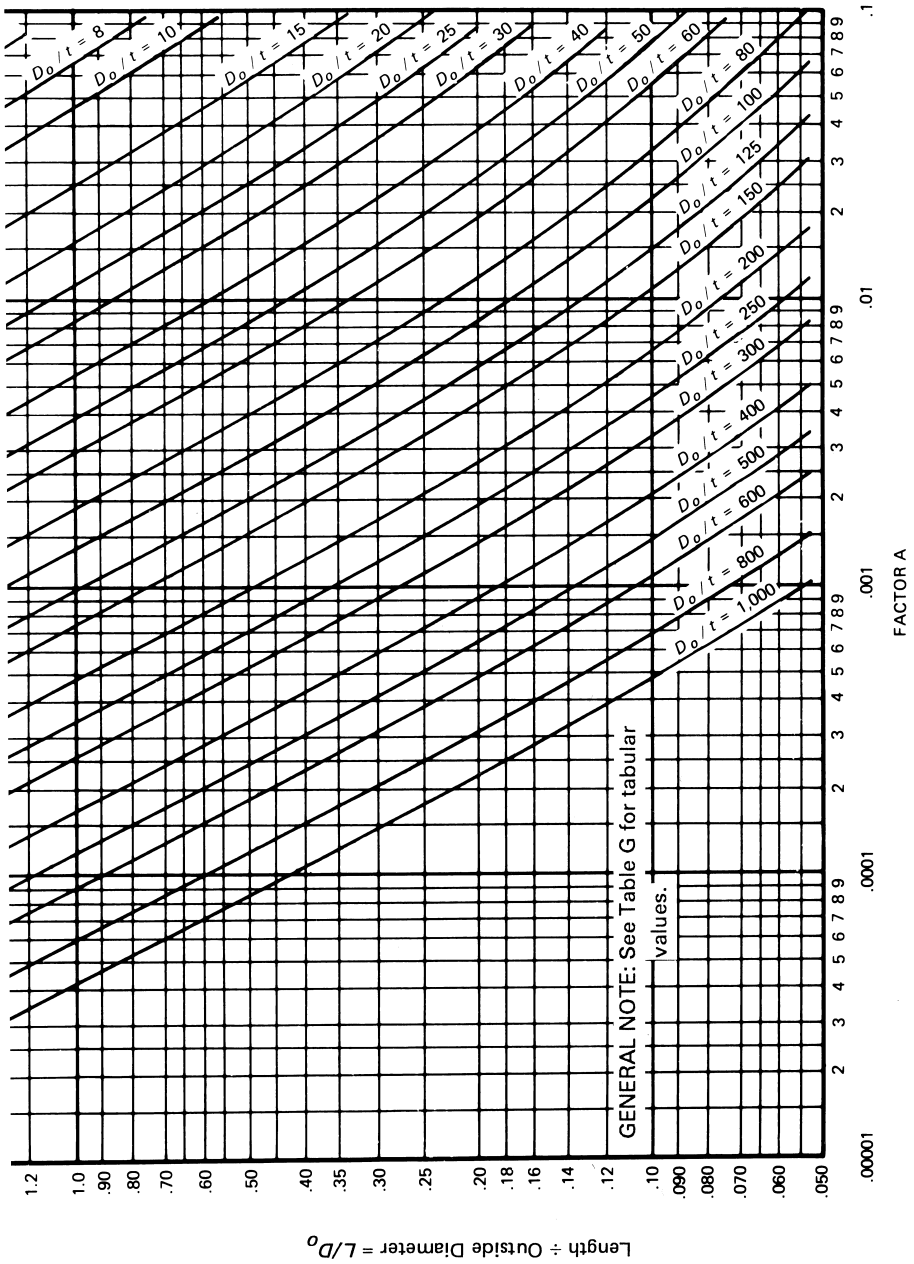

FIG. G GEOMETRIC CHART FOR COMPONENTS UNDER EXTERNAL OR COMPRESSIVE LOADINGS (for All Materials)

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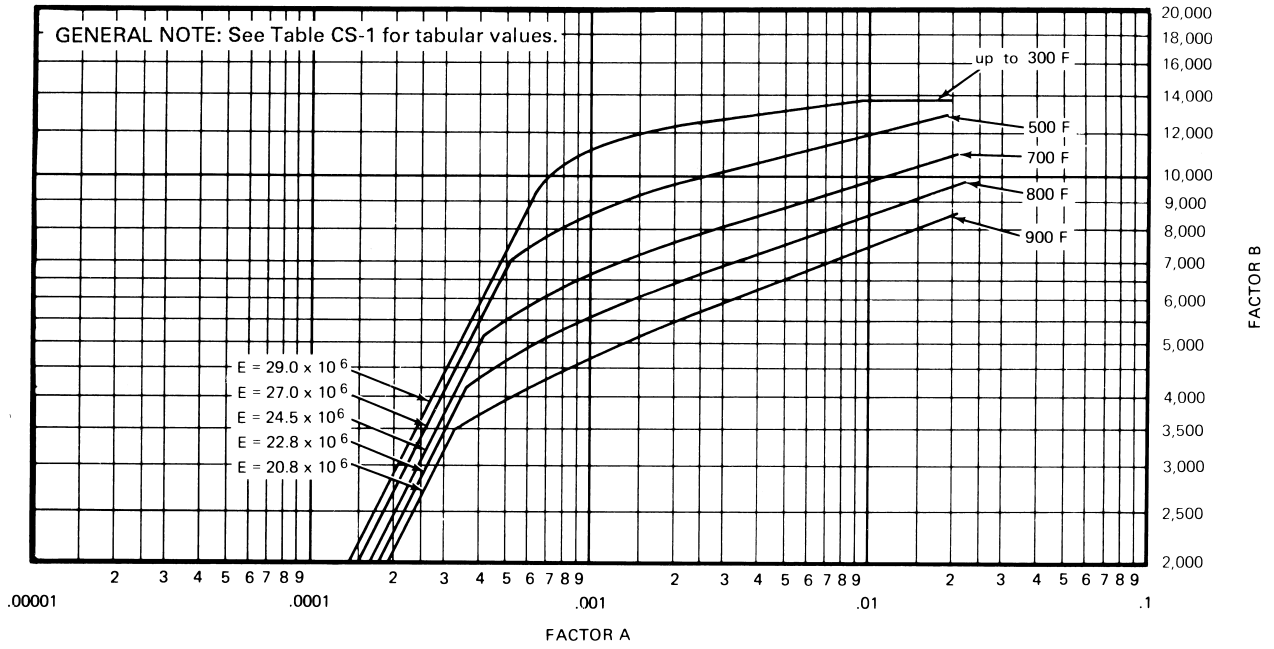

FIG. CS-1 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF CARBON OR LOW ALLOY STEELS (Specified Minimum Yield Strength 24,000 psi to, but not Including, 30,000 psi) [Note (1)]

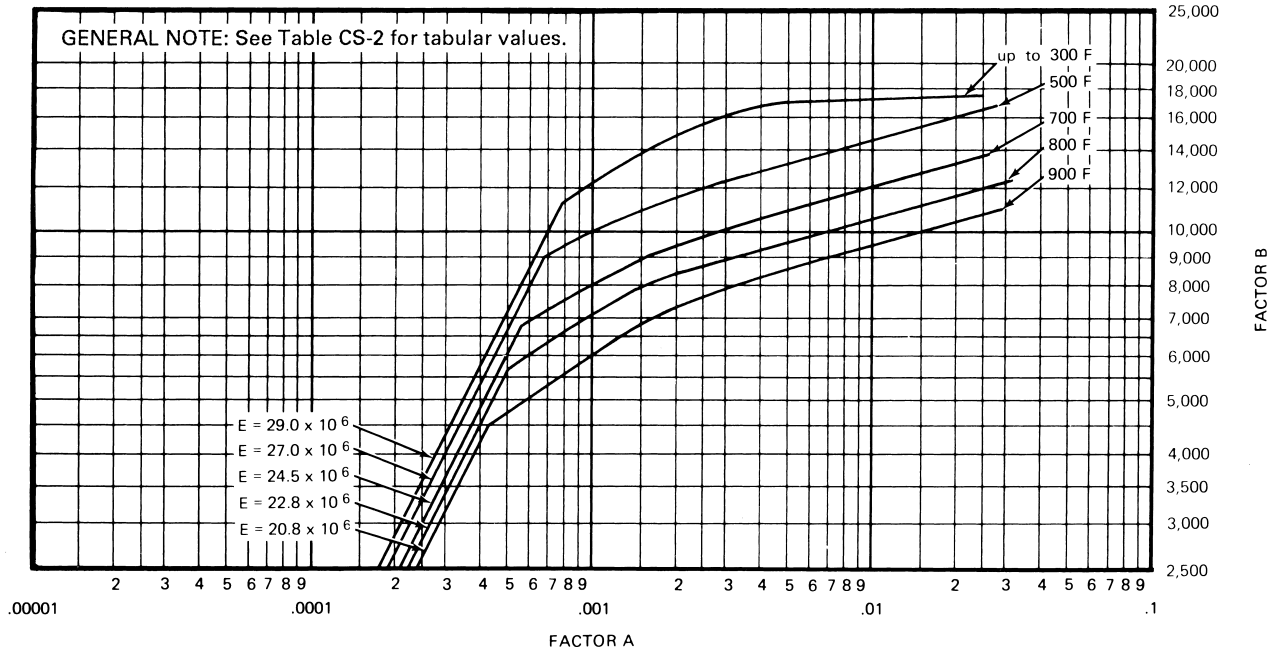

FIG. CS-2 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF CARBON OR LOW ALLOY STEELS (Specified Minimum Yield Strength 30,000 psi and Over Except for Materials Within This Range Where Other Specific Charts Are Referenced) AND TYPE 405 AND TYPE 410 STAINLESS STEELS [Note (1)]

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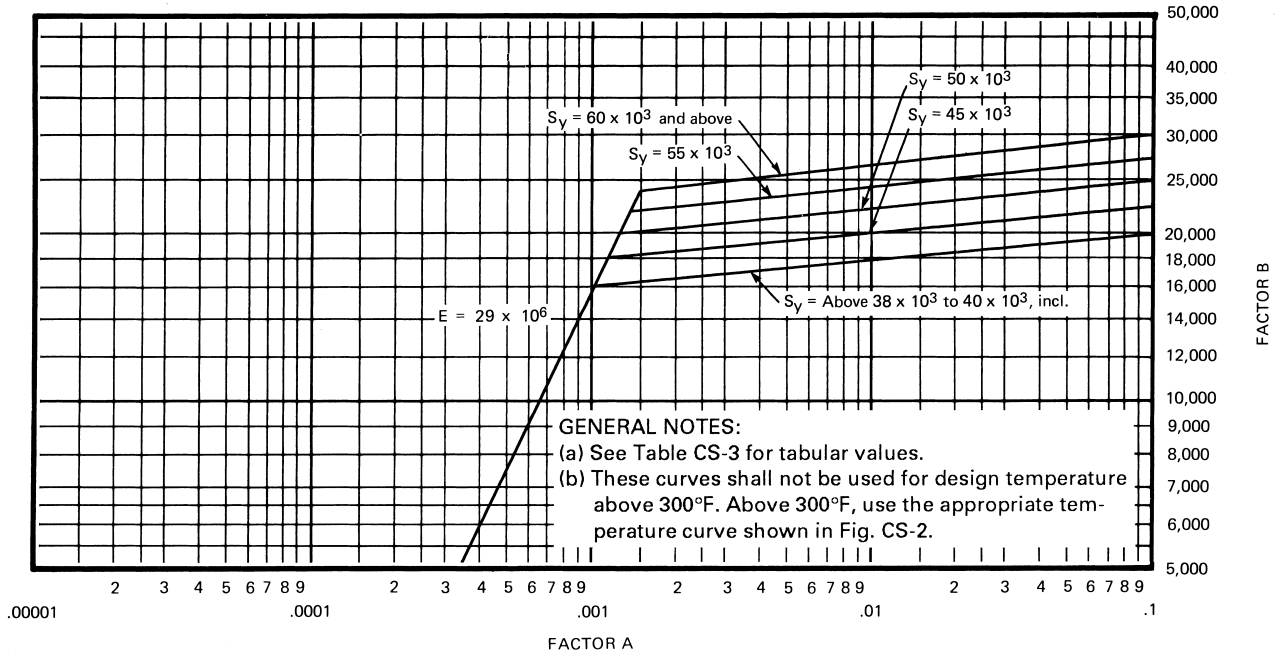

FIG. CS-3 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF CARBON STEEL, LOW ALLOY STEELS, OR STEELS WITH PROPERTIES ENHANCED BY HEAT TREATMENT (Specified Minimum Yield Strength Over 38,000 psi for Materials Where Other Specific Charts Are Not Referenced) [Notes (1), (2), and (3)]

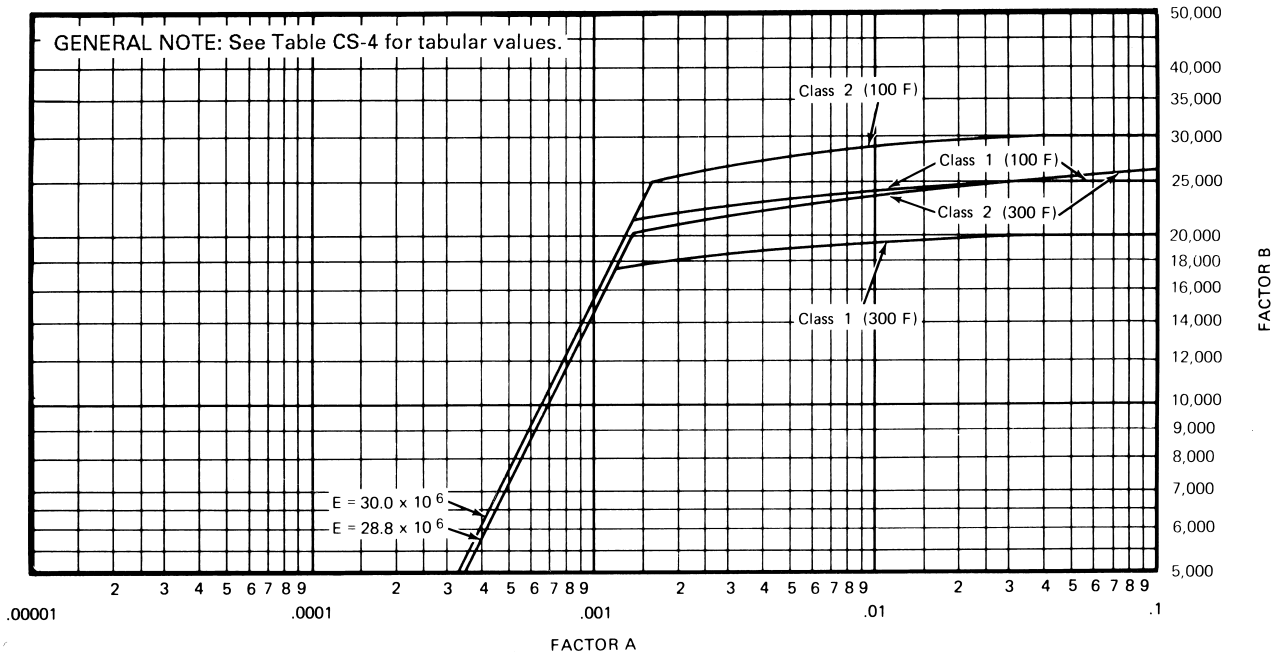

FIG. CS-4 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF SA-537 [Note (1)]

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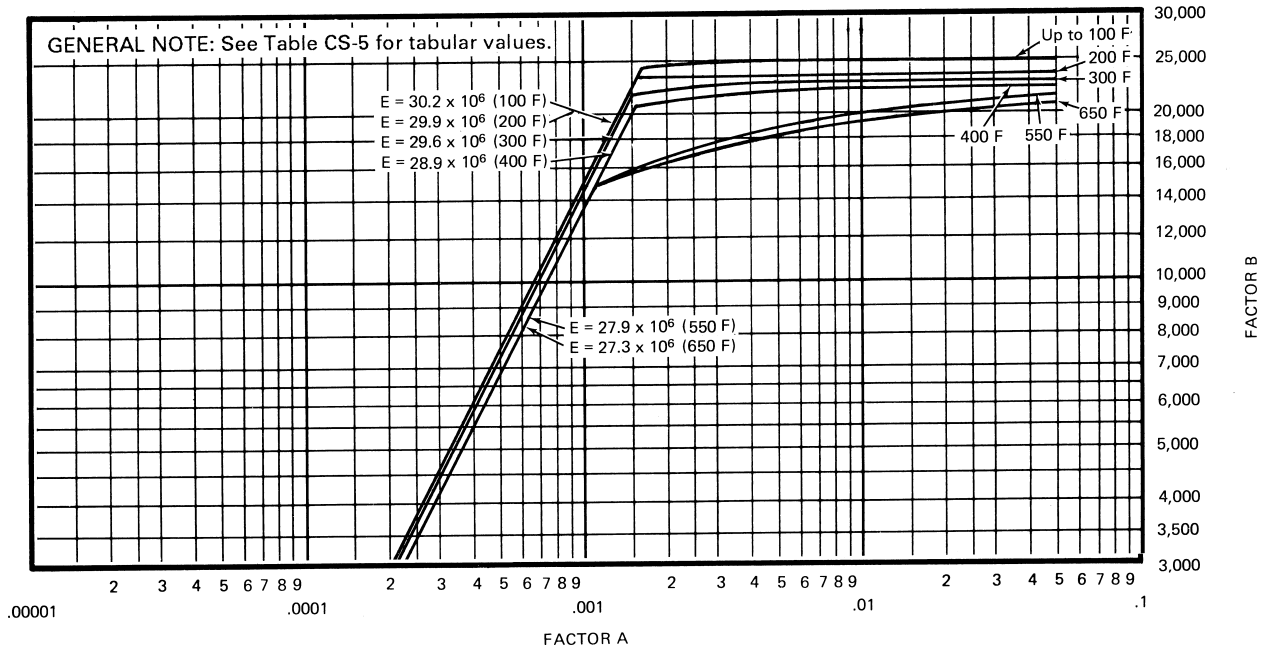

FIG. CS-5 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF SA-508 CLASS 1 GRADES 2 AND 3; SA-508 CLASS 2 GRADE 2; SA-533 CLASS 1 GRADES A, B, C, AND D; SA-533 CLASS 2 GRADES A, B, C, AND D; OR SA-541 GRADES 2 AND 3

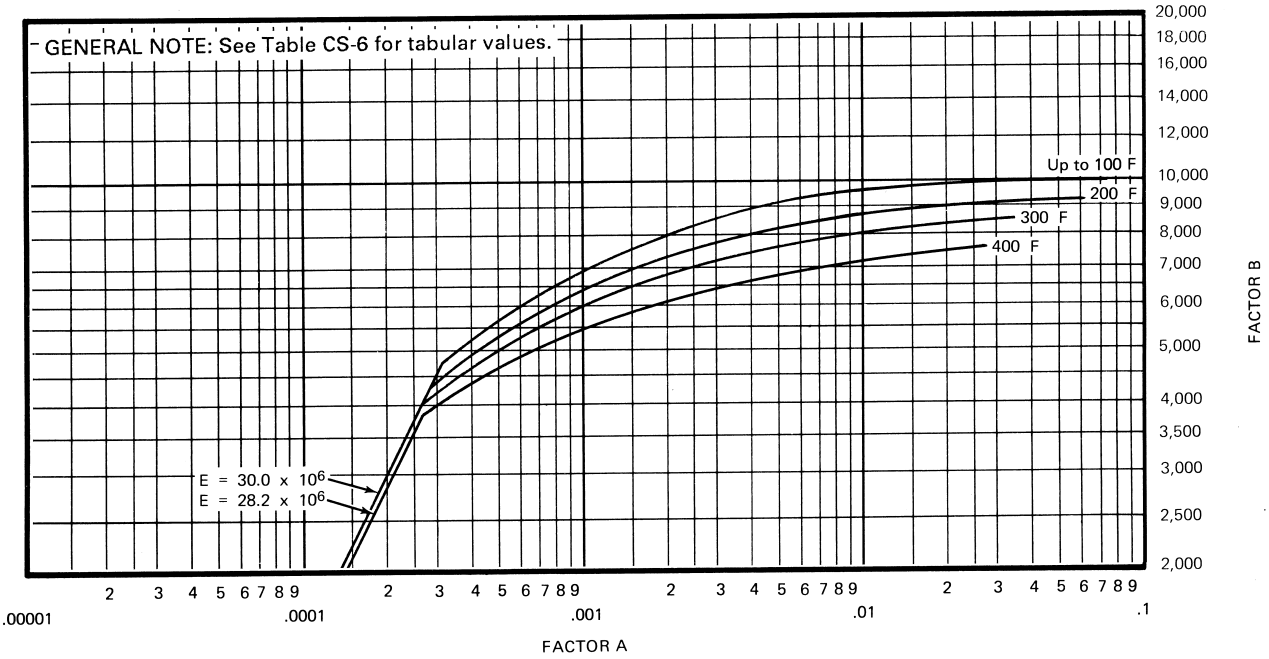

FIG. CS-6 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF SA-562 OR SA-620 CARBON STEEL

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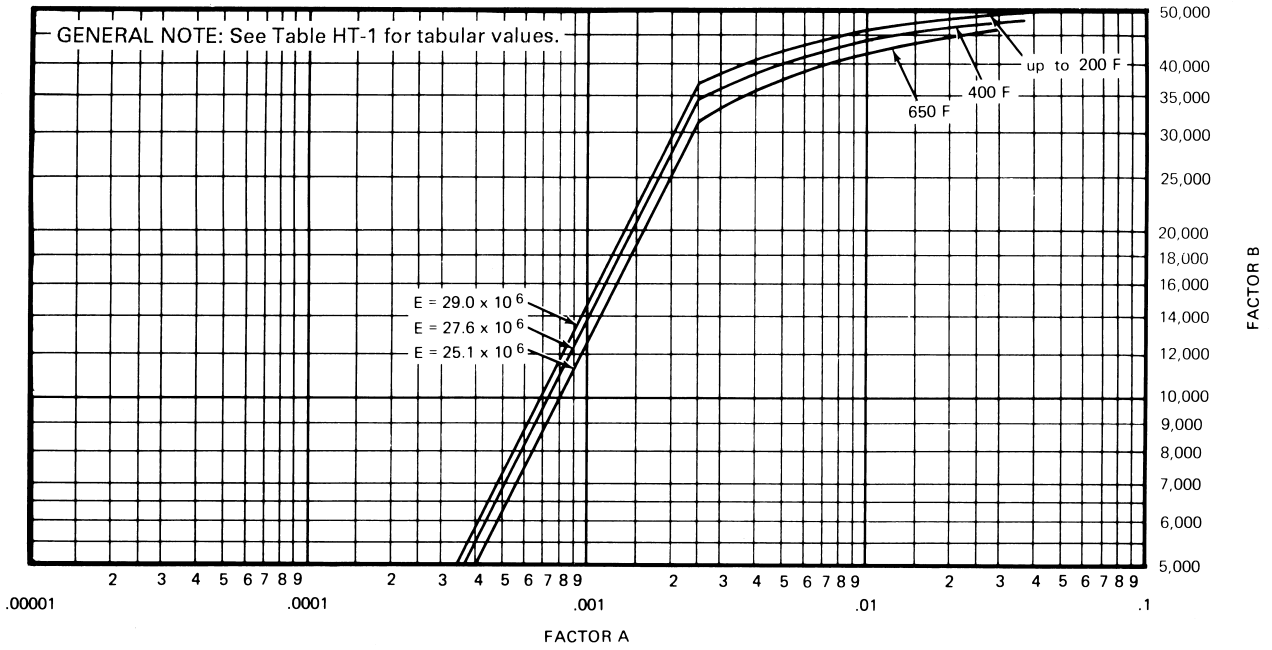

FIG. HT-1 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF QUENCHED AND TEMPERED LOW ALLOY STEEL, SA-517 ALL GRADES, AND SA-592 GRADES A, E, AND F WHERE $t \leq 2\frac{1}{2}$ in. [Note (1)]

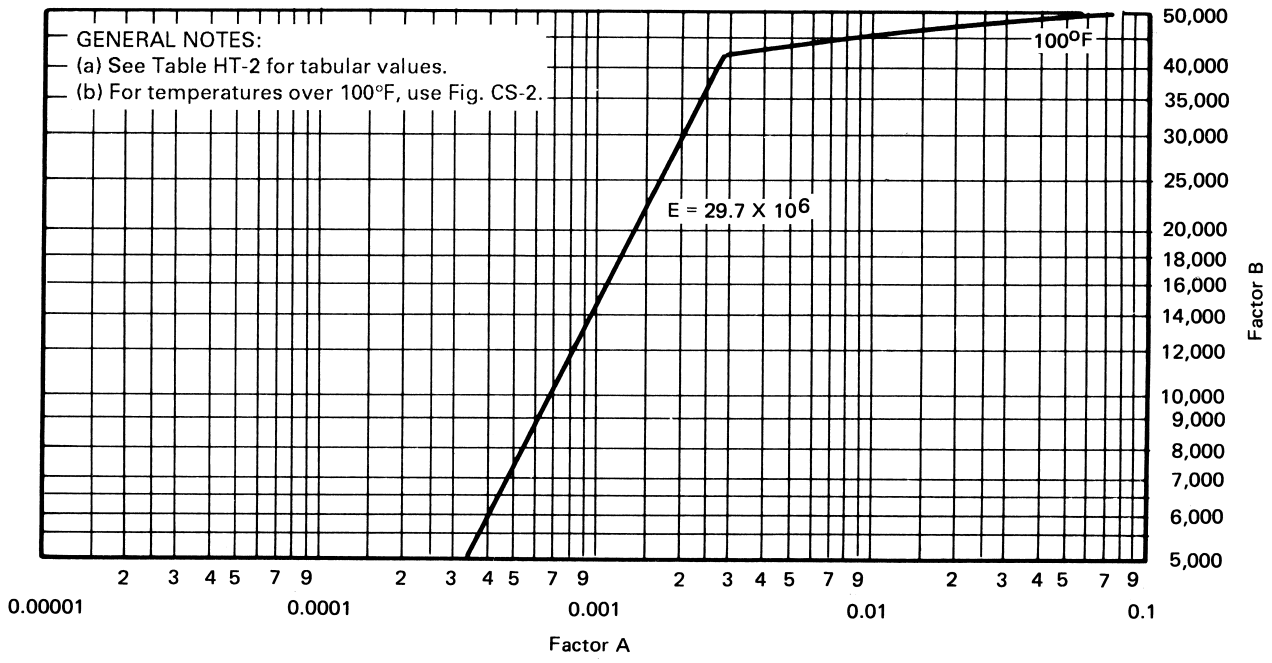

FIG. HT-2 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF SA-508 GRADE 4N, CLASS 2 OR SA-543 TYPES B AND C, CLASS 2

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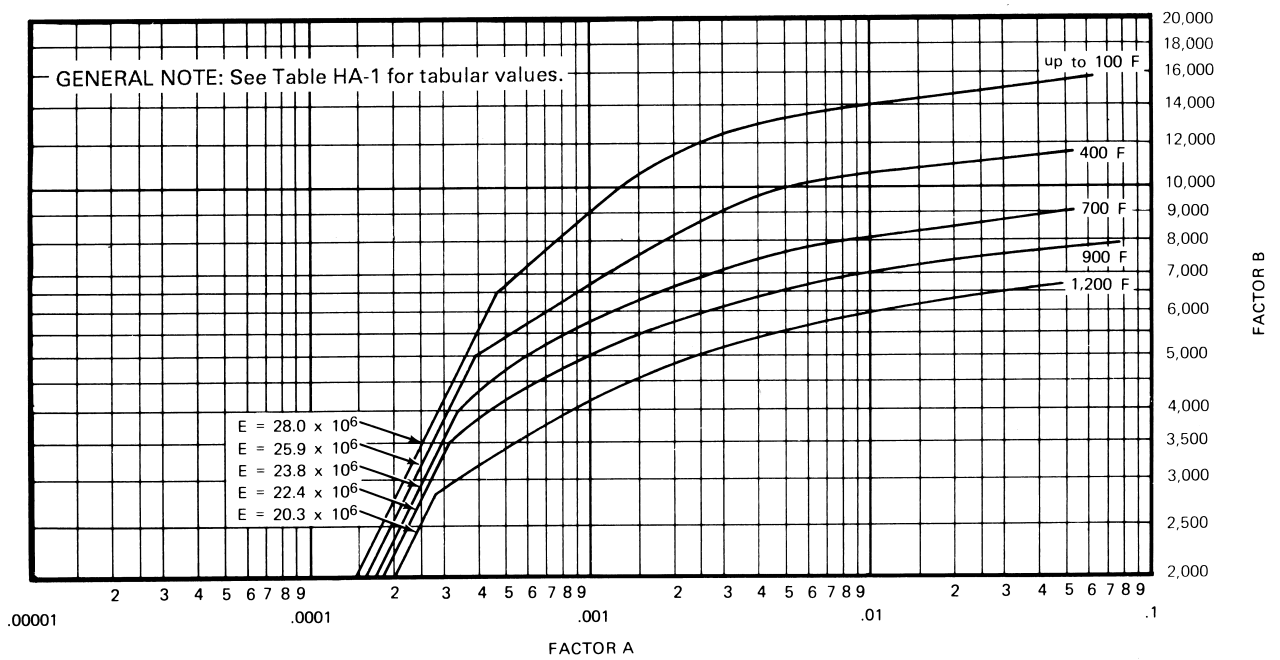

FIG. HA-1 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF AUSTENITIC STEEL (18Cr–8Ni, Type 304) [Note (1)]

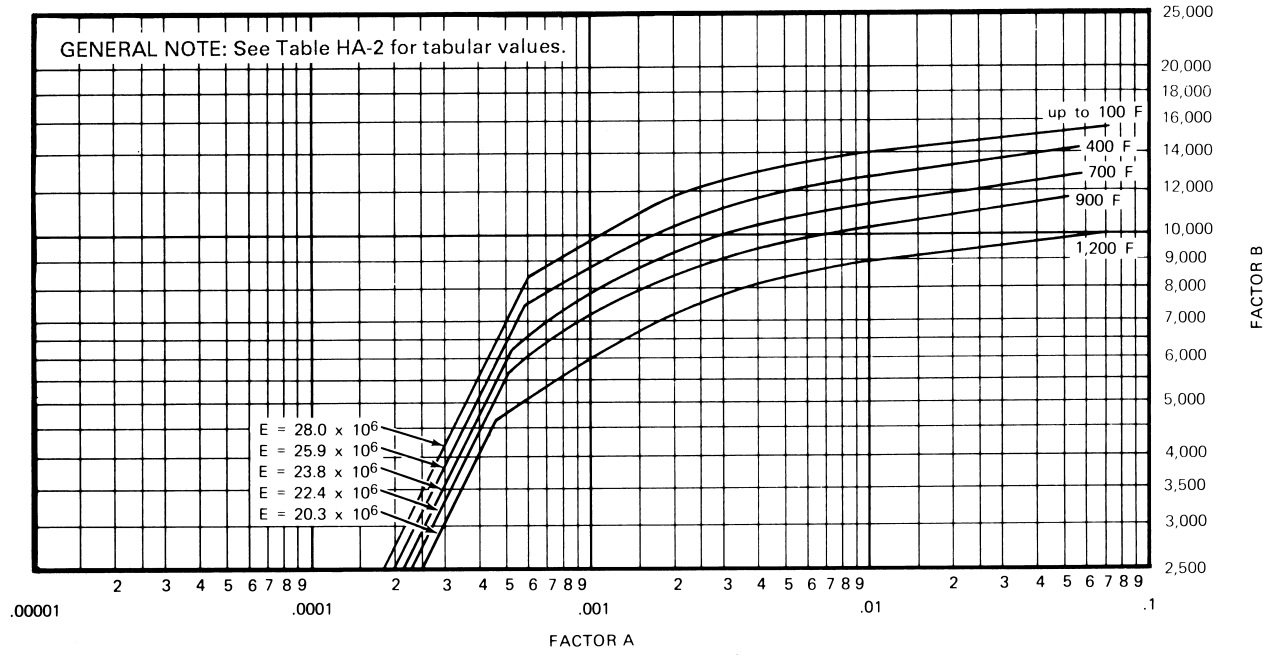

FIG. HA-2 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF AUSTENITIC STEEL [16Cr–12Ni–2Mo, Type 316; 18Cr–10Ni–Ti, Type 321; 18Cr–10Ni–Cb, Type 347; 25Cr–12Ni, Type 309 (Through 1100°F Only); 25Cr–20Ni, Type 310; and 17Cr, Type 430B Stainless Steel (Through 700°F Only)] [Note (1)]

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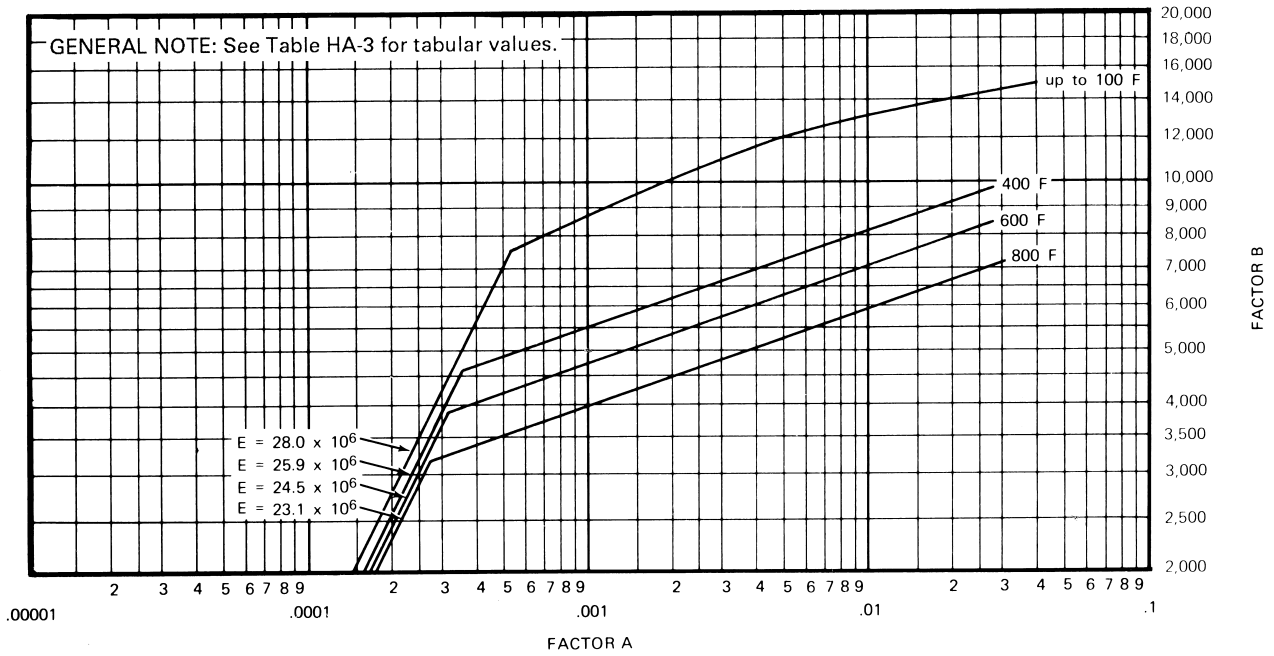

FIG. HA-3 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF AUSTENITIC STEEL (18Cr–8Ni–0.035 Maximum Carbon, Type 304L) [Note (1)]

