

Base Metal Grouping for Welding Procedure and Performance Qualification



American Welding Society

Base Metal Grouping for Welding Procedure and Performance Qualification

Prepared by the
American Welding Society (AWS) B2 Committee on Procedure and Performance Qualification

Under the Direction of the
AWS Technical Activities Committee

Approved by the
AWS Board of Directors

Abstract

This document provides the AWS base metal grouping for welding procedure and performance qualification and is identical to Annex IV of AWS B2.1:2005, *Specification for Welding Procedure and Performance Qualification*.



American Welding Society

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Base Metal Grouping for Welding Procedure and Performance Qualification

1. Scope

This publication is an extract of AWS B2.1, *Specification for Welding Procedure and Performance Qualification*, and is identical to Annex IV, Base Metal Grouping, in the 2005 edition of that standard.

This publication may be referred to by other codes and standards that have welding procedure and performance requirements in order to avoid duplication of materials tables in those publications.

Base metals and filler metals have been grouped into categories that will minimize the number of qualification tests required. Substitution of one base metal or filler metal for another, even when within the allowable rules, should only be made after an evaluation of the factors involved. For some materials, additional tests may be required. Materials not listed require separate qualification.

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Annex IV

Base Metal Grouping

This annex has been extracted from AWS B2.1:2005, *Specification for Welding Procedure and Performance Qualification*, and is a duplicate of Annex IV in that standard.

IV 1. Base Metal Specifications

Table IV-1 indexes ASTM, ABS, API, AISI, CSA, AMS, ISO, NACE, and MSS base metals in numerical order to provide ease of reference when determining into what grouping a particular base metal specification falls.

Table IV-2 groups base metals for welding procedure and performance qualification on the basis of mechanical properties, chemical composition, and metallurgical compatibility to minimize the number of welding qualification where this can logically be done.

IV 2. M-Number Groupings

Base metal has been divided into general categories (e.g., M-Numbers 1, 1A, 3, 3A, 4, 4A, etc.), and further divided into groups within each general category.

The category grouping does not imply that base metals may be substituted for other base metals within the same M-Number without consideration for weldability.

IV 3. Iron Castings Specifications

Base metal specifications for iron castings are divided into AWS D11.2 groups.

Table IV-1
Listing of Base Metal Specifications—Ferrous Alloys

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A31	1	1	Grade B	K03100	Rivets
ASTM	A36	1	1	A36	K02595	Plate
ASTM	A36	1	1	A36	K02596	Plate & Bars
ASTM	A36	1	1	A36	K02597	Plate & Bars
ASTM	A36	1	1	A36	K02598	Plate & Bars
ASTM	A36	1	1	A36	K02599	Plate & Bars
ASTM	A36	1	1	A36	K02600	Shapes
ASTM	A53	1	1	Type E, Grade A	K02504	Resistance Welded Pipe
ASTM	A53	1	1	Type E, Grade B	K03005	Resistance Welded Pipe
ASTM	A53	1	1	Type F, Grade A	—	Furnace Welded Pipe
ASTM	A53	1	1	Type S, Grade A	K02504	Seamless Pipe
ASTM	A53	1	1	Type S, Grade B	K03005	Seamless Pipe
ASTM	A105	1	2	—	K03504	Pipe Flanges
ASTM	A106	1	1	Grade A	K02501	Seamless Pipe
ASTM	A106	1	1	Grade B	K03006	Seamless Pipe
ASTM	A106	1	2	Grade C	K03501	Seamless Pipe
ASTM	A108	1	1	Grade 1015 CW	G10150	Bar
ASTM	A108	1	1	Grade 1018 CW	G10180	Bar
ASTM	A108	1	1	Grade 1020 CW	G10200	Bar
ASTM	A131	1	1	Grade A	K02300	Structural
ASTM	A131	1	1	Grade B	K02102	Structural
ASTM	A131	1	1	Grade CS	K01601	Structural
ASTM	A131	1	1	Grade D	K02101	Structural
ASTM	A131	1	1	Grade DS	K01601	Structural
ASTM	A131	1	2	Grade E	K01801	Structural
ASTM	A131	1	2	Grade AH32	K11846	Structural
ASTM	A131	1	2	Grade AH36	K11852	Structural
ASTM	A131	1	2	Grade DH32	K11846	Structural
ASTM	A131	1	2	Grade DH36	K11852	Structural
ASTM	A131	1	2	Grade EH32	K11846	Structural
ASTM	A131	1	2	Grade EH36	K11852	Structural
ASTM	A134	1	1	A36	—	Welded Pipe
ASTM	A134	1	1	A283 A	—	Welded Pipe
ASTM	A134	1	1	A283 B	—	Welded Pipe
ASTM	A134	1	1	A283 C	K02401	Welded Pipe
ASTM	A134	1	1	A283 D	K02702	Welded Pipe
ASTM	A134	1	1	A285 A	K01700	Welded Pipe
ASTM	A134	1	1	A285 B	K02200	Welded Pipe
ASTM	A134	1	1	A285 C	K02801	Welded Pipe
ASTM	A135	1	1	Grade A	—	ERW Pipe
ASTM	A135	1	1	Grade B	—	ERW Pipe
ASTM	A139	1	1	Grade A	—	Welded Pipe
ASTM	A139	1	1	Grade B	K03003	Welded Pipe
ASTM	A139	1	1	Grade C	K03004	Welded Pipe

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A139	1	1	Grade D	K03010	Welded Pipe
ASTM	A139	1	1	Grade E	K03012	Welded Pipe
ASTM	A148	4	3	Grade 90-60	—	Castings
ASTM	A161	3	1	Grade T1	K11522	Tube
ASTM	A161	1	1	Low Carbon	K01504	Low C Tube
ASTM	A167	8	2	Type 308	S30800	Plate, Sheet & Strip
ASTM	A167	8	2	Type 309	S30900	Plate, Sheet & Strip
ASTM	A167	8	2	Type 309S	S30908	Plate, Sheet & Strip
ASTM	A167	8	2	Type 310	S31000	Plate, Sheet & Strip
ASTM	A167	8	2	Type 310S	S31008	Plate, Sheet & Strip
ASTM	A178	1	1	Grade A	K01200	ERW Tube
ASTM	A178	1	1	Grade C	K03503	ERW Tube
ASTM	A178	1	2	Grade D	—	ERW Tube
ASTM	A179	1	1	—	K01200	Seamless Tube
ASTM	A181	1	1	Class 60	K03502	Pipe Flanges
ASTM	A181	1	2	Class 70	K03502	Pipe Flanges
ASTM	A182	3	2	Grade F2	K12122	Pipe Flanges & Fittings
ASTM	A182	3	2	Grade F1	K12822	Pipe Flanges & Fittings
ASTM	A182	4	1	Grade F12, Class 1	K11562	Pipe Flanges & Fittings
ASTM	A182	4	1	Grade F12, Class 2	K11564	Pipe Flanges & Fittings
ASTM	A182	4	1	Grade F11, Class 2	K11572	Pipe Flanges & Fittings
ASTM	A182	4	1	Grade F11, Class 3	K11572	Pipe Flanges & Fittings
ASTM	A182	4	1	Grade F11, Class 1	K11597	Pipe Flanges & Fittings
ASTM	A182	5A	1	Grade F22, Class 1	K21590	Pipe Flanges & Fittings
ASTM	A182	5A	1	Grade F22, Class 3	K21590	Pipe Flanges & Fittings
ASTM	A182	5A	1	Grade F21	K31545	Pipe Flanges & Fittings
ASTM	A182	5B	1	Grade F5	K41545	Pipe Flanges & Fittings
ASTM	A182	5B	1	Grade F5a	K42544	Pipe Flanges & Fittings
ASTM	A182	5B	1	Grade F9	K90941	Pipe Flanges & Fittings
ASTM	A182	5B	2	Grade F91	K90901	Pipe Flanges & Fittings
ASTM	A182	5C	1	Grade F3V	K31830	Pipe Flanges & Fittings
ASTM	A182	6	1	Grade F6a, Class 1	S41000	Pipe Flanges & Fittings
ASTM	A182	6	2	Grade F429	S42900	Pipe Flanges & Fittings
ASTM	A182	6	3	Grade F6a, Class 2	S41000	Pipe Flanges & Fittings
ASTM	A182	6	3	Grade F6a, Class 3	S41000	Pipe Flanges & Fittings
ASTM	A182	6	3	Grade F6a, Class 4	S41000	Pipe Flanges & Fittings
ASTM	A182	6	3	Grade F6b	S41026	Pipe Flanges & Fittings
ASTM	A182	6	4	Grade F6NM	S41500	Pipe Flanges & Fittings
ASTM	A182	7	2	Grade F430	S43000	Pipe Flanges & Fittings
ASTM	A182	8	1	Grade F304	S30400	Pipe Flanges & Fittings
ASTM	A182	8	1	Grade F304L	S30403	Pipe Flanges & Fittings
ASTM	A182	8	1	Grade F304H	S30409	Pipe Flanges & Fittings
ASTM	A182	8	1	Grade F304N	S30451	Pipe Flanges & Fittings
ASTM	A182	8	1	Grade F304LN	S30453	Pipe Flanges & Fittings
ASTM	A182	8	1	Grade F46	S30600	Pipe Flanges & Fittings

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A182	8	1	Grade F316	S31600	Pipe Flanges & Fittings
ASTM	A182	8	1	Grade F316L	S31603	Pipe Flanges & Fittings
ASTM	A182	8	1	Grade F316H	S31609	Pipe Flanges & Fittings
ASTM	A182	8	1	Grade F316N	S31651	Pipe Flanges & Fittings
ASTM	A182	8	1	Grade F316LN	S31653	Pipe Flanges & Fittings
ASTM	A182	8	1	Grade F317	S31700	Pipe Flanges & Fittings
ASTM	A182	8	1	Grade F317L	S31703	Pipe Flanges & Fittings
ASTM	A182	8	1	Grade F321	S32100	Pipe Flanges & Fittings
ASTM	A182	8	1	Grade F321H	S32109	Pipe Flanges & Fittings
ASTM	A182	8	1	Grade F347	S34700	Pipe Flanges & Fittings
ASTM	A182	8	1	Grade F347H	S34709	Pipe Flanges & Fittings
ASTM	A182	8	1	Grade F348	S34800	Pipe Flanges & Fittings
ASTM	A182	8	1	Grade F348H	S34809	Pipe Flanges & Fittings
ASTM	A182	8	2	Grade F10	S33100	Pipe Flanges & Fittings
ASTM	A182	8	2	Grade F45	S30815	Pipe Flanges & Fittings
ASTM	A182	8	2	Grade F310	S31000	Pipe Flanges & Fittings
ASTM	A182	8	3	Grade FXM-19	S20910	Pipe Flanges & Fittings
ASTM	A182	8	3	Grade FXM-11	S21904	Pipe Flanges & Fittings
ASTM	A182	8	4	Grade F44	S31254	Pipe Flanges & Fittings
ASTM	A182	9A	1	Grade FR	K22035	Pipe Flanges & Fittings
ASTM	A182	10H	1	Grade F50	S31200	Pipe Flanges & Fittings
ASTM	A182	10H	1	Grade F51	S31803	Pipe Flanges & Fittings
ASTM	A182	10I	1	Grade FXM-27Cb	S44627	Pipe Flanges & Fittings
ASTM	A192	1	1	—	K01201	Seamless Tube
ASTM	A199	4	1	Grade T11	K11597	Seamless Tube
ASTM	A199	5A	1	Grade T21	K31545	Seamless Tube
ASTM	A199	5A	1	Grade T22	K21590	Seamless Tube
ASTM	A199	5A	1	Grade T4	K31509	Seamless Tube
ASTM	A199	5B	1	Grade T5	K41545	Seamless Tube
ASTM	A199	5B	1	Grade T9	K81590	Seamless Tube
ASTM	A199	5B	2	Grade T91	S50460	Seamless Tube
ASTM	A200	5A	1	Grade T21	K31545	Tube
ASTM	A200	5A	1	Grade T22	K21590	Tube
ASTM	A200	5A	1	Grade T4	K31509	Tube
ASTM	A202	4	1	Grade A	K11742	Plate
ASTM	A202	4	1	Grade B	K12542	Plate
ASTM	A203	9A	1	Grade A	K21703	Plate
ASTM	A203	9A	1	Grade B	K22103	Plate
ASTM	A203	9B	1	Grade F	K30018	Plate
ASTM	A203	9B	1	Grade D	K31718	Plate
ASTM	A203	9B	1	Grade E	K32018	Plate
ASTM	A204	3	1	Grade A	K11820	Plate
ASTM	A204	3	2	Grade B	K12020	Plate
ASTM	A204	3	2	Grade C	K12320	Plate
ASTM	A209	3	1	Grade T1	K11522	Seamless Tube

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A209	3	1	Grade T1a	K12023	Seamless Tube
ASTM	A209	3	1	Grade T1b	K11422	Seamless Tube
ASTM	A210	1	1	Grade A1	K02707	Seamless Tube
ASTM	A210	1	2	Grade C	K03501	ERW Tube
ASTM	A213	3	1	Grade T2	K11547	Seamless Tube
ASTM	A213	4	1	Grade T12	K11562	Seamless Tube
ASTM	A213	4	1	Grade T11	K11597	Seamless Tube
ASTM	A213	5A	1	Grade T22	K21590	Seamless Tube
ASTM	A213	5A	1	Grade T21	K31545	Seamless Tube
ASTM	A213	5B	1	Grade T5c	K41245	Seamless Tube
ASTM	A213	5B	1	Grade T5	K41545	Seamless Tube
ASTM	A213	5B	1	Grade T5b	K51545	Seamless Tube
ASTM	A213	5B	1	Grade T9	K90941	Seamless Tube
ASTM	A213	5B	2	Grade T91	K90901	Seamless Tube
ASTM	A213	8	1	TP304	S30400	Seamless Tube
ASTM	A213	8	1	TP304L	S30403	Seamless Tube
ASTM	A213	8	1	TP304H	S30409	Seamless Tube
ASTM	A213	8	1	TP304N	S30451	Seamless Tube
ASTM	A213	8	1	TP304LN	S30453	Seamless Tube
ASTM	A213	8	1	TP316	S31600	Seamless Tube
ASTM	A213	8	1	TP316L	S31603	Seamless Tube
ASTM	A213	8	1	TP316H	S31609	Seamless Tube
ASTM	A213	8	1	TP316N	S31651	Seamless Tube
ASTM	A213	8	1	TP316LN	S31653	Seamless Tube
ASTM	A213	8	1	TP321	S32100	Seamless Tube
ASTM	A213	8	1	TP321H	S32109	Seamless Tube
ASTM	A213	8	1	TP347	S34700	Seamless Tube
ASTM	A213	8	1	TP347H	S34709	Seamless Tube
ASTM	A213	8	1	TP348	S34800	Seamless Tube
ASTM	A213	8	1	TP348H	S34809	Seamless Tube
ASTM	A213	8	1	Grade XM-15	S38100	Seamless Tube
ASTM	A213	8	2	TP253MA	S30815	Seamless Tube
ASTM	A213	8	2	TP309S	S30908	Seamless Tube
ASTM	A213	8	2	Type 309H	S30909	Seamless Tube
ASTM	A213	8	2	TP309Cb	S30940	Seamless Tube
ASTM	A213	8	2	Type 309HCb	S30941	Seamless Tube
ASTM	A213	8	2	Type 310	S31000	Seamless Tube
ASTM	A213	8	2	TP310S	S31008	Seamless Tube
ASTM	A213	8	2	Type 310H	S31009	Seamless Tube
ASTM	A213	8	2	TP310Cb	S31040	Seamless Tube
ASTM	A213	8	2	Type 310HCb	S31041	Seamless Tube
ASTM	A213	8	2	TP310MoLN	S31050	Seamless Tube
ASTM	A213	8	3	TP201	S20100	Seamless Tube
ASTM	A213	8	3	TP202	S20200	Seamless Tube
ASTM	A213	8	4	TP317 LM	S31725	Seamless Tube

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A213	8	4	TP317LMN	S31726	Seamless Tube
ASTM	A213	10B	1	Grade T17	K12047	Seamless Tube
ASTM	A214	1	1	—	K01807	ERW Tube
ASTM	A216	1	1	Grade WCA	J02502	Castings
ASTM	A216	1	2	Grade WCB	J03002	Castings
ASTM	A216	1	2	Grade WCC	J02503	Castings
ASTM	A217	3	1	Grade WC1	J12524	Castings
ASTM	A217	4	1	Grade WC4	J12082	Castings
ASTM	A217	4	1	Grade WC5	J22000	Castings
ASTM	A217	4	1	Grade WC6	J12072	Castings
ASTM	A217	5A	1	Grade WC9	J21890	Castings
ASTM	A217	5B	1	Grade C12	J82090	Castings
ASTM	A217	5B	1	Grade C5	J42025	Castings
ASTM	A217	5B	1	Grade C12A	J84090	Castings
ASTM	A217	6	3	Grade CA15	J91150	Castings
ASTM	A225	10A	1	Grade C	K12524	Plate
ASTM	A225	10A	1	Grade D	—	Plate
ASTM	A226	1	1	—	K01201	ERW Tube
ASTM	A234	1	1	Grade WPB	K03006	Pipe Fittings
ASTM	A234	1	2	Grade WPC	K03501	Pipe Fittings
ASTM	A234	3	1	Grade WP1	K12821	Pipe Fittings
ASTM	A234	4	1	Grade WP11, Class 1	—	Pipe Fittings
ASTM	A234	4	1	Grade WP12, Class 1	K12062	Pipe Fittings
ASTM	A234	4	2	Grade WP11, Class 2	—	Pipe Fittings
ASTM	A234	4	2	Grade WP11, Class 3	—	Pipe Fittings
ASTM	A234	4	2	Grade WP12, Class 2	K12062	Pipe Fittings
ASTM	A234	5A	1	Grade WP22, Class 3	K21590	Pipe Fittings
ASTM	A234	5A	1	Grade WP22, Class 1	K21590	Pipe Fittings
ASTM	A234	5B	1	Grade WP5	K41545	Pipe Fittings
ASTM	A234	5B	1	Grade WP9	K90941	Pipe Fittings
ASTM	A234	5B	2	Grade WP91	S50460	Pipe Fittings
ASTM	A234	9A	1	Grade WPR	K22035	Pipe Fittings
ASTM	A240	6	1	Type 410	S41000	Plate
ASTM	A240	6	2	Type 429	S42900	Plate
ASTM	A240	6	4	Grade S41500	S41500	Plate
ASTM	A240	7	1	Type 405	S40500	Plate
ASTM	A240	7	1	Type 409	S40900	Plate
ASTM	A240	7	1	Type 410S	S41008	Plate
ASTM	A240	7	2	Type 18-2	S44400	Plate
ASTM	A240	7	2	Type 430	S43000	Plate
ASTM	A240	7	2	Type 439	S43035	Plate, Sheet & Strip
ASTM	A240	8	1	Type 18-15	S30600	Plate, Sheet & Strip
ASTM	A240	8	1	Type 302	S30200	Plate, Sheet & Strip
ASTM	A240	8	1	Type 304	S30400	Plate, Sheet & Strip
ASTM	A240	8	1	Type 304H	S30409	Plate, Sheet & Strip

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A240	8	1	Type 304L	S30403	Plate, Sheet & Strip
ASTM	A240	8	1	Type 304LN	S30453	Plate, Sheet & Strip
ASTM	A240	8	1	Type 304N	S30451	Plate, Sheet & Strip
ASTM	A240	8	1	Type 305	S30500	Plate, Sheet & Strip
ASTM	A240	8	1	Type 316	S31600	Plate, Sheet & Strip
ASTM	A240	8	1	Type 316Cb	S31640	Plate, Sheet & Strip
ASTM	A240	8	1	Type 316H	S31609	Plate, Sheet & Strip
ASTM	A240	8	1	Type 316L	S31603	Plate, Sheet & Strip
ASTM	A240	8	1	Type 316LN	S31653	Plate, Sheet & Strip
ASTM	A240	8	1	Type 316N	S31651	Plate, Sheet & Strip
ASTM	A240	8	1	Type 316Ti	S31635	Plate, Sheet & Strip
ASTM	A240	8	1	Type 317	S31700	Plate, Sheet & Strip
ASTM	A240	8	1	Type 317L	S31703	Plate, Sheet & Strip
ASTM	A240	8	1	Type 317LN	S31753	Plate, Sheet & Strip
ASTM	A240	8	1	Type 321	S32100	Plate, Sheet & Strip
ASTM	A240	8	1	Type 321H	S32109	Plate, Sheet & Strip
ASTM	A240	8	1	Type 347	S34700	Plate, Sheet & Strip
ASTM	A240	8	1	Type 347H	S34709	Plate, Sheet & Strip
ASTM	A240	8	1	Type 348	S34800	Plate, Sheet & Strip
ASTM	A240	8	1	Type 348H	S34809	Plate, Sheet & Strip
ASTM	A240	8	1	Type XM-15	S38100	Plate, Sheet & Strip
ASTM	A240	8	1	Type XM-21	S30452	Plate
ASTM	A240	8	2	Type 310 MoLN	S31050	Plate, Sheet & Strip
ASTM	A240	8	2	Type 309HCb	S30941	Plate, Sheet & Strip
ASTM	A240	8	2	Type 309Cb	S30940	Plate, Sheet & Strip
ASTM	A240	8	2	Type 309H	S30909	Plate, Sheet & Strip
ASTM	A240	8	2	Type 309S	S30908	Plate, Sheet & Strip
ASTM	A240	8	2	Type 310S	S31008	Plate, Sheet & Strip
ASTM	A240	8	2	Type 310Cb	S31040	Plate, Sheet & Strip
ASTM	A240	8	2	S30815	S30815	Plate, Sheet & Strip
ASTM	A240	8	3	S21800	S21800	Plate, Sheet & Strip
ASTM	A240	8	3	Type 201-1	S20100	Plate, Sheet & Strip
ASTM	A240	8	3	Type 202	S20200	Plate, Sheet & Strip
ASTM	A240	8	3	Type XM-17	S21600	Plate
ASTM	A240	8	3	Type XM-18	S21603	Plate
ASTM	A240	8	3	Type XM-19	S20910	Plate
ASTM	A240	8	3	Type XM-29	S24000	Plate
ASTM	A240	8	4	Type 317LHM	S31726	Plate, Sheet & Strip
ASTM	A240	8	4	Type 317LM	S31725	Plate, Sheet & Strip
ASTM	A240	8	4	S31254	S31254	Plate, Sheet & Strip
ASTM	A240	10H	1	S31200	S31200	Plate, Sheet & Strip
ASTM	A240	10H	1	S31260	S31260	Plate, Sheet & Strip
ASTM	A240	10H	1	S31803	S31803	Plate, Sheet & Strip
ASTM	A240	10H	1	Type 255	S32550	Plate, Sheet & Strip
ASTM	A240	10H	1	S32950	S32950	Plate

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A240	10H	1	Type 329	S32900	Plate, Sheet & Strip
ASTM	A240	10I	1	S44635	S44635	Plate, Sheet & Strip
ASTM	A240	10I	1	Type XM-27	S44627	Plate, Sheet & Strip
ASTM	A240	10I	1	Type XM-33	S44626	Plate, Sheet & Strip
ASTM	A240	10J	1	Grade 29-4	S44700	Plate, Sheet & Strip
ASTM	A240	10K	1	S44800	S44800	Plate
ASTM	A240	10K	1	S44660	S44660	Plate
ASTM	A242	1	2	Type 1	K11510	Shapes, Plates & Bars
ASTM	A249	8	1	TP316LN	S31653	Welded Tube
ASTM	A249	8	1	TP316N	S31651	Welded Tube
ASTM	A249	8	1	TP317	S31700	Welded Tube
ASTM	A249	8	1	TP317L	S31703	Welded Tube
ASTM	A249	8	1	TP321	S32100	Welded Tube
ASTM	A249	8	1	TP321H	S32109	Welded Tube
ASTM	A249	8	1	TP347	S34700	Welded Tube
ASTM	A249	8	1	TP347H	S34709	Welded Tube
ASTM	A249	8	1	TP348	S34800	Welded Tube
ASTM	A249	8	1	TP348H	S34809	Welded Tube
ASTM	A249	8	1	Type 304	S30400	Welded Tube
ASTM	A249	8	1	Type 304H	S30409	Welded Tube
ASTM	A249	8	1	Type 304L	S30403	Welded Tube
ASTM	A249	8	1	Type 304LN	S30453	Welded Tube
ASTM	A249	8	1	Type 304N	S30451	Welded Tube
ASTM	A249	8	1	Type 316	S31600	Welded Tube
ASTM	A249	8	1	Type 316H	S31609	Welded Tube
ASTM	A249	8	1	Type 316L	S31603	Welded Tube
ASTM	A249	8	1	Type XM-15	S38100	Welded Tube
ASTM	A249	8	2	S30815	S30815	Welded Tube
ASTM	A249	8	2	TP309Cb	S30940	Welded Tube
ASTM	A249	8	2	TP309H	S30909	Welded Tube
ASTM	A249	8	2	TP309HCb	S30941	Welded Tube
ASTM	A249	8	2	TP309S	S30908	Welded Tube
ASTM	A249	8	2	TP310Cb	S31040	Welded Tube
ASTM	A249	8	2	TP310H	S31009	Welded Tube
ASTM	A249	8	2	TP310S	S31008	Welded Tube
ASTM	A249	8	2	Type 309	S30900	Welded Tube
ASTM	A249	8	2	Type 310 MoLN	S31050	Welded Tube
ASTM	A249	8	3	TP201	S20100	Welded Tube
ASTM	A249	8	3	TP202	S20200	Welded Tube
ASTM	A249	8	3	TPXM-19	S20910	Welded Tube
ASTM	A249	8	3	TPXM-29	S24000	Welded Tube
ASTM	A249	8	4	317LH	S31726	Welded Tube
ASTM	A249	8	4	317LM	S31725	Welded Tube
ASTM	A249	8	4	S31254	S31254	Welded Tube
ASTM	A250	3	1	Grade T1	K11522	ERW Tube

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A250	3	1	Grade T1a	K12023	ERW Tube
ASTM	A250	3	1	Grade T1b	K11422	ERW Tube
ASTM	A250	3	1	Grade T2	K11547	ERW Tube
ASTM	A250	4	1	Grade T11	K11597	ERW Tube
ASTM	A250	5A	1	Grade T22	K21590	ERW Tube
ASTM	A252	1	1	Grade 1		Pipe Piles
ASTM	A252	1	1	Grade 2		Pipe Piles
ASTM	A252	1	1	Grade 3		Pipe Piles
ASTM	A266	1	1	Grade 1	K03506	Seamless Forging
ASTM	A266	1	2	Grade 2	K03506	Seamless Forging
ASTM	A266	1	2	Grade 3	K05001	Seamless Forging
ASTM	A266	1	2	Grade 4	K03017	Seamless Forging
ASTM	A268	6	1	Type 410	S41000	Tube
ASTM	A268	6	2	Type 429	S42900	Tube
ASTM	A268	6	4	S41500	S41500	Seamless & Welded Tube
ASTM	A268	7	1	S40800	S40800	Seamless & Welded Tube
ASTM	A268	7	1	Type 405	S40500	Tube
ASTM	A268	7	1	Type 409	S40900	Tube
ASTM	A268	7	1	Type 430Ti	S43036	Seamless & Welded Tube
ASTM	A268	7	2	Type 18Cr-2Mo	S44400	Seamless & Welded Tube
ASTM	A268	7	2	Type 430	S43000	Tube
ASTM	A268	7	2	Type 439	S43035	Seamless & Welded Tube
ASTM	A268	10I	1	Grade 25-4-4	S44635	Seamless & Welded Tube
ASTM	A268	10I	1	TPXM-27	S44627	Seamless & Welded Tube
ASTM	A268	10I	1	TPXM-33	S44626	Seamless & Welded Tube
ASTM	A268	10I	1	Type 446-1	S44600	Seamless & Welded Tube
ASTM	A268	10I	1	Type 446-2	S44600	Seamless & Welded Tube
ASTM	A268	10J	1	Grade 29-4	S44700	Seamless & Welded Pipe
ASTM	A268	10J	1	S44735	S44735	Seamless & Welded Pipe
ASTM	A268	10K	1	Grade 26-3-3	S44660	Seamless & Welded Tube
ASTM	A268	10K	1	Grade 29-4-2	S44800	Seamless & Welded Tube
ASTM	A269	8	1	TP304	S30400	Seamless & Welded Pipe
ASTM	A269	8	1	TP304L	S30403	Seamless & Welded Pipe
ASTM	A269	8	1	TP316	S31600	Seamless & Welded Pipe
ASTM	A269	8	1	TP316L	S31603	Seamless & Welded Pipe
ASTM	A269	8	1	Type 304LN	S30453	Seamless & Welded Pipe
ASTM	A269	8	1	Type 316LN	S31653	Seamless & Welded Pipe
ASTM	A269	8	1	Type 317	S31700	Seamless & Welded Pipe
ASTM	A269	8	1	Type 321	S32100	Seamless & Welded Pipe
ASTM	A269	8	1	Type 347	S34700	Seamless & Welded Pipe
ASTM	A269	8	1	Type 348	S34800	Seamless & Welded Pipe
ASTM	A269	8	3	Type XM-10	S21900	Tube
ASTM	A269	8	3	Type XM-11	S21904	Tube
ASTM	A269	8	3	Type XM-15	S38100	Tube
ASTM	A269	8	3	Type XM-19	S20910	Tube

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A269	8	3	Type XM-29	S24000	Tube
ASTM	A270	8	1	Type 304	S30400	Seamless & Welded Pipe
ASTM	A271	8	1	Type 304	S30400	Seamless Tube
ASTM	A271	8	1	Type 304H	S30409	Seamless Tube
ASTM	A271	8	1	Type 316	S31600	Seamless Tube
ASTM	A271	8	1	Type 316H	S31609	Seamless Tube
ASTM	A271	8	1	Type 321	S32100	Seamless Tube
ASTM	A271	8	1	Type 321H	S32109	Seamless Tube
ASTM	A271	8	1	Type 347	S34700	Seamless Tube
ASTM	A271	8	1	Type 347H	S34709	Seamless Tube
ASTM	A276	6	1	Type 410	S41000	Bar
ASTM	A276	8	1	Type 304	S30400	Bar
ASTM	A276	8	1	Type 304L	S30403	Bar
ASTM	A276	8	1	Type 316	S31600	Bar
ASTM	A276	8	1	Type 316L	S31603	Bar
ASTM	A283	1	1	Grade A	K01804	Plate
ASTM	A283	1	1	Grade B	K02001	Plate
ASTM	A283	1	1	Grade C	K02401	Plate
ASTM	A283	1	1	Grade D	K02702	Plate
ASTM	A285	1	1	Grade A	K01700	Plate
ASTM	A285	1	1	Grade B	K02200	Plate
ASTM	A285	1	1	Grade C	K02801	Plate
ASTM	A297	8	2	HE	J93403	Castings
ASTM	A297	8	2	HF	J92603	Castings
ASTM	A297	8	2	HH	J93503	Castings
ASTM	A297	8	2	HI	J94003	Castings
ASTM	A297	8	2	HK	J94224	Castings
ASTM	A299	1	2	Grade A	K02803	Plate
ASTM	A302	3	2	Grade A	K12021	Plate
ASTM	A302	3	3	Grade B	K12022	Plate & Sheet
ASTM	A302	3	3	Grade C	K12039	Plate & Sheet
ASTM	A302	3	3	Grade D	K12054	Plate & Sheet
ASTM	A312	8	1	TP304	S30400	Seamless & Welded Pipe
ASTM	A312	8	1	TP304H	S30409	Seamless & Welded Pipe
ASTM	A312	8	1	TP304L	S30403	Seamless & Welded Pipe
ASTM	A312	8	1	TP304LN	S30453	Seamless & Welded Pipe
ASTM	A312	8	1	TP304N	S30451	Seamless & Welded Pipe
ASTM	A312	8	1	TP316	S31600	Seamless & Welded Pipe
ASTM	A312	8	1	TP316H	S31609	Seamless & Welded Pipe
ASTM	A312	8	1	TP316L	S31603	Seamless & Welded Pipe
ASTM	A312	8	1	TP316LN	S31653	Seamless & Welded Pipe
ASTM	A312	8	1	TP316N	S31651	Seamless & Welded Pipe
ASTM	A312	8	1	TP317	S31700	Seamless & Welded Pipe
ASTM	A312	8	1	TP317L	S31703	Seamless & Welded Pipe
ASTM	A312	8	1	TP321	S32100	Seamless & Welded Pipe

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A312	8	1	TP321	S32100	Seamless & Welded Pipe
ASTM	A312	8	1	TP321H	S32109	Seamless & Welded Pipe
ASTM	A312	8	1	TP321H	S32109	Seamless & Welded Pipe
ASTM	A312	8	1	TP347	S34700	Seamless & Welded Pipe
ASTM	A312	8	1	TP347H	S34709	Seamless & Welded Pipe
ASTM	A312	8	1	TP348	S34800	Seamless & Welded Pipe
ASTM	A312	8	1	TP348H	S34809	Seamless & Welded Pipe
ASTM	A312	8	1	TPXM-15	S38100	Seamless & Welded Pipe
ASTM	A312	8	2	S30815	S30815	Seamless & Welded Pipe
ASTM	A312	8	2	TP309Cb	S30940	Seamless & Welded Pipe
ASTM	A312	8	2	TP309H	S30909	Seamless & Welded Pipe
ASTM	A312	8	2	TP309HCb	S30941	Seamless & Welded Pipe
ASTM	A312	8	2	TP309S	S30908	Seamless & Welded Pipe
ASTM	A312	8	2	TP310Cb	S31040	Seamless & Welded Pipe
ASTM	A312	8	2	TP310H	S31000	Seamless & Welded Pipe
ASTM	A312	8	2	TP310HCb	S31041	Seamless & Welded Pipe
ASTM	A312	8	2	TP310MoLN	S31050	Welded Pipe
ASTM	A312	8	2	TP310S	S31008	Seamless & Welded Pipe
ASTM	A312	8	3	TPXM-19	S20910	Seamless & Welded Pipe
ASTM	A312	8	3	TP-11	S21904	Seamless & Welded Pipe
ASTM	A312	8	3	TPXM-29	S24000	Seamless & Welded Pipe
ASTM	A312	8	4	317LM	S31725	Seamless & Welded Pipe
ASTM	A312	8	4	317LM	S31726	Seamless & Welded Pipe
ASTM	A312	8	4	S31254	S31254	Seamless & Welded Pipe
ASTM	A333	1	1	Grade 1	K03008	Seamless & Welded Pipe
ASTM	A333	1	1	Grade 6	K03006	Seamless & Welded Pipe
ASTM	A333	1	3	Grade 10	—	Pipe
ASTM	A333	4	2	Grade 4	K11267	Pipe
ASTM	A333	9A	1	Grade 7	K21903	Pipe
ASTM	A333	9A	1	Grade 9	K22035	Pipe
ASTM	A333	9B	1	Grade 3	K31918	Pipe
ASTM	A333	11A	1	Grade 8	K81340	Seamless & Welded Pipe
ASTM	A334	9B	1	Grade 3	K31918	Tube
ASTM	A334	1	1	Grade 1	K03008	Welded Tube
ASTM	A334	1	1	Grade 6	K03006	Welded Tube
ASTM	A334	9A	1	Grade 7	K21903	Tube
ASTM	A334	11A	1	Grade 8	K81340	Tube
ASTM	A334	9A	1	Grade 9	K22035	Tube
ASTM	A335	3	1	Grade P1	K11522	Seamless Pipe
ASTM	A335	3	1	Grade P15	K11578	Seamless Pipe
ASTM	A335	3	1	Grade P2	K11547	Seamless Pipe
ASTM	A335	4	1	Grade P11	K11597	Pipe
ASTM	A335	4	1	Grade P12	K11562	Pipe
ASTM	A335	5A	1	Grade P21	K31545	Seamless Pipe
ASTM	A335	5A	1	Grade P22	K21590	Seamless Pipe

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A335	5B	1	Grade P5	K41545	Seamless Pipe
ASTM	A335	5B	1	Grade P5b	K51545	Seamless Pipe
ASTM	A335	5B	1	Grade P5c	K41245	Seamless Pipe
ASTM	A335	5B	1	Grade P9	S50400	Seamless Pipe
ASTM	A335	5B	2	Grade P91	K91560	Seamless Pipe
ASTM	A336	3	2	Grade F1	K12520	Forging
ASTM	A336	4	1	Grade F11, Class 1	K11597	Forging
ASTM	A336	4	1	Grade F11, Class 2	K11572	Forging
ASTM	A336	4	1	Grade F11, Class 3	K11572	Forging
ASTM	A336	4	1	Grade F12	K11564	Forging
ASTM	A336	5A	1	Grade F21, Class 1	K31545	Forging
ASTM	A336	5A	1	Grade F21, Class 3	K31545	Forging
ASTM	A336	5A	1	Grade F22, Class 1	K21590	Forging
ASTM	A336	5A	1	Grade F22, Class 3	K21590	Forging
ASTM	A336	5B	1	Grade F5	K41545	Forging
ASTM	A336	5B	1	Grade F5A	K42544	Forging
ASTM	A336	5B	1	Grade F9	K90941	Forging
ASTM	A336	5B	2	Grade F91	K90901	Forging
ASTM	A336	5C	1	Grade F3V	K31830	Forging
ASTM	A336	6	3	Grade F6	S41000	Forging
ASTM	A336	8	1	F304	S30400	Forging
ASTM	A336	8	1	F304H	S30409	Forging
ASTM	A336	8	1	F304L	S30403	Forging
ASTM	A336	8	1	F304LN	S30453	Forging
ASTM	A336	8	1	F304N	S30451	Forging
ASTM	A336	8	1	F316	S31600	Forging
ASTM	A336	8	1	F316H	S31609	Forging
ASTM	A336	8	1	F316L	S31603	Forging
ASTM	A336	8	1	F316LN	S31653	Forging
ASTM	A336	8	1	F316N	S31651	Forging
ASTM	A336	8	1	F321	S32100	Forging
ASTM	A336	8	1	F321H	S32109	Forging
ASTM	A336	8	1	F347	S34700	Forging
ASTM	A336	8	1	F347H	S34709	Forging
ASTM	A336	8	1	F348	S34800	Forging
ASTM	A336	8	1	F348H	S34809	Forging
ASTM	A336	8	2	F310	S31000	Forging
ASTM	A336	8	3	FXM-11	S21904	Forging
ASTM	A336	8	3	FXM-19	S20910	Forging
ASTM	A336	8	4	F46	S30600	Forging
ASTM	A336	10I	1	Grade FXM-27Cb	S44627	Forging
ASTM	A350	1	1	Grade LF1	K03009	Forging
ASTM	A350	1	2	Grade LF787, Class 2	—	Forging
ASTM	A350	1	2	Grade LF2	K03011	Forging
ASTM	A350	1	2	Grade LF6	K12202	Forging

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A350	1	3	Grade LF6, Class 2	K12202	Forging
ASTM	A350	1	3	Grade LF6, Class 3	K12202	Forging
ASTM	A350	1	3	Grade LF787, Class 3	—	Forging
ASTM	A350	9A	1	Grade LF5, Class 1	K13050	Forging
ASTM	A350	9A	1	Grade LF5, Class 2	K13050	Forging
ASTM	A350	9A	1	Grade LF9	K22036	Forging
ASTM	A350	9B	1	Grade LF3, Class 2	K32025	Forging
ASTM	A351	8	1	CF10	J92590	Castings
ASTM	A351	8	1	CF10M	J92901	Castings
ASTM	A351	8	1	CF10MC	—	Castings
ASTM	A351	8	1	CF3	J92500	Castings
ASTM	A351	8	1	CF3A	J92500	Castings
ASTM	A351	8	1	CF3M	J92800	Castings
ASTM	A351	8	1	CF8	J92600	Castings
ASTM	A351	8	1	CF8A	J92600	Castings
ASTM	A351	8	1	CF8C	J92710	Castings
ASTM	A351	8	1	CF8M	J92900	Castings
ASTM	A351	8	1	CG8M	J93000	Castings
ASTM	A351	8	2	CE20N	J92802	Castings
ASTM	A351	8	2	CH10	J93401	Castings
ASTM	A351	8	2	CH20	J93402	Castings
ASTM	A351	8	2	CH8	J93400	Castings
ASTM	A351	8	2	CK20	J94202	Castings
ASTM	A351	8	2	HK40	J94204	Castings
ASTM	A351	8	3	CG6MMN	J93790	Castings
ASTM	A351	10H	1	CD4MCu	J93370	Castings
ASTM	A351	10H	1	CE8MN	—	Castings
ASTM	A352	3	1	Grade LC1	J12522	Castings
ASTM	A352	1	1	Grade LCA	J02504	Castings
ASTM	A352	1	1	Grade LCB	J03003	Castings
ASTM	A352	1	2	Grade LCC	J02505	Castings
ASTM	A352	6	4	Grade CA6NM	J91540	Castings
ASTM	A352	9A	1	Grade LC2	J22500	Castings
ASTM	A352	9B	1	Grade LC3	J31550	Castings
ASTM	A352	9C	1	Grade LC4	J41500	Castings
ASTM	A352	11A	5	Grade LC2-1	J42215	Castings
ASTM	A353	11A	1	—	K81340	Plate
ASTM	A358	8	1	304	S30400	Welded Pipe
ASTM	A358	8	1	304H	S30409	Welded Pipe
ASTM	A358	8	1	304L	S30403	Welded Pipe
ASTM	A358	8	1	304LN	S30453	Welded Pipe
ASTM	A358	8	1	304N	S30451	Welded Pipe
ASTM	A358	8	1	316	S31600	Welded Pipe
ASTM	A358	8	1	316H	S31609	Welded Pipe
ASTM	A358	8	1	316L	S31603	Welded Pipe

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A358	8	1	316LN	S31653	Welded Pipe
ASTM	A358	8	1	316N	S31651	Welded Pipe
ASTM	A358	8	1	321	S32100	Welded Pipe
ASTM	A358	8	1	347	S34700	Welded Pipe
ASTM	A358	8	1	348	S34800	Welded Pipe
ASTM	A358	8	2	253MA	S30815	Welded Pipe
ASTM	A358	8	2	309	S30900	Welded Pipe
ASTM	A358	8	2	309Cb	S30940	Welded Pipe
ASTM	A358	8	2	309S	S30908	Welded Pipe
ASTM	A358	8	2	310	S31000	Welded Pipe
ASTM	A358	8	2	310Cb	S31040	Welded Pipe
ASTM	A358	8	2	310S	S31008	Welded Pipe
ASTM	A358	8	3	XM-19	S20910	Welded Pipe
ASTM	A358	8	3	XM-29	S24000	Welded Pipe
ASTM	A358	8	4	317L4	S31726	Welded Pipe
ASTM	A358	8	4	317LM	S31725	Welded Pipe
ASTM	A358	8	4	S31254	S31254	Welded Pipe
ASTM	A366	1	1	Commercial Quality	—	Sheet
ASTM	A369	1	1	Grade FPA	K02501	Forged Pipe
ASTM	A369	1	1	Grade FPB	K03006	Forged Pipe
ASTM	A369	3	1	Grade FP1	K11522	Forged Pipe
ASTM	A369	3	1	Grade FP2	K11547	Forged Pipe
ASTM	A369	4	1	Grade FP11	K11597	Forged Pipe
ASTM	A369	4	1	Grade FP12	K11562	Forged Pipe
ASTM	A369	5A	1	Grade FP21	K31545	Forged Pipe
ASTM	A369	5A	1	Grade FP22	K21590	Forged Pipe
ASTM	A369	5B	1	Grade FP5	K41545	Forged Pipe
ASTM	A369	5B	1	Grade FP9	K90941	Forged Pipe
ASTM	A369	5B	2	Grade FP91	S50460	Forged Pipe
ASTM	A372	1	1	Grade A	K03002	Forging
ASTM	A372	1	2	Grade B	K04001	Forging
ASTM	A376	8	1	16-8-2H	S16800	Seamless Pipe
ASTM	A376	8	1	TP304	S30400	Seamless Pipe
ASTM	A376	8	1	TP304H	S30409	Seamless Pipe
ASTM	A376	8	1	TP304LN	S30453	Seamless Pipe
ASTM	A376	8	1	TP304N	S30451	Seamless Pipe
ASTM	A376	8	1	TP316	S31600	Seamless Pipe
ASTM	A376	8	1	TP316H	S31609	Seamless Pipe
ASTM	A376	8	1	TP316LN	S31653	Seamless Pipe
ASTM	A376	8	1	TP316N	S31651	Seamless Pipe
ASTM	A376	8	1	TP321	S32100	Seamless Pipe
ASTM	A376	8	1	TP321H	S32109	Seamless Pipe
ASTM	A376	8	1	TP347	S34700	Seamless Pipe
ASTM	A376	8	1	TP347H	S34709	Seamless Pipe
ASTM	A376	8	1	TP348	S34800	Seamless Pipe

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A376	8	4	317L4	S31726	Seamless Tube
ASTM	A376	8	4	317LM	S31725	Seamless Tube
ASTM	A381	1	1	Class Y35	K03013	Pipe
ASTM	A381	1	1	Class Y42	—	Pipe
ASTM	A381	1	1	Class Y46	—	Pipe
ASTM	A381	1	1	Class Y48	—	Pipe
ASTM	A381	1	2	Class Y50	—	Pipe
ASTM	A381	1	2	Class Y52	—	Pipe
ASTM	A381	1	2	Class Y56	—	Pipe
ASTM	A387	3	1	Grade 2, Class 1	K12143	Plate
ASTM	A387	3	2	Grade 2, Class 2	K12143	Plate
ASTM	A387	4	1	Grade 11, Class 1	K11789	Plate
ASTM	A387	4	1	Grade 11, Class 2	K11789	Plate
ASTM	A387	4	1	Grade 12, Class 1	K11757	Plate
ASTM	A387	4	1	Grade 12, Class 2	K11757	Plate
ASTM	A387	5A	1	Grade 21, Class 1	K31545	Plate
ASTM	A387	5A	1	Grade 21, Class 2	K31545	Plate
ASTM	A387	5A	1	Grade 22, Class 1	K21590	Plate
ASTM	A387	5A	1	Grade 22, Class 2	K21590	Plate
ASTM	A387	5B	1	Grade 5, Class 1	K41545	Plate
ASTM	A387	5B	1	Grade 5, Class 2	K41545	Plate
ASTM	A387	5B	2	Grade 91, Class 2	S50460	Plate
ASTM	A389	4	1	Grade C23	J12080	Castings
ASTM	A389	4	1	Grade C24	J12092	Castings
ASTM	A403	8	1	WP304	S30400	Pipe Fittings
ASTM	A403	8	1	WP304H	S30409	Pipe Fittings
ASTM	A403	8	1	WP304L	S30403	Pipe Fittings
ASTM	A403	8	1	WP304LN	S30453	Pipe Fittings
ASTM	A403	8	1	WP304N	S30451	Pipe Fittings
ASTM	A403	8	1	WP316	S31600	Pipe Fittings
ASTM	A403	8	1	WP316H	S31609	Pipe Fittings
ASTM	A403	8	1	WP316L	S31603	Pipe Fittings
ASTM	A403	8	1	WP316LN	S31653	Pipe Fittings
ASTM	A403	8	1	WP316N	S31651	Pipe Fittings
ASTM	A403	8	1	WP317	S31700	Pipe Fittings
ASTM	A403	8	1	WP317L	S31703	Pipe Fittings
ASTM	A403	8	1	WP321	S32100	Pipe Fittings
ASTM	A403	8	1	WP321H	S32109	Pipe Fittings
ASTM	A403	8	1	WP347	S34700	Pipe Fittings
ASTM	A403	8	1	WP347H	S34709	Pipe Fittings
ASTM	A403	8	1	WP348	S34800	Pipe Fittings
ASTM	A403	8	1	WP348H	S34809	Pipe Fittings
ASTM	A403	8	2	WP309	S30900	Pipe Fittings
ASTM	A403	8	2	WP310	S31000	Pipe Fittings
ASTM	A403	8	3	WPXM-19	S20910	Pipe Fittings

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A405	4	1	Grade P24	K11591	Cast Pipe
ASTM	A409	8	1	TP304	S30400	Welded Pipe
ASTM	A409	8	1	TP304L	S30403	Welded Pipe
ASTM	A409	8	1	TP316	S31600	Welded Pipe
ASTM	A409	8	1	TP316L	S31603	Welded Pipe
ASTM	A409	8	1	TP317	S31700	Welded Pipe
ASTM	A409	8	1	TP321	S32100	Welded Pipe
ASTM	A409	8	1	TP347	S34700	Welded Pipe
ASTM	A409	8	1	TP348	S34800	Welded Pipe
ASTM	A409	8	2	253MA	S30815	Welded Pipe
ASTM	A409	8	2	TP309Cb	S30940	Welded Pipe
ASTM	A409	8	4	317L4	S31726	Welded Pipe
ASTM	A409	8	4	317LM	S31725	Welded Pipe
ASTM	A409	8	4	S31254	S31254	Welded Pipe
ASTM	A414	1	1	Grade A	K01501	Sheet
ASTM	A414	1	1	Grade B	K02201	Sheet
ASTM	A414	1	1	Grade C	K02503	Sheet
ASTM	A414	1	1	Grade D	K02505	Sheet
ASTM	A414	1	1	Grade E	K02704	Sheet
ASTM	A414	1	2	Grade F	K03102	Sheet
ASTM	A414	1	2	Grade G	K03103	Sheet
ASTM	A420	1	1	Grade WPL6	—	Pipe Fittings
ASTM	A420	9A	1	Grade WPL9	K22035	Pipe Fittings
ASTM	A420	9B	1	Grade WPL3	—	Pipe Fittings
ASTM	A420	11A	1	Grade WPL8	K81340	Pipe Fittings
ASTM	A423	4	2	Grade 1	K11535	Tube
ASTM	A423	4	2	Grade 2	K11540	Tube
ASTM	A426	3	1	Grade CP1	J12521	Centrifugal Cast Pipe
ASTM	A426	3	1	Grade CP15	J11522	Centrifugal Cast Pipe
ASTM	A426	3	1	Grade CP2	J11547	Centrifugal Cast Pipe
ASTM	A426	4	1	Grade CP11	J12072	Centrifugal Cast Pipe
ASTM	A426	4	1	Grade CP12	J11562	Centrifugal Cast Pipe
ASTM	A426	5A	1	Grade CP21	J31545	Centrifugal Cast Pipe
ASTM	A426	5A	1	Grade CP22	J21890	Centrifugal Cast Pipe
ASTM	A426	5B	1	Grade CP5	J42045	Centrifugal Cast Pipe
ASTM	A426	5B	1	Grade CP5b	J51545	Centrifugal Cast Pipe
ASTM	A426	5B	1	Grade CP9	J82090	Centrifugal Cast Pipe
ASTM	A426	6	3	Grade CPCA15	J91150	Centrifugal Cast Pipe
ASTM	A430	8	1	FP16-8-2H	S16800	Forged Pipe
ASTM	A430	8	1	FP304	S30400	Forged Pipe
ASTM	A430	8	1	FP304H	S30409	Forged Pipe
ASTM	A430	8	1	FP304N	S30451	Forged Pipe
ASTM	A430	8	1	FP316	S31600	Forged Pipe
ASTM	A430	8	1	FP316H	S31609	Forged Pipe
ASTM	A430	8	1	FP316N	S31651	Forged Pipe

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A430	8	1	FP321	S32100	Forged Pipe
ASTM	A430	8	1	FP321H	S32109	Forged Pipe
ASTM	A430	8	1	FP347	S34700	Forged Pipe
ASTM	A430	8	1	FP347H	S34709	Forged Pipe
ASTM	A451	8	1	CPF10MC	J92971	Centrifugal Cast Pipe
ASTM	A451	8	1	CPF3	J92500	Centrifugal Cast Pipe
ASTM	A451	8	1	CPF3A	J92500	Centrifugal Cast Pipe
ASTM	A451	8	1	CPF3M	J92800	Centrifugal Cast Pipe
ASTM	A451	8	1	CPF8	J92600	Centrifugal Cast Pipe
ASTM	A451	8	1	CPF8A	J92600	Centrifugal Cast Pipe
ASTM	A451	8	1	CPF8C	J92710	Centrifugal Cast Pipe
ASTM	A451	8	1	CPF8M	J92900	Centrifugal Cast Pipe
ASTM	A452	8	1	TP304H	S30409	Centrifugal Cast Pipe
ASTM	A452	8	1	TP316H	S31609	Centrifugal Cast Pipe
ASTM	A452	8	1	TP347H	S34709	Centrifugal Cast Pipe
ASTM	A455	1	2	—	K03300	Plate
ASTM	A473	8	1	Type 302	S30200	Forging
ASTM	A473	8	1	Type 302B	S30215	Forging
ASTM	A473	8	1	Type 303	S30300	Forging
ASTM	A473	8	1	Type 303Se	S30323	Forging
ASTM	A473	8	1	Type 304	S30400	Forging
ASTM	A473	8	1	Type 304L	S30403	Forging
ASTM	A473	8	1	Type 305	S30500	Forging
ASTM	A473	8	1	Type 316	S31600	Forging
ASTM	A473	8	1	Type 316L	S31603	Forging
ASTM	A473	8	1	Type 317	S31700	Forging
ASTM	A473	8	1	Type 321	S32100	Forging
ASTM	A473	8	1	Type 347	S34700	Forging
ASTM	A473	8	1	Type 348	S34800	Forging
ASTM	A473	6	1	Type 403	S40300	Forging
ASTM	A473	6	1	Type 410	S41000	Forging
ASTM	A473	6	1	Type 414	S41400	Forging
ASTM	A473	8	2	Type 308	S30800	Forging
ASTM	A473	8	2	Type 314	S31400	Forging
ASTM	A473	6	2	Type 405	S40500	Forging
ASTM	A473	6	2	Type 420	S42000	Forging
ASTM	A473	6	2	Type 429	S42900	Forging
ASTM	A473	6	2	Type 430	S43000	Forging
ASTM	A473	8	3	Type 202	S20200	Forging
ASTM	A473	8	3	Type XM-10	S21900	Forging
ASTM	A473	8	3	Type XM-11	S21904	Forging
ASTM	A479	6	1	Type 403	S40300	Bars & Shapes
ASTM	A479	6	1	Type 410	S41000	Bars & Shapes
ASTM	A479	6	3	Type 414	S41400	Bars & Shapes
ASTM	A479	6	4	S41500	S41500	Bars & Shapes

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A479	7	1	Type 405	S40500	Bars & Shapes
ASTM	A479	7	2	Type 444	S44400	Bars & Shapes
ASTM	A479	7	2	Type 430	S43000	Bars & Shapes
ASTM	A479	7	2	Type 439	S43035	Bars & Shapes
ASTM	A479	7	3	Type XM-30	S41040	Bars & Shapes
ASTM	A479	8	1	304H	S30409	Bars & Shapes
ASTM	A479	8	1	304L	S30403	Bars & Shapes
ASTM	A479	8	1	304LN	S30453	Bars & Shapes
ASTM	A479	8	1	304N	S30451	Bars & Shapes
ASTM	A479	8	1	316Cb	S31640	Bars & Shapes
ASTM	A479	8	1	316H	S31609	Bars & Shapes
ASTM	A479	8	1	316L	S31603	Bars & Shapes
ASTM	A479	8	1	316LN	S31653	Bars & Shapes
ASTM	A479	8	1	316N	S31651	Bars & Shapes
ASTM	A479	8	1	316Ti	S31635	Bars & Shapes
ASTM	A479	8	1	321H	S32109	Bars & Shapes
ASTM	A479	8	1	347H	S34709	Bars & Shapes
ASTM	A479	8	1	348H	S34809	Bars & Shapes
ASTM	A479	8	1	306	S30600	Bars & Shapes
ASTM	A479	8	1	Type 302	S30200	Bars & Shapes
ASTM	A479	8	1	Type 304	S30400	Bars & Shapes
ASTM	A479	8	1	Type 316	S31600	Bars & Shapes
ASTM	A479	8	1	Type 321	S32100	Bars & Shapes
ASTM	A479	8	1	Type 347	S34700	Bars & Shapes
ASTM	A479	8	1	Type 348	S34800	Bars & Shapes
ASTM	A479	8	3	S21800	S21800	Bars & Shapes
ASTM	A479	8	3	XM-11	S21904	Bars & Shapes
ASTM	A479	8	3	XM-17	S21600	Bars & Shapes
ASTM	A479	8	3	XM-18	S21603	Bars & Shapes
ASTM	A479	8	3	XM-19	S20910	Bars & Shapes
ASTM	A479	8	3	XM-29	S24000	Bars & Shapes
ASTM	A479	8	4	317L4	S31726	Bars & Shapes
ASTM	A479	8	4	317LM	S31725	Bars & Shapes
ASTM	A479	8	4	S31254	S31254	Bars & Shapes
ASTM	A479	10H	1	F255	S32550	Bars & Shapes
ASTM	A479	10I	1	Type XM-27	S44627	Bars & Shapes
ASTM	A479	10J	1	Grade 28-4	S44700	Bars & Shapes
ASTM	A479	10K	1	Grade 28-4-2	S44800	Bars & Shapes
ASTM	A487	1	2	Grade 16, Class A	J31200	Castings
ASTM	A487	3	3	Grade 4, Class C	J13047	Castings
ASTM	A487	5C	1	Grade 8, Class A	J22091	Castings
ASTM	A487	5C	4	Grade 8, Class B	J22091	Castings
ASTM	A487	5C	4	Grade 8, Class C	J22091	Castings
ASTM	A487	6	3	Grade CA15, Class B	J91450	Castings
ASTM	A487	6	3	Grade CA15, Class C	J91171	Castings

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A487	6	3	Grade CA15, Class D	J91171	Castings
ASTM	A487	6	3	Grade CA15M, Class A	J91451	Castings
ASTM	A487	6	4	Grade CA6NM, Class A	J91540	Castings
ASTM	A487	6	4	Grade CA6NM, Class B	J91540	Castings
ASTM	A487	10A	1	Grade 1, Class A	J13002	Castings
ASTM	A487	10A	1	Grade 1, Class B	J13002	Castings
ASTM	A487	10A	1	Grade Mn-V	J13002	Castings
ASTM	A487	10F	1	Grade 2, Class A	J13005	Castings
ASTM	A487	10F	1	Grade 2, Class B	J13005	Castings
ASTM	A487	10F	1	Grade 4, Class A	J13047	Castings
ASTM	A487	11A	3	Grade 4, Class B	J13047	Castings
ASTM	A487	11A	3	Grade 4, Class E	J13047	Castings
ASTM	A500	1	1	Grade A	K03000	Tube
ASTM	A500	1	1	Grade B	K03000	Tube
ASTM	A500	1	1	Grade C	K02705	Tube
ASTM	A501	1	1	—	K03000	Tube
ASTM	A508	1	2	Grade 1	K13502	Forging
ASTM	A508	1	2	Grade 1A	K13502	Forging
ASTM	A508	3	3	Grade 2, Class 1	K12766	Forging
ASTM	A508	3	3	Grade 2, Class 2	K12766	Forging
ASTM	A508	3	3	Grade 3, Class 1	K12042	Forging
ASTM	A508	3	3	Grade 3, Class 2	K12042	Forging
ASTM	A508	3	3	Grade 4N, Class 3	K22375	Forging
ASTM	A508	5C	1	Grade 3V	K31830	Forging
ASTM	A508	11A	5	Grade 4N, Class 1	K22375	Forging
ASTM	A508	11A	5	Grade 4N, Class 2	K22375	Forging
ASTM	A508	11A	5	Grade 5, Class 1	K42365	Forging
ASTM	A508	11A	5	Grade 5, Class 2	K42365	Forging
ASTM	A512	1	1	Grade 1010	G10100	Mechanical Tube
ASTM	A512	1	1	Grade 1015	G10150	Mechanical Tube
ASTM	A512	1	1	Grade 1018	G10180	Mechanical Tube
ASTM	A512	1	1	Grade 1020	G10200	Mechanical Tube
ASTM	A512	1	1	Grade 1025	G10250	Mechanical Tube
ASTM	A512	1	1	Grade 1117	G11170	Mechanical Tube
ASTM	A512	1	1	Grade MT1010	G10100	Mechanical Tube
ASTM	A512	1	1	Grade MT1015	G10150	Mechanical Tube
ASTM	A512	1	1	Grade MT1020	G10200	Mechanical Tube
ASTM	A512	1	1	Grade MTX1015	—	Mechanical Tube
ASTM	A512	1	1	Grade MTX1020	—	Mechanical Tube
ASTM	A512	1	2	Grade 1030	G10300	Mechanical Tube
ASTM	A513	1	1	Grade 1008	G10080	Mechanical Tube
ASTM	A513	1	1	Grade 1010	G10100	Mechanical Tube
ASTM	A513	1	1	Grade 1015	G10150	Mechanical Tube
ASTM	A513	1	1	Grade 1015 CW	G10150	Mechanical Tube
ASTM	A513	1	1	Grade 1017	G10170	Mechanical Tube

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A513	1	1	Grade 1018	G10180	Mechanical Tube
ASTM	A513	1	1	Grade 1019	G10190	Mechanical Tube
ASTM	A513	1	1	Grade 1020	G10200	Mechanical Tube
ASTM	A513	1	1	Grade 1021	G10210	Mechanical Tube
ASTM	A513	1	1	Grade 1025	G10250	Mechanical Tube
ASTM	A513	1	1	Grade MT1010	G10110	Mechanical Tube
ASTM	A513	1	1	Grade MT1015	G10150	Mechanical Tube
ASTM	A513	1	1	Grade MT1020	G10200	Mechanical Tube
ASTM	A513	1	1	Grade MTX1015	—	Mechanical Tube
ASTM	A513	1	1	Grade MTX1020	—	Mechanical Tube
ASTM	A513	1	2	Grade 1020 CW	G10200	Mechanical Tube
ASTM	A513	1	2	Grade 1025 CW	G10250	Mechanical Tube
ASTM	A513	1	2	Grade 1026	G10260	Mechanical Tube
ASTM	A513	1	2	Grade 1030	G10300	Mechanical Tube
ASTM	A514	11B	1	Grade A	K11856	Plate
ASTM	A514	11B	2	Grade E	K11856	Plate
ASTM	A514	11B	3	Grade F	K11576	Plate & Shapes
ASTM	A514	11B	3	Grade H	K21604	Plate & Shapes
ASTM	A514	11B	4	Grade B	K11576	Plate
ASTM	A514	11B	6	Grade C	K11511	Plate & Shapes
ASTM	A514	11B	6	Grade J	K11625	Plate & Shapes
ASTM	A514	11B	6	Grade K	K11523	Plate & Shapes
ASTM	A514	11B	6	Grade S	—	Plate
ASTM	A514	11B	6	Grade T	—	Plate & Shapes
ASTM	A514	11B	8	Grade P	K21650	Plate & Shapes
ASTM	A514	11B	9	Grade Q	—	Plate
ASTM	A514	11B	10	Grade M	—	Plate & Shapes
ASTM	A514	11B	12	Grade R	—	Plate & Shapes
ASTM	A515	1	1	Grade 55	K02001	Plate
ASTM	A515	1	1	Grade 60	K02401	Plate
ASTM	A515	1	1	Grade 65	K02800	Plate
ASTM	A515	1	2	Grade 70	K03101	Plate
ASTM	A516	1	1	Grade 55	K01800	Plate
ASTM	A516	1	1	Grade 60	K02100	Plate
ASTM	A516	1	1	Grade 65	K02403	Plate
ASTM	A516	1	2	Grade 70	K02700	Plate
ASTM	A517	11B	1	Grade A	K11856	Plate
ASTM	A517	11B	2	Grade E	K21604	Plate
ASTM	A517	11B	3	Grade F	K11576	Plate
ASTM	A517	11B	3	Grade H	K21604	Plate
ASTM	A517	11B	4	Grade B	K11630	Plate
ASTM	A517	11B	6	Grade J	K11625	Plate
ASTM	A517	11B	6	Grade K	K11523	Plate
ASTM	A517	11B	6	Grade S	—	Plate
ASTM	A517	11B	6	Grade T	—	Plate

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A517	11B	8	Grade P	K21650	Plate
ASTM	A517	11B	9	Grade Q	—	Plate
ASTM	A517	11B	10	Grade M	K11683	Plate
ASTM	A519	1	1	Grade 1008	G10080	Mechanical Tube
ASTM	A519	1	1	Grade 1012	G10120	Mechanical Tube
ASTM	A519	1	1	Grade 1016	G10160	Mechanical Tube
ASTM	A519	1	1	Grade 1017	G10170	Mechanical Tube
ASTM	A519	1	1	Grade 1018	G10180	Mechanical Tube
ASTM	A519	1	1	Grade 1018 HR	G10180	Mechanical Tube
ASTM	A519	1	1	Grade 1019	G10190	Mechanical Tube
ASTM	A519	1	1	Grade 1020	G10200	Mechanical Tube
ASTM	A519	1	1	Grade 1020 HR	G10200	Mechanical Tube
ASTM	A519	1	1	Grade 1021	G10210	Mechanical Tube
ASTM	A519	1	1	Grade 1022	G10220	Mechanical Tube
ASTM	A519	1	1	Grade 1022 HR	G10220	Mechanical Tube
ASTM	A519	1	1	Grade 1025	G10250	Mechanical Tube
ASTM	A519	1	1	Grade 1025 HR	G10250	Mechanical Tube
ASTM	A519	1	1	Grade 1026	G10260	Mechanical Tube
ASTM	A519	1	1	Grade 1026 HR	G10260	Mechanical Tube
ASTM	A519	1	1	Grade MT1010	G10100	Mechanical Tube
ASTM	A519	1	1	Grade MT1015	G10150	Mechanical Tube
ASTM	A519	1	1	Grade MT1020	G10200	Mechanical Tube
ASTM	A519	1	1	Grade MTX1015	G10150	Mechanical Tube
ASTM	A519	1	2	Grade 1030	G10300	Mechanical Tube
ASTM	A519	11B	9	Grade 4130	G41300	Mechanical Tube
ASTM	A519	11B	9	Grade 8630	G86300	Mechanical Tube
ASTM	A521	1	1	Class CC	—	Die Forging
ASTM	A521	1	1	Class CCI	—	Die Forging
ASTM	A521	1	2	Class CE	—	Forging
ASTM	A522	11A	1	Type I	K81340	Forging
ASTM	A522	11A	1	Type II	K71340	Forging
ASTM	A523	1	1	Grade A	KO2504	Pipe
ASTM	A523	1	1	Grade B	KO3005	Pipe
ASTM	A524	1	1	Grade I	KO2104	Pipe
ASTM	A524	1	1	Grade II	KO2104	Pipe
ASTM	A526	1	1	Grade II	KO2104	Galvanized Sheet
ASTM	A527	1	1	Grade II	KO2104	Galvanized Sheet
ASTM	A529	1	1	Grade 42	KO2703	Structural
ASTM	A529	1	2	Grade 50	—	Bar, Plate & Shapes
ASTM	A529	1	2	Grade 55	—	Bar, Plate & Shapes
ASTM	A533	3	3	Type A, Class 1	K12521	Plate
ASTM	A533	3	3	Type A, Class 2	K12521	Plate
ASTM	A533	3	3	Type B, Class 1	K12539	Plate
ASTM	A533	3	3	Type B, Class 2	K12539	Plate
ASTM	A533	3	3	Type C, Class 1	K12554	Plate

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A533	3	3	Type C, Class 2	K12554	Plate
ASTM	A533	3	3	Type D, Class 1	K12529	Plate
ASTM	A533	3	3	Type D, Class 2	K12529	Plate
ASTM	A533	11A	4	Grade A, Class 3	K12521	Plate
ASTM	A533	11A	4	Grade B, Class 3	K12539	Plate
ASTM	A533	11A	4	Grade C, Class 3	K12554	Plate
ASTM	A533	11A	4	Grade D, Class 3	K12529	Plate
ASTM	A537	1	2	Class 1	K02400	Plate
ASTM	A537	1	3	Class 2	K02400	Plate
ASTM	A537	1	3	Class 3	K02400	Plate
ASTM	A539	1	1	—	K01506	Coiled Tube
ASTM	A541	1	2	Grade 1	K03506	Forging
ASTM	A541	1	2	Grade 1A	—	Forging
ASTM	A541	3	3	Grade 2, Class 1	K12765	Forging
ASTM	A541	3	3	Grade 2, Class 2	K12765	Forging
ASTM	A541	3	3	Grade 3, Class 1	K12045	Forging
ASTM	A541	3	3	Grade 3, Class 2	K12045	Forging
ASTM	A541	4	1	Grade 11, Class 4	K11572	Forging
ASTM	A541	5C	1	Grade 22, Class 3	K21390	Forging
ASTM	A541	5C	1	Grade 3V	K31830	Forging
ASTM	A541	5C	4	Grade 22, Class 4	K21390	Forging
ASTM	A541	5C	5	Grade 22, Class 5	K21390	Forging
ASTM	A542	5C	1	Type A, Class 4	K21590	Plate & Sheet
ASTM	A542	5C	1	Type A, Class 4a	K21590	Plate & Sheet
ASTM	A542	5C	1	Type B, Class 4	K21590	Plate & Sheet
ASTM	A542	5C	1	Type B, Class 4a	K21590	Plate & Sheet
ASTM	A542	5C	1	Type C, Class 4	K31830	Plate & Sheet
ASTM	A542	5C	1	Type C, Class 4a	K31830	Plate & Sheet
ASTM	A542	5C	3	Type A, Class 3	K21590	Plate
ASTM	A542	5C	3	Type B, Class 3	K21590	Plate
ASTM	A542	5C	3	Type C, Class 3	K31830	Plate
ASTM	A542	5C	4	Type A, Class 1	K21590	Plate
ASTM	A542	5C	4	Type B, Class 1	K21590	Plate
ASTM	A542	5C	4	Type C, Class 1	K31830	Plate
ASTM	A542	5C	5	Type A, Class 2	K21590	Plate
ASTM	A542	5C	5	Type B, Class 2	K21590	Plate
ASTM	A542	5C	5	Type C, Class 2	K31830	Plate
ASTM	A543	11B	10	Type B, Class 2	K42339	Plate
ASTM	A543	11B	10	Type C, Class 2	K42338	Plate
ASTM	A543	11A	5	Type B, Class 1	K42339	Plate
ASTM	A543	11A	5	Type B, Class 3	K42339	Plate
ASTM	A543	11A	5	Type C, Class 1	K42338	Plate
ASTM	A543	11A	5	Type C, Class 3	K42338	Plate
ASTM	A553	11A	1	Type I	K81340	Plate
ASTM	A553	11A	1	Type II	K71340	Plate

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A556	1	1	Grade A2	K01807	Seamless Tube
ASTM	A556	1	1	Grade B2	K02707	Seamless Tube
ASTM	A556	1	2	Grade C2	K03006	Seamless Tube
ASTM	A557	1	1	Grade A2	K01807	Tube-RW
ASTM	A557	1	1	Grade B2	K03007	Tube-RW
ASTM	A557	1	2	Grade C2	K03505	ERW Tube
ASTM	A562	1	1	—	K11224	Plate
ASTM	A569	1	1	Grade 30	K02502	Sheet & Strip
ASTM	A569	1	1	Grade 33	K02502	Sheet & Strip
ASTM	A569	1	1	Grade 36	K02502	Sheet & Strip
ASTM	A569	1	1	Grade 40	K02502	Sheet & Strip
ASTM	A569	1	1	Grade 45	K02502	Sheet & Strip
ASTM	A569	1	1	Grade 50	K02502	Sheet & Strip
ASTM	A570	1	1	Grade 30	K02502	Sheet & Strip
ASTM	A570	1	1	Grade 33	K02502	Sheet & Strip
ASTM	A570	1	1	Grade 36	K02502	Sheet & Strip
ASTM	A570	1	1	Grade 40	K02502	Sheet & Strip
ASTM	A570	1	1	Grade 45	K02502	Sheet & Strip
ASTM	A570	1	1	Grade 50	K02502	Sheet & Strip
ASTM	A570	1	1	Grade 55	K02502	Sheet & Strip
ASTM	A572	1	1	Grade 42	K02303	Shapes, Plate & Bars
ASTM	A572	1	1	Grade 50	K02304	Shapes, Plate & Bars
ASTM	A572	1	2	Grade 55	—	Plate & Shapes
ASTM	A572	1	3	Grade 60	K02305	Plate & Bars
ASTM	A572	1	3	Grade 65	K02306	Shapes
ASTM	A573	1	1	Grade 58	K02301	Plate
ASTM	A573	1	1	Grade 65	K02404	Plate
ASTM	A573	1	2	Grade 70	K02701	Improved Toughness Plate
ASTM	A575	1	1	Grade M1008	G10080	Bar
ASTM	A575	1	1	Grade M1010	G10100	Bar
ASTM	A575	1	1	Grade M1012	G10120	Bar
ASTM	A575	1	1	Grade M1015	G10150	Bar
ASTM	A575	1	1	Grade M1017	G10170	Bar
ASTM	A575	1	1	Grade M1020	G10200	Bar
ASTM	A575	1	1	Grade M1023	G10230	Bar
ASTM	A575	1	1	Grade M1025	G10250	Bar
ASTM	A576	1	1	Grade 1008	G10080	Bar
ASTM	A576	1	1	Grade 1010	G10100	Bar
ASTM	A576	1	1	Grade 1012	G10120	Bar
ASTM	A576	1	1	Grade 1015	G10150	Bar
ASTM	A576	1	1	Grade 1016	G10160	Bar
ASTM	A576	1	1	Grade 1017	G10170	Bar
ASTM	A576	1	1	Grade 1018	G10180	Bar
ASTM	A576	1	1	Grade 1019	G10190	Bar
ASTM	A576	1	1	Grade 1020	G10200	Bar

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A576	1	1	Grade 1021	G10210	Bar
ASTM	A576	1	1	Grade 1022	G10220	Bar
ASTM	A576	1	1	Grade 1023	G10230	Bar
ASTM	A576	1	1	Grade 1025	G10250	Bar
ASTM	A587	1	1	—	K11500	Pipe
ASTM	A587	1	1	Grade A2	K01807	Tube-RW
ASTM	A587	1	1	Grade B2	K03007	Tube-RW
ASTM	A588	1	2	All Grades	—	Structural Shapes
ASTM	A588	1	2	Grade A	K11430	Plate & Bars
ASTM	A588	1	2	Grade B	K12043	Plate & Bars
ASTM	A588	1	2	Grade C	K11538	Plate & Bars
ASTM	A588	1	2	Grade K	—	Plate & Bars
ASTM	A592	11B	1	Grade A	K11856	Forging
ASTM	A592	11B	2	Grade E	K11695	Forging
ASTM	A592	11B	3	Grade F	K11576	Forging
ASTM	A595	1	2	Grade A	K02004	Tapered Tube
ASTM	A595	1	2	Grade B	K02005	Tapered Tube
ASTM	A595	3	1	Grade C	K11526	Tapered Tube
ASTM	A606	1	2	Type 2	—	Sheet & Strip
ASTM	A606	1	2	Type 4	—	Sheet & Strip
ASTM	A607	1	1	Grade 45	—	Sheet & Strip
ASTM	A607	1	1	Grade 50	—	Sheet & Strip
ASTM	A607	1	2	Grade 55	—	Sheet & Strip
ASTM	A607	1	3	Grade 60	—	Sheet & Strip
ASTM	A607	1	3	Grade 65	—	Sheet & Strip
ASTM	A607	1	3	Grade 70	—	Sheet & Strip
ASTM	A611	1	1	Grade A	G10170	Sheet & Strip
ASTM	A611	1	1	Grade B	G10170	Sheet & Strip
ASTM	A611	1	1	Grade C	G10170	Sheet & Strip
ASTM	A611	1	1	Grade D	G10120	Sheet & Strip
ASTM	A611	1	3	Grade E	G10170	Sheet & Strip
ASTM	A612	10C	1	—	K02900	Plate
ASTM	A615	1A	4	Grade 40	—	Rebar
ASTM	A615	1A	4	Grade 60	—	Rebar
ASTM	A618	1	1	Grade III	K12700	Tube
ASTM	A618	1	2	Grade 1a	—	HSLA Tube
ASTM	A618	1	2	Grade 1b	K02601	HSLA Tube
ASTM	A618	1	2	Grade II	K12609	Tube
ASTM	A620	1	1	Types A	K00040	Sheet
ASTM	A620	1	1	Types B	K00040	Sheet
ASTM	A633	1	1	Grade A	K01802	Plate & Shapes
ASTM	A633	1	2	Grade C	K12000	HSLA Steel
ASTM	A633	1	2	Grade D	K12037	HSLA Steel
ASTM	A633	1	3	Grade E	K12202	HSLA Steel
ASTM	A645	11A	2	—	K41583	Plate

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A653	1	1	Grade 33	—	Galvanized Sheet
ASTM	A653	1	1	Grade 37	—	Galvanized Sheet
ASTM	A653	1	1	Grade 40	—	Galvanized Sheet
ASTM	A653	1	1	Grade 80	—	Galvanized Sheet
ASTM	A656	1	1	Grade 50	K11804	Hi-Str. Lo-Alloy Plate
ASTM	A656	1	1	Grade 60	K11804	Hi-Str. Lo-Alloy Plate
ASTM	A656	1	2	Grade 70	K11804	Hi-Str. Lo-Alloy Plate
ASTM	A656	1	3	Grade 80	K11804	Hi-Str. Lo-Alloy Plate
ASTM	A660	1	1	Grade WCA	J02504	Centrifugal Cast Pipe
ASTM	A660	1	2	Grade WCB	J03003	Centrifugal Cast Pipe
ASTM	A660	1	2	Grade WCC	J02505	Centrifugal Cast Pipe
ASTM	A662	1	1	Grade A	K01701	Plate
ASTM	A662	1	1	Grade B	K02203	Plate
ASTM	A662	1	2	Grade C	K02007	Plate
ASTM	A663	1	1	Grade 45	—	Bar, Shapes, Rounds, Squares, Hex.
ASTM	A663	1	1	Grade 50	—	Bar, Shapes, Rounds, Squares, Hex.
ASTM	A663	1	1	Grade 55	—	Bar, Shapes, Rounds, Squares, Hex.
ASTM	A663	1	1	Grade 60	—	Bar, Shapes, Rounds, Squares, Hex.
ASTM	A663	1	1	Grade 65	—	Bar, Shapes, Rounds, Squares, Hex.
ASTM	A663	1	3	Grade 70	—	Bar, Shapes, Rounds, Squares, Hex.
ASTM	A663	1	3	Grade 75	—	Bar, Shapes, Rounds, Squares, Hex.
ASTM	A663	1	3	Grade 79	—	Flat Bar
ASTM	A663	1	3	Grade 80	—	Bar, Shapes, Rounds, Squares, Hex.
ASTM	A666	8	1	Type 302	S30200	Plate, Sheet & Strip
ASTM	A666	8	1	Type 304	S30400	Plate, Sheet & Strip
ASTM	A666	8	1	Type 304L	S30403	Plate, Sheet & Strip
ASTM	A666	8	1	Type 304LN	S30453	Plate, Sheet & Strip
ASTM	A666	8	1	Type 304N	S30451	Plate, Sheet & Strip
ASTM	A666	8	1	Type 316	S31600	Plate, Sheet & Strip
ASTM	A666	8	1	Type 316L	S31603	Plate, Sheet & Strip
ASTM	A666	8	1	Type 316N	S31651	Plate, Sheet & Strip
ASTM	A666	8	3	201	S20100	Plate, Sheet & Strip
ASTM	A666	8	3	XM-11	S21904	Plate, Sheet & Strip
ASTM	A668	1	1	Class B	G10200	Forging
ASTM	A668	1	1	Class C	G10250	Forging
ASTM	A668	1	2	Class D	G10300	Forging
ASTM	A668	1	3	Class F	—	Forging
ASTM	A671	1	1	Grade CA55	K02801	Fusion Welded Pipe
ASTM	A671	1	1	Grade CB60	K02401	Fusion Welded Pipe

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A671	1	1	Grade CB65	K02800	Fusion Welded Pipe
ASTM	A671	1	1	Grade CC60	K02100	Fusion Welded Pipe
ASTM	A671	1	1	Grade CC65	K02403	Fusion Welded Pipe
ASTM	A671	1	2	Grade CB70	K03101	Fusion Welded Pipe
ASTM	A671	1	2	Grade CC70	K02700	Fusion Welded Pipe
ASTM	A671	1	2	Grade CD70	K02400	Fusion Welded Pipe
ASTM	A671	1	2	Grade CK75	K02803	Fusion Welded Pipe
ASTM	A671	1	3	Grade CD80	K02400	Fusion Welded Pipe
ASTM	A672	1	1	Grade A45	K01700	Fusion Welded Pipe
ASTM	A672	1	1	Grade A50	K02200	Fusion Welded Pipe
ASTM	A672	1	1	Grade A55	K02801	Fusion Welded Pipe
ASTM	A672	1	1	Grade B60	K02401	Fusion Welded Pipe
ASTM	A672	1	1	Grade B65	K02800	Fusion Welded Pipe
ASTM	A672	1	1	Grade C55	K01800	Fusion Welded Pipe
ASTM	A672	1	1	Grade C60	K02100	Fusion Welded Pipe
ASTM	A672	1	1	Grade C65	K02403	Fusion Welded Pipe
ASTM	A672	1	1	Grade E60	K02402	Fusion Welded Pipe
ASTM	A672	3	1	Grade L65	K11820	Fusion Welded Pipe
ASTM	A672	1	2	Grade B70	K03101	Fusion Welded Pipe
ASTM	A672	1	2	Grade C70	K02700	Fusion Welded Pipe
ASTM	A672	1	2	Grade D70	K02400	Fusion Welded Pipe
ASTM	A672	3	2	Grade H75	K12021	Fusion Welded Pipe
ASTM	A672	3	2	Grade L70	K12020	Fusion Welded Pipe
ASTM	A672	3	2	Grade L75	K12320	Fusion Welded Pipe
ASTM	A672	1	2	Grade N75	K02803	Fusion Welded Pipe
ASTM	A672	1	3	Grade D80	K02400	Fusion Welded Pipe
ASTM	A672	3	3	Grade H80	K12022	Fusion Welded Pipe
ASTM	A672	3	3	Grade J80	K12554	Fusion Welded Pipe
ASTM	A672	3	3	Grade J90	K12554	Fusion Welded Pipe
ASTM	A672	11A	4	Grade J100	K12521	Fusion Welded Pipe
ASTM	A675	1	1	Grade 45	—	Bar
ASTM	A675	1	1	Grade 50	—	Bar
ASTM	A675	1	1	Grade 55	—	Bar
ASTM	A675	1	1	Grade 60	—	Bar
ASTM	A675	1	1	Grade 65	—	Bar
ASTM	A675	1	2	Grade 70	—	Bar
ASTM	A675	1	2	Grade 75	—	Bar
ASTM	A678	1	2	Grade A	K01600	Structural Plate
ASTM	A678	1	2	Grade B	K02002	Structural Plate
ASTM	A678	1	3	Grade C	K02204	Structural Plate
ASTM	A678	1	3	Grade C	K02204	Structural Plate
ASTM	A678	1	3	Grade C	K02204	Structural Plate
ASTM	A678	1	3	Grade D	K12202	Structural Plate
ASTM	A688	8	1	TP304	S30400	Welded Tube
ASTM	A688	8	1	TP304L	S30403	Welded Tube

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A688	8	1	TP304LN	S30453	Welded Tube
ASTM	A688	8	1	TP304N	S30451	Welded Tube
ASTM	A688	8	1	TP316	S31600	Welded Tube
ASTM	A688	8	1	TP316L	S31603	Welded Tube
ASTM	A688	8	1	TP316LN	S31653	Welded Tube
ASTM	A688	8	1	TP316N	S31651	Welded Tube
ASTM	A688	8	3	TPXM-29	S24000	Welded Tube
ASTM	A690	1	2	—	K12249	Marine Piling - Plate & Bar
ASTM	A691	1	2	Grade CMS-75	K02803	Fusion Welded Pipe
ASTM	A691	1	2	Grade CMSH-70	K02400	Fusion Welded Pipe
ASTM	A691	1	3	Grade CMSH-80	K02400	Fusion Welded Pipe
ASTM	A691	3	1	Grade 1/2 CR, Class 1	K12143	Fusion Welded Pipe
ASTM	A691	3	1	Grade CM-65, Gr. A	K11820	Fusion Welded Pipe
ASTM	A691	3	2	Grade 1/2 CR, Class 2	K12143	Fusion Welded Pipe
ASTM	A691	3	2	Grade CM-70	K12020	Fusion Welded Pipe
ASTM	A691	3	2	Grade CM-75	K12320	Fusion Welded Pipe
ASTM	A691	4	1	Grade 1.25CR, Class 1	K11757	Fusion Welded Pipe
ASTM	A691	4	1	Grade 1.25CR, Class 2	K11789	Fusion Welded Pipe
ASTM	A691	4	1	Grade 1CR, Class 1	K11757	Fusion Welded Pipe
ASTM	A691	4	1	Grade 1CR, Class 2	K11789	Fusion Welded Pipe
ASTM	A691	5A	1	Grade 2-1/4CR, Class 1	K21590	Fusion Welded Pipe
ASTM	A691	5A	1	Grade 2-1/4CR, Class 2	K21590	Fusion Welded Pipe
ASTM	A691	5A	1	Grade 3CR, Class 1	K31545	Fusion Welded Pipe
ASTM	A691	5A	1	Grade 3CR, Class 2	K31545	Fusion Welded Pipe
ASTM	A691	5B	1	Grade 5CR, Class 1	K41545	Fusion Welded Pipe
ASTM	A691	5B	1	Grade 5CR, Class 2	K41545	Fusion Welded Pipe
ASTM	A695	1	1	Type B	K03504	Bar
ASTM	A695	1	2	Type B, Grade 40	K03504	Bar
ASTM	A696	1	1	Grade B	K03200	Bar
ASTM	A696	1	2	Grade C	K03200	Bar
ASTM	A706	1A	4	—	K03011	Rebar
ASTM	A707	1	1	Grade L1, Class 1	K02302	Forging
ASTM	A707	1	1	Grade L2, Class 1	K03301	Forging
ASTM	A707	1	1	Grade L3, Class 1	K12510	Forging
ASTM	A707	1	1	Grade L4, Class 1	K12089	Forging
ASTM	A707	1	1	Grade L5, Class 1	K20934	Forging
ASTM	A707	1	2	Grade L1, Class 2	K02302	Forging
ASTM	A707	1	2	Grade L2, Class 2	K03301	Forging
ASTM	A707	1	2	Grade L3, Class 2	K12510	Forging
ASTM	A707	1	2	Grade L4, Class 2	K12089	Forging
ASTM	A707	1	2	Grade L4, Class 3	K12089	Forging
ASTM	A707	1	2	Grade L5, Class 2	K20934	Forging
ASTM	A707	1	3	Grade L2, Class 3	K03301	Forging
ASTM	A707	1	3	Grade L3, Class 3	K12510	Forging
ASTM	A707	1	3	Grade L5, Class 3	K20934	Forging

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A707	1	4	Grade L5, Class 4	K20934	Forging
ASTM	A707	3	1	Grade L6, Class 1	K02902	Forging
ASTM	A707	3	2	Grade L6, Class 2	K02902	Forging
ASTM	A707	3	3	Grade L6, Class 3	K02902	Forging
ASTM	A707	3	4	Grade L6, Class 4	K02902	Forging
ASTM	A707	9B	1	Grade L7, Class 1	K32218	Forging
ASTM	A707	9B	1	Grade L7, Class 2	K32218	Forging
ASTM	A707	11A	1	Grade L8, Class 1	K42247	Forging
ASTM	A707	11A	2	Grade L8, Class 2	K42247	Forging
ASTM	A707	11A	3	Grade L8, Class 3	K42247	Forging
ASTM	A707	11A	4	Grade L8, Class 4	K42247	Forging
ASTM	A709	1	1	Grade 36	—	Plate, Bars & Shapes
ASTM	A709	1	1	Grade 50	—	Plate, Bars & Shapes
ASTM	A709	1	2	Grade 50W	—	Plate, Bars & Shapes
ASTM	A709	11B	1	Grade 100, Type A	K11856	Plate & Shapes
ASTM	A709	11B	1	Grade 100W, Type A	K11856	Plate & Shapes
ASTM	A709	11B	2	Grade 100, Type E	K21604	Plate & Shapes
ASTM	A709	11B	2	Grade 100W, Type E	K21604	Plate & Shapes
ASTM	A709	11B	3	Grade 100, Type F	K11576	Plate & Shapes
ASTM	A709	11B	3	Grade 100W, Type F	K11576	Plate & Shapes
ASTM	A709	11B	3	Grade 100, Type H	K21504	Plate & Shapes
ASTM	A709	11B	3	Grade 100W, Type H	K21504	Plate & Shapes
ASTM	A709	11B	4	Grade 100, Type B	K11630	Plate & Shapes
ASTM	A709	11B	4	Grade 100W, Type B	K11630	Plate & Shapes
ASTM	A709	11B	6	Grade 100, Type C	—	Plate & Shapes
ASTM	A709	11B	6	Grade 100W, Type C	—	Plate & Shapes
ASTM	A709	11B	6	Grade 100, Type J	K11625	Plate & Shapes
ASTM	A709	11B	6	Grade 100W, Type J	K11625	Plate & Shapes
ASTM	A709	11B	8	Grade 100, Type P	K21650	Plate & Shapes
ASTM	A709	11B	8	Grade 100W, Type P	K21650	Plate & Shapes
ASTM	A709	11B	9	Grade 100, Type Q	—	Plate & Shapes
ASTM	A709	11B	9	Grade 100W, Type Q	—	Plate & Shapes
ASTM	A709	11B	10	Grade 100, Type M	—	Plate & Shapes
ASTM	A709	11B	10	Grade 100W, Type M	—	Plate & Shapes
ASTM	A709	11B	11	Grade HPS70W	—	Plate & Shapes
ASTM	A710	12A	1	Grade A, Class 2	K20747	Structural
ASTM	A710	12B	1	Grade A, Class 3	K20747	Structural
ASTM	A710	12C	1	Grade A, Class 1	K20747	Structural
ASTM	A714	9A	1	Grade V, Type E	K22035	Welded Pipe
ASTM	A724	1	4	Grade A	K11831	Plate
ASTM	A724	1	4	Grade B	K12031	Plate
ASTM	A724	1	4	Grade C	K12037	Plate
ASTM	A727	1	1	Grade 36	K02506	Forging
ASTM	A731	6	4	S41500	S41500	Seamless & Welded Pipe
ASTM	A731	7	2	Type 439	S43035	Seamless & Welded Pipe

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A731	7	2	Type 18Cr-2Mo	S44400	Seamless & Welded Pipe
ASTM	A731	10I	1	TPXM-27	S44627	Seamless & Welded Pipe
ASTM	A731	10I	1	TPXM-33	S44626	Seamless & Welded Pipe
ASTM	A731	10J	1	S44700	S44700	Seamless & Welded Pipe
ASTM	A731	10K	1	Grade 26-3-3	S44660	Seamless & Welded Tube
ASTM	A731	10K	1	Grade 29-4-2	S44800	Seamless & Welded Tube
ASTM	A734	11A	2	Type A	K21205	Pressure Vessel Plate
ASTM	A737	1	2	Grade B	K12001	Plate
ASTM	A737	1	3	Grade C	K12202	Plate
ASTM	A738	1	2	Grade A	K12447	Plate
ASTM	A738	1	3	Grade B	K12447	Plate
ASTM	A738	1	3	Grade C	—	Plate
ASTM	A739	4	1	Grade B11	K11797	Bar
ASTM	A739	5A	1	Grade B22	K21390	Bar
ASTM	A743	6	3	CA-15	J91150	Castings
ASTM	A743	6	3	CA-15M	J91151	Castings
ASTM	A743	8	1	CC-50	J92615	Castings
ASTM	A743	8	1	CE-30	J93423	Castings
ASTM	A743	8	1	CF-3	J92500	Castings
ASTM	A743	8	1	CF-8	J92600	Castings
ASTM	A743	8	1	CF-8C	J92710	Castings
ASTM	A743	8	1	CF-8M	J92900	Castings
ASTM	A743	8	1	CF-16F	J92701	Castings
ASTM	A743	8	2	CF-20	J92602	Castings
ASTM	A743	8	1	CG-8M	J93000	Castings
ASTM	A743	8	1	CG-12	J93001	Castings
ASTM	A743	8	2	CH-20	J93402	Castings
ASTM	A743	6	4	CA-40	J91153	Castings
ASTM	A743	6	4	CB-6	J91804	Castings
ASTM	A743	8	1	CF-3M	J92800	Castings
ASTM	A743	8	1	CF-3MN	J92804	Castings
ASTM	A743	8	1	CF-10SMnN	J92972	Castings
ASTM	A743	8	4	CK-3MCuN	J93254	Castings
ASTM	A743	8	1	CG-3M	J92999	Castings
ASTM	A743	8	1	CN-3M	J94652	Castings
ASTM	A743	6	4	CA-6NM	J91540	Castings
ASTM	A743	8	2	CH-10	J93401	Castings
ASTM	A765	1	1	Grade I	K03046	Forging
ASTM	A765	1	2	Grade II	K03047	Forging
ASTM	A765	1	3	Grade IV	K03046	Forging
ASTM	A765	9B	1	Grade III	K32026	Forging
ASTM	A774	8	1	TP304L	S30403	As-Welded Wrought Fittings
ASTM	A774	8	1	TP316L	S31603	As-Welded Wrought Fittings
ASTM	A774	8	1	TP317L	S31703	As-Welded Wrought Fittings
ASTM	A774	8	1	TP321	S32100	As-Welded Wrought Fittings

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A774	8	1	TP347	S34700	As-Welded Wrought Fittings
ASTM	A778	8	1	TP304L	S30403	Welded Unannealed Tube
ASTM	A778	8	1	TP316L	S31603	Welded Unannealed Tube
ASTM	A778	8	1	TP317L	S31703	Welded Unannealed Tube
ASTM	A778	8	1	TP321	S32100	Welded Unannealed Tube
ASTM	A778	8	1	TP347	S34700	Welded Unannealed Tube
ASTM	A782	11B	4	Class 1	—	Pressure Vessel Plate
ASTM	A782	11B	4	Class 2	—	Pressure Vessel Plate
ASTM	A782	11B	4	Class 3	—	Pressure Vessel Plate
ASTM	A789	10H	1	Grade 2304	S32304	Seamless & Welded Tube
ASTM	A789	10H	1	Grade 2550	S32550	Seamless & Welded Tube
ASTM	A789	10H	1	Grade 2950	S32950	Seamless & Welded Tube
ASTM	A789	10H	1	S31803	S31803	Seamless & Welded Tube
ASTM	A789	10H	1	S32750	S32750	Seamless & Welded Tube
ASTM	A789	10H	1	S32900	S32900	Seamless & Welded Tube
ASTM	A789	10H	1	S31200	S31200	Seamless & Welded Tube
ASTM	A789	10H	1	S31260	S31260	Seamless & Welded Tube
ASTM	A789	10H	1	S31500	S31500	Seamless & Welded Tube
ASTM	A790	10H	1	S31200	S31200	Seamless & Welded Tube
ASTM	A790	10H	1	S31260	S31260	Seamless & Welded Tube
ASTM	A790	10H	1	S31500	S31500	Seamless & Welded Tube
ASTM	A790	10H	1	S31803	S31803	Seamless & Welded Tube
ASTM	A790	10H	1	S32304	S32304	Seamless & Welded Tube
ASTM	A790	10H	1	S32550	S32550	Seamless & Welded Tube
ASTM	A790	10H	1	S32750	S32750	Seamless & Welded Tube
ASTM	A790	10H	1	S32900	S32900	Seamless & Welded Tube
ASTM	A790	10H	1	S32950	S32950	Seamless & Welded Tube
ASTM	A790	10H	1	S32900	S32900	Tube
ASTM	A803	7	2	Type 439	S43035	Welded Tube
ASTM	A803	10K	1	Grade 26-3-3	S44660	Welded Tube
ASTM	A808	1	1	—	K11852	Structural
ASTM	A813	8	1	TP304	S30400	Welded Pipe
ASTM	A813	8	1	TP304H	S30409	Welded Pipe
ASTM	A813	8	1	TP304L	S30403	Welded Pipe
ASTM	A813	8	1	TP304LN	S30453	Welded Pipe
ASTM	A813	8	1	TP304N	S30451	Welded Pipe
ASTM	A813	8	1	TP316	S31600	Welded Pipe
ASTM	A813	8	1	TP316H	S31609	Welded Pipe
ASTM	A813	8	1	TP316L	S31603	Welded Pipe
ASTM	A813	8	1	TP316LN	S31653	Welded Pipe
ASTM	A813	8	1	TP316N	S31651	Welded Pipe
ASTM	A813	8	1	TP317	S31700	Welded Pipe
ASTM	A813	8	1	TP317L	S31703	Welded Pipe
ASTM	A813	8	1	TP321	S32100	Welded Pipe
ASTM	A813	8	1	TP321H	S32109	Welded Pipe

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A813	8	1	TP347	S34700	Welded Pipe
ASTM	A813	8	1	TP347H	S34709	Welded Pipe
ASTM	A813	8	1	TP348	S34800	Welded Pipe
ASTM	A813	8	1	TP348H	S34809	Welded Pipe
ASTM	A813	8	1	TPXM-15	S38100	Welded Pipe
ASTM	A813	8	3	TPXM-11	S21904	Welded Pipe
ASTM	A813	8	3	TPXM-19	S20910	Welded Pipe
ASTM	A813	8	3	TPXM-29	S24000	Welded Pipe
ASTM	A813	8	4	S31254	S31254	Welded Pipe
ASTM	A814	8	1	S31254	S31254	Welded Pipe
ASTM	A814	8	1	TP304	S30400	Cold Worked, Welded Pipe
ASTM	A814	8	1	TP304H	S30409	Cold Worked, Welded Pipe
ASTM	A814	8	1	TP304L	S30403	Cold Worked, Welded Pipe
ASTM	A814	8	1	TP304LN	S30453	Cold Worked, Welded Pipe
ASTM	A814	8	1	TP304N	S30451	Cold Worked, Welded Pipe
ASTM	A814	8	1	TP316	S31600	Cold Worked, Welded Pipe
ASTM	A814	8	1	TP316H	S31609	Cold Worked, Welded Pipe
ASTM	A814	8	1	TP316L	S31603	Cold Worked, Welded Pipe
ASTM	A814	8	1	TP316LN	S31653	Cold Worked, Welded Pipe
ASTM	A814	8	1	TP316N	S31651	Cold Worked, Welded Pipe
ASTM	A814	8	1	TP317	S31700	Cold Worked, Welded Pipe
ASTM	A814	8	1	TP317L	S31703	Cold Worked, Welded Pipe
ASTM	A814	8	1	TP321	S32100	Cold Worked, Welded Pipe
ASTM	A814	8	1	TP321H	S32109	Cold Worked, Welded Pipe
ASTM	A814	8	1	TP347	S34700	Cold Worked, Welded Pipe
ASTM	A814	8	1	TP347H	S34709	Cold Worked, Welded Pipe
ASTM	A814	8	1	TP348	S34800	Cold Worked, Welded Pipe
ASTM	A814	8	1	TP348H	S34809	Cold Worked, Welded Pipe
ASTM	A814	8	1	TPXM-15	S38100	Cold Worked, Welded Pipe
ASTM	A814	8	3	TPXM-11	S21904	Cold Worked, Welded Pipe
ASTM	A814	8	3	TPXM-19	S20910	Cold Worked, Welded Pipe
ASTM	A814	8	3	TPXM-29	S24000	Cold Worked, Welded Pipe
ASTM	A815	6	4	S41500	S41500	Pipe Fittings
ASTM	A830	1	1	1006	G10060	Plate
ASTM	A830	1	1	1008	G10080	Plate
ASTM	A830	1	1	1009	G10090	Plate
ASTM	A830	1	1	1010	G10100	Plate
ASTM	A830	1	1	1012	G10120	Plate
ASTM	A830	1	1	1015	G10150	Plate
ASTM	A830	1	1	1016	G10160	Plate
ASTM	A830	1	1	1017	G10170	Plate
ASTM	A830	1	1	1018	G10180	Plate
ASTM	A830	1	1	1019	G10190	Plate
ASTM	A830	1	1	1020	G10200	Plate
ASTM	A830	1	1	1021	G10210	Plate

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A830	1	1	1022	G10220	Plate
ASTM	A830	1	1	1023	G10230	Plate
ASTM	A830	1	1	1025	G10250	Plate
ASTM	A832	5C	1	Grade 21V	K31830	Plate
ASTM	A832	5C	1	Grade 22V	K31835	Pressure Vessel Plate
ASTM	A836	1	1	Class 1	—	Forging
ASTM	A841	10C	1	TMCP, Class 1	—	Plate
ASTM	A844	11A	1	Grade 9% Ni	K81340	Pressure Vessel Plate
ASTM	A852	11B	11	Grade 70W	K12043	Plate & Shapes
ASTM	A857	1	1	Grade 25	—	Sheet Piling
ASTM	A857	1	1	Grade 30	—	Sheet Piling
ASTM	A857	1	1	Grade 33	—	Sheet Piling
ASTM	A857	1	1	Grade 36	—	Sheet Piling
ASTM	A871	3	2	Grade 60	—	Plate & Shapes
ASTM	A871	3	3	Grade 65	—	Plate & Shapes
ASTM	A913	1	2	Grade 50	—	Structural
ASTM	A913	1	3	Grade 60	—	Structural Shapes
ASTM	A913	1	3	Grade 65	—	Structural Shapes
ASTM	A913	1	4	Grade 70	—	Structural Shapes
ASTM	A935	1	1	Grade 45, Class 1	—	Sheet & Strip
ASTM	A935	1	1	Grade 45, Class 2	—	Sheet & Strip
ASTM	A935	1	1	Grade 50, Class 1	—	Sheet & Strip
ASTM	A935	1	1	Grade 50, Class 2	—	Sheet & Strip
ASTM	A935	1	2	Grade 55, Class 1	—	Sheet & Strip
ASTM	A935	1	2	Grade 55, Class 2	—	Sheet & Strip
ASTM	A935	1	2	Grade 60, Class 1	—	Sheet & Strip
ASTM	A935	1	2	Grade 60, Class 2	—	Sheet & Strip
ASTM	A935	1	3	Grade 65, Class 1	—	Sheet & Strip
ASTM	A935	1	3	Grade 65, Class 2	—	Sheet & Strip
ASTM	A935	1	3	Grade 70, Class 2	—	Sheet & Strip
ASTM	A935	1	4	Grade 70, Class 1	—	Sheet & Strip
ASTM	A945	3	1	Grade 50	—	Plate & Shapes
ASTM	A945	3	2	Grade 65	—	Plate & Shapes
ASTM	A965	8	1	F304	S30400	Forging
ASTM	A965	8	1	F304H	S30409	Forging
ASTM	A965	8	1	F304L	S30403	Forging
ASTM	A965	8	1	F304LN	S30453	Forging
ASTM	A965	8	1	F304N	S30451	Forging
ASTM	A965	8	1	F316	S31600	Forging
ASTM	A965	8	1	F316H	S31609	Forging
ASTM	A965	8	1	F316L	S31603	Forging
ASTM	A965	8	1	F316LN	S31653	Forging
ASTM	A965	8	1	F316N	S31651	Forging
ASTM	A965	8	1	F321	S32100	Forging
ASTM	A965	8	1	F321H	S32109	Forging

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ASTM	A965	8	1	F347	S34700	Forging
ASTM	A965	8	1	F347H	S34709	Forging
ASTM	A965	8	1	F348	S34809	Forging
ASTM	A965	8	1	F348H	S34800	Forging
ASTM	A965	8	2	F310	S31000	Forging
ASTM	A965	8	3	FXM-11	S21904	Forging
ASTM	A965	8	3	FXM-19	S20910	Forging
ASTM	A965	8	4	F46	S30600	Forging
ASTM	A984	1	1	Grade 35	—	Line Pipe
ASTM	A984	1	2	Grade 45	—	Line Pipe
ASTM	A984	1	2	Grade 55	—	Line Pipe
ASTM	A984	1	2	Grade 65	—	Line Pipe
ASTM	A984	1	4	Grade 85	—	Line Pipe
ASTM	A992	1	1	—	—	Structural Shapes
ASTM	A1008	1	1	CS Type B		Sheet
ASTM	A1008	1	1	DS Type B		Sheet
ASTM	A1008	1	1	SS Grade 25		Sheet
ASTM	A1008	1	1	SS Grade 30		Sheet
ASTM	A1008	1	1	SS Grade 33 type 1,2		Sheet
ASTM	A1008	1	1	SS Grade 40 type 1,2		Sheet
ASTM	A1008	1	3	SS Grade 80		Sheet
ASTM	A1008	1	4	HSLAS Grade 70 cl 1		Sheet
ASTM	A1008	1	3	HSLAS Grade 70 cl 2		Sheet
ASTM	A1011	1	1	CS Type A, B, C, D		Sheet & Strip
ASTM	A1011	1	1	DS Type A, B		Sheet & Strip
ASTM	A1011	1	1	SS Grade 30		Sheet & Strip
ASTM	A1011	1	1	SS Grade 33		Sheet & Strip
ASTM	A1011	1	1	SS Grade 36		Sheet & Strip
ASTM	A1011	1	1	SS Grade 40		Sheet & Strip
ASTM	A1011	1	1	SS Grade 45		Sheet & Strip
ASTM	A1011	1	1	SS Grade 50		Sheet & Strip
ASTM	A1011	1	2	SS Grade 55		Sheet & Strip
ASTM	A1011	1	1	HSLAS Grade 45 cl 1		Sheet & Strip
ASTM	A1011	1	1	HSLAS Grade 45 cl 2		Sheet & Strip
ASTM	A1011	1	1	HSLAS Grade 50 cl 1		Sheet & Strip
ASTM	A1011	1	1	HSLAS Grade 50 cl 2		Sheet & Strip
ASTM	A1011	1	2	HSLAS Grade 55 cl 1		Sheet & Strip
ASTM	A1011	1	1	HSLAS Grade 55 cl 2		Sheet & Strip
ASTM	A1011	1	3	HSLAS Grade 60 cl 1		Sheet & Strip
ASTM	A1011	1	2	HSLAS Grade 60 cl 2		Sheet & Strip
ASTM	A1011	1	3	HSLAS Grade 65 cl 1		Sheet & Strip
ASTM	A1011	1	3	HSLAS Grade 65 cl 2		Sheet & Strip
ASTM	A1011	1	4	HSLAS Grade 70 cl 1		Sheet & Strip
ASTM	A1011	1	4	HSLAS Grade 70 cl 2		Sheet & Strip

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
ABS	ABS	1	1	Grade A	K02300	Structural
ABS	ABS	1	1	Grade AH32	K11846	Hull Steel
ABS	ABS	1	1	Grade B	K02102	Structural
ABS	ABS	1	1	Grade D	K02101	Structural
ABS	ABS	1	1	Grade DH32	K11846	Hull Steel
ABS	ABS	1	1	Grade E	K01801	Structural
ABS	ABS	1	1	Grade EH32	K11846	Hull Steel
ABS	ABS	1	1	Grade FH32	K11846	Hull Steel
ABS	ABS	1	2	Grade AH36	K11852	Hull Steel
ABS	ABS	1	2	Grade DH36	K11852	Hull Steel
ABS	ABS	1	2	Grade EH36	K11852	Hull Steel
ABS	ABS	1	2	Grade FH36	K11852	Hull Steel
ABS	ABS	1	3	Grade AH40	K11857	Structural
ABS	ABS	1	3	Grade DH40	K11857	Structural
ABS	ABS	1	3	Grade EH40	K11857	Structural
ABS	ABS	1	3	Grade FH40	K11857	Structural
API	2H	1	1	Grade 42	—	Structural
API	2H	1	2	Grade 50	—	Structural
API	5L	1	1	Grade A	—	Pipe
API	5L	1	1	Grade A25, Class I	—	Pipe & Tube
API	5L	1	1	Grade A25, Class II	—	Pipe & Tube
API	5L	1	1	Grade B	—	Pipe
API	5L	1	1	Grade X42	—	Pipe
API	5L	1	2	Grade X52	—	Pipe
API	5L	1	2	Grade X56	—	Pipe
API	5L	1	2	Grade X60	—	Pipe
API	5L	1	3	Grade X65	—	Pipe
API	5L	1	3	Grade X70	—	Pipe
API	5L	1	4	Grade X80	—	Pipe
API	5LS	1	1	Grade X46	—	Pipe
API	2Y	1	1	Grade 42	—	Pipe
API	2Y	1	1	Grade 50	—	Pipe
API	2Y	1	2	Grade 50T	—	Pipe
CSA	G30.18	1A	4	300R	—	Rebar
CSA	G30.18	1A	4	400R	—	Rebar
CSA	G30.18	1A	4	400W	—	Rebar
CSA	G30.18	1A	4	500R	—	Rebar
CSA	G30.18	1A	4	500W	—	Rebar
CSA	G40.20/40.21	1	1	260W	—	Structural
CSA	G40.20/40.21	1	1	260WT	—	Structural
CSA	G40.20/40.21	1	1	300W	—	Structural
CSA	G40.20/40.21	1	1	300WT	—	Structural
CSA	G40.20/40.21	1	2	350A	—	HSLA Steel

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
CSA	G40.20/40.21	1	2	350AT	—	HSLA Steel
CSA	G40.20/40.21	1	2	350R	—	HSLA Steel
CSA	G40.20/40.21	1	2	350W	—	Structural
CSA	G40.20/40.21	1	2	350WT	—	Structural
CSA	G40.20/40.21	1	2	380W	—	Structural
CSA	G40.20/40.21	1	2	380WT	—	Structural
CSA	G40.20/40.21	1	2	400A	—	HSLA Steel
CSA	G40.20/40.21	1	2	400AT	—	HSLA Steel
CSA	G40.20/40.21	1	2	400W	—	HSLA Steel
CSA	G40.20/40.21	1	2	400WT	—	HSLA Steel
CSA	G40.20/40.21	1	3	480W	—	HSLA Steel
CSA	G40.20/40.21	1	3	480WT	—	HSLA Steel
CSA	G40.20/40.21	1	3	480A	—	HSLA Steel
CSA	G40.20/40.21	1	3	480AT	—	HSLA Steel
CSA	G40.20/40.21	1	2	550A	—	Structural Steel
CSA	G40.20/40.21	1	2	550AT	—	Structural Steel
CSA	G40.20/40.21	1	2	550W	—	Structural Steel
CSA	G40.20/40.21	1	2	550WT	—	Structural Steel
CSA	Z245.1	1	1	172	—	Pipe
CSA	Z245.1	1	1	207	—	Pipe
CSA	Z245.1	1	1	241	—	Pipe
CSA	Z245.1	1	1	290	—	Pipe
CSA	Z245.1	1	2	317	—	Pipe
CSA	Z245.1	1	2	359	—	Pipe
CSA	Z245.1	1	2	386	—	Pipe
CSA	Z245.1	1	3	414	—	Pipe
CSA	Z245.1	1	3	448	—	Pipe
CSA	Z245.1	1	3	483	—	Pipe
CSA	Z245.1	1	4	550	—	Pipe
CSA	Z245.11	1	1	207	—	Steel Fittings
CSA	Z245.11	1	1	241	—	Steel Fittings
CSA	Z245.11	1	1	290	—	Steel Fittings
CSA	Z245.11	1	2	317	—	Steel Fittings
CSA	Z245.11	1	2	359	—	Steel Fittings
CSA	Z245.11	1	2	386	—	Steel Fittings
CSA	Z245.11	1	3	414	—	Steel Fittings
CSA	Z245.11	1	3	448	—	Steel Fittings
CSA	Z245.11	1	3	483	—	Steel Fittings
CSA	Z245.11	1	4	550	—	Steel Fittings
CSA	Z245.12	1	1	248	—	Steel Flanges
CSA	Z245.12	1	1	290	—	Steel Flanges
CSA	Z245.12	1	2	317	—	Steel Flanges
CSA	Z245.12	1	2	359	—	Steel Flanges
CSA	Z245.12	1	2	386	—	Steel Flanges
CSA	Z245.12	1	3	414	—	Steel Flanges

Table IV-1—Ferrous Alloys (Continued)

Standard	Base Metal Specification	Material Number	Group Number	Type, Grade, or Alloy Designation	UNS Number	Product Form
Steel and Steel Alloys						
CSA	Z245.12	1	3	448	—	Steel Flanges
CSA	Z245.12	1	3	483	—	Steel Flanges
MSS	SP75	1	1	WPHY-42	—	Seamless & Welded Fittings
MSS	SP75	1	1	WPHY-46	—	Seamless & Welded Fittings
MSS	SP75	1	1	WPHY-52	—	Seamless & Welded Fittings
MSS	SP75	1	2	WPHY-56	—	Seamless & Welded Fittings
MSS	SP75	1	2	WPHY-60	—	Seamless & Welded Fittings
MSS	SP75	1	2	WPHY-65	—	Seamless & Welded Fittings
MSS	SP75	1	3	WPHY-70	—	Seamless & Welded Fittings

Table IV-1
Listing of Base Metal Specifications—Nonferrous Alloys

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	A351	CN7M	45	N08007	Castings
ASTM	A351	CT15C	45	N08151	Castings
ASTM	A494	Grade N7M	44	J30007	Castings
ASTM	A494	Ni-30 Cu (Grade M-35-2)	42	N04020	Castings
ASTM	A494	Grade CY-40	43	N06040	Castings
ASTM	A494	Ni-30 Cu-Si-Cb (Grade M-30-C)	42	N24130	Castings
ASTM	A494	Ni-30 Cu (Grade M-35-1)	42	N24135	Castings
ASTM	A494	Grade CX2MW	43	N26022	Castings
ASTM	A494	Grade CW2M	43	N26455	Castings
ASTM	A494	Grade CW-6 MC	43	N26625	Castings
ASTM	A494	N-7M	44	N30007	Castings
ASTM	A494	Grade CW-6M	43	N30107	Castings
ASTM	B21	Alloy A Naval Brass O60	32	C46400	Rod, Bar & Shapes
ASTM	B26	208.0 (F)	26	A02080	Sand Castings
ASTM	B26	222.0 (T61)	26	A02220	Sand Castings
ASTM	B26	319.0 (F, T5, T6)	26	A03190	Sand Castings
ASTM	B26	328.0 (F, T6)	26	A03280	Sand Castings
ASTM	B26	356.0 (T51, T6, T7, T71)	26	A03560	Sand Castings
ASTM	B26	443.0 (F)	26	A04430	Sand Castings
ASTM	B26	512.0 (F)	26	A05120	Sand Castings
ASTM	B26	514.0 (F)	26	A05140	Sand Castings
ASTM	B26	535.0 (F)	26	A05350	Sand Castings
ASTM	B26	705.0 (T5)	26	A07050	Sand Castings
ASTM	B26	710.0 (T5)	26	A07100	Sand Castings
ASTM	B26	A356.0 (T6)	26	A13560	Sand Castings
ASTM	B26	B443.0 (F)	26	A24430	Sand Castings
ASTM	B42	Deoxidized High P Cu (DHP)	31	C12200	Seamless Pipe
ASTM	B42	Deoxidized Low P Cu (DLP)	31	C12000	Seamless Pipe
ASTM	B42	Oxygen-Free Cu (OF)	31	C10200	Seamless Pipe
ASTM	B42	Oxygen-Free Cu (OFLP)	31	C10800	Seamless Pipe
ASTM	B42	Oxygen-Free Cu (OFXLP)	31	C10300	Seamless Pipe
ASTM	B43	Red Brass, 85%	32	C23000	Seamless Pipe
ASTM	B68	Deoxidized High P Cu (DHP)	31	C12200	Seamless Tube
ASTM	B68	Deoxidized Low P Cu (DLP)	31	C12000	Seamless Tube
ASTM	B68	Oxygen-Free Cu (OF)	31	C10200	Seamless Tube
ASTM	B68	Oxygen-Free Cu (OFLP)	31	C10800	Seamless Tube
ASTM	B68	Oxygen-Free Cu (OFXLP)	31	C10300	Seamless Tube
ASTM	B75	Deoxidized High P Cu (DHP)	31	C12200	Seamless Tube
ASTM	B75	Deoxidized Low P Cu (DLP)	31	C12000	Seamless Tube
ASTM	B75	Oxygen-Free Cu (DPA)	31	C14200	Seamless Tube
ASTM	B75	Oxygen-Free Cu (OF)	31	C10200	Seamless Tube

Table IV-1—Nonferrous Alloys (Continued)

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	B75	Oxygen-Free Cu (OFE)	31	C10100	Seamless Tube
ASTM	B75	Oxygen-Free Cu (OFLP)	31	C10800	Seamless Tube
ASTM	B75	Oxygen-Free Cu (OFXLP)	31	C10300	Seamless Tube
ASTM	B80	AZ91C (-F)	83	M11914	Sand Castings
ASTM	B80	AZ92A (-F)	83	M11920	Sand Castings
ASTM	B80	K1A (-F)	83	M18010	Sand Castings
ASTM	B88	Oxygen Free Cu (DLP)	31	C12000	Seamless Tube
ASTM	B88	Oxygen Free Cu (DHP)	31	C12200	Seamless Tube
ASTM	B88	Oxygen Free Cu (OF)	31	C10200	Seamless Tube
ASTM	B88	Oxygen-Free Cu (OFXLP)	31	C10300	Seamless Tube
ASTM	B90	AZ31B (-O, H24, H26)	81	M11311	Plate & Sheet
ASTM	B90	AZ31C (-O, H24, H26)	81	M11312	Plate & Sheet
ASTM	B90	HK31A (-O, H24)	81	M13310	Plate & Sheet
ASTM	B90	ZE10A (-O)	81	M16100	Sheet
ASTM	B90	ZE10A (-O)	81	M16100	Plate
ASTM	B91	AZ31B (-F)	81	M11311	Forgings
ASTM	B91	AZ61A (-F)	81	M11610	Forgings
ASTM	B96	High Si Bronze A	33	C65500	Plate, Sheet, Strip, Rolled Bar
ASTM	B96	Low Si Bronze B	33	C65100	Plate, Sheet, Strip, Rolled Bar
ASTM	B96	Silicon Bronze	33	C65400	Plate, Sheet, Strip, Rolled Bar
ASTM	B98	High Si Bronze A	33	C65500	Rod, Bars & Shapes
ASTM	B98	Low Si Bronze B	33	C65100	Rod, Bars & Shapes
ASTM	B98	Silicon Bronze	33	C66100	Rod, Bars & Shapes
ASTM	B107	AZ31B (-F)	81	M11311	Extruded Bars, Rods, Profiles, Tubes, Wires
ASTM	B107	AZ31C (-F)	81	M11312	Extruded Bars, Rods, Profiles, Tubes, Wires
ASTM	B107	AZ61A (-F)	81	M11610	Extruded Bars, Rods, Profiles, Tubes, Wires
ASTM	B107	M1A (-F)	81	M15100	Extruded Bars, Rods, Profiles, Tubes, Wires
ASTM	B108	308.0 (F)	26	A03080	Permanent Mold Casting
ASTM	B108	319.0 (F, T6)	26	A03190	Permanent Mold Casting
ASTM	B108	333.0 (T5, T6, T7)	26	A03330	Permanent Mold Casting
ASTM	B108	356.0 (F, T51, T6, T7, T71)	26	A03560	Permanent Mold Casting
ASTM	B108	443.0 (F)	26	A04430	Permanent Mold Casting
ASTM	B108	513.0 (F)	26	A05130	Permanent Mold Casting
ASTM	B108	535.0 (F)	26	A05350	Permanent Mold Casting
ASTM	B108	A356.0 (T61)	26	A13560	Permanent Mold Casting
ASTM	B108	A444.0 (T4)	26	A14440	Permanent Mold Casting
ASTM	B108	B443.0 (F)	26	A24430	Permanent Mold Casting
ASTM	B111	70-30 Cu-Ni	34	C71500	Seamless Tube & Ferrule Stock
ASTM	B111	80-20 Cu-Ni	34	C71000	Seamless Tube & Ferrule Stock
ASTM	B111	85-15 Cu-Ni	34	C72200	Seamless Tube & Ferrule Stock
ASTM	B111	90-10 Cu-Ni	34	C70600	Seamless Tube & Ferrule Stock
ASTM	B111	95-5 Cu-Ni	34	C70400	Seamless Tube & Ferrule Stock
ASTM	B111	98.5 min Cu	31	C19200	Seamless Tube & Ferrule Stock
ASTM	B111	Admiralty, A	32	C44300	Seamless Tube & Ferrule Stock
ASTM	B111	Admiralty, B	32	C44400	Seamless Tube & Ferrule Stock
ASTM	B111	Admiralty, C	32	C44500	Seamless Tube & Ferrule Stock