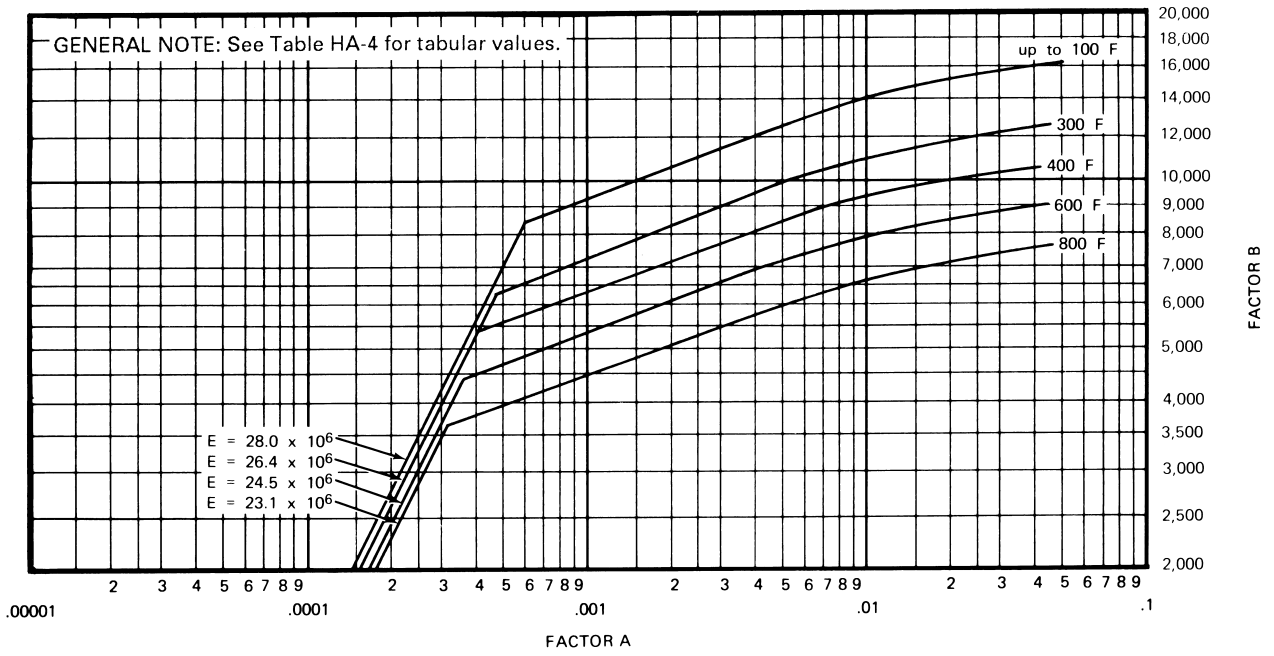

FIG. HA-4 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF AUSTENITIC STEEL (18Cr–8Ni–Mo–0.035 Maximum Carbon, Types 316L and 317L) [Note (1)]

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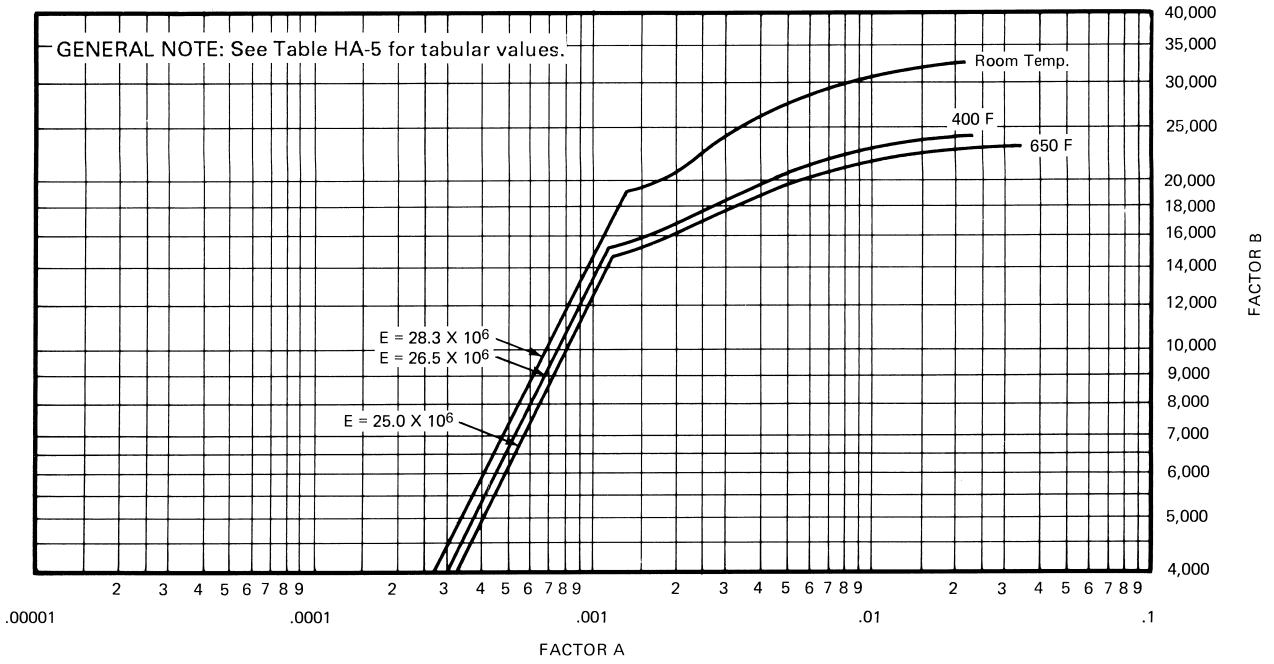

FIG. HA-5 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF Cr–Ni–Mo Alloy S31500

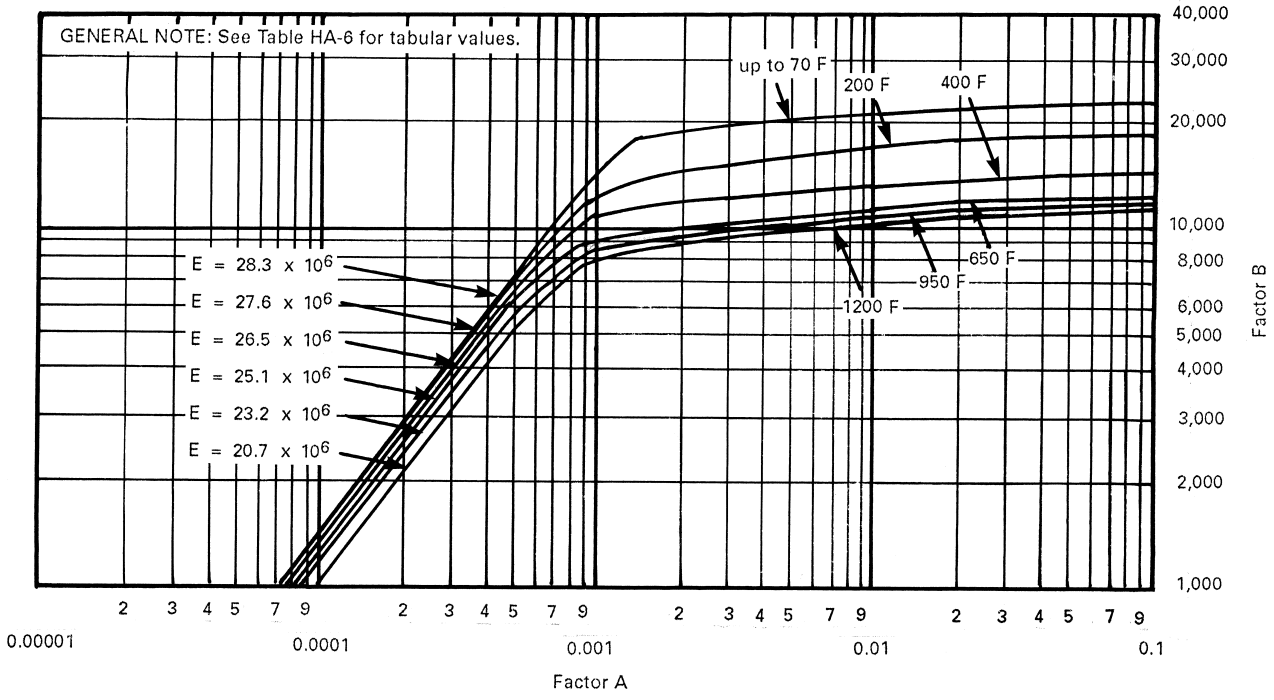

FIG. HA-6 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF 21Cr–11Ni–N Alloy S30815 [Note (4)]

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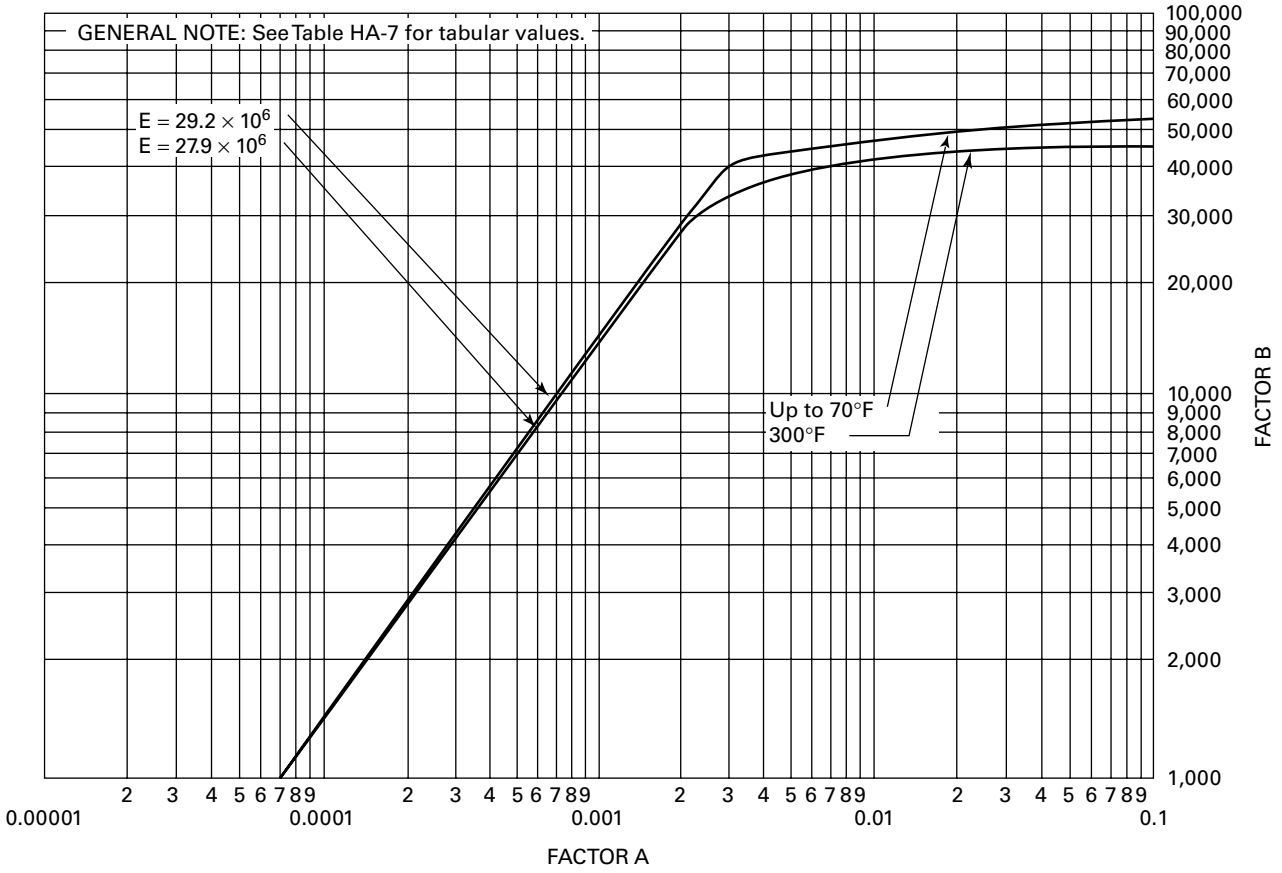

FIG. HA-7 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF SA-564 TYPE 630 H1150

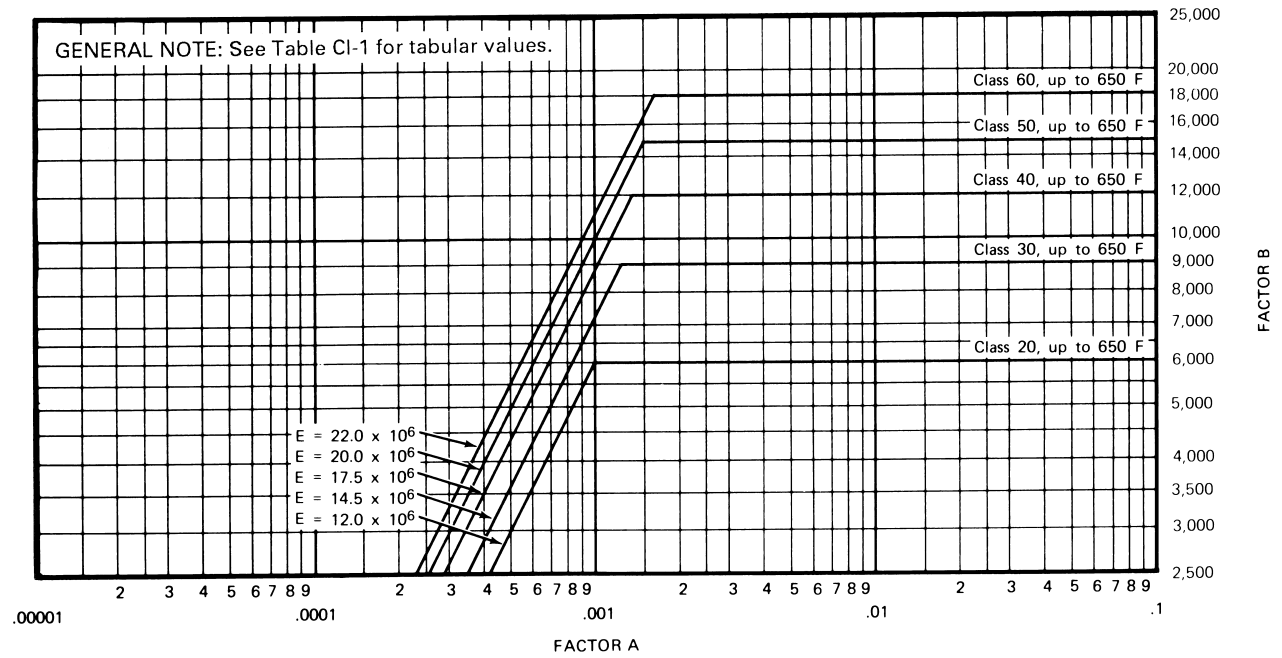

FIG. CI-1 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF CAST IRON [Note (5)]

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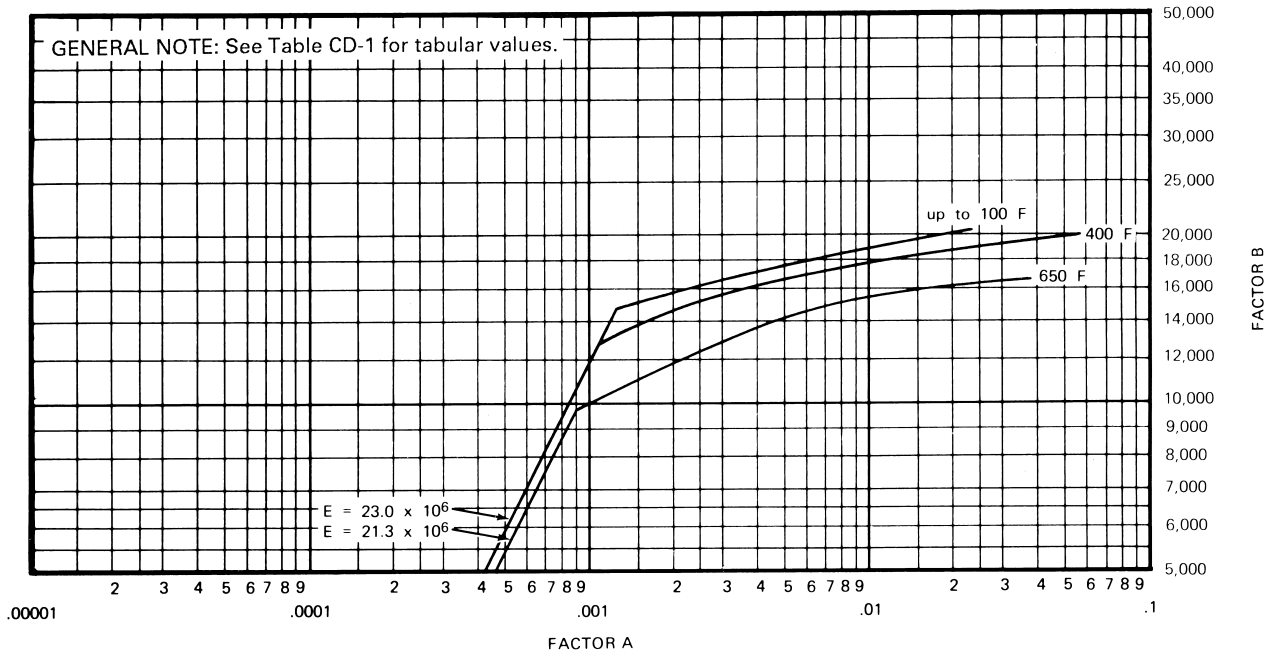

FIG. CD-1 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF CAST DUCTILE IRON WITH A SPECIFIED MINIMUM YIELD STRENGTH OF 40,000 psi [Note (6)]

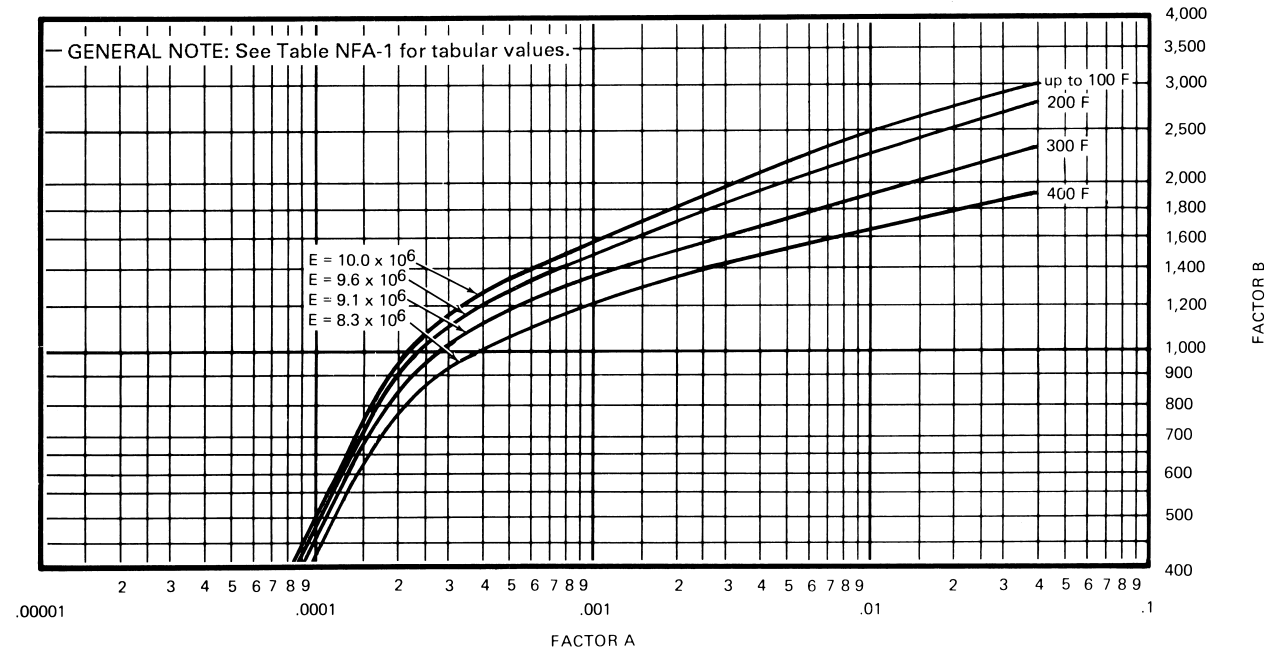

FIG. NFA-1 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF ALUMINUM ALLOY 3003 IN O AND H112 TEMPERS [Notes (7) and (8)]

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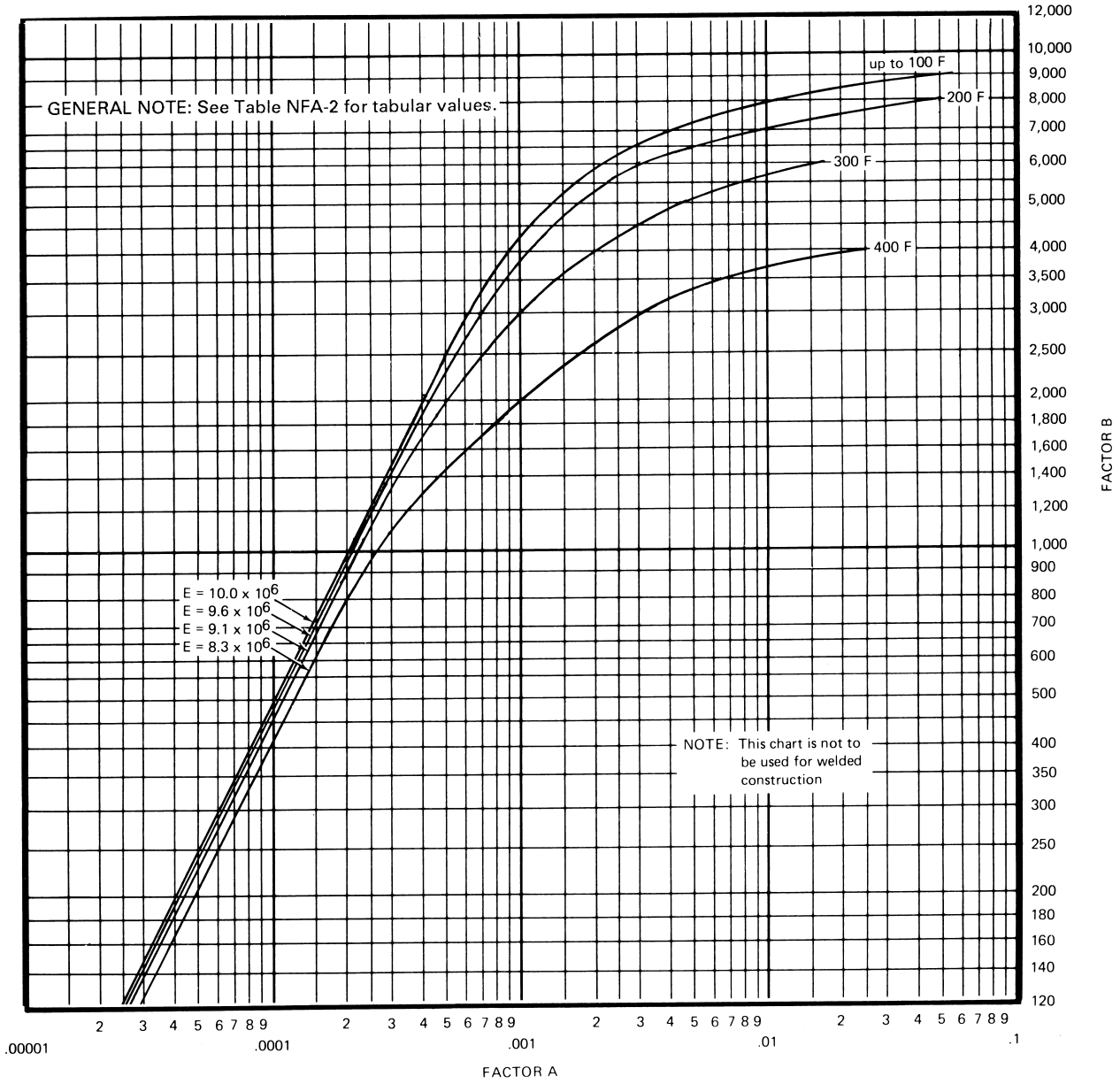

FIG. NFA-2 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF ALUMINUM ALLOY 3003 IN H14 TEMPER [Notes (7) and (8)]

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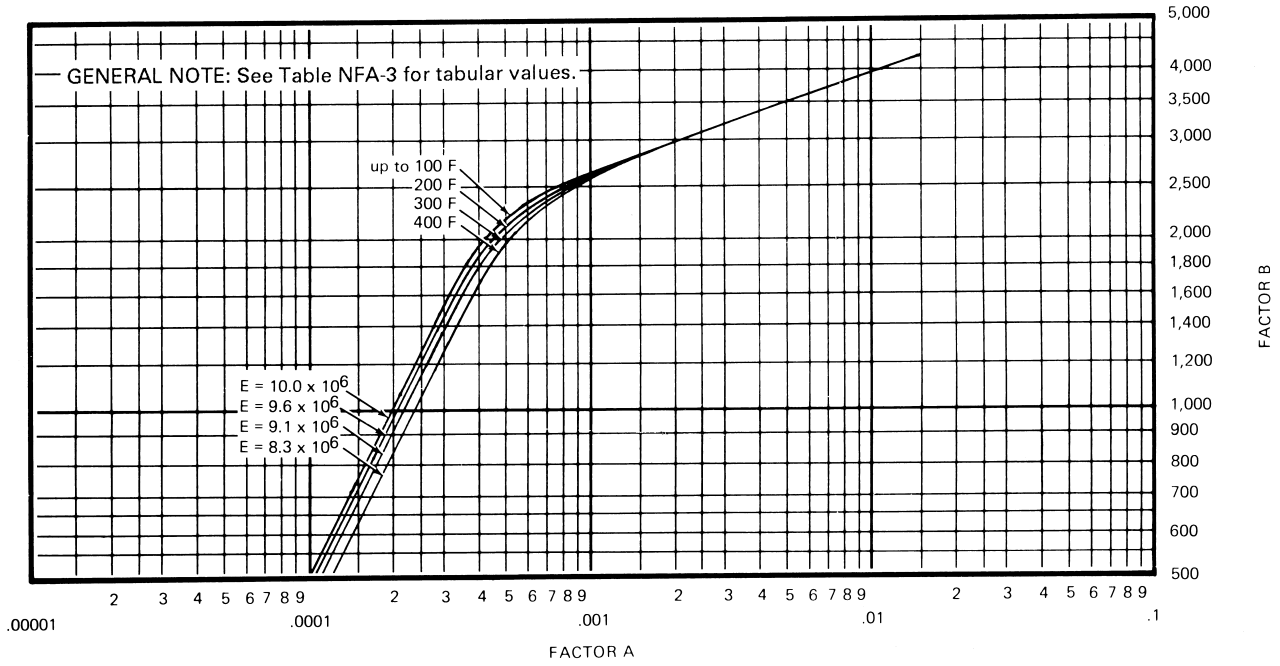

FIG. NFA-3 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF ALUMINUM ALLOY 3004 IN O AND H112 TEMPERS [Note (7)]

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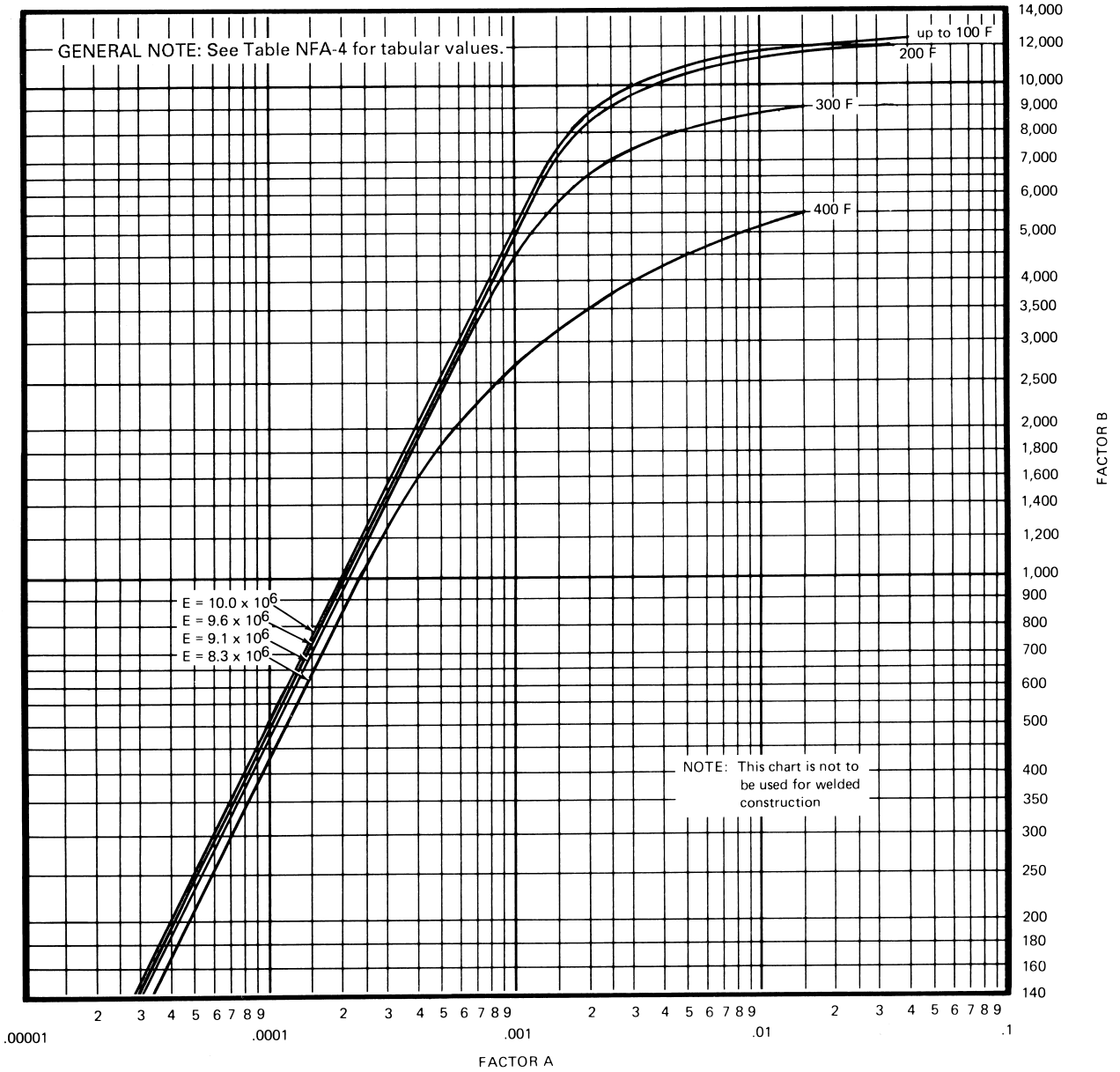

FIG. NFA-4 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF ALUMINUM ALLOY 3004 IN H34 TEMPER [Notes (7) and (8)]

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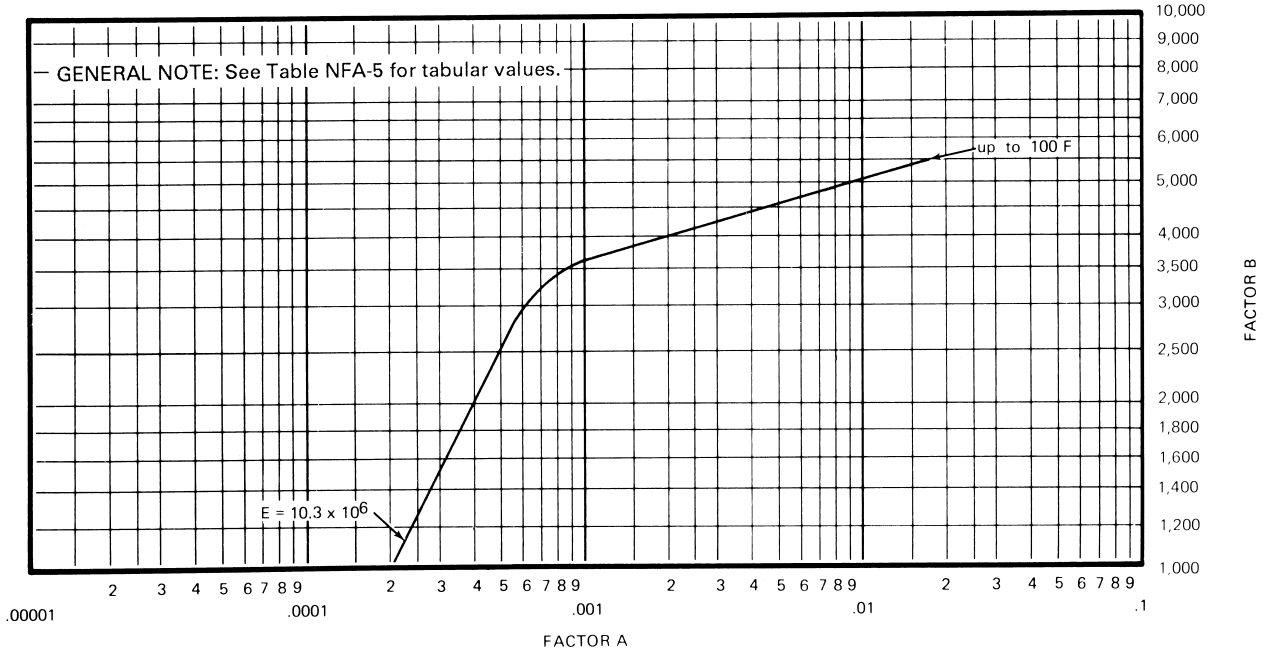

FIG. NFA-5 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF ALUMINUM ALLOY 5154 IN O AND H112 TEMPERS [Note (7)]

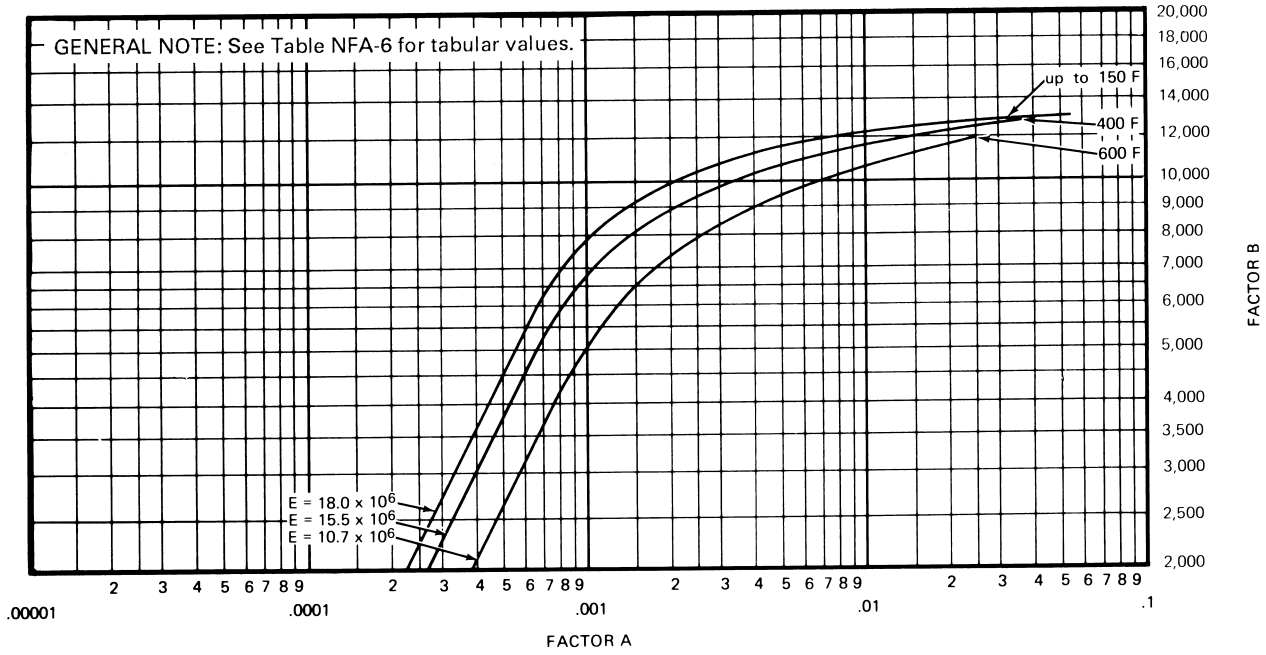

FIG. NFA-6 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF ALUMINUM BRONZE ALLOY C61400 [Note (7)]