Table IV-1—Nonferrous Alloys (Continued)

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	B111	Aluminum Brass B	32	C68700	Seamless Tube & Ferrule Stock
ASTM	B111	Aluminum Bronze	35	C60800	Seamless Tube & Ferrule Stock
ASTM	B111	Aluminum Bronze	35	C61300	Seamless Tube & Ferrule Stock
ASTM	B111	Aluminum Bronze D	35	C61400	Seamless Tube & Ferrule Stock
ASTM	B111	Cu-Ni-Fe-Mn	34	C71640	Seamless Tube & Ferrule Stock
ASTM	B111	Muntz Metal	32	C28000	Seamless Tube & Ferrule Stock
ASTM	B111	Oxygen-Free Cu (DHP)	31	C12200	Seamless Tube & Ferrule Stock
ASTM	B111	Oxygen-Free Cu (DLP)	31	C12000	Seamless Tube & Ferrule Stock
ASTM	B111	Oxygen-Free Cu (DPA)	31	C14200	Seamless Tube & Ferrule Stock
ASTM	B111	Oxygen-Free Cu (OF)	31	C10200	Seamless Tube & Ferrule Stock
ASTM	B111	Oxygen-Free Cu (OFE)	31	C10100	Seamless Tube & Ferrule Stock
ASTM	B111	Oxygen-Free Cu (OFLP)	31	C10800	Seamless Tube & Ferrule Stock
ASTM	B111	Oxygen-Free Cu (OFXLP)	31	C10300	Seamless Tube & Ferrule Stock
ASTM	B111	Red Brass, 85%	32	C23000	Seamless Tube & Ferrule Stock
ASTM	B127	Ni-Cu (Alloy 400)	42	N04400	Sheet, Plate, Strip
ASTM	B135	Commercial Bronze, 90%	32	C22000	Seamless Tube
ASTM	B135	Red Brass, 85%	32	C23000	Seamless Tube
ASTM	B148	Aluminum Bronze	35	C95410	Sand Castings
ASTM	B148	Grade A Al-Bronze	35	C95200	Sand Castings
ASTM	B148	Grade B Al-Bronze	35	C95300	Sand Castings
ASTM	B148	Grade C Al-Bronze	35	C95400	Sand Castings
ASTM	B148	Grade D Ni-Al Bronze	35	C95500	Sand Castings
ASTM	B148	Grade E, Si-Al Bronze	35	C95600	Sand Castings
ASTM	B148	Grade F, Mn-Ni-Al Bronze	35	C95700	Sand Castings
ASTM	B148	Ni-Al Bronze	35	C95800	Sand Castings
ASTM	B150	Aluminum Bronze	35	C61300	Rod & Bar
ASTM	B150	Aluminum Bronze	35	C61900	Round Rod & Shapes
ASTM	B150	Aluminum Bronze	35	C62300	Rod, Bar, Shapes
ASTM	B150	Aluminum Bronze	35	C62400	Rod, Bar, Shapes
ASTM	B150	Aluminum Bronze	35	C63000	Rod, Bar, Shapes
ASTM	B150	Aluminum Bronze	35	C63020	Rod & Bar
ASTM	B150	Aluminum Bronze	35	C63200	Rod, Bar, Shapes
ASTM	B150	Aluminum Bronze	35	C64200	Rod, Bar, Shapes
ASTM	B150	Aluminum Bronze D	35	C61400	Round Rod
ASTM	B151	70-30 Cu-Ni	34	C71500	Rod, Bar, Shapes
ASTM	B151	90-10 Cu-Ni	34	C70600	Rod, Bar, Shapes
ASTM	B152	Oxygen-Free Cu (DLP)	31	C12000	Plate, Sheet, Strip, Rolled Bar
ASTM	B152	Oxygen-Free Cu (DHP)	31	C12200	Plate, Sheet, Strip, Rolled Bar
ASTM	B152	Oxygen-Free Cu (DPA)	31	C14200	Plate, Sheet, Strip, Rolled Bar
ASTM	B152	Oxygen-Free Cu (DPS)	31	C12300	Plate, Sheet, Strip, Rolled Bar
ASTM	B152	Oxygen-Free Cu (OF)	31	C10200	Plate, Sheet, Strip, Rolled Bar
ASTM	B152	Oxygen-Free Cu (OFE)	31	C10100	Plate, Sheet, Strip, Rolled Bar
ASTM	B152	Oxygen-Free Cu (OFLP)	31	C10800	Plate, Sheet, Strip, Rolled Bar
ASTM	B152	Oxygen-Free Cu (OFS)	31	C10400	Plate, Sheet, Strip, Rolled Bar
ASTM	B152	Oxygen-Free Cu (OFS)	31	C10500	Plate, Sheet, Strip, Rolled Bar
ASTM	B152	Oxygen-Free Cu (OFS)	31	C10700	Plate, Sheet, Strip, Rolled Bar

Table IV-1—Nonferrous Alloys (Continued)

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	B152	Oxygen-Free Cu (OFXLP)	31	C10300	Plate, Sheet, Strip, Rolled Bar
ASTM	B152	Sn Bearing Tellurium Cu	31	C14420	Plate, Sheet, Strip, Rolled Bar
ASTM	B160	99.0 min Ni (Alloy 200)	41	N02200	Rod & Bar
ASTM	B160	Lo C-99 min Ni (Alloy 201)	41	N02201	Rod, Bar, Shapes
ASTM	B161	99.0 min Ni (Alloy 200)	41	N02200	Seamless Pipe & Tube
ASTM	B161	Lo C-99 min Ni (Alloy 201)	41	N02201	Seamless Pipe & Tube
ASTM	B162	99.0 min Ni (Alloy 200)	41	N02200	Sheet, Strip & Plate
ASTM	B162	Lo C-99 min Ni (Alloy 201)	41	N02201	Sheet, Strip & Plate
ASTM	B163	99.0 min Ni (Alloy 200)	41	N02200	Seamless Tube
ASTM	B163	Lo C-99 min Ni (Alloy 201)	41	N02201	Seamless Tube
ASTM	B163	Ni-Fe-Cr (Alloy 800)	45	N08800	Seamless Tube
ASTM	B163	Ni-Fe-Cr (Alloy 801)	45	N08801	Seamless Tube
ASTM	B163	Ni-Fe-Cr (Alloy 800H)	45	N08810	Seamless Tube
ASTM	B163	Ni-Fe-Cr (Alloy 800HT)	45	N08811	Seamless Tube
ASTM	B163	Ni-Cr-Fe (Alloy 6025HT)	43	N06025	Seamless Tube
ASTM	B163	Ni-Cr-Fe (Alloy 600)	43	N06600	Seamless Tube
ASTM	B163	Ni-Cr-Fe (Alloy 690)	43	N06690	Seamless Tube
ASTM	B163	Ni-Cr-Fe-Si (Alloy 45)	46	N06045	Seamless Tube
ASTM	B163	Ni-Cu (30) (Alloy 400)	42	N04400	Seamless Tube
ASTM	B163	Ni-Fe-Cr (Alloy 825)	45	N08825	Seamless Tube
ASTM	B164	Ni-Cu (30) (Alloy 400)	42	N04400	Rod, Bar & Wire
ASTM	B164	Ni-Cu (30) (Alloy R 405)	42	N04405	Rod, Bar & Wire
ASTM	B165	Ni-Cu (30) (Alloy 400)	42	N04400	Seamless Pipe & Tube
ASTM	B166	Ni-Cr-Co-Mo (Alloy 617)	43	N06617	Rod & Bar
ASTM	B166	Ni-Cr-Fe (Alloy 6025 HT)	43	N06025	Rod & Bar
ASTM	B166	Ni-Cr-Fe (Alloy 600)	43	N06600	Rod & Bar
ASTM	B166	Ni-Cr-Fe (Alloy 601)	43	N06601	Rod & Bar
ASTM	B166	Ni-Cr-Fe (Alloy 690)	43	N06690	Rod & Bar
ASTM	B166	Ni-Cr-Fe-Si (Alloy 45)	46	N06045	Rod & Bar
ASTM	B167	Ni-Cr-Fe (Alloy 6025HT)	43	N06025	Seamless Pipe & Tube
ASTM	B167	Ni-Cr-Fe (Alloy 600)	43	N06600	Seamless Pipe & Tube
ASTM	B167	Ni-Cr-Fe (Alloy 601)	43	N06601	Seamless Pipe & Tube
ASTM	B167	Ni-Cr-Fe (Alloy 690)	43	N06690	Seamless Pipe & Tube
ASTM	B167	Ni-Cr-Fe (Alloy 45)	45	N06045	Seamless Pipe & Tube
ASTM	B168	Ni-Cr-Co-Mo (Alloy 617)	43	N06617	Plate, Sheet & Strip
ASTM	B168	Ni-Cr-Fe (Alloy 6025 HT)	43	N06025	Plate, Sheet & Strip
ASTM	B168	Ni-Cr-Fe (Alloy 600)	43	N06600	Plate, Sheet & Strip
ASTM	B168	Ni-Cr-Fe (Alloy 601)	43	N06601	Plate, Sheet & Strip
ASTM	B168	Ni-Cr-Fe (Alloy 690)	43	N06690	Plate, Sheet & Strip
ASTM	B168	Ni-Cr-Fe (Alloy 45)	46	N06045	Plate, Sheet & Strip
ASTM	B169	Aluminum Bronze	35	C61300	Sheet, Strip & Rolled Bar
ASTM	B169	Aluminum Bronze D	35	C61400	Sheet, Strip & Rolled Bar
ASTM	B170	Oxygen-Free Electronic Cu (OF)	31	C10200	Refinery Shapes
ASTM	B170	Oxygen-Free Electronic Cu (OFE)	31	C10100	Refinery Shapes
ASTM	B171	70-30 Cu-Ni	34	C71500	Plate & Sheet
ASTM	B171	85-15 Cu-Ni	34	C72200	Plate & Sheet

Table IV-1—Nonferrous Alloys (Continued)

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	B171	90-10 Cu-Ni	34	C70600	Plate & Sheet
ASTM	B171	Admiralty, A	32	C44300	Plate & Sheet
ASTM	B171	Admiralty, B	32	C44400	Plate & Sheet
ASTM	B171	Admiralty, C	32	C44500	Plate & Sheet
ASTM	B171	Aluminum Bronze	35	C61300	Plate & Sheet
ASTM	B171	Aluminum Bronze	35	C63000	Plate & Sheet
ASTM	B171	Aluminum Bronze	35	C63200	Plate & Sheet
ASTM	B171	Aluminum Bronze D	35	C61400	Plate & Sheet
ASTM	B171	Leaded Muntz Metal	32	C36500	Plate & Sheet
ASTM	B171	Naval Brass	32	C46400	Plate & Sheet
ASTM	B171	Naval Brass, Arsenical	32	C46500	Plate & Sheet
ASTM	B187	Controlled Oxygen Cu	31	C10940	Rod, Bar & Rolled Shapes
ASTM	B187	Oxygen-Free Cu (OF)	31	C10200	Rod, Bar & Rolled Shapes
ASTM	B187	Oxygen-Free Cu (OFE)	31	C10100	Rod, Bar & Rolled Shapes
ASTM	B187	Oxygen-Free Cu (OFXLP)	31	C10300	Rod, Bar & Rolled Shapes
ASTM	B187	Oxygen-Free Cu with Ag (OFS)	31	C10400	Rod, Bar & Rolled Shapes
ASTM	B187	Oxygen-Free Cu with Ag (OFS)	31	C10700	Rod, Bar & Rolled Shapes
ASTM	B187	Sn Bearing Tellurium Cu	31	C14420	Rod, Bar & Rolled Shapes
ASTM	B199	AM100A (-F)	83	M10100	Permanent Mold Casting
ASTM	B199	AZ91C (-F)	83	M11914	Permanent Mold Casting
ASTM	B199	AZ92A (-F)	83	M11920	Permanent Mold Casting
ASTM	B209	1060	21	A91060	Plate & Sheet
ASTM	B209	1100	21	A91100	Plate & Sheet
ASTM	B209	2014 (T3, T4, T45, T6, T65)	24	A92014	Plate & Sheet
ASTM	B209	2219 (T31, T37, T62, T81, T87)	24	A92219	Plate & Sheet
ASTM	B209	3003	21	A93003	Plate & Sheet
ASTM	B209	3004	22	A93004	Plate & Sheet
ASTM	B209	3005	21	A93005	Sheet
ASTM	B209	3105	21	A93105	Sheet
ASTM	B209	5005	21	A95005	Plate & Sheet
ASTM	B209	5010	21	A95010	Sheet
ASTM	B209	5050	21	A95050	Plate & Sheet
ASTM	B209	5052	22	A95052	Plate & Sheet
ASTM	B209	5083	25	A95083	Plate & Sheet
ASTM	B209	5086	25	A95086	Plate & Sheet
ASTM	B209	5154	22	A95154	Plate & Sheet
ASTM	B209	5252	22	A95252	Plate & Sheet
ASTM	B209	5254	22	A95254	Plate & Sheet
ASTM	B209	5454	22	A95454	Plate & Sheet
ASTM	B209	5456	25	A95456	Plate & Sheet
ASTM	B209	5457	21	A95457	Sheet
ASTM	B209	5652	22	A95652	Plate & Sheet
ASTM	B209	6061 (T4, T6, T651)	23	A96061	Plate & Sheet
ASTM	B209	Alclad 2014 (T3, T4, T45, T6, T65)	24	A82014	Plate & Sheet
ASTM	B209	Alclad 2219 (T31, T37, T62, T81, T87)	24	A82219	Plate & Sheet
ASTM	B209	Alclad 3003	21	A83003	Plate & Sheet

Table IV-1—Nonferrous Alloys (Continued)

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	B209	Alclad 3004	22	A83004	Plate & Sheet
ASTM	B209	Alclad 6061 (T4, T6, T62, T651)	23	A86061	Plate & Sheet
ASTM	B210	3303	21	A93303	Drawn Seamless Tube
ASTM	B210	1060	21	A91060	Drawn Seamless Tube
ASTM	B210	1100	21	A91100	Drawn Seamless Tube
ASTM	B210	2014 (T4, T6)	24	A92014	Drawn Seamless Tube
ASTM	B210	3003	21	A93003	Drawn Seamless Tube
ASTM	B210	3102	21	A93102	Drawn Seamless Tube
ASTM	B210	5005	21	A95005	Drawn Seamless Tube
ASTM	B210	5050	21	A95050	Drawn Seamless Tube
ASTM	B210	5052	22	A95052	Drawn Seamless Tube
ASTM	B210	5083	25	A95083	Drawn Seamless Tube
ASTM	B210	5086	25	A95086	Drawn Seamless Tube
ASTM	B210	5154	22	A95154	Drawn Seamless Tube
ASTM	B210	5456	25	A95456	Drawn Seamless Tube
ASTM	B210	6061 (T4, T6)	23	A96061	Drawn Seamless Tube
ASTM	B210	6063 (T4, T6, T62, T83)	23	A96063	Drawn Seamless Tube
ASTM	B210	Alclad 3003	21	A83003	Drawn Seamless Tube
ASTM	B210	Alclad 3102	21	A83102	Drawn Seamless Tube
ASTM	B210	Alclad 3303	21	A83303	Drawn Seamless Tube
ASTM	B211	1060	21	A91060	Bar, Rod & Wire (Cold Finished)
ASTM	B211	1100	21	A91100	Bar, Rod & Wire (Cold Finished)
ASTM	B211	2014 (T4, T6)	24	A92014	Bar, Rod & Wire
ASTM	B211	2219 (T851)	24	A92219	Bar, Rod & Wire
ASTM	B211	3003	21	A93003	Bar, Rod & Wire
ASTM	B211	5052	22	A95052	Bar, Rod & Wire (Cold Finished)
ASTM	B211	5056	25	A95056	Bar, Rod & Wire (Cold Finished)
ASTM	B211	5154	22	A95154	Bar, Rod & Wire (Cold Finished)
ASTM	B211	6061 (T4, T6, T62, T651)	23	A96061	Bar, Rod & Wire
ASTM	B211	Alclad 5056	25	A85056	Bar, Rod & Wire (Cold Finished)
ASTM	B221	1060	21	A91060	Ext. Bar, Rod, Wire, Shapes & Tube
ASTM	B221	1100	21	A91100	Ext. Bar, Rod, Wire, Shapes & Tube
ASTM	B221	2014 (T4, T45, T6, T65)	24	A92014	Ext. Bar, Rod, Wire, Shapes & Tube
ASTM	B221	2219 (T31, T35, T62, T81, T85)	24	A92219	Ext. Bar, Rod, Wire, Shapes & Tube
ASTM	B221	3003	21	A93003	Ext. Bar, Rod, Wire, Shapes & Tube
ASTM	B221	3004	22	A93004	Ext. Bar, Rod, Wire, Shapes & Tube
ASTM	B221	3102	21	A93102	Ext. Bar, Rod, Wire, Shapes & Tube
ASTM	B221	5052	22	A95052	Ext. Bar, Rod, Wire, Shapes & Tube
ASTM	B221	5083	25	A95083	Ext. Bar, Rod, Wire, Shapes & Tube
ASTM	B221	5086	25	A95086	Ext. Bar, Rod, Wire, Shapes & Tube
ASTM	B221	5154	22	A95154	Ext. Bar, Rod, Wire, Shapes & Tube
ASTM	B221	5454	22	A95454	Ext. Bar, Rod, Wire, Shapes & Tube
ASTM	B221	5456	25	A95456	Ext. Bar, Rod, Wire, Shapes & Tube
ASTM	B221	6005 (T1, T5)	23	A96005	Ext. Rod, Bar, Shapes & Tube
ASTM	B221	6005A (T1, T5)	23	A96005	Ext. Rod, Bar, Shapes & Tube
ASTM	B221	6061 (T1, T4, T5, T6, T651)	23	A96061	Ext. Rod, Bar, Shapes & Tube

Table IV-1—Nonferrous Alloys (Continued)

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	B221	6063 (T1, T4, T5, T6)	23	A96063	Ext. Rod, Bar, Shapes & Tube
ASTM	B221	6105 (T1, T5)	23	A96105	Ext. Rod, Bar, Shapes & Tube
ASTM	B221	6162 (T5, T55, T6, T65)	23	A96162	Ext. Rod, Bar, Shapes & Tube
ASTM	B221	6351 (T1, T4, T5, T6)	23	A96351	Ext. Rod, Bar, Shapes & Tube
ASTM	B221	6463 (T1, T5, T6)	23	A96463	Ext. Rod, Bar, Shapes & Tube
ASTM	B221	7005 (T53)	27*	A97005	Ext. Bar, Rod, Wire, Shapes & Tube
ASTM	B221	Alclad 3003	21	A83003	Ext. Bar, Rod, Wire, Shapes & Tube
ASTM	B230	1350	21	A91350	Wire (Electrical)
ASTM	B234	1060	21	A91060	Drawn Seamless Tube
ASTM	B234	3003	21	A93003	Drawn Seamless Tube
ASTM	B234	5052	22	A95052	Drawn Seamless Tubes
ASTM	B234	5454	22	A95454	Drawn Seamless Tubes
ASTM	B234	6061 (T4, T6)	23	A96061	Drawn Seamless Tube
ASTM	B234	Alclad 3003	21	A83003	Drawn Seamless Tube
ASTM	B236	1350	21	A91350	Bars (Electrical)
ASTM	B241	6063 (T1, T4, T42, T5, T52, T6, T62)	23	A96063	Extruded Seamless Pipe & Tube
ASTM	B241	1060	21	A91060	Seamless Pipe & Ext. Tube
ASTM	B241	1100	21	A91100	Seamless Pipe & Ext. Tube
ASTM	B241	2014 (T4, T45, T6, T62, T65)	24	A92014	Extruded Seamless Pipe & Tube
ASTM	B241	2219 (T31, T35, T62, T81, T85)	24	A92219	Extruded Seamless Pipe & Tube
ASTM	B241	3003	21	A93003	Seamless Pipe & Ext. Tube
ASTM	B241	5052	22	A95052	Extruded Seamless Pipe & Tube
ASTM	B241	5083	25	A95083	Ext. Pipe & Tube
ASTM	B241	5086	25	A95086	Ext. Pipe & Tube
ASTM	B241	5454	22	A95454	Extruded Seamless Pipe & Tube
ASTM	B241	5456	25	A95456	Ext. Pipe & Tube
ASTM	B241	6061 (T1, T4, T42, T51, T6, T62)	23	A96061	Extruded Seamless Pipe & Tube
ASTM	B241	6162 (T5, T55, T6, T65)	23	A96162	Extruded Seamless Pipe & Tube
ASTM	B241	6351 (T4, T6)	23	A96351	Extruded Seamless Pipe & Tube
ASTM	B241	Alclad 3003	21	A83003	Seamless Pipe & Ext. Tube
ASTM	B247	1100	21	A91100	Die, Hand & Rolled Ring Forgings
ASTM	B247	2014 (T4, T6)	24	A92014	Die Forgings
ASTM	B247	2014 (T6, T652)	24	A92014	H& Forgings
ASTM	B247	2219 (T6)	24	A92219	Die Forgings
ASTM	B247	2219 (T6, T852)	24	A92219	H& Forgings
ASTM	B247	3003	21	A93003	Die, Hand & Rolled Ring Forgings
ASTM	B247	5083	25	A95083	H& Forgings
ASTM	B247	5083	25	A95083	Die Forgings
ASTM	B247	6061 (T6)	23	A96061	Die Forgings
ASTM	B247	6061 (T6, T652)	23	A96061	Rolled Ring Forgings
ASTM	B247	6061 (T6, T652)	23	A96061	H& Forgings
ASTM	B247	6151 (T6)	23	A96151	Die Forgings
ASTM	B247	6151 (T6, T652)	23	A96151	Rolled Ring Forgings
ASTM	B265	Grade 1	51	R50250	Plate, Sheet & Strip
ASTM	B265	Grade 2	51	R50400	Plate, Sheet & Strip
ASTM	B265	Grade 3	52	R50550	Plate, Sheet & Strip

Table IV-1—Nonferrous Alloys (Continued)

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	B265	Grade 4	53	R50700	Plate, Sheet & Strip
ASTM	B265	Grade 5	54	R56400	Plate, Sheet & Strip
ASTM	B265	Grade 6	54	R54520	Plate, Sheet & Strip
ASTM	B265	Grade 7	51	R52400	Plate, Sheet & Strip
ASTM	B265	Grade 9	53	R56320	Plate, Sheet & Strip
ASTM	B265	Grade 11	51	R52250	Plate, Sheet & Strip
ASTM	B265	Grade 12	52	R53400	Plate, Sheet & Strip
ASTM	B265	Grade 13	51	R53413	Plate, Sheet & Strip
ASTM	B265	Grade 14	52	R53414	Plate, Sheet & Strip
ASTM	B265	Grade 15	52	R53415	Plate, Sheet & Strip
ASTM	B265	Grade 16	51	R52402	Plate, Sheet & Strip
ASTM	B265	Grade 17	51	R52252	Plate, Sheet & Strip
ASTM	B265	Grade 18	53	R56322	Plate, Sheet & Strip
ASTM	B265	Grade 19	53	R58640	Plate, Sheet & Strip
ASTM	B265	Grade 20	53	R58645	Plate, Sheet & Strip
ASTM	B265	Grade 21	53	R58210	Plate, Sheet & Strip
ASTM	B265	Grade 24	54	R56405	Plate, Sheet & Strip
ASTM	B265	Grade 25	54	R56403	Plate, Sheet & Strip
ASTM	B265	Grade 26	51	—	Plate, Sheet & Strip
ASTM	B265	Grade 27	51	—	Plate, Sheet & Strip
ASTM	B265	Grade 28	53	R56323	Plate, Sheet & Strip
ASTM	B265	Grade 29	54	R56404	Plate, Sheet & Strip
ASTM	B265	Grade 30	51	—	Plate, Sheet & Strip
ASTM	B265	Grade 31	52	—	Plate, Sheet & Strip
ASTM	B265	Grade 34	52	—	Plate, Sheet & Strip
ASTM	B265	Grade 32	53	—	Plate, Sheet & Strip
ASTM	B265	Grade 33	51	—	Plate, Sheet & Strip
ASTM	B265	Grade 34	52	—	Plate, Sheet & Strip
ASTM	B265	Grade 35	54	—	Plate, Sheet & Strip
ASTM	B271	Aluminum Bronze	35	C95410	Centrifugal Castings
ASTM	B271	Grade A Al-Bronze	35	C95200	Centrifugal Castings
ASTM	B271	Grade B Al-Bronze	35	C95300	Centrifugal Castings
ASTM	B271	Grade C Al-Bronze	35	C95400	Centrifugal Castings
ASTM	B271	Grade D Ni-Al Bronze	35	C95500	Centrifugal Castings
ASTM	B280	Deoxidized Cu (DHP)	31	C12200	Seamless Tube
ASTM	B280	Deoxidized Cu (DLP)	31	C12000	Seamless Tube
ASTM	B280	Oxygen-free Cu (OF)	31	C10200	Seamless Tube
ASTM	B283	Al-Si Bronze	35	C64200	Die Forgings
ASTM	B283	High Si Bronze A	33	C65500	Die Forgings
ASTM	B308	6061 (T6)	23	A96061	Standard Structural Shapes
ASTM	B313	1100	21	A91100	Welded Tube
ASTM	B313	3003	21	A93003	Welded Tube
ASTM	B313	3004	22	A93004	Formed Sheet & Seam Welded Tube
ASTM	B313	3005	21	A93005	Welded Tube
ASTM	B313	5050	21	A95050	Welded Tube
ASTM	B313	5052	22	A95052	Formed Sheet & Seam Welded Tube

Table IV-1—Nonferrous Alloys (Continued)

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	B313	5086	25	A95086	Formed Sheet & Seam Welded Tube
ASTM	B313	5154	22	A95154	Formed Sheet & Seam Welded Tube
ASTM	B313	6061 (T4, T6)	23	A96061	Formed Sheet & Seam Welded Tube
ASTM	B313	Alclad 3004	22	A83004	Formed Sheet & Seam Welded Tube
ASTM	B315	Aluminum Bronze	35	C61300	Seamless Pipe
ASTM	B315	Aluminum Bronze D	35	C61400	Seamless Pipe
ASTM	B315	High Si Bronze A	33	C65500	Pipe
ASTM	B315	High Si Bronze A	33	C65500	Tube
ASTM	B315	Low Si Bronze B	33	C65100	Pipe
ASTM	B315	Low Si Bronze B	33	C65100	Tube
ASTM	B317	6101 (T6, T61, T64, T65)	23	A96101	Ext. Bar, Rod, Wire, Shapes & Tube
ASTM	B324	1350	21	A91350	Rectangular & Square Wire (Electrical)
ASTM	B333	Ni-Mo-Fe (Alloy B)	44	N10001	Plate, Sheet & Strip
ASTM	B333	Alloy B-10	44	N10624	Plate, Sheet & Strip
ASTM	B333	Ni-Mo-Fe (Alloy B-4)	44	N10629	Plate, Sheet & Strip
ASTM	B333	Ni-Mo (Alloy B-2)	44	N10665	Plate, Sheet & Strip
ASTM	B333	Ni-Mo-Cr-Fe (Alloy B-3)	44	N10675	Plate, Sheet & Strip
ASTM	B335	Ni-Mo-Fe (Alloy B)	44	N10001	Rod
ASTM	B335	Alloy B-10	44	N10624	Rod
ASTM	B335	Ni-Mo-Fe (Alloy B-4)	44	N10629	Rod
ASTM	B335	Ni-Mo (Alloy B-2)	44	N10665	Rod
ASTM	B335	Ni-Mo-Cr-Fe (Alloy B-3)	44	N10675	Rod
ASTM	B337	Grade 1	51	R50250	Seamless & Welded Pipe
ASTM	B337	Grade 2	51	R50400	Seamless & Welded Pipe
ASTM	B337	Grade 3	52	R50550	Seamless & Welded Pipe
ASTM	B337	Grade 7	51	R52400	Seamless & Welded Pipe
ASTM	B337	Grade 9	53	R56320	Seamless & Welded Pipe
ASTM	B337	Grade 11	51	R52250	Seamless & Welded Pipe
ASTM	B337	Grade 12	52	R53400	Seamless & Welded Pipe
ASTM	B338	Grade 1	51	R50250	Seamless & Welded Tube
ASTM	B338	Grade 2	51	R50400	Seamless & Welded Tube
ASTM	B338	Grade 3	52	R50550	Seamless & Welded Tube
ASTM	B338	Grade 7	51	R52400	Seamless & Welded Tube
ASTM	B338	Grade 9	53	R56320	Seamless & Welded Tube
ASTM	B338	Grade 11	51	R52250	Seamless & Welded Tube
ASTM	B338	Grade 12	52	R53400	Seamless & Welded Tube
ASTM	B338	Grade 13	51	R53413	Seamless & Welded Tube
ASTM	B338	Grade 14	52	R53414	Seamless & Welded Tube
ASTM	B338	Grade 15	52	R53415	Seamless & Welded Tube
ASTM	B338	Grade 16	51	R52402	Seamless & Welded Tube
ASTM	B338	Grade 17	51	R52252	Seamless & Welded Tube
ASTM	B338	Grade 18	53	R56322	Seamless & Welded Tube
ASTM	B338	Grade 27	51	—	Seamless & Welded Tube
ASTM	B338	Grade 28	53	R56323	Seamless & Welded Tube
ASTM	B338	Grade 30	51	—	Seamless & Welded Tube
ASTM	B338	Grade 31	52	—	Seamless & Welded Tube

Table IV-1—Nonferrous Alloys (Continued)

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	B338	Grade 33	51	—	Seamless & Welded Tube
ASTM	B338	Grade 34	52	—	Seamless & Welded Tube
ASTM	B338	Grade 35	54	—	Seamless & Welded Tube
ASTM	B345	1060	21	A91060	Seamless Pipe & Tube (Gas & Oil Trans.)
ASTM	B345	3003	21	A93003	Seamless Pipe & Tube (Gas & Oil Trans.)
ASTM	B345	5083	25	A95083	Extruded Seamless Pipe & Tube
ASTM	B345	5086	25	A95086	Extruded Seamless Pipe & Tube
ASTM	B345	6061 (T4, T45, T6, T65)	23	A96061	Extruded Seamless Pipe & Tube
ASTM	B345	6063 (T1, T4, T5, T6)	23	A96063	Extruded Seamless Pipe & Tube
ASTM	B345	6351 (T4, T6)	23	A96351	Extruded Seamless Pipe & Tube
ASTM	B345	Alclad 3003	21	A83003	Seamless Pipe & Tube (Gas & Oil Trans.)
ASTM	B348	Grade 1	51	R50250	Bars & Shapes
ASTM	B348	Grade 2	51	R50400	Bars & Shapes
ASTM	B348	Grade 3	52	R50550	Bars & Shapes
ASTM	B348	Grade 4 (Unalloyed Ti)	53	R50700	Bars & Shapes
ASTM	B348	Grade 5	54	R56400	Bars & Shapes
ASTM	B348	Grade 6	54	R54520	Bars & Shapes
ASTM	B348	Grade 7	51	R52400	Bars & Shapes
ASTM	B348	Grade 9	53	R56320	Bars & Shapes
ASTM	B348	Grade 11	51	R52250	Bars & Shapes
ASTM	B348	Grade 12	52	R53400	Bars & Shapes
ASTM	B348	Grade 13	51	R53413	Bars & Shapes
ASTM	B348	Grade 14	52	R53414	Bars & Shapes
ASTM	B348	Grade 15	52	R53415	Bars & Shapes
ASTM	B348	Grade 16	51	R52402	Bars & Shapes
ASTM	B348	Grade 17	51	R52252	Bars & Shapes
ASTM	B348	Grade 18	53	R56322	Bars & Shapes
ASTM	B348	Grade 19	53	R58640	Bars & Shapes
ASTM	B348	Grade 20	53	R58645	Bars & Shapes
ASTM	B348	Grade 21	53	R58210	Bars & Shapes
ASTM	B348	Grade 23	54	R56402	Bars & Shapes
ASTM	B348	Grade 24	54	R56405	Bars & Shapes
ASTM	B348	Grade 25	54	R56403	Bars & Shapes
ASTM	B348	Grade 30	51	—	Bars & Shapes
ASTM	B348	Grade 31	52	—	Bars & Shapes
ASTM	B348	Grade 32	53	—	Bars & Shapes
ASTM	B348	Grade 33	52	—	Bars & Shapes
ASTM	B348	Grade 34	52	—	Bars & Shapes
ASTM	B348	Grade 35	54	—	Bars & Shapes
ASTM	B351	R60001	61	R60001	Bars, Rod, Wire
ASTM	B351	R60802	61	R60802	Bars, Rod, Wire
ASTM	B351	R60804	61	R60804	Bars, Rod, Wire
ASTM	B351	R60901	62	R60901	Bars, Rod, Wire
ASTM	B352	R60001	61	R60001	Plate, Sheet & Strip
ASTM	B352	R60802	61	R60802	Plate, Sheet & Strip
ASTM	B352	R60804	61	R60804	Plate, Sheet & Strip

Table IV-1—Nonferrous Alloys (Continued)

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	B352	R60901	62	R60901	Plate, Sheet & Strip
ASTM	B353	R60001	61	R60001	Seamless & Welded Tube
ASTM	B353	R60802	61	R60802	Seamless & Welded Tube
ASTM	B353	R60804	61	R60804	Seamless & Welded Tube
ASTM	B353	R60901	62	R60901	Seamless & Welded Tube
ASTM	B353	R60904	62	R60904	Seamless & Welded Tube
ASTM	B359	70-30 Cu-Ni	34	C71500	Seamless Tube
ASTM	B359	80-20 Cu-Ni	34	C71000	Seamless Tube
ASTM	B359	85-15 Cu-Ni	34	C72200	Seamless Tube
ASTM	B359	90-10 Cu-Ni	34	C70600	Seamless Tube
ASTM	B359	95-5 Cu-Ni	34	C70400	Seamless Tube
ASTM	B359	98.7 min Cu	31	C19200	Seamless Tube
ASTM	B359	Admiralty, A	32	C44300	Seamless Tube
ASTM	B359	Admiralty, B	32	C44400	Seamless Tube
ASTM	B359	Admiralty, C	32	C44500	Seamless Tube
ASTM	B359	Aluminum Brass B	32	C68700	Seamless Tube
ASTM	B359	Aluminum Bronze	35	C60800	Seamless Tube
ASTM	B359	Deoxidized As-Cu (DPA)	31	C14200	Seamless Tube
ASTM	B359	Deoxidized High P Cu (DHP)	31	C12200	Seamless Tube
ASTM	B359	Deoxidized Low P Cu (DLP)	31	C12000	Seamless Tube
ASTM	B359	Oxygen-Free Cu (OF)	31	C10200	Seamless Tube
ASTM	B359	Oxygen-Free Cu (OFE)	31	C10100	Seamless Tube
ASTM	B359	Oxygen-Free Cu (OFXLP)	31	C10300	Seamless Tube
ASTM	B359	Oxygen-Free Low P Cu (OFLP)	31	C10800	Seamless Tube
ASTM	B359	Red Brass, 85%	32	C23000	Seamless Tube
ASTM	B361	Alclad 3003	21	A83003	Fittings
ASTM	B361	WP1060	21	A91060	Fittings
ASTM	B361	WP1100	21	A91100	Fittings
ASTM	B361	WP3003	21	A93003	Fittings
ASTM	B361	WP5154	22	A95154	Fittings
ASTM	B363	WPT 1	51	R50250	Seamless & Welded Fittings
ASTM	B363	WPT 2	51	R50400	Seamless & Welded Fittings
ASTM	B363	WPT 3	52	R50550	Seamless & Welded Fittings
ASTM	B363	WPT 7	51	R52400	Seamless & Welded Fittings
ASTM	B363	WPT 9	53	R56320	Seamless & Welded Fittings
ASTM	B363	WPT 11	51	R52250	Seamless & Welded Fittings
ASTM	B363	WPT 12	52	R53400	Seamless & Welded Fittings
ASTM	B363	WPT 13	51	R53413	Seamless & Welded Fittings
ASTM	B363	WPT 14	52	R53414	Seamless & Welded Fittings
ASTM	B363	WPT 15	52	R53415	Seamless & Welded Fittings
ASTM	B363	WPT 16	51	R52402	Seamless & Welded Fittings
ASTM	B363	WPT 17	51	R52252	Seamless & Welded Fittings
ASTM	B363	WPT 18	53	R56322	Seamless & Welded Fittings
ASTM	B363	WPT 19	53	R58640	Seamless & Welded Fittings
ASTM	B363	WPT 20	53	R58645	Seamless & Welded Fittings
ASTM	B363	WPT 21	53	R58210	Seamless & Welded Fittings

Table IV-1—Nonferrous Alloys (Continued)

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	B363	WPT 23	54	R56402	Seamless & Welded Fittings
ASTM	B363	WPT 24	54	R56405	Seamless & Welded Fittings
ASTM	B363	WPT 25	54	R56403	Seamless & Welded Fittings
ASTM	B363	WPT 30	51	—	Seamless & Welded Fittings
ASTM	B366	CR1925	45	N08925	Fittings
ASTM	B366	CR1925N	45	N08926	Fittings
ASTM	B366	CR20CB	44	N08020	Fittings
ASTM	B366	CR3033	45	R20033	Fittings
ASTM	B366	CR3127	45	N08031	Fittings
ASTM	B366	CR330	46	N08330	Fittings
ASTM	B366	CR5923	44	N06059	Fittings
ASTM	B366	CR603GT	43	N06603	Fittings
ASTM	B366	CR6XN	45	N08367	Fittings
ASTM	B366	CR904L	45	N08904	Fittings
ASTM	B366	CRB10	44	N10624	Fittings
ASTM	B366	CRH120	45	N08120	Fittings
ASTM	B366	CRH160	44	N12160	Fittings
ASTM	B366	CRH230	47	N06230	Fittings
ASTM	B366	CRH556	45	R30556	Fittings
ASTM	B366	CRHB	44	N10001	Fittings
ASTM	B366	CRHB2	44	N10665	Fittings
ASTM	B366	CRHB3	44	N10675	Fittings
ASTM	B366	CRHC2000	44	N06200	Fittings
ASTM	B366	CRHC22	44	N06022	Fittings
ASTM	B366	CRHC276	44	N10276	Fittings
ASTM	B366	CRHC4	44	N06455	Fittings
ASTM	B366	CRHG	45	N06007	Fittings
ASTM	B366	CRHG3	45	N06985	Fittings
ASTM	B366	CRHG30	45	N06030	Fittings
ASTM	B366	CRHN	44	N10003	Fittings
ASTM	B366	CRHX	43	N06002	Fittings
ASTM	B366	CRM21	44	N06210	Fittings
ASTM	B366	CRN	41	N02200	Fittings
ASTM	B366	CRN1C10	45	N08810	Fittings
ASTM	B366	CRN1C11	45	N08811	Fittings
ASTM	B366	CRN1CMC	45	N08825	Fittings
ASTM	B366	CRNC	42	N04400	Fittings
ASTM	B366	CRNCI	43	N06600	Fittings
ASTM	B366	CRNCMC	43	N06625	Fittings
ASTM	B366	CRNIC	44	N08800	Fittings
ASTM	B366	CRNL	41	N02201	Fittings
ASTM	B366	CRV45TM	46	N06045	Fittings
ASTM	B366	CRV602	43	N06025	Fittings
ASTM	B366	CRVB4	44	N10629	Fittings
ASTM	B366	WP1925	45	N08925	Fittings
ASTM	B366	WP1925N	45	N08926	Fittings

Table IV-1—Nonferrous Alloys (Continued)

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	B366	WP20CB	44	N08020	Fittings
ASTM	B366	WP3127	45	N08031	Fittings
ASTM	B366	WP330	46	N08330	Fittings
ASTM	B366	WP5923	44	N06059	Fittings
ASTM	B366	WP603GT	43	N06603	Fittings
ASTM	B366	WP6XN	45	N08367	Fittings
ASTM	B366	WP904L	45	N08904	Fittings
ASTM	B366	WPB10	44	N10624	Fittings
ASTM	B366	WPH120	45	N08120	Fittings
ASTM	B366	WPH160	44	N12160	Fittings
ASTM	B366	WPH230	47	N06230	Fittings
ASTM	B366	WPH556	45	R30556	Fittings
ASTM	B366	WPHB	44	N10001	Fittings
ASTM	B366	WPHB-2	44	N10665	Fittings
ASTM	B366	WPHB-3	44	N10675	Fittings
ASTM	B366	WPHC2000	44	N06200	Fittings
ASTM	B366	WPHC22	44	N06022	Fittings
ASTM	B366	WPHC276	44	N10276	Fittings
ASTM	B366	WPHC4	44	N06455	Fittings
ASTM	B366	WPHG	45	N06007	Fittings
ASTM	B366	WPHG3	45	N06985	Fittings
ASTM	B366	WPHG30	45	N06030	Fittings
ASTM	B366	WPHN	44	N10003	Fittings
ASTM	B366	WPHX	43	N06002	Fittings
ASTM	B366	WPM21	44	N06210	Fittings
ASTM	B366	WPN	41	N02200	Fittings
ASTM	B366	WPN1C10	45	N08810	Fittings
ASTM	B366	WPN1C11	45	N08811	Fittings
ASTM	B366	WPN1CMC	45	N08825	Fittings
ASTM	B366	WPNC	42	N04400	Fittings
ASTM	B366	WPNCI	43	N06600	Fittings
ASTM	B366	WPNCMC	43	N06625	Fittings
ASTM	B366	WPNIC	44	N08800	Fittings
ASTM	B366	WPNL	41	N02201	Fittings
ASTM	B366	WPV45TM	46	N06045	Fittings
ASTM	B366	WPV602	43	N06025	Fittings
ASTM	B366	WPVB24	44	N10629	Fittings
ASTM	B367	Pd 16	51	R52402	Castings (As-Cast)
ASTM	B367	Pd 17	51	R52252	Castings (As-Cast)
ASTM	B367	Pd 7B	51	R52401	Castings (As-Cast)
ASTM	B367	Pd 8A	52	R52401	Castings (As-Cast)
ASTM	B367	Grade C-2	51	R50400	Castings (As-Cast)
ASTM	B367	Grade C-3	52	R50550	Castings (As-Cast)
ASTM	B367	Grade C-5	54	R56400	Castings (As-Cast)
ASTM	B367	Grade C-6	54	R54520	Castings (As-Cast)
ASTM	B381	F-1	51	R50250	Forgings

Table IV-1—Nonferrous Alloys (Continued)

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	B381	F-2	51	R50400	Forgings
ASTM	B381	F-3	52	R50550	Forgings
ASTM	B381	F-4 (Unalloyed Ti)	53	R50700	Forgings
ASTM	B381	F-5	54	R56400	Forgings
ASTM	B381	F-6	54	R54520	Forgings
ASTM	B381	F-7	51	R52400	Forgings
ASTM	B381	F-9	53	R56320	Forgings
ASTM	B381	F-11	51	R52250	Forgings
ASTM	B381	F-12	52	R53400	Forgings
ASTM	B381	F-13	51	R53413	Forgings
ASTM	B381	F-14	52	R53414	Forgings
ASTM	B381	F-15	52	R53415	Forgings
ASTM	B381	F-16	51	R52402	Forgings
ASTM	B381	F-17	51	R52252	Forgings
ASTM	B381	F-18	53	R56322	Forgings
ASTM	B381	F-19	53	R58640	Forgings (Solution Treated)
ASTM	B381	F-20	53	R58645	Forgings (Solution Treated)
ASTM	B381	F-21	53	R58210	Forgings (Solution Treated)
ASTM	B381	F-23	54	R56402	Forgings
ASTM	B381	F-24	54	R56405	Forgings
ASTM	B381	F-25	54	R56403	Forgings
ASTM	B381	F-30	51	—	Forgings
ASTM	B381	F-31	52	—	Forgings
ASTM	B395	70-30 Cu-Ni	34	C71500	Seamless Tube
ASTM	B395	80-20 Cu-Ni	34	C71000	Seamless Tube
ASTM	B395	85-15 Cu-Ni	34	C72200	Seamless Tube
ASTM	B395	90-10 Cu-Ni	34	C70600	Seamless Tube
ASTM	B395	95-5 Cu-Ni	34	C70400	Seamless Tube
ASTM	B395	98.7 min Cu	31	C19200	Seamless Tube
ASTM	B395	Admiralty, A	32	C44300	Seamless Tube
ASTM	B395	Admiralty, B	32	C44400	Seamless Tube
ASTM	B395	Admiralty, C	32	C44500	Seamless Tube
ASTM	B395	Aluminum Brass B	32	C68700	Seamless Tube
ASTM	B395	Aluminum Bronze	35	C60800	Seamless Tube
ASTM	B395	Deoxidized As-Cu (DPA)	31	C14200	Seamless Tube
ASTM	B395	Deoxidized High P Cu (DHP)	31	C12200	Seamless Tube
ASTM	B395	Deoxidized Low P Cu (DLP)	31	C12000	Seamless Tube
ASTM	B395	Oxygen-Free Cu (OF)	31	C10200	Seamless Tube
ASTM	B395	Oxygen-Free Cu (OFXLP)	31	C10300	Seamless Tube
ASTM	B395	Oxygen-Free Low P Cu (OFLP)	31	C10800	Seamless Tube
ASTM	B395	Red Brass, 85%	32	C23000	Seamless Tube
ASTM	B396	5005	21	A95005	Wire (Electrical)
ASTM	B403	AM100A (-F)	83	M10100	Investment Castings
ASTM	B403	AZ91C(-F)	83	M11914	Investment Castings
ASTM	B403	AZ92A(-F)	83	M11920	Investment Castings
ASTM	B403	K1A(-F)	83	M18010	Investment Castings

Table IV-1—Nonferrous Alloys (Continued)

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	B407	Fe-Ni-Cr (Alloy 800)	45	N08800	Seamless Pipe & Tube
ASTM	B407	Fe-Ni-Cr (Alloy 801)	45	N08801	Seamless Pipe & Tube
ASTM	B407	Fe-Ni-Cr (Alloy 800H)	45	N08810	Seamless Pipe & Tube
ASTM	B407	Fe-Ni-Cr (Alloy 800HT)	45	N08811	Seamless Pipe & Tube
ASTM	B407	Ni-Fe-Cr (Alloy HR120)	45	N08120	Seamless Pipe & Tube
ASTM	B408	Fe-Ni-Cr (Alloy 800)	45	N08800	Rod & Bar
ASTM	B408	Fe-Ni-Cr (Alloy 800H)	45	N08810	Rod & Bar
ASTM	B408	Fe-Ni-Cr (Alloy 800HT)	45	N08811	Rod & Bar
ASTM	B408	Ni-Fe-Cr (Alloy HR120)	45	N08120	Rod & Bar
ASTM	B409	Fe-Ni-Cr (Alloy 800)	45	N08800	Plate, Sheet & Strip
ASTM	B409	Fe-Ni-Cr (Alloy 800H)	45	N08810	Plate, Sheet & Strip
ASTM	B409	Fe-Ni-Cr (Alloy 800HT)	45	N08811	Plate, Sheet & Strip
ASTM	B409	Ni-Fe-Cr (Alloy HR120)	45	N08120	Plate, Sheet & Strip
ASTM	B423	Ni-Fe-Cr-Mo-Cu (Alloy 20Cb3Mod.)	45	N08221	Seamless Pipe & Tube
ASTM	B423	Ni-Fe-Cr-Mo-Cu (Alloy 825)	45	N08825	Seamless Pipe & Tube
ASTM	B424	Ni-Fe-Cr-Mo-Cu (Alloy 20Cb3Mod.)	45	N08221	Plate, Sheet & Strip
ASTM	B424	Ni-Fe-Cr-Mo-Cu (Alloy 825)	45	N08825	Plate, Sheet & Strip
ASTM	B425	Ni-Fe-Cr-Mo-Cu (Alloy 20Cb3Mod.)	45	N08221	Rod & Bar
ASTM	B425	Ni-Fe-Cr-Mo-Cu (Alloy 825)	45	N08825	Rod & Bar
ASTM	B429	6061 (T6)	23	A96061	Extruded Seamless Pipe & Tube
ASTM	B429	6063 (T6)	23	A96063	Extruded Seamless Pipe & Tube
ASTM	B434	Ni-Mo-Cr (Alloy N)	44	N10003	Plate, Sheet & Strip
ASTM	B435	Fe-Cr-Ni-Co-Mo-W (Alloy 556)	45	R30556	Plate, Sheet & Strip
ASTM	B435	Ni-Co-Cr-Si (Alloy HR160)	46	N12160	Plate, Sheet & Strip
ASTM	B435	Ni-Cr-Fe-Mo (Alloy X)	43	N06002	Plate, Sheet & Strip
ASTM	B435	Ni-Cr-W-Mo (Alloy 230)	43	N06230	Plate, Sheet & Strip
ASTM	B443	Alloy 625, Grade 1	43	N06625	Cold Rolled Strip & Sheet
ASTM	B443	Alloy 625, Grade 2	43	N06625	Plate & Hot Rolled Sheet (Sol. Anneal)
ASTM	B444	Ni-Cr-Mo-Cb (Alloy 625) Grade 1	43	N06625	Pipe & Tube
ASTM	B444	Ni-Cr-Mo-Cb (Alloy 625) Grade 2	43	N06625	Pipe & Tube
ASTM	B446	Ni-Cr-Mo-Cb (Alloy 625) Grade 1	43	N06625	Rod & Bar
ASTM	B446	Ni-Cr-Mo-Cb (Alloy 625) Grade 2	43	N06625	Rod & Bar
ASTM	B462	Cr-Ni-Fe (Alloy 33)	45	R20033	Forged or Rolled Pipe Flanges, etc.
ASTM	B462	Fe-Ni-Cr-Mo (Alloy 6XN)	45	N08367	Forged or Rolled Pipe Flanges, etc.
ASTM	B462	Ni-Fe-Cr-Cu-Mo (Alloy 20Cb3)	45	N08020	Forged or Rolled Pipe Flanges, etc.
ASTM	B462	Ni-Fe-Cr-Mo-Cu (Alloy 20Mo-4)	45	N08024	Forged or Rolled Pipe Flanges, etc.
ASTM	B462	Ni-Fe-Cr-Mo-Cu (Alloy 20 Mo-6)	45	N08026	Forged or Rolled Pipe Flanges, etc.
ASTM	B463	Ni-Fe-Cr-Cu-Mo (Alloy 20Cb3)	45	N08020	Plate, Sheet & Strip
ASTM	B463	Ni-Fe-Cr-Mo-Cu (Alloy 20Mo-4)	45	N08024	Plate, Sheet & Strip
ASTM	B463	Ni-Fe-Cr-Mo-Cu (Alloy 20 Mo-6)	45	N08026	Plate, Sheet & Strip
ASTM	B464	Ni-Fe-Cr-Cu-Mo (Alloy 20Cb3)	45	N08020	Welded Pipe
ASTM	B464	Ni-Fe-Cr-Mo-Cu (Alloy 20Mo-4)	45	N08024	Welded Pipe
ASTM	B464	Ni-Fe-Cr-Mo-Cu (Alloy 20 Mo-6)	45	N08026	Welded Pipe
ASTM	B466	70-30 Cu-Ni	34	C71500	Seamless Pipe & Tube
ASTM	B466	80-20 Cu-Ni	34	C71000	Seamless Pipe & Tube
ASTM	B466	85-15 Cu-Ni	34	C72200	Seamless Pipe & Tube

Table IV-1—Nonferrous Alloys (Continued)

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	B466	90-10 Cu-Ni	34	C70600	Seamless Pipe & Tube
ASTM	B466	95-5 Cu-Ni	34	C70400	Seamless Pipe & Tube
ASTM	B467	70-30 Cu-Ni	34	C71500	Welded Pipe
ASTM	B467	90-10 Cu-Ni	34	C70600	Welded Pipe
ASTM	B468	Ni-Fe-Cr-Cu-Mo (Alloy 20Cb3)	45	N08020	Welded Tube
ASTM	B468	Ni-Fe-Cr-Mo-Cu (Alloy 20Mo-4)	45	N08024	Welded Tube
ASTM	B468	Ni-Fe-Cr-Mo-Cu (Alloy 20 Mo-6)	45	N08026	Welded Tube
ASTM	B473	Ni-Fe-Cr-Cu-Mo (Alloy 20Cb3)	45	N08020	Bars
ASTM	B473	Ni-Fe-Cr-Mo-Cu (Alloy 20Mo-4)	45	N08024	Bars
ASTM	B473	Ni-Fe-Cr-Mo-Cu (Alloy 20 Mo-6)	45	N08026	Bars
ASTM	B483	1060	21	A91060	Drawn Tube (Gen. Purpose)
ASTM	B483	1100	21	A91100	Drawn Tube (Gen. Purpose)
ASTM	B483	1435	21	A91435	Drawn Tube (Gen. Purpose)
ASTM	B483	3003	21	A93003	Drawn Tube (Gen. Purpose)
ASTM	B483	3102	21	A93102	Drawn Tube (Gen. Purpose)
ASTM	B483	5005	21	A95005	Drawn Tube (Gen. Purpose)
ASTM	B483	5050	21	A95050	Drawn Tube (Gen. Purpose)
ASTM	B483	5052	22	A95052	Drawn Tube (Gen. Purpose)
ASTM	B483	6061 (T4, T6)	23	A96061	Drawn Tube (Gen. Purpose)
ASTM	B483	6063 (T4, T6)	23	A96063	Drawn Tube (Gen. Purpose)
ASTM	B491	1050	21	A91050	Extruded Tube (Gen. Purpose)
ASTM	B491	1100	21	A91100	Extruded Tube (Gen. Purpose)
ASTM	B491	1200	21	A91200	Extruded Tube (Gen. Purpose)
ASTM	B491	1235	21	A91235	Extruded Tube (Gen. Purpose)
ASTM	B491	3003	21	A93003	Extruded Tube (Gen. Purpose)
ASTM	B491	3102	21	A93102	Extruded Tube (Gen. Purpose)
ASTM	B491	6063 (T1)	23	A96063	Extruded Tube (Gen. Purpose)
ASTM	B493	R60702	61	R60702	Forgings
ASTM	B493	R60704	61	R60704	Forgings
ASTM	B493	R60705	62	R60705	Forgings
ASTM	B505	Grade A Al-Bronze	35	C95200	Continuous Casting Repair
ASTM	B511	Ni-Fe-Cr-Si (Alloy 330)	45	N08330	Bars & Shapes
ASTM	B511	Ni-Fe-Cr-Si (Alloy 330 TX)	45	N08332	Bars & Shapes
ASTM	B512	Alloy 330	45	N08330	Billets & Bars
ASTM	B514	Ni-Fe-Cr (Alloy HR120)	45	N08120	Welded Pipe
ASTM	B514	Fe-Ni-Cr (Alloy 800)	45	N08800	Welded Pipe
ASTM	B514	Fe-Ni-Cr (Alloy 800H)	45	N08810	Welded Pipe
ASTM	B515	Fe-Ni-Cr (Alloy 800)	45	N08800	Welded Tube
ASTM	B515	Fe-Ni-Cr (Alloy 800H)	45	N08810	Welded Tube
ASTM	B515	Fe-Ni-Cr (Alloy 800HT)	45	N08811	Welded Tube
ASTM	B515	Ni-Fe-Cr (Alloy HR120)	45	N08120	Welded Tube
ASTM	B516	Ni-Cr-Fe (Alloy 6025 HT)	43	N06025	Welded Tube
ASTM	B516	Ni-Cr-Fe (Alloy 600)	43	N06600	Welded Tube
ASTM	B516	Ni-Cr-Fe-Si (Alloy 45)	46	N06045	Welded Tube
ASTM	B516	Alloy 603 GT	43	N06603	Welded Tube
ASTM	B517	Ni-Cr-Fe (Alloy 6025 HT)	43	N06025	Welded Pipe

Table IV-1—Nonferrous Alloys (Continued)