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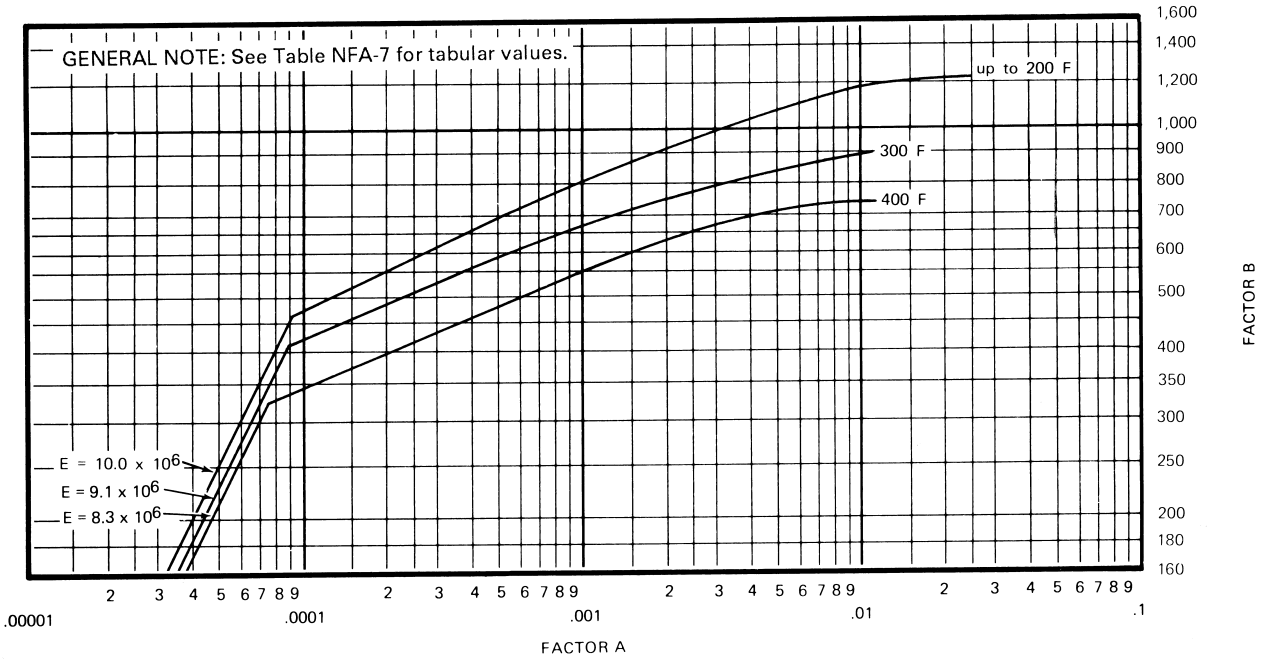

FIG. NFA-7 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF ALUMINUM ALLOY 1060 IN O TEMPER [Note (7)]

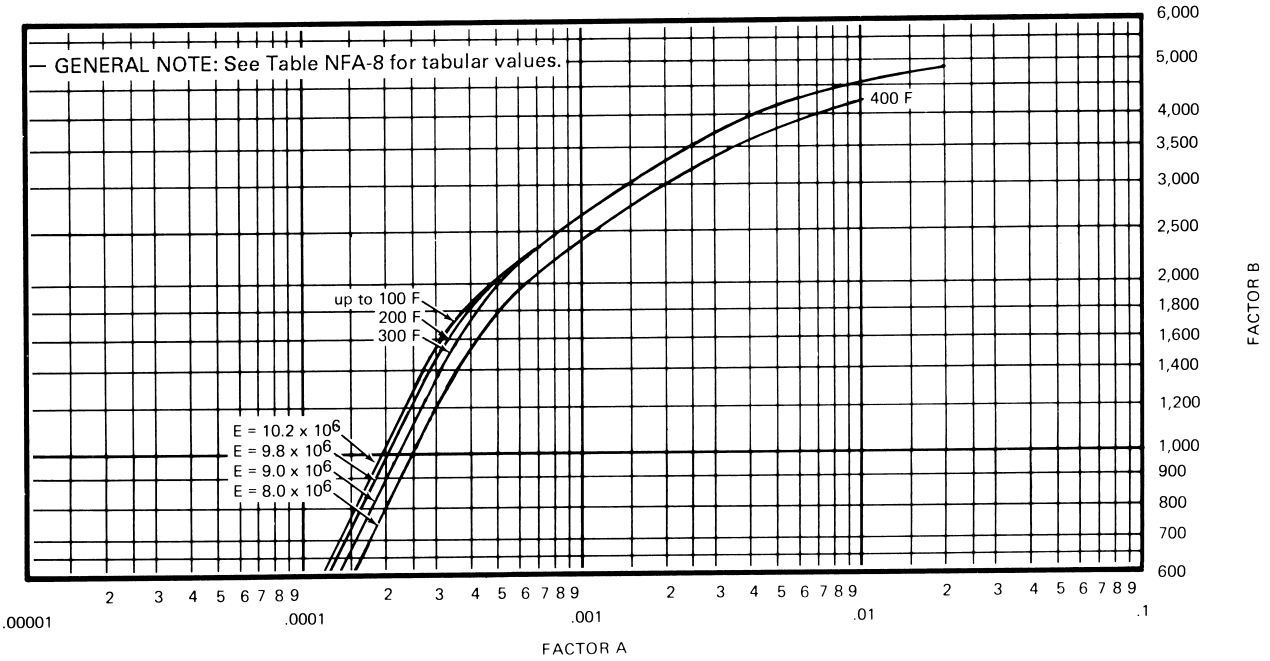

FIG. NFA-8 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF ALUMINUM ALLOY 5052 IN O AND H112 TEMPERS [Notes (7) and (9)]

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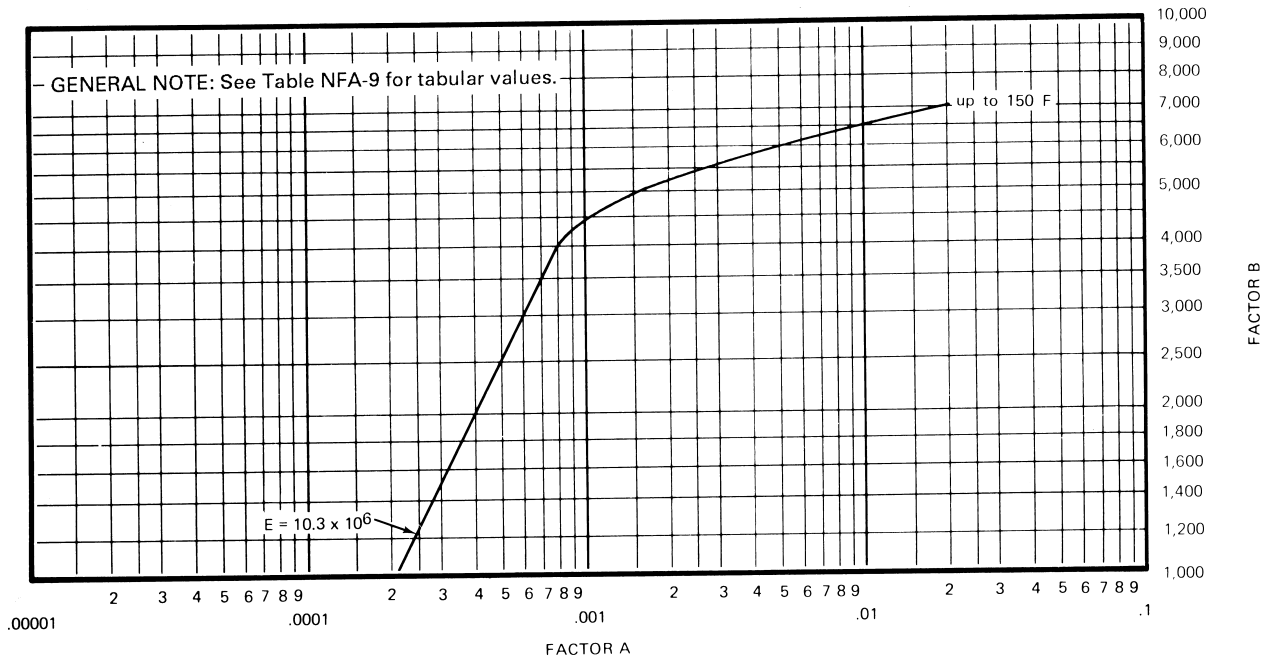

FIG. NFA-9 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF ALUMINUM ALLOY 5086 IN O AND H112 TEMPERS [Note (7)]

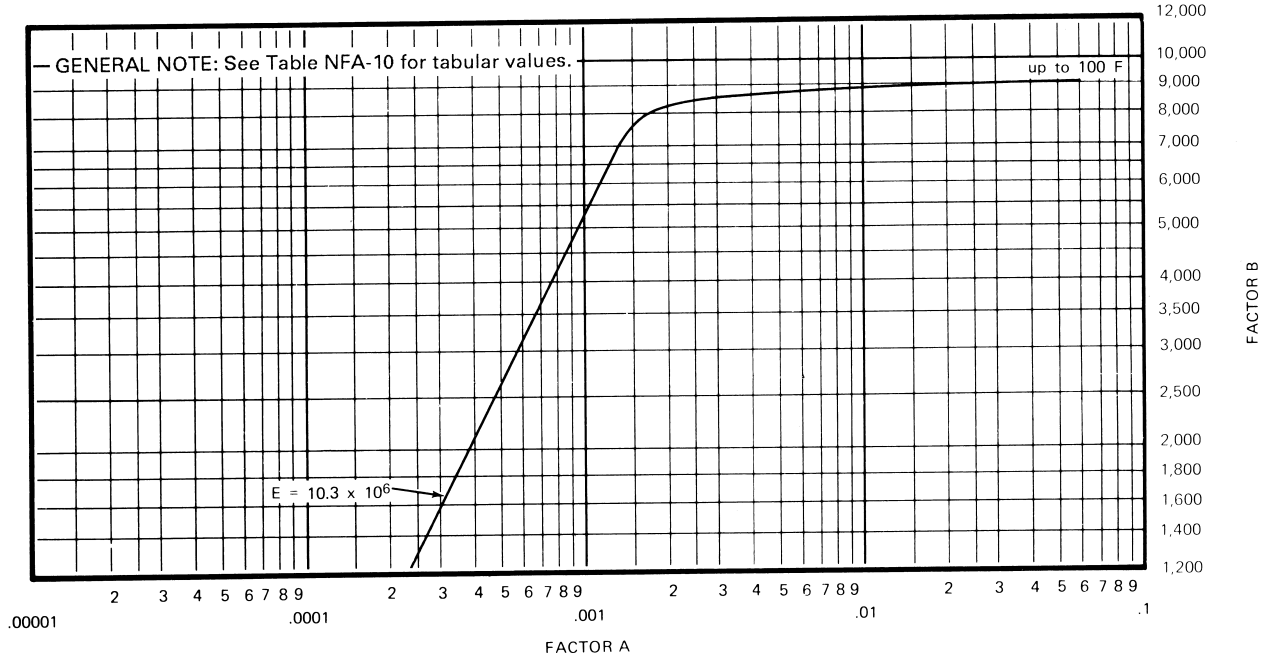

FIG. NFA-10 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF ALUMINUM ALLOY 5456 IN O TEMPER [Note (7)]

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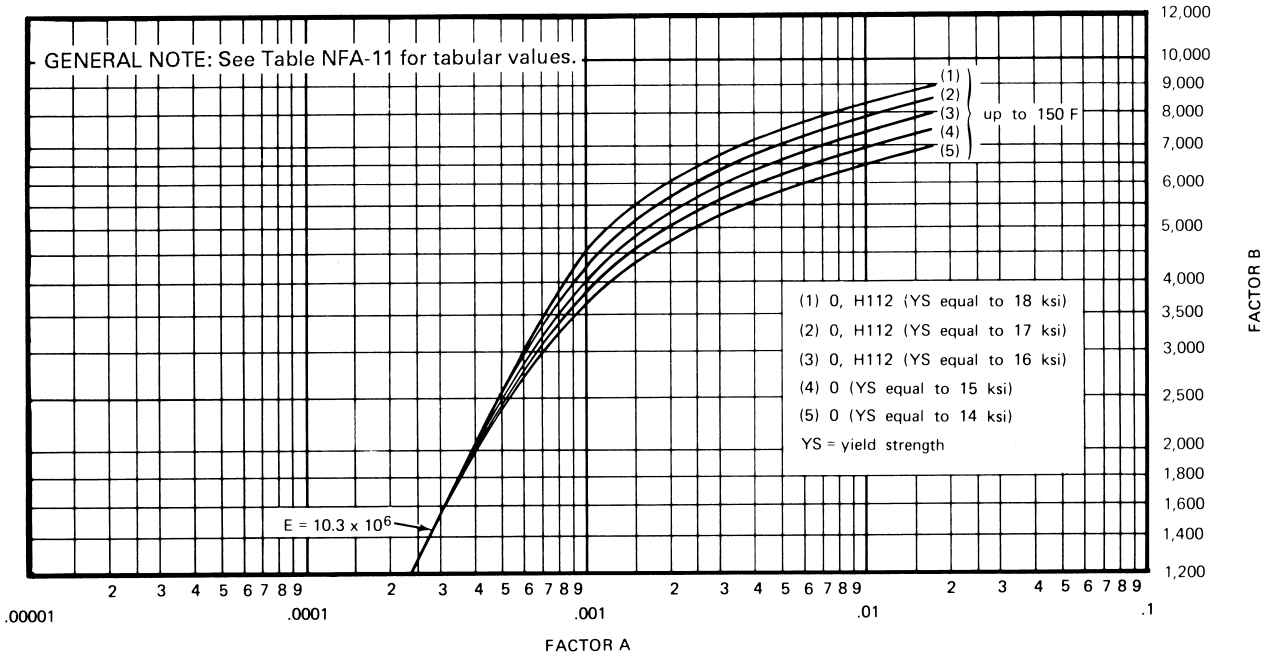

FIG. NFA-11 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF ALUMINUM ALLOY 5083 IN O AND H112 TEMPERS [Note (7)]

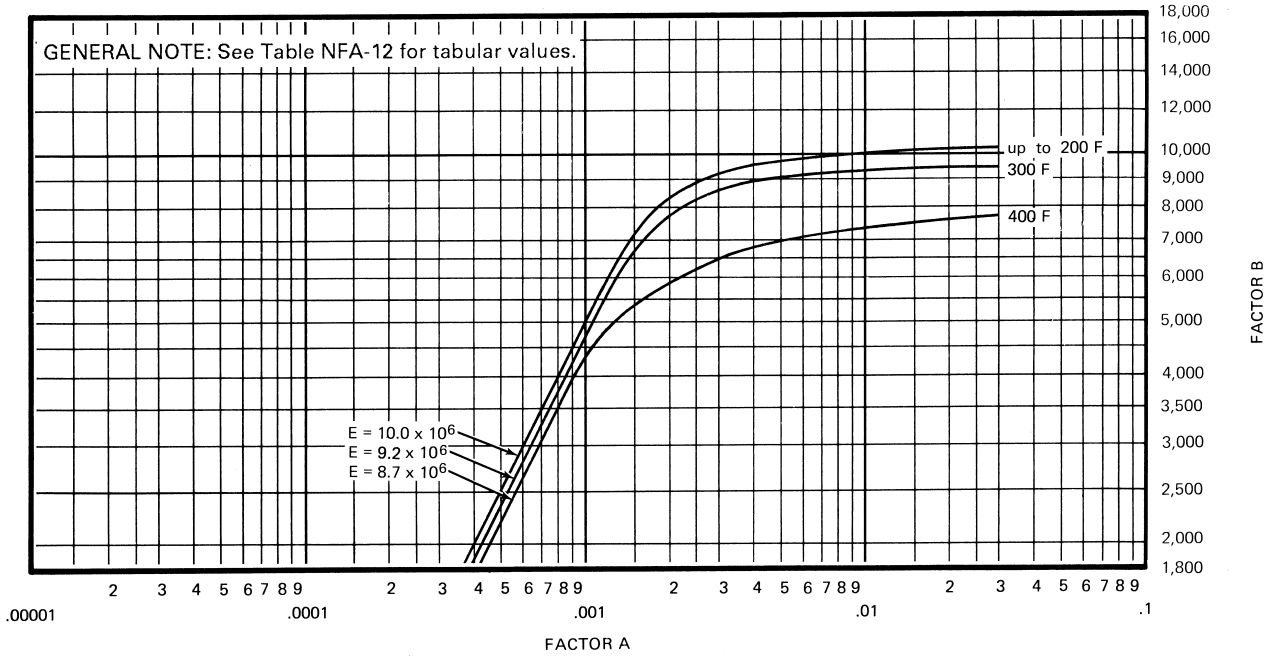

FIG. NFA-12 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF WELDED ALUMINUM ALLOY 6061-T6, -T651, -T6510, AND -T6511 WHEN WELDED WITH 5356 OR 5556 FILLER METAL, ALL THICKNESSES; 4043 OR 5554 FILLER METAL, THICKNESS $\leq$ $^3/_8$ in. [Note (7)]

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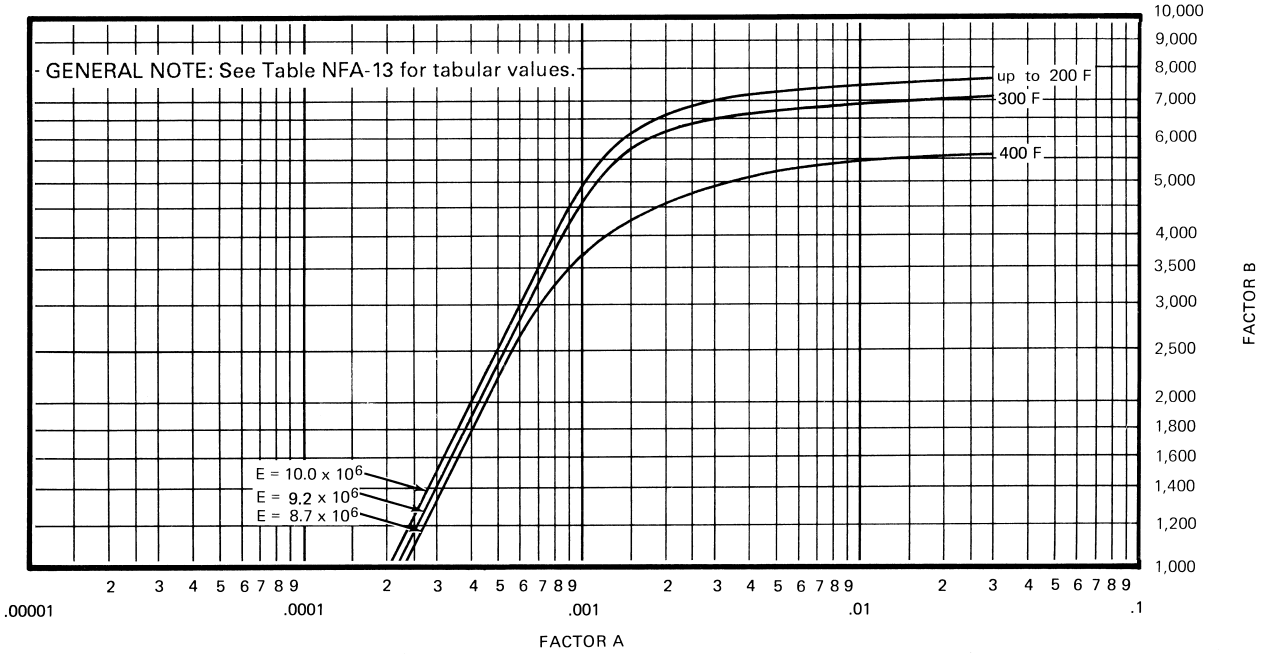

FIG. NFA-13 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF WELDED ALUMINUM ALLOY 6061-T4, -T451, -T4510, AND -T4511 WHEN WELDED WITH 4043, 5554, 5356, OR 5556 FILLER METAL, ALL THICKNESSES; AND OF WELDED ALUMINUM ALLOY 6061-T6, -T651, -T6510, AND -T6511 WHEN WELDED WITH 4043 OR 5554 FILLER METAL, THICKNESS > $^{3}/_{8}$ in. [Note (7)]

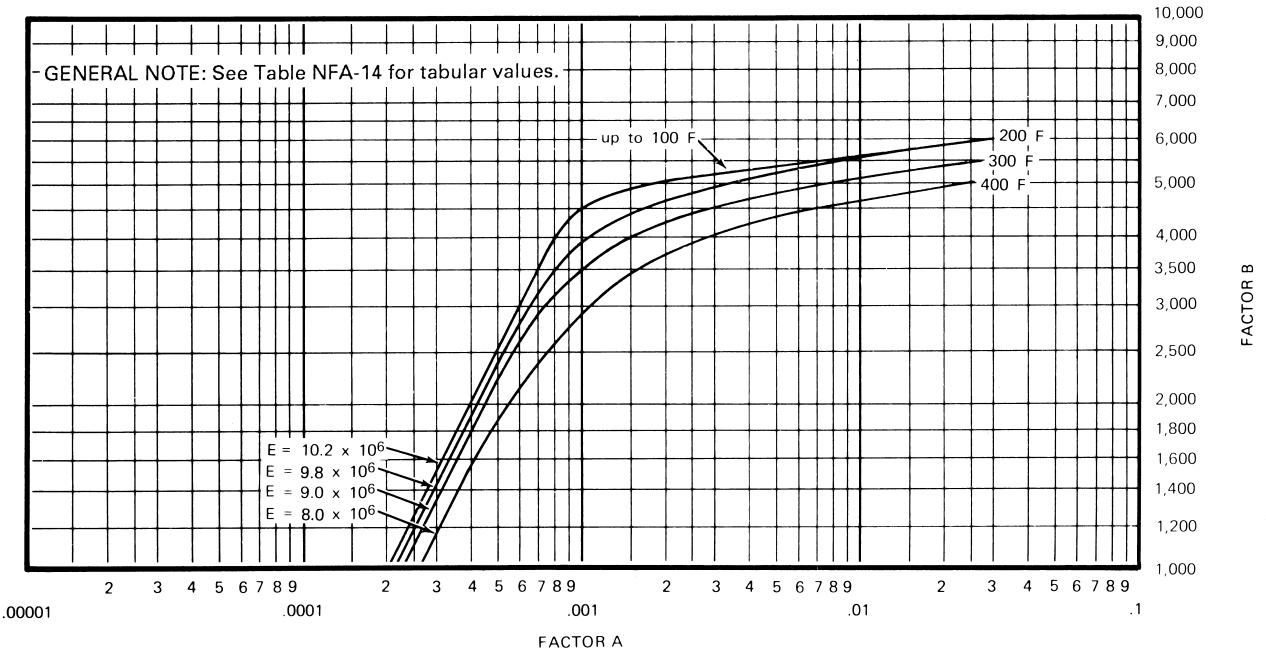

FIG. NFA-14 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF ALUMINUM ALLOY 5454 IN O AND H112 TEMPERS [Note (7)]

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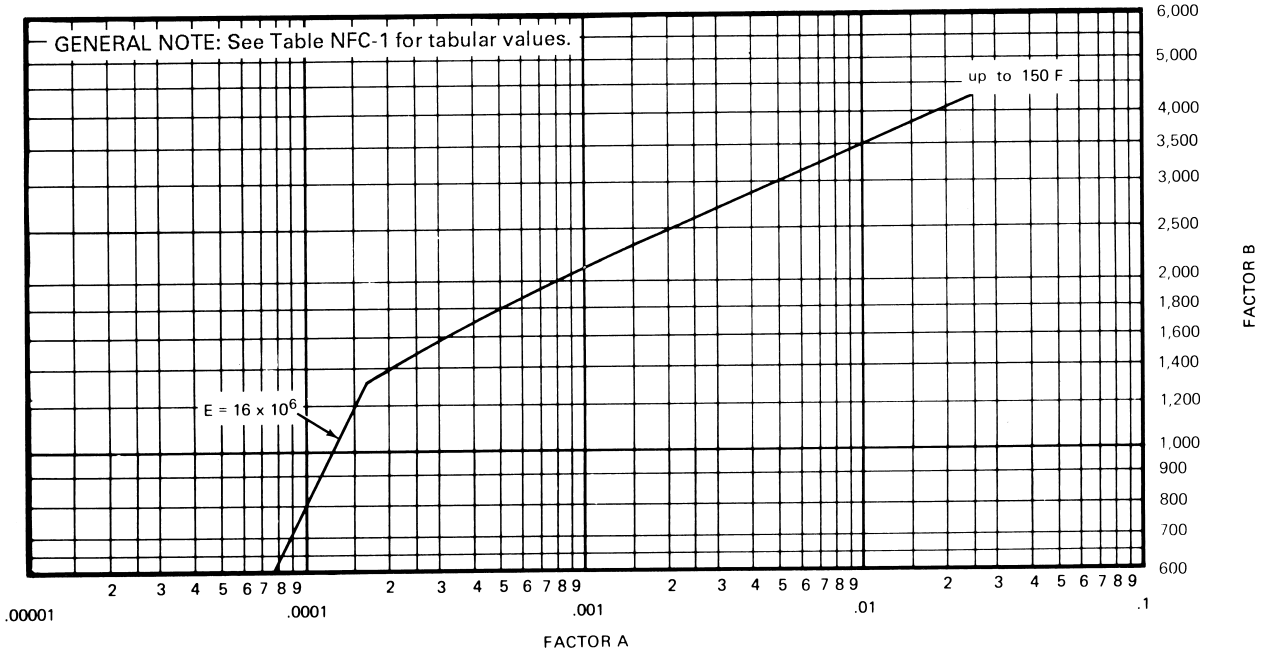

FIG. NFC-1 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF ANNEALED COPPER, TYPE DHP [Note (7)]

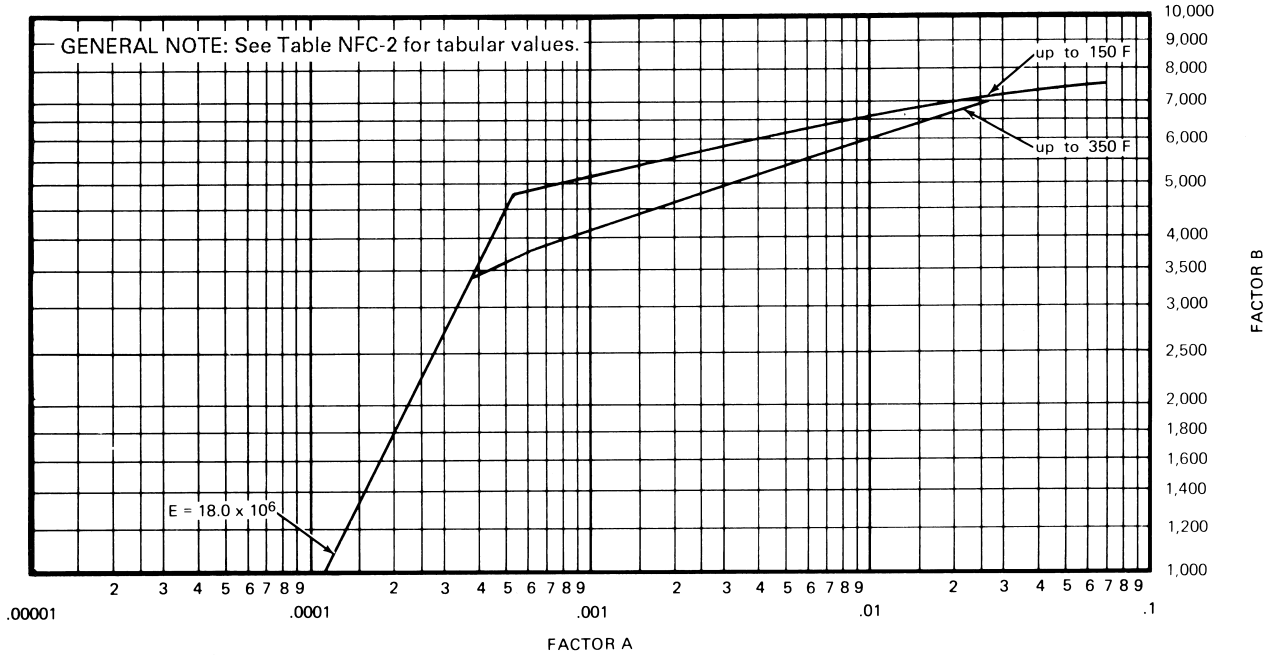

FIG. NFC-2 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF COPPER–SILICON ALLOYS A AND C [Note (7)]

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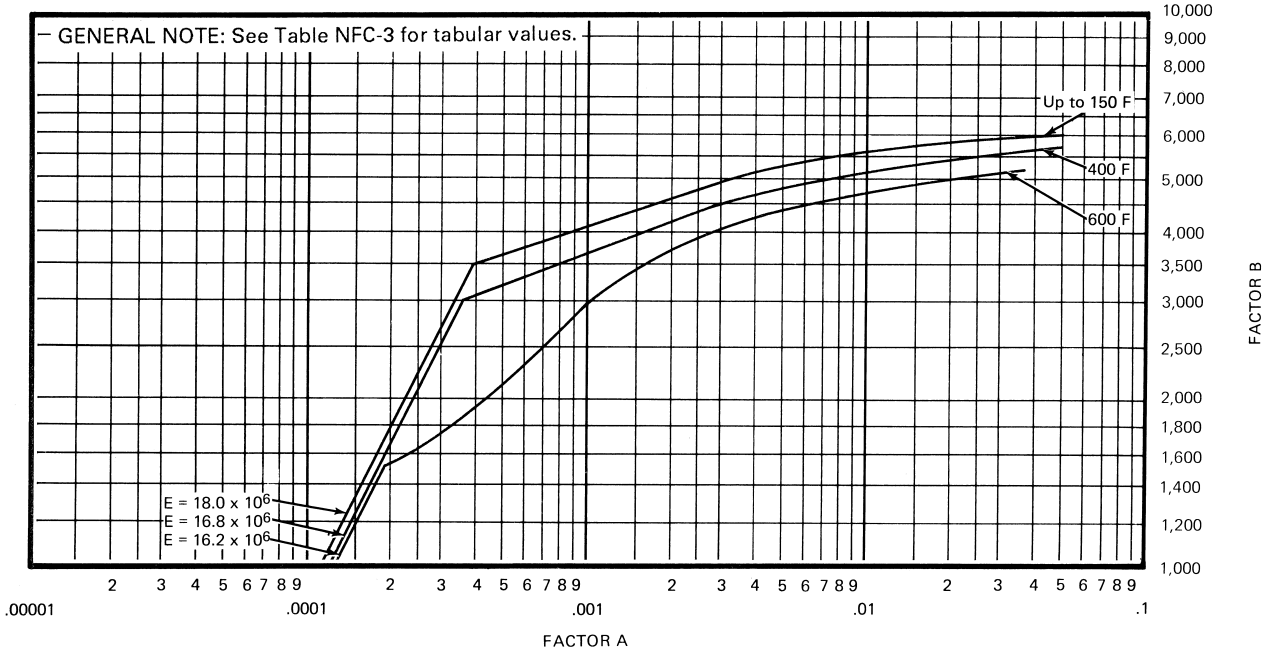

FIG. NFC-3 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF ANNEALED 90–10 COPPER–NICKEL ALLOY [Note (7)]

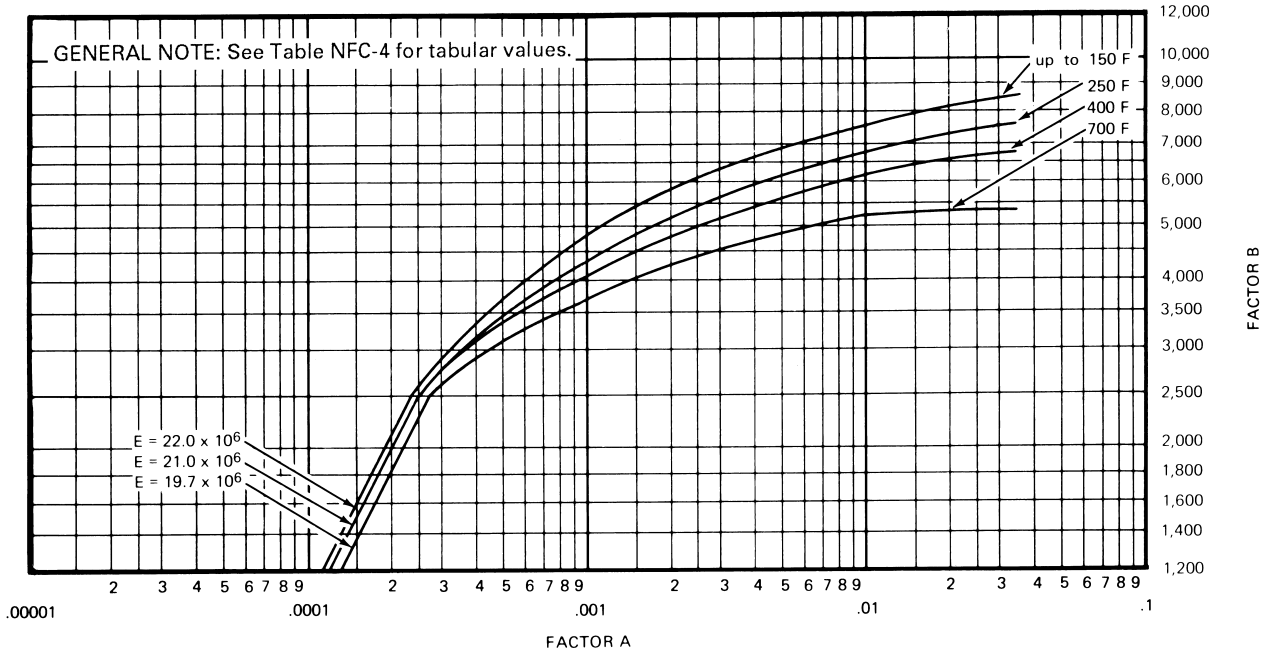

FIG. NFC-4 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF ANNEALED 70–30 COPPER–NICKEL ALLOY [Note (7)]

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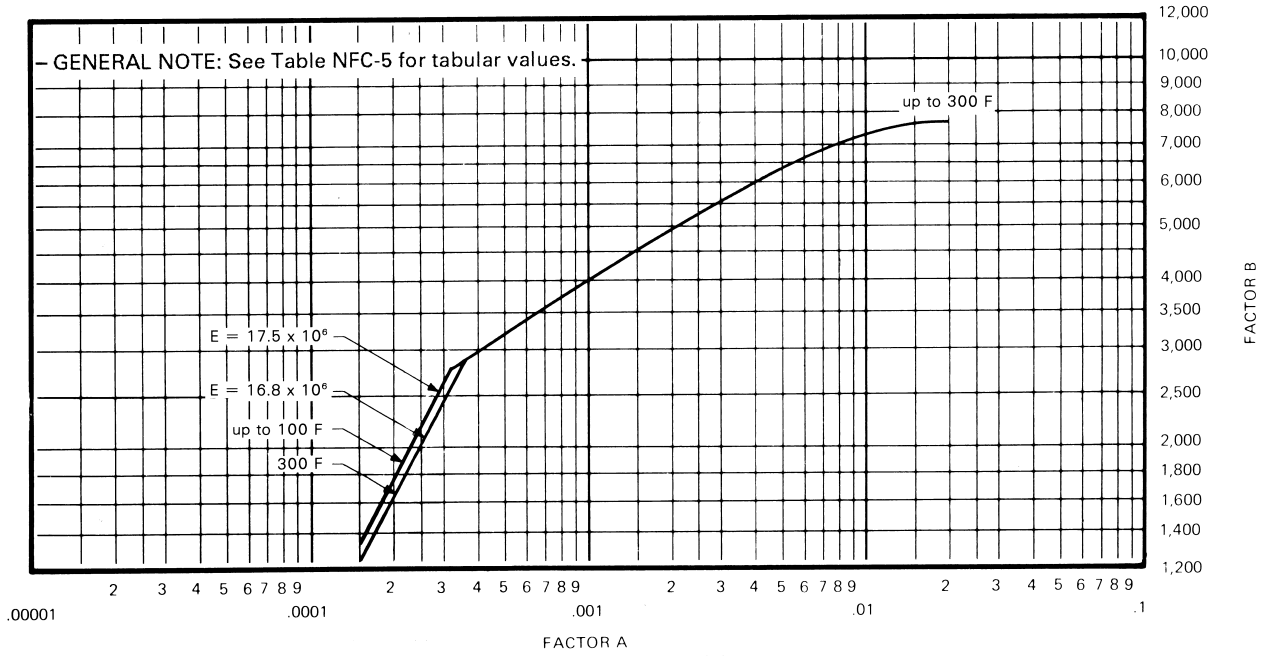

FIG. NFC-5 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF WELDED COPPER–IRON ALLOY TUBE C19400 (SB-543 Welded) [Note (7)]

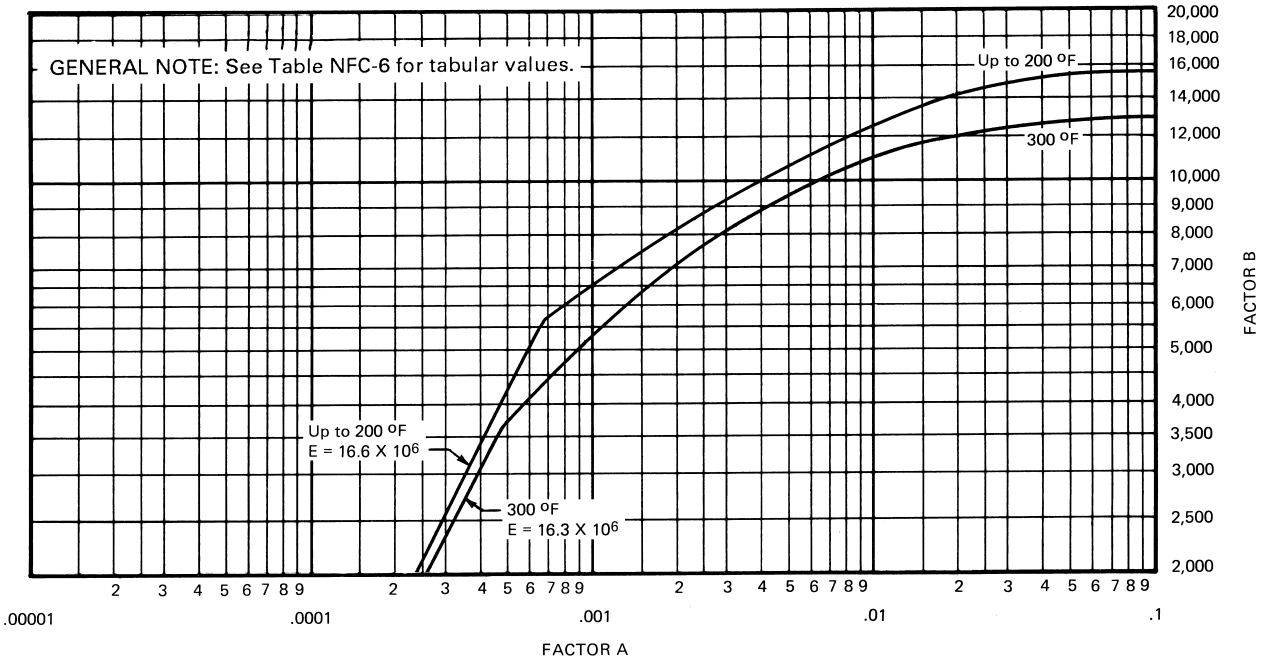

FIG. NFC-6 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF SB-75 AND SB-111 LIGHT DRAWN SEAMLESS COPPER TUBES, ALLOYS C10200, C12000, C12200, AND C14200

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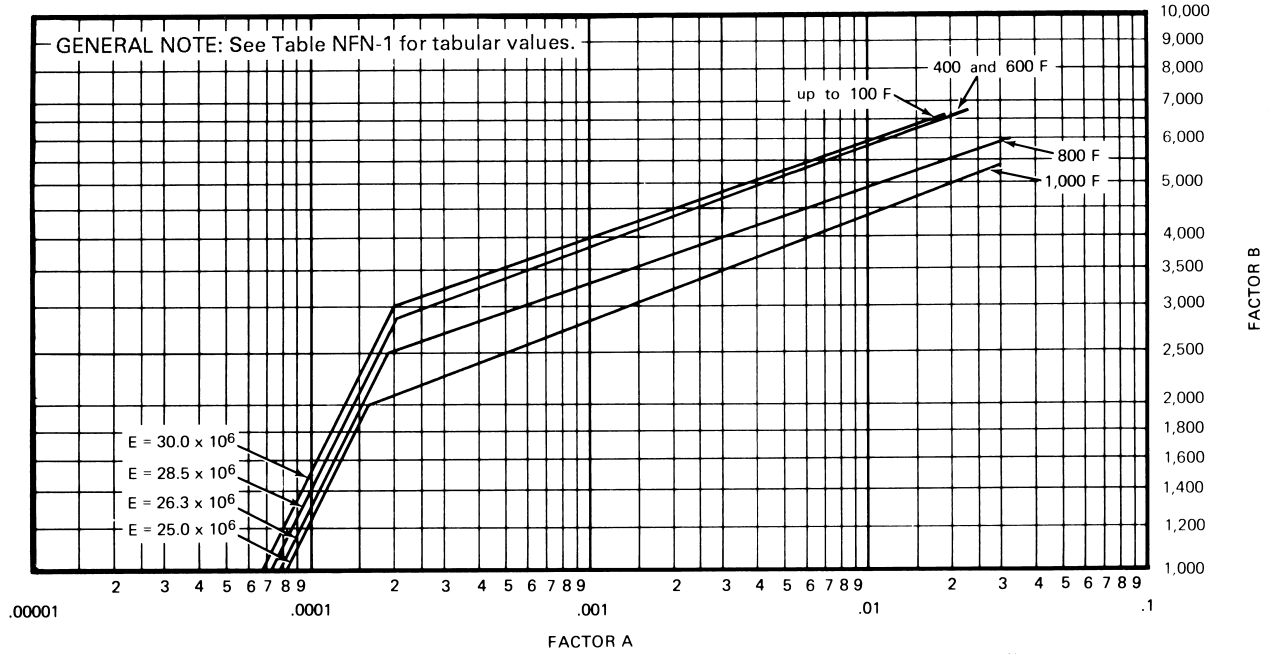

FIG. NFN-1 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF LOW CARBON NICKEL N02201 [Note (7)]

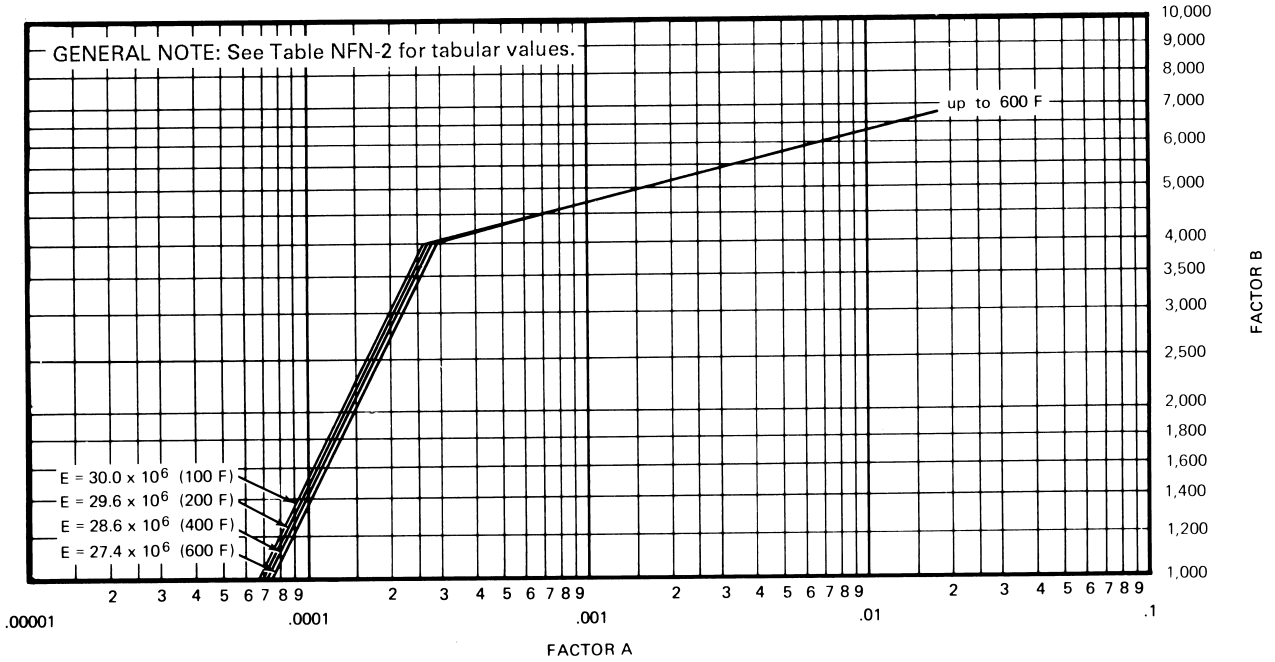

FIG. NFN-2 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF NICKEL N02202 [Note (7)]

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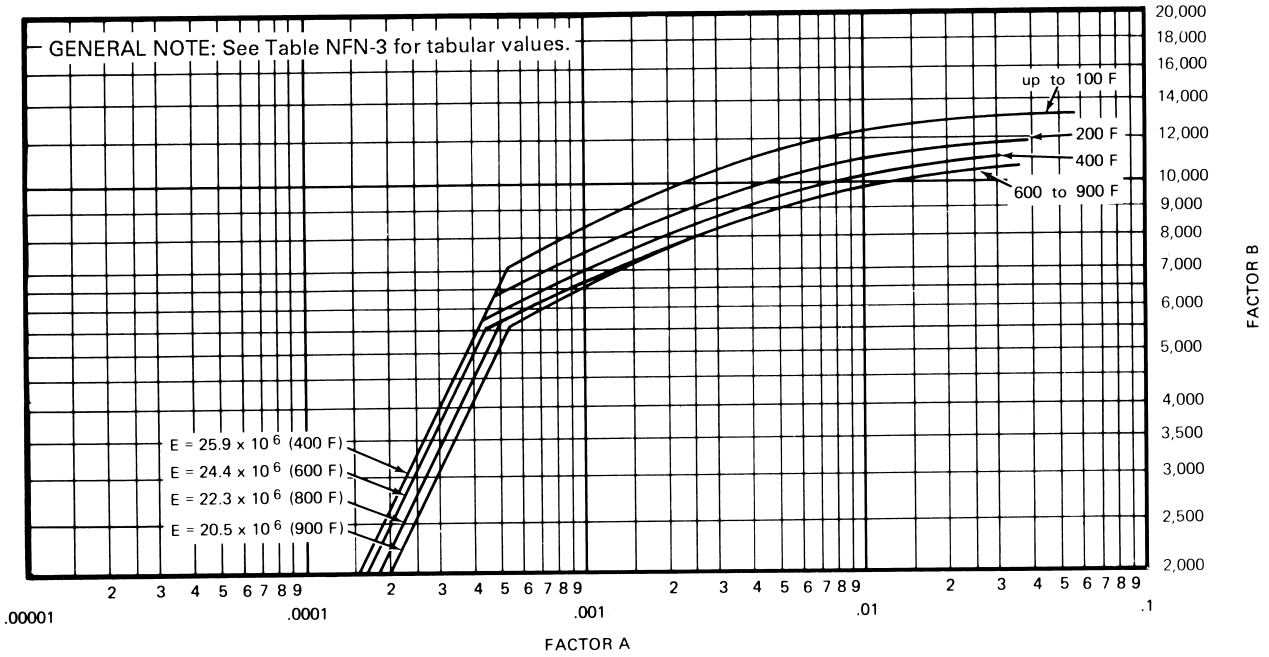

FIG. NFN-3 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF ANNEALED NICKEL–COPPER ALLOY N04400 [Note (7)]

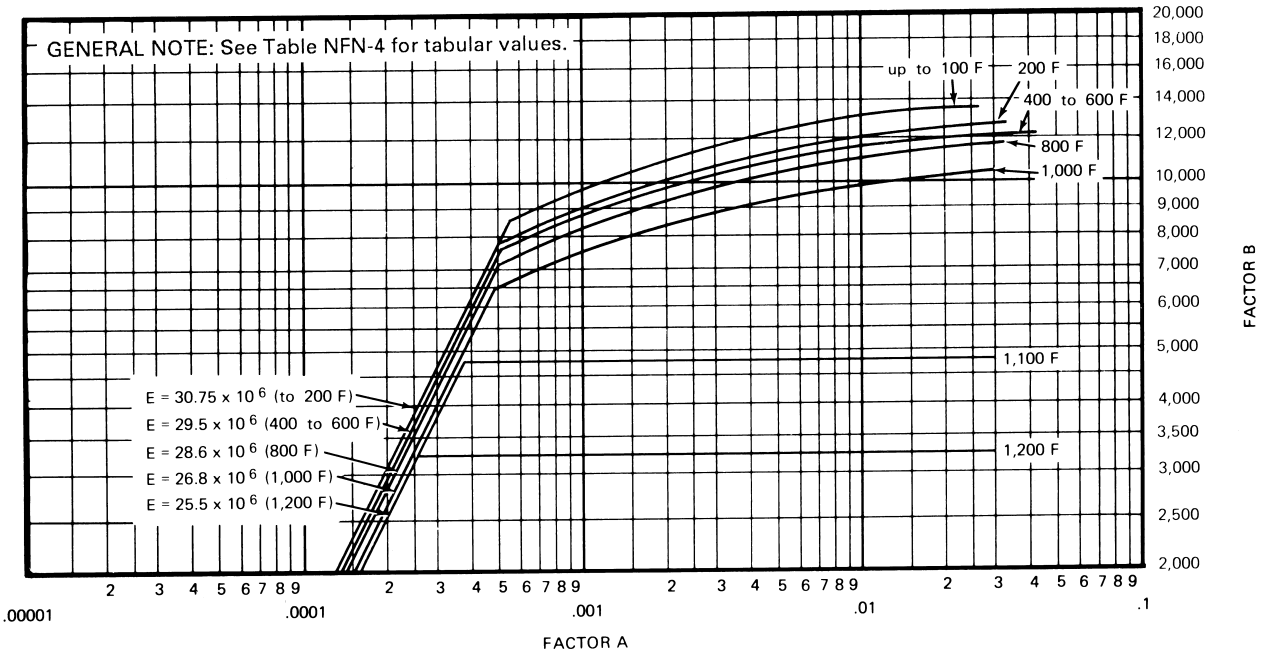

FIG. NFN-4 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF ANNEALED NICKEL–CHROMIUM–IRON ALLOY N06600 [Note (7)]

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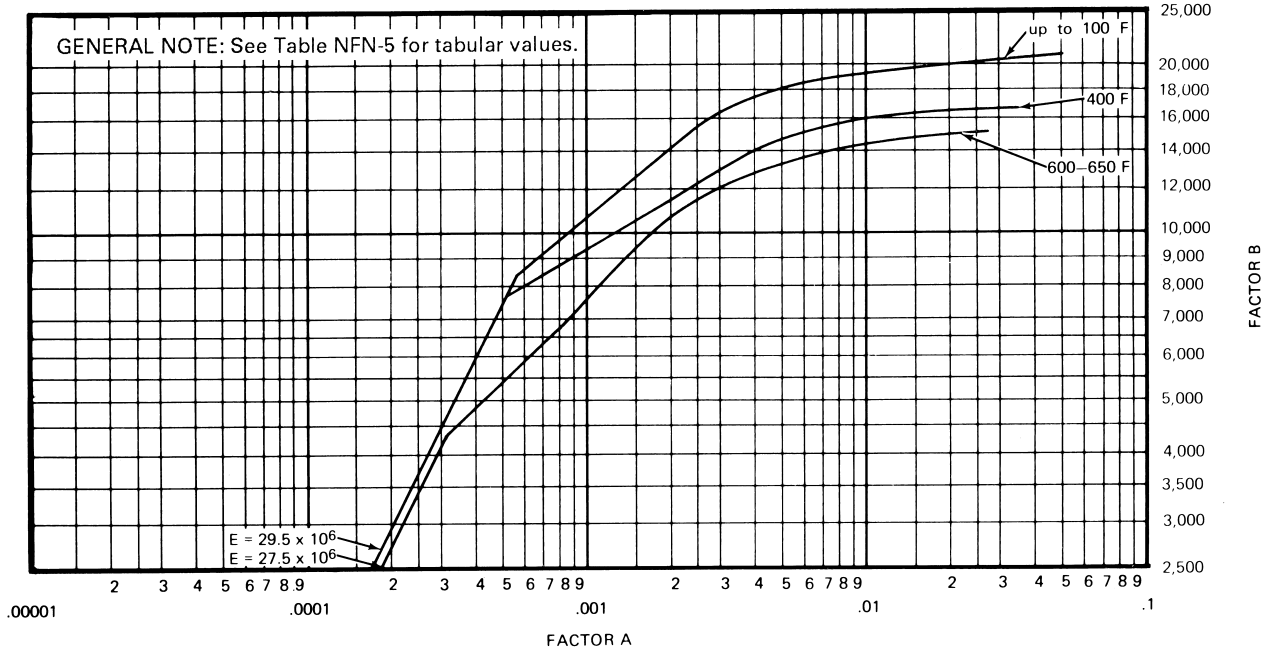

FIG. NFN-5 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF NICKEL–MOLYBDENUM ALLOY N10001 [Note (7)]

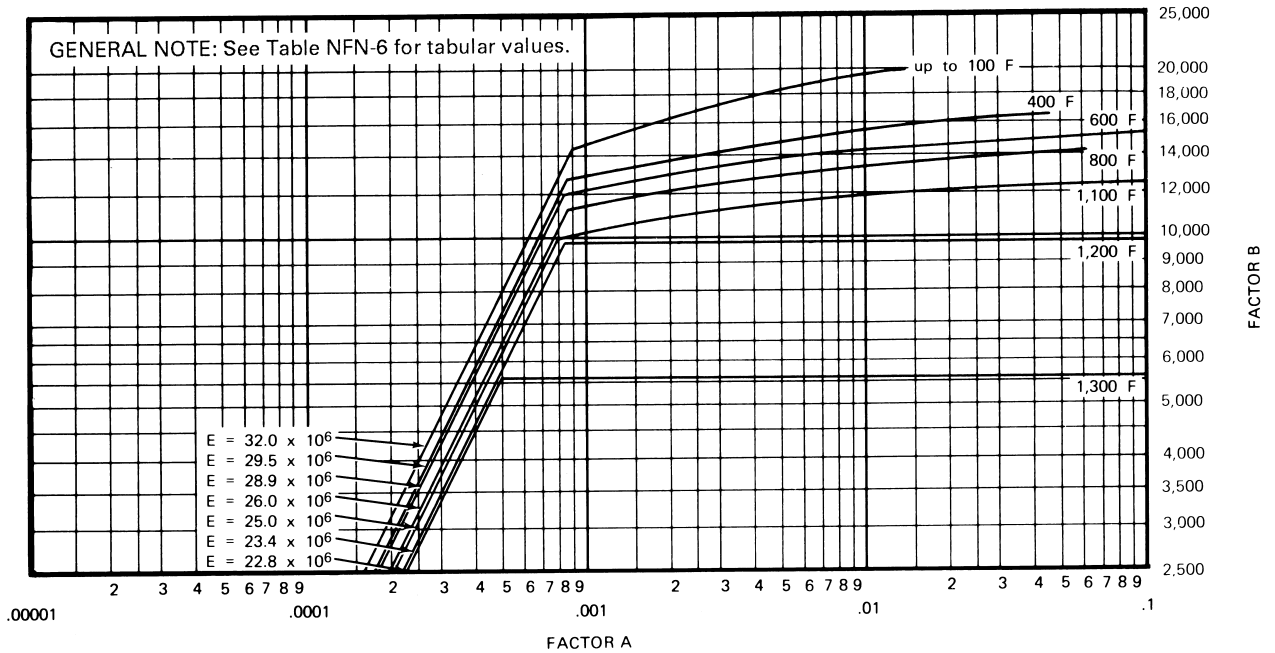

FIG. NFN-6 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF NICKEL–MOLYBDENUM–CHROMIUM–IRON ALLOY N10003 [Note (7)]

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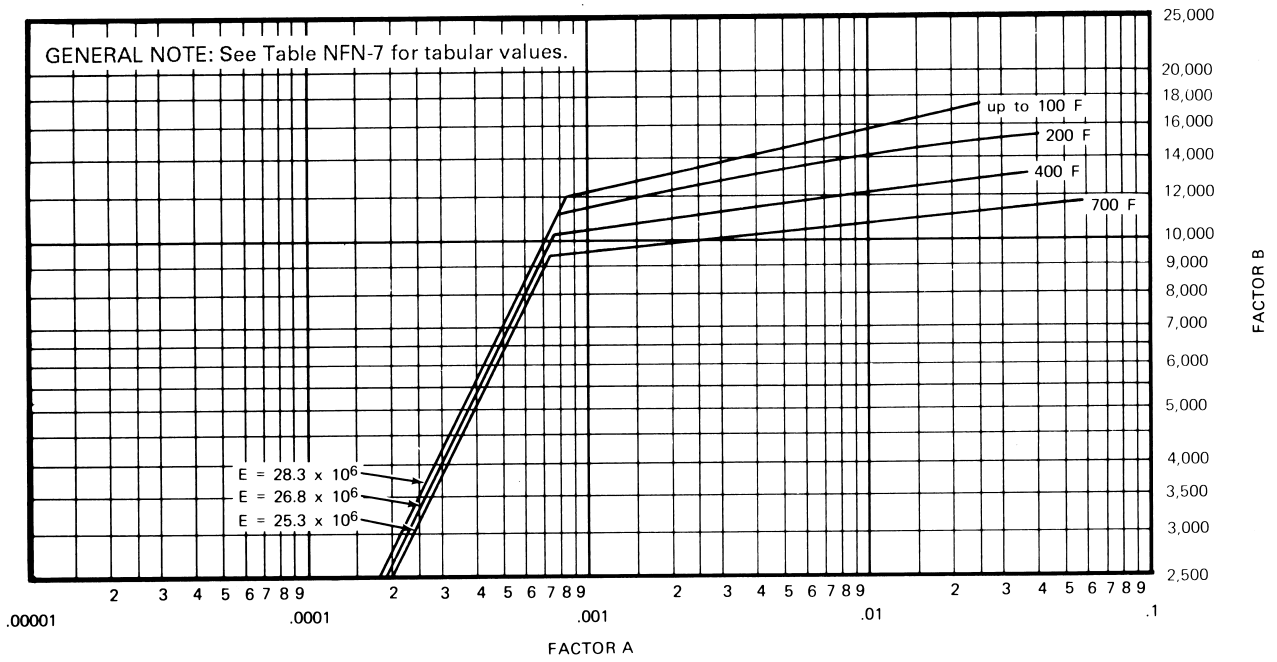

FIG. NFN-7 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF NICKEL–IRON–CHROMIUM–MOLYBDENUM–COPPER ALLOY [Note (7)]

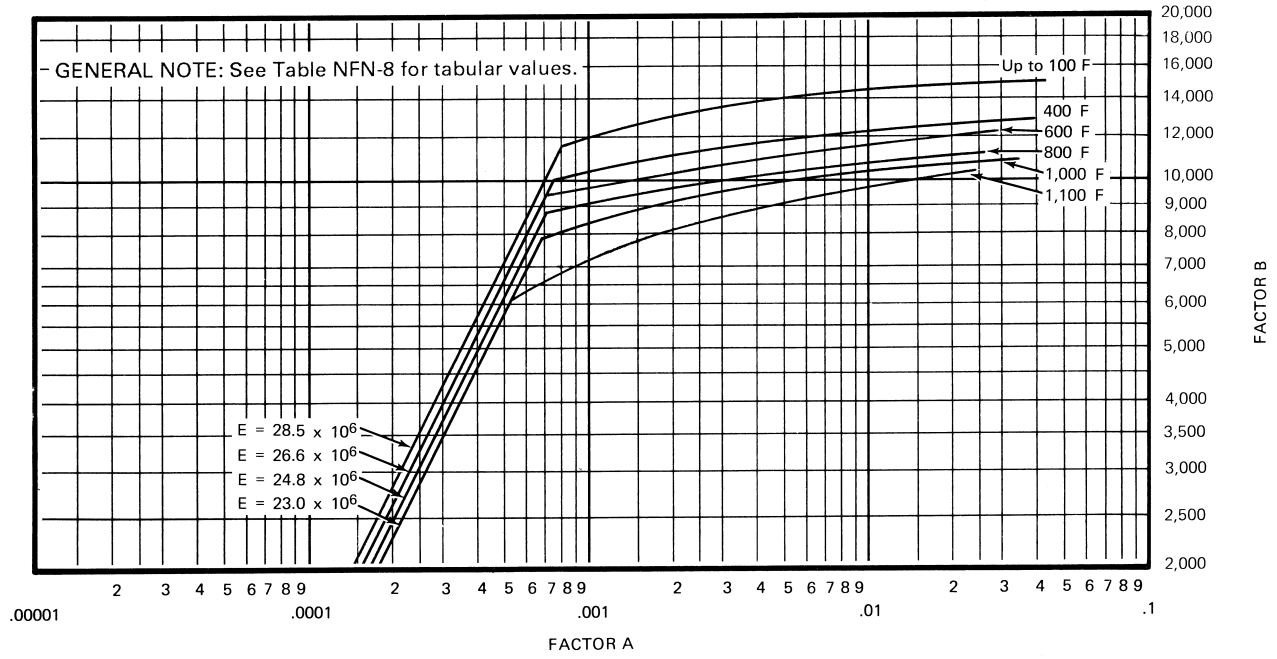

FIG. NFN-8 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF NICKEL–IRON–CHROMIUM ALLOY N08800 (Annealed) [Note (7)]

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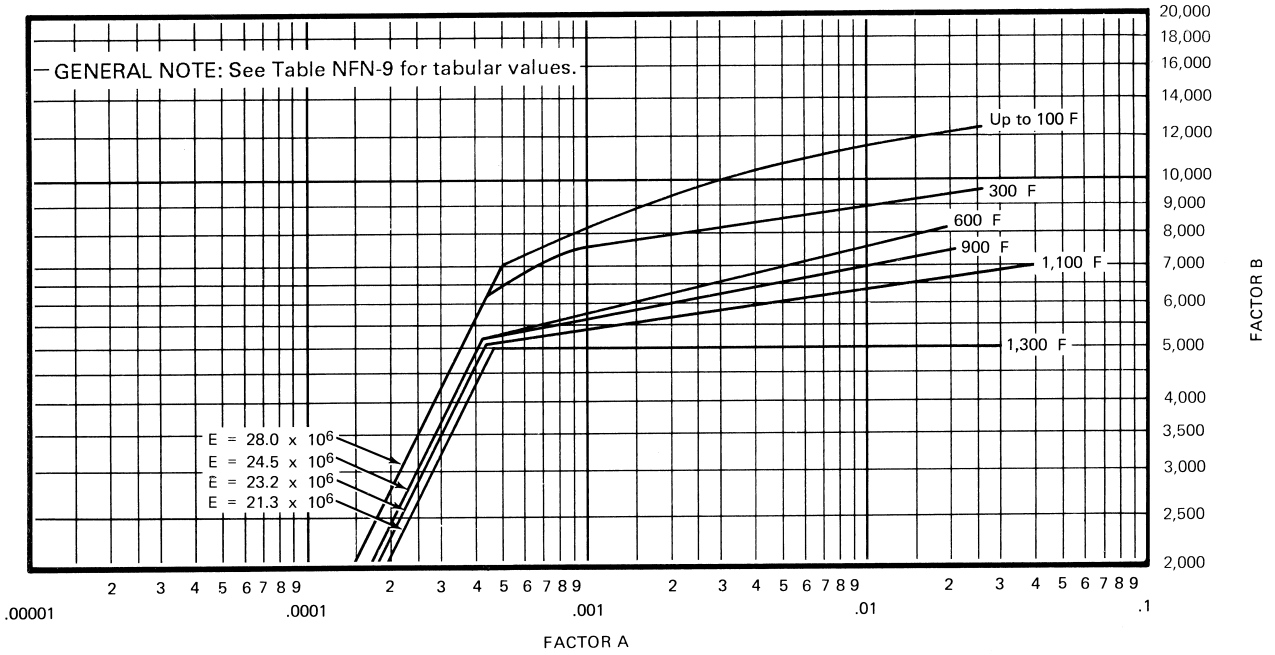

FIG. NFN-9 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF NICKEL–IRON–CHROMIUM ALLOY N08810 (Annealed) [Note (7)]

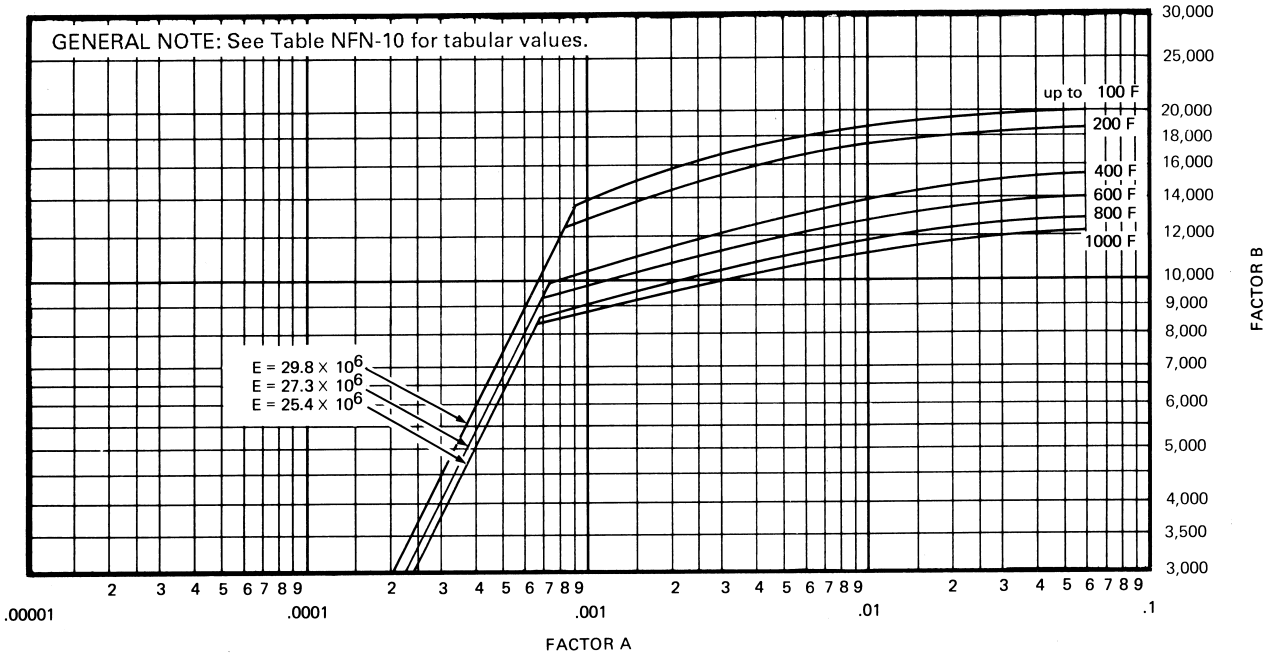

FIG. NFN-10 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF LOW CARBON NICKEL–MOLYBDENUM–CHROMIUM ALLOY N10276 [Note (7)]

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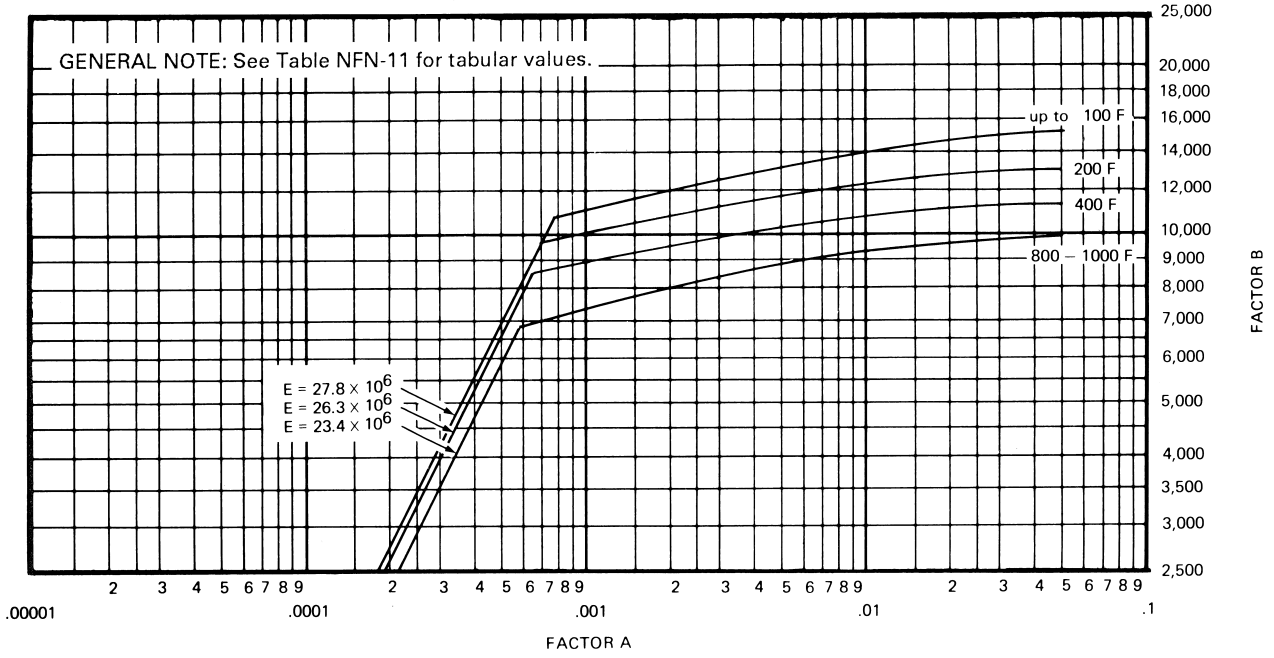

FIG. NFN-11 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF SOLUTION TREATED NICKEL–CHROMIUM–IRON–MOLYBDENUM–COPPER ALLOYS N06007 AND N06975 [Note (7)]