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	B517	Ni-Cr-Fe (Alloy 600)	43	N06600	Welded Pipe
ASTM	B517	Ni-Cr-Fe-Si (Alloy 45)	46	N06045	Welded Pipe
ASTM	B517	Alloy 603GT	43	N06603	Welded Pipe
ASTM	B523	R60702	61	R60702	Seamless & Welded Tube
ASTM	B523	R60704	61	R60704	Seamless & Welded Tube
ASTM	B523	R60705	62	R60705	Seamless & Welded Tube
ASTM	B535	Ni-Fe-Cr-Si (Alloy 330)	45	N08330	Seamless Pipe & Tube
ASTM	B535	Ni-Fe-Cr-Si (Alloy 330TX)	45	N08332	Seamless Pipe & Tube
ASTM	B536	Ni-Fe-Cr-Si (Alloy 330)	45	N08330	Plate, Sheet & Strip
ASTM	B536	Ni-Fe-Cr-Si (Alloy 330TX)	45	N08332	Plate, Sheet & Strip
ASTM	B543	70-30 Cu-Ni	34	C71500	Welded Tube
ASTM	B543	80-20 Cu-Ni	34	C71000	Welded Tube
ASTM	B543	85-15 Cu-Ni	34	C72200	Welded Tube
ASTM	B543	90-10 Cu-Ni	34	C70600	Welded Tube
ASTM	B543	95-5 Cu-Ni	34	C70400	Welded Tube
ASTM	B543	97.0 min Cu	31	C19400	Welded Tube
ASTM	B543	Admiralty, A	32	C44300	Welded Tube
ASTM	B543	Admiralty, B	32	C44400	Welded Tube
ASTM	B543	Admiralty, C	32	C44500	Welded Tube
ASTM	B543	Aluminum Brass B	32	C68700	Welded Tube
ASTM	B543	Cu-Ni-Fe-Mn	34	C71640	Welded Tube
ASTM	B543	Deoxidized High P Cu (DHP)	31	C12200	Welded Tube
ASTM	B543	Oxygen-Free Low P Cu (OFLP)	31	C10800	Welded Tube
ASTM	B543	Red Brass, 85%	32	C23000	Welded Tube
ASTM	B547	1100	21	A91100	Roll Formed & Long. Welded Tube
ASTM	B547	3003	21	A93003	Roll Formed & Long. Welded Tube
ASTM	B547	3004	22	A93004	Formed Sheet & Arc Welded Tube
ASTM	B547	5050	21	A95050	Roll Formed & Long. Welded Tube
ASTM	B547	5052	22	A95052	Formed Sheet & Arc Welded Tube
ASTM	B547	5083	25	A95083	Formed & Arc Seam Welded Tube
ASTM	B547	5086	25	A95086	Formed & Arc Seam Welded Tube
ASTM	B547	5154	22	A95154	Formed Sheet & Arc Welded Tube
ASTM	B547	5454	22	A95454	Formed Sheet & Arc Welded Tube
ASTM	B547	6061 (T4, T6)	23	A96061	Formed & Arc Seam Welded Tube
ASTM	B547	Alclad 3003	21	A83003	Roll Formed & Long. Welded Tube
ASTM	B547	Alclad 3004	22	A83004	Formed Sheet & Arc Welded Tube
ASTM	B550	R60702	61	R60702	Bars, Shapes & Wire
ASTM	B550	R60704	61	R60704	Bars, Shapes & Wire
ASTM	B550	R60705	62	R60705	Bars, Shapes & Wire
ASTM	B551	R60702	61	R60702	Sheet, Strip, Plate
ASTM	B551	R60704	61	R60704	Sheet, Strip, Plate
ASTM	B551	R60705	62	R60705	Sheet, Strip, Plate
ASTM	B551	R60706	62	R60706	Sheet, Strip, Plate
ASTM	B564	99.0 min Ni (Alloy 200)	41	N02200	Forgings
ASTM	B564	Ni-30 Cu (Alloy 400)	42	N04400	Forgings
ASTM	B564	Ni-Cr-Mo-(Lo C)-4Fe-3W (Alloy C-22)	43	N06022	Forgings

Table IV-1—Nonferrous Alloys (Continued)

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	B564	Ni-Cr-Fe-Al (Alloy 6025 HT)	43	N06025	Forgings
ASTM	B564	Ni-Cr-Fe-Si (Alloy 45)	46	N06045	Forgings
ASTM	B564	Ni-Cr-Mo-(Lo C) (Alloy 59)	43	N06059	Forgings
ASTM	B564	Ni-Cr-Mo-W	43	N06110	Forgings
ASTM	B564	Alloy C2000	43	N06200	Forgings
ASTM	B564	Alloy 21	43	N06210	Forgings
ASTM	B564	Ni-Cr-W-Mo (Alloy 230)	43	N06230	Forgings
ASTM	B564	Ni-Cr-Fe (Alloy 600)	43	N06600	Forgings
ASTM	B564	Alloy 603GT	43	N06603	Forgings
ASTM	B564	Ni-Cr-Co-Mo (Alloy 617)	43	N06617	Forgings
ASTM	B564	Ni-Cr-Mo-Cb (Alloy 625)	43	N06625	Forgings
ASTM	B564	Ni-Cr-Mo-W-(Lo C) (Alloy 686)	44	N06686	Forgings
ASTM	B564	Ni-Cr-Fe (Alloy 690)	43	N06690	Forgings
ASTM	B564	Fe-Ni-Cr-Mo-Cu (Alloy 31)	45	N08031	Forgings
ASTM	B564	Ni-Fe-Cr (Alloy HR120)	45	N08120	Forgings
ASTM	B564	Fe-Ni-Cr-Mo (Alloy AL-6XN)	45	N08367	Forgings
ASTM	B564	Fe-Ni-Cr (Alloy 800)	45	N08800	Forgings
ASTM	B564	Fe-Ni-Cr (Alloy 800H)	45	N08810	Forgings
ASTM	B564	Fe-Ni-Cr (Alloy 800HT)	45	N08811	Forgings
ASTM	B564	Ni-Fe-Cr-Mo-C (Alloy 825)	45	N08825	Forgings
ASTM	B564	Ni-Mo-Cr-Fe-W (Alloy C-276)	43	N10276	Forgings
ASTM	B564	Alloy B-10	43	N10624	Forgings
ASTM	B564	Alloy CRB10	43	N10624	Forgings
ASTM	B564	Ni-Mo-Fe (Alloy B-4)	44	N10629	Forgings
ASTM	B564	Ni-Mo-Cr-Fe (Alloy B-3)	44	N10675	Forgings
ASTM	B564	Ni-Co-Cr-Si (Alloy HR160)	46	N12160	Forgings
ASTM	B564	Cr-Ni-Fe (Alloy 33)	45	R20033	Forgings
ASTM	B572	Ni-Cr-Fe-Mo (Alloy X)	43	N06002	Rod
ASTM	B572	Ni-Cr-W-Mo (Alloy 230)	43	N06230	Rod
ASTM	B572	Ni-Co-Cr-Si (Alloy HR160)	46	N12160	Rod
ASTM	B572	Fe-Cr-Ni-Co-Mo-W (Alloy 556)	45	R30556	Rod
ASTM	B573	Ni-Mo-Cr-Fe (Alloy N)	44	N10003	Rod
ASTM	B574	Ni-Cr-Mo-(Lo C)-4Fe-3W (Alloy C22)	43	N06022	Rod
ASTM	B574	Ni-Cr-Mo-(Lo C) (Alloy 59)	43	N06059	Rod
ASTM	B574	Alloy C2000	43	N06200	Rod
ASTM	B574	Ni-Cr-Mo-(Lo C) (Alloy C-4)	43	N06455	Rod
ASTM	B574	Ni-Cr-Mo-W-(Lo C) (Alloy C686)	43	N06686	Rod
ASTM	B574	Ni-Mo-Cr-Fe-W-(Lo C) (Alloy C-276)	43	N10276	Rod
ASTM	B575	Ni-Cr-Mo-(Lo C)-4Fe-3W (Alloy C22)	43	N06022	Plate, Sheet & Strip
ASTM	B575	Ni-Cr-Mo-(Lo C) (Alloy 59)	43	N06059	Plate, Sheet & Strip
ASTM	B575	Alloy C2000	43	N06200	Plate, Sheet & Strip
ASTM	B575	Ni-Cr-Mo-(Lo C) (Alloy C-4)	43	N06455	Plate, Sheet & Strip
ASTM	B575	Ni-Cr-Mo-W-(Lo C) (Alloy 686)	43	N06686	Plate, Sheet & Strip
ASTM	B575	Ni-Mo-Cr-Fe-W-(Lo C) (Alloy C-276)	43	N10276	Plate, Sheet & Strip
ASTM	B581	Ni-Cr-Fe-Mo-Cu (Alloy G)	43	N06007	Rod
ASTM	B581	Ni-Cr-Fe-Mo-W-Cu (Alloy G-30)	43	N06030	Rod

Table IV-1—Nonferrous Alloys (Continued)

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	B581	Ni-Cr-Fe-Mo-Ti (Alloy G-2)	43	N06975	Rod
ASTM	B581	Ni-Cr-Fe-Mo-Cu (Alloy G-3)	43	N06985	Rod
ASTM	B582	Ni-Cr-Fe-Mo-Cu (Alloy G)	43	N06007	Plate, Sheet & Strip
ASTM	B582	Ni-Cr-Fe-Mo-W-Cu (Alloy G-30)	43	N06030	Plate, Sheet & Strip
ASTM	B582	Ni-Cr-Fe-Mo-Ti (Alloy G-2)	43	N06975	Plate, Sheet & Strip
ASTM	B582	Ni-Cr-Fe-Mo-Cu (Alloy G-3)	43	N06985	Plate, Sheet & Strip
ASTM	B599	Alloy 700	45	N08700	Plate, Sheet & Strip
ASTM	B608	70-30 Cu-Ni	34	C71520	Welded Pipe
ASTM	B608	90-10 Cu-Ni	34	C70620	Welded Pipe
ASTM	B608	Aluminum Bronze	35	C61300	Welded Pipe
ASTM	B608	Aluminum Bronze D	35	C61400	Welded Pipe
ASTM	B609	1350	21	A91350	Wire (Electrical)
ASTM	B618	208.0 (F)	26	A02080	Investment Castings
ASTM	B618	319.0 (F, T6)	26	A03190	Investment Castings
ASTM	B618	328.0 (F, T6)	26	A03280	Investment Castings
ASTM	B618	356.0 (T6, T7, T51, T71)	26	A03560	Investment Castings
ASTM	B618	443.0 (F)	26	A04430	Investment Castings
ASTM	B618	514.0 (F)	26	A05140	Investment Castings
ASTM	B618	535.0 (F)	26	A05350	Investment Castings
ASTM	B618	A356.0 (T6)	26	A13560	Investment Castings
ASTM	B618	B443.0 (F)	26	A24430	Investment Castings
ASTM	B619	Ni-Cr-Fe-Mo (Alloy X)	43	N06002	Welded Pipe
ASTM	B619	Ni-Cr-Fe-Mo-Cu (Alloy G)	43	N06007	Welded Pipe
ASTM	B619	Ni-Cr-Mo-(Lo C)-4Fe-3W (Alloy C-22)	43	N06022	Welded Pipe
ASTM	B619	Ni-Cr-Fe-Mo-Cu (Alloy G-30)	43	N06030	Welded Pipe
ASTM	B619	Ni-Cr-Mo (Alloy 59)	43	N06059	Welded Pipe
ASTM	B619	Alloy C2000	43	N06200	Welded Tube
ASTM	B619	Ni-Cr-W-Mo (Alloy 230)	43	N06230	Welded Pipe
ASTM	B619	Ni-Cr-Mo (Alloy C-4)	43	N06455	Welded Pipe
ASTM	B619	Ni-Cr-Mo-W (Alloy 686)	43	N06686	Welded Pipe
ASTM	B619	Ni-Cr-Fe-Mo (Alloy G-2)	43	N06975	Welded Pipe
ASTM	B619	Ni-Cr-Fe-Mo-Cu (Alloy G-3)	43	N06985	Welded Pipe
ASTM	B619	Fe-Ni-Cr-Mo-Cu (Alloy 31)	45	N08031	Welded Pipe
ASTM	B619	Fe-Ni-Cr-Mo (Alloy 20 Mod.)	45	N08320	Welded Pipe
ASTM	B619	Ni-Mo-Fe (Alloy B)	44	N10001	Welded Pipe
ASTM	B619	Ni-Mo-Cr-Fe-W (Alloy C-276)	43	N10276	Welded Pipe
ASTM	B619	Alloy B-10	44	N10624	Welded Pipe
ASTM	B619	Ni-Mo-Fe-Cr (Alloy B-4)	44	N10629	Welded Pipe
ASTM	B619	Ni-Mo (Alloy B-2)	44	N10665	Welded Pipe
ASTM	B619	Ni-Mo-Cr-Fe (Alloy B-3)	44	N10675	Welded Pipe
ASTM	B619	Ni-Co-Cr-Si (Alloy HR160)	46	N12160	Welded Pipe
ASTM	B619	Cr-Ni-Fe (Alloy 33)	45	R20033	Welded Pipe
ASTM	B619	Fe-Cr-Ni-Co-Mo-W (Alloy 556)	45	R30556	Welded Pipe
ASTM	B620	Fe-Ni-Cr-Mo (Alloy 20 Mod.)	45	N08320	Plate, Sheet & Strip
ASTM	B621	Fe-Ni-Cr-Mo (Alloy 20 Mod.)	45	N08320	Rod
ASTM	B622	Ni-Cr-Fe-Mo (Alloy X)	43	N06002	Seamless Pipe & Tube

Table IV-1—Nonferrous Alloys (Continued)

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	B622	Ni-Cr-Fe-Mo-Cu (Alloy G)	43	N06007	Seamless Pipe & Tube
ASTM	B622	Ni-Cr-Mo-(Lo C)-4Fe-3W (Alloy C-22)	43	N06022	Seamless Pipe & Tube
ASTM	B622	Ni-Cr-Fe-Mo-W-Cu (Alloy G-30)	43	N06030	Seamless Pipe & Tube
ASTM	B622	Ni-Cr-Mo-Fe (Alloy 59)	43	N06059	Seamless Pipe & Tube
ASTM	B622	Ni-Cr-Mo-Fe (Alloy 2060 Mo)	43	N06060	Seamless Pipe & Tube
ASTM	B622	Alloy C2000	43	N06200	Seamless Pipe & Tube
ASTM	B622	Ni-Cr-W-Mo (Alloy 230)	43	N06230	Seamless Pipe & Tube
ASTM	B622	Ni-Cr-Mo (Alloy 2050)	43	N06250	Seamless Pipe & Tube
ASTM	B622	Ni-Cr-Fe-Mo-W (Alloy 2550)	43	N06255	Seamless Pipe & Tube
ASTM	B622	Ni-Cr-Mo-W (Alloy 686)	43	N06686	Seamless Pipe & Tube
ASTM	B622	Ni-Cr-Fe-Mo-Ti (Alloy G-2)	43	N06975	Seamless Pipe & Tube
ASTM	B622	Ni-Cr-Fe-Mo-Cu (Alloy G-3)	43	N06985	Seamless Pipe & Tube
ASTM	B622	Fe-Ni-Cr-Mo-Cu (Alloy 31)	45	N08031	Seamless Pipe & Tube
ASTM	B622	Fe-Ni-Cr-Mo-W (Alloy 2035)	45	N08135	Seamless Pipe & Tube
ASTM	B622	Fe-Ni-Cr-Mo (Alloy 20 Mod.)	45	N08320	Seamless Pipe & Tube
ASTM	B622	Fe-Ni-Cr-Mo-Cu	45	N08535	Seamless Pipe & Tube
ASTM	B622	Ni-Mo-Fe (Alloy B)	44	N10001	Seamless Pipe & Tube
ASTM	B622	Ni-Mo-Cr-Fe-W (Alloy C-276)	43	N10276	Seamless Pipe & Tube
ASTM	B622	Alloy B-10	44	N10624	Seamless Pipe & Tube
ASTM	B622	Ni-Mo-Fe-Cr (Alloy B-4)	44	N10629	Seamless Pipe & Tube
ASTM	B622	Ni-Mo (Alloy B-2)	44	N10665	Seamless Pipe & Tube
ASTM	B622	Ni-Mo-Cr-Fe (Alloy B-3)	44	N10675	Seamless Pipe & Tube
ASTM	B622	Ni-Co-Cr-Si (Alloy HR160)	46	N12160	Seamless Pipe & Tube
ASTM	B622	Cr-Ni-Fe-Mo (Alloy 33)	45	R20033	Seamless Pipe & Tube
ASTM	B622	Fe-Cr-Ni-Co-Mo-W (Alloy 556)	45	R30556	Seamless Pipe & Tube
ASTM	B625	Fe-Ni-Cr-Mo-Cu (Alloy 31)	45	N08031	Plate, Sheet & Strip
ASTM	B625	Fe-Ni-Cr-Mo (Alloy 904L)	45	N08904	Plate, Sheet & Strip
ASTM	B625	Fe-Ni-Cr-Mo-Cu-(Lo C) (Alloy 1925)	45	N08925	Plate, Sheet & Strip
ASTM	B625	Fe-Ni-Cr-Mo-Cu-(Lo C) (Alloy 926)	45	N08926	Plate, Sheet & Strip
ASTM	B625	Fe-Ni-Cr-Mo-Cu-(Lo C) (Alloy UR-SB-8)	45	N08932	Plate, Sheet & Strip
ASTM	B625	Cr-Ni-Fe-Mo (Alloy 33)	45	R20033	Plate, Sheet & Strip
ASTM	B626	Ni-Cr-Fe-Mo	43	N06002	Welded Tube
ASTM	B626	Ni-Cr-Fe-Mo (Alloy G)	43	N06007	Welded Tube
ASTM	B626	Ni-Cr-Mo-(Lo C)-4Fe-3W (Alloy C-22)	43	N06022	Welded Tube
ASTM	B626	Ni-Cr-Fe-Mo (Alloy G30)	43	N06030	Welded Tube
ASTM	B626	Ni-Cr-Mo (Alloy 59)	43	N06059	Welded Tube
ASTM	B626	Ni-Cr-Mo-(Low C)-Cu (Alloy C2000)	43	N06200	Welded Tube
ASTM	B626	Ni-Cr-W-Mo (Alloy 230)	43	N06230	Welded Tube
ASTM	B626	Ni-Cr-Mo (Alloy C-4)	43	N06455	Welded Tube
ASTM	B626	Ni-Cr-Mo-W (Alloy 686)	43	N06686	Welded Tube
ASTM	B626	Ni-Cr-Fe-Mo-Ti (Alloy G-2)	43	N06975	Welded Tube
ASTM	B626	Ni-Cr-Fe-Mo-Cu (Alloy G-3)	43	N06985	Welded Tube
ASTM	B626	Fe-Ni-Cr-Mo-Cu (Alloy 31)	45	N08031	Welded Tube
ASTM	B626	Fe-Ni-Cr-Mo (Alloy 20 Mod.)	45	N08320	Welded Tube
ASTM	B626	Ni-Mo-Fe (Alloy B)	44	N10001	Welded Tube
ASTM	B626	Ni-Mo-Cr-Fe-W (Alloy C-276)	43	N10276	Welded Tube

Table IV-1—Nonferrous Alloys (Continued)

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	B626	Alloy B-10	44	N10624	Welded Tube
ASTM	B626	Ni-Mo-Fe (Alloy B-4)	44	N10629	Welded Tube
ASTM	B626	Ni-Mo (Alloy B-2)	44	N10665	Welded Tube
ASTM	B626	Ni-Mo-Cr-Fe (Alloy B-3)	44	N10675	Welded Tube
ASTM	B626	Ni-Co-Cr-Si (Alloy HR160)	46	N12160	Welded Tube
ASTM	B626	Fe-Cr-Ni-Mo (Alloy 33)	45	R20033	Welded Tube
ASTM	B626	Fe-Cr-Ni-Co-Mo-W (Alloy 556)	45	R30556	Welded Tube
ASTM	B632	6061 (T4, T6)	23	A96061	Tread Plate
ASTM	B649	Ni-Fe-Cr-Mo-Cu (Alloy 31)	45	N08031	Bar & Wire
ASTM	B649	Fe-Ni-Cr-Mo (Alloy 904L)	45	N08904	Bar & Wire
ASTM	B649	Fe-Ni-Cr-Mo-Cu-(Lo C) (Alloy 1925)	45	N08925	Bar & Wire
ASTM	B649	Fe-Ni-Cr-Mo-Cu-(Lo C) (Alloy 926)	45	N08926	Bar & Wire
ASTM	B649	Cr-Fe-Ni-Mo (Alloy 33)	45	R20033	Bar & Wire
ASTM	B658	R60702	61	R60702	Seamless & Welded Pipe
ASTM	B658	R60704	61	R60704	Seamless & Welded Pipe
ASTM	B658	R60705	62	R60705	Seamless & Welded Pipe
ASTM	B668	Ni-Fe-Cr-Mo-Cu (Alloy 28)	45	N08028	Seamless Tube
ASTM	B672	Fe-Ni-Cr-Mo-Cb (Alloy 700)	45	N08700	Bar
ASTM	B673	Fe-Ni-Cr-Mo (Alloy 904L)	45	N08904	Welded Pipe
ASTM	B673	Fe-Ni-Cr-Mo-Cu-N (Alloy 1925)	45	N08925	Welded Pipe
ASTM	B673	Fe-Ni-Cr-Cu (Alloy 926)	45	N08926	Welded Pipe
ASTM	B674	Fe-Ni-Cr-Mo (Alloy 904L)	45	N08904	Welded Tube
ASTM	B674	Fe-Ni-Cr-Mo-Cu-N (Alloy 1925)	45	N08925	Welded Tube
ASTM	B674	Fe-Ni-Cr-Cu (Alloy 926)	45	N08926	Welded Tube
ASTM	B675	Fe-Ni-Cr-Mo	45	N08366	Welded Pipe
ASTM	B675	Fe-Ni-Cr-Mo (Alloy AL-6XN)	45	N08367	Welded Pipe
ASTM	B676	Fe-Ni-Cr-Mo	45	N08366	Welded Tube
ASTM	B676	Fe-Ni-Cr-Mo (Alloy AL-6XN)	45	N08367	Welded Tube
ASTM	B677	Fe-Ni-Cr-Mo (Alloy 904L)	45	N08904	Seamless Pipe & Tube
ASTM	B677	Fe-Ni-Cr-Mo-Cu-(Lo C) (Alloy 1925)	45	N08925	Seamless Pipe & Tube
ASTM	B677	Fe-Ni-Cr-Mo-Cu-(Lo C) (Alloy 926)	45	N08926	Seamless Pipe & Tube
ASTM	B686	A356.0 (T61)	26	A13560	Investment Castings
ASTM	B688	Fe-Ni-Cr-Mo	45	N08366	Plate, Sheet & Strip
ASTM	B688	Fe-Ni-Cr-Mo (Alloy AL-6XN)	45	N08367	Plate, Sheet & Strip
ASTM	B690	Fe-Ni-Cr-Mo	45	N08366	Seamless Pipe & Tube
ASTM	B690	Fe-Ni-Cr-Mo (Alloy AL-6XN)	45	N08367	Seamless Pipe & Tube
ASTM	B691	Fe-Ni-Cr-Mo	45	N08366	Round & Square Rods & Bars
ASTM	B691	Fe-Ni-Cr-Mo (Alloy AL-6XN)	45	N08367	Round & Square Rods & Bars
ASTM	B704	Ni-Cr-Mo-Cb (Alloy 625)	43	N06625	Welded Tube
ASTM	B704	Ni-Fe-Cr-Mo-Cu-Ti (Alloy 825)	45	N08825	Welded Tube
ASTM	B705	Ni-Cr-Mo-Cb (Alloy 625)	43	N06625	Welded Pipe
ASTM	B705	Ni-Fe-Cr-Mo-Cu-Ti (Alloy 825)	45	N08825	Welded Pipe
ASTM	B709	Ni-Fe-Cr-Mo-Cu (Alloy 28)	45	N08028	Plate, Sheet & Strip
ASTM	B710	Ni-Fe-Cr-Si (Alloy 330)	45	N08330	Welded Pipe
ASTM	B710	Ni-Fe-Cr-Si (Alloy 330TX)	45	N08332	Welded Pipe
ASTM	B718	Ni-Cr-Mo-Co-W-Si (Alloy 333)	45	N06333	Plate, Sheet & Strip

Table IV-1—Nonferrous Alloys (Continued)

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	B719	Ni-Cr-Mo-Co-W-Si (Alloy 333)	45	N06333	Bars
ASTM	B720	Fe-Cr-Ni-Mo	45	N08310	Seamless Tube
ASTM	B722	Ni-Cr-Mo-Co-W-Si (Alloy 333)	45	N06333	Seamless Pipe & Tube
ASTM	B723	Ni-Cr-Mo-Co-W-Si (Alloy 333)	45	N06333	Welded Pipe
ASTM	B726	Ni-Cr-Mo-Co-W-Si (Alloy 333)	45	N06333	Welded Tube
ASTM	B755	Ni-Cr-Mo-W	43	N06110	Plate, Sheet & Strip
ASTM	B756	Ni-Cr-Mo-W	43	N06110	Rod & Bar
ASTM	B757	Ni-Cr-Mo-W	43	N06110	Welded Pipe
ASTM	B758	Ni-Cr-Mo-W	43	N06110	Welded Tube
ASTM	B759	Ni-Cr-Mo-W	43	N06110	Pipe & Tube
ASTM	B804	Alloy AL-6XN	45	N08367	Welded Pipe & Tube
ASTM	B819	Deoxidized High P Cu (DHP)	31	C12200	Seamless Tube
ASTM	B861	Grade 1	51	R50250	Seamless Pipe
ASTM	B861	Grade 2	51	R50400	Seamless Pipe
ASTM	B861	Grade 3	52	R50550	Seamless Pipe
ASTM	B861	Grade 5	54	R56400	Seamless Pipe
ASTM	B861	Grade 7	51	R52400	Seamless Pipe
ASTM	B861	Grade 9	53	R56320	Seamless Pipe
ASTM	B861	Grade 11	51	R52250	Seamless Pipe
ASTM	B861	Grade 12	52	R53400	Seamless Pipe
ASTM	B861	Grade 13	51	R53413	Seamless Pipe
ASTM	B861	Grade 14	52	R53414	Seamless Pipe
ASTM	B861	Grade 15	52	R53415	Seamless Pipe
ASTM	B861	Grade 16	51	R52402	Seamless Pipe
ASTM	B861	Grade 17	51	R52252	Seamless Pipe
ASTM	B861	Grade 18	53	R56322	Seamless Pipe
ASTM	B861	Grade 19	53	R58640	Seamless Pipe
ASTM	B861	Grade 20	53	R58645	Seamless Pipe
ASTM	B861	Grade 21	53	R58210	Seamless Pipe
ASTM	B861	Grade 23	54	R56402	Seamless Pipe
ASTM	B861	Grade 24	54	R56405	Seamless Pipe
ASTM	B861	Grade 25	54	R56403	Seamless Pipe
ASTM	B861	Grade 28	53	R56323	Seamless Pipe
ASTM	B861	Grade 29	54	R56404	Seamless Pipe
ASTM	B861	Grade 33	51	—	Seamless Pipe
ASTM	B861	Grade 34	52	—	Seamless Pipe
ASTM	B861	Grade 35	54	—	Seamless Pipe
ASTM	B862	Grade 1	51	R50250	Welded Pipe
ASTM	B862	Grade 2	51	R50400	Welded Pipe
ASTM	B862	Grade 3	52	R50550	Welded Pipe
ASTM	B862	Grade 5	54	R56400	Welded Pipe
ASTM	B862	Grade 7	51	R52400	Welded Pipe
ASTM	B862	Grade 9	53	R56320	Welded Pipe
ASTM	B862	Grade 11	51	R50250	Welded Pipe
ASTM	B862	Grade 12	52	R53400	Welded Pipe
ASTM	B862	Grade 13	51	R53413	Welded Pipe

Table IV-1—Nonferrous Alloys (Continued)

Standard	Base Metal Specification	Type, Grade, or Alloy Designation	Material Number	UNS Number	Product Form
ASTM	B862	Grade 14	52	R53414	Welded Pipe
ASTM	B862	Grade 15	52	R53415	Welded Pipe
ASTM	B862	Grade 16	51	R52402	Welded Pipe
ASTM	B862	Grade 17	51	R52252	Welded Pipe
ASTM	B862	Grade 18	53	R56322	Welded Pipe
ASTM	B862	Grade 19	53	R58640	Welded Pipe
ASTM	B862	Grade 20	53	R58645	Welded Pipe
ASTM	B862	Grade 21	53	R58210	Welded Pipe
ASTM	B862	Grade 23	54	R56402	Welded Pipe
ASTM	B862	Grade 24	54	R56405	Welded Pipe
ASTM	B862	Grade 25	54	R56403	Welded Pipe
ASTM	B862	Grade 26	51	R52404	Welded Pipe
ASTM	B862	Grade 27	51	R52254	Welded Pipe
ASTM	B862	Grade 28	53	R56323	Welded Pipe
ASTM	B862	Grade 29	54	R56404	Welded Pipe
ASTM	B862	Grade 33	51	—	Welded Pipe
ASTM	B862	Grade 34	52	—	Welded Pipe
ASTM	B862	Grade 35	54	—	Welded Pipe
AMS	4914	15-3	53	R58153	Sheet (Solution Treated)
AMS	4915	8Al-1 Mo-1 V	54	R54810	Sheet, Strip & Plate (Single Annealed)
AMS	4919	Al-Zr-Mo-Sn	54	R54620	Sheet (Duplex Annealed)
AMS	4973	Al-Mo-V	54	R54810	Forgings (Solution Treated & Stabilized)
AMS	4975	Al-Zr-Mo-Sn	54	R54620	Bar (Solution Treated, Duplex Annealed)
AMS	4976	Al-Zr-Mo-Sn	54	R54620	Forging, STA (Duplex Annealed)
AMS	5711	Ni-Cr-Mo	44	N06635	Sheet
ISO	R209	7020 (T5)	27	A97020	Ext. Bar, Rod, Wire, Shapes & Tube
ISO	—547	6082 (T4, T6)	23	A96082	Ext. Rod, Bar, Shapes & Tube
NACE	MR-01-75	Ni-Cr-Fe-Mo	45	N06950	Pipe

Table IV-2
M-Number Listing of Base Metals—Ferrous Alloys

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
1	1	ASTM	A31	Grade B	K03100	—	58/29	Rivets	C
1	1	ASTM	A36	A36	K02599	≤ 0.75	58/36	Plate & Bars	C-Mn-Si
1	1	ASTM	A36	A36	K02598	> 0.75 ≤ 1.5	58/36	Plate & Bars	C-Mn-Si
1	1	ASTM	A36	A36	K02597	> 1.5 ≤ 2.5	58/36	Plate & Bars	C-Mn-Si
1	1	ASTM	A36	A36	K02596	> 2.5 ≤ 4.0	58/36	Plate & Bars	C-Mn-Si
1	1	ASTM	A36	A36	K02595	> 4.0 ≤ 8.0	58/36	Plate & Bars	C-Mn-Si
1	1	ASTM	A36	A36	K02595	> 8.00	58/32	Plate	C-Mn-Si
1	1	ASTM	A36	A36	K02600	≤ 4.0	58/36	Shapes	C-Mn-Si
1	1	ASTM	A53	Type E, Grade A	K02504	—	48/30	Resistance Welded Pipe	C
1	1	ASTM	A53	Type E, Grade B	K03005	—	60/35	Resistance Welded Pipe	C-Mn
1	1	ASTM	A53	Type F, Grade A	—	—	48/30	Furnace Welded Pipe	C
1	1	ASTM	A53	Type S, Grade A	K02504	—	48/30	Seamless Pipe	C
1	1	ASTM	A53	Type S, Grade B	K03005	—	60/35	Seamless Pipe	C-Mn
1	1	ASTM	A106	Grade A	K02501	—	48/30	Seamless Pipe	C-Mn
1	1	ASTM	A106	Grade B	K03006	—	60/35	Seamless Pipe	C-Mn
1	1	ASTM	A108	Grade 1015 CW	G10150	—	43/25	Bar	C
1	1	ASTM	A108	Grade 1018 CW	G10180	—	43/25	Bar	C
1	1	ASTM	A108	Grade 1020 CW	G10200	—	43/25	Bar	C
1	1	ASTM	A131	Grade A	K02300	≤ 1.0	58/34	Structural	C
1	1	ASTM	A131	Grade A	K02300	> 1.0	58/32	Structural	C
1	1	ASTM	A131	Grade B	K02102	—	58/34	Structural	C
1	1	ASTM	A131	Grade D	K02101	—	58/34	Structural	C-Si
1	1	ASTM	A131	Grade E	K01801	—	58/34	Structural	C-Si
1	1	ASTM	A131	Grade CS	K01601	—	58/34	Structural	C-Si
1	1	ASTM	A131	Grade DS	K01601	—	58/34	Structural	C-Si
1	1	ASTM	A134	A36	—	—	58/36	Welded Pipe	C
1	1	ASTM	A134	A283 A	—	—	45/24	Welded Pipe	C
1	1	ASTM	A134	A283 B	—	—	50/27	Welded Pipe	C
1	1	ASTM	A134	A283 C	K02401	—	55/30	Welded Pipe	C

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
1	1	ASTM	A134	A283 D	K02702	—	60/33	Welded Pipe	C
1	1	ASTM	A134	A285 A	K01700	—	45/24	Welded Pipe	C
1	1	ASTM	A134	A285 B	K02200	—	50/27	Welded Pipe	C
1	1	ASTM	A134	A285 C	K02801	—	55/30	Welded Pipe	C
1	1	ASTM	A135	Grade A	—	—	48/30	ERW Pipe	C
1	1	ASTM	A135	Grade B	—	—	60/35	ERW Pipe	C-Mn
1	1	ASTM	A139	Grade A	—	—	48/30	Welded Pipe	C-Mn
1	1	ASTM	A139	Grade B	K03003	—	60/35	Welded Pipe	C-Mn
1	1	ASTM	A139	Grade C	K03004	—	60/42	Welded Pipe	C-Mn
1	1	ASTM	A139	Grade D	K03010	—	60/46	Welded Pipe	C-Mn
1	1	ASTM	A161	Low Carbon	K01504	—	47/26	Low C Tube	C
1	1	ASTM	A178	Grade A	K01200	—	47/26	ERW Tube	C
1	1	ASTM	A178	Grade C	K03503	—	60/37	ERW Tube	C
1	1	ASTM	A179	—	K01200	—	47/26	Seamless Tube	C
1	1	ASTM	A181	Class 60	K03502	—	60/30	Pipe Flanges	C-Si
1	1	ASTM	A192	—	K01201	—	47/26	Seamless Tube	C-Si
1	1	ASTM	A210	Grade A1	K02707	—	60/37	Seamless Tube	C-Si
1	1	ASTM	A214	—	K01807	—	47/26	ERW Tube	C
1	1	ASTM	A216	Grade WCA	J02502	—	60/30	Castings	C-Si
1	1	ASTM	A226	—	K01201	—	47/26	ERW Tube	C-Si
1	1	ASTM	A234	Grade WPB	K03006	—	60/35	Pipe Fittings	C-Si
1	1	ASTM	A252	Grade 1	—	—	50/30	Pipe Piles	C
1	1	ASTM	A252	Grade 2	—	—	60/35	Pipe Piles	C
1	1	ASTM	A252	Grade 3	—	—	66/45	Pipe Piles	C
1	1	ASTM	A266	Grade 1	K03506	—	60/30	Seamless Forging	C-Si
1	1	ASTM	A283	Grade A	K01804	—	45/24	Plate	C
1	1	ASTM	A283	Grade B	K02001	—	50/27	Plate	C
1	1	ASTM	A283	Grade C	K02401	—	55/30	Plate	C
1	1	ASTM	A283	Grade D	K02702	—	60/33	Plate	C

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
1	1	ASTM	A285	Grade A	K01700	—	45/24	Plate	C
1	1	ASTM	A285	Grade B	K02200	—	50/27	Plate	C
1	1	ASTM	A285	Grade C	K02801	—	55/30	Plate	C
1	1	ASTM	A333	Grade 1	K03008	—	55/30	Seamless & Welded Pipe	C-Mn
1	1	ASTM	A333	Grade 6	K03006	—	60/35	Seamless & Welded Pipe	C-Mn-Si
1	1	ASTM	A334	Grade 1	K03008	—	55/30	Welded Tube	C-Mn
1	1	ASTM	A334	Grade 6	K03006	—	60/35	Welded Tube	C-Mn-Si
1	1	ASTM	A350	Grade LF1	K03009	—	60/30	Forging	C-Mn-Si
1	1	ASTM	A352	Grade LCA	J02504	—	60/30	Castings	C-Si
1	1	ASTM	A352	Grade LCB	J03003	—	65/35	Castings	C-Si
1	1	ASTM	A366	Commercial Quality	—	—	43/20	Sheet	C
1	1	ASTM	A369	Grade FPA	K02501	—	48/30	Forging	C-Si
1	1	ASTM	A369	Grade FPB	K03006	—	60/35	Forging	C-Mn
1	1	ASTM	A372	Grade A	K03002	—	60/35	Forging	C-Si
1	1	ASTM	A381	Class Y35	K03013	—	60/35	Pipe	C-Mn
1	1	ASTM	A381	Class Y42	—	—	60/42	Pipe	C-Mn
1	1	ASTM	A381	Class Y46	—	—	63/46	Pipe	C-Mn
1	1	ASTM	A381	Class Y48	—	—	62/48	Pipe	C-Mn
1	1	ASTM	A414	Grade A	K01501	—	45/25	Sheet	C
1	1	ASTM	A414	Grade B	K02201	—	50/30	Sheet	C
1	1	ASTM	A414	Grade C	K02503	—	55/33	Sheet	C
1	1	ASTM	A414	Grade D	K02505	—	60/35	Sheet	C-Mn
1	1	ASTM	A414	Grade E	K02704	—	65/38	Sheet	C-Mn
1	1	ASTM	A420	Grade WPL6	—	—	60/35	Pipe Fittings	C-Mn-Si
1	1	ASTM	A500	Grade A round	K03000	—	45/33	Tube	C
1	1	ASTM	A500	Grade B round	K03000	—	58/42	Tube	C
1	1	ASTM	A500	Grade C round	K02705	—	62/46	Tube	C
1	1	ASTM	A501	—	K03000	—	58/36	Tube	C
1	1	ASTM	A512	Grade 1010	G10100	—	40/20	Mechanical Tube	C

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
1	1	ASTM	A512	Grade 1015	G10150	—	40/20	Mechanical Tube	C
1	1	ASTM	A512	Grade 1117	G11170	—	40/20	Mechanical Tube	C
1	1	ASTM	A512	Grade 1018	G10180	—	43/25	Mechanical Tube	C
1	1	ASTM	A512	Grade 1020	G10200	—	50/30	Mechanical Tube	C
1	1	ASTM	A512	Grade 1025	G10250	—	55/35	Mechanical Tube	C
1	1	ASTM	A512	Grade MT1010	G10100	—	40/20	Mechanical Tube	C
1	1	ASTM	A512	Grade MT1015	G10150	—	43/25	Mechanical Tube	C
1	1	ASTM	A512	Grade MT1020	G10200	—	50/30	Mechanical Tube	C
1	1	ASTM	A512	Grade MTX1015	—	—	40/20	Mechanical Tube	C
1	1	ASTM	A512	Grade MTX1020	—	—	50/30	Mechanical Tube	C
1	1	ASTM	A513	Grade 1015 CW	G10150	—	65/55	Mechanical Tube	C
1	1	ASTM	A513	Grade 1008	G10080	—	42/30	Mechanical Tube	C
1	1	ASTM	A513	Grade 1010	G10100	—	45/32	Mechanical Tube	C
1	1	ASTM	A513	Grade 1015	G10150	—	48/35	Mechanical Tube	C
1	1	ASTM	A513	Grade 1017	G10170	—	48/35	Mechanical Tube	C
1	1	ASTM	A513	Grade 1018	G10180	—	48/35	Mechanical Tube	C
1	1	ASTM	A513	Grade 1019	G10190	—	48/35	Mechanical Tube	C
1	1	ASTM	A513	Grade 1020	G10200	—	52/38	Mechanical Tube	C
1	1	ASTM	A513	Grade 1021	G10210	—	54/40	Mechanical Tube	C
1	1	ASTM	A513	Grade 1025	G10250	—	56/40	Mechanical Tube	C
1	1	ASTM	A515	Grade 55	K02001	—	55/30	Plate	C-Si
1	1	ASTM	A515	Grade 60	K02401	—	60/32	Plate	C-Si
1	1	ASTM	A515	Grade 65	K02800	—	65/35	Plate	C-Si
1	1	ASTM	A516	Grade 55	K01800	—	55/30	Plate	C-Mn-Si
1	1	ASTM	A516	Grade 60	K02100	—	60/32	Plate	C-Mn-Si
1	1	ASTM	A516	Grade 65	K02403	—	65/35	Plate	C-Mn-Si
1	1	ASTM	A519	Grade 1008	G10080	—	40/20	Mechanical Tube	C
1	1	ASTM	A519	Grade 1012	G10120	—	40/20	Mechanical Tube	C
1	1	ASTM	A519	Grade 1016	G10160	—	40/20	Mechanical Tube	C

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
1	1	ASTM	A519	Grade 1017	G10170	—	40/20	Mechanical Tube	C
1	1	ASTM	A519	Grade 1018	G10180	—	43/25	Mechanical Tube	C
1	1	ASTM	A519	Grade 1018 HR	G10180	—	43/25	Mechanical Tube	C
1	1	ASTM	A519	Grade 1019	G10190	—	50/30	Mechanical Tube	C
1	1	ASTM	A519	Grade 1020	G10200	—	50/30	Mechanical Tube	C
1	1	ASTM	A519	Grade 1020 HR	G10200	—	50/32	Mechanical Tube	C
1	1	ASTM	A519	Grade 1021	G10210	—	50/30	Mechanical Tube	C
1	1	ASTM	A519	Grade 1022	G10220	—	50/30	Mechanical Tube	C
1	1	ASTM	A519	Grade 1022 HR	G10220	—	50/30	Mechanical Tube	C
1	1	ASTM	A519	Grade 1025	G10250	—	55/35	Mechanical Tube	C
1	1	ASTM	A519	Grade 1025 HR	G10250	—	55/35	Mechanical Tube	C
1	1	ASTM	A519	Grade 1026	G10260	—	55/35	Mechanical Tube	C
1	1	ASTM	A519	Grade 1026 HR	G10260	—	55/35	Mechanical Tube	C
1	1	ASTM	A519	Grade MT1010	G10100	—	40/20	Mechanical Tube	C
1	1	ASTM	A519	Grade MT1015	G10150	—	43/25	Mechanical Tube	C
1	1	ASTM	A519	Grade MT1020	G10200	—	50/30	Mechanical Tube	C
1	1	ASTM	A519	Grade MTX1015	G10150	—	40/20	Mechanical Tube	C
1	1	ASTM	A521	Class CC	—	—	60/30	Die Forging	C
1	1	ASTM	A521	Class CCI	—	—	66/33	Die Forging	C
1	1	ASTM	A523	Grade A	K02504	—	48/30	Pipe	C-Mn
1	1	ASTM	A523	Grade B	K03005	—	60/35	Pipe	C-Mn
1	1	ASTM	A524	Grade I	K02104	—	60/35	Pipe	C-Mn-Si
1	1	ASTM	A524	Grade II	K02104	—	55/30	Pipe	C-Mn-Si
1	1	ASTM	A526	Grade II	K02104	—	42/25	Galvanized Sheet	—
1	1	ASTM	A527	Grade II	K02104	—	42/25	Galvanized Sheet	—
1	1	ASTM	A529	Grade 42	K02703	—	60/42	Structural	1.35maxMn-0.27maxC
1	1	ASTM	A539	—	K01506	—	45/35	Coiled Tube	C
1	1	ASTM	A556	Grade A2	K01807	—	47/26	Seamless Tube	C
1	1	ASTM	A556	Grade B2	K02707	—	60/37	Seamless Tube	C-Si

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
1	1	ASTM	A557	Grade A2	K01807	—	47/26	Tube-RW	C
1	1	ASTM	A557	Grade B2	K03007	—	60/37	Tube-RW	C
1	1	ASTM	A562	—	K11224	—	55/30	Plate	C-Mn-Ti
1	1	ASTM	A569	Grade 30	K02502	—	49/30	Sheet & Strip	C
1	1	ASTM	A569	Grade 33	K02502	—	52/33	Sheet & Strip	C
1	1	ASTM	A569	Grade 36	K02502	—	53/36	Sheet & Strip	C
1	1	ASTM	A569	Grade 40	K02502	—	53/40	Sheet & Strip	C
1	1	ASTM	A569	Grade 45	K02502	—	60/45	Sheet & Strip	C
1	1	ASTM	A569	Grade 50	K02502	—	65/50	Sheet & Strip	C
1	1	ASTM	A570	Grade 30	K02502	—	49/30	Sheet & Strip	C
1	1	ASTM	A570	Grade 33	K02502	—	52/33	Sheet & Strip	C
1	1	ASTM	A570	Grade 36	K02502	—	53/36	Sheet & Strip	C
1	1	ASTM	A570	Grade 40	K02502	—	55/40	Sheet & Strip	C
1	1	ASTM	A570	Grade 45	K02502	—	60/45	Sheet & Strip	C
1	1	ASTM	A570	Grade 50	K02502	—	65/50	Sheet & Strip	C
1	1	ASTM	A570	Grade 55	K02502	—	70/55	Sheet & Strip	C
1	1	ASTM	A572	Grade 42	K02303	—	60/42	Plate & Bars	C-Mn-Si
1	1	ASTM	A572	Grade 42	K02303	—	60/42	Shapes	C-Mn-Si
1	1	ASTM	A572	Grade 50	K02304	—	65/50	Plate & Bars	C-Mn-Si
1	1	ASTM	A572	Grade 50	K02304	—	65/50	Shapes	C-Mn-Si
1	1	ASTM	A573	Grade 58	K02301	—	58/32	Plate	C-Mn-Si
1	1	ASTM	A573	Grade 65	K02404	—	65/35	Plate	C-Mn-Si
1	1	ASTM	A575	Grade M1008	G10080	—	40/20	Bar	C
1	1	ASTM	A575	Grade M1010	G10100	—	40/20	Bar	C
1	1	ASTM	A575	Grade M1012	G10120	—	40/20	Bar	C
1	1	ASTM	A575	Grade M1015	G10150	—	40/20	Bar	C
1	1	ASTM	A575	Grade M1017	G10170	—	40/20	Bar	C
1	1	ASTM	A575	Grade M1020	G10200	—	50/30	Bar	C
1	1	ASTM	A575	Grade M1023	G10230	—	55/35	Bar	C

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
1	1	ASTM	A575	Grade M1025	G10250	—	55/35	Bar	C
1	1	ASTM	A576	Grade 1008	G10080	—	40/20	Bar	C
1	1	ASTM	A576	Grade 1010	G10100	—	40/20	Bar	C
1	1	ASTM	A576	Grade 1012	G10120	—	40/20	Bar	C
1	1	ASTM	A576	Grade 1015	G10150	—	40/20	Bar	C
1	1	ASTM	A576	Grade 1016	G10160	—	40/20	Bar	C
1	1	ASTM	A576	Grade 1017	G10170	—	40/20	Bar	C
1	1	ASTM	A576	Grade 1018	G10180	—	45/25	Bar	C
1	1	ASTM	A576	Grade 1019	G10190	—	45/25	Bar	C
1	1	ASTM	A576	Grade 1020	G10200	—	50/30	Bar	C
1	1	ASTM	A576	Grade 1021	G10210	—	50/30	Bar	C
1	1	ASTM	A576	Grade 1022	G10220	—	50/30	Bar	C
1	1	ASTM	A576	Grade 1023	G10230	—	55/35	Bar	C
1	1	ASTM	A576	Grade 1025	G10250	—	55/35	Bar	C
1	1	ASTM	A587	—	K11500	—	48/30	Pipe	C
1	1	ASTM	A587	Grade A2	K01807	—	47/26	Tube-RW	C
1	1	ASTM	A587	Grade B2	K03007	—	60/37	Tube-RW	C
1	1	ASTM	A607	Grade 45	—	—	65/45	Sheet & Strip	C-Mn-Cb-V
1	1	ASTM	A607	Grade 50	—	—	65/50	Sheet & Strip	C-Mn-Cb-V
1	1	ASTM	A611	Grade A	G10170	—	42/25	Sheet & Strip	C-Mn
1	1	ASTM	A611	Grade B	G10170	—	45/30	Sheet & Strip	C-Mn
1	1	ASTM	A611	Grade C	G10170	—	48/33	Sheet & Strip	C-Mn
1	1	ASTM	A611	Grade D	G10120	—	52/40	Sheet & Strip	C-Mn
1	1	ASTM	A618	Grade III	K12700	—	65/50	Tube	Mn-V
1	1	ASTM	A620	Types A	K00040	—	40/22	Sheet	C
1	1	ASTM	A620	Types B	K00040	—	40/22	Sheet	C
1	1	ASTM	A633	Grade A	K01802	—	63/42	Plate & Shapes	Mn-Cb
1	1	ASTM	A653	Grade 33	—	—	45/33	Galvanized Sheet	—
1	1	ASTM	A653	Grade 37	—	—	52/37	Galvanized Sheet	—

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
1	1	ASTM	A653	Grade 40	—	—	55/40	Galvanized Sheet	—
1	1	ASTM	A653	Grade 80	—	—	82/80	Galvanized Sheet	—
1	1	ASTM	A656	Grade 50	K11804	≤2	60/50	Hi-Str. Lo-Alloy Plate	1.65maxMn-0.6Si-0.18maxC
1	1	ASTM	A656	Grade 60	K11804	≤1.5	70/60	Hi-Str. Lo-Alloy Plate	1.65maxMn-0.6Si-0.18maxC
1	1	ASTM	A660	Grade WCA	J02504	—	60/30	Centrifugal Cast Pipe	C
1	1	ASTM	A662	Grade A	K01701	—	58/40	Plate	C-Mn-Si
1	1	ASTM	A662	Grade B	K02203	—	65/40	Plate	C-Mn-Si
1	1	ASTM	A663	Grade 45	—	—	45/25	Bar	C
1	1	ASTM	A663	Grade 45	—	—	45/25	Shapes, Rounds, Squares, Hex.	C
1	1	ASTM	A663	Grade 50	—	—	50/28	Bar	C
1	1	ASTM	A663	Grade 50	—	—	50/28	Shapes, Rounds, Squares, Hex.	C
1	1	ASTM	A663	Grade 55	—	—	55/30	Bar	C
1	1	ASTM	A663	Grade 55	—	—	55/30	Shapes, Rounds, Squares, Hex.	C
1	1	ASTM	A663	Grade 60	—	—	60/33	Bar	C
1	1	ASTM	A663	Grade 60	—	—	60/33	Shapes, Rounds, Squares, Hex.	C
1	1	ASTM	A663	Grade 65	—	—	65/36	Bar	C
1	1	ASTM	A663	Grade 65	—	—	65/36	Shapes, Rounds, Squares, Hex.	C
1	1	ASTM	A668	Class B	G10200	—	60/30	Forging	C
1	1	ASTM	A668	Class C	G10250	—	66/30	Forging	C
1	1	ASTM	A671	Grade CA55	K02801	—	55/30	Fusion Welded Pipe	C
1	1	ASTM	A671	Grade CB60	K02401	—	60/32	Fusion Welded Pipe	C-Mn-Si
1	1	ASTM	A671	Grade CB65	K02800	—	65/35	Fusion Welded Pipe	C-Mn-Si
1	1	ASTM	A671	Grade CC60	K02100	—	60/32	Fusion Welded Pipe	C-Mn-Si
1	1	ASTM	A671	Grade CC65	K02403	—	65/35	Fusion Welded Pipe	C-Mn-Si
1	1	ASTM	A672	Grade A45	K01700	—	45/24	Fusion Welded Pipe	C
1	1	ASTM	A672	Grade A50	K02200	—	50/27	Fusion Welded Pipe	C
1	1	ASTM	A672	Grade A55	K02801	—	55/30	Fusion Welded Pipe	C
1	1	ASTM	A672	Grade B60	K02401	—	60/32	Fusion Welded Pipe	C-Si
1	1	ASTM	A672	Grade B65	K02800	—	65/35	Fusion Welded Pipe	C-Si

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
1	1	ASTM	A672	Grade C55	K01800	—	55/30	Fusion Welded Pipe	C-Mn-Si
1	1	ASTM	A672	Grade C60	K02100	—	60/32	Fusion Welded Pipe	C-Mn-Si
1	1	ASTM	A672	Grade C65	K02403	—	65/35	Fusion Welded Pipe	C-Mn-Si
1	1	ASTM	A672	Grade E60	K02402	—	60/32	Fusion Welded Pipe	C-Mn-Si
1	1	ASTM	A675	Grade 45	—	—	45/22.5	Bar	C
1	1	ASTM	A675	Grade 50	—	—	50/25	Bar	C
1	1	ASTM	A675	Grade 55	—	—	55/27.5	Bar	C
1	1	ASTM	A675	Grade 60	—	—	60/30	Bar	C
1	1	ASTM	A675	Grade 65	—	—	65/32.5	Bar	C
1	1	ASTM	A695	Type B	K03504	—	60/35	Bar	C-Mn-Si
1	1	ASTM	A696	Grade B	K03200	—	60/35	Bar	C-Mn-Si
1	1	ASTM	A707	Grade L1, Class 1	K02302	—	60/42	Forging	C-1Mn
1	1	ASTM	A707	Grade L2, Class 1	K03301	—	60/42	Forging	C-1Mn
1	1	ASTM	A707	Grade L3, Class 1	K12510	—	60/42	Forging	1.3Mn-V
1	1	ASTM	A707	Grade L4, Class 1	K12089	—	60/42	Forging	1.8Ni-0.55Mn-0.25Mo
1	1	ASTM	A707	Grade L5, Class 1	K20934	—	60/42	Forging	1.2Cu-0.9Ni-0.7Cr-0.5Mn
1	1	ASTM	A709	Grade 36	—	—	58/36	Plate, Bars & Shapes	C-Mn-Si
1	1	ASTM	A709	Grade 50	—	—	65/50	Plate, Bars & Shapes	C-Mn-Si
1	1	ASTM	A727	Grade 36	K02506	—	60/36	Forging	C-Mn-Si
1	1	ASTM	A765	Grade I	K03046	—	60/30	Forging	C-Mn-Si
1	1	ASTM	A808	—	K11852	≤ 1.5	65/50	Structural	C-Mn-Si-Cb-W
1	1	ASTM	A808	—	K11852	> 1.5 ≤ 2.0	65/46	Structural	C-Mn-Si-Cb-W
1	1	ASTM	A808	—	K11852	> 2.0 ≤ 2.5	60/42	Structural	C-Mn-Si-Cb-W
1	1	ASTM/AISI	A830	1006	G10060	—	40/20	Plate	C
1	1	ASTM/AISI	A830	1008	G10080	—	40/20	Plate	C
1	1	ASTM/AISI	A830	1009	G10090	—	40/20	Plate	C
1	1	ASTM/AISI	A830	1010	G10100	—	40/20	Plate	C
1	1	ASTM/AISI	A830	1012	G10120	—	40/20	Plate	C
1	1	ASTM/AISI	A830	1015	G10150	—	40/20	Plate	C

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
1	1	ASTM/AISI	A830	1016	G10160	—	40/20	Plate	C
1	1	ASTM/AISI	A830	1017	G10170	—	40/20	Plate	C
1	1	ASTM/AISI	A830	1018	G10180	—	43/25	Plate	C
1	1	ASTM/AISI	A830	1019	G10190	—	43/25	Plate	C
1	1	ASTM/AISI	A830	1020	G10200	—	43/25	Plate	C
1	1	ASTM/AISI	A830	1021	G10210	—	43/25	Plate	C
1	1	ASTM/AISI	A830	1022	G10220	—	43/25	Plate	C
1	1	ASTM/AISI	A830	1023	G10230	—	43/25	Plate	C
1	1	ASTM/AISI	A830	1025	G10250	—	50/30	Plate	C
1	1	ASTM	A836	Class 1	—	—	55/25	Forging	C-Si-Ti
1	1	ASTM	A857	Grade 25	—	—	38/25	Sheet Piling	1.5maxMn-0.35maxP-0.25maxC-0.2minCu
1	1	ASTM	A857	Grade 30	—	—	49/30	Sheet Piling	1.5maxMn-0.35maxP-0.25maxC-0.2minCu
1	1	ASTM	A857	Grade 33	—	—	52/33	Sheet Piling	1.5maxMn-0.35maxP-0.25maxC-0.2minCu
1	1	ASTM	A857	Grade 36	—	—	53/36	Sheet Piling	1.5maxMn-0.35maxP-0.25maxC-0.2minCu
1	1	ASTM	A935	Grade 45, Class 1	—	—	65/45	Sheet & Strip	C-Mn-Cb-V
1	1	ASTM	A935	Grade 45, Class 2	—	—	55/45	Sheet & Strip	C-Mn-Cb-V
1	1	ASTM	A935	Grade 50, Class 1	—	—	65/50	Sheet & Strip	C-Mn-Cb-V
1	1	ASTM	A935	Grade 50, Class 2	—	—	60/50	Sheet & Strip	C-Mn-Cb-V
1	1	ASTM	A984	Grade 35	—	—	60/35	Line Pipe	C
1	1	ASTM	A992	—	—	—	65/50	Structural Shapes	C-Mn-Si
1	1	ASTM	A1008	CS Type B				Sheet	
1	1	ASTM	A1008	DS Type B				Sheet	
1	1	ASTM	A1008	SS Grade 25				Sheet	
1	1	ASTM	A1008	SS Grade 30				Sheet	
1	1	ASTM	A1008	SS Grade 33 Type 1, 2				Sheet	
1	1	ASTM	A1008	SS Grade 40 Type 1, 2				Sheet	

Table IV-2—Ferrous Alloys (Continued)

Material Group	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition	
Steel and Steel Alloys									
1	1	ASTM	A1011	CS Type B			Sheet & Strip		
1	1	ASTM	A1011	DS Type B			Sheet & Strip		
1	1	ASTM	A1011	SS Grade 30			Sheet & Strip		
1	1	ASTM	A1011	SS Grade 33			Sheet & Strip		
1	1	ASTM	A1011	SS Grade 36			Sheet & Strip		
1	1	ASTM	A1011	SS Grade 40			Sheet & Strip		
1	1	ASTM	A1011	SS Grade 45			Sheet & Strip		
1	1	ASTM	A1011	SS Grade 50			Sheet & Strip		
1	1	ASTM	A1011	HSLAS Grade 45 Class 1			Sheet & Strip		
1	1	ASTM	A1011	HSLAS Grade 45 Class 2			Sheet & Strip		
1	1	ASTM	A1011	HSLAS Grade 50 Class 1			Sheet & Strip		
1	1	ASTM	A1011	HSLAS Grade 50 Class 2			Sheet & Strip		
1	1	ASTM	A1011	HSLAS Grade 55 Class 2			Sheet & Strip		
1	1	ABS	ABS	Grade A	K02300	—	58/34	Structural	C
1	1	ABS	ABS	Grade B	K02102	—	58/34	Structural	C
1	1	ABS	ABS	Grade D	K02101	—	58/34	Structural	C-Si
1	1	ABS	ABS	Grade E	K01801	—	58/34	Structural	C-Si
1	1	ABS	ABS	Grade AH32	K11846	—	64/46	Hull Steel	C-Mn-Si
1	1	ABS	ABS	Grade DH32	K11846	—	64/46	Hull Steel	C-Mn-Si
1	1	ABS	ABS	Grade EH32	K11846	—	64/46	Hull Steel	C-Mn-Si
1	1	ABS	ABS	Grade FH32	K11846	—	64/46	Hull Steel	C-Mn-Si
1	1	API	2H	Grade 42	—	—	62/42	Structural	C-Mn-Si
1	1	API	5L	Grade A25, Class I	—	—	45/25	Pipe & Tube	C-Mn
1	1	API	5L	Grade A25, Class II	—	—	45/25	Pipe & Tube	C-Mn
1	1	API	5L	Grade A	—	—	48/30	Pipe	C-Mn
1	1	API	5L	Grade B	—	—	60/35	Pipe	C-Mn
1	1	API	5L	Grade 42	—	—	60/42	Pipe	C-Mn
1	1	API	5LS	Grade X46	—	—	63/46	Pipe	C-Mn
1	1	API	2Y	Grade X42	—	—	62/42	Pipe	C-Mn