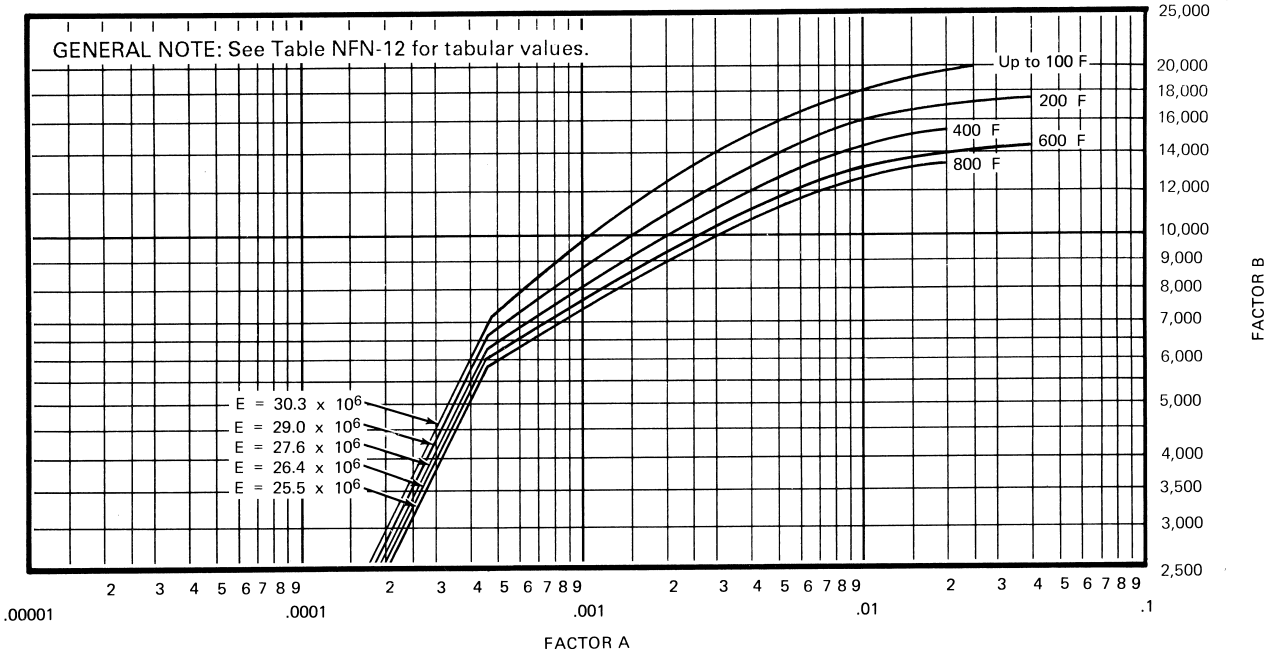

FIG. NFN-12 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF WROUGHT CHROMIUM–NICKEL–IRON–MOLYBDENUM–COPPER–COLUMBIUM STABILIZED ALLOY N08020 AND IRON–NICKEL–CHROMIUM–MOLYBDENUM ALLOY N08367, SB-462, SB-463, SB-464, SB-468, AND SB-473 [Note (7)]

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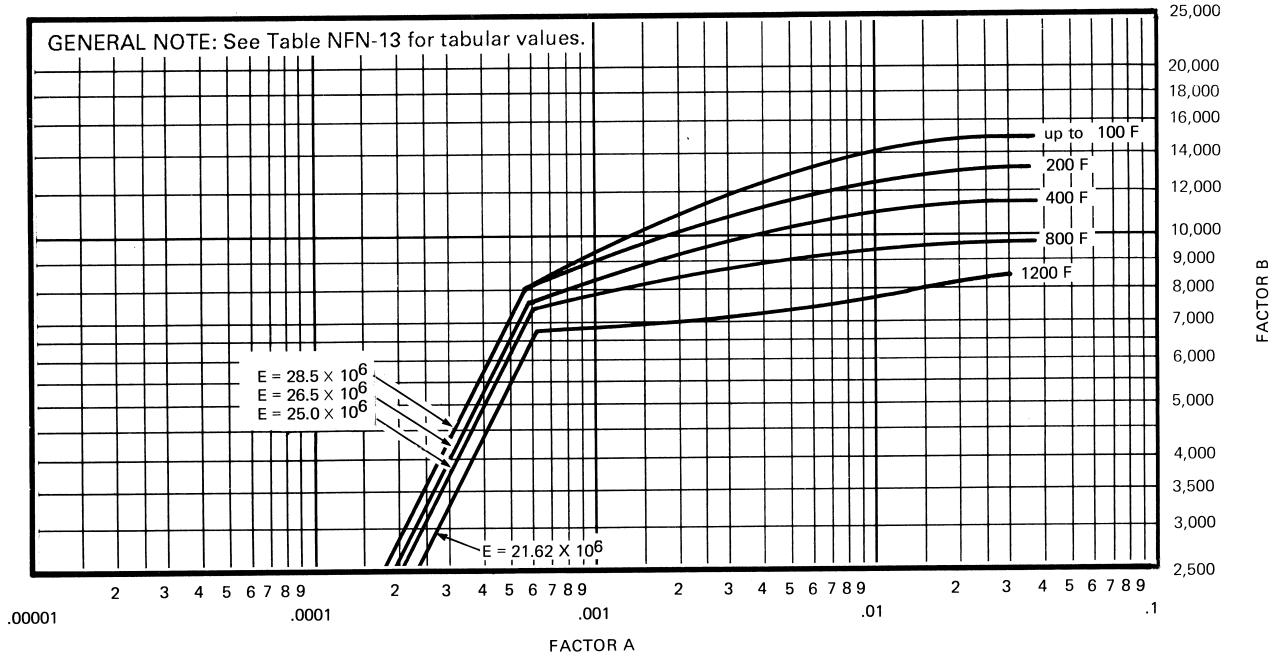

FIG. NFN-13 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF NICKEL–IRON–CHROMIUM–SILICON ALLOY N08330

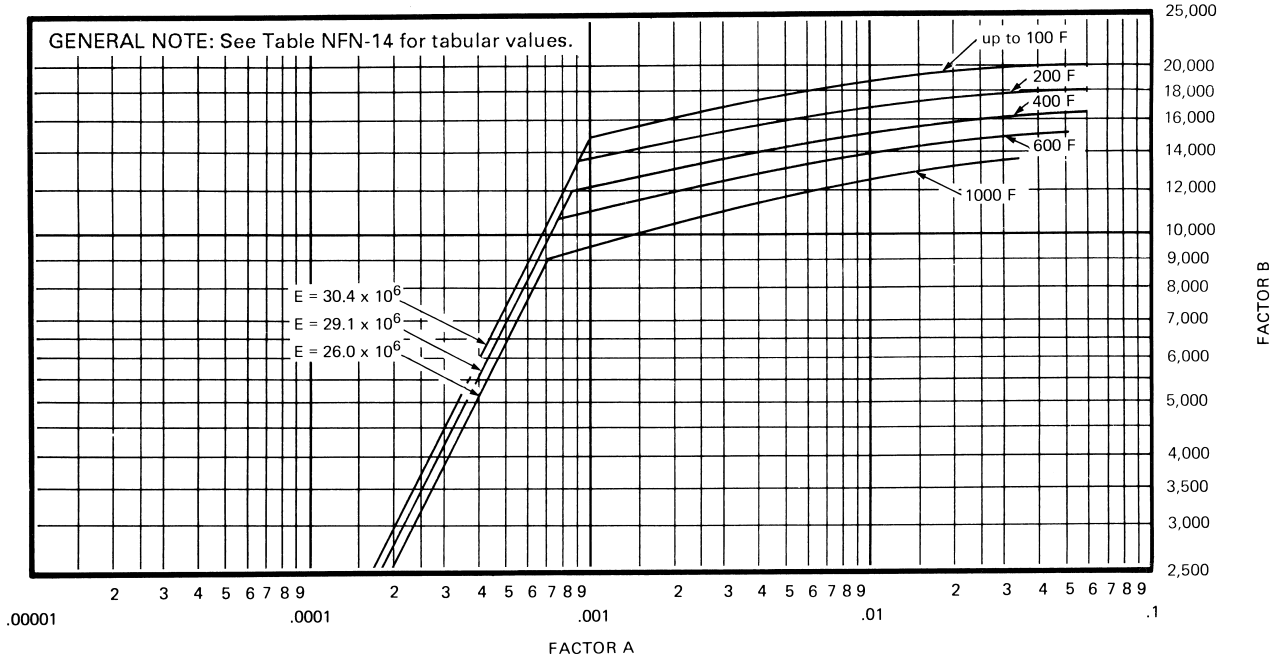

FIG. NFN-14 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF NICKEL–CHROMIUM–MOLYBDENUM ALLOY N06455

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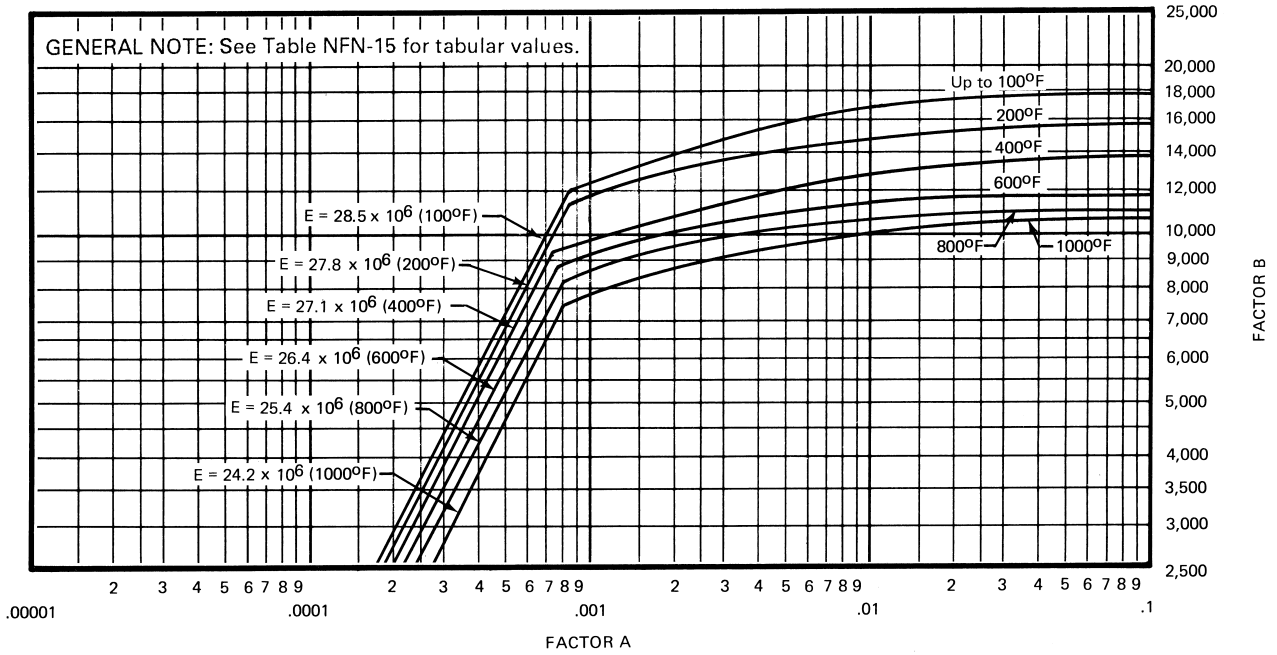

FIG. NFN-15 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF NICKEL–MOLYBDENUM ALLOY N06002 [Note (7)]

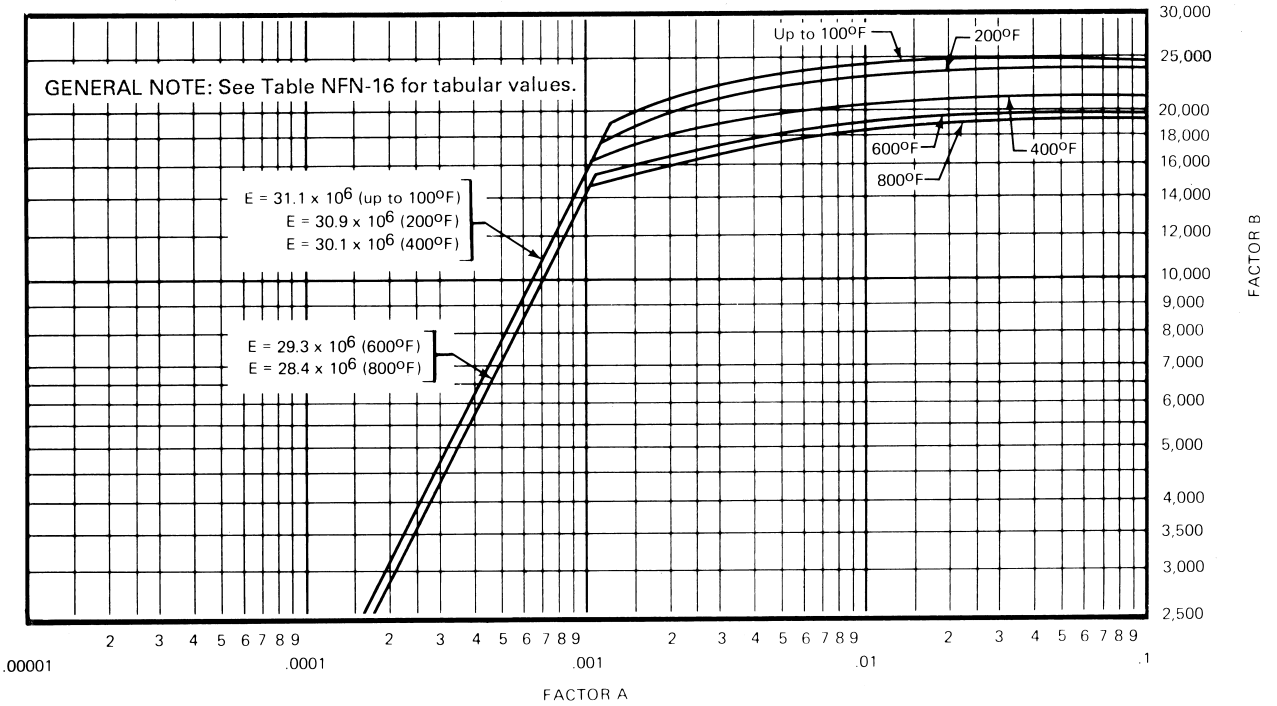

FIG. NFN-16 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF NICKEL–MOLYBDENUM ALLOY N10665 [Note (7)]

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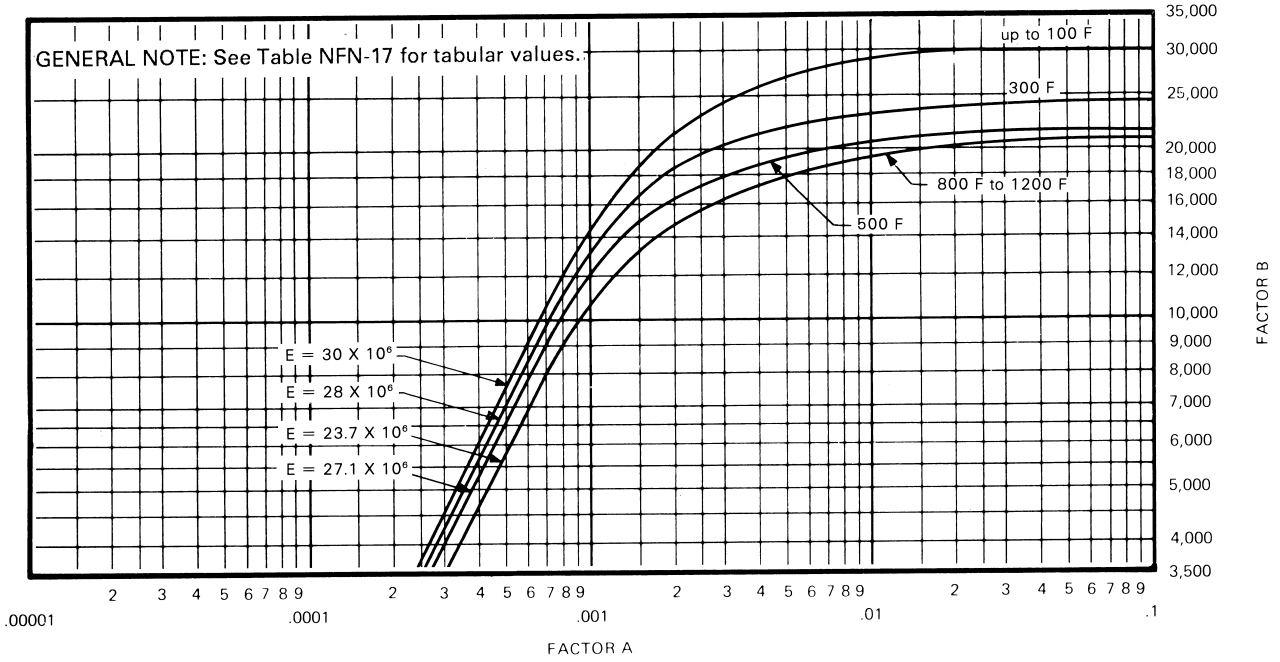

FIG. NFN-17 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF ANNEALED NICKEL–CHROMIUM–MOLYBDENUM–COLUMBIUM ALLOY N06625 (SB-443, SB-444, and SB-446 in Alloy 625) [Note (7)]

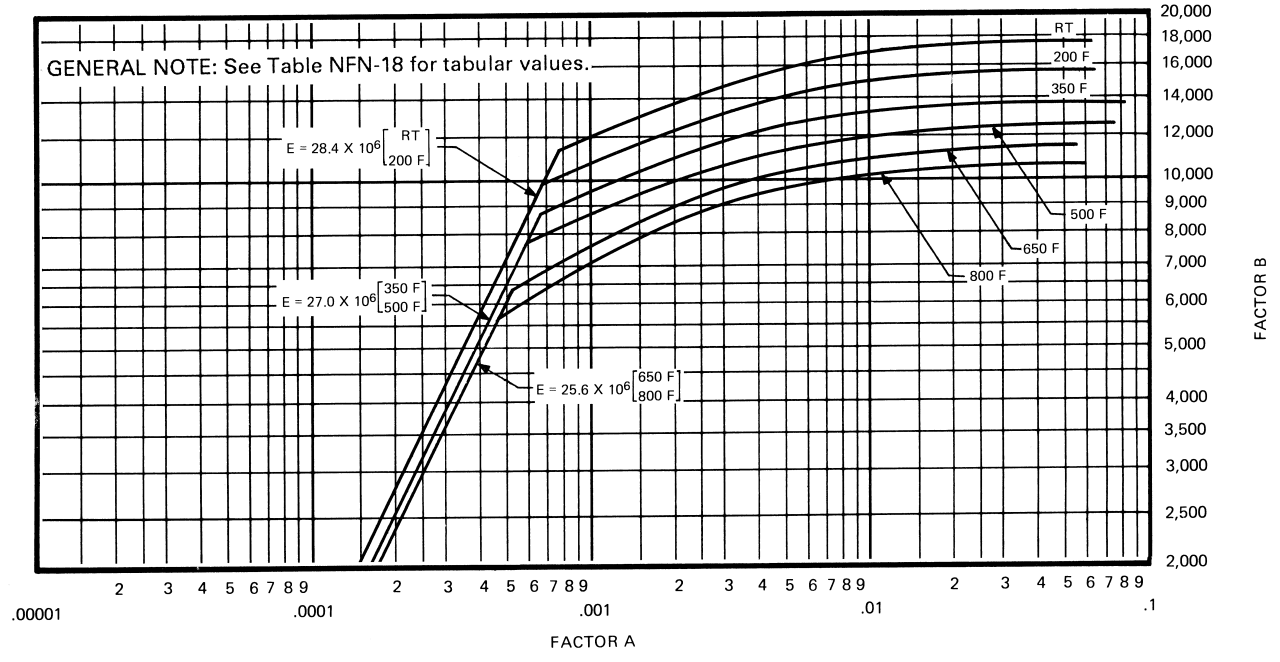

FIG. NFN-18 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF NICKEL–MOLYBDENUM–CHROMIUM–IRON–COPPER ALLOY N06985 WHOSE THICKNESS IS $\frac{3}{4}$ in. AND UNDER HAVING A MINIMUM YIELD STRENGTH OF 35 ksi

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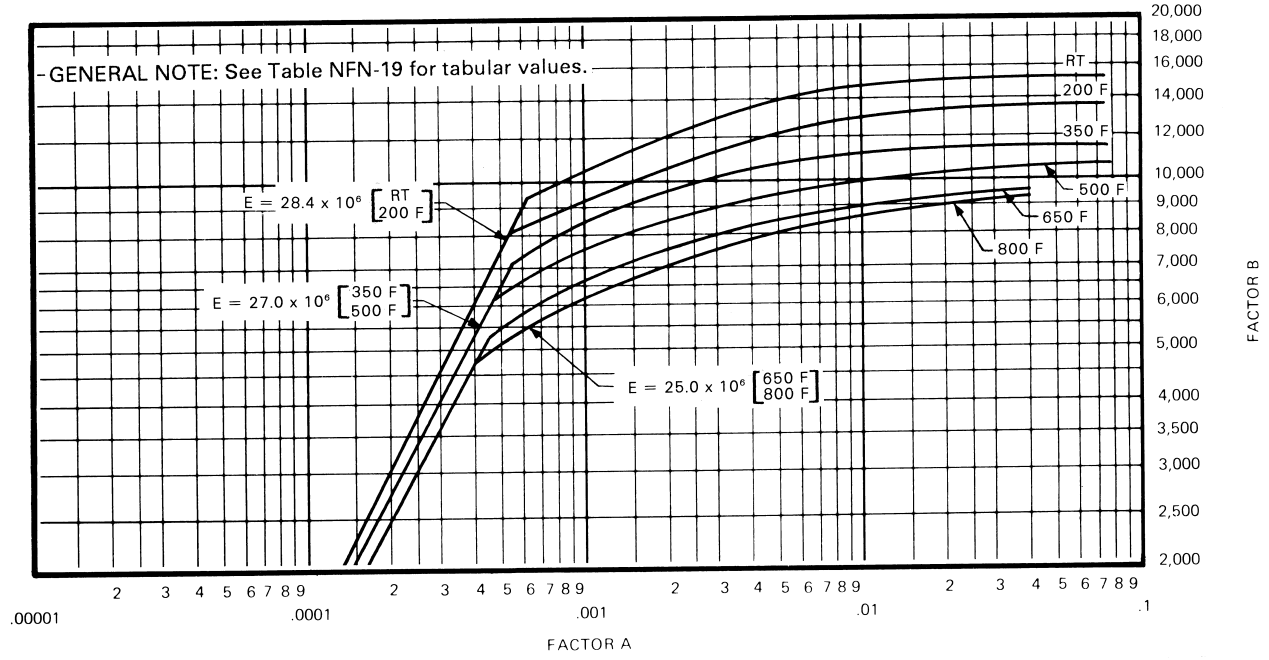

FIG. NFN-19 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF NICKEL–MOLYBDENUM–CHROMIUM–IRON–COPPER ALLOY N06985 WHOSE THICKNESS IS GREATER THAN 3/4 in. HAVING A MINIMUM YIELD STRENGTH OF 30 ksi

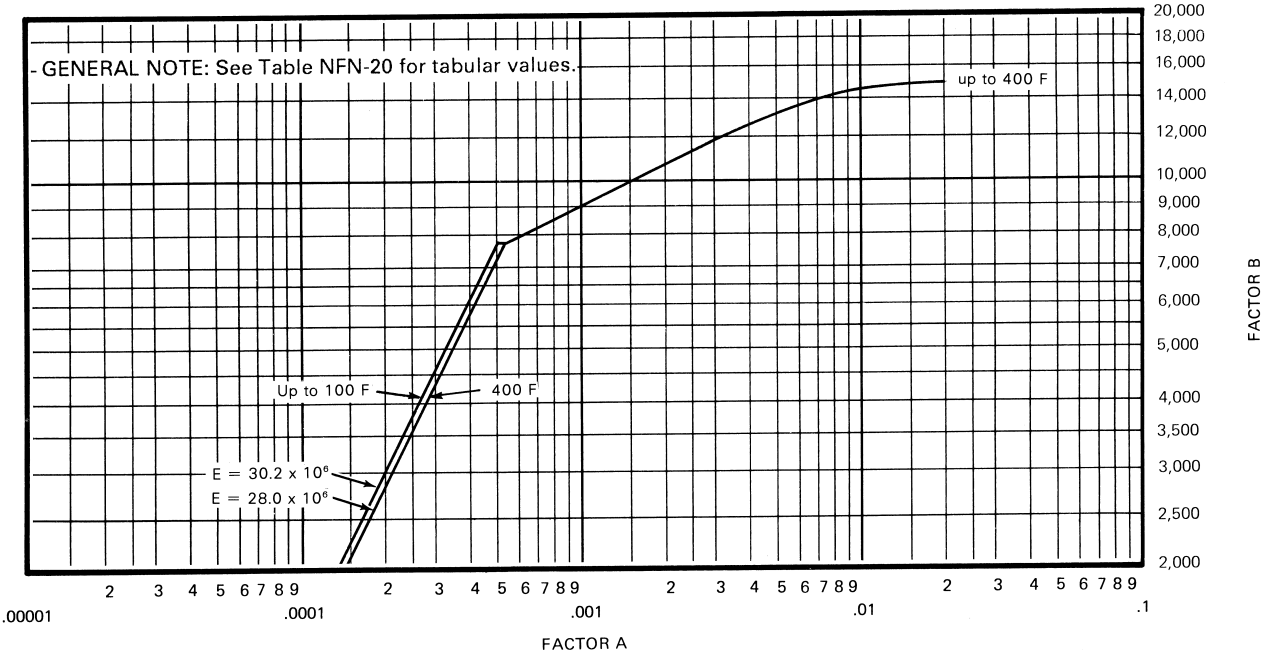

FIG. NFN-20 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF WORK-HARDENED NICKEL [Note (10)]

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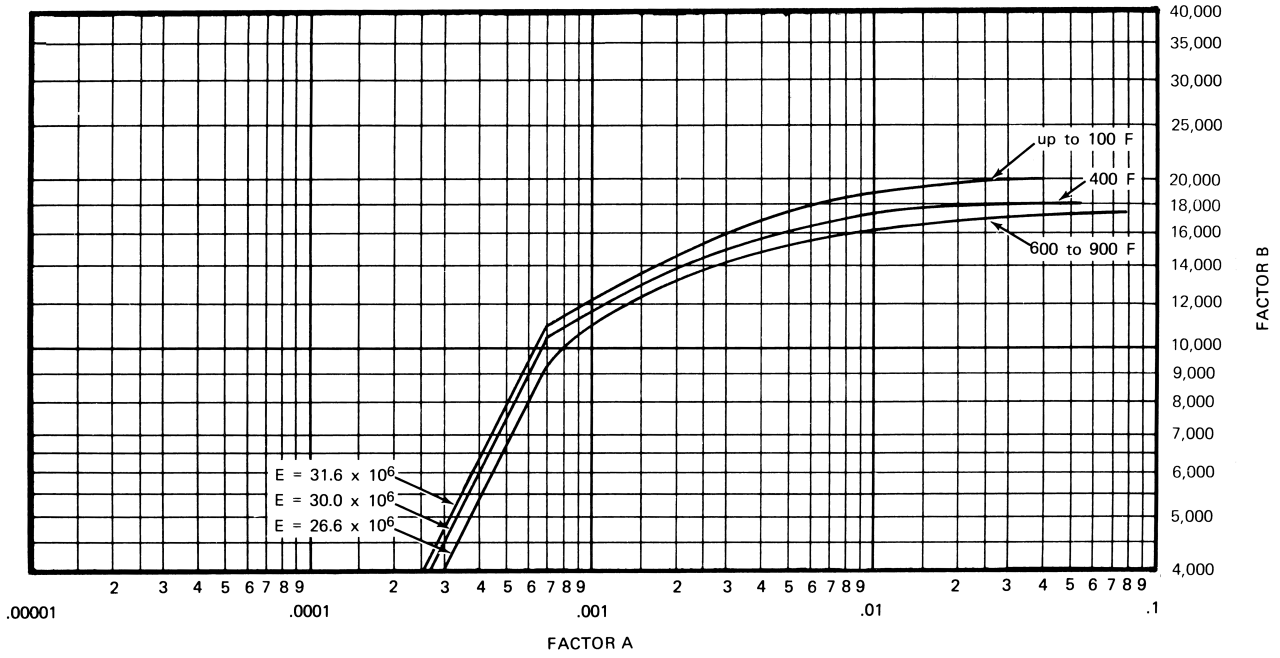
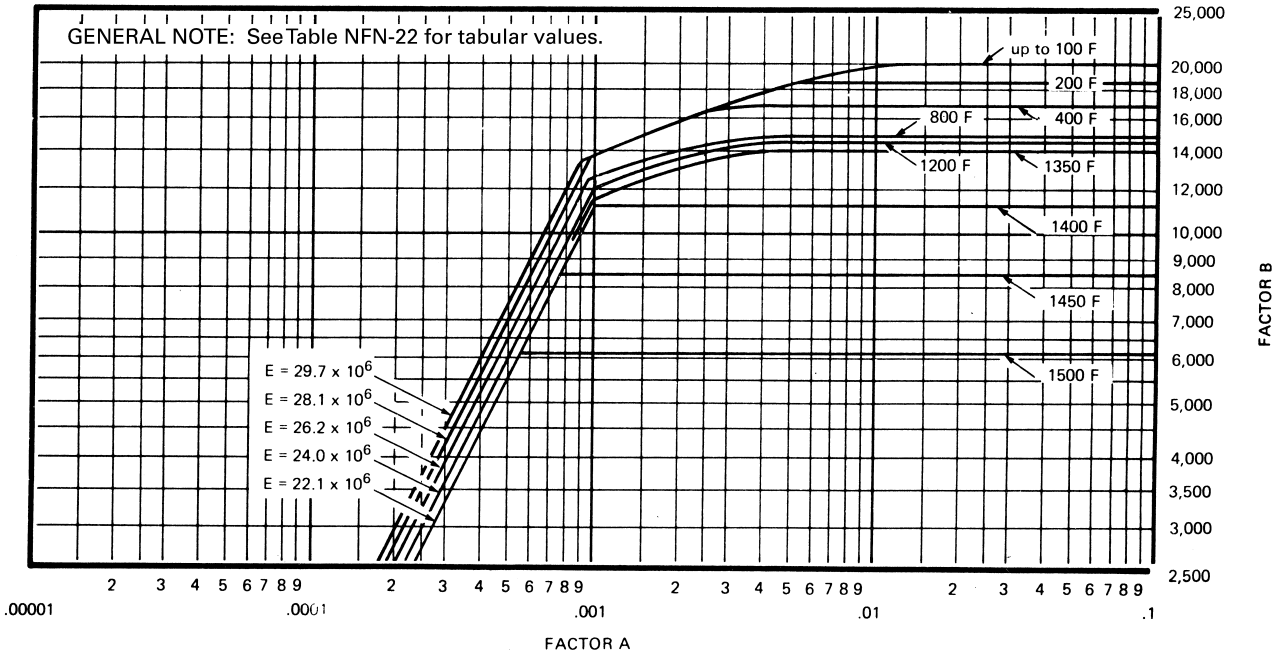


FIG. NFN-21 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF NICKEL–CHROMIUM–IRON ALLOYS N06600 AND N06690, SB-163
(Specified Minimum Yield Strength 40,000 psi)



01 FIG. NFN-22 CHART FOR DETERMINING SHELL THICKNESS OF CYLINDRICAL AND SPHERICAL VESSELS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF SOLUTION ANNEALED Ni–Cr–Mo–Cb ALLOY, GRADE 2 N06625 [Note (12)]

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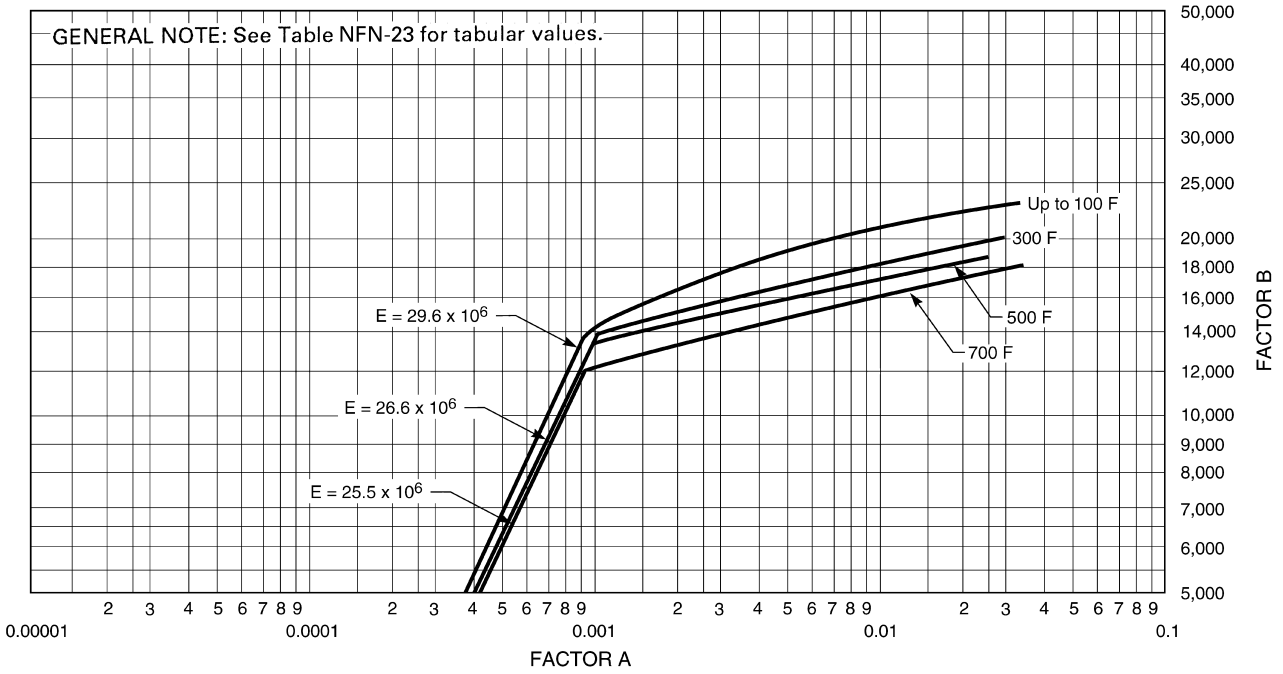

FIG. NFN-23 CHART FOR DETERMINING SHELL THICKNESS OF CYLINDRICAL AND SPHERICAL VESSELS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF NICKEL–IRON–CHROMIUM ALLOY 800
(Cold Worked)

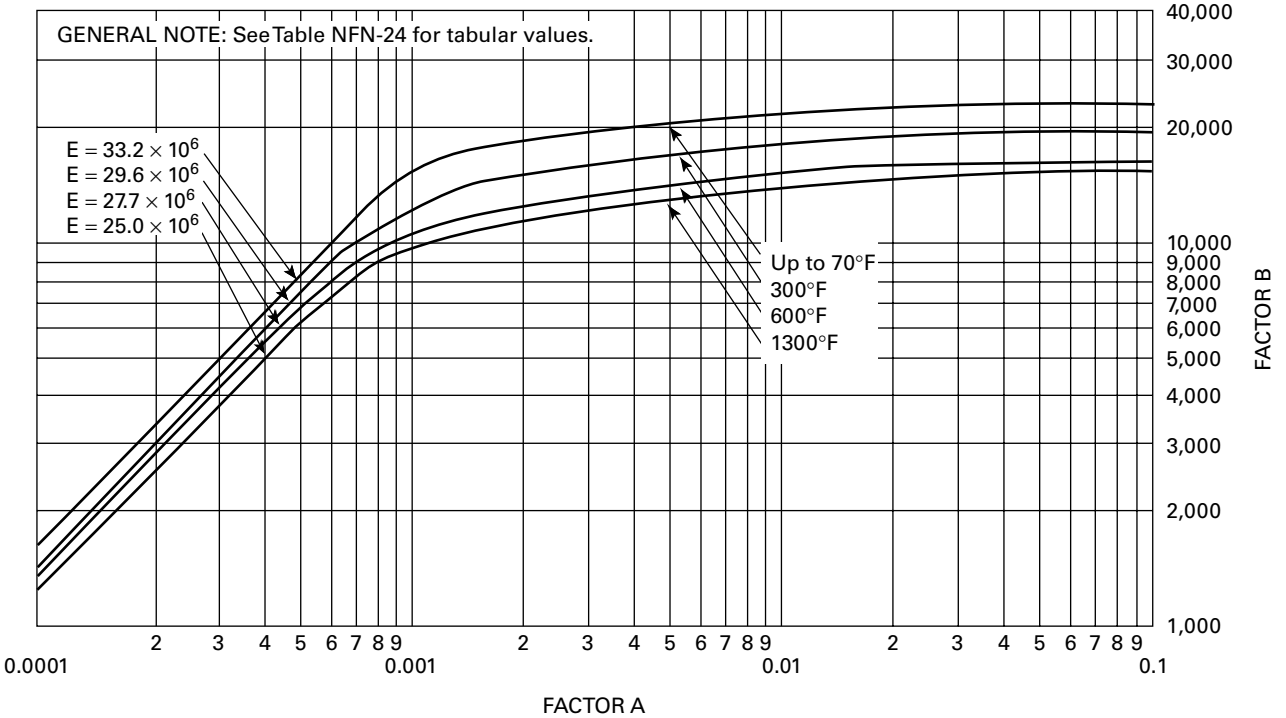

FIG. NFN-24 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF NICKEL ALLOY UNS N06230 [Note (4)]

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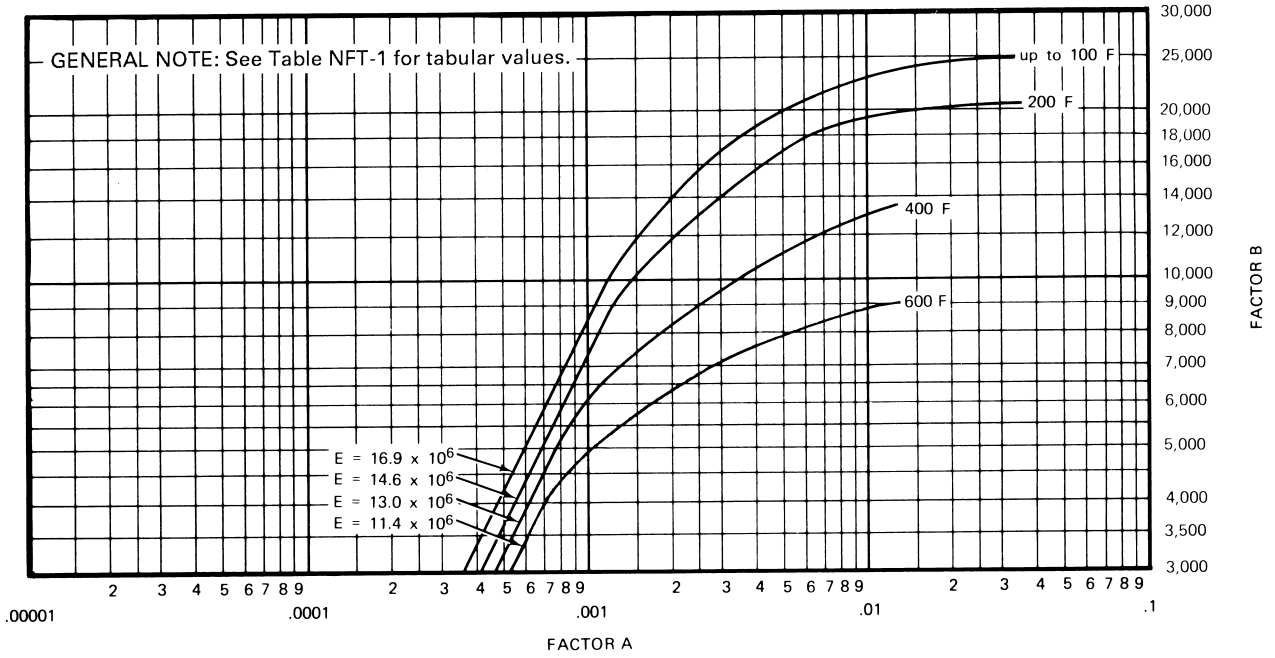

FIG. NFT-1 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF UNALLOYED TITANIUM, GRADE 3 [Note (7)]

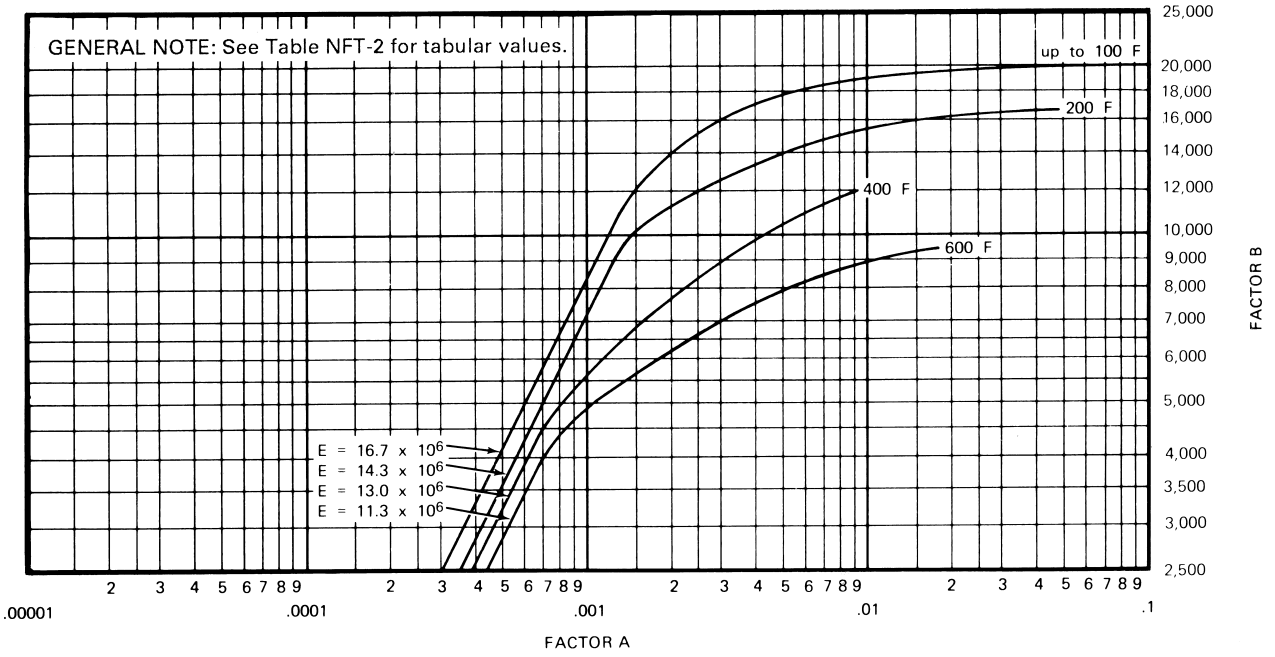

FIG. NFT-2 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF UNALLOYED TITANIUM, GRADE 2 [Note (7)]

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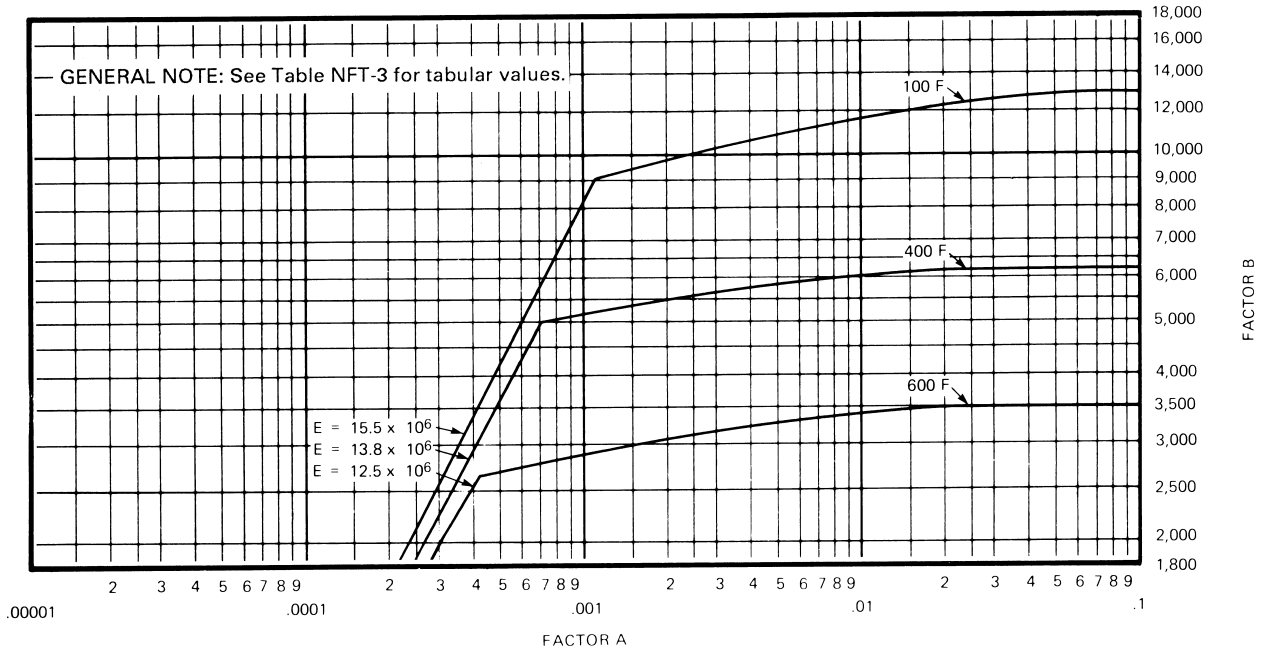

FIG. NFT-3 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF TITANIUM, GRADE 1

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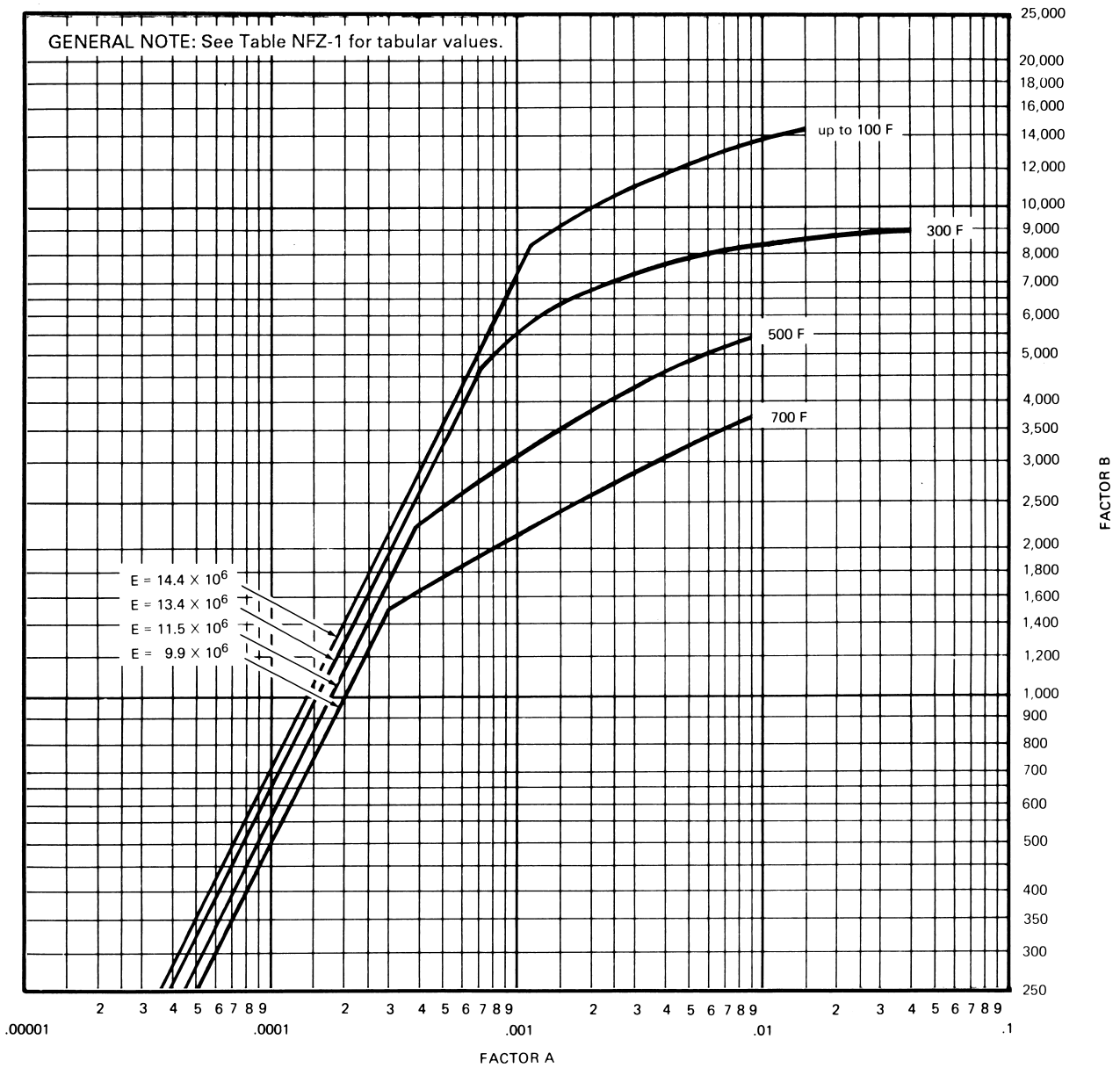

FIG. NFZ-1 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF ZIRCONIUM ALLOY 702 [Note (11)]

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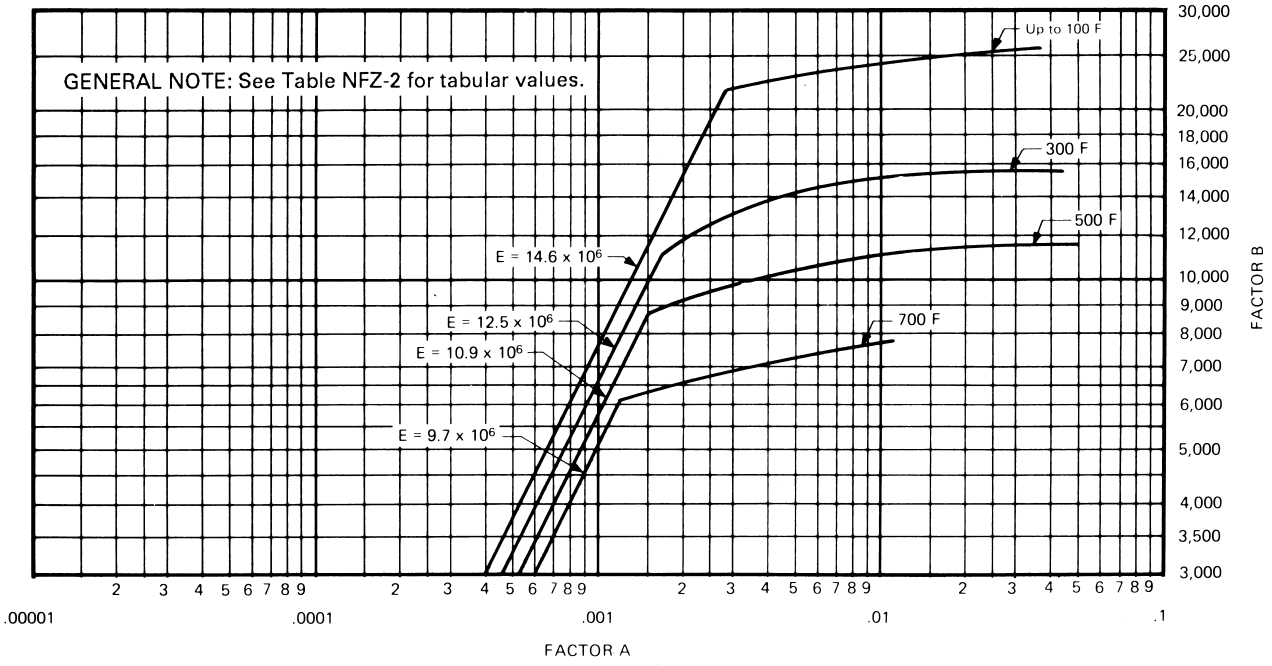

FIG. NFZ-2 CHART FOR DETERMINING SHELL THICKNESS OF COMPONENTS UNDER EXTERNAL PRESSURE WHEN CONSTRUCTED OF ZIRCONIUM ALLOY 705 (R60705)

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01 NOTES TO FIGURES OF SUBPART 3:

GENERAL NOTE:
The external pressure charts do not account for reduction of buckling strength due to creep under long-term loads. The effect of creep on buckling shall be considered at temperatures for which allowable stresses are shown italicized in Tables 1A and 1B.

NOTES:
(1) See Tables 1A and 2A for applicable specification numbers.
(2) See Table Y-1 for values of tabulated yield strength at design temperature.
(3) When tabulated yield strength values are less than 38,000 psi for the material covered by this chart, Fig. CS-2 may be used. (Tabulated yield strength values take priority over specified minimum yield strength values.)
(4) The external pressure chart does not account for reduction of buckling strength due to creep under long-term loads at temperatures above 1000°F.
(5) See Section VIII, Division 1, Table UCI-23 for applicable specification numbers.
(6) See Section VIII, Division 1, Table UCD-23 for applicable specification numbers.
(7) See Tables 1B and 2B for applicable specification numbers for Section VIII, Divisions 1 and 2, respectively.
(8) For Section III application, maximum use limit is 250°F, except for SB-209/3003/H112/0.250–0.499 and 0.500–3.0 use limits are 300°F and 200°F, respectively. Use 300°F curve for interpolation only.
(9) For Section III application, maximum use limit is 250°F, except for SB-210 use limit is 300°F. Use 300°F curve for interpolation only.
(10) Vessels constructed of material covered by this chart must be subjected to an external hydrostatic test pressure of three times the maximum allowable working pressure. Thicknesses determined by this chart are minimum, and greater thickness may be required to withstand the test pressure if the planishing used does not provide an adequate degree of work-hardening.
(11) See Table 1B for applicable specification numbers.
(12) The external pressure chart does not account for reduction of buckling strength due to creep under long-term loads at temperatures above 1200°F.

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TABLE G
TABULAR VALUES FOR FIG. G

D_o/T	L/D_o	A	D_o/T	L/D_o	A	D_o/T	L/D_o	A	D_o/T	L/D_o	A	D_o/T	L/D_o	A
4	2.2	0.959 −01	8	3.0	0.212 −01	20	0.8	0.203 −01	30	3.0	0.246 −02	50	6.0	0.548 −03	80	4.0	0.424 −03
	2.6	0.884		4.0	0.192		1.0	0.156		4.0	0.177		7.0	0.502		6.6	0.241
	3.0	0.839		5.0	0.184		1.2	0.127		4.4	0.161		8.0	0.478		8.0	0.205
	4.0	0.783		7.0	0.179		2.0	0.713 −02		5.0	0.147		10.0	0.458		10.0	0.186
	5.0	0.759		10.0	0.176		3.0	0.446		6.0	0.136		12.0	0.449		14.0	0.176
	7.0	0.739		20.0	0.174		3.4	0.388		7.0	0.130		16.0	0.444		30.0	0.172
	10.0	0.729		50.0	0.174		4.0	0.342		10.0	0.125		40.0	0.440		50.0	0.172
	30.0	0.720					5.0	0.308		30.0	0.122		50.0	0.440			
	50.0	0.720	10	0.56	0.964 −01		7.0	0.287		50.0	0.122	60			100	0.05	0.741 −01
				0.7	0.720		10.0	0.280					0.074	0.954 −01		0.07	0.398
5	1.4	0.929 −01		1.0	0.463		40.0	0.275	40	0.12	0.864 −01		0.10	0.556		0.10	0.220
	1.6	0.802		1.2	0.371		50.0	0.275		0.2	0.385		0.14	0.323		0.14	0.133
	2.0	0.658		2.0	0.201					0.3	0.222		0.2	0.193		0.20	0.831 −02
	2.4	0.586		2.4	0.165	25	0.2	0.877 −01		0.4	0.155		0.4	0.812 −02		0.40	0.364
	3.0	0.532		3.0	0.139		0.3	0.484		0.6	0.958 −02		0.6	0.510		0.5	0.283
	4.0	0.494		4.0	0.124		0.5	0.250		0.8	0.691		0.8	0.371		0.8	0.170
	5.0	0.478		5.0	0.118		0.8	0.143		1.0	0.539		1.0	0.291		1.0	0.134
	7.0	0.465		7.0	0.114		1.0	0.111		1.2	0.441		2.0	0.138		2.0	0.641 −03
	10.0	0.459		10.0	0.112		1.2	0.902 −02		2.0	0.252		3.0	0.886 −03		4.0	0.305
	30.0	0.454		16.0	0.111		2.0	0.508		4.0	0.117 −03		4.0	0.645		6.0	0.195
	50.0	0.453		50.0	0.111		3.0	0.323		5.0	0.912 −03		6.0	0.409		8.0	0.142
							3.4	0.278		6.0	0.804		7.0	0.364		10.0	0.124
6	1.2	0.837 −01	15	0.34	0.968 −01		4.0	0.235		7.0	0.756		8.0	0.341		14.0	0.114
	1.6	0.584		0.4	0.770		4.4	0.219		8.0	0.731		10.0	0.322		25.0	0.110
	2.0	0.469		0.6	0.453		5.0	0.204		10.0	0.708		14.0	0.310		50.0	0.110
	2.4	0.411		1.0	0.244		6.0	0.191		16.0	0.692		40.0	0.306			
	3.0	0.369		1.2	0.197		7.0	0.186		40.0	0.688		50.0	0.306	125	0.05	0.480 −01
	4.0	0.341		2.0	0.109		10.0	0.180		50.0	0.688					0.06	0.344
	5.0	0.329		2.4	0.890 −02		30.0	0.176				80	0.054	0.990 −01		0.08	0.210
	7.0	0.320		3.0	0.691		50.0	0.176	50	0.088	0.930 −01		0.07	0.608		0.10	0.148
	10.0	0.316		4.0	0.573					0.1	0.782		0.09	0.391		0.14	0.917 −02
	30.0	0.312		5.0	0.534	30	0.16	0.904 −01		0.2	0.263		0.10	0.328		0.2	0.578
	50.0	0.312		6.0	0.516		0.2	0.635		0.3	0.154		0.14	0.196		0.4	0.257
				10.0	0.497		0.3	0.357		0.4	0.108		0.20	0.120		0.6	0.165
8	0.74	0.968 −01		40.0	0.490		0.4	0.246		0.6	0.677 −02		0.24	0.950 −02		0.8	0.121
	0.8	0.875		50.0	0.490		0.6	0.150		0.8	0.490		0.4	0.516		1.0	0.955 −03
	1.0	0.660					0.8	0.108		1.0	0.384		0.6	0.328		2.0	0.459
	1.6	0.372	20	0.24	0.982 −01		1.0	0.838 −02		2.0	0.181		0.8	0.239		4.0	0.220
	2.0	0.285		0.4	0.477		1.2	0.683		4.0	0.842 −03		1.0	0.188		6.0	0.141
	2.4	0.242		0.6	0.286		2.0	0.388		5.0	0.652		2.0	0.895 −03		9.0	0.904 −04

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TABLE G (CONT'D)
TABULAR VALUES FOR FIG. G

D_o/T	L/D_o	A	D_o/T	L/D_o	A	D_o/T	L/D_o	A	D_o/T	L/D_o	A	D_o/T	L/D_o	A
125	10.0	0.837 −04	200	0.08	0.909 −02	250	2.0	0.163 −03	300	40.0	0.123 −04	500	0.6	0.199 −03	800	0.10	0.682 −03
	12.0	0.770		0.10	0.659		4.0	0.789 −04		50.0	0.122		0.8	0.148		0.12	0.551
	14.0	0.740		0.14	0.421		6.0	0.513					1.0	0.118		0.16	0.398
	20.0	0.713		0.2	0.272		8.0	0.377	400	0.05	0.549 −02		2.0	0.579 −04		0.2	0.312
	40.0	0.704		0.3	0.171		10.0	0.293		0.06	0.417		4.0	0.282		0.4	0.149
	50.0	0.704		0.5	0.976 −03		12.0	0.238		0.08	0.278		6.0	0.185		0.6	0.980 −04
				0.8	0.592		14.0	0.210		0.10	0.208		8.0	0.137		0.8	0.728
150	0.05	0.338 −01		1.0	0.469		16.0	0.196		0.12	0.166		10.0	0.107		1.0	0.580
	0.06	0.244		2.0	0.227		20.0	0.184		0.16	0.118		12.0	0.880 −05		2.0	0.286
	0.08	0.151		4.0	0.110 −04		40.0	0.176		0.2	0.914 −03					4.0	0.140
	0.10	0.108		6.0	0.711		50.0	0.176		0.4	0.429	600	0.05	0.270 −02		5.0	0.112
	0.12	0.833 −02		8.0	0.520					0.6	0.280		0.06	0.208		5.6	0.992 −05
	0.16	0.569		10.0	0.403	300	0.05	0.923 −02		0.8	0.207		0.08	0.142			
	0.2	0.431		12.0	0.338		0.06	0.690		1.0	0.165		0.10	0.108			
	0.4	0.194		14.0	0.309		0.08	0.452		2.0	0.808 −04		0.12	0.868 −03			
	0.6	0.125		16.0	0.295		0.10	0.334		4.0	0.393		0.16	0.624			
	1.0	0.726 −03		20.0	0.283		0.12	0.264		6.0	0.257		0.2	0.486			
	2.0	0.349		40.0	0.275		0.2	0.143		8.0	0.189		0.4	0.231	1000	0.05	0.113 −02
	4.0	0.168		50.0	0.275		0.4	0.666 −03		10.0	0.148		0.6	0.151		0.06	0.891 −03
	6.0	0.108					0.6	0.433		14.0	0.102		0.8	0.112		0.07	0.733
	8.0	0.787 −04	250	0.05	0.129 −01		0.8	0.321		16.0	0.882 −05		1.0	0.894 −04		0.09	0.541
	10.0	0.619		0.06	0.955 −02		1.0	0.254					2.0	0.439		0.12	0.388
	12.0	0.553		0.08	0.617		2.0	0.124	500	0.05	0.370 −02		4.0	0.216		0.16	0.282
	16.0	0.510		0.10	0.452		4.0	0.602 −04		0.06	0.284		6.0	0.141		0.2	0.221
	20.0	0.498		0.14	0.293		6.0	0.393		0.08	0.192		8.0	0.104		0.4	0.106
	40.0	0.489		0.2	0.191		8.0	0.287		0.10	0.145		8.4	0.988 −05		0.7	0.596 −04
	50.0	0.489		0.4	0.881 −03		10.0	0.225		0.12	0.116					1.0	0.414
				0.6	0.572		14.0	0.156		0.16	0.830 −03	800	0.05	0.165 −02		2.0	0.204
200	0.05	0.196 −01		0.8	0.422		16.0	0.142		0.2	0.645		0.06	0.129		4.0	0.101
	0.06	0.143		1.0	0.335		20.0	0.130		0.4	0.305		0.08	0.892 −03		4.2	0.957 −05

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TABLE CS-1
TABULAR VALUES FOR FIG. CS-1

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
300	0.135 −04	0.200 +03	700	0.900	0.650
	0.645 −03	0.940 +04		0.100 −02	0.665
	0.700	0.990		0.150	0.725
	0.800	0.105 +05		0.200	0.760
	0.900	0.109		0.212 −01	0.110 +05
	0.100 −02	0.112		0.100 +00	0.110
	0.150	0.119			
	0.200	0.123	800	0.178 −04	0.200 +03
	0.950	0.138		0.367 −03	0.416 +04
	0.200 −01	0.138		0.400	0.435
	0.100 +00	0.138		0.500	0.465
				0.600	0.485
500	0.143 −04	0.200 +03		0.700	0.510
	0.513 −03	0.700 +04		0.100 −02	0.560
	0.600	0.747		0.150	0.605
	0.800	0.810		0.200	0.640
	0.100 −02	0.850		0.225 −01	0.975
	0.150	0.935		0.100 +00	0.975
	0.250	0.995			
	0.195 −01	0.131 +05	900	0.188 −04	0.200 +03
	0.100 +00	0.131		0.331 −03	0.349 +04
				0.500	0.395
700	0.157 −04	0.200 +03		0.700	0.430
	0.413 −03	0.513 +04		0.100 −02	0.471
	0.500	0.556		0.150	0.516
	0.600	0.580		0.250	0.575
	0.700	0.610		0.213 −01	0.850
	0.800	0.630		0.100 +00	0.850

TABLE CS-2
TABULAR VALUES FOR FIG. CS-2

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
300	0.176 −04	0.250 +03	700	0.213 −04	0.250 +03
	0.783 −03	0.113 +05		0.564 −03	0.680 +04
	0.800	0.114		0.100 −02	0.800
	0.900	0.118		0.300	0.101 +05
	0.100 −02	0.123		0.100 −01	0.121
	0.200	0.150		0.264	0.138
	0.300	0.162		0.100 +00	0.138
	0.400	0.168			
	0.500	0.172	800	0.223 −04	0.250 +03
	0.250 −01	0.176		0.505 −03	0.571 +04
	0.100 +00	0.176		0.100 −02	0.710
				0.150	0.795
				0.200	0.840
				0.300	0.890
500	0.194 −04	0.250 +03		0.319 −01	0.124 +05
	0.675 −03	0.900 +04		0.100 +00	0.124
	0.900	0.965			
	0.100 −02	0.100 +05	900	0.237 −04	0.250 +03
	0.250	0.120		0.428 −03	0.449 +04
	0.300	0.124		0.100 −02	0.600
	0.800	0.142		0.150	0.680
	0.100 −01	0.146		0.200	0.735
	0.150	0.155		0.300	0.790
	0.200	0.161		0.800	0.920
	0.280	0.169		0.300 −01	0.111 +05
	0.100 +00	0.169		0.100 +00	0.111

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TABLE CS-3
TABULAR VALUES FOR FIG. CS-3

Yield Strength, psi	A	B, psi
60,000	0.400 −04	0.580 +03
	0.100 −02	0.145 +05
	0.166 −02	0.240 +05
	0.100 +00	0.300 +05
55,000	0.400 −04	0.580 +03
	0.100 −02	0.145 +05
	0.152 −02	0.220 +05
	0.100 +00	0.270 +05
50,000	0.400 −04	0.580 +03
	0.100 −02	0.145 +05
	0.138 −02	0.200 +05
	0.100 +00	0.250 +05
45,000	0.400 −04	0.580 +03
	0.100 −02	0.145 +05
	0.124 −02	0.180 +05
	0.100 +00	0.225 +05
38,000 to 40,000	0.400 −04	0.580 +03
	0.100 −02	0.145 +05
	0.110 −02	0.160 +05
	0.100 +00	0.200 +05

TABLE CS-4
TABULAR VALUES FOR FIG. CS-4

Temp., °F	A	B, psi	Temp., °F	A	B, psi
100	0.100 −04	0.150 +03	300	0.100 −04	0.142 +03
(Cl. 2)	0.156 −02	0.252 +05	(Cl. 2)	0.135 −02	0.204 +05
	0.300	0.269		0.600	0.230
	0.700	0.287		0.100 −01	0.239
	0.900	0.290		0.400	0.256
	0.300 −01	0.304		0.100 +00	0.267
	0.400	0.307			
	0.100 +00	0.307			
			300	0.100 −04	0.142 +03
100	0.100 −04	0.150 +03	(Cl. 1)	0.118 −02	0.177 +05
(Cl. 1)	0.136 −02	0.216 +05		0.300	0.187
	0.400	0.233		0.400	0.190
	0.100 −01	0.244		0.300 −01	0.202
	0.300	0.253		0.700	0.204
	0.100 +00	0.253		0.100 +00	0.204

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TABLE CS-5
TABULAR VALUES FOR FIG. CS-5

Temp., °F	A	B, psi	Temp., °F	A	B, psi
100	0.199 −03	0.300 +04	400	0.210 −03	0.300 +04
	0.160 −02	0.245 +05		0.154 −02	0.207 +05
	0.200	0.246		0.300	0.212
	0.300	0.248		0.700	0.220
	0.500	0.249		0.900	0.221
	0.600	0.250		0.100 −01	0.223
	0.500 −01	0.250		0.500	0.223
			550	0.215 −03	0.300 +04
				0.108 −02	0.150 +05
200	0.200 −03	0.300 +04		0.200	0.164
	0.157 −02	0.235 +05		0.400	0.184
	0.500 −01	0.235		0.100 −01	0.200
				0.200	0.207
				0.500	0.213
			650	0.220 −03	0.300 +04
300	0.203 −03	0.300 +04		0.121 −02	0.150 +05
	0.150 −02	0.220 +05		0.200	0.164
	0.300	0.225		0.400	0.179
	0.600	0.225		0.100 −01	0.194
	0.500 −01	0.225		0.500	0.207

TABLE CS-6
TABULAR VALUES FOR FIG. CS-6

Temp., °F	A	B, psi	Temp., °F	A	B, psi
100	0.150 −03	0.220 +04	300	0.150 −03	0.220 +04
	0.200	0.300		0.200	0.300
	0.300	0.450		0.500	0.500
	0.600	0.600		0.100 −02	0.600
	0.800	0.650		0.250	0.700
	0.200 −02	0.800		0.900	0.800
	0.420	0.900		0.250 −01	0.830
	0.400 −01	0.100 +05			
	0.700	0.100	400	0.180 −03	0.250 +04
				0.300	0.400
200	0.150 −03	0.220 +04		0.100 −02	0.550
	0.200	0.300		0.700	0.700
	0.420	0.500		0.250 −01	0.750
	0.800	0.600			
	0.150 −02	0.700			
	0.400	0.800			
	0.200 −01	0.900			

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TABLE HT-1
TABULAR VALUES FOR FIG. HT-1

Temp., °F	A	B, psi
Up to 200	0.100 −04	0.146 +03
	0.245 −02	0.368 +05
	0.400	0.406
	0.700	0.441
	0.100 −01	0.460
	0.200	0.482
	0.500	0.500
400	0.100 −04	0.137 +03
	0.245 −02	0.346 +05
	0.400	0.384
	0.700	0.420
	0.100 −01	0.441
	0.400	0.482
650	0.100 −04	0.124 +03
	0.243 −02	0.315 +05
	0.400	0.357
	0.700	0.399
	0.100 −01	0.417
	0.300	0.464

TABLE HT-2
TABULAR VALUES FOR FIG. HT-2

Temp., °F	A	B, psi
100	0.337 −03	0.500 +04
(SA-508, Cl. 4a)	0.283 −02	0.420 +05
(SA-543, Cl. 2)	0.400	0.432
	0.600	0.440
	0.800	0.448
	0.100 −01	0.454
	0.150	0.468
	0.200	0.475
	0.250	0.482
	0.300	0.488
	0.400	0.494
	0.500	0.497
	0.600	0.498
	0.700	0.500
	0.100 +00	0.500

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TABLE HA-1
TABULAR VALUES FOR FIG. HA-1

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
100	0.142 −04	0.200 +03	700	0.500 −02	0.765 +04
	0.463 −03	0.650 +04		0.600	0.780
	0.150 −02	0.106 +05		0.100 −01	0.810
	0.200	0.115		0.542	0.900
	0.300	0.125		0.100 +00	0.900
	0.100 −01	0.140			
	0.631	0.158	900	0.181 −04	0.200 +03
	0.100 +00	0.158		0.315 −03	0.350 +04
				0.400	0.386
400	0.159 −04	0.200 +03		0.500	0.416
	0.391 −03	0.500 +04		0.150 −02	0.548
	0.200 −02	0.820		0.300	0.612
	0.300	0.910		0.100 −01	0.707
	0.400	0.969		0.200	0.742
	0.500	0.100 +05		0.784	0.794
	0.100 −01	0.106		0.100 +00	0.794
	0.538	0.116			
	0.100 +00	0.116	1200	0.200 −04	0.200 +03
				0.283 −03	0.284 +04
700	0.170 −04	0.200 +03		0.100 −02	0.416
	0.338 −03	0.400 +04		0.200	0.483
	0.400	0.433		0.500	0.554
	0.500	0.471		0.100 −01	0.595
	0.600	0.500		0.200	0.635
	0.100 −02	0.576		0.488	0.670
	0.200	0.667		0.100 +00	0.670