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
1	1	API	2Y	Grade 50	—	—	65/50	Pipe	C-Mn
1	1	CSA	G40.20/40.21	260W	—	—	60/38	Structural	C
1	1	CSA	G40.20/40.21	260WT	—	—	60/38	Structural	C
1	1	CSA	G40.20/40.21	300W	—	—	65/44	Structural	C-Mn-Cb-V
1	1	CSA	G40.20/40.21	300WT	—	—	65/44	Structural	C-Mn-Cb-V
1	1	CSA	Z245.1	172	—	—	45/25	Pipe	C
1	1	CSA	Z245.1	207	—	—	48/30	Pipe	C
1	1	CSA	Z245.1	241	—	—	60/35	Pipe	C
1	1	CSA	Z245.1	290	—	—	60/42	Pipe	C
1	1	CSA	Z245.11	207	—	—	48/30	Steel Fittings	C-Mn-Si
1	1	CSA	Z245.11	241	—	—	60/35	Steel Fittings	C-Mn-Si
1	1	CSA	Z245.11	290	—	—	60/42	Steel Fittings	C-Mn-Si
1	1	CSA	Z245.12	248	—	—	60/36	Steel Flanges	C-Mn-Si
1	1	CSA	Z245.12	290	—	—	60/42	Steel Flanges	C-Mn-Si
1	1	MSS	SP75	WPHY-42	—	—	60/42	Seamless & Welded Fittings	C-Mn
1	1	MSS	SP75	WPHY-46	—	—	63/46	Seamless & Welded Fittings	C-Mn
1	1	MSS	SP75	WPHY-52	—	—	66/52	Seamless & Welded Fittings	C-Mn
1	2	ASTM	A105	—	K03504	—	70/36	Pipe Flanges	C-Mn
1	2	ASTM	A106	Grade C	K03501	—	70/40	Seamless Pipe	C-Mn
1	2	ASTM	A131	Grade AH32	K11846	—	64/46	Structural	C-Mn-Si
1	2	ASTM	A131	Grade AH36	K11852	—	71/51	Structural	C-Mn-Si
1	2	ASTM	A131	Grade DH32	K11846	—	64/46	Structural	C-Mn-Si
1	2	ASTM	A131	Grade DH36	K11852	—	71/51	Structural	C-Mn-Si
1	2	ASTM	A131	Grade EH32	K11846	—	64/46	Structural	C-Mn-Si
1	2	ASTM	A131	Grade EH36	K11852	—	71/51	Structural	C-Mn-Si
1	2	ASTM	A139	Grade E	K03012	—	66/52	Welded Pipe	C-Mn
1	2	ASTM	A178	Grade D	—	—	70/40	ERW Tube	C-Mn
1	2	ASTM	A181	Class 70	K03502	—	70/36	Pipe Flanges	C-Si

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
1	2	ASTM	A210	Grade C	K03501	—	70/40	ERW Tube	C-Mn
1	2	ASTM	A216	Grade WCB	J03002	—	70/36	Castings	C-Si
1	2	ASTM	A216	Grade WCC	J02503	—	70/40	Castings	C-Mn-Si
1	2	ASTM	A234	Grade WPC	K03501	—	70/40	Pipe Fittings	C-Si
1	2	ASTM	A242	Type 1	K11510	≤ 3/4	70/50	Shapes, Plates & Bars	LowC-P-Cu
1	2	ASTM	A242	Type 1	K11510	> 3/4 ≤ 1.5	67/46	Shapes, Plates & Bars	LowC-P-Cu
1	2	ASTM	A242	Type 1	K11510	> 1.5 ≤ 4.0	63/42	Shapes, Plates & Bars	LowC-P-Cu
1	2	ASTM	A266	Grade 2	K03506	—	70/36	Seamless Forging	C-Si
1	2	ASTM	A266	Grade 3	K05001	—	75/37.5	Seamless Forging	C-Si
1	2	ASTM	A266	Grade 4	K03017	—	70/36	Seamless Forging	C-Mn-Si
1	2	ASTM	A299	Grade A	K02803	≤ 1.00	75/42	Plate	C-Mn-Si
1	2	ASTM	A299	Grade A	K02803	> 1.00	75/40	Plate	C-Mn-Si
1	2	ASTM	A350	Grade LF2	K03011	—	70/36	Forging	C-Mn-Si
1	2	ASTM	A350	Grade LF6, Class 1	K12202	—	66/52	Forging	1.3Mn-Si-V-N
1	2	ASTM	A350	Grade LF787, Class 2	—	—	65/55	Forging	1.15Cu-0.85Ni-0.75Cr-0.5Mn
1	2	ASTM	A352	Grade LCC	J02505	—	70/40	Castings	C-Mn-Si
1	2	ASTM	A372	Grade B	K04001	—	75/45	Forging	C-Mn-Si
1	2	ASTM	A381	Class Y50	—	—	64/50	Pipe	C-Mn
1	2	ASTM	A381	Class Y52	—	—	66/52	Pipe	C-Mn
1	2	ASTM	A381	Class Y56	—	—	71/56	Pipe	C-Mn
1	2	ASTM	A414	Grade F	K03102	—	70/42	Sheet	C-Mn
1	2	ASTM	A414	Grade G	K03103	—	75/45	Sheet	C-Mn
1	2	ASTM	A455		K03300	≤ 0.375	75/38	Plate	C-Mn
1	2	ASTM	A455		K03300	> 0.375 ≤ 0.580	73/37	Plate	C-Mn
1	2	ASTM	A455		K03300	> 0.580 ≤ 0.750	70/35	Plate	C-Mn
1	2	ASTM	A487	Grade 16A	J31200	—	70/40	Castings	Low-C-Mn-Ni
1	2	ASTM	A508	Grade 1	K13502	—	70/36	Forging	C-Si
1	2	ASTM	A508	Grade 1A	K13502	—	70/36	Forging	C-Mn-Si
1	2	ASTM	A512	Grade 1030	G10300	—	75/55	Mechanical Tube	C

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
1	2	ASTM	A513	Grade 1020 CW	G10200	—	62/45	Mechanical Tube	C
1	2	ASTM	A513	Grade 1025 CW	G10250	—	62/45	Mechanical Tube	C
1	2	ASTM	A513	Grade 1026	G10260	—	70/55	Mechanical Tube	C
1	2	ASTM	A513	Grade 1030	G10300	—	75/55	Mechanical Tube	C
1	2	ASTM	A515	Grade 70	K03101	—	70/38	Plate	C-Si
1	2	ASTM	A516	Grade 70	K02700	—	70/38	Plate	C-Mn-Si
1	2	ASTM	A519	Grade 1030	G10300	—	75/55	Mechanical Tube	C
1	2	ASTM	A521	Class CE	—	—	75/37	Forging	C
1	2	ASTM	A529	Grade 50		≤1.5	65/50	Shapes	1.35maxMn-0.27maxC
1	2	ASTM	A529	Grade 50		<1.0	70/50	Plates	1.35maxMn-0.27maxC
1	2	ASTM	A529	Grade 50		<3.5	70/50	Bars	1.35maxMn-0.27maxC
1	2	ASTM	A529	Grade 55		≤1.5	70/55	Shapes	1.35maxMn-0.27maxC
1	2	ASTM	A529	Grade 55		<1.0	70/55	Plates	1.35maxMn-0.27maxC
1	2	ASTM	A529	Grade 55		<3.0	70/55	Bars	1.35maxMn-0.27maxC
1	2	ASTM	A537	Class 1	K02400	≤ 2.5	70/50	Plate	C-Mn-Si
1	2	ASTM	A537	Class 1	K02400	> 2.5 ≤ 4.0	65/45	Plate	C-Mn-Si
1	2	ASTM	A541	Grade 1	K03506	—	70/36	Forging	C-Mn-Si
1	2	ASTM	A541	Grade 1A	—	—	70/36	Forging	C-Mn-Si
1	2	ASTM	A556	Grade C2	K03006	—	70/40	Seamless Tube	C-Mn-Si
1	2	ASTM	A557	Grade C2	K03505	—	70/40	ERW Tube	C-Mn
1	2	ASTM	A572	Grade 55	—	—	70/55	Plate & Shapes	C-Mn-Si
1	2	ASTM	A573	Grade 70	K02701	—	70/42	Improved Toughness Plate	C-Mn-Si
1	2	ASTM	A588	Grade A	K11430	≤ 4	70/50	Plate & Bars	C-Mn-Ni-Cu-Cr-V
1	2	ASTM	A588	Grade A	K11430	> 4.0 ≤ 5.0	67/46	Plate & Bars	C-Mn-Ni-Cu-Cr-V
1	2	ASTM	A588	Grade A	K11430	> 5.0 ≤ 8.0	63/42	Plate & Bars	C-Mn-Ni-Cu-Cr-V
1	2	ASTM	A588	Grade B	K12043	≤ 4	70/50	Plate & Bars	C-Mn-Ni-Cu-Cr-V
1	2	ASTM	A588	Grade B	K12043	> 4.0 ≤ 5.0	67/46	Plate & Bars	C-Mn-Ni-Cu-Cr-V
1	2	ASTM	A588	Grade B	K12043	> 5.0 ≤ 8.0	63/42	Plate & Bars	C-Mn-Ni-Cu-Cr-V
1	2	ASTM	A588	Grade C	K11538	≤ 4	70/50	Plate & Bars	C-Mn-Ni-Cu-Cr-V

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
1	2	ASTM	A588	Grade C	K11538	$> 4.0 \leq 5.0$	67/46	Plate & Bars	C-Mn-Ni-Cu-Cr-V
1	2	ASTM	A588	Grade C	K11538	$> 5.0 \leq 8.0$	63/42	Plate & Bars	C-Mn-Ni-Cu-Cr-V
1	2	ASTM	A588	Grade K	—	≤ 4	70/50	Plate & Bars	C-Mn-Ni-Cu-Cr-Cb
1	2	ASTM	A588	Grade K	—	$> 4.0 \leq 5.0$	67/46	Plate & Bars	C-Mn-Ni-Cu-Cr-Cb
1	2	ASTM	A588	Grade K	—	$> 5.0 \leq 8.0$	63/42	Plate & Bars	C-Mn-Ni-Cu-Cr-Cb
1	2	ASTM	A588	All Grades	—	—	70/50	Structural Shapes	C-Mn-Ni-Cu-Cr-Cb
1	2	ASTM	A595	Grade A	K02004	—	65/55	Tapered Tube	C-Mn
1	2	ASTM	A595	Grade B	K02005	—	70/60	Tapered Tube	C-Mn
1	2	ASTM	A606	Annealed or Norm	—	—	65/45	Hot Rolled Sheet & Strip	C-Mn
1	2	ASTM	A606	As Rolled	—	—	70/50	Hot Rolled Sheet & Strip	C-Mn
1	2	ASTM	A606	As Rolled	—	—	65/45	Cold Rolled Sheet & Strip	C-Mn
1	2	ASTM	A607	Grade 45	—	—	60/45	Sheet & Strip	C-Mn-Cb-V
1	2	ASTM	A618	Grade 1a	—	$\leq .75$	70/50	HSLA Tube	C-Mn
1	2	ASTM	A618	Grade 1a	—	$> .75 \leq 1.5$	67/46	HSLA Tube	C-Mn
1	2	ASTM	A618	Grade 1b	K02601	$\leq .75$	70/50	HSLA Tube	C-Mn-Cu
1	2	ASTM	A618	Grade 1b	K02601	$> .75 \leq 1.5$	67/46	HSLA Tube	C-Mn-Cu
1	2	ASTM	A618	Grade II	K12609	$\leq .75$	70/50	Tube	Mn-Cu-V
1	2	ASTM	A618	Grade II	K12609	$> .75 \leq 1.5$	70/50	Tube	Mn-Cu-V
1	2	ASTM	A633	Grade C	K12000	≤ 2.5	70/50	HSLA Steel	C-Mn-Si-Cb
1	2	ASTM	A633	Grade C	K12000	$> 2.5 \leq 4.0$	65/46	HSLA Steel	C-Mn-Si-Cb
1	2	ASTM	A633	Grade D	K12037	≤ 2.5	70/50	HSLA Steel	C-Mn-Si
1	2	ASTM	A633	Grade D	K12037	$> 2.5 \leq 4.0$	65/46	HSLA Steel	C-Mn-Si
1	2	ASTM	A656	Grade 70	K11804	≤ 1	80/70	Hi-Str. Lo-Alloy Plate	1.65maxMn-0.6Si-0.18maxC
1	2	ASTM	A660	Grade WCB	J03003	—	70/36	Centrifugal Cast Pipe	C-Si
1	2	ASTM	A660	Grade WCC	J02505	—	70/40	Centrifugal Cast Pipe	C-Si
1	2	ASTM	A662	Grade C	K02007	—	70/43	Plate	C-Mn-Si
1	2	ASTM	A668	Class D	G10300	—	75/37.5	Forging	C-Mn
1	2	ASTM	A671	Grade CB70	K03101	—	70/38	Fusion Welded Pipe	C-Si
1	2	ASTM	A671	Grade CC70	K02700	—	70/38	Fusion Welded Pipe	C-Mn-Si

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
1	2	ASTM	A671	Grade CD70	K02400	—	70/50	Fusion Welded Pipe	C-Mn-Si
1	2	ASTM	A671	Grade CK75	K02803	—	75/40	Fusion Welded Pipe	C-Mn-Si
1	2	ASTM	A672	Grade B70	K03101	—	70/38	Fusion Welded Pipe	C-Si
1	2	ASTM	A672	Grade C70	K02700	—	70/38	Fusion Welded Pipe	C-Mn-Si
1	2	ASTM	A672	Grade D70	K02400	—	70/50	Fusion Welded Pipe	C-Mn-Si
1	2	ASTM	A672	Grade N75	K02803	—	75/40	Fusion Welded Pipe	C-Mn-Si
1	2	ASTM	A675	Grade 70	—	—	70/35	Bar	C
1	2	ASTM	A675	Grade 75	—	—	75/37.5	Bar	C
1	2	ASTM	A678	Grade B	K02002	≤ 2.5	80/60	Structural Plate	1.0Mn-0.33Si (>1.5=1.3Mn-0.33Si)
1	2	ASTM	A678	Grade A	K01600	≤ 1.5	70/50	Structural Plate	1.2Mn-0.33Si
1	2	ASTM	A690		K12249	≤ 4	70/50	Marine Piling-Plate & Bar	0.75Mn-0.58Ni-0.12P
1	2	ASTM	A691	Grade CMSH-70	K02400	—	70/50	Fusion Welded Pipe	C-Mn-Si
1	2	ASTM	A691	Grade CMS-75	K02803	—	75/40	Fusion Welded Pipe	C-Mn-Si
1	2	ASTM	A695	Type B, Grade 40	K03504	—	70/40	Bar	C-Mn-Si
1	2	ASTM	A696	Grade C	K03200	—	70/40	Bar	C
1	2	ASTM	A707	Grade L1, Class 2	K02302	—	66/52	Forging	C-1Mn
1	2	ASTM	A707	Grade L2, Class 2	K03301	—	66/52	Forging	C-1Mn
1	2	ASTM	A707	Grade L3, Class 2	K12510	—	66/52	Forging	1.3Mn-V-N
1	2	ASTM	A707	Grade L4, Class 3	K12089	—	75/60	Forging	1.8Ni-0.55Mn-0.25Mo
1	2	ASTM	A707	Grade L4, Class 2	K12089	—	66/52	Forging	1.8Ni-0.55Mn-0.25Mo
1	2	ASTM	A707	Grade L5, Class 2	K20934	—	66/55	Forging	1.2Cu-0.9Ni-0.7Cr-0.5Mn
1	2	ASTM	A709	Grade 50W	—	—	70/50	Plate, Bars & Shapes	C-Mn-Cr-Si
1	2	ASTM	A737	Grade B	K12001	—	70/50	Plate	C-Mn-Si-Cb
1	2	ASTM	A738	Grade A	K12447	—	75/45	Plate	C-Mn-Si
1	2	ASTM	A765	Grade II	K03047	—	70/36	Forging	C-Mn-Si
1	2	ASTM	A913	Grade 50	—	—	65/50	Structural	C-Mn
1	2	ASTM	A935	Grade 55 Class 1	—	—	70/55	Sheet & Strip	
1	2	ASTM	A935	Grade 55, Class 2	—	—	65/55	Sheet & Strip	C-Mn-Cb-V
1	2	ASTM	A935	Grade 60, Class 1	—	—	75/60	Sheet & Strip	C-Mn-Cb-V

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
1	2	ASTM	A935	Grade 60, Class 2	—	—	70/60	Sheet & Strip	C-Mn-Cb-V
1	2	ASTM	A984	Grade 45	—	—	65/45	Line Pipe	C
1	2	ASTM	A984	Grade 55	—	—	70/55	Line Pipe	C
1	2	ASTM	A984	Grade 65	—	—	75/65	Line Pipe	C
1	2	ASTM	A1011	SS Grade 55			70/55	Sheet & Strip	
1	2	ASTM	A1011	HSLAS Grade 55 cl 1			70/55	Sheet & Strip	
1	2	ASTM	A1011	HSLAS Grade 60 cl 2			70/60	Sheet & Strip	
1	2	ABS	ABS	Grade AH36	K11852	—	71/51	Hull Steel	C-Mn-Si
1	2	ABS	ABS	Grade DH36	K11852	—	71/51	Hull Steel	C-Mn-Si
1	2	ABS	ABS	Grade EH36	K11852	—	71/51	Hull Steel	C-Mn-Si
1	2	ABS	ABS	Grade FH36	K11852	—	71/51	Hull Steel	C-Mn-Si
1	2	API	2H	Grade 50	—	—	70/50	Structural	C-Mn-Si
1	2	API	5L	Grade X52	—	—	66/52	Pipe	C-Mn
1	2	API	5L	Grade X56	—	—	71/56	Pipe	C-Mn-Cb-V-Ti
1	2	API	5L	Grade X60	—	—	75/60	Pipe	C-Mn-Cb-V-Ti
1	2	API	2Y	Grade 50T	—	—	70/50	Pipe	
1	2	CSA	G40.20/40.21	350A	—	—	70/50	HSLA Steel	C-Mn
1	2	CSA	G40.20/40.21	350AT	—	—	70/50	HSLA Steel	C-Mn
1	2	CSA	G40.20/40.21	350R	—	—	70/50	HSLA Steel	C-Mn
1	2	CSA	G40.20/40.21	350W	—	—	65/50	Structural	C-Mn
1	2	CSA	G40.20/40.21	350WT	—	—	70/50	Structural	C-Mn
1	2	CSA	G40.20/40.21	380W	—	—	70/55	Structural	C-Mn-Si-Cb-V
1	2	CSA	G40.20/40.21	380WT	—	—	70/55	Structural	C-Mn-Si-Cb-V
1	2	CSA	G40.20/40.21	400A	—	—	75/60	HSLA Steel	C-Mn-Si-Cb-V
1	2	CSA	G40.20/40.21	400AT	—	—	75/60	HSLA Steel	C-Mn-Si-Cb-V
1	2	CSA	G40.20/40.21	400W	—	—	75/60	HSLA Steel	C-Mn-Si-Cb-V
1	2	CSA	G40.20/40.21	400WT	—	—	75/60	HSLA Steel	C-Mn-Si-Cb-V
1	2	CSA	G40.20/40.21	550A	—	—	90/80	Structural Steel	C-Mn-Cb-V
1	2	CSA	G40.20/40.21	550AT	—	—	90/80	Structural Steel	C-Mn-Cb-V

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
1	2	CSA	G40.20/40.21	550W	—	—	90/80	Structural Steel	C-Mn-Cb-V
1	2	CSA	G40.20/40.21	550WT	—	—	90/80	Structural Steel	C-Mn-Cb-V
1	2	CSA	Z245.1	317	—	—	63/46	Pipe	C-Mn
1	2	CSA	Z245.1	359	—	—	66/52	Pipe	C-Mn
1	2	CSA	Z245.1	386	—	—	71/56	Pipe	C-Mn
1	2	CSA	Z245.11	317	—	—	63/46	Steel Fittings	C-Mn-Si
1	2	CSA	Z245.11	359	—	—	66/52	Steel Fittings	C-Mn-Si
1	2	CSA	Z245.11	386	—	—	71/56	Steel Fittings	C-Mn-Si
1	2	CSA	Z245.12	317	—	—	63/46	Steel Flanges	C-Mn-Si
1	2	CSA	Z245.12	359	—	—	66/52	Steel Flanges	C-Mn-Si
1	2	CSA	Z245.12	386	—	—	71/56	Steel Flanges	C-Mn-Si
1	2	MSS	SP75	WPHY-56	—	—	71/56	Seamless & Welded Fittings	C-Mn
1	2	MSS	SP75	WPHY-60	—	—	75/60	Seamless & Welded Fittings	C-Mn
1	2	MSS	SP75	WPHY-65	—	—	77/65	Seamless & Welded Fittings	C-Mn
1	3	ASTM	A333	Grade 10	—	—	80/65	Pipe	C-Mn-Si-V-Cb
1	3	ASTM	A350	Grade LF6, Class 2	K12202	—	75/60	Forging	1.3Mn-Si-V-N
1	3	ASTM	A350	Grade LF6, Class 3	K12202	—	75/60	Forging	1.3Mn-Si-V-N
1	3	ASTM	A537	Class 2	K02400	≤ 2.5	80/60	Plate	C-Mn-Si
1	3	ASTM	A537	Class 2	K02400	> 2.5 ≤ 4.0	75/55	Plate	C-Mn-Si
1	3	ASTM	A537	Class 2	K02400	> 4.0 ≤ 6.0	70/46	Plate	C-Mn-Si
1	3	ASTM	A537	Class 3	K02400	≤ 2.5	80/55	Plate	C-Mn-Si
1	3	ASTM	A537	Class 3	K02400	> 2.5 ≤ 4.0	75/50	Plate	C-Mn-Si
1	3	ASTM	A537	Class 3	K02400	> 4.0 ≤ 6.0	70/40	Plate	C-Mn-Si
1	3	ASTM	A572	Grade 60	K02305	—	75/60	Plate & Bars	C-Mn-Si-Cb-V
1	3	ASTM	A572	Grade 65	K02306	—	80/65	Shapes	C-Mn-Si-Cb-V
1	3	ASTM	A607	Grade 60	—	—	75/60	Sheet & Strip	C-Mn-Cb-V
1	3	ASTM	A607	Grade 65	—	—	80/65	Sheet & Strip	C-Mn-Cb-V
1	3	ASTM	A607	Grade 70	—	—	85/70	Sheet & Strip	C-Mn-Cb-V

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
1	3	ASTM	A611	Grade E	G10170	—	82/80	Sheet & Strip	C-Mn
1	3	ASTM	A633	Grade E	K12202	≤ 4.0	80/60	HSLA Steel	C-Mn-Si-N
1	3	ASTM	A633	Grade E	K12202	> 4.0 ≤ 6.0	75/55	HSLA Steel	C-Mn-Si-N
1	3	ASTM	A656	Grade 80	K11804	≤ 0.75	90/80	Hi-Str. Lo-Alloy Plate	1.65maxMn-0.6Si-0.18maxC
1	3	ASTM	A663	Grade 70	—	—	70/39	Flat, Round, Square & Hex. Bar & Shapes	C
1	3	ASTM	A663	Grade 75	—	—	75/41	Flat, Round, Square & Hex. Bar & Shapes	C
1	3	ASTM	A663	Grade 80	—	—	80/44	Flat, Round, Square & Hex. Bar & Shapes	C
1	3	ASTM	A668	Class F	—	≤ 4.0	90/55	Forging	C-Mn
1	3	ASTM	A668	Class F	—	> 4.0 ≤ 10.0	85/50	Forging	C-Mn
1	3	ASTM	A668	Class F	—	> 10.0 ≤ 20.0	82/48	Forging	C-Mn
1	3	ASTM	A671	Grade CD80	K02400	—	80/60	Fusion Welded Pipe	C-Mn-Si
1	3	ASTM	A672	Grade D80	K02400	—	80/65	Fusion Welded Pipe	C-Mn-Si
1	3	ASTM	A678	Grade C	K02204	≤ 0.75	95/75	Structural-Plate	1.3Mn-0.35Si
1	3	ASTM	A678	Grade C	K02204	>0.75, ≤ 1.5	90/70	Structural-Plate	1.3Mn-0.35Si
1	3	ASTM	A678	Grade C	K02204	>1.5, ≤ 2.0	85/65	Structural-Plate	1.3Mn-0.35Si
1	3	ASTM	A678	Grade D	K12202	≤ 3	90/75	Structural-Plate	1.33Mn-0.33Si-0.75V-0.20N
1	3	ASTM	A691	Grade CMSH-80	K02400	—	80/60	Fusion Welded Pipe	C-Mn-Si
1	3	ASTM	A707	Grade L2, Class 3	K03301	—	75/60	Forging	C-1Mn
1	3	ASTM	A707	Grade L3, Class 3	K12510	—	75/60	Forging	1.3Mn-V-N
1	3	ASTM	A707	Grade L5, Class 3	K20934	—	75/60	Forging	1.2Cu-0.9Ni-0.7Cr-0.5Mn
1	3	ASTM	A710	Grade A, Class 3	K20747	≤ 2.00	85/75	Plate	Ni-Cu-Cr-Mo-Cb
1	3	ASTM	A710	Grade A, Class 3	K20747	> 2.00 ≤ 4.00	75/65	Plate	Ni-Cu-Cr-Mo-Cb
1	3	ASTM	A710	Grade A, Class 3	K20747	> 4.00	70/60	Plate	Ni-Cu-Cr-Mo-Cb
1	3	ASTM	A737	Grade C	K12202	—	80/60	Plate	C-Mn-Si-V
1	3	ASTM	A738	Grade B	K12447	—	85/60	Plate	C-Mn-Si
1	3	ASTM	A738	Grade C	—	≤ 2.5	80/60	Plate	C-Mn-Si
1	3	ASTM	A738	Grade C	—	> 2.500 ≤ 4.00	75/55	Plate	C-Mn-Si

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
1	3	ASTM	A738	Grade C	—	> 4.0 ≤ 6.0	70/46	Plate	C-Mn-Si
1	3	ASTM	A765	Grade IV	K03046	—	80/50	Forging	C-Mn-Si
1	3	ASTM	A913	Grade 60	—	—	75/60	Structural Shapes	C-Mn
1	3	ASTM	A913	Grade 65	—	—	80/65	Structural Shapes	C-Mn
1	3	ASTM	A935	Grade 65, Class 1	—	—	80/65	Sheet & Strip	C-Mn-Cb-V
1	3	ASTM	A935	Grade 65, Class 2	—	—	75/65	Sheet & Strip	C-Mn-Cb-V
1	3	ASTM	A935	Grade 70, Class 1	—	—	85/70	Sheet & Strip	C-Mn-Cb-V
1	3	ASTM	A935	Grade 70, Class 2	—	—	80/70	Sheet & Strip	C-Mn-Cb-V
1	3	ASTM	A1008	SS Grade 80			82/80	Sheet	
1	3	ASTM	A1008	HSLAS Grade 70 cl 2			80/70	Sheet	
1	3	ASTM	A1011	HSLAS Grade 60 cl 1			75/60	Sheet & Strip	
1	3	ASTM	A1011	HSLAS Grade 65 cl 1			80/65	Sheet & Strip	
1	3	ASTM	A1011	HSLAS Grade 65 cl 2			75/65	Sheet & Strip	
1	3	ABS	ABS	Grade AH40	K11857	—	74/57	Structural	C-Mn-Si
1	3	ABS	ABS	Grade DH40	K11857	—	74/57	Structural	C-Mn-Si
1	3	ABS	ABS	Grade EH40	K11857	—	74/57	Structural	C-Mn-Si
1	3	ABS	ABS	Grade FH40	K11857	—	74/57	Structural	C-Mn-Si
1	3	API	5L	Grade X65	—	—	77/65	Pipe	C-Mn-Cb-V-Ti
1	3	API	5L	Grade X70	—	—	82/70	Pipe	C-Mn-Cb-V-Ti
1	3	CSA	G40.20/40.21	480A	—	—	85/70	HSLA Steel	C-Mn-Si-Cb-V
1	3	CSA	G40.20/40.21	480AT	—	—	85/70	HSLA Steel	C-Mn-Si-Cb-V
1	3	CSA	G40.20/40.21	480W	—	—	85/70	HSLA Steel	C-Mn-Si-Cb-V
1	3	CSA	G40.20/40.21	480WT	—	—	85/70	HSLA Steel	C-Mn-Si-Cb-V
1	3	CSA	Z245.1	414	—	—	75/60	Pipe	C-Mn
1	3	CSA	Z245.1	448	—	—	77/65	Pipe	C-Mn
1	3	CSA	Z245.1	483	—	—	82/70	Pipe	C-Mn
1	3	CSA	Z245.11	414	—	—	75/60	Steel Fittings	C-Mn-Si
1	3	CSA	Z245.11	448	—	—	77/65	Steel Fittings	C-Mn-Si
1	3	CSA	Z245.11	483	—	—	82/70	Steel Fittings	C-Mn-Si

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
1	3	CSA	Z245.12	414	—	—	75/60	Steel Flanges	C-Mn-Si
1	3	CSA	Z245.12	448	—	—	77/65	Steel Flanges	C-Mn-Si
1	3	CSA	Z245.12	483	—	—	82/70	Steel Flanges	C-Mn-Si
1	3	MSS	SP75	WPHY-70	—	—	82/70	Seamless & Welded Fittings	C-Mn
1	4	ASTM	A707	Grade L5, Class 4	K20934	—	90/75	Forging	1.2Cu-0.9Ni-0.7Cr-0.5Mn
1	4	ASTM	A724	Grade A	K11831	—	90/70	Plate	C-Mn-Si
1	4	ASTM	A724	Grade B	K12031	—	95/75	Plate	C-Mn-Si
1	4	ASTM	A724	Grade C	K12037	—	90/70	Plate	C-Mn-Si
1	4	ASTM	A913	Grade 70	—	—	90/70	Structural Shapes	1.6maxMn-0.16maxC
1	4	ASTM	A935	Grade 70, Class 1	—	—	85/70	Sheet & Strip	C-Mn-Cb-V
1	4	ASTM	A984	Grade 85	—	—	90/80	Line Pipe	C
1	4	ASTM	A1008	HSLAS Grade 70 cl 1	—	—	85/70	Sheet	
1	4	ASTM	A1011	HSLAS Grade 70 cl 1	—	—	85/70	Sheet & Strip	
1	4	ASTM	A1011	HSLAS Grade 70 cl 2	—	—	80/70	Sheet & Strip	
1	4	API	5L	Grade X80	—	—	90/80	Pipe	C-Mn
1	4	CSA	Z245.1	550	—	—	90/80	Pipe	C-Mn
1	4	CSA	Z245.11	550	—	—	90/80	Steel Fittings	C-Mn-Si
1A	4	ASTM	A615	Grade 40	—	—	60/40	Rebar	C
1A	4	ASTM	A615	Grade 60	—	—	90/60	Rebar	C
1A	4	ASTM	A706	—	K03011	—	80/60	Rebar	C
1A	4	CSA	G30.18	300R	—	—	60/40	Rebar	C
1A	4	CSA	G30.18	400R	—	—	80/50	Rebar	C
1A	4	CSA	G30.18	500R	—	—	90/60	Rebar	C
1A	4	CSA	G30.18	400W	—	—	80/60	Rebar	C
1A	4	CSA	G30.18	500W	—	—	90/70	Rebar	C
3	1	ASTM	A161	Grade T1	K11522	—	55/30	Tube	C-Mo

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
3	1	ASTM	A204	Grade A	K11820	—	65/37	Plate	C-0.5Mo
3	1	ASTM	A209	Grade T1a	K12023	—	60/32	Seamless Tube	C-0.5Mo
3	1	ASTM	A209	Grade T1b	K11422	—	53/28	Seamless Tube	C-0.5Mo
3	1	ASTM	A209	Grade T1	K11522	—	55/30	Seamless Tube	C-0.5Mo
3	1	ASTM	A213	Grade T2	K11547	—	60/30	Seamless Tube	0.5Cr-0.5Mo
3	1	ASTM	A217	Grade WC1	J12524	—	65/35	Castings	C-0.5Mo
3	1	ASTM	A234	Grade WP1	K12821	—	55/30	Pipe Fittings	C-0.5Mo
3	1	ASTM	A250	Grade T1a	K12023	—	60/32	ERW Tube	C-0.5Mo
3	1	ASTM	A250	Grade T2	K11547	—	60/30	ERW Tube	0.5Cr-0.5Mo
3	1	ASTM	A250	Grade T1	K11522	—	55/30	ERW Tube	C-0.5Mo
3	1	ASTM	A250	Grade T1b	K11422	—	53/28	ERW Tube	C-0.5Mo
3	1	ASTM	A335	Grade P1	K11522	—	55/30	Seamless Pipe	C-0.5Mo
3	1	ASTM	A335	Grade P2	K11547	—	55/30	Seamless Pipe	0.5Cr-0.5Mo
3	1	ASTM	A335	Grade P15	K11578	—	60/30	Seamless Pipe	1.5Si-0.5mo
3	1	ASTM	A352	Grade LC1	J12522	—	65/35	Castings	C-0.5Mo
3	1	ASTM	A369	Grade FP2	K11547	—	55/30	Pipe	0.5Cr-0.5Mo
3	1	ASTM	A369	Grade FP1	K11522	—	55/30	Pipe	C-0.5Mo
3	1	ASTM	A387	Grade 2, Class 1	K12143	—	55/33	Plate	0.5Cr-0.5Mo
3	1	ASTM	A426	Grade CP1	J12521	—	65/35	Centrifugal Cast Pipe	C-0.5Mo
3	1	ASTM	A426	Grade CP15	J11522	—	60/30	Centrifugal Cast Pipe	C-0.5Mo-Si
3	1	ASTM	A426	Grade CP2	J11547	—	60/30	Centrifugal Cast Pipe	0.5Cr-0.5Mo
3	1	ASTM	A595	Grade C	K11526	—	70/60	Tapered Tube	Mn-Ni-Cr-Cu-Cb
3	1	ASTM	A672	Grade L65	K11820	—	65/37	Fusion Welded Pipe	C-0.5Mo
3	1	ASTM	A691	Grade 1/2 CR, Class 1	K12143	—	55/33	Fusion Welded Pipe	0.5Cr-0.5Mo
3	1	ASTM	A691	Grade CM-65	K11820	—	65/37	Fusion Welded Pipe	C-0.5Mo
3	1	ASTM	A707	Grade L6, Class 1	K02902	—	60/42	Forging	2Mn-0.3Mo-Cb
3	1	ASTM	A945	Grade 50	—	—	70/50	Plate	LowC-Mn
3	2	ASTM	A182	Grade F1	K12822	—	70/40	Pipe Flanges & Fittings	C-0.5Mo

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
3	2	ASTM	A182	Grade F2	K12122	—	70/40	Pipe Flanges & Fittings	0.5Cr-0.5Mo
3	2	ASTM	A204	Grade B	K12020	—	70/40	Plate	C-0.5Mo
3	2	ASTM	A204	Grade C	K12320	—	75/43	Plate	C-0.5Mo
3	2	ASTM	A302	Grade A	K12021	—	75/45	Plate	Mn-0.5Mo
3	2	ASTM	A336	Grade F1	K12520	—	70/40	Forging	C-0.5Mo
3	2	ASTM	A387	Grade 2, Class 2	K12143	—	70/45	Plate	0.5Cr-0.5Mo
3	2	ASTM	A672	Grade H75	K12021	—	75/45	Fusion Welded Pipe	Mn-0.5Mo
3	2	ASTM	A672	Grade L70	K12020	—	70/40	Fusion Welded Pipe	C-0.5Mo
3	2	ASTM	A672	Grade L75	K12320	—	75/43	Fusion Welded Pipe	C-0.5Mo
3	2	ASTM	A691	Grade CM-70	K12020	—	70/40	Fusion Welded Pipe	C-0.5Mo
3	2	ASTM	A691	Grade CM-75	K12320	—	75/43	Fusion Welded Pipe	C-0.5Mo
3	2	ASTM	A691	Grade 1/2 CR, Class 2	K12143	—	70/45	Fusion Welded Pipe	0.5Cr-0.5Mo
3	2	ASTM	A871	Grade 60	—	—	75/60	Plate	C-Mn-Ni-Cu-Cr-V
3	2	ASTM	A707	Grade L6, Class 2	K02902	—	66/52	Forging	2Mn-0.3Mo-Cb
3	2	ASTM	A945	Grade 65	—	—	78/65	Plate	LowC-Mn
3	3	ASTM	A302	Grade B	K12022	—	80/50	Plate & Sheet	Mn-0.5Mo
3	3	ASTM	A302	Grade C	K12039	—	80/50	Plate & Sheet	Mn-0.5Mo-0.5Ni
3	3	ASTM	A302	Grade D	K12054	—	80/50	Plate & Sheet	Mn-0.5Mo-0.75Ni
3	3	ASTM	A487	Grade 4, Class C	J13047	—	90/60	Castings	0.5Ni-0.5Cr-0.25Mo-V
3	3	ASTM	A508	Grade 2, Class 1	K12766	—	80/50	Forging	0.75Ni-0.5Mo-0.3Cr-V
3	3	ASTM	A508	Grade 2, Class 2	K12766	—	90/65	Forging	0.75Ni-0.5Mo-0.3Cr-V
3	3	ASTM	A508	Grade 3, Class 1	K12042	—	80/50	Forging	0.75Ni-0.5Mo-Cr-V
3	3	ASTM	A508	Grade 3, Class 2	K12042	—	90/65	Forging	0.75Ni-0.5Mo-Cr-V
3	3	ASTM	A508	Grade 4N, Class 3	K22375	—	90/70	Forging	30.5Ni-2.75Cr-0.5Mo-V
3	3	ASTM	A533	Type A, Class 1	K12521	—	80/50	Plate	Mn-0.5Mo
3	3	ASTM	A533	Type A, Class 2	K12521	—	90/70	Plate	Mn-0.5Mo
3	3	ASTM	A533	Type B, Class 1	K12539	—	80/50	Plate	Mn-0.5Mo-0.5Ni
3	3	ASTM	A533	Type B, Class 2	K12539	—	90/70	Plate	Mn-0.5Mo-0.5Ni

Table IV-2—Ferrous Alloys (Continued)

Material Group	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition	
Steel and Steel Alloys									
3	3	ASTM	A533	Type C, Class 1	K12554	—	80/50	Plate	Mn-0.5Mo-0.75Ni
3	3	ASTM	A533	Type C, Class 2	K12554	—	90/70	Plate	Mn-0.5Mo-0.75Ni
3	3	ASTM	A533	Type D, Class 1	K12529	—	80/50	Plate	Mn-0.5Mo-0.25Ni
3	3	ASTM	A533	Type D, Class 2	K12529	—	90/70	Plate	Mn-0.5Mo-0.25Ni
3	3	ASTM	A541	Grade 2, Class 1	K12765	—	80/50	Forging	0.75Ni-0.5Mo-0.3Cr-V
3	3	ASTM	A541	Grade 2, Class 2	K12765	—	90/65	Forging	0.75Ni-0.5Mo-0.3Cr-V
3	3	ASTM	A541	Grade 3, Class 1	K12045	—	80/50	Forging	0.5Ni-0.5Mo-V
3	3	ASTM	A541	Grade 3, Class 2	K12045	—	90/65	Forging	0.5Ni-0.5Mo-V
3	3	ASTM	A672	Grade J80	K12554	—	80/50	Fusion Welded Pipe	Mn-0.5Mo-0.75Ni
3	3	ASTM	A672	Grade J90	K12554	—	90/70	Fusion Welded Pipe	Mn-0.5Mo-0.75Ni
3	3	ASTM	A672	Grade H80	K12022	—	80/50	Fusion Welded Pipe	Mn-0.5Mo
3	3	ASTM	A707	Grade L6, Class 3	K02902	—	75/60	Forging	2Mn-0.3Mo-Cb
3	3	ASTM	A871	Grade 65	—	—	80/65	Plate	C-Mn-Ni-Cu-Cr-V
3	4	ASTM	A707	Grade L6, Class 4	K02902	—	90/75	Forging	2Mn-0.3Mo-Cb
4	1	ASTM	A182	Grade F11, Class 1	K11597	—	60/30	Pipe Flanges & Fittings	1.25Cr-0.5Mo-Si
4	1	ASTM	A182	Grade F11, Class 2	K11572	—	70/40	Pipe Flanges & Fittings	1.25Cr-0.5Mo-Si
4	1	ASTM	A182	Grade F11, Class 3	K11572	—	75/45	Pipe Flanges & Fittings	1.25Cr-0.5Mo-Si
4	1	ASTM	A182	Grade F12, Class 1	K11562	—	60/32	Pipe Flanges & Fittings	1Cr-0.5Mo
4	1	ASTM	A182	Grade F12, Class 2	K11564	—	70/40	Pipe Flanges & Fittings	1Cr-0.5Mo
4	1	ASTM	A199	Grade T11	K11597	—	60/25	Seamless Tube	1.25Cr-0.5Mo
4	1	ASTM	A202	Grade A	K11742	—	75/45	Plate	0.5Cr-1.25Mn-Si
4	1	ASTM	A202	Grade B	K12542	—	85/47	Plate	0.5Cr-1.25Mn-Si
4	1	ASTM	A213	Grade T11	K11597	—	60/30	Seamless Tube	1.25Cr-0.5Mo-Si
4	1	ASTM	A213	Grade T12	K11562	—	60/32	Seamless Tube	1Cr-0.5Mo
4	1	ASTM	A217	Grade WC4	J12082	—	70/40	Castings	1Ni-Cr-0.5Mo
4	1	ASTM	A217	Grade WC5	J22000	—	70/40	Castings	0.75Ni-Mo-0.75Cr
4	1	ASTM	A217	Grade WC6	J12072	—	70/40	Castings	1.25Cr-0.5Mo

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
4	1	ASTM	A234	Grade WP11, Class 1	—	—	60/30	Pipe Fittings	1.25Cr-0.5Mo-Si
4	1	ASTM	A234	Grade WP12, Class 1	K12062	—	60/32	Pipe Fittings	1Cr-0.5Mo
4	1	ASTM	A250	Grade T11	K11597	—	60/30	ERW Tube	1.25Cr-0.5Mo-Si
4	1	ASTM	A335	Grade P11	K11597	—	60/30	Pipe	1.25Cr-0.5Mo-Si
4	1	ASTM	A335	Grade P12	K11562	—	60/32	Pipe	1Cr-0.5Mo
4	1	ASTM	A336	Grade F11, Class 1	K11597	—	60/30	Forging	1.25Cr-0.5Mo-Si
4	1	ASTM	A336	Grade F11, Class 2	K11572	—	70/40	Forging	1.25Cr-0.5Mo-Si
4	1	ASTM	A336	Grade F11, Class 3	K11572	—	75/45	Forging	1.25Cr-0.5Mo-Si
4	1	ASTM	A336	Grade F12	K11564	—	70/40	Forging	1Cr-0.5Mo
4	1	ASTM	A369	Grade FP11	K11597	—	60/30	Forged Pipe	1.25Cr-Mo-Si
4	1	ASTM	A369	Grade FP12	K11562	—	60/32	Forged Pipe	1Cr-0.5Mo
4	1	ASTM	A387	Grade 11, Class 1	K11789	—	60/35	Plate	1.25Cr-0.5Mo-Si
4	1	ASTM	A387	Grade 11, Class 2	K11789	—	75/45	Plate	1.25Cr-0.5Mo-Si
4	1	ASTM	A387	Grade 12, Class 1	K11757	—	55/33	Plate	1Cr-0.5Mo
4	1	ASTM	A387	Grade 12, Class 2	K11757	—	65/40	Plate	1Cr-0.5Mo
4	1	ASTM	A389	Grade C23	J12080	—	70/40	Castings	1.25Cr-0.5Mo-V
4	1	ASTM	A389	Grade C24	J12092	—	80/50	Castings	1Cr-1Mo-V
4	1	ASTM	A405	Grade P24	K11591	—	80/50	Cast Pipe	1.25Cr-Mo
4	1	ASTM	A426	Grade CP11	J12072	—	70/40	Cast Pipe	1.25Cr-0.5Mo-0.5Mn
4	1	ASTM	A426	Grade CP12	J11562	—	60/30	Cast Pipe	1.25Cr-0.5Mo-0.5Mn
4	1	ASTM	A541	Grade 11, Class 4	K11572	—	80/50	Forging	1.25Cr-0.5Mo-Si
4	1	ASTM	A691	Grade 1CR, Class 1	K11757	—	55/33	Fusion Welded Pipe	1.25Cr-0.5Mo-Si
4	1	ASTM	A691	Grade 1CR, Class 2	K11789	—	65/40	Fusion Welded Pipe	1.25Cr-0.5Mo-Si
4	1	ASTM	A691	Grade 1.25CR, Class 1	K11757	—	60/35	Fusion Welded Pipe	1Cr-0.5Mo
4	1	ASTM	A691	Grade 1.25CR, Class 2	K11789	—	75/45	Fusion Welded Pipe	1Cr-0.5Mo
4	1	ASTM	A739	Grade B11	K11797	—	70/45	Bar	1.25Cr-0.5Mo
4	2	ASTM	A234	Grade WP11, Class 2	—	—	70/40	Pipe Fittings	1.25Cr-0.5Mo-Si
4	2	ASTM	A234	Grade WP11, Class 3	—	—	75/45	Pipe Fittings	1.25Cr-0.5Mo-Si

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
4	2	ASTM	A234	Grade WP12, Class 2	K12062	—	70/40	Pipe Fittings	1Cr-0.5Mo
4	2	ASTM	A333	Grade 4	K11267	—	60/35	Pipe	0.75Cr-0.75Ni-Cu-Al
4	2	ASTM	A423	Grade 1	K11535	—	60/37	Tube	0.75Cr-0.5Ni-Cu
4	2	ASTM	A423	Grade 2	K11540	—	60/37	Tube	0.75Ni-0.5Cu-Mo
4	3	ASTM	A148	Grade 90-60	—	—	90/60	Castings	C
5A	1	ASTM	A182	Grade F21	K31545	—	75/45	Pipe Flanges & Fittings	3Cr-1Mo
5A	1	ASTM	A182	Grade F22, Class 1	K21590	—	60/30	Pipe Flanges & Fittings	2.25Cr-1Mo
5A	1	ASTM	A182	Grade F22, Class 3	K21590	—	75/45	Pipe Flanges & Fittings	2.25Cr-1Mo
5A	1	ASTM	A199	Grade T4	K31509	—	60/25	Seamless Tube	2.25Cr-0.5Mo-0.75Si
5A	1	ASTM	A199	Grade T21	K31545	—	60/25	Seamless Tube	3Cr-1Mo
5A	1	ASTM	A199	Grade T22	K21590	—	60/25	Seamless Tube	2.25Cr-1Mo
5A	1	ASTM	A200	Grade T21	K31545	—	60/25	Tube	3Cr-1Mo
5A	1	ASTM	A200	Grade T22	K21590	—	60/25	Tube	2.25Cr-1Mo
5A	1	ASTM	A200	Grade T4	K31509	—	60/25	Tube	2.5Cr-1Mo-0.75Si
5A	1	ASTM	A213	Grade T21	K31545	—	60/30	Seamless Tube	3Cr-1Mo
5A	1	ASTM	A213	Grade T22	K21590	—	60/30	Seamless Tube	2.25Cr-1Mo
5A	1	ASTM	A217	Grade WC9	J21890	—	70/40	Castings	2.25Cr-1Mo
5A	1	ASTM	A234	Grade WP22, Class 1	K21590	—	60/30	Pipe Fittings	2.25Cr-1Mo-Mn
5A	1	ASTM	A234	Grade WP22, Class 3	K21590	—	75/45	Pipe Fittings	2.25Cr-1Mo-Mn
5A	1	ASTM	A250	Grade T22	K21590	—	60/30	ERW Tube	2.25Cr-1Mo
5A	1	ASTM	A335	Grade P21	K31545	—	60/30	Seamless Pipe	3Cr-1Mo
5A	1	ASTM	A335	Grade P22	K21590	—	60/30	Seamless Pipe	2.25Cr-1Mo
5A	1	ASTM	A336	Grade F21 Class 1	K31545	—	60/30	Forging	3Cr-1Mo
5A	1	ASTM	A336	Grade F21, Class 3	K31545	—	75/45	Forging	3Cr-1Mo
5A	1	ASTM	A336	Grade F22, Class 1	K21590	—	60/30	Forging	2.25Cr-1Mo
5A	1	ASTM	A336	Grade F22, Class 3	K21590	—	75/45	Forging	2.25Cr-1Mo
5A	1	ASTM	A369	Grade FP21	K31545	—	60/30	Forged Pipe	3Cr-1Mo

Table IV-2—Ferrous Alloys (Continued)

Material Group	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition	
Steel and Steel Alloys									
5A	1	ASTM	A369	Grade FP22	K21590	—	60/30	Forged Pipe	2.25Cr-1Mo
5A	1	ASTM	A387	Grade 21, Class 1	K31545	—	60/30	Plate	3Cr-1Mo
5A	1	ASTM	A387	Grade 21, Class 2	K31545	—	75/45	Plate	3Cr-1Mo
5A	1	ASTM	A387	Grade 22, Class 1	K21590	—	60/30	Plate	2.25Cr-1Mo
5A	1	ASTM	A387	Grade 22, Class 2	K21590	—	75/45	Plate	2.25Cr-1Mo
5A	1	ASTM	A426	Grade CP21	J31545	—	60/30	Centrifugal Cast Pipe	3Cr-1Mo
5A	1	ASTM	A426	Grade CP22	J21890	—	70/40	Centrifugal Cast Pipe	2.25Cr-1Mo
5A	1	ASTM	A691	Grade 3CR, Class 1	K31545	—	60/30	Fusion Welded Pipe	3Cr-1Mo
5A	1	ASTM	A691	Grade 3CR, Class 2	K31545	—	75/45	Fusion Welded Pipe	3Cr-1Mo
5A	1	ASTM	A691	Grade 2-1/4CR, Class 1	K21590	—	60/30	Fusion Welded Pipe	2.25Cr-1Mo
5A	1	ASTM	A691	Grade 2-1/4CR, Class 2	K21590	—	75/45	Fusion Welded Pipe	2.25Cr-1Mo
5A	1	ASTM	A739	Grade B22	K21390	—	75/45	Bar	2.25Cr-1Mo
5B	1	ASTM	A182	Grade F5	K41545	—	70/40	Pipe Flanges & Fittings	5Cr-0.5Mo
5B	1	ASTM	A182	Grade F5a	K42544	—	90/65	Pipe Flanges & Fittings	5Cr-0.5Mo
5B	1	ASTM	A182	Grade F9	K90941	—	85/55	Pipe Flanges & Fittings	9Cr-1Mo
5B	1	ASTM	A199	Grade T5	K41545	—	60/25	Seamless Tube	5Cr-0.5Mo
5B	1	ASTM	A199	Grade T9	K81590	—	60/25	Seamless Tube	9Cr-1Mo
5B	1	ASTM	A213	Grade T5b	K51545	—	60/30	Seamless Tube	5Cr-0.5Mo-Si
5B	1	ASTM	A213	Grade T5c	K41245	—	60/30	Seamless Tube	5Cr-0.5Mo-Ti
5B	1	ASTM	A213	Grade T5	K41545	—	60/30	Seamless Tube	5Cr-0.5Mo
5B	1	ASTM	A213	Grade T9	K90941	—	60/30	Seamless Tube	9Cr-1Mo
5B	1	ASTM	A217	Grade C5	J42025	—	90/60	Castings	5Cr-0.5Mo
5B	1	ASTM	A217	Grade C12	J82090	—	90/60	Castings	9Cr-1Mo
5B	1	ASTM	A217	Grade C12A	—	—	85/60	Castings	9Cr-1Mo
5B	1	ASTM	A234	Grade WP5	K41545	—	60/30	Pipe Fittings	5Cr-0.5Mo
5B	1	ASTM	A234	Grade WP9	K90941	—	60/30	Pipe Fittings	9Cr-1Mo
5B	1	ASTM	A335	Grade P5b	K51545	—	60/30	Seamless Pipe	5Cr-0.5Mo-Si
5B	1	ASTM	A335	Grade P5	K41545	—	60/30	Seamless Pipe	5Cr-0.5Mo

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
5B	1	ASTM	A335	Grade P5c	K41245	—	60/30	Seamless Pipe	5Cr-0.5Mo-Ti
5B	1	ASTM	A335	Grade P9	K81590	—	60/30	Seamless Pipe	9Cr-1Mo
5B	1	ASTM	A336	Grade F5	K41545	—	60/36	Forging	5Cr-0.5Mo
5B	1	ASTM	A336	Grade F5A	K42544	—	80/50	Forging	5Cr-0.5Mo
5B	1	ASTM	A336	Grade F9	K90941	—	85/55	Forging	9Cr-1Mo
5B	1	ASTM	A369	Grade FP9	K90941	—	60/30	Forged Pipe	9Cr-1Mo
5B	1	ASTM	A369	Grade FP5	K41545	—	60/30	Forged Pipe	5Cr-0.5Mo
5B	1	ASTM	A387	Grade 5, Class 1	K41545	—	60/30	Plate	5Cr-0.5Mo
5B	1	ASTM	A387	Grade 5, Class 2	K41545	—	75/45	Plate	5Cr-0.5Mo
5B	1	ASTM	A426	Grade CP5	J42045	—	90/60	Centrifugal Cast Pipe	5Cr-0.5Mo
5B	1	ASTM	A426	Grade CP5b	J51545	—	60/30	Centrifugal Cast Pipe	5Cr-1.5Mo
5B	1	ASTM	A426	Grade CP9	J82090	—	90/60	Centrifugal Cast Pipe	9Cr-1Mo
5B	1	ASTM	A691	Grade 5CR, Class 1	K41545	—	60/30	Fusion Welded Pipe	5Cr-0.5Mo
5B	1	ASTM	A691	Grade 5CR, Class 2	K41545	—	75/45	Fusion Welded Pipe	5Cr-0.5Mo
5B	2	ASTM	A182	Grade F91	K90901	—	85/60	Pipe Flanges & Fittings	9Cr-1Mo-V
5B	2	ASTM	A199	Grade T91	K90901	—	85/60	Seamless Tube	9Cr-1Mo-V
5B	2	ASTM	A213	Grade T91	K90901	—	85/60	Seamless Tube	9Cr-1Mo-V
5B	2	ASTM	A234	Grade WP91	S50460	—	85/60	Pipe Fittings	9Cr-1Mo-V
5B	2	ASTM	A335	Grade P91	S50460	—	85/60	Seamless Pipe	9Cr-1Mo-V
5B	2	ASTM	A336	Grade F91	K90901	—	85/60	Forging	9Cr-1Mo-V
5B	2	ASTM	A369	Grade FP91	S50460	—	85/60	Forged Pipe	9Cr-1Mo-V
5B	2	ASTM	A387	Grade 91, Class 2	S50460	—	85/60	Plate	9Cr-1Mo-V
5C	1	ASTM	A182	Grade F3V	K31830	—	85/60	Pipe Flanges & Fittings	3Cr-1Mo-0.25V
5C	1	ASTM	A336	Grade F3V	K31830	—	85/60	Forging	3Cr-1Mo-0.25V
5C	1	ASTM	A487	Grade 8A	J22091	—	85/55	Castings	2.25Cr-1Mo
5C	1	ASTM	A508	Grade 3V	K31830	—	85/60	Forging	3Cr-1Mo-0.25V
5C	1	ASTM	A541	Grade 3V	K31830	—	85/60	Forging	3Cr-1Mo-0.25V

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
5C	1	ASTM	A541	Grade 22, Class 3	K21390	—	85/55	Forging	2.25Cr-1Mo
5C	1	ASTM	A542	Type B, Class 4a	K21590	—	85/60	Plate & Sheet	2.25Cr-1Mo
5C	1	ASTM	A542	Type A, Class 4	K21590	—	85/55	Plate & Sheet	2.25Cr-1Mo
5C	1	ASTM	A542	Type A, Class 4a	K21590	—	85/60	Plate & Sheet	2.25Cr-1Mo
5C	1	ASTM	A542	Type B, Class 4	K21590	—	85/55	Plate & Sheet	2.25Cr-1Mo
5C	1	ASTM	A542	Type C, Class 4	K31830	—	85/55	Plate & Sheet	3Cr-1Mo-0.25V
5C	1	ASTM	A542	Type C, Class 4a	K31830	—	85/60	Plate & Sheet	3Cr-1Mo-0.25V
5C	1	ASTM	A832	Grade 21V	K31830	—	85/60	Plate	3Cr-1Mo-0.25V
5C	1	ASTM	A832	Grade 22V	K31835	—	85/60	Pressure Vessel Plate	2.25Cr-1Mo-0.45Mn-0.3Va-0.13C
5C	3	ASTM	A542	Type A, Class 3	K21590	—	95/75	Plate	2.25Cr-1Mo
5C	3	ASTM	A542	Type B, Class 3	K21590	—	95/75	Plate	2.25Cr-1Mo
5C	3	ASTM	A542	Type C, Class 3	K31830	—	95/75	Plate	3Cr-1Mo-V-Ti-B
5C	4	ASTM	A487	Grade 8, Class B	J22091	—	105/85	Castings	2.25Cr-1Mo
5C	4	ASTM	A487	Grade 8, Class C	J22091	—	100/75	Castings	2.25Cr-1Mo
5C	4	ASTM	A541	Grade 22, Class 4	K21390	—	105/85	Forging	2.25Cr-1Mo
5C	4	ASTM	A542	Type A, Class 1	K21590	—	105/85	Plate	2.25Cr-1Mo
5C	4	ASTM	A542	Type B, Class 1	K21590	—	105/85	Plate	2.25Cr-1Mo
5C	4	ASTM	A542	Type C, Class1	K31830	—	105/85	Plate	3Cr-1Mo-V-Ti-B
5C	5	ASTM	A541	Grade 22, Class 5	K21390	—	115/100	Forging	2.25Cr-1Mo
5C	5	ASTM	A542	Type C, Class 2	K31830	—	115/100	Plate	3Cr-1Mo-0.25V
5C	5	ASTM	A542	Type A, Class 2	K21590	—	115/100	Plate	2.25Cr-1Mo
5C	5	ASTM	A542	Type B, Class 2	K21590	—	115/100	Plate	2.25Cr-1Mo
6	1	ASTM	A182	Grade F6a, Class 1	S41000	—	70/40	Pipe Flanges & Fittings	13Cr
6	1	ASTM	A240	Type 410	S41000	—	65/30	Plate	13Cr
6	1	ASTM	A268	Type 410	S41000	—	60/30	Tube	13Cr