TABLE HA-2
TABULAR VALUES FOR FIG. HA-2

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
100	0.184 −04	0.250 +03	700	0.218 −04	0.250 +03
	0.605 −03	0.840 +04		0.533 −03	0.625 +04
	0.150 −02	0.111 +05		0.700	0.700
	0.200	0.117		0.100 −02	0.780
	0.250	0.122		0.300	0.100 +05
	0.300	0.126		0.400	0.105
	0.400	0.130		0.100 −01	0.114
	0.500	0.133		0.500	0.127
	0.700	0.136		0.592	0.129
	0.100 −01	0.140		0.100 +00	0.129
	0.200	0.146			
	0.726	0.156	900	0.228 −04	0.250 +03
	0.100 +00	0.156		0.510 −03	0.566 +04
				0.600	0.610
				0.100 −02	0.720
				0.300	0.905
				0.400	0.940
				0.100 −01	0.103 +05
				0.522	0.117
				0.100 +00	0.117
400	0.199 −04	0.250 +03			
	0.585 −03	0.750 +04			
	0.100 −02	0.870	1200	0.247 −04	0.250 +03
	0.150	0.970		0.460 −03	0.466 +04
	0.200	0.104 +05		0.100 −02	0.600
	0.300	0.112		0.200	0.720
	0.400	0.117		0.300	0.780
	0.500	0.120		0.400	0.820
	0.600	0.122		0.500	0.840
	0.100 −01	0.127		0.100 −01	0.895
	0.574	0.143		0.700	0.100 +05
	0.100 +00	0.143		0.100 +00	0.100

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TABLE HA-4
TABULAR VALUES FOR FIG. HA-4

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
100	0.143 −04	0.200 +03	400	0.154 −04	0.200 +03
	0.600 −03	0.840 +04		0.410 −03	0.538 +04
	0.700 −02	0.133 +05		0.700 −02	0.895
	0.100 −01	0.140		0.100 −01	0.940
	0.200	0.152		0.429	0.106 +05
	0.500	0.162		0.100 +00	0.106
	0.100 +00	0.162			
			600	0.169 −04	0.200 +03
				0.363 −03	0.438 +04
				0.500 −02	0.720
				0.100 −01	0.790
				0.456	0.900
				0.100 +00	0.900
300	0.153 −04	0.200 +03			
	0.475 −03	0.625 +04	800	0.176 −04	0.200 +03
	0.500 −02	0.995		0.317 −03	0.363 +04
	0.600	0.102 +05		0.500 −02	0.595
	0.100 −01	0.110		0.100 −01	0.660
	0.458	0.126		0.468	0.770
	0.100 +00	0.126		0.100 +00	0.770

TABLE HA-3
TABULAR VALUES FOR FIG. HA-3

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
100	0.139 −04	0.200 +03	600	0.165 −04	0.200 +03
	0.535 −03	0.755 +04		0.319 −03	0.389 +04
	0.200 −02	0.101 +05		0.100 −02	0.475
	0.600	0.124		0.100 −01	0.710
	0.400 −01	0.150		0.281	0.845
	0.100 +00	0.150		0.100 +00	0.845
400	0.158 −04	0.200 +03	800	0.174 −04	0.200 +03
	0.361 −03	0.463 +04		0.275 −03	0.317 +04
	0.100 −02	0.550		0.150 −02	0.427
	0.100 −01	0.815		0.100 −01	0.590
	0.283	0.975		0.300	0.720
	0.100 +00	0.975		0.100 +00	0.720

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TABLE HA-6
TABULAR VALUES FOR FIG. HA-6

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
70	7.07 −05	1.00 +03	650	7.98 −05	1.00 +03
	5.00 −04	7.08		4.99 −04	6.25
	1.00 −03	1.41 +04		8.85	8.92
	1.44	1.80		1.44 −03	9.65
	1.81	1.88		1.81	9.90
	4.48	2.02		4.66	1.07 +04
	9.42	2.09		9.80	1.12
	1.89 −02	2.16		2.00 −02	1.18
	5.00	2.25		5.00	1.20
	1.00 −01	2.25		1.00 −01	1.20
200	7.25 −05	1.00 +03	950	8.62 −05	1.00 +03
	5.00 −04	6.90		4.99 −04	5.79
	9.71	1.23 +04		9.64	8.84
	1.37 −03	1.37		1.09 −03	9.05
	1.95	1.45		1.27	9.25
	4.81	1.60		4.84	1.03 +04
	9.81	1.70		9.68	1.08
	1.96 −02	1.79		1.99 −02	1.12
	5.00	1.84		5.00	1.15
	1.00 −01	1.84		1.00 −01	1.15
400	7.55 −05	1.00 +03	1200	9.64 −05	1.00 +03
	5.00 −04	6.62		4.98 −04	5.17
	9.76	1.08 +04		9.32	8.05
	1.31 −03	1.14		1.38 −03	8.70
	1.97	1.19		1.90	9.06
	4.44	1.27		4.88	9.84
	9.57	1.33		9.94	1.04 +04
	1.99 −02	1.38		1.94 −02	1.08
	5.00	1.44		5.00	1.13
	1.00 −01	1.44		1.00 −01	1.13

TABLE HA-5
TABULAR VALUES FOR FIG. HA-5

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
Room	0.000141	2,000	650	0.000160	2,000
Temp.	0.001340	19,000 P.L.		0.00120	15,000 P.L.
	0.0015	19,250		0.0015	15,500
	0.0020	20,600		0.0020	16,200
	0.0025	22,500		0.0025	17,000
	0.0030	23,800		0.0030	17,800
	0.0040	26,000		0.0040	19,000
	0.0060	28,300		0.0060	20,300
	0.010	30,500		0.010	21,900
	0.015	31,500		0.015	22,500
	0.021	32,600		0.034	22,800
400	0.0001509	2,000			
	0.001166	15,450 P.L.			
	0.0015	15,750			
	0.0020	16,500			
	0.0025	17,500			
	0.0030	18,300			
	0.0040	19,500			
	0.0060	21,000			
	0.010	22,500			
	0.015	23,250			
	0.023	24,000			

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TABLE HA-7
TABULAR VALUES FOR FIG. HA-7

Temp., °F	A	B, psi	Temp., °F	A	B, psi
70	0.700 −04	0.100 +04	300	0.700 −04	0.100 +04
	0.500 −03	0.730		0.500 −03	0.698
	0.750	0.110 +05		0.750	0.105 +05
	0.100 −02	0.146		0.100 −02	0.139
	0.125	0.183		0.125	0.174
	0.150	0.219		0.150	0.209
	0.174	0.254		0.174	0.242
	0.198	0.288		0.198	0.274
	0.289	0.393		0.271	0.337
	0.407	0.429		0.462	0.380
	0.641	0.454		0.619	0.394
	0.749	0.460		0.763	0.403
	0.157 −01	0.486		0.199 −01	0.436
	0.500	0.520		0.500	0.462
	0.100 +00	0.525		0.100 +00	0.465

TABLE CI-1
TABULAR VALUES FOR FIG. CI-1

Class / Temp., °F	A	B, psi	Class / Temp., °F	A	B, psi
Class 60	0.100 −04	0.110 +03	Class 30	0.100 −04	0.716 +02
up to 650	0.160 −02	0.182 +05	up to 650	0.122 −02	0.908 +04
	0.100 +00	0.182		0.100 +00	0.908
Class 50	0.100 −04	0.997 +02	Class 20	0.100 −04	0.595 +02
up to 650	0.147 −02	0.150 +05	up to 650	0.991 −03	0.607 +04
	0.100 +00	0.150		0.100 +00	0.607
Class 40	0.100 −04	0.872 +02			
up to 650	0.135 −02	0.120 +05			
	0.100 +00	0.120			

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TABLE NFA-1
TABULAR VALUES FOR FIG. NFA-1

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
100	0.100 −04	0.502 +02	300	0.110 −04	0.500 +02
	0.148 −03	0.742 +03		0.148 −03	0.680 +03
	0.200	0.951		0.200	0.841
	0.250	0.107 +04		0.250	0.949
	0.300	0.116		0.300	0.102 +04
	0.100 −02	0.156		0.400	0.112
	0.150	0.171		0.700	0.127
	0.400	0.208		0.250 −02	0.156
	0.100 −01	0.246		0.400 −01	0.230
	0.150	0.262		0.100 +00	0.230
	0.400	0.301			
	0.100 +00	0.301			
			400	0.119 −04	0.500 +02
200	0.103 −04	0.500 +02		0.998	0.428 +03
	0.148 −03	0.709 +03		0.150 −03	0.623
	0.200	0.910		0.200	0.763
	0.250	0.102 +04		0.250	0.861
	0.300	0.110		0.300	0.927
	0.400	0.121		0.400	0.100 +04
	0.100 −02	0.148		0.500	0.105
	0.300	0.183		0.100 −02	0.121
	0.600	0.208		0.300	0.143
	0.200 −01	0.250		0.100 −01	0.164
	0.400	0.279		0.400	0.191
	0.100 +00	0.279		0.100 +00	0.191

TABLE CD-1
TABULAR VALUES FOR FIG. CD-1

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
Up to 100	0.100 −04	0.122 +03	650	0.100 −04	0.112 +03
	0.124 −02	0.149 +05		0.892 −03	0.982 +04
	0.200	0.158		0.200 −02	0.119 +05
	0.400	0.173		0.400	0.138
	0.100 −01	0.191		0.600	0.147
	0.250	0.207		0.800	0.152
				0.100 −01	0.155
400	0.100 −04	0.122 +03		0.200	0.163
	0.107 −02	0.130 +05		0.400	0.169
	0.200	0.148			
	0.300	0.157			
	0.400	0.164			
	0.100 −01	0.180			
	0.300	0.195			
	0.600	0.203			

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TABLE NFA-2
TABULAR VALUES FOR FIG. NFA-2

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
100	0.100 −04	0.501 +02	300	0.110 −04	0.500 +02
	0.405 −03	0.200 +04		0.199 −03	0.901 +03
	0.500	0.248		0.250	0.111 +04
	0.600	0.291		0.300	0.134
	0.700	0.331		0.400	0.168
	0.800	0.365		0.500	0.197
	0.900	0.401		0.600	0.224
	0.100 −02	0.427		0.700	0.244
	0.150	0.520		0.100 −02	0.299
	0.200	0.584		0.150	0.359
	0.250	0.622		0.250	0.425
	0.300	0.653		0.300	0.450
	0.400	0.695		0.400	0.484
	0.500	0.726		0.500	0.507
	0.600	0.740		0.100 −01	0.563
	0.100 −01	0.793		0.150	0.592
	0.200	0.844		0.100 +00	0.592
	0.400	0.884			
	0.500	0.898	400	0.118 −04	0.500 +02
	0.100 +00	0.898		0.147 −03	0.603 +03
				0.200	0.795
				0.250	0.953
				0.300	0.108 +04
200	0.102 −04	0.500 +02		0.400	0.128
	0.301 −03	0.143 +04		0.500	0.145
	0.600	0.264		0.100 −02	0.200
	0.700	0.299		0.150	0.233
	0.100 −02	0.381		0.200	0.259
	0.150	0.468		0.250	0.278
	0.200	0.525		0.300	0.295
	0.250	0.566		0.500	0.333
	0.300	0.592		0.600	0.342
	0.400	0.623		0.700	0.350
	0.500	0.645		0.100 −01	0.368
	0.600	0.659		0.150	0.384
	0.100 −01	0.695		0.200	0.392
	0.500	0.800		0.250	0.399
	0.100 +00	0.800		0.100 +00	0.399

TABLE NFA-3
TABULAR VALUES FOR FIG. NFA-3

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
100	0.100 −04	0.506 +02	300	0.107 −04	0.500 +02
	0.353 −03	0.179 +04		0.348 −03	0.159 +04
	0.400	0.195		0.400	0.180
	0.500	0.217		0.500	0.204
	0.600	0.232		0.600	0.221
	0.700	0.243		0.700	0.233
	0.800	0.251		0.800	0.244
	0.100 −02	0.264		0.100 −02	0.256
	0.150	0.282		0.150	0.282
	0.150 −01	0.423		0.150 −01	0.423
	0.100 +00	0.423		0.100 +00	0.423
			400	0.116 −04	0.500 +02
200	0.104 −04	0.501 +02		0.334 −03	0.141 +04
	0.375 −03	0.179 +04		0.400	0.168
	0.400	0.187		0.500	0.197
	0.500	0.209		0.600	0.216
	0.600	0.225		0.700	0.229
	0.700	0.238		0.800	0.239
	0.800	0.247		0.900	0.248
	0.100 −02	0.261		0.100 −02	0.255
	0.150	0.282		0.150	0.282
	0.150 −01	0.423		0.150 −01	0.423
	0.100 +00	0.423		0.100 +00	0.423

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TABLE NFA-4
TABULAR VALUES FOR FIG. NFA-4

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
100	0.100 −04	0.507 +02	300	0.107 −04	0.500 +02
	0.126 −02	0.652 +04		0.698 −03	0.331 +04
	0.150	0.745		0.100 −02	0.450
	0.200	0.874		0.150	0.578
	0.250	0.948		0.200	0.656
	0.300	0.998		0.250	0.710
	0.400	0.105 +05		0.300	0.742
	0.500	0.109		0.400	0.782
	0.600	0.112		0.500	0.812
	0.100 −01	0.117		0.600	0.831
	0.150	0.119		0.100 −01	0.872
	0.250	0.122		0.150	0.901
	0.400	0.124		0.100 +00	0.901
	0.100 +00	0.124			
			400	0.117 −04	0.500 +02
				0.248 −03	0.106 +04
200	0.101 −04	0.500 +02		0.300	0.126
	0.131 −02	0.652 +04		0.400	0.159
	0.150	0.720		0.500	0.185
	0.200	0.837		0.600	0.206
	0.250	0.907		0.700	0.224
	0.300	0.957		0.900	0.254
	0.400	0.101 +05		0.100 −02	0.268
	0.500	0.105		0.150	0.315
	0.600	0.108		0.200	0.349
	0.700	0.110		0.250	0.377
	0.100 −01	0.113		0.300	0.395
	0.250	0.118		0.400	0.426
	0.300	0.119		0.100 −01	0.512
	0.400	0.120		0.150	0.549
	0.100 +00	0.120		0.100 +00	0.549

TABLE NFA-5
TABULAR VALUES FOR FIG. NFA-5

Temp., °F	A	B_r, psi
100	0.100 −04	0.514 +02
	0.492 −03	0.255 +04
	0.600	0.300
	0.700	0.327
	0.800	0.347
	0.900	0.359
	0.100 −02	0.367
	0.171 −01	0.550
	0.100 +00	0.550

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TABLE NFA-6
TABULAR VALUES FOR FIG. NFA-6

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
150	0.100 −04	0.915 +02	400	0.200 −02	0.906 +04
	0.585 −03	0.550 +04		0.300	0.992
	0.700	0.635		0.400	0.105 +05
	0.800	0.704		0.700	0.114
	0.100 −02	0.801		0.100 −01	0.118
	0.150	0.936		0.150	0.122
	0.200	0.101 +05		0.300	0.129
	0.300	0.109		0.400	0.131
	0.400	0.114		0.100 +00	0.131
	0.700	0.121			
	0.100 −01	0.125	600	0.100 −04	0.530 +02
	0.150	0.128		0.788 −03	0.422 +04
	0.300	0.131		0.900	0.475
	0.500	0.133		0.100 −02	0.513
	0.100 +00	0.133		0.150	0.664
				0.200	0.749
400	0.100 −04	0.767 +02		0.250	0.803
	0.585 −03	0.461 +04		0.400	0.913
	0.700	0.534		0.600	0.992
	0.800	0.598		0.100 −01	0.108 +05
	0.100 −02	0.691		0.250	0.121
	0.151	0.828		0.100 +00	0.121

TABLE NFA-7
TABULAR VALUES FOR FIG. NFA-7

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
200	0.101 −04	0.500 +02	300	0.700 −03	0.634 +03
	0.901	0.466 +03		0.150 −02	0.724
	0.500 −03	0.701		0.300	0.798
	0.700	0.751		0.600	0.861
	0.150 −02	0.880		0.100 −01	0.906
	0.400	0.105 +04		0.100 +00	0.906
	0.700	0.115			
	0.100 −01	0.120	400	0.119 −04	0.500 +02
	0.150	0.123		0.746	0.327 +03
	0.200	0.125		0.150 −02	0.604
	0.100 +00	0.125		0.300	0.680
				0.500	0.719
300	0.112 −04	0.500 +02		0.700	0.736
	0.885	0.415 +03		0.900	0.746
	0.500 −03	0.594		0.100 +00	0.746

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TABLE NFA-8
TABULAR VALUES FOR FIG. NFA-8

Temp., °F	A	B, psi	Temp., °F	A	B, psi
200	0.104 −04	0.500 +02	300	0.800 −02	0.444 +04
	0.283 −03	0.141 +04		0.900	0.452
	0.300	0.148		0.100 −01	0.456
	0.400	0.182		0.150	0.476
	0.100 −02	0.265		0.200	0.486
	0.250	0.354		0.100 +00	0.486
	0.500	0.415			
	0.600	0.428			
	0.700	0.438	400	0.123 −04	0.500 +02
	0.800	0.444		0.288 −03	0.116 +04
	0.900	0.452		0.300	0.121
	0.100 −01	0.456		0.400	0.153
	0.150	0.476		0.600	0.197
	0.200	0.486		0.100 −02	0.240
	0.100 +00	0.486		0.250	0.320
				0.300	0.336
300	0.110 −04	0.500 +02		0.400	0.360
	0.338 −03	0.153 +04		0.500	0.378
	0.400	0.175		0.600	0.389
	0.100 −02	0.265		0.700	0.401
	0.250	0.354		0.800	0.410
	0.500	0.415		0.900	0.418
	0.600	0.428		0.100 −01	0.423
	0.700	0.438		0.100 +00	0.423

TABLE NFA-9
TABULAR VALUES FOR FIG. NFA-9

Temp., °F	A	B, psi
150	0.100 −04	0.500 +02
	0.792 −03	0.407 +04
	0.900	0.434
	0.100 −02	0.454
	0.150	0.505
	0.200	0.531
	0.400	0.589
	0.600	0.625
	0.200 −01	0.715
	0.100 +00	0.715

TABLE NFA-10
TABULAR VALUES FOR FIG. NFA-10

Temp., °F	A	B, psi
100	0.100 −04	0.518 +02
	0.134 −02	0.724 +04
	0.150	0.776
	0.200	0.840
	0.250	0.859
	0.300	0.871
	0.500	0.888
	0.100 −01	0.900
	0.150	0.911
	0.250	0.915
	0.300	0.919
	0.400	0.921
	0.500	0.925
	0.100 +00	0.925

TABLE NFA-11
TABULAR VALUES FOR FIG. NFA-11

Temp., °F	A	B_r, psi
150 (Curve 1)	0.100 −04	0.509 +02
	0.301 −03	0.157 +04
	0.500	0.258
	0.600	0.307
	0.700	0.352
	0.100 −02	0.462
	0.150	0.557
	0.200	0.614
	0.250	0.652
	0.300	0.686
	0.400	0.729
	0.500	0.758
	0.900	0.836
	0.150 −01	0.894
	0.174	0.906
	0.100 +00	0.906
150 (Curve 2)	0.100 −04	0.509 +02
	0.301 −03	0.157 +04
	0.500	0.258
	0.800	0.374
	0.100 −02	0.430
	0.150	0.525
	0.200	0.574
	0.250	0.614
	0.300	0.643
	0.400	0.686
150 (Curve 2)	0.500 −02	0.717 +04
	0.900	0.790
	0.100 −01	0.802
	0.174	0.861
	0.100 +00	0.861
150 (Curve 3)	0.100 −04	0.509 +02
	0.301 −03	0.157 +04
	0.500	0.251
	0.600	0.290
	0.700	0.326
	0.100 −02	0.406
	0.150	0.492
	0.200	0.538
	0.250	0.573
	0.300	0.603
	0.900	0.739
	0.100 −01	0.753
	0.174	0.811
	0.100 +00	0.811
150 (Curve 4)	0.100 −04	0.509 +02
	0.301 −03	0.157 +04
	0.500	0.245
	0.600	0.283
	0.700	0.316
150 (Curve 4)	0.100 −02	0.391 +04
	0.150	0.466
	0.200	0.510
	0.250	0.544
	0.300	0.568
	0.400	0.606
	0.900	0.693
	0.100 −01	0.706
	0.150	0.748
	0.174	0.753
	0.100 +00	0.753
150 (Curve 5)	0.100 −04	0.509 +02
	0.301 −03	0.157 +04
	0.500	0.241
	0.600	0.275
	0.700	0.304
	0.100 −02	0.372
	0.150	0.440
	0.200	0.480
	0.250	0.508
	0.300	0.534
	0.400	0.566
	0.900	0.646
	0.100 −01	0.658
	0.150	0.698
	0.174	0.706
	0.100 +00	0.706

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TABLE NFA-12
TABULAR VALUES FOR FIG. NFA-12

Temp., °F	A	B_i, psi	Temp., °F	A	B_i, psi
Up to 200	0.100 −04	0.505 +02	400	0.114 −04	0.500 +02
	0.119 −02	0.613 +04		0.891 −03	0.404 +04
	0.150	0.730		0.100 −02	0.442
	0.200	0.844		0.150	0.545
	0.250	0.899		0.200	0.595
	0.300	0.933		0.300	0.659
	0.400	0.968		0.500	0.710
	0.700	0.100 +05		0.100 −01	0.750
	0.100 −01	0.102		0.300	0.788
	0.200	0.104			
300	0.107 −04	0.500 +02			
	0.122 −02	0.587 +04			
	0.150	0.681			
	0.200	0.786			
	0.250	0.839			
	0.300	0.872			
	0.400	0.905			
	0.500	0.920			
	0.100 −01	0.946			
	0.250	0.964			

TABLE NFA-13
TABULAR VALUES FOR FIG. NFA-13

Temp., °F	A	B_i, psi	Temp., °F	A	B_i, psi
Up to 200	0.100 −04	0.500 +02	400	0.113 −04	0.500 +02
	0.787 −03	0.407 +04		0.495 −03	0.225 +04
	0.900	0.455		0.600	0.268
	0.100 −02	0.500		0.700	0.303
	0.150	0.623		0.800	0.332
	0.200	0.671		0.100 −02	0.373
	0.250	0.696		0.150	0.431
	0.300	0.712		0.200	0.463
	0.400	0.731		0.250	0.483
	0.100 −01	0.759		0.300	0.497
	0.250	0.782		0.400	0.517
				0.500	0.529
300	0.107 −04	0.500 +02		0.100 −01	0.555
	0.787 −03	0.385 +04		0.250	0.570
	0.100 −02	0.465			
	0.150	0.585			
	0.200	0.629			
	0.250	0.649			
	0.300	0.657			
	0.500	0.683			
	0.100 −01	0.706			
	0.300	0.726			

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TABLE NFA-14
TABULAR VALUES FOR FIG. NFA-14

Temp., °F	A	B, psi	Temp., °F	A	B, psi
Up to 100	0.100 −04	0.523 +02	300	0.110 −04	0.500 +02
	0.687 −03	0.356 +04		0.499 −03	0.227 +04
	0.800	0.406		0.600	0.264
	0.900	0.439		0.700	0.294
	0.100 −02	0.456		0.800	0.321
	0.150	0.498		0.100 −02	0.356
	0.200	0.512		0.150	0.407
	0.300	0.525		0.200	0.432
	0.100 −01	0.570		0.300	0.460
	0.300	0.611		0.100 −01	0.520
				0.300	0.562
200	0.101 −04	0.500 +02	400	0.126 −04	0.500 +02
	0.499 −03	0.243 +04		0.398 −03	0.159 +04
	0.700	0.322		0.500	0.189
	0.800	0.354		0.700	0.240
	0.900	0.382		0.100 −02	0.294
	0.100 −02	0.397		0.150	0.351
	0.150	0.447		0.200	0.380
	0.200	0.472		0.300	0.410
	0.300	0.500		0.500	0.443
	0.100 −01	0.566		0.100 −01	0.473
	0.300	0.611		0.250	0.511

TABLE NFC-1
TABULAR VALUES FOR FIG. NFC-1

Temp., °F	A	B, psi
150	0.100 −04	0.797 +02
	0.163 −03	0.134 +04
	0.250	0.151
	0.500	0.181
	0.100 −02	0.214
	0.400	0.291
	0.250 −01	0.435
	0.100 +00	0.435

TABLE NFC-2
TABULAR VALUES FOR FIG. NFC-2

Temp., °F	A	B, psi
150	0.100 −04	0.909 +02
	0.524 −03	0.484 +04
	0.400 −02	0.610
	0.100 −01	0.668
	0.200	0.711
	0.250	0.724
	0.300	0.733
	0.400	0.745
	0.500	0.755
	0.600	0.762
	0.700	0.768
	0.100 +00	0.768
350	0.100 −04	0.909 +02
	0.376 −03	0.346 +04
	0.500	0.367
	0.600	0.382
	0.700	0.393
	0.400 −02	0.524
	0.100 −01	0.609
	0.300	0.704
	0.100 +00	0.704

TABLE NFC-4
TABULAR VALUES FOR FIG. NFC-4

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
150	0.100 −04	0.115 +03	400	0.100 −04	0.108 +03
	0.230 −03	0.251 +04		0.248 −03	0.251 +04
	0.400	0.339		0.300	0.281
	0.500	0.375		0.400	0.316
	0.600	0.404		0.500	0.340
	0.100 −02	0.486		0.700	0.375
	0.150	0.551		0.100 −02	0.411
	0.300	0.639		0.150	0.454
	0.400	0.674		0.200	0.486
	0.700	0.731		0.250	0.503
	0.100 −01	0.764		0.300	0.521
	0.200	0.830		0.600	0.584
	0.400	0.874		0.100 −01	0.623
	0.100 +00	0.874		0.200	0.666
				0.400	0.683
250	0.100 −04	0.108 +03		0.100 +00	0.688
	0.248 −03	0.251 +04			
	0.300	0.280	700	0.100 −04	0.987 +02
	0.400	0.322		0.269 −03	0.251 +04
	0.500	0.351		0.300	0.263
	0.700	0.393		0.400	0.293
	0.100 −02	0.436		0.500	0.316
	0.150	0.488		0.700	0.344
	0.200	0.523		0.100 −02	0.374
	0.300	0.569		0.150	0.409
	0.400	0.601		0.200	0.432
	0.700	0.655		0.250	0.446
	0.100 −01	0.683		0.300	0.460
	0.150	0.719		0.600	0.481
	0.300	0.767		0.100 −01	0.526
	0.400	0.775		0.200	0.537
	0.100 +00	0.775		0.100 +00	0.539

TABLE NFC-3
TABULAR VALUES FOR FIG. NFC-3

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
150	0.100 −04	0.899 +02	600	0.100 −04	0.804 +02
	0.386 −03	0.353 +04		0.189 −03	0.154 +04
	0.300 −02	0.499		0.200	0.155
	0.400	0.521		0.250	0.165
	0.500	0.535		0.300	0.176
	0.100 −01	0.567		0.400	0.195
	0.200	0.592		0.500	0.214
	0.250	0.596		0.600	0.233
	0.500	0.612		0.100 −02	0.300
	0.100 +00	0.612		0.150	0.347
				0.200	0.374
400	0.100 −04	0.837 +02		0.250	0.392
	0.358 −03	0.307 +04		0.300	0.408
	0.300 −02	0.453		0.400	0.429
	0.400	0.472		0.100 −01	0.476
	0.100 −01	0.519		0.300	0.521 +04
	0.150	0.537		0.400	0.530
	0.200	0.550		0.100 +00	0.530
	0.500	0.583			
	0.100 +00	0.583			

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TABLE NFC-5
TABULAR VALUES FOR FIG. NFC-5

Temp., °F	A	B, psi	Temp., °F	A	B, psi
100	0.150 −03	0.131 +04	100	0.800 −02	0.700 +04
	0.200	0.175		0.100 −01	0.725
	0.250	0.219		0.150	0.765
	0.300	0.263		0.190	0.770
	0.325	0.285			
	0.400	0.300	300	0.150 −03	0.126 +04
	0.100 −02	0.395		0.200	0.168
	0.400	0.600		0.250	0.210
	0.500	0.640		0.300	0.252
	0.600	0.660		0.345	0.290

TABLE NFC-6
TABULAR VALUES FOR FIG. NFC-6

Temp., °F	A	B, psi	Temp., °F	A	B, psi
200	0.301 −03	2,500	300	0.307 −03	2,500
	0.669	5,550		0.442	3,600
	0.10 −02	6,500		0.70	4,550
	0.20	8,200		0.10 −02	5,400
	0.40	10,000		0.20	7,200
	0.60	11,000		0.40	9,000
	0.80	11,850		0.60	10,000
	0.10 −01	12,400		0.80	10,600
	0.20	13,900		0.10 −01	11,100
	0.40	14,900		0.20	12,200
	0.60	15,000		0.40	12,800
				0.60	13,000

TABLE NFN-1
TABULAR VALUES FOR FIG. NFN-1

Temp., °F	A	B, psi	Temp., °F	A	B, psi
100	0.100 −04	0.153 +03	600	0.100 −01	0.592 +04
	0.197 −03	0.305 +04		0.184	0.655
	0.100 −02	0.404		0.100 +00	0.655
	0.100 −01	0.601			
	0.165	0.655	800	0.100 −04	0.132 +03
	0.100 +00	0.655		0.187 −03	0.252 +04
				0.100 −02	0.336
400	0.100 −04	0.142 +03		0.100 −01	0.498
	0.201 −03	0.291 +04		0.300	0.603
	0.100 −02	0.388		0.100 +00	0.603
	0.100 −01	0.592			
	0.184	0.655	1000	0.100 −04	0.125 +03
	0.100 +00	0.655		0.162 −03	0.205 +04
				0.100 −02	0.287
600	0.100 −04	0.142 +03		0.100 −01	0.444
	0.201 −03	0.291 +04		0.300	0.547
	0.100 −02	0.388		0.100 +00	0.547

TABLE NFN-2
TABULAR VALUES FOR FIG. NFN-2

Temp., °F	A	B, psi	Temp., °F	A	B, psi
100	0.100 −04	0.153 +03	400	0.100 −04	0.143 +03
	0.257 −03	0.406 +04		0.276 −03	0.405 +04
	0.500	0.439		0.500	0.439
	0.178 −01	0.686		0.178 −01	0.686
	0.100 +00	0.686		0.100 +00	0.686
200	0.100 −04	0.148 +03	600	0.101 −04	0.138 +03
	0.265 −03	0.404 +04		0.291 −03	0.405 +04
	0.500	0.439		0.500	0.439
	0.178 −01	0.686		0.178 −01	0.686
	0.100 +00	0.686		0.100 +00	0.686

TABLE NFN-3
TABULAR VALUES FOR FIG. NFN-3

Temp., °F	A	B_i, psi	Temp., °F	A	B_i, psi	Temp., °F	A	B_i, psi
100	0.100 −04	0.132 +03	200	0.400 −01	0.120 +05	600	0.200 −01	0.105 +05
	0.523 −03	0.721 +04		0.100 +00	0.120		0.300	0.107
	0.700	0.771					0.100 +00	0.107
	0.100 −02	0.850	400	0.100 −04	0.132 +03			
	0.200	0.988		0.423 −03	0.582 +04	800	0.100 −04	0.110 +03
	0.250	0.103 +05		0.700	0.652		0.500 −03	0.574 +04
	0.300	0.107		0.100 −02	0.712		0.100 −02	0.675
	0.500	0.116		0.150	0.776		0.200	0.776
	0.600	0.119		0.250	0.854		0.300	0.842
	0.700	0.121		0.300	0.882		0.400	0.878
	0.800	0.122		0.400	0.928		0.600	0.937
	0.100 −01	0.125		0.600	0.984		0.800	0.968
	0.200	0.130		0.700	0.100 +05		0.100 −01	0.993
	0.250	0.132		0.900	0.103		0.150	0.103 +05
	0.400	0.133		0.100 −01	0.104		0.200	0.105
	0.100 +00	0.133		0.150	0.107		0.300	0.107
				0.200	0.110		0.100 +00	0.107
200	0.100 −04	0.132 +03		0.300	0.112			
	0.468 −03	0.643 +04		0.100 +00	0.112	900	0.100 −04	0.998 +02
	0.600	0.677					0.528 −03	0.565 +04
	0.900	0.746	600	0.100 −04	0.122 +03		0.100 −02	0.661
	0.100 −02	0.767		0.437 −03	0.562 +04		0.200	0.773
	0.150	0.834		0.500	0.574		0.300	0.842
	0.200	0.880		0.100 −02	0.675		0.400	0.878
	0.300	0.950		0.200	0.776		0.600	0.937
	0.400	0.995		0.300	0.842		0.800	0.963
	0.500	0.103 +05		0.400	0.878		0.100 −01	0.993
	0.700	0.107		0.600	0.937		0.150	0.103 +05
	0.100 −01	0.111		0.800	0.968		0.200	0.105
	0.150	0.115		0.100 −01	0.993		0.300	0.107
	0.250	0.118		0.150	0.103 +05		0.100 +00	0.107

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TABLE NFN-4
TABULAR VALUES FOR FIG. NFN-4

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
100	0.100 −04	0.159 +03	600	0.400 −02	0.108 +05
	0.531 −03	0.865 +04		0.500	0.111
	0.100 −02	0.983		0.100 −01	0.117
	0.300	0.117 +05		0.300	0.123
	0.400	0.122		0.100 +00	0.123
	0.100 −01	0.133			
	0.200	0.138	800	0.100 −04	0.144 +03
	0.100 +00	0.138		0.487 −03	0.722 +04
				0.100 −02	0.834
200	0.100 −04	0.159 +03		0.400	0.102 +05
	0.494 −03	0.792 +04		0.150 −01	0.114
	0.100 −02	0.906		0.300	0.118
	0.200	0.102 +05		0.100 +00	0.118
	0.300	0.108			
	0.900	0.121	1000	0.100 −04	0.135 +03
	0.200 −01	0.126		0.471 −03	0.652 +04
	0.100 +00	0.128		0.100 −02	0.760
				0.200	0.845
400	0.100 −04	0.150 +03		0.500	0.941
	0.500 −03	0.769 +04		0.100 −01	0.994
	0.100 −02	0.883		0.300	0.106 +05
	0.200	0.985		0.100 +00	0.106
	0.400	0.108 +05			
	0.500	0.111	1100	0.100 −04	0.128 +03
	0.100 −01	0.117		0.372 −03	0.486 +04
	0.300	0.123		0.400	0.486
	0.100 +00	0.123		0.100 +00	0.486
600	0.100 −04	0.150 +03	1200	0.100 −04	0.128 +03
	0.500 −03	0.769 +04		0.250 −03	0.328 +04
	0.100 −02	0.883		0.100 +00	0.328
	0.200	0.985			

TABLE NFN-5
TABULAR VALUES FOR FIG. NFN-5

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
100	0.100 −04	0.148 +03	400	0.250 −01	0.169 +05
	0.551 −03	0.850 +04		0.100 +00	0.169
	0.250 −02	0.157 +05			
	0.300	0.167	600–650	0.100 −04	0.137 +03
	0.400	0.178		0.312 −03	0.437 +04
	0.500	0.185		0.900	0.734
	0.700	0.191		0.150 −02	0.959
	0.100 −01	0.196		0.200	0.108 +05
	0.500	0.213		0.250	0.117
	0.100 +00	0.213		0.300	0.122
				0.400	0.130
400	0.100 −04	0.148 +03		0.500	0.135
	0.509 −03	0.783 +04		0.700	0.141
	0.400 −02	0.142 +05		0.100 −01	0.147
	0.500	0.149		0.150	0.151
	0.900	0.161		0.250	0.155
	0.150 −01	0.166		0.100 +00	0.155

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TABLE NFN-6
TABULAR VALUES FOR FIG. NFN-6