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
6	1	ASTM	A276	Type 410	S41000	—	70/40	Bar	13Cr
6	1	ASTM	A473	Type 403	S40300	—	70/40	Forging	12Cr
6	1	ASTM	A473	Type 410	S41000	—	70/40	Forging	13Cr
6	1	ASTM	A473	Type 414A	S41400	—	65/35	Forging-Annealed	13Cr-2Ni
6	1	ASTM	A479	Type 403	S40300	—	70/40	Bars & Shapes-Annealed	12Cr
6	1	ASTM	A479	Type 410	S41000	—	70/40	Bars & Shapes-Annealed	13Cr
6	2	ASTM	A182	F429	S42900	—	60/35	Pipe Flanges & Fittings	15Cr
6	2	ASTM	A240	Type 429	S42900	—	65/30	Plate	15Cr
6	2	ASTM	A268	Type 429	S42900	—	60/35	Tube	15Cr
6	2	ASTM	A473	Type 405	S40500	—	60/30	Forging	13Cr-Al
6	2	ASTM	A473	Type 420	S42000	—	70/35	Forging	13Cr
6	2	ASTM	A473	Type 429	S42900	—	65/35	Forging	15Cr
6	2	ASTM	A473	Type 430	S43000	—	70/35	Forging	17Cr
6	3	ASTM	A182	Grade F6a, Class 2	S41000	—	85/55	Pipe Flanges & Fittings	13Cr
6	3	ASTM	A182	Grade F6a, Class 3	S41000	—	110/85	Pipe Flanges & Fittings	13Cr
6	3	ASTM	A182	Grade F6a, Class 4	S41000	—	130/110	Pipe Flanges & Fittings	13Cr
6	3	ASTM	A182	Grade F6b	S41026	—	110/90	Pipe Flanges & Fittings	13Cr-0.5Mo
6	3	ASTM	A217	Grade CA15	J91150	—	90/65	Castings	13Cr
6	3	ASTM	A336	Grade F6	S41000	—	85/55	Forging	13Cr
6	3	ASTM	A426	Grade CPCA15	J91150	—	90/65	Cast Pipe	13Cr
6	3	ASTM	A479	Type 414	S41400	—	115/90	Bars & Shapes	12.5Cr-2Ni-Si
6	3	ASTM	A487	Grade CA15, Class B	J91450	—	90/65	Castings	13Cr
6	3	ASTM	A487	Grade CA15, Class C	J91171	—	90/60	Castings	13Cr
6	3	ASTM	A487	Grade CA15, Class D	J91171	—	100/75	Castings	13Cr
6	3	ASTM	A487	Grade CA15M, Class A	J91451	—	90/65	Castings	13Cr
6	3	ASTM	A743	CA-15	J91150	—	90/65	Castings	12.7Cr
6	3	ASTM	A743	CA-15M	J91151	—	90/65	Castings	12.7Cr-0.58Mo

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
6	4	ASTM	A182	Grade F6NM	S41500	—	115/90	Pipe Flanges & Fittings	13Cr-4.5Ni-Mo
6	4	ASTM	A240	S41500	S41500	—	115/90	Plate	13Cr-4.5Ni-Mo
6	4	ASTM	A268	S41500	S41500	—	115/90	Seamless & Welded Tube	13Cr-4.5Ni-Mo
6	4	ASTM	A352	Grade CA6NM	J91540	—	110/80	Castings	13Cr-4Ni
6	4	ASTM	A479	S41500	S41500	—	115/90	Bars & Shapes	13Cr-4.5Ni-Mo
6	4	ASTM	A487	Grade CA6NM, Class A	J91540	—	110/80	Castings	13Cr-4Ni
6	4	ASTM	A487	Grade CA6NM, Class B	J91540	—	100/75	Castings	13Cr-4Ni
6	4	ASTM	A731	S41500	S41500	—	115/90	Seamless & Welded Pipe	13Cr-4.5Ni-Mo
6	4	ASTM	A743	CA-40	J91153	—	100/70	Castings	12.75Cr
6	4	ASTM	A743	CB-6	J91804	—	115/85	Castings	16.5Cr-4.5Ni
6	4	ASTM	A743	CA-6NM	J91540	—	110/80	Castings	12.7Cr-4Ni-0.7Mo
6	4	ASTM	A815	S41500	S41500	—	110/90	Pipe Fittings	13Cr-4.5Ni-Mo
7	1	ASTM	A240	Type 405	S40500	—	60/25	Plate	12Cr-1Al
7	1	ASTM	A240	Type 409	S40900	—	55/25	Plate	11Cr-Ti
7	1	ASTM	A240	Type 410S	S41008	—	60/30	Plate	13Cr
7	1	ASTM	A268	S40800	S40800	—	55/30	Seamless & Welded Tube	12Cr-Ti
7	1	ASTM	A268	Type 405	S40500	—	60/30	Tube	12Cr-1Al
7	1	ASTM	A268	Type 409	S40900	—	55/30	Plate	11Cr-Ti
7	1	ASTM	A268	Type 430 Ti	S43036	—	60/35	Seamless & Welded Tube	18Cr-Ti-Cb
7	1	ASTM	A479	Type 405	S40500	—	60/25	Bars & Shapes	12Cr-1Al
7	2	ASTM	A182	F430	S43000	—	60/35	Pipe Flanges & Fittings	17Cr
7	2	ASTM	A240	Type 18-2	S44400	—	60/40	Plate	18Cr-2Mo
7	2	ASTM	A240	Type 430	S43000	—	65/30	Plate	17Cr
7	2	ASTM	A240	Type 439	S43035	—	65/30	Plate, Sheet & Strip	17Cr-Ti
7	2	ASTM	A240	Type XM-27	S44627	—	65/40	Plate	27Cr-1Mo
7	2	ASTM	A268	Type 18Cr-2Mo	S44400	—	60/40	Seamless & Welded Tube	18Cr-2Mo

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
7	2	ASTM	A268	Type 430	S43000	—	60/35	Tube	17Cr
7	2	ASTM	A268	Type 439	S43035	—	60/30	Seamless & Welded Tube	17Cr-Ti
7	2	ASTM	A479	S44400	S44400	—	60/45	Bars & Shapes	18Cr-2Mo
7	2	ASTM	A479	Type 430	S43000	—	70/40	Bars & Shapes	17Cr
7	2	ASTM	A479	Type 439	S43035	—	70/40	Bars & Shapes	17Cr-Ti
7	2	ASTM	A731	Type 439	S43035	—	60/30	Seamless & Welded Pipe	17Cr-Ti
7	2	ASTM	A731	Type 18Cr-2Mo	S44400	—	60/40	Seamless & Welded Pipe	18Cr-2Mo
7	2	ASTM	A803	Type 439	S43035	—	60/30	Welded Tube	17Cr-Ti
7	3	ASTM	A479	Type XM-30	S41040	—	70/40	Bars & Shapes	12.5Cr-Cb
8	1	ASTM	A182	Grade F304	S30400	≤ 5.0	75/30	Pipe Flanges & Fittings	18Cr-8Ni
8	1	ASTM	A182	Grade F304	S30400	> 5.0	70/30	Pipe Flanges & Fittings	18Cr-8Ni
8	1	ASTM	A182	Grade F304H	S30409	≤ 5.0	75/30	Pipe Flanges & Fittings	18Cr-8Ni
8	1	ASTM	A182	Grade F304H	S30409	> 5.0	70/30	Pipe Flanges & Fittings	18Cr-8Ni
8	1	ASTM	A182	Grade F304L	S30403	≤ 5.0	70/25	Pipe Flanges & Fittings	18Cr-8Ni
8	1	ASTM	A182	Grade F304L	S30403	> 5.0	65/25	Pipe Flanges & Fittings	18Cr-8Ni
8	1	ASTM	A182	Grade F304LN	S30453	≤ 5.0	75/30	Pipe Flanges & Fittings	18Cr-8Ni-N
8	1	ASTM	A182	Grade F304LN	S30453	> 5.0	70/30	Pipe Flanges & Fittings	18Cr-8Ni-N
8	1	ASTM	A182	Grade F304N	S30451	—	80/35	Pipe Flanges & Fittings	18Cr-8Ni-N
8	1	ASTM	A182	Grade F316	S31600	≤ 5.0	75/30	Pipe Flanges & Fittings	16Cr-12Ni-2Mo
8	1	ASTM	A182	Grade F316	S31600	> 5.0	70/30	Pipe Flanges & Fittings	16Cr-12Ni-2Mo
8	1	ASTM	A182	Grade F316H	S31609	≤ 5.0	75/30	Pipe Flanges & Fittings	16Cr-12Ni-2Mo
8	1	ASTM	A182	Grade F316H	S31609	> 5.0	70/30	Pipe Flanges & Fittings	16Cr-12Ni-2Mo
8	1	ASTM	A182	Grade F316L	S31603	≤ 5.0	70/25	Pipe Flanges & Fittings	16Cr-12Ni-2Mo
8	1	ASTM	A182	Grade F316L	S31603	> 5.0	65/25	Pipe Flanges & Fittings	16Cr-12Ni-2Mo
8	1	ASTM	A182	Grade F316LN	S31653	≤ 5.0	75/30	Pipe Flanges & Fittings	16Cr-12Ni-2Mo-N
8	1	ASTM	A182	Grade F316LN	S31653	> 5.0	70/30	Pipe Flanges & Fittings	16Cr-12Ni-2Mo-N
8	1	ASTM	A182	Grade F316N	S31651	—	80/35	Pipe Flanges & Fittings	16Cr-12Ni-2Mo-N

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
8	1	ASTM	A182	Grade F317	S31700	≤ 5.0	75/30	Pipe Flanges & Fittings	18Cr-13Ni-3Mo
8	1	ASTM	A182	Grade F317	S31700	> 5.0	70/30	Pipe Flanges & Fittings	18Cr-13Ni-3Mo
8	1	ASTM	A182	Grade F317L	S31703	≤ 5.0	70/25	Pipe Flanges & Fittings	18Cr-13Ni-3Mo
8	1	ASTM	A182	Grade F317L	S31703	> 5.0	65/25	Pipe Flanges & Fittings	18Cr-13Ni-3Mo
8	1	ASTM	A182	Grade F321	S32100	≤ 5.0	75/30	Pipe Flanges & Fittings	18Cr-10Ni-Ti
8	1	ASTM	A182	Grade F321	S32100	> 5.0	70/30	Pipe Flanges & Fittings	18Cr-10Ni-Ti
8	1	ASTM	A182	Grade F321H	S32109	≤ 5.0	75/30	Pipe Flanges & Fittings	18Cr-10Ni-Ti
8	1	ASTM	A182	Grade F321H	S32109	> 5.0	70/30	Pipe Flanges & Fittings	18Cr-10Ni-Ti
8	1	ASTM	A182	Grade F347	S34700	≤ 5.0	75/30	Pipe Flanges & Fittings	18Cr-10Ni-Cb
8	1	ASTM	A182	Grade F347	S34700	> 5.0	70/30	Pipe Flanges & Fittings	18Cr-10Ni-Cb
8	1	ASTM	A182	Grade F347H	S34709	≤ 5.0	75/30	Pipe Flanges & Fittings	18Cr-10Ni-Cb
8	1	ASTM	A182	Grade F347H	S34709	> 5.0	70/30	Pipe Flanges & Fittings	18Cr-10Ni-Cb
8	1	ASTM	A182	Grade F348	S34800	≤ 5.0	75/30	Pipe Flanges & Fittings	18Cr-10Ni-Cb
8	1	ASTM	A182	Grade F348	S34800	> 5.0	70/30	Pipe Flanges & Fittings	18Cr-10Ni-Cb
8	1	ASTM	A182	Grade F348H	S34809	≤ 5.0	75/30	Pipe Flanges & Fittings	18Cr-10Ni-Cb
8	1	ASTM	A182	Grade F348H	S34809	> 5.0	70/30	Pipe Flanges & Fittings	18Cr-10Ni-Cb
8	1	ASTM	A182	Grade F46	S30600	—	78/35	Pipe Flanges & Fittings	18Cr-15Ni-4Si
8	1	ASTM	A213	Grade XM-15	S38100	—	75/30	Seamless Tube	18Cr-18N-2Si
8	1	ASTM	A213	TP304	S30400	—	75/30	Seamless Tube	18Cr-8Ni
8	1	ASTM	A213	TP304H	S30409	—	75/30	Seamless Tube	18Cr-8Ni
8	1	ASTM	A213	TP304L	S30403	—	70/25	Seamless Tube	18Cr-8Ni
8	1	ASTM	A213	TP304LN	S30453	—	75/30	Seamless Tube	18Cr-8Ni-N
8	1	ASTM	A213	TP304N	S30451	—	80/35	Seamless Tube	18Cr-8Ni-N
8	1	ASTM	A213	TP316	S31600	—	75/30	Seamless Tube	16Cr-12Ni-2Mo
8	1	ASTM	A213	TP316H	S31609	—	75/30	Seamless Tube	16Cr-12Ni-2Mo
8	1	ASTM	A213	TP316L	S31603	—	70/25	Seamless Tube	16Cr-12Ni-2Mo
8	1	ASTM	A213	TP316LN	S31653	—	75/30	Seamless Tube	16Cr-12Ni-2Mo-N
8	1	ASTM	A213	TP316N	S31651	—	80/35	Seamless Tube	16Cr-12Ni-2Mo-N
8	1	ASTM	A213	TP321	S32100	—	75/30	Seamless Tube	18Cr-10Ni-Ti

Table IV-2—Ferrous Alloys (Continued)

Material Group	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition	
Steel and Steel Alloys									
8	1	ASTM	A213	TP321H	S32109	—	75/30	Seamless Tube	18Cr-10Ni-Ti
8	1	ASTM	A213	TP347	S34700	—	75/30	Seamless Tube	18Cr-10Ni-Cb
8	1	ASTM	A213	TP347H	S34709	—	75/30	Seamless Tube	18Cr-10Ni-Cb
8	1	ASTM	A213	TP348	S34800	—	75/30	Seamless Tube	18Cr-10Ni-Cb
8	1	ASTM	A213	TP348H	S34809	—	75/30	Seamless Tube	18Cr-10Ni-Cb
8	1	ASTM	A240	Type 18-15	S30600	—	78/35	Plate, Sheet & Strip	18Cr-15Ni-4Si
8	1	ASTM	A240	Type 316L	S31603	—	70/25	Plate, Sheet & Strip	16Cr-12Ni-2Mo
8	1	ASTM	A240	Type 302	S30200	—	75/30	Plate, Sheet & Strip	18Cr-8Ni
8	1	ASTM	A240	Type 304	S30400	—	75/30	Plate, Sheet & Strip	18Cr-8Ni
8	1	ASTM	A240	Type 304H	S30409	—	75/30	Plate, Sheet & Strip	18Cr-8Ni
8	1	ASTM	A240	Type 304L	S30403	—	70/25	Plate, Sheet & Strip	18Cr-8Ni
8	1	ASTM	A240	Type 304LN	S30453	—	75/30	Plate, Sheet & Strip	18Cr-8Ni-N
8	1	ASTM	A240	Type 304N	S30451	—	80/35	Plate, Sheet & Strip	18Cr-8Ni-N
8	1	ASTM	A240	Type 305	S30500	—	78/30	Plate, Sheet & Strip	18Cr-15Ni-4Si
8	1	ASTM	A240	Type 316	S31600	—	75/30	Plate, Sheet & Strip	16Cr-12Ni-1Mo
8	1	ASTM	A240	Type 316Cb	S31640	—	75/30	Plate, Sheet & Strip	16Cr-12Ni-2Mo-Cb
8	1	ASTM	A240	Type 316H	S31609	—	80/35	Plate, Sheet & Strip	16Cr-12N-2Mo
8	1	ASTM	A240	Type 316LN	S31653	—	75/30	Plate, Sheet & Strip	16Cr-12Ni-2Mo-N
8	1	ASTM	A240	Type 316N	S31651	—	80/35	Plate, Sheet & Strip	16Cr-12Ni-2Mo-N
8	1	ASTM	A240	Type 316Ti	S31635	—	75/30	Plate, Sheet & Strip	16Cr-12Ni-2Mo-Ti
8	1	ASTM	A240	Type 317	S31700	—	75/30	Plate, Sheet & Strip	18Cr-13Ni-3Mo
8	1	ASTM	A240	Type 317L	S31703	—	75/30	Plate, Sheet & Strip	18Cr-13Ni-3Mo
8	1	ASTM	A240	Type 317LN	S31753	—	80/35	Plate, Sheet & Strip	18Cr-13Ni-3Mo-N
8	1	ASTM	A240	Type 321	S32100	—	75/30	Plate, Sheet & Strip	18Cr-10Ni-Ti
8	1	ASTM	A240	Type 321H	S32109	—	75/30	Plate, Sheet & Strip	18Cr-10Ni-Ti
8	1	ASTM	A240	Type 347	S34700	—	75/30	Plate, Sheet & Strip	18Cr-10Ni-Cb
8	1	ASTM	A240	Type 347H	S34709	—	75/30	Plate, Sheet & Strip	18Cr-10Ni-Cb
8	1	ASTM	A240	Type 348	S34800	—	75/30	Plate, Sheet & Strip	18Cr-10Ni-Cb
8	1	ASTM	A240	Type 348H	S34809	—	75/30	Plate, Sheet & Strip	18Cr-10Ni-Cb

Table IV-2—Ferrous Alloys (Continued)

Material Group	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition	
Steel and Steel Alloys									
8	1	ASTM	A240	Type XM-15	S38100	—	75/30	Plate, Sheet & Strip	18Cr-18Ni-2Si
8	1	ASTM	A240	Type XM-21	S30452	≤ 0.1875	90/50	Sheet & Strip	18Cr-8Ni-N
8	1	ASTM	A240	Type XM-21	S30452	> 0.1875	85/40	Plate	18Cr-8Ni-N
8	1	ASTM	A249	TP316LN	S31653	—	75/30	Welded Tube	16Cr-12Ni-2Mo-N
8	1	ASTM	A249	TP316N	S31651	—	80/35	Welded Tube	16Cr-12Ni-2Mo-N
8	1	ASTM	A249	TP317	S31700	—	75/30	Welded Tube	18Cr-13Ni-3Mo
8	1	ASTM	A249	TP317L	S31703	—	75/30	Welded Tube	18Cr-13Ni-3Mo
8	1	ASTM	A249	TP321	S32100	—	75/30	Welded Tube	18Cr-10Ni-Ti
8	1	ASTM	A249	TP321H	S32109	—	75/30	Welded Tube	18Cr-10Ni-Ti
8	1	ASTM	A249	TP347	S34700	—	75/30	Welded Tube	18Cr-10Ni-Cb
8	1	ASTM	A249	TP347H	S34709	—	75/30	Welded Tube	18Cr-10Ni-Cb
8	1	ASTM	A249	TP348	S34800	—	75/30	Welded Tube	18Cr-10Ni-Cb
8	1	ASTM	A249	TP348H	S34809	—	75/30	Welded Tube	18Cr-10Ni-Cb
8	1	ASTM	A249	Type 304	S30400	—	75/30	Welded Tube	18Cr-8Ni
8	1	ASTM	A249	Type 304H	S30409	—	75/30	Welded Tube	18Cr-8Ni
8	1	ASTM	A249	Type 304L	S30403	—	70/25	Welded Tube	18Cr-8Ni
8	1	ASTM	A249	Type 304LN	S30453	—	75/30	Welded Tube	18Cr-8Ni-N
8	1	ASTM	A249	Type 304N	S30451	—	80/35	Welded Tube	18Cr-8Ni-N
8	1	ASTM	A249	Type 316	S31600	—	75/30	Welded Tube	16Cr-12Ni-2Mo
8	1	ASTM	A249	Type 316H	S31609	—	75/30	Welded Tube	16Cr-12Ni-2Mo
8	1	ASTM	A249	Type 316L	S31603	—	70/25	Welded Tube	16Cr-12Ni-2Mo
8	1	ASTM	A249	Type XM-15	S38100	—	75/30	Welded Tube	18Cr-18Ni-2Si
8	1	ASTM	A269	TP304	S30400	—	75/30	Seamless & Welded Pipe	18Cr-8Ni
8	1	ASTM	A269	TP304L	S30403	—	70/25	Seamless & Welded Pipe	18Cr-8Ni
8	1	ASTM	A269	TP316	S31600	—	75/30	Seamless & Welded Pipe	16Cr-12Ni-2Mo
8	1	ASTM	A269	TP316L	S31603	—	70/25	Seamless & Welded Pipe	16Cr-12Ni-2Mo
8	1	ASTM	A269	Type 304LN	S30453	—	75/30	Seamless & Welded Pipe	18Cr-8Ni-N
8	1	ASTM	A269	Type 316LN	S31653	—	75/30	Seamless & Welded Pipe	16Cr-12Ni-2Mo-N
8	1	ASTM	A269	Type 317	S31700	—	75/30	Seamless & Welded Pipe	18Cr-13Ni-3Mo

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
8	1	ASTM	A269	Type 321	S32100	—	75/30	Seamless & Welded Pipe	18Cr-10Ni-Ti
8	1	ASTM	A269	Type 347	S34700	—	75/30	Seamless & Welded Pipe	18Cr-10Ni-Cb
8	1	ASTM	A269	Type 348	S34800	—	75/30	Seamless & Welded Pipe	18Cr-10Ni-Cb
8	1	ASTM	A270	Type 304	S30400	—	75/30	Seamless & Welded Pipe	18Cr-8Ni
8	1	ASTM	A271	Type 304	S30400	—	75/30	Seamless Tube	18Cr-8Ni
8	1	ASTM	A271	Type 304H	S30409	—	75/30	Seamless Tube	18Cr-8Ni
8	1	ASTM	A271	Type 316	S31600	—	75/30	Seamless Tube	16Cr-12Ni-2Mo
8	1	ASTM	A271	Type 316H	S31609	—	75/30	Seamless Tube	16Cr-12Ni-2Mo
8	1	ASTM	A271	Type 321	S32100	—	75/30	Seamless Tube	18Cr-10Ni-Ti
8	1	ASTM	A271	Type 321H	S32109	—	75/30	Seamless Tube	18Cr-10Ni-Ti
8	1	ASTM	A271	Type 347	S34700	—	75/30	Seamless Tube	18Cr-10Ni-Cb
8	1	ASTM	A271	Type 347H	S34709	—	75/30	Seamless Tube	18Cr-10Ni-Cb
8	1	ASTM	A276	Type 304	S30400	—	75/30	Bar	18Cr-8Ni
8	1	ASTM	A276	Type 304L	S30403	—	70/25	Bar	18Cr-8Ni
8	1	ASTM	A276	Type 316	S31600	—	75/30	Bar	16Cr-12Ni-2Mo
8	1	ASTM	A276	Type 316L	S31603	—	75/25	Bar	16Cr-12Ni-2Mo
8	1	ASTM	A312	TP304	S30400	—	75/30	Seamless & Welded Pipe	18Cr-8Ni
8	1	ASTM	A312	TP304H	S30409	—	75/30	Seamless & Welded Pipe	18Cr-8Ni
8	1	ASTM	A312	TP304L	S30403	—	75/25	Seamless & Welded Pipe	18Cr-8Ni
8	1	ASTM	A312	TP304LN	S30453	—	75/30	Seamless & Welded Pipe	18Cr-8Ni-N
8	1	ASTM	A312	TP304N	S30451	—	80/35	Seamless & Welded Pipe	18Cr-8Ni-N
8	1	ASTM	A312	TP316	S31600	—	75/30	Seamless & Welded Pipe	16Cr-12Ni-2Mo
8	1	ASTM	A312	TP316H	S31609	—	75/30	Seamless & Welded Pipe	16Cr-12Ni-2Mo
8	1	ASTM	A312	TP316L	S31603	—	70/25	Seamless & Welded Pipe	16Cr-12Ni-2Mo
8	1	ASTM	A312	TP316LN	S31653	—	75/30	Seamless & Welded Pipe	16Cr-12Ni-2Mo-N
8	1	ASTM	A312	TP316N	S31651	—	80/35	Seamless & Welded Pipe	16Cr-12Ni-2Mo-N
8	1	ASTM	A312	TP317	S31700	—	75/30	Seamless & Welded Pipe	18Cr-13Ni-3Mo
8	1	ASTM	A312	TP317L	S31703	—	75/30	Seamless & Welded Pipe	18Cr-13Ni-3Mo
8	1	ASTM	A312	TP321	S32100	≤ 3/8	75/30	Seamless Pipe	18Cr-10Ni-Ti

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
8	1	ASTM	A312	TP321	S32100	> 3/8	70/25	Seamless Pipe	18Cr-10Ni-Ti
8	1	ASTM	A312	TP321	S32100	—	75/30	Welded Pipe	18Cr-10Ni-Ti
8	1	ASTM	A312	TP321H	S32109	≤ 3/8	75/30	Seamless Pipe	18Cr-10Ni-Ti
8	1	ASTM	A312	TP321H	S32109	> 3/8	70/25	Seamless Pipe	18Cr-10Ni-Ti
8	1	ASTM	A312	TP321H	S32109	—	75/30	Welded Pipe	18Cr-10Ni-Ti
8	1	ASTM	A312	TP347	S34700	—	75/30	Seamless & Welded Pipe	18Cr-10Ni-Cb
8	1	ASTM	A312	TP347H	S34709	—	75/30	Seamless & Welded Pipe	18Cr-10Ni-Cb
8	1	ASTM	A312	TP348	S34800	—	75/30	Seamless & Welded Pipe	18Cr-10Ni-Cb
8	1	ASTM	A312	TP348H	S34809	—	75/30	Seamless & Welded Pipe	18Cr-10Ni-Cb
8	1	ASTM	A312	TPXM-15	S38100	—	75/30	Seamless & Welded Pipe	18Cr-18Ni-2Si
8	1	ASTM	A336	F304	S30400	—	70/30	Forging	18Cr-8Ni
8	1	ASTM	A336	F304H	S30409	—	70/30	Forging	18Cr-8Ni
8	1	ASTM	A336	F304L	S30403	—	65/25	Forging	18Cr-8Ni
8	1	ASTM	A336	F304LN	S30453	—	70/30	Forging	18Cr-8Ni-N
8	1	ASTM	A336	F304N	S30451	—	80/35	Forging	18Cr-8Ni-N
8	1	ASTM	A336	F316	S31600	—	70/30	Forging	16Cr-12Ni-2Mo
8	1	ASTM	A336	F316H	S31609	—	70/30	Forging	16Cr-12Ni-2Mo
8	1	ASTM	A336	F316L	S31603	—	65/25	Forging	16Cr-12Ni-2Mo
8	1	ASTM	A336	F316LN	S31653	—	70/30	Forging	16Cr-12Ni-2Mo-N
8	1	ASTM	A336	F316N	S31651	—	80/35	Forging	16Cr-12Ni-2Mo-N
8	1	ASTM	A336	F321	S32100	—	70/30	Forging	18Cr-10Ni-Ti
8	1	ASTM	A336	F321H	S32109	—	70/30	Forging	18Cr-10Ni-Ti
8	1	ASTM	A336	F347	S34700	—	70/30	Forging	18Cr-10Ni-Cb
8	1	ASTM	A336	F347H	S34709	—	70/30	Forging	18Cr-10Ni-Cb
8	1	ASTM	A336	F348	S34800	—	70/30	Forging	18Cr-10Ni-Cb
8	1	ASTM	A336	F348H	S34809	—	65/25	Forging	18Cr-10Ni-Cb
8	1	ASTM	A351	CF10	J92590	—	70/30	Castings	19Cr-9Ni-5Mo
8	1	ASTM	A351	CF10M	J92901	—	70/30	Castings	19Cr-9Ni-5Mo
8	1	ASTM	A351	CF10MC	J92971	—	70/30	Castings	16Cr-14Ni-2Mo

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
8	1	ASTM	A351	CF3	J92700	—	70/30	Castings	18Cr-8Ni
8	1	ASTM	A351	CF3A	J92700	—	77/35	Castings	18Cr-8Ni
8	1	ASTM	A351	CF3M	J92800	—	70/30	Castings	18Cr-12Ni-2Mo
8	1	ASTM	A351	CF8	J92600	—	70/30	Castings	18Cr-8Ni
8	1	ASTM	A351	CF8A	J92600	—	77/35	Castings	18Cr-8Ni
8	1	ASTM	A351	CF8C	J92710	—	70/30	Castings	18Cr-10Ni-Cb
8	1	ASTM	A351	CF8M	J92900	—	70/30	Castings	18Cr-12Ni-2Mo
8	1	ASTM	A351	CG8M	J93000	—	75/35	Castings	19Cr-10Ni-3Mo
8	1	ASTM	A358	304	S30400	—	75/30	Welded Pipe	18Cr-8Ni
8	1	ASTM	A358	304H	S30409	—	75/30	Welded Pipe	18Cr-8Ni
8	1	ASTM	A358	304L	S30403	—	70/25	Welded Pipe	18Cr-8Ni
8	1	ASTM	A358	304LN	S30453	—	75/30	Welded Pipe	18Cr-8Ni-N
8	1	ASTM	A358	304N	S30451	—	80/35	Welded Pipe	18Cr-8Ni-N
8	1	ASTM	A358	316	S31600	—	75/30	Welded Pipe	16Cr-12Ni-2Mo
8	1	ASTM	A358	316H	S31609	—	75/30	Welded Pipe	16Cr-12Ni-2Mo
8	1	ASTM	A358	316L	S31603	—	70/25	Welded Pipe	16Cr-12Ni-2Mo
8	1	ASTM	A358	316LN	S31653	—	75/35	Welded Pipe	16Cr-12Ni-2Mo-N
8	1	ASTM	A358	316N	S31651	—	80/35	Welded Pipe	16Cr-12Ni-2Mo-N
8	1	ASTM	A358	321	S32100	—	75/30	Welded Pipe	18Cr-10Ni-Ti
8	1	ASTM	A358	347	S34700	—	75/30	Welded Pipe	18Cr-10Ni-Cb
8	1	ASTM	A358	348	S34800	—	75/30	Welded Pipe	18Cr-10Ni-Cb
8	1	ASTM	A376	16-8-2H	S16800	—	75/30	Seamless Pipe	16Cr-8Ni-2Mo
8	1	ASTM	A376	TP304	S30400	≤ Schedule 140	75/30	Seamless Pipe	18Cr-8Ni
8	1	ASTM	A376	TP304	S30400	> Schedule 140	70/30	Seamless Pipe	18Cr-8Ni
8	1	ASTM	A376	TP304H	S30409	—	75/30	Seamless Pipe	18Cr-8Ni
8	1	ASTM	A376	TP304LN	S30453	—	75/30	Seamless Pipe	18Cr-8Ni-N
8	1	ASTM	A376	TP304N	S30451	—	80/35	Seamless Pipe	18Cr-8Ni-N
8	1	ASTM	A376	TP316	S31600	—	75/30	Seamless Pipe	16Cr-12Ni-2Mo
8	1	ASTM	A376	TP316H	S31609	—	75/30	Seamless Pipe	16Cr-12Ni-2Mo

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
8	1	ASTM	A376	TP316LN	S31653	—	75/30	Seamless Pipe	16Cr-12Ni-2Mo-N
8	1	ASTM	A376	TP316N	S31651	—	80/35	Seamless Pipe	16Cr-12Ni-2Mo-N
8	1	ASTM	A376	TP321	S32100	≤ 3/8	75/30	Seamless Pipe	18Cr-10Ni-Ti
8	1	ASTM	A376	TP321	S32100	> 3/8	70/25	Seamless Pipe	18Cr-10Ni-Ti
8	1	ASTM	A376	TP321H	S32109	≤ 3/8	75/30	Seamless Pipe	18Cr-10Ni-Ti
8	1	ASTM	A376	TP321H	S32109	> 3/8	70/25	Seamless Pipe	18Cr-10Ni-Ti
8	1	ASTM	A376	TP347	S34700	—	75/30	Seamless Pipe	18Cr-10Ni-Cb
8	1	ASTM	A376	TP347H	S34709	—	75/30	Seamless Pipe	18Cr-10Ni-Cb
8	1	ASTM	A376	TP348	S34800	—	75/30	Seamless Pipe	18Cr-10Ni-Cb
8	1	ASTM	A403	WP304	S30400	—	75/30	Pipe Fittings	18Cr-8Ni
8	1	ASTM	A403	WP304H	S30409	—	75/30	Pipe Fittings	18Cr-8Ni
8	1	ASTM	A403	WP304L	S30403	—	70/25	Pipe Fittings	18Cr-8Ni
8	1	ASTM	A403	WP304LN	S30453	—	75/30	Pipe Fittings	18Cr-8Ni-N
8	1	ASTM	A403	WP304N	S30451	—	80/35	Pipe Fittings	18Cr-8Ni-N
8	1	ASTM	A403	WP316	S31600	—	75/30	Pipe Fittings	16Cr-12Ni-2Mo
8	1	ASTM	A403	WP316H	S31609	—	75/30	Pipe Fittings	16Cr-12Ni-2Mo
8	1	ASTM	A403	WP316L	S31603	—	70/25	Pipe Fittings	16Cr-12Ni-2Mo
8	1	ASTM	A403	WP316LN	S31653	—	75/30	Pipe Fittings	16Cr-12Ni-2Mo-N
8	1	ASTM	A403	WP316N	S31651	—	80/35	Pipe Fittings	16Cr-12Ni-2Mo-N
8	1	ASTM	A403	WP317	S31700	—	75/30	Pipe Fittings	18Cr-13Ni-3Mo
8	1	ASTM	A403	WP317L	S31703	—	75/30	Pipe Fittings	18Cr-13Ni-3Mo
8	1	ASTM	A403	WP321	S32100	—	75/30	Pipe Fittings	18Cr-10Ni-Ti
8	1	ASTM	A403	WP321H	S32109	—	75/30	Pipe Fittings	18Cr-10Ni-Ti
8	1	ASTM	A403	WP347	S34700	—	75/30	Pipe Fittings	18Cr-10Ni-Cb
8	1	ASTM	A403	WP347H	S34709	—	75/30	Pipe Fittings	18Cr-10Ni-Cb
8	1	ASTM	A403	WP348	S34800	—	75/30	Pipe Fittings	18Cr-10Ni-Cb
8	1	ASTM	A403	WP348H	S34809	—	75/30	Pipe Fittings	18Cr-10Ni-Cb
8	1	ASTM	A409	TP304	S30400	—	75/30	Welded Pipe	18Cr-8Ni
8	1	ASTM	A409	TP304L	S30403	—	70/25	Welded Pipe	18Cr-8Ni

Table IV-2—Ferrous Alloys (Continued)

Material Group	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition	
Steel and Steel Alloys									
8	1	ASTM	A409	TP316	S31600	—	75/30	Welded Pipe	16Cr-12Ni-2Mo
8	1	ASTM	A409	TP316L	S31603	—	70/25	Welded Pipe	16Cr-12Ni-2Mo
8	1	ASTM	A409	TP317	S31700	—	75/30	Welded Pipe	18Cr-13Ni-3Mo
8	1	ASTM	A409	TP321	S32100	—	75/30	Welded Pipe	18Cr-10Ni-Ti
8	1	ASTM	A409	TP347	S34700	—	75/30	Welded Pipe	18Cr-10Ni-Cb
8	1	ASTM	A409	TP348	S34800	—	75/30	Welded Pipe	18Cr-10Ni-Cb
8	1	ASTM	A430	FP16-8-2H	S16800	—	70/30	Forged Pipe	16Cr-8Ni-2Mo
8	1	ASTM	A430	FP304	S30400	—	70/30	Forged Pipe	18Cr-8Ni
8	1	ASTM	A430	FP304H	S30409	—	70/30	Forged Pipe	18Cr-8Ni
8	1	ASTM	A430	FP304N	S30451	—	75/35	Forged Pipe	18Cr-8Ni-N
8	1	ASTM	A430	FP316	S31600	—	70/30	Forged Pipe	16Cr-12Ni-2Mo
8	1	ASTM	A430	FP316H	S31609	—	70/30	Forged Pipe	16Cr-12Ni-2Mo
8	1	ASTM	A430	FP316N	S31651	—	75/35	Forged Pipe	16Cr-12Ni-2Mo-N
8	1	ASTM	A430	FP321	S32100	—	70/30	Forged Pipe	18Cr-10Ni-Ti
8	1	ASTM	A430	FP321H	S32109	—	70/30	Forged Pipe	18Cr-10Ni-Ti
8	1	ASTM	A430	FP347	S34700	—	70/30	Forged Pipe	18Cr-10Ni-Cb
8	1	ASTM	A430	FP347H	S34709	—	70/30	Forged Pipe	18Cr-10Ni-Cb
8	1	ASTM	A451	CPF10MC	J92971	—	70/30	Centrifugal Cast Pipe	16Cr-14Ni-2Mo
8	1	ASTM	A451	CPF3	J92500	—	70/30	Centrifugal Cast Pipe	18Cr-8Ni
8	1	ASTM	A451	CPF3A	J92500	—	77/35	Centrifugal Cast Pipe	18Cr-8Ni
8	1	ASTM	A451	CPF3M	J92800	—	70/30	Centrifugal Cast Pipe	16Cr-12Ni-2Mo
8	1	ASTM	A451	CPF8	J92600	—	70/30	Centrifugal Cast Pipe	18Cr-8Ni
8	1	ASTM	A451	CPF8A	J92600	—	77/35	Centrifugal Cast Pipe	18Cr-8Ni
8	1	ASTM	A451	CPF8C	J92710	—	70/30	Centrifugal Cast Pipe	18Cr-10Ni-Cb
8	1	ASTM	A451	CPF8M	J92900	—	70/30	Centrifugal Cast Pipe	18Cr-12Ni-2Mo
8	1	ASTM	A452	TP304H	S30409	—	75/30	Centrifugal Cast Pipe	18Cr-8Ni
8	1	ASTM	A452	TP316H	S31609	—	75/30	Centrifugal Cast Pipe	16Cr-12Ni-2Mo
8	1	ASTM	A452	TP347H	S34709	—	75/90	Centrifugal Cast Pipe	18Cr-10Ni-Cb
8	1	ASTM	A473	Type 302	S30200	—	75/30	Forging	18Cr-5Ni-9Mn

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
8	1	ASTM	A473	Type 302B	S30215	—	75/30	Forging	18Cr-8Ni-Si
8	1	ASTM	A473	Type 303	S30300	—	75/30	Forging	18Cr-8Ni-S
8	1	ASTM	A473	Type 303Se	S30323	—	75/30	Forging	18Cr-8Ni-Se
8	1	ASTM	A473	Type 304	S30400	≤5	75/30	Forging	18Cr-8Ni
8	1	ASTM	A473	Type 304	S30400	>5	70/30	Forging	18Cr-8Ni
8	1	ASTM	A473	Type 304L	S30403	—	65/25	Forging	18Cr-8Ni
8	1	ASTM	A473	Type 305	S30500	—	75/30	Forging	18Cr-12Ni
8	1	ASTM	A473	Type 316	S31600	≤5	75/30	Forging	16Cr-12Ni-2Mo
8	1	ASTM	A473	Type 316	S31600	>5	70/30	Forging	16Cr-12Ni-2Mo
8	1	ASTM	A473	Type 316L	S31603	—	65/25	Forging	16Cr-12Ni-2Mo
8	1	ASTM	A473	Type 317	S31700	—	75/30	Forging	18Cr-13Ni-3Mo
8	1	ASTM	A473	Type 321	S32100	—	75/30	Forging	18Cr-10Ni-Ti
8	1	ASTM	A473	Type 347	S34700	—	75/30	Forging	18Cr-10Ni-Cb
8	1	ASTM	A473	Type 348	S34800	—	75/30	Forging	18Cr-10Ni-Cb
8	1	ASTM	A479	304H	S30409	—	75/30	Bar	18Cr-8Ni
8	1	ASTM	A479	304H	S30409	—	70/30	Shapes	18Cr-8Ni
8	1	ASTM	A479	304L	S30403	—	70/25	Bars & Shapes	18Cr-8Ni
8	1	ASTM	A479	304LN	S30453	—	75/30	Bars & Shapes	18Cr-8Ni-N
8	1	ASTM	A479	304N	S30451	—	80/35	Bars & Shapes	18Cr-8Ni-N
8	1	ASTM	A479	316Cb	S31640	—	75/30	Bars & Shapes	16Cr-12Ni-2Mo-Cb
8	1	ASTM	A479	316H	S31609	—	75/30	Bars & Shapes	16Cr-12Ni-2Mo
8	1	ASTM	A479	316L	S31603	—	70/25	Bars & Shapes	16Cr-12Ni-2Mo
8	1	ASTM	A479	316LN	S31653	—	75/30	Bars & Shapes	16Cr-12Ni-2Mo-N
8	1	ASTM	A479	316N	S31651	—	80/35	Bars & Shapes	16Cr-12Ni-2Mo-N
8	1	ASTM	A479	316Ti	S31635	—	75/30	Bars & Shapes	16Cr-12Ni-2Mo-Ti
8	1	ASTM	A479	321H	S32109	—	75/30	Bars & Shapes	18Cr-10Ni-Ti
8	1	ASTM	A479	347H	S34709	—	75/30	Bars & Shapes	18Cr-10Ni-Cb
8	1	ASTM	A479	348H	S34809	—	75/30	Bars & Shapes	18Cr-10Ni-Cb
8	1	ASTM	A479	Type 306	S30600	—	78/35	Bars & Shapes	17Cr-14Ni-4Si

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
8	1	ASTM	A479	Type 302	S30200	—	75/30	Bars & Shapes	18Cr-8Ni
8	1	ASTM	A479	Type 304	S30400	—	75/30	Bars & Shapes	18Cr-8Ni
8	1	ASTM	A479	Type 316	S31600	—	75/30	Bars & Shapes	16Cr-12Ni-2Mo
8	1	ASTM	A479	Type 321	S32100	—	75/30	Bars & Shapes	18Cr-10Ni-Ti
8	1	ASTM	A479	Type 347	S34700	—	75/30	Bars & Shapes	18Cr-10Ni-Cb
8	1	ASTM	A479	Type 348	S34800	—	75/30	Bars & Shapes	18Cr-10Ni-Cb
8	1	ASTM	A666	Type 302	S30200	—	75/30	Plate, Sheet & Strip	18Cr-8Ni
8	1	ASTM	A666	Type 304	S30400	—	75/30	Plate, Sheet & Strip	18Cr-8Ni
8	1	ASTM	A666	Type 304L	S30403	—	70/25	Plate, Sheet & Strip	18Cr-8Ni
8	1	ASTM	A666	Type 304LN	S30453	—	75/30	Plate, Sheet & Strip	18Cr-8Ni-N
8	1	ASTM	A666	Type 304N	S30451	—	80/35	Plate, Sheet & Strip	18Cr-8Ni-N
8	1	ASTM	A666	Type 316	S31600	—	75/30	Plate, Sheet & Strip	17Cr-12Ni-2Mo
8	1	ASTM	A666	Type 316L	S31603	—	70/25	Plate, Sheet & Strip	16Cr-12Ni-2Mo
8	1	ASTM	A666	Type 316N	S31651	—	80/35	Plate, Sheet & Strip	16Cr-12Ni-2Mo-N
8	1	ASTM	A688	TP304	S30400	—	75/30	Welded Tube	18Cr-8Ni
8	1	ASTM	A688	TP304L	S30403	—	70/25	Welded Tube	18Cr-8Ni
8	1	ASTM	A688	TP304LN	S30453	—	75/30	Welded Tube	18Cr-8Ni-N
8	1	ASTM	A688	TP304N	S30451	—	80/35	Welded Tube	18Cr-8Ni-N
8	1	ASTM	A688	TP316	S31600	—	75/30	Welded Tube	16Cr-12Ni-2Mo
8	1	ASTM	A688	TP316L	S31603	—	70/25	Welded Tube	16Cr-12Ni-2Mo
8	1	ASTM	A688	TP316LN	S31653	—	75/30	Welded Tube	16Cr-12Ni-2Mo-N
8	1	ASTM	A688	TP316N	S31651	—	80/35	Welded Tube	16Cr-12Ni-2Mo-N
8	1	ASTM	A743	CF-3	J92500	—	70/30	Castings	19Cr-10Ni
8	1	ASTM	A743	CF-8	J92600	—	70/30	Castings	19Cr-9.Ni
8	1	ASTM	A743	CF-8C	J92710	—	70/30	Castings	19.5Cr-10.5Ni
8	1	ASTM	A743	CF-8M	J92900	—	70/30	Castings	19.5Cr-10.5Ni-2.5Mo
8	1	ASTM	A743	CF-16F	J92701	—	70/30	Castings	19.5Cr-10.5Ni-0.28Se
8	1	ASTM	A743	CG-8M	J93000	—	75/35	Castings	19.5Cr-11Ni-3.5Mo
8	1	ASTM	A743	CG-12	J93001	—	70/28	Castings	21.5Cr-11.5Ni

Table IV-2—Ferrous Alloys (Continued)

Material Group	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition	
Steel and Steel Alloys									
8	1	ASTM	A743	CF-3M	J92800	—	70/30	Castings	19Cr-11Ni-2.5Mo
8	1	ASTM	A743	CF-3MN	J92804	—	75/37	Castings	19.5Cr-11Ni-2.5Mo-0.15N
8	1	ASTM	A743	CF -10SMnN	J92972	—	85/42	Castings	17Cr-8.5Ni-8Mn-4Si-0.12N
8	1	ASTM	A743	CG-3M	J92999	—	75/35	Castings	19Cr-11Ni-3.5Mo
8	1	ASTM	A743	CN-3M	J94652	—	63/25	Castings	25Ni-21Cr-05Mo
8	1	ASTM	A774	TP304L	S30403	—	70/25	As Welded Wrought Fittings	18Cr-8Ni
8	1	ASTM	A774	TP316L	S31603	—	70/25	As Welded Wrought Fittings	16Cr-12Ni-2Mo
8	1	ASTM	A774	TP317L	S31703	—	75/30	As Welded Wrought Fittings	18Cr-13Ni-3Mo
8	1	ASTM	A774	TP321	S32100	—	75/30	As Welded Wrought Fittings	18Cr-10Ni-Ti
8	1	ASTM	A774	TP347	S34700	—	75/30	As Welded Wrought Fittings	18Cr-10Ni-Cb
8	1	ASTM	A778	TP304L	S30403	—	70/25	Welded Unannealed Tube	18Cr-8Ni
8	1	ASTM	A778	TP316L	S31603	—	70/25	Welded Unannealed Tube	16Cr-12Ni-2Mo
8	1	ASTM	A778	TP317L	S31703	—	75/30	Welded Unannealed Tube	18Cr-13Ni-3Mo
8	1	ASTM	A778	TP321	S32100	—	75/30	Welded Unannealed Tube	18Cr-10Ni-Ti
8	1	ASTM	A778	TP347	S34700	—	75/30	Welded Unannealed Tube	18Cr-10Ni-Cb
8	1	ASTM	A813	TPXM-15	S38100	—	75/30	Welded Pipe	18Cr-18Ni-2Si
8	1	ASTM	A813	TP304	S30400	—	75/30	Welded Pipe	18Cr-8Ni
8	1	ASTM	A813	TP304H	S30409	—	75/30	Welded Pipe	18Cr-8Ni
8	1	ASTM	A813	TP304L	S30403	—	70/25	Welded Pipe	18Cr-8Ni
8	1	ASTM	A813	TP304LN	S30453	—	75/30	Welded Pipe	18Cr-8Ni-N
8	1	ASTM	A813	TP304N	S30451	—	80/35	Welded Pipe	18Cr-8Ni-N
8	1	ASTM	A813	TP316	S31600	—	75/30	Welded Pipe	16Cr-12Ni-2Mo
8	1	ASTM	A813	TP316H	S31609	—	75/30	Welded Pipe	16Cr-12Ni-2Mo
8	1	ASTM	A813	TP316L	S31603	—	70/25	Welded Pipe	16Cr-12Ni-2Mo
8	1	ASTM	A813	TP316LN	S31653	—	75/30	Welded Pipe	16Cr-12Ni-2Mo-N
8	1	ASTM	A813	TP316N	S31651	—	80/35	Welded Pipe	16Cr-12Ni-2Mo-N
8	1	ASTM	A813	TP317	S31700	—	75/30	Welded Pipe	18Cr-13Ni-2Mo
8	1	ASTM	A813	TP317L	S31703	—	75/30	Welded Pipe	18Cr-13Ni-2Mo
8	1	ASTM	A813	TP321	S32100	—	75/30	Welded Pipe	18Cr-10Ni-Ti

Table IV-2—Ferrous Alloys (Continued)

Material Group	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition	
Steel and Steel Alloys									
8	1	ASTM	A813	TP321H	S32109	—	75/30	Welded Pipe	18Cr-10Ni-Ti
8	1	ASTM	A813	TP347	S34700	—	75/30	Welded Pipe	18Cr-10Ni-Cb
8	1	ASTM	A813	TP347H	S34709	—	75/30	Welded Pipe	18Cr-10Ni-Cb
8	1	ASTM	A813	TP348	S34800	—	75/30	Welded Pipe	18Cr-10Ni-Cb
8	1	ASTM	A813	TP348H	S34809	—	75/30	Welded Pipe	18Cr-10Ni-Cb
8	1	ASTM	A814	S31254	S31254	—	94/44	Welded Pipe	20Cr-18Ni-6Mo-Cu-N
8	1	ASTM	A814	TPXM-15	S38100	—	75/30	Cold Worked, Welded Pipe	18Cr-18Ni-2Si
8	1	ASTM	A814	TP304	S30400	—	75/30	Cold Worked, Welded Pipe	18Cr-8Ni
8	1	ASTM	A814	TP304H	S30409	—	75/30	Cold Worked, Welded Pipe	18Cr-8Ni
8	1	ASTM	A814	TP304L	S30403	—	70/25	Cold Worked, Welded Pipe	18Cr-8Ni
8	1	ASTM	A814	TP304LN	S30453	—	75/30	Cold Worked, Welded Pipe	18Cr-8Ni-N
8	1	ASTM	A814	TP304N	S30451	—	80/35	Cold Worked, Welded Pipe	18Cr-8Ni-N
8	1	ASTM	A814	TP316	S31600	—	75/30	Cold Worked, Welded Pipe	16Cr-12Ni-2Mo
8	1	ASTM	A814	TP316H	S31609	—	75/30	Cold Worked, Welded Pipe	16Cr-12Ni-2Mo
8	1	ASTM	A814	TP316L	S31603	—	70/25	Cold Worked, Welded Pipe	16Cr-12Ni-2Mo
8	1	ASTM	A814	TP316LN	S31653	—	75/30	Cold Worked, Welded Pipe	16Cr-12Ni-2Mo-N
8	1	ASTM	A814	TP316N	S31651	—	80/35	Cold Worked, Welded Pipe	16Cr-12Ni-2Mo-N
8	1	ASTM	A814	TP317	S31700	—	75/30	Cold Worked, Welded Pipe	18Cr-13Ni-3Mo
8	1	ASTM	A814	TP317L	S31703	—	75/30	Cold Worked, Welded Pipe	18Cr-13Ni-3Mo
8	1	ASTM	A814	TP321	S32100	—	75/30	Cold Worked, Welded Pipe	18Cr-10Ni-Ti
8	1	ASTM	A814	TP321H	S32109	—	75/30	Cold Worked, Welded Pipe	18Cr-10Ni-Ti
8	1	ASTM	A814	TP347	S34700	—	75/30	Cold Worked, Welded Pipe	18Cr-10Ni-Cb
8	1	ASTM	A814	TP347H	S34709	—	75/30	Cold Worked, Welded Pipe	18Cr-10Ni-Cb
8	1	ASTM	A814	TP348	S34800	—	75/30	Cold Worked, Welded Pipe	18Cr-10Ni-Cb
8	1	ASTM	A814	TP348H	S34809	—	75/30	Cold Worked, Welded Pipe	18Cr-10Ni-Cb
8	1	ASTM	A965	F304	S30400	—	70/30	Forging	18Cr-8Ni
8	1	ASTM	A965	F304H	S30409	—	70/30	Forging	18Cr-8Ni
8	1	ASTM	A965	F304L	S30403	—	65/25	Forging	18Cr-8Ni
8	1	ASTM	A965	F304LN	S30453	—	70/30	Forging	18Cr-8Ni-N

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
8	1	ASTM	A965	F304N	S30451	—	80/35	Forging	18Cr-8Ni-N
8	1	ASTM	A965	F316	S31600	—	70/30	Forging	16Cr-12Ni-2Mo
8	1	ASTM	A965	F316H	S31609	—	70/30	Forging	16Cr-12Ni-2Mo
8	1	ASTM	A965	F316L	S31603	—	65/25	Forging	16Cr-12Ni-2Mo
8	1	ASTM	A965	F316LN	S31653	—	70/30	Forging	16Cr-12Ni-2Mo-N
8	1	ASTM	A965	F316N	S31651	—	80/35	Forging	16Cr-12Ni-2Mo-N
8	1	ASTM	A965	F321	S32100	—	70/30	Forging	18Cr-10Ni-Ti
8	1	ASTM	A965	F321H	S32109	—	70/30	Forging	18Cr-10Ni-Ti
8	1	ASTM	A965	F347	S34700	—	70/30	Forging	18Cr-10Ni-Cb
8	1	ASTM	A965	F347H	S34709	—	70/30	Forging	18Cr-10Ni-Cb
8	1	ASTM	A965	F348	S34800	—	70/30	Forging	18Cr-10Ni-Cb
8	1	ASTM	A965	F348H	S34809	—	65/25	Forging	18Cr-10Ni-Cb
8	2	ASTM	A167	Type 308	S30800	—	75/30	Plate, Sheet & Strip	20Cr-10Ni
8	2	ASTM	A167	Type 309	S30900	—	75/30	Plate, Sheet & Strip	20Cr-10Ni
8	2	ASTM	A167	Type 309S	S30908	—	75/30	Plate, Sheet & Strip	20Cr-10Ni
8	2	ASTM	A167	Type 310	S31000	—	75/30	Plate, Sheet & Strip	20Cr-10Ni
8	2	ASTM	A167	Type 310S	S31008	—	75/30	Plate, Sheet & Strip	20Cr-10Ni
8	2	ASTM	A182	F10	S33100	—	80/30	Pipe Flanges & Fittings	20Ni-8Cr
8	2	ASTM	A182	F310	S31000	≤5	75/30	Pipe Flanges & Fittings	25Cr-20Ni
8	2	ASTM	A182	F310	S31000	>5	70/30	Pipe Flanges & Fittings	25Cr-20Ni
8	2	ASTM	A182	F45	S30815	—	87/45	Pipe Flanges & Fittings	21Cr-11Ni-N
8	2	ASTM	A213	TP253MA	S30815	—	87/45	Seamless Tube	21Cr-11Ni-N
8	2	ASTM	A213	TP310MoLN	S31050	≤ 0.25	84/39	Seamless Tube	25Cr-20Ni-2Mo
8	2	ASTM	A213	TP310MoLN	S31050	> 0.25	78/37	Seamless Tube	25Cr-20Ni-2Mo
8	2	ASTM	A213	TP309Cb	S30940	—	75/30	Seamless Tube	23Cr-12Ni-Cb
8	2	ASTM	A213	TP309S	S30908	—	75/30	Seamless Tube	23Cr-12Ni
8	2	ASTM	A213	TP310Cb	S31040	—	75/30	Seamless Tube	25Cr-20Ni-Cb
8	2	ASTM	A213	TP310S	S31008	—	75/30	Seamless Tube	25Cr-20Ni

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
8	2	ASTM	A213	Type 309H	S30909	—	75/30	Seamless Tube	25Cr-20Ni
8	2	ASTM	A213	Type 309HCb	S30941	—	75/30	Seamless Tube	23Cr-12Ni-Cb
8	2	ASTM	A213	Type 310	S31000	—	75/30	Seamless Tube	25Cr-20Ni
8	2	ASTM	A213	Type 310H	S31009	—	75/30	Seamless Tube	25Cr-20Ni
8	2	ASTM	A213	Type 310HCb	S31041	—	75/30	Seamless Tube	25Cr-20Ni-Cb
8	2	ASTM	A240	S30815	S30815	< 3/16	87/45	Plate, Sheet & Strip	21Cr-11Ni-N
8	2	ASTM	A240	TP310MoLN	S31050	≥3/16	80/35	Plate, Sheet & Strip	25Cr-22Ni-2Mo-N
8	2	ASTM	A240	Type 309HCb	S30941	—	75/30	Plate, Sheet & Strip	23Cr-12Ni-Cb
8	2	ASTM	A240	Type 309Cb	S30940	—	75/30	Plate, Sheet & Strip	23Cr-12Ni-Cb
8	2	ASTM	A240	Type 309H	S30909	—	75/30	Plate, Sheet & Strip	23Cr-12Ni
8	2	ASTM	A240	Type 309S	S30908	—	75/30	Plate, Sheet & Strip	23Cr-12Ni
8	2	ASTM	A240	Type 310Cb	S31040	—	75/30	Plate, Sheet & Strip	25Cr-20Ni-Cb
8	2	ASTM	A240	Type 310S	S31008	—	75/30	Plate, Sheet & Strip	25Cr-20Ni
8	2	ASTM	A249	S30815	S30815	—	87/45	Welded Tube	21Cr-11Ni-N
8	2	ASTM	A249	Type 310 MoLN	S31050	> 0.25	78/37	Welded Tube	25Cr-22Ni-2Mo-N
8	2	ASTM	A249	Type 310 MoLN	S31050	≤ 0.25	84/39	Welded Tube	25Cr-22Ni-2Mo-N
8	2	ASTM	A249	TP309Cb	S30940	—	75/30	Welded Tube	23Cr-12Ni-Cb
8	2	ASTM	A249	TP309H	S30909	—	75/30	Welded Tube	23Cr-12Ni
8	2	ASTM	A249	TP309HCb	S30941	—	75/30	Welded Tube	23Cr-12Ni-Cb
8	2	ASTM	A249	TP309S	S30908	—	75/30	Welded Tube	23Cr-12Ni
8	2	ASTM	A249	TP310Cb	S31040	—	75/30	Welded Tube	25Cr-20Ni-Cb
8	2	ASTM	A249	TP310H	S31009	—	75/30	Welded Tube	25Cr-20Ni
8	2	ASTM	A249	TP310S	S31008	—	75/30	Welded Tube	25Cr-20Ni
8	2	ASTM	A249	Type 309	S30900	—	75/30	Welded Tube	23Cr-12Ni
8	2	ASTM	A297	HE	J93403	—	65/40	Castings	58Fe-28Cr-9.5Ni-2Mn-2Si
8	2	ASTM	A297	HF	J92603	—	70/35	Castings	65Fe-20.5Cr-10Ni-2Mn-2Si
8	2	ASTM	A297	HH	J93503	—	75/35	Castings	57Fe-26Cr-12.5Ni-2Mn-2Si
8	2	ASTM	A297	HI	J94003	—	70/35	Castings	51Fe-28Cr-16Ni-2Mn-2Si
8	2	ASTM	A297	HK	J94224	—	65/35	Castings	49Fe-26Cr-20Ni-2Mn-2Si

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
8	2	ASTM	A312	S30815	S30815	—	87/45	Seamless & Welded Pipe	21Cr-11Ni-N
8	2	ASTM	A312	TP309Cb	S30940	—	75/30	Seamless & Welded Pipe	23Cr-12Ni-Cb
8	2	ASTM	A312	TP309H	S30909	—	75/30	Seamless & Welded Pipe	23Cr-12Ni
8	2	ASTM	A312	TP309HCb	S30941	—	75/30	Seamless & Welded Pipe	23Cr-12Ni-Cb
8	2	ASTM	A312	TP309S	S30908	—	75/30	Seamless & Welded Pipe	23Cr-12Ni
8	2	ASTM	A312	TP310Cb	S31040	—	75/30	Seamless & Welded Pipe	25Cr-20Ni-Cb
8	2	ASTM	A312	TP310H	S31000	—	75/30	Seamless & Welded Pipe	25Cr-20Ni
8	2	ASTM	A312	TP310HCb	S31041	—	75/30	Seamless & Welded Pipe	25Cr-20Ni-Cb
8	2	ASTM	A312	TP310MoLN	S31050	≤ 0.25	78/37	Welded Pipe	25Cr-22Ni-2Mo-N
8	2	ASTM	A312	TP310MoLN	S31050	> 0.25	84/39	Welded Pipe	25Cr-22Ni-2Mo-N
8	2	ASTM	A312	TP310S	S31008	—	75/30	Seamless & Welded Pipe	25Cr-20Ni
8	2	ASTM	A336	F310	S31000	—	75/30	Forging	25Cr-20Ni
8	2	ASTM	A351	CE20N	—	—	80/40	Castings	25Cr-8Ni-N
8	2	ASTM	A351	CH10	J93401	—	70/30	Castings	25Cr-12Ni
8	2	ASTM	A351	CH20	J93402	—	70/30	Castings	25Cr-12Ni
8	2	ASTM	A351	CH8	J93400	—	65/28	Castings	25Cr-12Ni
8	2	ASTM	A351	CK20	J94202	—	65/28	Castings	25Cr-20Ni
8	2	ASTM	A351	HK40	J94204	—	62/35	Castings	25Cr-20Ni-5Mo
8	2	ASTM	A358	309	S30900	—	75/90	Welded Pipe	23Cr-12Ni
8	2	ASTM	A358	309Cb	S30940	—	75/30	Welded Pipe	23Cr-12Ni-Cb
8	2	ASTM	A358	309S	S30908	—	75/30	Welded Pipe	23Cr-12Ni
8	2	ASTM	A358	310	S31000	—	75/30	Welded Pipe	25Cr-20Ni
8	2	ASTM	A358	310Cb	S31040	—	75/30	Welded Pipe	25Cr-20Ni-Cb
8	2	ASTM	A358	310S	S31008	—	75/30	Welded Pipe	25Cr-20Ni
8	2	ASTM	A358	253MA	S30815	—	87/45	Welded Pipe	21Cr-11Ni-N
8	2	ASTM	A403	WP309	S30900	—	75/30	Pipe Fittings	23Cr-12Ni
8	2	ASTM	A403	WP310	S31000	—	75/30	Pipe Fittings	25Cr-20Ni
8	2	ASTM	A409	253MA	S30815	—	87/45	Welded Pipe	21Cr-11Ni-N
8	2	ASTM	A409	TP309Cb	S30940	—	75/30	Welded Pipe	23Cr-12Ni-Cb

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
8	2	ASTM	A473	Type 308	S30800	—	75/30	Forging	20Cr-10Ni
8	2	ASTM	A473	Type 314	S31400	—	75/30	Forging	25Cr-21Ni-Si
8	2	ASTM	A743	CH-20	J93402	—	70/30	Castings	24Cr-13.5Ni
8	2	ASTM	A743	CF-20	J92602	—	70/30	Castings	19.5Cr-9.5Ni
8	2	ASTM	A743	CK-20	J94202	—	65/28	Castings	25Cr-20.5Ni
8	2	ASTM	A743	CH-10	J93401	—	70/30	Castings	24Cr-13.5Ni
8	2	ASTM	A965	F310	S31009	—	75/30	Forging	25Cr-20Ni
8	3	ASTM	A182	FXM-11	S21904	—	90/50	Pipe Flanges & Fittings	21Cr-6Ni-9Mn
8	3	ASTM	A182	FXM-19	S20910	—	100/55	Pipe Flanges & Fittings	22Cr-13Ni-5Mn
8	3	ASTM	A213	TP201	S20100	—	95/50	Seamless Tube	17Cr-4Ni-6Mn
8	3	ASTM	A213	TP202	S20200	—	90/45	Seamless Tube	18Cr-5Ni-9Mn
8	3	ASTM	A240	S21800	S21800	—	95/50	Plate, Sheet & Strip	18Cr-8Ni-4Si-N
8	3	ASTM	A240	Type 201-1	S20100	—	95/38	Plate, Sheet & Strip	17Cr-4Ni-6Mn
8	3	ASTM	A240	Type 202	S20200	—	90/38	Plate, Sheet & Strip	18Cr-5Ni-9Mn
8	3	ASTM	A240	Type XM-17	S21600	≤ 3/16	100/60	Sheet & Strip	19Cr-6Mn-6Ni-Mo-N
8	3	ASTM	A240	Type XM-17	S21600	> 3/16	90/50	Plate	19Cr-6Mn-6Ni-Mo-N
8	3	ASTM	A240	Type XM-18	S21603	≤ 3/16	100/60	Sheet & Strip	19Cr-6Mn-6Ni-Mo-N
8	3	ASTM	A240	Type XM-18	S21603	> 3/16	90/50	Plate	19Cr-6Mn-6Ni-Mo-N
8	3	ASTM	A240	Type XM-19	S20910	≤ 3/16	105/60	Sheet & Strip	22Cr-13Ni-5Mn
8	3	ASTM	A240	Type XM-19	S20910	> 3/16	100/55	Plate	22Cr-13Ni-5Mn
8	3	ASTM	A240	Type XM-29	S24000	≤ 3/16	100/60	Sheet & Strip	18cr-3Ni-12Mn
8	3	ASTM	A240	Type XM-29	S24000	> 3/16	100/55	Plate	18Cr-3Ni-12Mn
8	3	ASTM	A249	TP201	S20100	—	95/38	Welded Tube	17Cr-4Ni-6Mn
8	3	ASTM	A249	TP202	S20200	—	90/38	Welded Tube	18Cr-5Ni-9Mn
8	3	ASTM	A249	TPXM-19	S20910	—	100/55	Welded Tube	22cr-13Ni-5Mn
8	3	ASTM	A249	TPXM-29	S24000	—	100/55	Welded Tube	18Cr-3Ni-12Mn
8	3	ASTM	A269	Type XM-10	S21900	—	90/50	Tube	20Cr-6Ni-9Mn
8	3	ASTM	A269	Type XM-11	S21904	—	90/50	Tube	21Cr-6Ni-9Mn

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
8	3	ASTM	A269	Type XM-15	S38100	—	90/50	Tube	18Cr-18Ni-9i
8	3	ASTM	A269	Type XM-19	S20910	—	100/55	Tube	22Cr-13Ni-7Mn
8	3	ASTM	A269	Type XM-29	S24000	—	100/55	Tube	18Cr-3Ni-12Mn
8	3	ASTM	A312	TPXM-29	S24000	—	100/55	Seamless & Welded Pipe	18Cr-3Ni-12Mn
8	3	ASTM	A312	TP-11	S21904	—	90/50	Seamless & Welded Pipe	21Cr-6Ni-9Mn
8	3	ASTM	A312	FMX-19	S20910	—	100/55	Seamless & Welded Pipe	22Cr-13Ni-5Mn
8	3	ASTM	A336	FXM-11	S21904	—	90/50	Forging	21Cr-6Ni-9Mn
8	3	ASTM	A336	FXM-19	S20910	—	100/55	Forging	22Cr-13Ni-5Mn
8	3	ASTM	A351	CG6MMN	J93790	—	85/42.5	Castings	22Cr-12Ni-5Mn
8	3	ASTM	A358	XM-19	S22100	—	100/55	Welded Pipe	22Cr-13Ni-5Mn
8	3	ASTM	A358	XM-29	S28300	—	100/55	Welded Pipe	18Cr-3Ni-12Mn
8	3	ASTM	A403	WPXM-19	S20910	—	100/55	Pipe Fittings	22Cr-13Ni-5Mn
8	3	ASTM	A473	Type 202	S20200	—	90/45	Forging	18Cr-5Ni-9Mn
8	3	ASTM	A473	Type XM-10	S21900	—	90/50	Forging	20Cr-6Ni-9Mn
8	3	ASTM	A473	Type XM-11	S21904	—	90/50	Forging	21Cr-6Ni-9Mn
8	3	ASTM	A479	Type 218	S21800	—	95/50	Bars & Shapes	18Cr-8Ni-4Si-N
8	3	ASTM	A479	XM-11	S21904	—	90/50	Bars & Shapes	21Cr-6Ni-9Mn
8	3	ASTM	A479	XM-17	S21600	—	90/50	Bars & Shapes	19Cr-8Mn-6Ni-Mo
8	3	ASTM	A479	XM-18	S21603	—	90/50	Bars & Shapes	19Cr-8Mn-6Ni-Mo
8	3	ASTM	A479	XM-19	S20910	—	100/55	Bars & Shapes	22Cr-13Ni-5Mn
8	3	ASTM	A479	XM-29	S24000	—	100/55	Bars & Shapes	18Cr-3Ni-12Mn
8	3	ASTM	A666	XM-11	S21904	> 0.25	90/50	Plate	21Cr-6Ni-9Mn
8	3	ASTM	A666	XM-11	S21904	≤ 0.25	100/60	Sheet & Strip	21Cr-6Ni-9Mn
8	3	ASTM	A666	201	S20100	—	75/38	Plate, Sheet & Strip	17Cr-4Ni-6Mn
8	3	ASTM	A688	XM-29	S24000	—	100/55	Welded Tube	18Cr-3Ni-12Mn
8	3	ASTM	A743	CG-6MMN	—	—	85/42	Castings	22Cr-12.5Ni-Mn-2.25Mo-Cb-V-N
8	3	ASTM	A813	TPXM-11	S21903	—	90/50	Welded Pipe	21Cr-6Ni-9Mn
8	3	ASTM	A813	TPXM-19	S20910	—	100/55	Welded Pipe	22Cr-13Ni-5Mn
8	3	ASTM	A813	TPXM-29	S24000	—	100/55	Welded Pipe	18Cr-3Ni-12Mn

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
8	3	ASTM	A814	TPXM-11	S21903	—	90/50	Cold Worked, Welded Pipe	21Cr-6Ni-9Mn
8	3	ASTM	A814	TPXM-19	S20910	—	100/55	Cold Worked, Welded Pipe	22Cr-13Ni-5Mn
8	3	ASTM	A814	TPXM-29	S24000	—	100/55	Cold Worked, Welded Pipe	18Cr-3Ni-12Mn
8	3	ASTM	A965	FXM-11	S21904	—	90/50	Forging	21Cr-6Ni-9Mn
8	3	ASTM	A965	FXM-19	S20910	—	100/55	Forging	22Cr-13Ni-5Mn
8	4	ASTM	A182	F44	S31254	—	94/44	Pipe Flanges & Fittings	20Cr-18Ni-6Mo-Cu
8	4	ASTM	A213	317LM	S31725	—	75/30	Seamless Tube	19Cr-15Ni-4Mo
8	4	ASTM	A213	317LMN	S31726	—	80/35	Seamless Tube	19Cr-15.5Ni-4Mo
8	4	ASTM	A240	S31254	S31254	—	94/44	Plate, Sheet & Strip	20Cr-18Ni-6Mo
8	4	ASTM	A240	317LM	S31725	—	75/30	Plate, Sheet & Strip	19Cr-15Ni-4Mo
8	4	ASTM	A240	317LMN	S31726	—	80/35	Plate, Sheet & Strip	19Cr-15.5Ni-4Mo
8	4	ASTM	A249	S31254	S31254	≤0.187	98/45	Welded Tube	20Cr-18Ni-6Mo
8	4	ASTM	A249	S31254	S31254	>0.187	95/45	Welded Tube	20Cr-18Ni-6Mo
8	4	ASTM	A249	317LM	S31725	—	75/30	Welded Tube	19Cr-15Ni-4Mo
8	4	ASTM	A249	317LH	S31726	—	80/35	Welded Tube	19Cr-15.5Ni-4Mo
8	4	ASTM	A312	S31254	S31254	—	94/44	Seamless & Welded Pipe	20Cr-18Ni-6Mo
8	4	ASTM	A312	317LM	S31725	—	75/30	Seamless & Welded Pipe	19Cr-15Ni-4Mo
8	4	ASTM	A312	317LM	S31726	—	80/35	Seamless & Welded Pipe	19Cr-15.5Ni-4Mo
8	4	ASTM	A336	F46	S30600	—	78/32	Forging	17Cr-14Ni-4Si
8	4	ASTM	A358	S31254	S31254	—	94/44	Welded Pipe	20Cr-18Ni-6Mo
8	4	ASTM	A358	317LM	S31725	—	75/30	Welded Pipe	19Cr-15Ni-4Mo
8	4	ASTM	A358	317L4	S31726	—	80/35	Welded Pipe	19Cr-15.5Ni-4Mo
8	4	ASTM	A376	317LM	S31725	—	75/30	Seamless Tube	19Cr-15Ni-4Mo
8	4	ASTM	A376	317L4	S31726	—	80/35	Seamless Tube	19Cr-15.5Ni-4Mo
8	4	ASTM	A409	S31254	S31254	—	94/44	Welded Pipe	20Cr-18Ni-6Mo
8	4	ASTM	A409	317LM	S31725	—	75/30	Welded Pipe	19Cr-15Ni-4Mo
8	4	ASTM	A409	317L4	S31726	—	80/35	Welded Pipe	19Cr-15.5Ni-4Mo
8	4	ASTM	A479	S31254	S31254	—	94/44	Bars & Shapes	20Cr-18Ni-6Mo

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
8	4	ASTM	A479	317LM	S31725	—	75/30	Bars & Shapes	19Cr-15Ni-4Mo
8	4	ASTM	A479	317L4	S31726	—	80/35	Bars & Shapes	19Cr-15Ni-4Mo
8	4	ASTM	A743	CK-3MCuN	J93254	—	80/38	Castings	20Cr-18.5Ni-6.5Mo-0.75Cu-N
8	4	ASTM	A813	S31254	S31254	—	94/44	Welded pipe	20Cr-18Ni-6Mo-Cu-N
8	4	ASTM	A965	F46	S30600	—	78/32	Forging	17Cr-14Ni-4SI
9A	1	ASTM	A182	Grade FR	K22035	—	63/46	Pipe Flanges & Fittings	2Ni-1Cu
9A	1	ASTM	A203	Grade A	K21703	—	65/37	Plate	2.5Ni
9A	1	ASTM	A203	Grade B	K22103	—	70/40	Plate	2.5Ni
9A	1	ASTM	A234	Grade WPR	K22035	—	63/46	Pipe Fittings	2Ni-1Cu
9A	1	ASTM	A333	Grade 7	K21903	—	65/35	Pipe	2.5Ni
9A	1	ASTM	A333	Grade 9	K22035	—	63/46	Pipe	2Ni-1Cu
9A	1	ASTM	A334	Grade 7	K21903	—	65/35	Tube	2.5Ni
9A	1	ASTM	A334	Grade 9	K22035	—	63/46	Tube	2Ni-1Cu
9A	1	ASTM	A350	Grade LF9	K22036	—	63/46	Forging	2Ni-1Cu
9A	1	ASTM	A350	Grade LF5, Class 1	K13050	—	60/30	Forging	1.5Ni
9A	1	ASTM	A350	Grade LF5, Class 2	K13050	—	70/37.5	Forging	1.5Ni
9A	1	ASTM	A352	Grade LC2	J22500	—	70/40	Castings	2.5Ni
9A	1	ASTM	A420	Grade WPL9	K22035	—	63/46	Pipe Fittings	2Ni-1Cu
9A	1	ASTM	A714	Grade V, Type E	K22035	—	65/46	Welded Pipe	2Ni-1Cu
9B	1	ASTM	A203	Grade D	K31718	—	65/37	Plate	3.5Ni
9B	1	ASTM	A203	Grade E	K32018	—	70/40	Plate	3.5Ni
9B	1	ASTM	A203	Grade F	K30018	≤ 2.0	80/55	Plate	3.5Ni
9B	1	ASTM	A203	Grade F	K32018	> 2.0	75/50	Plate	3.5Ni
9B	1	ASTM	A333	Grade 3	K31918	—	65/35	Pipe	3.5Ni
9B	1	ASTM	A334	Grade 3	K31918	—	65/35	Tube	3.5Ni
9B	1	ASTM	A350	Grade LF3, Class 2	K32025	—	70/37.5	Forging	3.5Ni
9B	1	ASTM	A352	Grade LC3	J31550	—	70/40	Castings	3.5Ni

Table IV-2—Ferrous Alloys (Continued)

Material Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition	
Steel and Steel Alloys									
9B	1	ASTM	A420	Grade WPL3	—	—	65/35	Pipe Fittings	3.5Ni
9B	1	ASTM	A707	Grade L7, Class 1	K32218	—	60/42	Forging	3.45Ni
9B	1	ASTM	A707	Grade L7, Class 2	K32218	—	66/52	Forging	3.45Ni
9B	1	ASTM	A765	Grade III	K32026	—	70/37.5	Forging	3.5Ni
9C	1	ASTM	A352	Grade LC4	J41500	—	70/40	Castings	4.5Ni
10A	1	ASTM	A225	Grade C	K12524	—	105/70	Plate	Mn-0.5Ni-V
10A	1	ASTM	A225	Grade D	—	≤ 3.0	80/60	Plate	Mn-0.5Ni-V
10A	1	ASTM	A225	Grade D	—	> 3.0 ≤ 6.0	75/55	Plate	Mn-0.5Ni-V
10A	1	ASTM	A487	Grade 1, Class A	J13002	—	85/55	Castings	Mn-V
10A	1	ASTM	A487	Grade 1, Class B	J13002	—	90/65	Castings	Mn-V
10B	1	ASTM	A213	Grade T17	K12047	—	60/30	Seamless Tube	1Cr-V
10C	1	ASTM	A612	—	K02900	≤ 0.5	83/50	Plate	C-Mn-Si
10C	1	ASTM	A612	—	K02900	> 0.5	81/50	Plate	C-Mn-Si
10C	1	ASTM	A841	TMCP, Class 1	—	> 2.5 ≤ 4.0	65/45	Plate	C-Mn-Si+X
10C	1	ASTM	A841	TMCP, Class 1	—	≤ 2.5	70/50	Plate	C-Mn-Si+X
10F	1	ASTM	A487	Grade 2, Class A	J13005	—	85/53	Castings	Mn-0.25Mo-V
10F	1	ASTM	A487	Grade 2, Class B	J13005	—	90/65	Castings	Mn-0.25Mo-V
10F	1	ASTM	A487	Grade 4, Class C	J13047	—	90/60	Castings	0.5Ni-0.5Cr-0.25Mo-V
10H	1	ASTM	A182	F51	S31803	—	90/65	Pipe Flanges & Fittings	22Cr-5Ni-3Mo-N
10H	1	ASTM	A182	F50	S31200	—	100/65	Pipe Flanges & Fittings	25Cr-6Ni-Mo-N
10H	1	ASTM	A240	S31200	S31200	—	100/65	Plate, Sheet & Strip	25Cr-6Ni-Mo-N
10H	1	ASTM	A240	Type 329	S32900	—	90/70	Plate, Sheet & Strip	26Cr-4Ni-Mo
10H	1	ASTM	A240	S32950	S32950	—	100/70	Plate	26Cr-4Ni-Mn-N

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
10H	1	ASTM	A240	S31803	S31803	—	90/65	Plate, Sheet & Strip	22Cr-5Ni-3Mo-N
10H	1	ASTM	A240	Type 255	S32550	—	110/80	Plate, Sheet & Strip	26Cr-5Ni-3Cu-2Mo
10H	1	ASTM	A240	S31260	S31260	—	100/70	Plate, Sheet & Strip	25Cr-6Ni-3Mo
10H	1	ASTM	A351	CD4MCu	J93370	—	100/70	Castings	26Cr-5Ni-3Mo-2Cu
10H	1	ASTM	A351	CE8MN	J93345	—	95/65	Castings	24Cr-10Ni-3Mo
10H	1	ASTM	A479	F255	S32550	—	110/80	Bars & Shapes	26Cr-5Ni-3Cu-2Mo
10H	1	ASTM	A789	S31200	S31200	—	100/65	Seamless & Welded Tube	25Cr-6Ni-Mo-N
10H	1	ASTM	A789	Grade 2950	S32950	—	100/70	Seamless & Welded Tube	26Cr-4Ni-Mo-N
10H	1	ASTM	A789	Grade 2304	S32304	> 1.0 O.D.	87/58	Seamless & Welded Tube	23Cr-4Ni-Mo-Cu-N
10H	1	ASTM	A789	Grade 2304	S32304	≤ 1.0 O.D.	100/65	Seamless & Welded Tube	23Cr-4Ni-Mo-Cu-N
10H	1	ASTM	A789	Grade 2550	S32550	—	110/80	Seamless & Welded Tube	25Cr-5Ni-3Cu-2Mo
10H	1	ASTM	A789	Grade S32750	S32750	—	116/80	Seamless & Welded Tube	25Cr-7Ni-4Mo-N
10H	1	ASTM	A789	S31500	S31500	—	92/64	Seamless & Welded Tube	18Cr-5Ni-3Mo-N
10H	1	ASTM	A789	Grade S32900	S32900	—	90/70	Seamless & Welded Tube	26Cr-4Ni-Mo
10H	1	ASTM	A789	Grade S31803	S31803	—	90/65	Seamless & Welded Tube	22Cr-5Ni-3Mo-N
10H	1	ASTM	A789	S31260	S31260	—	100/65	Seamless & Welded Tube	25Cr-6Ni-3Mo-N
10H	1	ASTM	A790	Grade S32550	S32550	—	110/80	Seamless & Welded Tube	25Cr-5Ni-3Cu-2Mo
10H	1	ASTM	A790	Grade S32304	S32304	—	87/58	Seamless & Welded Tube	29Cr-4Ni-Mo-Cu-N
10H	1	ASTM	A790	Grade S32900	S32900	—	90/70	Seamless & Welded Tube	26Cr-4Ni-Mo
10H	1	ASTM	A790	Grade S32750	S32750	—	116/80	Seamless & Welded Tube	25Cr-7Ni-4Mo-N
10H	1	ASTM	A790	Grade S31500	S31500	—	92/64	Seamless & Welded Tube	18Cr-5Ni-3Mo-N
10H	1	ASTM	A790	Grade S32950	S32950	—	100/70	Seamless & Welded Tube	26Cr-4Ni-Mo-N
10H	1	ASTM	A790	Grade S31260	S31260	—	100/65	Seamless & Welded Tube	25Cr-6Ni-3Mo-N
10H	1	ASTM	A790	Grade S31803	S31803	—	90/65	Seamless & Welded Tube	22Cr-5Ni-3Mo-N
10H	1	ASTM	A790	Grade S31200	S31200	—	100/65	Seamless & Welded Tube	25Cr-6Ni-Mo-N
10H	1	ASTM	A790	Grade S32900	S32900	—	90/70	Tube	26Cr-4Ni-Mo
10I	1	ASTM	A182	Grade FXM-27Cb	S44627	—	60/35	Pipe Flanges & Fittings	27Cr-1Mo
10I	1	ASTM	A240	S44635	S44635	—	90/75	Plate, Sheet & Strip	25Cr-4Ni-4Mo-Ti

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
10I	1	ASTM	A240	Type XM-33	S44626	—	68/45	Plate, Sheet & Strip	27Cr-1Mo-Ti
10I	1	ASTM	A240	Type XM-27	S44627	—	65/40	Plate, Sheet & Strip	27Cr-1Mo
10I	1	ASTM	A268	Type 446-1	S44600	—	70/40	Seamless & Welded Tube	27Cr
10I	1	ASTM	A268	Type 446-2	S44600	—	65/40	Seamless & Welded Tube	27Cr
10I	1	ASTM	A268	25-4-4	S44635	—	90/75	Seamless & Welded Tube	25Cr-4Ni-4Mo-Ti
10I	1	ASTM	A268	TPXM-33	S44626	—	68/45	Seamless & Welded Tube	27Cr-1Mo-Ti
10I	1	ASTM	A268	TPXM-27	S44627	—	65/40	Seamless & Welded Tube	27Cr-1Mo
10I	1	ASTM	A336	Grade FXM-27 Cb	S44627	—	60/35	Forging	27Cr-1Mo
10I	1	ASTM	A479	Type XM-27	S44627	—	65/40	Bars & Shapes	27Cr-1Mo
10I	1	ASTM	A731	Grade TPXM-27	S44627	—	65/40	Seamless & Welded Pipe	27Cr-1Mo
10I	1	ASTM	A731	Grade TPXM-33	S44626	—	65/40	Seamless & Welded Pipe	27Cr-1Mo-Ti
10J	1	ASTM	A240	Grade 29-4	S44700	—	80/60	Plate, Sheet & Strip	29Cr-4Mo
10J	1	ASTM	A268	Grade 29-4	S44700	—	80/60	Seamless & Welded Pipe	29Cr-4Mo
10J	1	ASTM	A268	S44735	S44735	—	75/60	Seamless & Welded Pipe	29Cr-4Mo-Ti
10J	1	ASTM	A479	Grade 28	S44700	—	70/55	Bars & Shapes	29Cr-4Mo
10J	1	ASTM	A731	S44700	S44700	—	80/60	Seamless & Welded Pipe	29Cr-4Mo
10K	1	ASTM	A240	S44660	S44660	—	85/65	Plate	26Cr-3Ni-3Mo
10K	1	ASTM	A240	Grade S44800	S44800	—	80/60	Plate	29Cr-4Mo-2Ni
10K	1	ASTM	A268	Grade 26-3-3	S44660	—	85/65	Seamless & Welded Tube	26Cr-3Ni-3Mo
10K	1	ASTM	A268	Grade 29-4-2	S44800	—	80/60	Seamless & Welded Tube	29Cr-4Mo-2Ni
10K	1	ASTM	A479	Grade 28-4-2	S44800	—	80/60	Bars & Shapes	29Cr-4Mo-2Ni
10K	1	ASTM	A731	Grade 26-3-3	S44660	—	85/65	Seamless & Welded Tube	26Cr-3Ni-3Mo
10K	1	ASTM	A731	Grade 29-4-2	S44800	—	70/55	Seamless & Welded Tube	29Cr-4Mo-2Ni
10K	1	ASTM	A803	Grade 26-3-3	S44660	—	85/65	Welded Tube	26Cr-3Ni-3Mo
11A	1	ASTM	A333	Grade 8	K81340	—	100/75	Seamless & Welded Pipe	9Ni
11A	1	ASTM	A334	Grade 8	K81340	—	100/75	Tube	9Ni

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
11A	1	ASTM	A353	—	K81340	—	100/75	Plate	9Ni
11A	1	ASTM	A420	Grade WPL8	K81340	—	100/75	Pipe	9Ni
11A	1	ASTM	A522	Type I	K81340	—	100/75	Forging	9Ni
11A	1	ASTM	A522	Type II	K71340	—	100/75	Forging	8Ni
11A	1	ASTM	A553	Type I	K81340	—	100/85	Plate	9Ni
11A	1	ASTM	A553	Type II	K71340	—	100/85	Plate	8Ni
11A	1	ASTM	A707	Grade L8, Class 1	K42247	—	60/42	Forging	3.35Ni-1.75Cr-0.5Mo-0.3Mn
11A	1	ASTM	A844	Grade 9% Ni	K81340	≤ 2	100/85	Pressure Vessel Plate	9Ni-0.29Si
11A	2	ASTM	A645	—	K41583	—	95/65	Plate	0.5Ni-0.25Mo
11A	2	ASTM	A707	Grade L8, Class 2	K42247	—	66/52	Forging	3.35Ni-1.75Cr-0.5Mo-0.3Mn
11A	2	ASTM	A734	Type A	K21205	—	77/65	Pressure Vessel Plate	C-Mn-1Ni-1Cr-0.3Mo
11A	3	ASTM	A487	Grade 4, Class B	J13047	—	105/85	Castings	0.5Ni-0.5Cr-0.25Mo-V
11A	3	ASTM	A487	Grade 4, Class E	J13047	—	115/95	Castings	0.5Ni-0.5Cr-0.25Mo-V
11A	3	ASTM	A707	Grade L8, Class 3	K42247	—	75/60	Forging	3.35Ni-1.75Cr-0.5Mo-0.3Mn
11A	4	ASTM	A533	Grade A, Class 3	K12521	—	100/83	Plate	Mn-0.5Mo
11A	4	ASTM	A533	Grade B, Class 3	K12539	—	100/83	Plate	Mn-0.5Mo-0.5Ni
11A	4	ASTM	A533	Grade C, Class 3	K12554	—	100/83	Plate	Mn-0.5Mo-0.75Ni
11A	4	ASTM	A533	Grade D, Class 3	K12529	—	100/83	Plate	Mn-0.5Mo-0.3Ni
11A	4	ASTM	A672	Grade J100	K12521	—	100/83	Fusion Welded Pipe	Mn-0.5Mo
11A	4	ASTM	A707	Grade L8, Class 4	K42247	—	90/75	Forging	3.35Ni-1.75Cr-0.5Mo-0.3Mn
11A	5	ASTM	A352	Grade LC2-1	J42215	—	105/80	Castings	3Ni-10.5Cr-0.5Mo
11A	5	ASTM	A508	Grade 4N, Class 1	K22375	—	105/85	Forging	30.5Ni-1.75Cr-0.5Mo-V
11A	5	ASTM	A508	Grade 4N, Class 2	K22375	—	115/100	Forging	30.5Ni-1.75Cr-0.5Mo-V
11A	5	ASTM	A508	Grade 5, Class 1	K42365	—	105/85	Forging	30.5Ni-1.75Cr-0.5Mo-V
11A	5	ASTM	A508	Grade 5, Class 2	K42365	—	115/100	Forging	30.5Ni-1.75Cr-0.5Mo-V

Table IV-2—Ferrous Alloys (Continued)

Material Group	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition	
Steel and Steel Alloys									
11A	5	ASTM	A543	Type B, Class 1	K42339	—	105/85	Plate	3Ni-1.75Cr-0.5Mo
11A	5	ASTM	A543	Type B, Class 3	K42339	—	90/70	Plate	3Ni-1.75Cr-0.5Mo
11A	5	ASTM	A543	Type C, Class 1	K42338	—	105/85	Plate	2.75Ni-1.75Cr-0.5Mo
11A	5	ASTM	A543	Type C, Class 3	K42338	—	90/70	Plate	2.75Ni-1.75Cr-0.5Mo
11B	1	ASTM	A514	Grade A	K11856	≤ 2.5	110/100	Plate	0.5Cr-0.25Mo-Si
11B	1	ASTM	A514	Grade A	K11856	> 2.5 ≤ 6.0	100/90	Plate	0.5Cr-0.25Mo-Si
11B	1	ASTM	A517	Grade A	K11856	≤ 2.5	115/100	Plate	0.5Cr-0.25Mo-Si
11B	1	ASTM	A517	Grade A	K11856	> 2.5 ≤ 6.0	105/90	Plate	0.5Cr-0.25Mo-Si
11B	1	ASTM	A592	Grade A	K11856	≤ 2.5	115/100	Forging	0.5Cr-0.25Mo-Si
11B	1	ASTM	A592	Grade A	K11856	> 2.5 ≤ 4.0	105/90	Forging	0.5Cr-0.25Mo-Si
11B	1	ASTM	A709	Grade 100, Type A	K11856	≤ 2.5	110/100	Plate & Shapes	0.5Cr-0.25Mo-Si
11B	1	ASTM	A709	Grade 100W, Type A	K11856	≤ 2.5	110/100	Plate & Shapes	0.5Cr-0.25Mo-Si
11B	2	ASTM	A514	Grade E	K21604	≤ 2.5	110/100	Plate	1.75Cr-0.5Mo-Cu
11B	2	ASTM	A514	Grade E	K21604	> 2.5 ≤ 6.0	100/90	Plate	1.75Cr-0.5Mo-Cu
11B	2	ASTM	A517	Grade E	K21604	≤ 2.5	115/100	Plate	1.75Cr-0.5Mo-Cu
11B	2	ASTM	A517	Grade E	K21604	> 2.5 ≤ 6.0	105/90	Plate	1.75Cr-0.5Mo-Cu
11B	2	ASTM	A592	Grade E	K11695	≤ 2.5	115/100	Forging	1.75Cr-0.5Mo-Cu
11B	2	ASTM	A592	Grade E	K11695	> 2.5 ≤ 3.75	100/90	Forging	1.75Cr-0.5Mo-Cu
11B	2	ASTM	A709	Grade 100, Type E	K21604	≤ 2.5	110/100	Plate & Shapes	1.75Cr-0.5Mo-Cu
11B	2	ASTM	A709	Grade 100, Type E	K21604	> 2.5 ≤ 4.0	100/90	Plate & Shapes	1.75Cr-0.5Mo-Cu
11B	2	ASTM	A709	Grade 100W, Type E	K21604	≤ 2.5	110/100	Plate & Shapes	1.75Cr-0.5Mo-Cu
11B	2	ASTM	A709	Grade 100W, Type E	K21604	> 2.5 ≤ 4.0	100/90	Plate & Shapes	1.75Cr-0.5Mo-Cu
11B	3	ASTM	A514	Grade F	K11576	≤ 2.5	110/100	Plate & Shapes	0.75Ni-0.5Cr-0.5Mo-V
11B	3	ASTM	A514	Grade F	K11576	> 2.5 ≤ 6.0	100/90	Plate & Shapes	0.75Ni-0.5Cr-0.5Mo-V
11B	3	ASTM	A514	Grade H	K21604	≤ 2.5	110/100	Plate & Shapes	0.5Ni-0.5Cr-0.25Mo-V
11B	3	ASTM	A514	Grade H	K21604	> 2.5 ≤ 6.0	100/90	Plate & Shapes	0.5Ni-0.5Cr-0.25Mo-V

Table IV-2—Ferrous Alloys (Continued)

Material Group	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition	
Steel and Steel Alloys									
11B	3	ASTM	A517	Grade F	K11576	≤ 2.5	115/110	Plate & Shapes	0.75Ni-0.5Cr-0.5Mo-V
11B	3	ASTM	A517	Grade H	K21604	≤ 2.0	115/100	Plate & Shapes	0.5Ni-0.5Cr-0.25Mo-V
11B	3	ASTM	A592	Grade F	K11576	≤ 2.5	115/100	Forging	0.75Ni-0.5Cr-0.5Mo-V
11B	3	ASTM	A592	Grade F	K11576	> 2.5 ≤ 4.0	105/90	Forging	0.75Ni-0.5Cr-0.5Mo-V
11B	3	ASTM	A709	Grade 100, Type F	K11576	≤ 2.5	110/100	Plates & Shapes	0.75Ni-0.5Cr-0.5Mo-V
11B	3	ASTM	A709	Grade 100W, Type F	K11576	≤ 2.5	110/100	Plate & Shapes	0.75Ni-0.5Cr-0.5Mo-V
11B	3	ASTM	A709	Grade 100, Type H	K21504	≤ 2.5	110/100	Plate & Shapes	0.5Ni-0.5Cr-0.25Mo-V
11B	3	ASTM	A709	Grade 100W, Type H	K21504	≤ 2.5	110/100	Plate & Shapes	0.5Ni-0.5Cr-0.25Mo-V
11B	4	ASTM	A514	Grade B	K11630	≤ 2.5	110/100	Plate	0.5Cr-0.2Mo-V
11B	4	ASTM	A514	Grade B	K11630	> 2.5 ≤6.0	100/90	Plate	0.5Cr-0.2Mo-V
11B	4	ASTM	A709	Grade 100, Type B	K11630	≤ 2.5	110/100	Plate & Shapes	0.5Cr-0.2Mo-V
11B	4	ASTM	A709	Grade 100W Type B	K11630	≤ 2.5	110/100	Plate & Shapes	0.5Cr-0.2Mo-V
11B	4	ASTM	A782	Class 1	—	—	97/80	Pressure Vessel Plate	0.96Mn-0.76Cr-0.6Si-0.4Mo-0.09Zr
11B	4	ASTM	A782	Class 2	—	—	107/90	Pressure Vessel Plate	0.96Mn-0.76Cr-0.6Si-0.4Mo-0.09Zr
11B	4	ASTM	A782	Class 3	—	—	115/100	Pressure Vessel Plate	0.96Mn-0.76Cr-0.6Si-0.4Mo-0.09Zr
11B	6	ASTM	A514	Grade C	K11511	≤ 2.5	110/100	Plate	1.2Mn-0.2Mo
11B	6	ASTM	A514	Grade C	K11511	> 2.5 ≤6.0	100/90	Plate	1.2Mn-0.2Mo
11B	6	ASTM	A514	Grade J	K11625	≤ 2.5	110/100	Plate	C-0.5Mo
11B	6	ASTM	A514	Grade J	K11625	> 2.5 ≤6.0	100/90	Plate	C-0.5Mo
11B	6	ASTM	A514	Grade K	K11523	≤ 2.5	110/100	Plate	Mn-Mo-B
11B	6	ASTM	A514	Grade K	K11523	> 2.5 ≤6.0	100/90	Plate	Mn-Mo-B
11B	6	ASTM	A514	Grade S	—	≤ 2.5	110/100	Plate	Mn-Mo-B
11B	6	ASTM	A514	Grade S	—	> 2.5 ≤6.0	100/90	Plate	Mn-Mo-B
11B	6	ASTM	A514	Grade T	—	≤ 2.5	110/100	Plate	Mn-Mo-B
11B	6	ASTM	A514	Grade T	—	> 2.5 ≤6.0	100/90	Plate	Mn-Mo-B

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
11B	6	ASTM	A517	Grade J	K11625	≤ 1.25	115/100	Plate	C-0.5Mo
11B	6	ASTM	A517	Grade K	K11523	≤ 2.0	115/100	Plate	Mn-Mo-B
11B	6	ASTM	A517	Grade S	—	≤ 2.0	115/100	Plate	Mn-Mo-B
11B	6	ASTM	A517	Grade T	—	≤ 2.0	115/100	Plate	Mn-Mo-B
11B	6	ASTM	A709	Grade 100, Type C	K11511	≤ 2.5	110/100	Plate & Shapes	1.2Mn-0.2Mo
11B	6	ASTM	A709	Grade 100W, Type C	K11511	≤ 2.5	110/100	Plate & Shapes	1.2Mn-0.2Mo
11B	6	ASTM	A709	Grade 100, Type J	K11625	≤ 2.5	110/100	Plate & Shapes	C-0.5Mo
11B	6	ASTM	A709	Grade 100W, Type J	K11625	≤ 2.5	110/100	Plate & Shapes	C-0.5Mo
11B	8	ASTM	A514	Grade P	K21650	≤ 2.5	110/100	Plate	1.25Ni-1Cr-0.5Mo
11B	8	ASTM	A514	Grade P	K21650	> 2.5 ≤ 6.0	100/90	Plate	1.25Ni-1Cr-0.5Mo
11B	8	ASTM	A517	Grade P	K21650	≤ 2.5	115/100	Plate	1.25Ni-1Cr-0.5Mo
11B	8	ASTM	A517	Grade P	K21650	> 2.5 ≤ 4.0	105/90	Plate	1.25Ni-1Cr-0.5Mo
11B	8	ASTM	A709	Grade 100, Type P	K21650	≤ 2.5	110/100	Plate & Shapes	1.25Ni-1Cr-0.5Mo
11B	8	ASTM	A709	Grade 100, Type P	K21650	> 2.5 ≤ 4.0	100/90	Plates & Shapes	1.25Ni-1Cr-0.5Mo
11B	8	ASTM	A709	Grade 100W, Type P	K21650	≤ 2.5	110/100	Plate & Shapes	1.25Ni-1Cr-0.5Mo
11B	8	ASTM	A709	Grade 100W, Type P	K21650	> 2.5 ≤ 4.0	100/90	Plates & Shapes	1.25Ni-1Cr-0.5Mo
11B	9	ASTM	A514	Grade Q	—	≤ 2.5	110/100	Plate	1.3Ni-1.3Cr-0.5Mo-V
11B	9	ASTM	A514	Grade Q	—	> 2.5 ≤ 6.0	100/90	Plate	1.3Ni-1.3Cr-0.5Mo-V
11B	9	ASTM	A517	Grade Q	—	≤ 2.5	115/100	Plate	1.3Ni-1.3Cr-0.5Mo-V
11B	9	ASTM	A517	Grade Q	—	> 2.5 ≤ 6.0	105/90	Plate	1.3Ni-1.3Cr-0.5Mo-V
11B	9	ASTM	A519	Grade 4130	G41300	—	75/55	Mechanical Tube	1Cr-0.2Mo
11B	9	ASTM	A519	Grade 8630	G86300	—	75/55	Mechanical Tube	0.5Ni-0.5Cr-0.2Mo
11B	9	ASTM	A709	Grade 100, Type Q	—	≤ 2.5	110/100	Plate & Shapes	1.3Ni-1.3Cr-0.5Mo
11B	9	ASTM	A709	Grade 100, Type Q	—	> 2.5 ≤ 4	100/90	Plate & Shapes	1.3Ni-1.3Cr-0.5Mo
11B	9	ASTM	A709	Grade 100W, Type Q	—	≤ 2.5	110/100	Plate & Shapes	1.3Ni-1.3Cr-0.5Mo
11B	9	ASTM	A709	Grade 100W, Type Q	—	> 2.5 ≤ 4.0	100/90	Plate & Shapes	1.3Ni-1.3Cr-0.5Mo

Table IV-2—Ferrous Alloys (Continued)

Material Number	Group Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Steel and Steel Alloys									
11B	10	ASTM	A514	Grade M	K11683	≤ 2.5	110/100	Plate & Shapes	1.3Ni-0.5Mo
11B	10	ASTM	A514	Grade M	K11683	> 2.5 ≤ 6.0	100/90	Plate & Shapes	1.3Ni-0.5Mo
11B	10	ASTM	A517	Grade M	K11683	≤ 2.0	115/100	Plate & Shapes	1.3Ni-0.5Mo
11B	10	ASTM	A543	Type B, Class 2	K42339	—	115/100	Plate	3Ni-1.75Cr-0.5Mo
11B	10	ASTM	A543	Type C, Class 2	K42338	—	115/100	Plate	2.75Ni-1.75Cr-0.5Mo
11B	10	ASTM	A709	Grade 100, Type M	K11683	≤ 2.5	110/100	Plate & Shapes	1.3Ni-0.5Mo
11B	10	ASTM	A709	Grade 100W, Type M	K11683	≤ 2.5	110/100	Plate & Shapes	1.3Ni-0.5Mo
11B	11	ASTM	A709	Grade HPS70W	—	—	85/70	Plate & Shapes	C-Mn-Ni-Cu-Cr-V
11B	11	ASTM	A852	Grade 70W	K12043	—	90/70	Plate & Shapes	C-Mn-Ni-Cu-Cr-V
11B	12	ASTM	A514	Grade R	—	≤ 2.5	110/100	Plate	C-Mn-Ni-Cu-V
11B	12	ASTM	A514	Grade R	—	> 2.5 ≤ 6.0	100/90	Plate	C-Mn-Ni-Cu-V
12A	1	ASTM	A710	Grade A, Class 2	K20747	≤ 2.5	72/65	Structural	Ni-Cu-Cr-Mo-Cb
12A	1	ASTM	A710	Grade A, Class 2	K20747	> 2.5 ≤ 6.0	100/90	Structural	Ni-Cu-Cr-Mo-Cb
12A	1	ASTM	A710	Grade A, Class 2	K20747	< 2.00 ≤ 4.0	65/55	Structural	Ni-Cu-Cr-Mo-Cb
12A	1	ASTM	A710	Grade A, Class 2	K20747	> 4.0	60/50	Structural	Ni-Cu-Cr-Mo-Cb
12B	1	ASTM	A710	Grade A, Class 3	K20747	≤ 1.25	85/80	Structural	Ni-Cu-Cr-Mo-Cb
12B	1	ASTM	A710	Grade A, Class 3	K20747	>1.25 ≤ 2.0	85/75	Structural	Ni-Cu-Cr-Mo-Cb
12B	1	ASTM	A710	Grade A, Class 3	K20747	> 2.0 ≤ 4.0	75/65	Structural	Ni-Cu-Cr-Mo-Cb
12B	1	ASTM	A710	Grade A, Class 3	K20747	> 4.0	70/60	Structural	Ni-Cu-Cr-Mo-Cb
12C	1	ASTM	A710	Grade A, Class 1	K20747	≤ 5/16	90/85	Structural	Ni-Cu-Cr-Mo-Cb
12C	1	ASTM	A710	Grade A, Class 1	K20747	> 5/16 ≤ 3/4	90/80	Structural	Ni-Cu-Cr-Mo-Cb

Table IV-2
M-Number Listing of Base Metals—Nonferrous Alloys

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Aluminum and Aluminum Base Alloys								
21	ASTM	B209	1060	A91060	—	8/2.5	Plate & Sheet	99.6minAl
21	ASTM	B209	1100	A91100	—	11/3.5	Plate & Sheet	99.0minAl
21	ASTM	B209	3003	A93003	—	14/5.0	Plate & Sheet	1.2Mn
21	ASTM	B209	Alclad 3003	A83003	0.006–0.499	13/4.5	Plate & Sheet	1.2Mn
21	ASTM	B209	Alclad 3003	A83003	0.500–3.000	14/5.0	Plate & Sheet	1.2Mn
21	ASTM	B209	3005	A93005	—	17/6.5	Sheet	1.2Mn-0.4Mg
21	ASTM	B209	3105	A93105	—	14/5.0	Sheet	0.5Mn-0.5Mg
21	ASTM	B209	5005	A95005	—	15/5.0	Plate & Sheet	1.5Mg
21	ASTM	B209	5010	A95010	—	15/5.0	Sheet	0.4Mg-0.2Mn
21	ASTM	B209	5050	A95050	—	18/6.0	Plate & Sheet	Al-1.5Mg
21	ASTM	B209	5457	A95457	—	16/—	Sheet	1Mg-0.3Mn
21	ASTM	B210	1060	A91060	—	8.5/2.5	Drawn Seamless Tube	99.6minAl
21	ASTM	B210	1100	A91100	—	11/3.5	Drawn Seamless Tube	99.0minAl
21	ASTM	B210	3003	A93003	—	14/5.0	Drawn Seamless Tube	1.2Mn
21	ASTM	B210	Alclad 3003	A83003	—	13/4.5	Drawn Seamless Tube	1.2Mn
21	ASTM	B210	3303	A93303	—	14/5.0	Drawn Seamless Tube	1.2Mn
21	ASTM	B210	3102	A93102	—	11/3.5	Drawn Seamless Tube	0.25Mn
21	ASTM	B210	Alclad 3102	A83102	—	10/3.5	Drawn Seamless Tube	0.25Mn
21	ASTM	B210	Alclad 3303	A83303	—	13/4.5	Drawn Seamless Tube	1.2Mn
21	ASTM	B210	5005	A95005	—	15/5.0	Drawn Seamless Tube	1.5Mg
21	ASTM	B210	5050	A95050	—	18/6.0	Drawn Seamless Tube	Al-1.5Mg
21	ASTM	B211	1060	A91060	—	8/2.5	Bar, Rod & Wire (Cold Finished)	99.6minAl
21	ASTM	B211	1100	A91100	—	11/3.0	Bar, Rod & Wire (Cold Finished)	99.0minAl
21	ASTM	B211	3003	A93003	—	14/5.0	Bar, Rod & Wire	1.2Mn
21	ASTM	B221	1060	A91060	—	8.5/2.5	Ext. Bar, Rod, Wire, Shapes & Tube	99.6minAl
21	ASTM	B221	1100	A91100	—	11/3.0	Ext. Bar, Rod, Wire, Shapes & Tube	99.0minAl
21	ASTM	B221	3003	A93003	—	14/5.0	Ext. Bar, Rod, Wire, Shapes & Tube	1.2Mn
21	ASTM	B221	Alclad 3003	A83003	—	13/4.5	Ext. Bar, Rod, Wire, Shapes & Tube	1.2Mn
21	ASTM	B221	3102	A93102	—	11/4.0	Ext. Bar, Rod, Wire, Shapes & Tube	0.25Mn

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Aluminum and Aluminum Base Alloys								
21	ASTM	B230	1350	A91350	—	8/—	Wire (Electrical)	99.5minAl
21	ASTM	B234	1060	A91060	—	8/2.5	Drawn Seamless Tube	99.6minAl
21	ASTM	B234	3003	A93003	—	14/5.0	Drawn Seamless Tube	1.2Mn
21	ASTM	B234	Alclad 3003	A83003	—	13/4.5	Drawn Seamless Tube	1.2Mn
21	ASTM	B236	1350	A91350	—	8/—	Bars (Electrical)	99.5minAl
21	ASTM	B241	1060	A91060	—	8.5/2.5	Seamless Pipe & Ext. Tube	99.6minAl
21	ASTM	B241	1100	A91100	—	11/3.0	Seamless Pipe & Ext. Tube	99.0minAl
21	ASTM	B241	3003	A93003	—	14/5.0	Seamless Pipe & Ext. Tube	1.2Mn
21	ASTM	B241	Alclad 3003	A83003	—	13/4.5	Seamless Pipe & Ext. Tube	1.2Mn
21	ASTM	B247	1100	A91100	—	11/3.0	Die, H& & Rolled Ring Forgings	99.0minAl
21	ASTM	B247	3003	A93003	—	14/5.0	Die, H& & Rolled Ring Forgings	1.2Mn
21	ASTM	B313	1100	A91100	—	11/3.0	Welded Tube	99.0minAl
21	ASTM	B313	3003	A93003	—	14/5.0	Welded Tube	1.2Mn
21	ASTM	B313	3005	A93005	—	17/6.5	Welded Tube	1.2Mn-0.4Mg
21	ASTM	B313	5050	A95050	—	18/6.0	Welded Tube	1.5Mg
21	ASTM	B324	1350	A91350	—	8.5/—	Rectangular & Square Wire (Electrical)	99.5minAl
21	ASTM	B345	1060	A91060	—	8.5/2.5	Seamless Pipe & Tube (Gas & Oil Trans.)	99.6minAl
21	ASTM	B345	3003	A93003	—	14/5.0	Seamless Pipe & Tube (Gas & Oil Trans.)	1.2Mn
21	ASTM	B345	Alclad 3003	A83003	—	13/4.5	Seamless Pipe & Tube (Gas & Oil Trans.)	1.2Mn
21	ASTM	B361	WP1060	A91060	—	8/—	Fittings	99.6minAl
21	ASTM	B361	WP1100	A91100	—	11/3.5	Fittings	99.0Al-Si
21	ASTM	B361	WP3003	A93003	—	14/5.0	Fittings	Al-Mg-1Cu-1.2Mn
21	ASTM	B361	Alclad 3003	A83003	—	13/4.5	Fittings	1.2Mn
21	ASTM	B396	5005	A95005	—	15/5.0	Wire (Electrical)	0.8Mg
21	ASTM	B483	1060	A91060	—	8.5/2.5	Drawn Tube (Gen. Purpose)	99.6minAl
21	ASTM	B483	1100	A91100	—	11/3.5	Drawn Tube (Gen. Purpose)	99.0minAl
21	ASTM	B483	1435	A91435	—	9.5/3.0	Drawn Tube (Gen. Purpose)	99.35minAl-0.4Fe

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Aluminum and Aluminum Base Alloys								
21	ASTM	B483	3003	A93003	—	14/5.0	Drawn Tube (Gen. Purpose)	1.2Mn
21	ASTM	B483	3102	A93102	—	11/3.5	Drawn Tube (Gen. Purpose)	0.25Mn
21	ASTM	B483	5005	A95005	—	15/5.0	Drawn Tube (Gen. Purpose)	0.8Mg
21	ASTM	B483	5050	A95050	—	18/6.0	Drawn Tube (Gen. Purpose)	1.5Mg
21	ASTM	B491	1050	A91050	—	8/2.5	Extruded Tube (Gen. Purpose)	99.5minAl
21	ASTM	B491	1100	A91100	—	11/3.5	Extruded Tube (Gen. Purpose)	99.0minAl
21	ASTM	B491	1200	A91200	—	11/3.5	Extruded Tube (Gen. Purpose)	99.0minAl
21	ASTM	B491	1235	A91235	—	9.5/3.0	Extruded Tube (Gen. Purpose)	99.35minAl
21	ASTM	B491	3003	A93003	—	14/5.0	Extruded Tube (Gen. Purpose)	1.2Mn
21	ASTM	B491	3102	A93102	—	11/3.5	Extruded Tube (Gen. Purpose)	0.25Mn
21	ASTM	B547	1100	A91100	—	11/3.5	Roll Formed & Long. Welded Tube	99.0minAl
21	ASTM	B547	3003	A93003	—	14/5.0	Roll Formed & Long. Welded Tube	1.2Mn
21	ASTM	B547	Alclad 3003	A83003	—	13/4.5	Roll Formed & Long. Welded Tube	1.2Mn
21	ASTM	B547	5050	A95050	—	18/6.0	Roll Formed & Long. Welded Tube	1.5Mg
21	ASTM	B609	1350	A91350	—	8.5/—	Wire (Electrical)	99.5minAl
22	ASTM	B209	3004	A93004	—	22/8.5	Plate & Sheet	1.2Mn-1.0Mg
22	ASTM	B209	Alclad 3004	A83004	0.006–0.499	21/8.0	Plate & Sheet	1.2Mn-1.0Mg
22	ASTM	B209	Alclad 3004	A83004	0.500–3.000	22/8.5	Plate & Sheet	1.2Mn-1.0Mg
22	ASTM	B209	5052	A95052	—	25/9.5	Plate & Sheet	2.5Mg-0.25Cr
22	ASTM	B209	5154	A95154	—	30/11	Plate & Sheet	3.5Mg-0.25Cr
22	ASTM	B209	5252	A95252	—	25/9.5	Plate & Sheet	2.5Mg-0.25Cr
22	ASTM	B209	5254	A95254	—	30/11	Plate & Sheet	3.5Mg-0.25Cr
22	ASTM	B209	5454	A95454	—	31/12	Plate & Sheet	2.75Mg-0.8Mn-0.1Cr
22	ASTM	B209	5652	A95652	—	25/9.5	Plate & Sheet	2.5Mg-0.25Cr-0.01maxMn
22	ASTM	B210	5052	A95052	—	25/9.5	Drawn Seamless Tube	2.5Mg-0.25Cr
22	ASTM	B210	5154	A95154	—	30/11	Drawn Seamless Tube	3.5Mg-0.25Cr
22	ASTM	B211	5052	A95052	≥0.125	25/9.5	Bar, Rod & Wire (Cold Finished)	2.5Mg-0.25Cr
22	ASTM	B211	5154	A95154	—	30/11	Bar, Rod & Wire (Cold Finished)	3.5Mg-0.25Cr

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Aluminum and Aluminum Base Alloys								
22	ASTM	B221	3004	A93004	—	23/8.5	Ext. Bar, Rod, Wire, Shapes & Tube	1.2Mn-1.0Mg
22	ASTM	B221	5052	A95052	—	25/10	Ext. Bar, Rod, Wire, Shapes & Tube	2.5Mg-0.25Cr
22	ASTM	B221	5154	A95154	—	30/11	Ext. Bar, Rod, Wire, Shapes & Tube	3.5Mg-0.25Cr
22	ASTM	B221	5454	A95454	—	31/12	Ext. Bar, Rod, Wire, Shapes & Tube	2.75Mg-0.8Mn-0.1Cr
22	ASTM	B234	5052	A95052	—	25/9.5	Drawn Seamless Tubes	2.5Mg-0.25Cr
22	ASTM	B234	5454	A95454	—	31/12	Drawn Seamless Tubes	2.75Mg-0.8Mn-0.1Cr
22	ASTM	B241	5052	A95052	—	25/10	Extruded Seamless Pipe & Tube	2.5Mg-0.25Cr
22	ASTM	B241	5454	A95454	—	31/12	Extruded Seamless Pipe & Tube	2.75Mg-0.8Mn-0.1Cr
22	ASTM	B313	3004	A93004	—	22/8.5	Formed Sheet & Seam Welded Tube	1.2Mn-1.0Mg
22	ASTM	B313	Alclad 3004	A83004	—	21/8.0	Formed Sheet & Seam Welded Tube	1.2Mn-1.0Mg
22	ASTM	B313	5052	A95052	—	25/9.5	Formed Sheet & Seam Welded Tube	2.5Mg-0.25Cr
22	ASTM	B313	5154	A95154	—	30/11	Formed Sheet & Seam Welded Tube	3.5Mg-0.25Cr
22	ASTM	B361	WP5154	A95154	—	30/—	Fittings	3.5Mg-0.25Cr
22	ASTM	B483	5052	A95052	—	25/9.5	Drawn Tube (Gen. Purpose)	2.5Mg-0.25Cr
22	ASTM	B547	3004	A93004	—	22/8.5	Formed Sheet & Arc Welded Tube	1.2Mn-1.0Mg
22	ASTM	B547	Alclad 3004	A83004	—	21/8.0	Formed Sheet & Arc Welded Tube	1.2Mn-1.0Mg
22	ASTM	B547	5052	A95052	—	25/9.5	Formed Sheet & Arc Welded Tube	2.5Mg-0.25Cr
22	ASTM	B547	5154	A95154	—	30/11	Formed Sheet & Arc Welded Tube	3.5Mg-0.25Cr
22	ASTM	B547	5454	A95454	—	31/12	Formed Sheet & Arc Welded Tube	2.75Mg-0.8Mn-0.1Cr
23	ASTM	B209	6061 (T4, T6, T651)	A96061	—	24/—	Plate & Sheet	1Mg-0.6Si-0.25Cr
23	ASTM	B209	Alclad 6061 (T4, T6, T62, T651)	A86061	0.051–0.499	23/—	Plate & Sheet	1Mg-0.6Si-0.25Cr
23	ASTM	B209	Alclad 6061 (T4, T6, T62, T651)	A86061	0.500–5.000	24/—	Plate & Sheet	1Mg-0.6Si-0.25Cr
23	ASTM	B210	6061 (T4, T6)	A96061	—	24/—	Drawn Seamless Tube	1Mg-0.6Si-0.25Cr
23	ASTM	B210	6063 (T4, T6, T62, T83)	A96063	—	17/—	Drawn Seamless Tube	0.7Mg-0.4Si
23	ASTM	B211	6061 (T4, T6, T62, T651)	A96061	—	24/—	Bar, Rod & Wire	1Mg-0.6Si-0.25Cr

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Aluminum and Aluminum Base Alloys								
23	ASTM	B221	6005 (T1, T5)	A96005	—	24/—	Ext. Rod, Bar, Shapes & Tube	0.75Si-0.5Mg
23	ASTM	B221	6005A (T1, T5)	A96005	—	24/—	Ext. Rod, Bar, Shapes & Tube	0.7Si-0.55Mg-0.3(Mn-Cr)
23	ASTM	B221	6061 (T1, T4, T5, T6, T651)	A96061	—	24/—	Ext. Rod, Bar, Shapes & Tube	1Mg-0.6Si-0.25Cr
23	ASTM	B221	6063 (T1, T4, T5, T6)	A96063	—	17/—	Ext. Rod, Bar, Shapes & Tube	0.7Mg-0.4Si
23	ASTM	B221	6105 (T1, T5)	A96105	—	24/—	Ext. Rod, Bar, Shapes & Tube	0.8Si-0.6Mg
23	ASTM	B221	6162 (T5, T55, T6, T65)	A96162	—	24/—	Ext. Rod, Bar, Shapes & Tube	0.9Mg-0.6Si
23	ASTM	B221	6351 (T1, T4, T5, T6)	A96351	—	24/—	Ext. Rod, Bar, Shapes & Tube	1Si-0.6Mg-0.6Mn
23	ASTM	B221	6463 (T1, T5, T6)	A96463	—	17/—	Ext. Rod, Bar, Shapes & Tube	0.7Mg-0.4Si
23	ASTM	B234	6061 (T4, T6)	A96061	—	24/—	Drawn Seamless Tube	1Mg-0.6Si-0.25Cr
23	ASTM	B241	6061 (T1, T4, T42, T51, T6, T62)	A96061	—	24/—	Extruded Seamless Pipe & Tube	1Mg-0.6Si-0.25Cr
23	ASTM	B241	6063 (T1, T4, T42, T5, T52, T6, T62)	A96063	—	17/—	Extruded Seamless Pipe & Tube	0.7Mg-0.4Si
23	ASTM	B241	6162 (T5, T55, T6, T65)	A96162	—	24/—	Extruded Seamless Pipe & Tube	0.9Mg-0.6Si
23	ASTM	B241	6351 (T4, T6)	A96351	—	24/—	Extruded Seamless Pipe & Tube	1Si-0.6Mg-0.6Mn
23	ASTM	B247	6061 (T6)	A96061	—	24/—	Die Forgings	1Mg-0.6Si-0.25Cr
23	ASTM	B247	6061 (T6, T652)	A96061	—	24/—	Rolled Ring Forgings	1Mg-0.6Si-0.25Cr
23	ASTM	B247	6061 (T6, T652)	A96061	—	24/—	H& Forgings	1Mg-0.6Si-0.25Cr
23	ASTM	B247	6151 (T6)	A96151	—	24/—	Die Forgings	0.8Si-0.7Mg-0.25Cr
23	ASTM	B247	6151 (T6, T652)	A96151	—	24/—	Rolled Ring Forgings	0.8Si-0.7Mg-0.25Cr
23	ASTM	B308	6061 (T6)	A96061	—	24/—	Standard Structural Shapes	1Mg-0.6Si-0.25Cr
23	ASTM	B313	6061 (T4, T6)	A96061	—	24/—	Formed Sheet & Seam Welded Tube	1Mg-0.6Si-0.25Cr
23	ASTM	B317	6101 (T6, T61, T64, T65)	A96101	—	11/—	Ext. Bar, Rod, Wire, Shapes & Tube	0.55Mg-0.5Si