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
100	0.100 −04	0.161 +03	1100	0.100 −04	0.124 +03
	0.879 −03	0.146 +05		0.786 −03	0.101 +05
	0.100 −02	0.149		0.100 −02	0.104
	0.100 −01	0.199		0.200	0.110
	0.150	0.203		0.400	0.116
				0.100 −01	0.120
400	0.100 −04	0.146 +03		0.200	0.123
	0.847 −03	0.129 +05		0.600	0.126
	0.100 −02	0.131			
	0.300	0.144	1200	0.100 −04	0.116 +03
	0.100 −01	0.158		0.839 −03	0.994 +04
	0.400	0.168		0.100 +00	0.994
600	0.100 −04	0.142 +03	1300	0.100 −04	0.112 +03
	0.820 −03	0.121 +05		0.493 −03	0.567 +04
	0.100 −02	0.124		0.100 +00	0.567
	0.500	0.140			
	0.100 −01	0.145			
	0.300	0.150			
	0.100 +00	0.155			
800	0.100 −04	0.129 +03			
	0.851 −03	0.114 +05			
	0.100 −02	0.116			
	0.200	0.123			
	0.400	0.129			
	0.100 −01	0.135			
	0.500	0.144			

TABLE NFN-7
TABULAR VALUES FOR FIG. NFN-7

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
100	0.100 −04	0.140 +03	400	0.100 −04	0.132 +03
	0.825 −03	0.121 +05		0.745 −03	0.104 +05
	0.100 −02	0.124		0.100 −02	0.106
	0.200	0.133		0.400	0.116
	0.600	0.151		0.100 −01	0.123
	0.100 −01	0.160		0.400	0.134
	0.200	0.173			
	0.250	0.178			
			700	0.100 −04	0.125 +03
200	0.100 −04	0.143 +03		0.722 −03	0.953 +04
	0.777 −03	0.113 +05		0.100 −02	0.967
	0.100 −02	0.116		0.200	0.100 +05
	0.400	0.133		0.800	0.108
	0.100 −01	0.144		0.200 −01	0.113
	0.400	0.157		0.600	0.120

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TABLE NFN-8
TABULAR VALUES FOR FIG. NFN-8

Temp., °F	A	B_i, psi	Temp., °F	A	B_i, psi
100	0.100 −04	0.143 +03	800	0.100 −04	0.122 +03
	0.779 −03	0.117 +05		0.687 −03	0.885 +04
	0.100 −02	0.121		0.100 −02	0.926
	0.200	0.133		0.200	0.980
	0.400	0.141		0.400	0.103 +05
	0.100 −01	0.148		0.100 −01	0.109
	0.400	0.154		0.250	0.114
	0.100 +00	0.154		0.100 +00	0.114
			1000	0.100 −04	0.114 +03
400	0.100 −04	0.132 +03		0.672 −03	0.801 +04
	0.737 −03	0.102 +05		0.100 −02	0.852
	0.100 −02	0.105		0.200	0.933
	0.400	0.118		0.400	0.996
	0.100 −01	0.125		0.100 −01	0.105 +05
	0.300	0.131		0.300	0.111
	0.100 +00	0.131		0.100 +00	0.111
			1100	0.100 −04	0.114 +03
600	0.100 −04	0.132 +03		0.526 −03	0.625 +04
	0.697 −03	0.957 +04		0.100 −02	0.733
	0.100 −02	0.986		0.200	0.833
	0.300	0.109 +05		0.400	0.903
	0.100 −01	0.118		0.100 −01	0.986
	0.300	0.125		0.250	0.106 +05
	0.100 +00	0.125		0.100 +00	0.106

TABLE NFN-9
TABULAR VALUES FOR FIG. NFN-9

Temp., °F	A	B_i, psi	Temp., °F	A	B_i, psi
100	0.100 −04	0.140 +03	900	0.100 −04	0.122 +03
	0.492 −03	0.717 +04		0.418 −03	0.528 +04
	0.100 −02	0.832		0.100 −02	0.572
	0.200	0.948		0.500	0.665
	0.500	0.108 +05		0.100 −01	0.711
	0.100 −01	0.116		0.200	0.760
	0.250	0.126			
			1100	0.100 −04	0.114 +03
300	0.100 −04	0.140 +03		0.430 −03	0.515 +04
	0.436 −03	0.633 +04		0.100 −02	0.547
	0.600	0.695		0.100 −01	0.646
	0.800	0.746		0.400	0.716
	0.100 −02	0.769			
	0.400	0.852	1300	0.100 −04	0.106 +03
	0.100 −01	0.909		0.459 −03	0.508 +04
	0.250	0.972		0.300 −02	0.508
600	0.100 −04	0.122 +03			
	0.418 −03	0.528 +04			
	0.100 −02	0.585			
	0.500	0.709			
	0.100 −01	0.771			
	0.200	0.836			

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TABLE NFN-10
TABULAR VALUES FOR FIG. NFN-10

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
100	0.100 −04	0.150 +03	600	0.100 −04	0.134 +03
	0.897 −03	0.137 +05		0.692 −03	0.938 +04
	0.200 −02	0.159		0.100 −02	0.981
	0.400	0.175		0.200	0.108 +05
	0.600	0.181		0.400	0.117
	0.100 −01	0.189		0.600	0.122
	0.200	0.196		0.100 −01	0.128
	0.400	0.201		0.200	0.135
				0.500	0.141
200	0.100 −04	0.150 +03	800	0.100 −04	0.125 +03
	0.822 −03	0.125 +05		0.667 −03	0.863 +04
	0.200 −02	0.145		0.100 −02	0.908
	0.400	0.161		0.200	0.997
	0.600	0.168		0.400	0.108 +05
	0.100 −01	0.176		0.600	0.112
	0.200	0.182		0.100 −01	0.118
	0.500	0.188		0.200	0.124
				0.600	0.130
400	0.100 −04	0.134 +03	1000	0.100 −04	0.125 +03
	0.732 −03	0.100 +05		0.655 −03	0.843 +04
	0.100 −02	0.104		0.100 −02	0.883
	0.200	0.115		0.200	0.960
	0.400	0.126		0.400	0.103 +05
	0.600	0.132		0.600	0.108
	0.100 −01	0.140		0.100 −01	0.112
	0.200	0.148		0.200	0.117
	0.600	0.156		0.600	0.123

TABLE NFN-11
TABULAR VALUES FOR FIG. NFN-11

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
100	0.100 −04	0.139 +03	400	0.100 −04	0.131 +03
	0.761 −03	0.108 +05		0.635 −03	0.846 +04
	0.200 −02	0.120		0.200 −02	0.948
	0.600	0.134		0.600	0.104 +05
	0.100 −01	0.140		0.100 −01	0.107
	0.200	0.148		0.200	0.111
	0.400	0.153		0.300	0.113
200	0.100 −04	0.139 +03	800 to 1000	0.100 −04	0.116 +03
	0.687 −03	0.970 +04		0.576 −03	0.680 +04
	0.200 −02	0.108 +05		0.200 −02	0.798
	0.600	0.119		0.600	0.896
	0.100 −01	0.123		0.100 −01	0.930
	0.200	0.129		0.200	0.961
	0.500	0.132		0.300	0.979
				0.500	0.993

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TABLE NFN-12
TABULAR VALUES FOR FIG. NFN-12

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
100	0.200 −03	0.300 +04	600	0.300 −03	0.400 +04
	0.400	0.600		0.450	0.600
	0.800	0.900		0.600	0.650
	0.300 −02	0.140 +05		0.250 −02	0.990
	0.500	0.160		0.200 −01	0.140 +05
	0.100 −01	0.180			
			800	0.400 −03	0.500 +04
200	0.250 −03	0.360 +04		0.500	0.600
	0.800	0.800		0.200 −02	0.900
	0.100 −02	0.100 +05		0.300	0.100 +05
	0.500	0.140		0.700	0.120
	0.100 −01	0.160		0.150 −01	0.130
	0.250	0.170			
400	0.400 −03	0.550 +04			
	0.500	0.650			
	0.200 −02	0.100 +05			
	0.400	0.120			
	0.850	0.140			

TABLE NFN-13
TABULAR VALUES FOR FIG. NFN-13

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
100	0.200 −03	0.280 +04	800	0.250 −03	0.300 +04
	0.500	0.700		0.500	0.600
	0.100 −02	0.930		0.600	0.730
	0.300	0.120 +05		0.120 −02	0.800
	0.100 −01	0.140		0.500	0.900
	0.250	0.148		0.260 −01	0.960
200	0.200 −03	0.280 +04	1200	0.600 −03	0.650 +04
	0.500	0.700		0.200 −02	0.700
	0.100 −02	0.900		0.400	0.715
	0.180	0.100 +05		0.590	0.737
	0.700	0.120		0.850	0.755
	0.250 −01	0.130		0.115 −01	0.778
				0.170	0.810
400	0.230 −03	0.300 +04		0.300	0.835
	0.500	0.650			
	0.800	0.800			
	0.150 −02	0.900			
	0.400	0.100 +05			
	0.250 −01	0.113			

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TABLE NFN-14
TABULAR VALUES FOR FIG. NFN-14

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
100	0.200 −03	0.280 +04	600	0.250 −03	0.343 +04
	0.800	0.118 +05		0.500	0.700
	0.100 −02	0.149		0.765	0.108 +05
	0.200	0.160		0.200 −02	0.120
	0.600	0.180		0.100 −01	0.140
	0.400 −01	0.200		0.500	0.150
200	0.200 −03	0.280 +04	1000	0.270 −03	0.350 +04
	0.800	0.118 +05		0.700	0.900
	0.920	0.137		0.150 −02	0.100 +05
	0.500 −02	0.160		0.650	0.120
	0.150 −01	0.170		0.300 −01	0.130
	0.400	0.180			
400	0.250 −03	0.343 +04			
	0.500	0.700			
	0.850	0.120 +05			
	0.400 −02	0.140			
	0.250 −01	0.160			

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TABLE NFN-15
TABULAR VALUES FOR FIG. NFN-15

Temp. up to 100°F, $E = 28.5 \times 10^6$ psi		Temp. 200°F, $E = 27.8 \times 10^6$ psi		Temp. 400°F, $E = 27.1 \times 10^6$ psi		Temp. 600°F, $E = 26.4 \times 10^6$ psi		Temp. 800°F, $E = 25.4 \times 10^6$ psi		Temp. 1,000°F, $E = 24.2 \times 10^6$ psi	
A	B, psi	A	B, psi	A	B, psi	A	B, psi	A	B, psi	A	B, psi
0.00021	3,000	0.00022	3,000	0.00022	3,000	0.00023	3,000	0.00024	3,000	0.00025	3,000
0.00042	6,000	0.00043	6,000	0.00044	6,000	0.00045	6,000	0.00047	6,000	0.00050	6,000
0.00084	12,000 P.L.	0.00081	11,300 P.L.	0.00068	9,200 P.L.	0.00061	8,000 P.L.	0.00067	8,500 P.L.	0.00062	7,500 P.L.
0.001	12,200	0.001	11,600	0.0009	9,500	0.0008	8,900	0.0009	8,600	0.0009	7,700
0.0015	13,200	0.0015	12,300	0.0010	9,800	0.0010	9,200	0.001	8,800	0.001	7,800
0.002	13,990	0.002	12,800	0.0015	10,400	0.0015	9,400	0.0015	9,200	0.0015	8,300
0.003	14,700	0.003	13,400	0.002	10,800	0.002	10,000	0.002	9,500	0.002	8,600
0.004	15,300	0.004	14,000	0.003	11,500	0.003	10,400	0.0025	9,700	0.0025	8,900
0.006	16,000	0.006	14,200	0.004	11,990	0.004	10,600	0.003	9,900	0.003	9,100
0.008	16,300	0.008	14,500	0.006	12,200	0.006	10,900	0.004	10,100	0.004	9,400
0.010	16,700	0.010	14,700	0.008	12,500	0.008	11,300	0.006	10,300	0.006	9,700
0.020	17,500	0.015	15,000	0.010	12,800	0.010	11,400	0.008	10,600	0.008	9,900
0.030	17,700	0.020	15,100	0.015	13,100	0.015	11,600	0.010	10,700	0.010	10,100
0.040	17,800	0.040	15,500	0.020	13,300	0.020	11,700	0.015	10,800	0.015	10,300
0.060	17,800	0.060	15,600	0.030	13,500	0.030	11,700	0.020	10,900	0.020	10,600
0.080	17,800	0.080	15,600	0.040	13,700	0.040	11,700	0.030	11,000	0.040	10,800
0.100	17,800	0.100	15,600	0.060	13,700	0.060	11,700	0.040	11,000	0.060	10,800
. . .	. . .	. . .	. . .	0.080	13,700	0.080	11,700	0.060	11,000	0.080	10,800
. . .	. . .	. . .	. . .	0.100	13,700	0.080	11,700	0.060	11,000	0.100	10,800
. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	0.080	11,000	. . .	. . .

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TABLE NFN-16
TABULAR VALUES FOR FIG. NFN-16

Temp. up to 100°F, $E = 31.1 \times 10^6$ psi		Temp. 200°F, $E = 30.9 \times 10^6$ psi		Temp. 400°F, $E = 30.1 \times 10^6$ psi		Temp. 600°F, $E = 29.3 \times 10^6$ psi		Temp. 800°F, $E = 28.4 \times 10^6$ psi	
A	B, psi	A	B, psi	A	B, psi	A	B, psi	A	B, psi
0.00019	3,000	0.000195	3,000	0.0002	3,000	0.00020	3,000	0.00021	3,000
0.00038	6,000	0.00039	6,000	0.00040	6,000	0.00041	6,000	0.00042	6,000
0.00058	9,000	0.00058	9,000	0.00060	9,000	0.00061	9,000	0.00063	9,000
0.00077	12,000	0.00078	12,000	0.00080	12,000	0.00082	12,000	0.00085	12,000
0.00115	18,000	0.00114	17,600	0.00108	16,300	0.0010	15,100	0.0010	14,200
0.0012	19,000	0.0015	18,600	0.0015	16,800	0.0015	15,900	0.0015	15,600
0.0015	19,500	0.002	19,600	0.002	17,400	0.002	16,500	0.002	16,200
0.002	20,500	0.003	20,800	0.003	18,100	0.003	17,000	0.003	17,400
0.003	21,600	0.004	21,400	0.004	18,900	0.004	17,500	0.004	17,800
0.004	22,800	0.006	22,000	0.006	19,600	0.006	18,400	0.006	18,200
0.005	23,000	0.008	22,600	0.008	20,000	0.008	18,600	0.008	18,400
0.007	23,600	0.010	22,800	0.010	20,200	0.010	19,100	0.010	18,500
0.010	24,500	0.020	23,400	0.020	20,900	0.020	19,900	0.020	18,800
0.012	24,700	0.040	23,800	0.040	21,100	0.040	19,900	0.040	19,000
0.030	25,000	0.060	24,000	0.060	21,200	0.060	19,900	0.060	19,100
0.050	25,500	0.080	24,000	0.080	21,300	0.080	19,900	0.080	19,100
0.100	25,500	0.100	24,000	0.100	21,400	0.100	19,900	0.100	19,100

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TABLE NFN-17
TABULAR VALUES FOR FIG. NFN-17

Temp., °F	A	B, psi	Temp., °F	A	B, psi
100	0.200 −03	0.300 +04	500	0.220 −03	0.300 +04
	0.930	0.140 +05		0.660	0.900
	0.108 −02	0.160		0.800	0.110 +05
	0.116	0.170		0.900	0.120
	0.125	0.180		0.950	0.125
	0.140	0.190		0.100 −02	0.130
	0.160	0.200		0.112	0.135
	0.182	0.210		0.125	0.140
	0.205	0.220		0.139	0.145
	0.240	0.230		0.155	0.150
	0.280	0.240		0.190	0.160
	0.350	0.250		0.250	0.170
	0.700	0.275		0.340	0.180
	0.200 −01	0.300		0.500	0.190
	0.100 +00	0.300		0.800	0.200
				0.150 −01	0.210
				0.100 +00	0.210
			800 to 1200	0.250 −03	0.300 +04
300	0.210 −03	0.300 +04		0.800	0.900
	0.850	0.120 +05		0.105 −02	0.110 +05
	0.950	0.130		0.125	0.120
	0.105 −02	0.140		0.135	0.125
	0.125	0.150		0.148	0.130
	0.142	0.160		0.163	0.135
	0.165	0.170		0.180	0.140
	0.190	0.180		0.200	0.145
	0.230	0.190		0.225	0.150
	0.300	0.200		0.280	0.160
	0.400	0.210		0.370	0.170
	0.520	0.220		0.540	0.180
	0.100 −01	0.230		0.830	0.190
	0.400	0.240		0.165 −01	0.200
	0.800	0.243		0.300	0.205
	0.100 +00	0.243		0.100 +00	0.205

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TABLE NFN-18
TABULAR VALUES FOR FIG. NFN-18

Room Temp., $E = 28.4 \times 10^6$ psi		Temp. 200°F, $E = 28.4 \times 10^6$ psi		Temp. 350°F, $E = 27.0 \times 10^6$ psi		Temp. 500°F, $E = 27.0 \times 10^6$ psi		Temp. 650°F, $E = 25.6 \times 10^6$ psi		Temp. 800°F, $E = 25.6 \times 10^6$ psi	
A	B, psi	A	B, psi	A	B, psi	A	B, psi	A	B, psi	A	B, psi
0.0002	2,340	0.0002	2,840	0.0002	2,700	0.0002	2,700	0.0002	2,560	0.0002	2,560
0.00079	11,300	0.00068	9,700	0.00064	8,600	0.00057	7,700	0.00049	6,300	0.00045	5,800
0.0008	11,400	0.0007	9,800	0.0007	8,900	0.0006	7,800	0.0005	6,450	0.0005	6,000
0.0009	11,600	0.0008	10,200	0.0008	9,200	0.0007	8,100	0.0006	6,700	0.0006	6,400
0.001	12,000	0.0009	10,400	0.0009	9,400	0.0008	8,400	0.0007	7,000	0.0007	6,700
0.0015	12,800	0.001	10,600	0.001	9,700	0.0009	8,600	0.0008	7,300	0.0008	6,900
0.002	13,800	0.0015	11,600	0.0015	10,400	0.001	8,800	0.0009	7,500	0.0009	7,200
0.0025	14,100	0.002	12,300	0.002	11,000	0.0015	9,000	0.001	7,800	0.001	7,400
0.003	14,500	0.0025	12,900	0.0025	11,500	0.002	10,100	0.0015	8,500	0.0015	8,000
0.004	15,100	0.003	13,300	0.003	11,800	0.0025	10,300	0.002	9,000	0.002	8,400
0.005	15,600	0.004	13,900	0.004	12,300	0.003	10,600	0.0025	9,300	0.0025	8,800
0.006	16,000	0.005	14,300	0.005	12,600	0.004	11,000	0.003	9,500	0.003	9,000
0.007	16,400	0.006	14,600	0.006	12,800	0.005	11,300	0.004	10,000	0.004	9,200
0.008	16,500	0.007	14,900	0.007	13,000	0.006	11,400	0.005	10,300	0.005	9,500
0.009	16,600	0.008	15,000	0.008	13,100	0.007	11,500	0.006	10,400	0.006	9,600
0.01	16,800	0.009	15,100	0.009	13,200	0.008	11,600	0.007	10,500	0.007	9,700
0.015	17,100	0.01	15,200	0.01	13,300	0.009	11,700	0.008	10,600	0.008	9,800
0.02	17,400	0.015	15,400	0.015	13,500	0.01	11,800	0.009	10,700	0.009	9,900
0.025	17,500	0.02	15,500	0.02	13,700	0.015	12,000	0.01	10,700	0.01	10,000
0.03	17,500	0.025	15,600	0.025	13,700	0.02	12,100	0.015	11,000	0.015	10,100
0.04	17,500	0.03	15,600	0.03	13,700	0.025	12,200	0.02	11,000	0.02	10,200
0.05	17,500	0.04	15,600	0.04	13,800	0.03	12,300	0.025	11,200	0.025	10,300
0.06	17,500	0.05	15,600	0.05	13,800	0.04	12,500	0.03	11,200	0.03	10,400
0.07	17,500	0.06	15,600	0.06	13,800	0.05	12,600	0.04	11,400	0.04	10,500
. . .	. . .	0.07	15,600	0.07	13,800	0.06	12,600	0.05	11,400	0.05	10,500
. . .	. . .	. . .	. . .	0.08	13,800	0.07	12,600	0.06	11,400	0.06	10,500
. . .	. . .	. . .	. . .	0.09	13,800	0.08	12,600	. . .	. . .	. . .	. . .

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TABLE NFN-19
TABULAR VALUES FOR FIG. NFN-19

Room Temp., $E = 28.4 \times 10^6$ psi		Temp. 200°F, $E = 28.4 \times 10^6$ psi		Temp. 350°F, $E = 27.0 \times 10^6$ psi		Temp. 500°F, $E = 27.0 \times 10^6$ psi		Temp. 650°F, $E = 25.0 \times 10^6$ psi		Temp. 800°F, $E = 25.0 \times 10^6$ psi	
A	B, psi	A	B, psi	A	B, psi	A	B, psi	A	B, psi	A	B, psi
0.0002	2,840	0.0002	2,840	0.0002	2,700	0.0002	2,700	0.0002	2,500	0.0002	2,500
0.00061	9,200	0.00056	8,000	0.00051	7,000	0.00045	6,100	0.0004	5,000	0.00037	4,650
0.0007	9,400	0.0006	8,100	0.0006	7,300	0.0005	6,200	0.0005	5,500	0.0004	4,750
0.0008	9,700	0.0007	8,500	0.0007	7,650	0.0006	6,600	0.0006	5,800	0.0005	5,100
0.0009	10,000	0.0008	8,750	0.0008	7,900	0.0007	6,900	0.0007	6,000	0.0006	5,150
0.0010	10,300	0.0009	9,000	0.0009	8,150	0.0008	7,200	0.0008	6,200	0.0007	5,600
0.0015	11,300	0.001	9,200	0.001	8,300	0.0009	7,400	0.0009	6,400	0.0008	5,850
0.002	12,000	0.0015	10,000	0.0015	9,000	0.001	7,500	0.001	6,500	0.0009	6,000
0.0025	12,500	0.002	10,500	0.002	9,300	0.0015	8,000	0.0015	7,100	0.001	6,150
0.003	12,900	0.0025	11,000	0.0025	9,700	0.002	8,400	0.002	7,600	0.0015	6,700
0.004	13,400	0.003	11,300	0.003	10,000	0.0025	8,600	0.0025	7,800	0.002	7,100
0.005	13,800	0.004	11,700	0.004	10,300	0.003	8,800	0.003	8,000	0.0025	7,300
0.006	13,950	0.005	12,000	0.005	10,500	0.004	9,100	0.004	8,300	0.003	7,500
0.007	14,050	0.006	12,300	0.006	10,700	0.005	9,400	0.005	8,500	0.004	7,800
0.008	14,300	0.007	12,400	0.007	10,800	0.006	9,500	0.006	8,650	0.005	8,000
0.009	14,400	0.008	12,500	0.008	10,850	0.007	9,600	0.007	8,800	0.006	8,150
0.010	14,500	0.009	12,600	0.009	10,900	0.008	9,700	0.008	8,900	0.007	8,300
0.015	14,900	0.010	12,700	0.01	10,950	0.009	9,800	0.009	9,000	0.008	8,400
0.020	15,000	0.015	12,900	0.015	11,200	0.01	9,900	0.01	9,050	0.009	8,500
0.025	15,000	0.020	13,200	0.02	11,400	0.015	10,000	0.015	9,200	0.010	8,600
0.03	15,025	0.025	13,300	0.025	11,400	0.02	10,100	0.02	9,500	0.015	8,700
0.04	15,075	0.03	13,300	0.03	11,400	0.025	10,100	0.025	9,500	0.02	8,800
0.05	15,100	0.04	13,300	0.04	11,400	0.03	10,200	0.03	9,500	0.025	9,000
0.06	15,125	0.05	13,300	0.05	11,400	0.04	10,300	0.04	9,500	0.03	9,300
0.07	15,175	0.06	13,300	0.06	11,400	0.05	10,300	. . .	. . .	0.04	9,300
0.08	15,200	0.07	13,300	0.07	11,400	0.06	10,400	. . .	. . .	. . .	. . .
. . .	. . .	0.08	13,300	0.08	11,400	0.07	10,400	. . .	. . .	. . .	. . .
. . .	. . .	0.09	13,300	. . .	. . .	0.08	10,400	. . .	. . .	. . .	. . .

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TABLE NFN-22
TABULAR VALUES FOR FIG. NFN-22

Temp., °F	A	B, psi	Temp., °F	A	B, psi
100	0.0002	3,000	800	0.004	14,800
	0.0009	13,400		0.005	14,900
	0.002	15,700		0.1	14,900
	0.003	17,000			
	0.004	17,700	1,200	0.00025	3,000
	0.005	18,400		0.001	12,000
	0.007	19,200		0.002	13,600
	0.009	19,600		0.003	14,300
	0.012	20,000		0.004	14,500
	0.1	20,000		0.005	14,600
				0.1	14,600
200	0.0002	3,000			
	0.0009	13,400	1,350	0.00025	2,800
	0.002	15,700		0.001	11,500
	0.003	17,000		0.002	13,000
	0.004	17,700		0.003	13,600
	0.005	18,400		0.004	14,000
	0.1	18,400		0.1	14,000
400	0.0002	2,750	1,400	0.00025	2,700
	0.00095	13,600		0.001	11,300
	0.002	15,700		0.1	11,300
	0.0025	16,300			
	0.003	16,600	1,450	0.00025	2,700
	0.004	16,900		0.001	8,500
	0.1	16,900		0.1	8,500
800	0.0002	2,500	1,500	0.00025	2,700
	0.00095	12,500		0.001	6,100
	0.002	14,000		0.1	6,100
	0.003	14,600			

TABLE NFN-20
TABULAR VALUES FOR FIG. NFN-20

Temp., °F	A	B, psi	Temp., °F	A	B, psi
100	0.132 −03	0.200 +04	400	0.143 −03	0.200 +04
	0.513	0.775		0.554	0.775
	0.600	0.790		0.600	0.790
	0.100 −02	0.900		0.100 −02	0.900
	0.300	0.119 +05		0.300	0.119 +05
	0.400	0.126		0.400	0.126
	0.500	0.132		0.500	0.132
	0.600	0.136		0.600	0.136
	0.700	0.140		0.700	0.140
	0.800	0.142		0.800	0.142
	0.900	0.144		0.900	0.144
	0.100 −01	0.145		0.100 −01	0.145
	0.150	0.149		0.150	0.149
	0.200	0.150		0.200	0.150

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TABLE NFN-24
TABULAR VALUES FOR FIG. NFN-24

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
70	0.602 −04	0.100 +04	600	0.722 −04	0.100 +04
	0.498 −03	0.827		0.488 −03	0.674
	0.748	0.124 +05		0.705	0.924
	0.878	0.144		0.950	0.106 +05
	0.968	0.155		0.112 −02	0.112
	0.111 −02	0.166		0.120	0.114
	0.141	0.177		0.130	0.116
	0.198	0.187		0.140	0.118
	0.258	0.192		0.251	0.129
	0.354	0.198		0.497	0.140
	0.649	0.207		0.710	0.146
	0.960	0.213		0.993	0.151
	0.197 −01	0.223		0.183 −01	0.160
	0.500	0.230		0.500	0.162
	0.100 +00	0.230		0.100 +00	0.162
300	0.676 −04	0.100 +04	1300	0.800 −04	0.100 +04
	0.496 −03	0.733		0.429 −03	0.536
	0.728	0.104 +05		0.637	0.800
	0.924	0.120		0.848	0.920
	0.101 −02	0.125		0.120 −02	0.105 +05
	0.113	0.130		0.126	0.106
	0.128	0.135		0.135	0.108
	0.148	0.139		0.145	0.109
	0.322	0.158		0.288	0.125
	0.432	0.164		0.443	0.130
	0.721	0.174		0.573	0.135
	0.966	0.180		0.749	0.138
	0.199 −01	0.193		0.195 −01	0.150
	0.500	0.197		0.500	0.156
	0.100 +00	0.197		0.100 +00	0.156

TABLE NFN-23
TABULAR VALUES FOR FIG. NFN-23

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
100	0.68 −03	10,000	500	0.75 −03	10,000
	0.48	14,100		0.10 −02	13,800
	0.40 −02	18,400		0.20	14,400
	0.10 −01	21,000		0.40	15,500
	0.20	22,400		0.10 −01	17,100
	0.30	23,000		0.20	17,400
				0.25	17,700
300	0.75 −03	10,000	700	0.78 −03	10,000
	0.11 −02	14,300		0.10 −02	12,300
	0.20	14,800		0.20	13,200
	0.40	16,300		0.40	14,300
	0.10 −01	18,200		0.10 −01	15,900
	0.20	19,500		0.20	17,200
	0.30	20,100		0.30	18,000

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TABLE NFT-1
TABULAR VALUES FOR FIG. NFT-1

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
100	0.100 −04	0.837 +02	400	0.100 −04	0.642 +02
	0.116 −02	0.101 +05		0.788 −03	0.527 +04
	0.150	0.119		0.900	0.575
	0.200	0.141		0.100 −02	0.622
	0.250	0.159		0.150	0.756
	0.300	0.171		0.200	0.845
	0.400	0.190		0.250	0.912
	0.500	0.203		0.300	0.971
	0.600	0.211		0.400	0.107 +05
	0.700	0.219		0.500	0.113
	0.800	0.225		0.600	0.119
	0.900	0.229		0.700	0.122
	0.100 −01	0.232		0.800	0.126
	0.150	0.245		0.900	0.130
	0.200	0.248		0.100 −01	0.132
	0.250	0.252		0.126	0.137
	0.100 +00	0.252		0.100 +00	0.137
200	0.100 −04	0.725 +02			
	0.122 −02	0.910 +04			
	0.150	0.103 +05	600	0.100 −04	0.569 +02
	0.200	0.120		0.692 −03	0.406 +04
	0.250	0.132		0.800	0.448
	0.300	0.141		0.900	0.477
	0.400	0.158		0.100 −02	0.502
	0.500	0.172		0.150	0.587
	0.600	0.181		0.200	0.647
	0.700	0.187		0.250	0.692
	0.800	0.192		0.300	0.728
	0.900	0.195		0.400	0.774
	0.100 −01	0.198		0.500	0.812
	0.150	0.203		0.700	0.859
	0.200	0.206		0.900	0.891
	0.250	0.208		0.100 −01	0.902
	0.300	0.209		0.150	0.927
	0.100 +00	0.209		0.100 +00	0.927

TABLE NFT-2
TABULAR VALUES FOR FIG. NFT-2

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
100	0.100 −04	0.823 +02	400	0.100 −04	0.641 +02
	0.128 −02	0.110 +05		0.685 −03	0.455 +04
	0.150	0.121		0.100 −02	0.580
	0.200	0.141		0.200	0.720
	0.300	0.161		0.400	0.890
	0.500	0.179		0.600	0.990
	0.800	0.189		0.900	0.108 +05
	0.100 −01	0.191		0.100 −01	0.109
	0.200	0.197		0.130	0.113
	0.600	0.203		0.100 +00	0.113
	0.100 +00	0.203			
			600	0.100 −04	0.568 +02
				0.685 −03	0.404 +04
200	0.100 −04	0.708 +02		0.800	0.448
	0.123 −02	0.920 +04		0.100 −02	0.498
	0.150	0.102 +05		0.200	0.615
	0.200	0.113		0.300	0.692
	0.400	0.134		0.500	0.777
	0.700	0.148		0.800	0.823
	0.100 −01	0.155		0.100 −01	0.857
	0.200	0.163		0.150	0.881
	0.400	0.168		0.180	0.904
	0.100 +00	0.168		0.100 +00	0.904

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TABLE NFT-3
TABULAR VALUES FOR FIG. NFT-3

Temp. 100°F, E = 15.5 × 10^6 psi		Temp. 400°F, E = 13.8 × 10^6 psi		Temp. 600°F, E = 12.5 × 10^6 psi	
A	B, psi	A	B, psi	A	B, psi
0.100 −04	0.775 +02	0.100 −04	0.685 +02	0.100 −04	0.620 +02
0.119 −02	0.900 +04	0.733 −03	0.500 +04	0.440 −03	0.262 +04
0.250 −02	0.100 +05	0.200 −02	0.550 +04	0.100 −02	0.288 +04
0.550 −02	0.110 +05	0.400 −02	0.579 +04	0.150 −02	0.300 +04
0.110 −01	0.1164 +05	0.700 −02	0.5947 +04	0.250 −02	0.3136 +04
0.200 −01	0.1218 +05	0.900 −02	0.600 +04	0.400 −02	0.325 +04
0.300 −01	0.1247 +05	0.200 −01	0.612 +04	0.700 −02	0.335 +04
0.400 −01	0.128 +05	0.300 −01	0.615 +04	0.100 −01	0.339 +04
0.500 −01	0.1288 +05	0.400 −01	0.615 +04	0.200 −01	0.345 +04
0.600 −01	0.130 +05	0.500 −01	0.615 +04	0.300 −01	0.349 +04
0.100 +00	0.132 +05	0.100 +00	0.615 +04	0.400 −01	0.350 +04
. . .	. . .	. . .	. . .	0.100 +00	0.350 +04

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TABLE NFZ-1
TABULAR VALUES FOR FIG. NFZ-1

Temp., °F	A	B_r, psi	Temp., °F	A	B_r, psi
100	0.100 −04	0.711 +02	500	0.100 −04	0.575 +02
	0.108 −02	0.841 +04		0.383 −03	0.223 +04
	0.200	0.101 +05		0.100 −02	0.311
	0.400	0.118		0.300	0.431
	0.600	0.128		0.900	0.548
	0.100 −01	0.139			
	0.150	0.145	700	0.100 −04	0.505 +02
				0.293 −03	0.152 +04
300	0.100 −04	0.659 +02		0.100 −02	0.214
	0.672 −03	0.467 +04		0.300	0.289
	0.100 −02	0.559		0.900	0.375
	0.150	0.641			
	0.200	0.686			
	0.400	0.772			
	0.600	0.811			
	0.100 −01	0.845			
	0.200	0.886			
	0.400	0.911			

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TABLE NFZ-2
TABULAR VALUES FOR FIG. NFZ-2

Temp. up to 100°F, $E = 14.6 \times 10^6$ psi		Temp. 300°F, $E = 12.5 \times 10^6$ psi		Temp. 500°F, $E = 10.9 \times 10^6$ psi		Temp. 700°F, $E = 9.7 \times 10^6$ psi	
A	B, psi	A	B, psi	A	B, psi	A	B, psi
0.00002	146	0.00002	125	0.00002	109	0.00002	97
0.00289	21,097	0.00196	12,250	0.00151	8,230	0.00126	6,111
0.003	21,500	0.0025	12,400	0.002	9,500	0.0015	6,300
0.004	22,200	0.003	13,000	0.0025	9,800	0.0020	6,600
0.005	22,800	0.004	13,600	0.003	10,100	0.0025	6,800
0.006	23,000	0.005	14,000	0.004	10,400	0.003	6,900
0.007	23,700	0.006	14,400	0.005	10,700	0.004	7,100
0.008	24,000	0.007	14,600	0.006	10,800	0.005	7,200
0.009	24,100	0.008	14,900	0.007	10,900	0.006	7,400
0.01	24,200	0.009	15,100	0.008	11,000	0.007	7,500
0.015	24,500	0.01	15,200	0.009	11,050	0.008	7,600
0.02	25,000	0.015	15,400	0.01	11,100	0.009	7,700
0.03	25,100	0.02	15,500	0.015	11,150	0.01	7,800
0.035	25,300	0.03	15,600	0.020	11,200	0.012	7,820
. . .	. . .	0.04	15,700	0.030	11,250	. . .	. . .
. . .	. . .	0.045	15,800	0.040	11,300	. . .	. . .
. . .	. . .	. . .	. . .	0.050	11,300	. . .	. . .

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NOTES TO TABLES OF SUBPART 3:

GENERAL NOTES:

(a) See Table SI-1 for the conversion of temperatures to degrees Celsius.

(b) For the SI unit, multiply the external pressure in psi by 6.895 to convert to kPa.

(c) For the SI unit, multiply the modulus of elasticity E by 6.895 to convert to kPa.

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Appendices

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