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Aluminum and Aluminum Base Alloys								
23	ASTM	B345	6061 (T4, T45, T6, T65)	A96061	—	24/—	Extruded Seamless Pipe & Tube	1Mg-0.6Si-0.25Cr
23	ASTM	B345	6063 (T1, T4, T5, T6)	A96063	—	17/—	Extruded Seamless Pipe & Tube	0.7Mg-0.4Si
23	ASTM	B345	6351 (T4, T6)	A96351	—	24/—	Extruded Seamless Pipe & Tube	1Si-0.6Mg-0.6Mn
23	ASTM	B429	6061 (T6)	A96061	—	24/—	Extruded Seamless Pipe & Tube	1Mg-0.6Si-0.25Cr
23	ASTM	B429	6063 (T6)	A96063	—	17/—	Extruded Seamless Pipe & Tube	0.7Mg-0.4Si
23	ASTM	B483	6061 (T4, T6)	A96061	—	24/—	Drawn Tube (Gen. Purpose)	1Mg-0.6Si-0.25Cr
23	ASTM	B483	6063 (T4, T6)	A96063	—	17/—	Drawn Tube (Gen. Purpose)	0.7Mg-0.4Si
23	ASTM	B491	6063 (T1)	A96063	—	17/—	Drawn Tube (Gen. Purpose)	0.7Mg-0.4Si
23	ASTM	B547	6061 (T4, T6)	A96061	—	24/—	Formed & Arc Seam Welded Tube	1Mg-0.6Si-0.25Cr
23	ASTM	B632	6061 (T4, T6)	A96061	—	24/—	Tread Plate	1Mg-0.6Si-0.25Cr
23	ISO	–547	6082 (T4, T6)	A96082	—	24/—	Ext. Rod, Bar, Shapes & Tube	1Si-0.8Mg-0.7Mn
24	ASTM	B209	2014 (T3, T4, T45, T6, T65)	A92014	—	35/—	Plate & Sheet	4.45Cu-0.85Si-0.8Mn-0.6Mg
24	ASTM	B209	Alclad 2014 (T3, T4, T45, T6, T65)	A82014	—	35/—	Plate & Sheet	4.45Cu-0.85Si-0.8Mn-0.6Mg
24	ASTM	B209	2219 (T31, T37, T62, T81, T87)	A92219	—	35/—	Plate & Sheet	6.3Cu-0.3Mn-0.06Ti-0.17Zr
24	ASTM	B209	Alclad 2219 (T31, T37, T62, T81, T87)	A82219	—	35/—	Plate & Sheet	6.3Cu-0.3Mn-0.06Ti-0.17Zr
24	ASTM	B210	2014 (T4, T6)	A92014	—	35/—	Drawn Seamless Tube	4.45Cu-0.85Si-0.8Mn-0.6Mg
24	ASTM	B211	2014 (T4, T6)	A92014	—	35/—	Bar, Rod & Wire	4.45Cu-0.85Si-0.8Mn-0.6Mg
24	ASTM	B211	2219 (T851)	A92219	—	35/—	Bar, Rod & Wire	6.3Cu-0.3Mn-0.06Ti-0.17Zr
24	ASTM	B221	2014 (T4, T45, T6, T65)	A92014	—	35/—	Ext. Bar, Rod, Wire, Shapes & Tube	4.45Cu-0.85Si-0.8Mn-0.6Mg
24	ASTM	B221	2219 (T31, T35, T62, T81, T85)	A92219	—	35/—	Ext. Bar, Rod, Wire, Shapes & Tube	6.3Cu-0.3Mn-0.06Ti-0.17Zr
24	ASTM	B241	2014 (T4, T45, T6, T62, T65)	A92014	—	35/—	Extruded Seamless Pipe & Tube	4.45Cu-0.85Si-0.8Mn-0.6Mg

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Aluminum and Aluminum Base Alloys								
24	ASTM	B241	2219 (T31, T35, T62, T81, T85)	A92219	—	35/—	Extruded Seamless Pipe & Tube	6.3Cu-0.3Mn-0.06Ti-0.17Zr
24	ASTM	B247	2014 (T4, T6)	A92014	—	35/—	Die Forgings	4.45Cu-0.85Si-0.8Mn-0.6Mg
24	ASTM	B247	2014 (T6, T652)	A92014	—	35/—	H& Forgings	4.45Cu-0.85Si-0.8Mn-0.6Mg
24	ASTM	B247	2219 (T6)	A92219	—	35/—	Die Forgings	6.3Cu-0.3Mn-0.06Ti-0.17Zr
24	ASTM	B247	2219 (T6, T852)	A92219	—	35/—	H& Forgings	6.3Cu-0.3Mn-0.06Ti-0.17Zr
25	ASTM	B209	5083	A95083	0.051–1.500	40/18	Plate & Sheet	4.5Mg-0.8Mn-0.15Cr
25	ASTM	B209	5083	A95083	1.501–3.000	39/17	Plate	4.5Mg-0.8Mn-0.15Cr
25	ASTM	B209	5083	A95083	3.001–5.000	38/16	Plate	4.5Mg-0.8Mn-0.15Cr
25	ASTM	B209	5083	A95083	5.001–7.000	37/15	Plate	4.5Mg-0.8Mn-0.15Cr
25	ASTM	B209	5083	A95083	7.001–8.000	36/14	Plate	4.5Mg-0.8Mn-0.15Cr
25	ASTM	B209	5086	A95086	0.020–2.000	35/14	Plate & Sheet	4.0Mg-0.5Mn-0.15Cr
25	ASTM	B209	5086	A95086	2.001–3.000	34/14	Plate	4.0Mg-0.5Mn-0.15Cr
25	ASTM	B209	5456	A95456	0.051–1.500	42/19	Plate & Sheet	5.1Mg-0.8Mn-0.1Cr
25	ASTM	B209	5456	A95456	1.501–3.000	41/18	Plate	5.1Mg-0.8Mn-0.1Cr
25	ASTM	B209	5456	A95456	3.001–5.000	40/17	Plate	5.1Mg-0.8Mn-0.1Cr
25	ASTM	B209	5456	A95456	5.001–7.000	39/16	Plate	5.1Mg-0.8Mn-0.1Cr
25	ASTM	B209	5456	A95456	7.001–8.000	38/15	Plate	5.1Mg-0.8Mn-0.1Cr
25	ASTM	B210	5083	A95083	—	39/16	Drawn Seamless Tube	4.5Mg-0.8Mn-0.15Cr
25	ASTM	B210	5086	A95086	—	35/14	Drawn Seamless Tube	4.0Mg-0.5Mn-0.15Cr
25	ASTM	B210	5456	A95456	—	41/19	Drawn Seamless Tube	5.1Mg-0.8Mn-0.1Cr
25	ASTM	B211	5056	A95056	—	38/—	Bar, Rod & Wire (Cold Finished)	5Mg-0.12Mn-0.12Cu
25	ASTM	B211	Alclad 5056	A85056	—	37/—	Bar, Rod & Wire (Cold Finished)	5Mg-0.12Mn-0.12Cu
25	ASTM	B221	5083	A95083	—	39/16	Ext. Bar, Rod, Wire, Shapes & Tube	4.5Mg-0.8Mn-0.15Cr
25	ASTM	B221	5086	A95086	—	35/14	Ext. Bar, Rod, Wire, Shapes & Tube	4.0Mg-0.5Mn-0.15Cr
25	ASTM	B221	5456	A95456	—	41/19	Ext. Bar, Rod, Wire, Shapes & Tube	5.1Mg-0.8Mn-0.1Cr
25	ASTM	B241	5083	A95083	—	39/16	Ext. Pipe & Tube	4.5Mg-0.8Mn-0.15Cr
25	ASTM	B241	5086	A95086	—	35/14	Ext. Pipe & Tube	4.0Mg-0.5Mn-0.15Cr
25	ASTM	B241	5456	A95456	—	41/19	Ext. Pipe & Tube	5.1Mg-0.8Mn-0.1Cr

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Aluminum and Aluminum Base Alloys								
25	ASTM	B247	5083	A95083	—	39/16	H& Forgings	4.5Mg-0.8Mn-0.15Cr
25	ASTM	B247	5083	A95083	—	39/16	Die Forgings	4.5Mg-0.8Mn-0.15Cr
25	ASTM	B313	5086	A95086	—	35/14	Formed Sheet & Seam Welded Tube	4.0Mg-0.5Mn-0.15Cr
25	ASTM	B345	5083	A95083	—	39/16	Extruded Seamless Pipe & Tube	4.5Mg-0.8Mn-0.15Cr
25	ASTM	B345	5086	A95086	—	35/14	Extruded Seamless Pipe & Tube	4.0Mg-0.5Mn-0.15Cr
25	ASTM	B547	5083	A95083	—	40/18	Formed & Arc Seam Welded Tube	4.5Mg-0.8Mn-0.15Cr
25	ASTM	B547	5086	A95086	—	35/14	Formed & Arc Seam Welded Tube	4.0Mg-0.5Mn-0.15Cr
26	ASTM	B26	208.0 (F)	A02080	—	19/12	Sand Castings	4Cu-3Si
26	ASTM	B26	222.0 (T61)	A02220	—	23/—	Sand Castings	10Cu-0.25Mg
26	ASTM	B26	319.0 (F, T5, T6)	A03190	—	23/13	Sand Castings	6Si-3.5Cu
26	ASTM	B26	328.0 (F, T6)	A03280	—	25/14	Sand Castings	8Si-1.5Cu-0.4Mg-0.4Mn
26	ASTM	B26	356.0 (F)	A03560	—	19/9.5	Sand Castings	7Si-0.35Mg
26	ASTM	B26	356.0 (T51, T6, T7, T71)	A03560	—	23/—	Sand Castings	7Si-0.35Mg
26	ASTM	B26	443.0 (F)	A04430	—	17/7	Sand Castings	5.2Si
26	ASTM	B26	514.0 (F)	A05140	—	22/9	Sand Castings	4Mg
26	ASTM	B26	535.0 (F)	A05350	—	35/18	Sand Castings	6.8Mg-0.18Mn
26	ASTM	B26	705.0 (T5)	A07050	—	30/17	Sand Castings	3Zn-1.6Mg-0.5Mn-0.3Cr
26	ASTM	B26	710.0 (T5)	A07100	—	32/20	Sand Castings	6.5Zn-0.7Mg-0.47Cu
26	ASTM	B26	A356.0 (T6)	A13560	—	23/—	Sand Castings	7Si-0.3Mg
26	ASTM	B26	B443.0 (F)	A24430	—	17/6	Sand Castings	5.2Si
26	ASTM	B26	512.0 (F)	A05120	—	17/10	Sand Castings	4Mg-1.8Si
26	ASTM	B108	308.0 (F)	A03080	—	24/—	Permanent Mold Casting	5.5Si-4.5Cu
26	ASTM	B108	319.0 (F, T6)	A03190	—	24/14	Permanent Mold Casting	6Si-3.5Cu
26	ASTM	B108	333.0 (T5, T6, T7)	A03330	—	28/—	Permanent Mold Casting	9Si-3.5Cu-0.3Mn
	ASTM	B108	356.0 (F)	A03560	—	21/-	Permanent Mold Casting	7Si-0.35Mg
26	ASTM	B108	356.0 (T51, T6, T7, T71)	A03560	—	23/—	Permanent Mold Casting	7Si-0.35Mg
26	ASTM	B108	443.0 (F)	A04430	—	17/7.0	Permanent Mold Casting	5.2Si

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Aluminum and Aluminum Base Alloys								
26	ASTM	B108	513.0 (F)	A05130	—	22/12	Permanent Mold Casting	4Mg-1.8Zn
26	ASTM	B108	535.0 (F)	A05350	—	35/18	Permanent Mold Casting	6.8Mg-0.18Mn
26	ASTM	B108	A356.0 (T61)	A13560	—	23/—	Permanent Mold Casting	7Si-0.3Mg
26	ASTM	B108	A444.0 (T4)	A14440	—	17/—	Permanent Mold Casting	7Si
26	ASTM	B108	B443.0 (F)	A24430	—	17/6.0	Permanent Mold Casting	5.2Si
26	ASTM	B618	208.0 (F)	A02080	—	19/12	Investment Castings	4Cu-3Si
26	ASTM	B618	319.0 (F, T6)	A03190	—	23/13	Investment Castings	6Si-3.5Cu
26	ASTM	B618	328.0 (F, T6)	A03280	—	25/14	Investment Castings	8Si-1.5Cu-0.4Mg-0.4Mn
26	ASTM	B618	356.0 (T6, T7, T51, T71)	A03560	—	23/—	Investment Castings	7Si-0.35Mg
26	ASTM	B618	443.0 (F)	A04430	—	17/7.0	Investment Castings	5.2Si
26	ASTM	B618	514.0 (F)	A05140	—	22/9.0	Investment Castings	4Mg
26	ASTM	B618	535.0 (F)	A05350	—	35/18	Investment Castings	6.8Mg-0.18Mn
26	ASTM	B618	A356.0 (T6)	A13560	—	23/—	Investment Castings	7Si-0.3Mg
26	ASTM	B618	B443.0 (F)	A24430	—	17/6.0	Investment Castings	5.2Si
26	ASTM	B686	A356.0 (T61)	A13560	—	23/—	Investment Castings	7Si-0.3Mg
27	ASTM	B221	7005 (T53)	A97005	—	40/—	Ext. Bar, Rod, Wire, Shapes & Tube	4.5Zn-1.4Mg-0.45Mn-0.13Cr
27	ISO	R209	7020 (T5)	A97020	—	40/—	Ext. Bar, Rod, Wire, Shapes & Tube	4.5Zn-1.2Mg-0.25Mn-0.18Cr

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Copper and Copper Base Alloys								
31	ASTM	B42	Oxygen-Free Cu (OF)	C10200	—	30/9	Seamless Pipe	99.95Cu-Ag
31	ASTM	B42	Oxygen-Free Cu (OFXLP)	C10300	—	30/9	Seamless Pipe	99.95Cu-0.003P
31	ASTM	B42	Oxygen-Free Cu (OFLP)	C10800	—	30/9	Seamless Pipe	99.95Cu-0.008P
31	ASTM	B42	Deoxidized Low P Cu (DLP)	C12000	—	30/9	Seamless Pipe	99.90Cu-Ag-0.008P
31	ASTM	B42	Deoxidized High P Cu (DHP)	C12200	—	30/9	Seamless Pipe	99.9Cu-0.027P
31	ASTM	B68	Oxygen-Free Cu (OF)	C10200	—	30/9	Seamless Tube	99.95Cu-Ag
31	ASTM	B68	Oxygen-Free Cu (OFXLP)	C10300	—	30/9	Seamless Tube	99.95Cu-0.003P
31	ASTM	B68	Oxygen-Free Cu (OFLP)	C10800	—	30/9	Seamless Tube	99.95Cu-0.008P
31	ASTM	B68	Deoxidized Low P Cu (DLP)	C12000	—	30/9	Seamless Tube	99.90Cu-Ag-0.008P
31	ASTM	B68	Deoxidized High P Cu (DHP)	C12200	—	30/9	Seamless Tube	99.9Cu-0.027P
31	ASTM	B75	Oxygen-Free Cu (OFE)	C10100	—	30/9	Seamless Tube	99.99Cu-Ag
31	ASTM	B75	Oxygen-Free Cu (OF)	C10200	—	30/9	Seamless Tube	99.95Cu-Ag
31	ASTM	B75	Oxygen-Free Cu (OFXLP)	C10300	—	30/9	Seamless Tube	99.95Cu-0.003P
31	ASTM	B75	Oxygen-Free Cu (OFLP)	C10800	—	30/9	Seamless Tube	99.95Cu-0.008P
31	ASTM	B75	Deoxidized Low P Cu (DHL)	C12000	—	30/9	Seamless Tube	99.9Cu-Ag-0.008P
31	ASTM	B75	Deoxidized High P Cu (DHP)	C12200	—	30/9	Seamless Tube	99.9Cu-0.027P

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Copper and Copper Base Alloys								
31	ASTM	B75	Oxygen-Free Cu (DPA)	C14200	—	30/9	Seamless Tube	99.4Cu-0.3As-0.27P
31	ASTM	B88	Oxygen Free Cu (OF)	C10200	—	30/—	Seamless Tube	99.95Cu-Ag
31	ASTM	B88	Oxygen Free Cu (OFXLP)	C10300	—	30/9	Seamless Tube	99.95Cu-0.003P
31	ASTM	B88	Oxygen Free Cu (DLP)	C12000	—	30/—	Seamless Tube	99.9Cu-0.008P
31	ASTM	B88	Oxygen Free Cu (DLP)	C12200	—	30/—	Seamless Tube	99.9Cu-0.027P
31	ASTM	B111	Oxygen-Free Cu (OFE)	C10100	—	30/9	Seamless Tube & Ferrule Stock	99.4Cu-0.3Ag-0.27P
31	ASTM	B111	Oxygen-Free Cu (OF)	C10200	—	36/—	Seamless Tube & Ferrule Stock	99.95Cu-Ag
31	ASTM	B111	Oxygen-Free Cu (OFXLP)	C10300	—	30/9	Seamless Tube & Ferrule Stock	99.95Cu-0.003P
31	ASTM	B111	Oxygen-Free Cu (OFLP)	C10800	—	30/9	Seamless Tube & Ferrule Stock	99.95Cu-0.008P
31	ASTM	B111	Oxygen-Free Cu (DLP)	C12000	—	30/9	Seamless Tube & Ferrule Stock	99.9Cu-Ag
31	ASTM	B111	Oxygen-Free Cu (DHP)	C12200	—	30/9	Seamless Tube & Ferrule Stock	99.9Cu-0.027P
31	ASTM	B111	Oxygen-Free Cu (DPA)	C14200	—	30/9	Seamless Tube & Ferrule Stock	99.4Cu-0.3Ag-0.27P
31	ASTM	B111	98.5 min Cu	C19200	—	38/12	Seamless Tube & Ferrule Stock	98.7Cu-1Fe-0.025P
31	ASTM	B152	Oxygen-Free Cu (OFE)	C10100	—	30/9	Plate, Sheet, Strip & Rolled Bar	99.4Cu-0.3Ag-0.27P
31	ASTM	B152	Oxygen-Free Cu (OF)	C10200	—	30/9	Plate, Sheet, Strip & Rolled Bar	99.95Cu-Ag
31	ASTM	B152	Oxygen-Free Cu (OFXLP)	C10300	—	30/9	Plate, Sheet, Strip & Rolled Bar	99.95Cu-0.003P
31	ASTM	B152	Oxygen-Free Cu (OFS)	C10400	—	30/9	Plate, Sheet, Strip & Rolled Bar	99.95Cu0.027Ag

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Copper and Copper Base Alloys								
31	ASTM	B152	Oxygen-Free Cu (OFS)	C10500	—	30/9	Plate, Sheet, Strip & Rolled Bar	99.95Cu-0.034Ag
31	ASTM	B152	Oxygen-Free Cu (OFS)	C10700	—	30/9	Plate, Sheet, Strip & Rolled Bar	99.95Cu-0.085Ag
31	ASTM	B152	Oxygen-Free Cu (OFLP)	C10800	—	30/9	Plate, Sheet, Strip & Rolled Bar	99.95Cu-0.008P
31	ASTM	B152	Oxygen-Free Cu (DLP)	C12000	—	30/9	Plate, Sheet, Strip & Rolled Bar	99.9Cu-Ag
31	ASTM	B152	Oxygen-Free Cu (DHP)	C12200	—	30/9	Plate, Sheet, Strip & Rolled Bar	99.9Cu-0.027P
31	ASTM	B152	Oxygen-Free Cu (DPS)	C12300	—	30/9	Plate, Sheet, Strip & Rolled Bar	99.9Cu-0.027P
31	ASTM	B152	Oxygen-Free Cu (DPA)	C14200	—	30/9	Plate, Sheet, Strip & Rolled Bar	99.4Cu-0.3Ag-0.27P
31	ASTM	B152	Sn Bearing Tellu- rium Cu	C14420	—	30/9	Plate, Sheet, Strip & Rolled Bar	99.9Cu-0.10Sn-0.02Te
31	ASTM	B170	Oxygen-Free Electronic Cu (OFE)	C10100	—	30/9	Refinery Shapes	99.4Cu-0.3Ag-0.27P
31	ASTM	B170	Oxygen-Free Electronic Cu (OF)	C10200	—	30/9	Refinery Shapes	99.95Cu-Ag
31	ASTM	B187	Oxygen-Free Cu (OFE)	C10100	—	28/—	Rod	99.99Cu
31	ASTM	B187	Oxygen-Free Cu (OF)	C10200	—	28/—	Rod	99.95Cu-Ag
31	ASTM	B187	Oxygen-Free Cu (OFXLP)	C10300	—	28/—	Rod	99.95Cu-0.003P
31	ASTM	B187	Oxygen-Free Cu with Ag (OFS)	C10400	—	28/—	Rod	99.95Cu-0.027Ag
31	ASTM	B187	Oxygen-Free Cu with Ag (OFS)	C10700	—	28/—	Rod	99.95Cu-0.085Ag
31	ASTM	B187	Controlled Oxy- gen Cu	C10940	—	28/—	Rod	99.90minCu-Ag

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Copper and Copper Base Alloys								
31	ASTM	B187	Sn Bearing Tellu- rium Cu	C14420	—	28/—	Rod	99.9Cu-0.10Sn-0.02Te
31	ASTM	B187	Oxygen-Free Cu (OFE)	C10100	—	28/—	Bars	99.99Cu
31	ASTM	B187	Oxygen-Free Cu (OF)	C10200	—	28/—	Bars	99.95Cu-Ag
31	ASTM	B187	Oxygen-Free Cu (OFXLP)	C10300	—	28/—	Bars	99.95Cu-0.003P
31	ASTM	B187	Oxygen-Free Cu with Ag (OFS)	C10400	—	28/—	Bars	99.95Cu-0.027Ag
31	ASTM	B187	Oxygen-Free Cu with Ag (OFS)	C10700	—	28/—	Bars	99.95Cu-0.085Ag
31	ASTM	B187	Controlled Oxy- gen Cu	C10940	—	28/—	Bars	99.90minCu-Bar
31	ASTM	B187	Sn Bearing Tellu- rium Cu	C14420	—	28/—	Bars	99.9Cu-0.10Sn-0.02Te
31	ASTM	B187	Oxygen-Free Cu (OFE)	C10100	—	28/—	Rolled Shapes	99.99Cu
31	ASTM	B187	Oxygen-Free Cu (OF)	C10200	—	28/—	Rolled Shapes	99.95Cu-Ag
31	ASTM	B187	Oxygen-Free Cu (OFXLP)	C10300	—	28/—	Rolled Shapes	99.95Cu-0.003P
31	ASTM	B187	Oxygen-Free Cu with Ag (OFS)	C10400	—	28/—	Rolled Shapes	99.95Cu0.027Ag
31	ASTM	B187	Oxygen-Free Cu with Ag (OFS)	C10700	—	28/—	Rolled Shapes	99.95Cu-0.085Ag
31	ASTM	B187	Controlled Oxy- gen Cu	C10940	—	28/—	Rolled Shapes	99.90minCu-Ag
31	ASTM	B187	Sn Bearing Tellu- rium Cu	C14420	—	28/—	Rolled Shapes	99.9Cu-0.10Sn-0.02Te
31	ASTM	B280	Oxygen-free Cu (OF)	C10200			Seamless Tube	99.95Cu+Ag

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Copper and Copper Base Alloys								
31	ASTM	B280	Deoxidized Cu (DLP)	C12000			Seamless Tube	99.9Cu+Ag
31	ASTM	B280	Deoxidized Cu (DHP)	C12200	—	30/9	Seamless Tube	99.9Cu-0.027P
31	ASTM	B359	Oxygen-Free Cu (OFE)	C10100	—	30/9	Seamless Tube	99.99Cu
31	ASTM	B359	Oxygen-Free Cu (OF)	C10200	—	30/9	Seamless Tube	99.95Cu-Ag
31	ASTM	B359	Oxygen-Free Cu (OFXLP)	C10300	—	30/9	Seamless Tube	99.95Cu-0.003P
31	ASTM	B359	Oxygen-Free Low P Cu (OFLP)	C10800	—	30/9	Seamless Tube	99.95Cu-0.008P
31	ASTM	B359	Deoxidized Low P Cu (DLP)	C12000	—	30/9	Seamless Tube	99.9Cu-Ag-0.008P
31	ASTM	B359	Deoxidized High P Cu (DHP)	C12200	—	30/9	Seamless Tube	99.9Cu-0.027P
31	ASTM	B359	Deoxidized As-Cu (DPA)	C14200	—	30/9	Seamless Tube	99.4Cu-0.3As-0.027P
31	ASTM	B359	98.7 min Cu	C19200	—	30/9	Seamless Tube	98.7Cu-1Fe-0.025P
31	ASTM	B395	Oxygen-Free Cu (OF)	C10200	—	30/9	Seamless Tube	99.95Cu-Ag
31	ASTM	B395	Oxygen-Free Cu (OFXLP)	C10300	—	30/9	Seamless Tube	99.95Cu-0.003P
31	ASTM	B395	Oxygen-Free Low P Cu (OFLP)	C10800	—	30/9	Seamless Tube	99.95Cu-0.008P
31	ASTM	B395	Deoxidized Low P Cu (DLP)	C12000	—	30/9	Seamless Tube	99.9Cu-Ag
31	ASTM	B395	Deoxidized High P Cu (DHP)	C12200	—	30/9	Seamless Tube	99.9Cu-0.027P
31	ASTM	B395	Deoxidized As-Cu (DPA)	C14200	—	30/9	Seamless Tube	99.4Cu-0.3Ag-0.027P
31	ASTM	B395	98.7 min Cu	C19200	—	30/9	Seamless Tube	98.7Cu-1Fe-0.025P

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Copper and Copper Base Alloys								
31	ASTM	B543	Oxygen-Free Low P Cu (OFLP)	C10800	—	30/9	Welded Tube	99.95Cu-0.008P
31	ASTM	B543	Deoxidized High P Cu (DHP)	C12200	—	30/9	Welded Tube	99.9Cu-0.027P
31	ASTM	B543	97.0 min Cu	C19400	—	45/15	Welded Tube	97Cu-2.3Fe-0.08P
31	ASTM	B819	Deoxidized High P Cu (DHP)	C12200	—	30/9	Seamless Tube	99.9Cu-0.027P
32	ASTM	B21	Alloy A Naval Brass	C46400	≤ 1.00 O.D.	54/20	Rod & Bar	60.5Cu-38Zn-0.75Sn
32	ASTM	B21	Alloy A Naval Brass	C46400	>1.00≤ 2.00	52/20	Rod & Bar	60.5Cu-38Zn-0.75Sn
32	ASTM	B21	Alloy A Naval Brass	C46400	>2.00	50/20	Rod & Bar	60.5Cu-38Zn-0.75Sn
32	ASTM	B21	Alloy A Naval Brass	C46400	—	52/20	Shapes	60.5Cu-38Zn-0.75Sn
32	ASTM	B43	Red Brass, 85%	C23000	—	40/12	Seamless Pipe	85Cu-15Zn
32	ASTM	B111	Red Brass, 85%	C23000	—	40/12	Seamless Tube & Ferrule Stock	85Cu-15Zn
32	ASTM	B111	Muntz Metal	C28000	—	50/20	Seamless Tube & Ferrule Stock	61Cu-38Zn
32	ASTM	B111	Admiralty, A	C44300	—	45/15	Seamless Tube & Ferrule Stock	71.5Cu-28Zn-1Sn-0.04Ag
32	ASTM	B111	Admiralty, B	C44400	—	45/15	Seamless Tube & Ferrule Stock	71.5Cu-28Zn-1Sn-0.06Sb
32	ASTM	B111	Admiralty, C	C44500	—	45/15	Seamless Tube & Ferrule Stock	71.5Cu-28Zn-1Sn-0.06P
32	ASTM	B111	Aluminum Brass B	C68700	—	50/18	Seamless Tube & Ferrule Stock	67.5Cu-31Zn-1.9Al-0.04Ag
32	ASTM	B135	Commercial Bronze, 90%	C22000	—	38/12	Seamless Tube	90Cu-9.8Zn
32	ASTM	B135	Red Brass, 85%	C23000	—	40/12	Seamless Tube	85Cu-15Zn
32	ASTM	B171	Leaded Muntz Metal	C36500	≤ 2.00	50/20	Plate & Sheet	59.5Cu-40Zn-0.5Pb
32	ASTM	B171	Leaded Muntz Metal	C36500	>2.0≤ 3.5	45/15	Plate & Sheet	59.5Cu-40Zn-0.5Pb

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Copper and Copper Base Alloys								
32	ASTM	B171	Leaded Muntz Metal	C36500	>3.5≤ 5.0	40/12	Plate & Sheet	59.5Cu-40Zn-0.5Pb
32	ASTM	B171	Admiralty, A	C44300	≤ 4.0	45/15	Plate & Sheet	71.5Cu-28Zn-1Sn-0.04Ag
32	ASTM	B171	Admiralty, B	C44400	≤ 4.0	45/15	Plate & Sheet	71.5Cu-28Zn-1Sn-0.06Sb
32	ASTM	B171	Admiralty, C	C44500	≤ 4.0	45/15	Plate & Sheet	71.5Cu-28Zn-1Sn-0.06P
32	ASTM	B171	Naval Brass	C46400	≤ 3.0	50/20	Plate & Sheet	60.5Cu-38Zn-0.75Sn
32	ASTM	B171	Naval Brass	C46400	>3≤ 5	50/18	Plate & Sheet	60.5Cu-38Zn-0.75Sn
32	ASTM	B171	Naval Brass, Arsenical	C46500	≤ 3.0	50/20	Plate & Sheet	60.5Cu-38Zn-0.75Sn-0.04Ag
32	ASTM	B171	Naval Brass, Arsenical	C46500	>3≤ 5	50/18	Plate & Sheet	60.5Cu-38Zn-0.75Sn-0.04Ag
32	ASTM	B359	Red Brass, 85%	C23000	—	40/12	Seamless Tube	85Cu-15Zn
32	ASTM	B359	Admiralty, A	C44300	—	45/15	Seamless Tube	71.5Cu-28Zn-1Sn-0.04As
32	ASTM	B359	Admiralty, B	C44400	—	45/15	Seamless Tube	71.5Cu-28Zn-1Sn-0.06Sb
32	ASTM	B359	Admiralty, C	C44500	—	45/15	Seamless Tube	71.5Cu-28Zn-1Sn-0.06P
32	ASTM	B359	Aluminum Brass B	C68700	—	50/18	Seamless Tube	77.5Cu-31Zn-1.9Al-0.04As
32	ASTM	B395	Red Brass, 85%	C23000	—	40/12	Seamless Tube	85Cu-15Zn
32	ASTM	B395	Admiralty, A	C44300	—	45/15	Seamless Tube	71.5Cu-28Zn-1Sn-0.04Ag
32	ASTM	B395	Admiralty, B	C44400	—	45/15	Seamless Tube	71.5Cu-28Zn-1Sn-0.06Sb
32	ASTM	B395	Admiralty, C	C44500	—	45/15	Seamless Tube	71.5Cu-28Zn-1Sn-0.06P
32	ASTM	B395	Aluminum Brass B	C68700	—	50/18	Seamless Tube	67.5Cu-31Zn-1.9Al-0.04Ag
32	ASTM	B543	Red Brass, 85%	C23000	—	40/12	Welded Tube	85Cu-15Zn
32	ASTM	B543	Admiralty, A	C44300	—	45/15	Welded Tube	71.5Cu-28Zn-1Sn-0.04Ag
32	ASTM	B543	Admiralty, B	C44400	—	45/15	Welded Tube	71.5Cu-28Zn-1Sn-0.06Sb
32	ASTM	B543	Admiralty, C	C44500	—	45/15	Welded Tube	71.5Cu-28Zn-1Sn-0.06P
32	ASTM	B543	Aluminum Brass B	C68700	—	50/18	Welded Tube	67.5Cu-31Zn-1.9Al-0.04Ag
33	ASTM	B96	Low Si Bronze B	C65100	—	38/—	Plate, Sheet, Strip & Rolled Bar	96Cu-0.14Si

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Copper and Copper Base Alloys								
33	ASTM	B96	Silicon Bronze	C65400	—	65/—	Plate, Sheet, Strip & Rolled Bar	95Cu-3Si-1.5Sn
33	ASTM	B96	High Si Bronze A	C65500	—	52/—	Plate, Sheet, Strip & Rolled Bar	93Cu-3.3Si-0.9Mn
33	ASTM	B98	Low Si Bronze B	C65100	—	40/12	Rod, Bars & Shapes	96Cu-0.14Si
33	ASTM	B98	High Si Bronze A	C65500	—	52/15	Rod, Bars & Shapes	93Cu-3.3Si-0.9Mn
33	ASTM	B98	Silicon Bronze	C66100	—	52/15	Rod, Bars & Shapes	93Cu-3.15Si-0.5Pb
33	ASTM	B283	High Si Bronze A	C65500	—	50/15	Die Forgings	93Cu-3.3Si-0.9Mn
33	ASTM	B315	Low Si Bronze B	C65100	—	40/10	Pipe	96Cu-0.14Si
33	ASTM	B315	High Si Bronze A	C65500	—	50/15	Pipe	93Cu-3.3Si-0.9Mn
33	ASTM	B315	Low Si Bronze B	C65100	—	40/10	Tube	96Cu-0.14Si
33	ASTM	B315	High Si Bronze A	C65500	—	50/15	Tube	93Cu-3.3Si-0.9Mn
34	ASTM	B111	95-5 Cu-Ni	C70400	—	38/12	Seamless Tube & Ferrule Stock	92Cu-5.5Ni-1.5Fe-0.55Mn
34	ASTM	B111	90-10 Cu-Ni	C70600	—	40/15	Seamless Tube & Ferrule Stock	87Cu-10Ni-1.4Fe
34	ASTM	B111	80-20 Cu-Ni	C71000	—	45/16	Seamless Tube & Ferrule Stock	78Cu-21Ni-0.75Fe
34	ASTM	B111	70-30 Cu-Ni	C71500	—	52/18	Seamless Tube & Ferrule Stock	68Cu-31Ni-0.7Fe
34	ASTM	B111	Cu-Ni-Fe-Mn	C71640	—	63/25	Seamless Tube & Ferrule Stock	65Cu-30.5Ni-2Fe-2Mn
34	ASTM	B111	85-15 Cu-Ni	C72200	—	45/16	Seamless Tube & Ferrule Stock	82Cu-16.5Ni-0.75Fe-0.5Cr
34	ASTM	B151	90-10 Cu-Ni	C70600	—	38/15	Rod, Bars & Shapes	87Cu-10Ni-1.4Fe
34	ASTM	B151	70-30 Cu-Ni	C71500	≤ 1/2	52/18	Round, Hex. & Oct. Rods & Square Bar	68Cu-31Ni-0.7Fe
34	ASTM	B151	70-30 Cu-Ni	C71500	>1/2≤ 1	48/18	Round, Hex. & Oct. Rods & Square Bar	68Cu-31Ni-0.7Fe
34	ASTM	B151	70-30 Cu-Ni	C71500	>1.0	45/18	Round, Hex. & Oct. Rods & Square Bar	68Cu-31Ni-0.7Fe
34	ASTM	B151	70-30 Cu-Ni	C71500	—	45/15	Rectangular Bars & Shapes	68Cu-31Ni-0.7Fe
34	ASTM	B171	90-10 Cu-Ni	C70600	—	40/15	Plate & Sheet	87Cu-10Ni-1.4Fe
34	ASTM	B171	70-30 Cu-Ni	C71500	≤ 2.5	50/20	Plate & Sheet	68Cu-31Ni-0.7Fe
34	ASTM	B171	70-30 Cu-Ni	C71500	>2.5≤ 5.0	45/18	Plate & Sheet	68Cu-31Ni-0.7Fe
34	ASTM	B171	85-15 Cu-Ni	C72200	≤ 2.5	42/16	Plate & Sheet	82Cu-16.5Ni-0.75Fe-0.5Cr
34	ASTM	B359	95-5 Cu-Ni	C70400	—	38/12	Seamless Tube	92Cu-5.5Ni-1.5Fe-0.55Mn
34	ASTM	B359	90-10 Cu-Ni	C70600	—	40/15	Seamless Tube	87Cu-10Ni-1.4Fe
34	ASTM	B359	80-20 Cu-Ni	C71000	—	45/16	Seamless Tube	78Cu-21Ni-0.75Fe

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Copper and Copper Base Alloys								
34	ASTM	B359	70-30 Cu-Ni	C71500	—	52/18	Seamless Tube	68Cu-31Ni-0.7Fe
34	ASTM	B359	85-15 Cu-Ni	C72200	—	45/16	Seamless Tube	82Cu-16.5Ni-0.75Fe-0.5Cr
34	ASTM	B395	95-5 Cu-Ni	C70400	—	38/12	Seamless Tube	92Cu-5.5Ni-1.5Fe-0.55Mn
34	ASTM	B395	90-10 Cu-Ni	C70600	—	40/15	Seamless Tube	87Cu-10Ni-1.4Fe
34	ASTM	B395	80-20 Cu-Ni	C71000	—	45/16	Seamless Tube	78Cu-21Ni-0.75Fe
34	ASTM	B395	70-30 Cu-Ni	C71500	—	52/18	Seamless Tube	68Cu-31Ni-0.7Fe
34	ASTM	B395	85-15 Cu-Ni	C72200	—	45/16	Seamless Tube	82Cu-16.5Ni-0.75Fe-0.5Cr
34	ASTM	B466	95-5 Cu-Ni	C70400	—	37/12	Seamless Pipe & Tube	92Cu-5.5Ni-1.5Fe-0.55Mn
34	ASTM	B466	90-10 Cu-Ni	C70600	—	38/13	Seamless Pipe & Tube	87Cu-10Ni-1.4Fe
34	ASTM	B466	80-20 Cu-Ni	C71000	—	45/16	Seamless Pipe & Tube	78Cu-21Ni-0.75Fe
34	ASTM	B466	70-30 Cu-Ni	C71500	—	52/18	Seamless Pipe & Tube	68Cu-31Ni-0.7Fe
34	ASTM	B466	85-15 Cu-Ni	C72200	—	40/14	Seamless Pipe & Tube	82Cu-16.5Ni-0.75Fe-0.5Cr
34	ASTM	B467	90-10 Cu-Ni	C70600	≤ 4.5	40/15	Welded Pipe	87Cu-10Ni-1.4Fe
34	ASTM	B467	90-10 Cu-Ni	C70600	>4.5	38/13	Welded Pipe	87Cu-10Ni-1.4Fe
34	ASTM	B467	70-30 Cu-Ni	C71500	≤ 4.5	50/20	Welded Pipe	68Cu-31Ni-0.7Fe
34	ASTM	B467	70-30 Cu-Ni	C71500	>4.5	45/15	Welded Pipe	68Cu-31Ni-0.7Fe
34	ASTM	B543	95-5 Cu-Ni	C70400	—	38/12	Welded Tube	92Cu-5.5Ni-1.5Fe-0.55Mn
34	ASTM	B543	90-10 Cu-Ni	C70600	—	40/15	Welded Tube	87Cu-10Ni-1.4Fe
34	ASTM	B543	80-20 Cu-Ni	C71000	—	45/16	Welded Tube	78Cu-21Ni-0.75Fe
34	ASTM	B543	70-30 Cu-Ni	C71500	—	52/18	Welded Tube	68Cu-31Ni-0.7Fe
34	ASTM	B543	Cu-Ni-Fe-Mn	C71640	—	63/25	Welded Tube	65Cu-30Ni-2Fe-2Mn
34	ASTM	B543	85-15 Cu-Ni	C72200	—	45/16	Welded Tube	82Cu-16.5Ni-0.75Fe-0.5Cr
34	ASTM	B608	90-10 Cu-Ni	C70620	—	40/—	Welded Pipe	87Cu-10Ni-1.4Fe
34	ASTM	B608	70-30 Cu-Ni	C71520	—	50/—	Welded Pipe	68Cu-31Ni-0.7Fe
35	ASTM	B111	Aluminum Bronze	C60800	—	50/19	Seamless Tube & Ferrule Stock	94Cu-5.8Al-0.2As
35	ASTM	B111	Aluminum Bronze	C61300	—	70/30	Seamless Tube & Ferrule Stock	91Cu-6.8Al-2.5Fe-0.35Sn
35	ASTM	B111	Aluminum Bronze	C61400	—	70/30	Seamless Tube & Ferrule Stock	87Cu-7.0Al-2.5Fe

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Copper and Copper Base Alloys								
35	ASTM	B148	Grade A, Al- Bronze	C95200	—	65/25	Sand Castings	88Cu-9Al-3Fe
35	ASTM	B148	Grade B, Al- Bronze	C95300	—	65/25	Sand Castings	89Cu-10Al-1Fe
35	ASTM	B148	Grade C, Al- Bronze	C95400	—	75/30	Sand Castings	85Cu-11Al-4Fe
35	ASTM	B148	Aluminum Bronze	C95410	—	75/30	Sand Castings	83Cu-10.7Al-4Fe-2Ni
35	ASTM	B148	Grade D, Ni-Al Bronze	C95500	—	90/40	Sand Castings	85Cu-11Al-4Fe-3Mn
35	ASTM	B148	Grade E, Si-Al Bronze	C95600	—	60/28	Sand Castings	91Cu-7Al-2Si
35	ASTM	B148	Grade F, Mn-Ni- Al Bronze	C95700	—	90/40	Sand Castings	75Cu-12Mn-8Al-3Fe-2Ni
35	ASTM	B148	Ni-Al Bronze	C95800	—	85/35	Sand Castings	81Cu-9Al-4.5Ni-4Fe
35	ASTM	B150	Aluminum Bronze	C61300	≤ 0.50	80/40	Hex. & Oct. Rod & Bar	90Cu-6.8Al-2.5Fe-0.35Sn
35	ASTM	B150	Aluminum Bronze	C61300	>0.5≤ 1.0	75/35	Hex. & Oct. Rod & Bar	90Cu-6.8Al-2.5Fe-0.35Sn
35	ASTM	B150	Aluminum Bronze	C61300	>1.0≤ 2.0	70/32	Hex. & Oct. Rod & Bar	90Cu-6.8Al-2.5Fe-0.35Sn
35	ASTM	B150	Aluminum Bronze	C61300	≤ 0.50	80/50	Round Rod	90Cu-6.8Al-2.5Fe-0.35Sn
35	ASTM	B150	Aluminum Bronze	C61300	>0.5≤ 1.0	75/45	Round Rod	90Cu-6.8Al-2.5Fe-0.35Sn
35	ASTM	B150	Aluminum Bronze	C61300	>1.0≤ 2.0	72/40	Round Rod	90Cu-6.8Al-2.5Fe-0.35Sn
35	ASTM	B150	Aluminum Bronze	C61300	>2.0≤ 3.0	70/35	Round Rod	90Cu-6.8Al-2.5Fe-0.35Sn
35	ASTM	B150	Aluminum Bronze D	C61400	≤ 0.5	80/40	Round Rod	90Cu-7Al-2.5Fe
35	ASTM	B150	Aluminum Bronze D	C61400	>0.5≤ 1.0	75/35	Round Rod	90Cu-7Al-2.5Fe
35	ASTM	B150	Aluminum Bronze D	C61400	>1.0≤ 2.0	70/32	Round Rod	90Cu-7Al-2.5Fe
35	ASTM	B150	Aluminum Bronze D	C61400	>2.0≤ 3.0	70/30	Round Rod	90Cu-7Al-2.5Fe
35	ASTM	B150	Aluminum Bronze	C61900	≤ 0.5	90/50	Round Rod	86Cu-9Al-3.7Fe
35	ASTM	B150	Aluminum Bronze	C61900	>0.5≤ 1.0	88/44	Round Rod	86Cu-9Al-3.7Fe
35	ASTM	B150	Aluminum Bronze	C61900	>1.0≤ 2.0	85/40	Round Rod	86Cu-9Al-3.7Fe

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Copper and Copper Base Alloys								
35	ASTM	B150	Aluminum Bronze	C61900	>2.0≤ 3.0	78/37	Round Rod	86Cu-9Al-3.7Fe
35	ASTM	B150	Aluminum Bronze	C61900	>3.0	75/30	Round Rod	86Cu-9Al-3.7Fe
35	ASTM	B150	Aluminum Bronze	C61900	—	75/30	Shapes	86Cu-9Al-3.7Fe
35	ASTM	B150	Aluminum Bronze	C62300	<0.5	90/50	Round Rod	86Cu-9.7Al-3Fe
35	ASTM	B150	Aluminum Bronze	C62300	>0.5≤ 1.0	88/44	Round Rod	86Cu-9.7Al-3Fe
35	ASTM	B150	Aluminum Bronze	C62300	>1.0≤ 2.0	84/40	Round Rod	86Cu-9.7Al-3Fe
35	ASTM	B150	Aluminum Bronze	C62300	>2.0≤ 3.0	76/37	Round Rod	86Cu-9.7Al-3Fe
35	ASTM	B150	Aluminum Bronze	C62300	>3.0	75/30	Round Rod	86Cu-9.7Al-3Fe
35	ASTM	B150	Aluminum Bronze	C62300	≤ 1.0	80/35	Hex. & Oct. Rod & Bar	86Cu-9.7Al-3Fe
35	ASTM	B150	Aluminum Bronze	C62300	>1.0≤ 2.0	78/32	Hex. & Oct. Rod & Bar	86Cu-9.7Al-3Fe
35	ASTM	B150	Aluminum Bronze	C62300	>2.0	75/30	Hex. & Oct. Rod & Bar	86Cu-9.7Al-3Fe
35	ASTM	B150	Aluminum Bronze	C62300	—	75/30	Shapes	86Cu-9.7Al-3Fe
35	ASTM	B150	Aluminum Bronze	C62400	≤ 1.0	95/45	Round Rod	85.5Cu-10.8Al-3.2Fe
35	ASTM	B150	Aluminum Bronze	C62400	>1.0≤ 2.0	90/43	Round Rod	85.5Cu-10.8Al-3.2Fe
35	ASTM	B150	Aluminum Bronze	C62400	>2.0≤ 3.0	90/40	Round Rod	85.5Cu-10.8Al-3.2Fe
35	ASTM	B150	Aluminum Bronze	C62400	>3.0≤ 5.0	90/35	Round Rod	85.5Cu-10.8Al-3.2Fe
35	ASTM	B150	Aluminum Bronze	C62400	0.5≤ 5.0	90/35	Hex. & Oct. Rod & Bar	85.5Cu-10.8Al-3.2Fe
35	ASTM	B150	Aluminum Bronze	C62400	—	90/35	Shapes	85.5Cu-10.8Al-3.2Fe
35	ASTM	B150	Aluminum Bronze	C63000	0.5≤ 1.0	100/50	Rod & Bar	82Cu-10Al-5Ni-3Fe
35	ASTM	B150	Aluminum Bronze	C63000	>1.0≤ 2.0	90/45	Rod & Bar	82Cu-10Al-5Ni-3Fe
35	ASTM	B150	Aluminum Bronze	C63000	>2.0≤ 4.0	85/42.5	Rod & Bar	82Cu-10Al-5Ni-3Fe
35	ASTM	B150	Aluminum Bronze	C63000	>4.0	80/40	Rod & Bar	82Cu-10Al-5Ni-3Fe
35	ASTM	B150	Aluminum Bronze	C63000	—	85/42.5	Shapes	82Cu-10Al-5Ni-3Fe
35	ASTM	B150	Aluminum Bronze	C63020	≤ 1.0	135/100	Rod & Bar	74.5minCu-11Al-5.1Ni-4.8Fe
35	ASTM	B150	Aluminum Bronze	C63020	>1.0≤ 2.0	130/95	Rod & Bar	74.5minCu-11Al-5.1Ni-4.8Fe
35	ASTM	B150	Aluminum Bronze	C63020	>2.0≤ 4.0	130/90	Rod & Bar	74.5minCu-11Al-5.1Ni-4.8Fe
35	ASTM	B150	Aluminum Bronze	C63200	—	90/40	Rod, Bars & Shapes	81Cu-9.1Al-4.4Ni-3.9Fe-1.6Mn
35	ASTM	B150	Aluminum Bronze	C64200	≤ 0.5	90/45	Rod & Bar	89Cu-6.9Al-1.8Si
35	ASTM	B150	Aluminum Bronze	C64200	>0.5≤ 1.0	85/45	Rod & Bar	89Cu-6.9Al-1.8Si

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Copper and Copper Base Alloys								
35	ASTM	B150	Aluminum Bronze	C64200	>1.0≤ 2.0	80/42	Rod & Bar	89Cu-6.9Al-1.8Si
35	ASTM	B150	Aluminum Bronze	C64200	>2.0≤ 3.0	75/35	Rod & Bar	89Cu-6.9Al-1.8Si
35	ASTM	B150	Aluminum Bronze	C64200	>3.0≤ 4.0	70/30	Rod & Bar	89Cu-6.9Al-1.8Si
35	ASTM	B150	Aluminum Bronze	C64200	>4.0	70/25	Rod & Bar	89Cu-6.9Al-1.8Si
35	ASTM	B150	Aluminum Bronze	C64200	—	70/30	Shapes	89Cu-6.9Al-1.8Si
35	ASTM	B169	Aluminum Bronze	C61300	≤ 0.5	75/36	Sheet, Strip & Rolled Bar	90Cu-6.8Al-2.5Fe-0.35Sn
35	ASTM	B169	Aluminum Bronze	C61300	>0.5≤ 2.0	72/32	Sheet, Strip & Rolled Bar	90Cu-6.8Al-2.5Fe-0.35Sn
35	ASTM	B169	Aluminum Bronze	C61300	>2.0≤ 5.0	65/28	Sheet, Strip & Rolled Bar	90Cu-6.8Al-2.5Fe-0.35Sn
35	ASTM	B169	Aluminum Bronze D	C61400	≤ 0.5	72/32	Sheet, Strip & Rolled Bar	90Cu-7Al-2.5Fe
35	ASTM	B169	Aluminum Bronze D	C61400	>0.5≤ 2.0	70/30	Sheet, Strip & Rolled Bar	90Cu-7Al-2.5Fe
35	ASTM	B169	Aluminum Bronze D	C61400	>2.0≤ 5.0	65/28	Sheet, Strip & Rolled Bar	90Cu-7Al-2.5Fe
35	ASTM	B171	Aluminum Bronze	C61300	≤ 2.0	75/37	Plate & Sheet	90Cu-6.8Al-2.5Fe-0.35Sn
35	ASTM	B171	Aluminum Bronze	C61300	>2.0≤ 3.0	70/30	Plate & Sheet	90Cu-6.8Al-2.5Fe-0.35Sn
35	ASTM	B171	Aluminum Bronze	C61300	>3.0≤ 5.0	65/28	Plate & Sheet	90Cu-6.8Al-2.5Fe-0.35Sn
35	ASTM	B171	Aluminum Bronze D	C61400	≤ 2.0	70/30	Plate & Sheet	90Cu-7Al-2.5Fe
35	ASTM	B171	Aluminum Bronze D	C61400	>2.0≤ 5.0	65/28	Plate & Sheet	90Cu-7Al-2.5Fe
35	ASTM	B171	Aluminum Bronze	C63000	≤ 2.0	90/36	Plate & Sheet	82Cu-10Al-5Ni-3Fe
35	ASTM	B171	Aluminum Bronze	C63000	>2.0≤ 3.5	85/33	Plate & Sheet	82Cu-10Al-5Ni-3Fe
35	ASTM	B171	Aluminum Bronze	C63000	>3.5≤ 5.0	80/30	Plate & Sheet	82Cu-10Al-5Ni-3Fe
35	ASTM	B171	Aluminum Bronze	C63200	≤ 2.0	90/36	Plate & Sheet	81Cu-9.1Al-4.4Ni-3.9Fe-1.6Mn
35	ASTM	B171	Aluminum Bronze	C63200	>2.0≤ 3.5	85/33	Plate & Sheet	81Cu-9.1Al-4.4Ni-3.9Fe-1.6Mn
35	ASTM	B171	Aluminum Bronze	C63200	>3.5≤ 5.0	80/30	Plate & Sheet	81Cu-9.1Al-4.4Ni-3.9Fe-1.6Mn
35	ASTM	B271	Grade A, Al-Bronze	C95200	—	65/25	Centrifugal Castings	88Cu-9Al-3Fe

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Copper and Copper Base Alloys								
35	ASTM	B271	Grade B, Al-Bronze	C95300	—	65/25	Centrifugal Castings	89Cu-10Al-1Fe
35	ASTM	B271	Grade C, Al-Bronze	C95400	—	75/30	Centrifugal Castings	85Cu-11Al-4Fe
35	ASTM	B271	Aluminum Bronze	C95410	—	75/30	Centrifugal Castings	83Cu-10.7Al-4Fe-2Ni
35	ASTM	B271	Grade D, Ni-Al Bronze	C95500	—	90/40	Centrifugal Castings	85Cu-11Al-4Fe-3Mn
35	ASTM	B283	Al-Si Bronze	C64200	≤ 1.5	70/25	Die Forgings	89Cu-7Al-1.8Si
35	ASTM	B283	Al-Si Bronze	C64200	>1.5	68/23	Die Forgings	89Cu-7Al-1.8Si
35	ASTM	B315	Aluminum Bronze	C61300	—	65/28	Seamless Pipe	90Cu-6.8Al-2.5Fe-0.35Sn
35	ASTM	B315	Aluminum Bronze D	C61400	—	65/28	Seamless Pipe	90Cu-7Al-2.5Fe
35	ASTM	B359	Aluminum Bronze	C60800	—	50/19	Seamless Tube	93.5Cu-5.8Al-0.27As
35	ASTM	B395	Aluminum Bronze	C60800	—	50/19	Seamless Tube	93.5Cu-5.8Al-0.27As
35	ASTM	B505	Grade A, Al-Bronze	C95200	20% of t	68/—	Continuous Casting Repair	80Cu-9Al-3Fe
35	ASTM	B608	Aluminum Bronze	C61300	—	70/—	Welded Pipe	90Cu-6.8Al-2.5Fe-0.35Sn
35	ASTM	B608	Aluminum Bronze D	C61400	—	70/—	Welded Pipe	90Cu-7Al-2.5Fe

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Nickel and Nickel Base Alloys								
41	ASTM	B160	99.0 min Ni (Alloy 200)	N02200		55/15	Rod & Bar	99.0min.Ni
41	ASTM	B160	Low-C 99 min Ni (Alloy 201)	N02201		50/10	Rod & Bar	LoC-99min.Ni
41	ASTM	B161	99.0 min Ni (Alloy 200)	N02200	≤ 5 O.D.	55/15	Seamless Pipe & Tube	99.0min.Ni
41	ASTM	B161	99.0 min Ni (Alloy 200)	N02200	>5 O.D.	55/12	Seamless Pipe & Tube	99.0min.Ni
41	ASTM	B161	Low-C 99 min Ni (Alloy 201)	N02201	≤ 5 O.D.	50/12	Seamless Pipe & Tube	LoC-99min.Ni
41	ASTM	B161	Low-C 99 min Ni (Alloy 201)	N02201	>5 O.D.	50/10	Seamless Pipe & Tube	LoC-99min.Ni
41	ASTM	B162	99.0 min Ni (Alloy 200)	N02200		55/15	Sheet, Strip & Plate	99.0min.Ni
41	ASTM	B162	Low-C 99 min Ni (Alloy 201)	N02201		50/12	Sheet, Strip & Plate	LoC-99min.Ni
41	ASTM	B163	99.0 min Ni (Alloy 200)	N02200		55/15	Seamless Tube	99.0min.Ni
41	ASTM	B163	Low-C 99 min Ni (Alloy 201)	N02201		50/12	Seamless Tube	LoC-99min.Ni
41	ASTM	B366	CRN/WPN	N02200		55/15	Fittings	99.0min.Ni
41	ASTM	B366	CRNL/WPNL	N02201		50/10	Fittings	LoC-99min.Ni
41	ASTM	B564	Alloy 200	N02200		55/15	Forgings	99.0min.Ni
42	ASTM	A494	Grade M-35-2 (Ni-30 Cu)	N04020		65/30	Castings	67Ni-31Cu
42	ASTM	A494	Grade M-30-C	N24130		65/32	Castings	66Ni-30Cu-2Cb
42	ASTM	A494	Grade M-35-1	N24135		65/25	Castings	67Ni-3Cu
42	ASTM	B127	Ni-Cu (30) (Alloy 400)	N04400		70/28	Sheet, Strip & Plate	67Ni-31Cu
42	ASTM	B163	Ni-Cu (30) (Alloy 400)	N04400		70/28	Seamless Tube	67Ni-31Cu

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Nickel and Nickel Base Alloys								
42	ASTM	B164	Ni-Cu (30) (Alloy 400)	N04400		70/25	Rod, Bar & Wire	67Ni-31Cu
42	ASTM	B164	Ni-Cu (30) (Alloy R 405)	N04405		70/25	Rod, Bar & Wire	67Ni-30Cu-S
42	ASTM	B165	Ni-30Cu (Alloy 400)	N04400	≤ 5 O.D.	70/28	Seamless Pipe & Tube	67Ni-31Cu
42	ASTM	B165	Ni-30Cu (Alloy 400)	N04400	>5 O.D.	70/25	Seamless Pipe & Tube	67Ni-31Cu
42	ASTM	B366	CRNC/WPNC	N04400		70/25	Fittings	67Ni-31Cu
42	ASTM	B564	Alloy 400	N04400		70/25	Forgings	67N-31Cu
43	ASTM	A494	Grade CY-40	N06040		70/28	Castings	77Ni-15.5Cr-Fe
43	ASTM	A494	Grade CX2MW	N26022		80/45	Castings	57Ni-21Cr-13Mo-4Fe-3W
43	ASTM	A494	Grade CW2M	N26455		72/40	Castings	65.6Ni-16.2Cr-16.2Mo
43	ASTM	A494	Grade CW-6 MC	N26625		70/40	Castings	62Ni-21.5Cr-9Mo-4Cb
43	ASTM	A494	Grade CW-6M	N30107		72/40	Castings	61Ni-18.5Cr-18.5Mo-Fe
43	ASTM	B163	Ni-Cr-Fe (Alloy 6025HT)	N06025		98/39	Seamless Tube	62.5Ni-25Cr-9.5Fe-2.1Al
43	ASTM	B163	Ni-Cr-Fe (Alloy 600)	N06600		80/35	Seamless Tube	72Ni-15Cr-8Fe
43	ASTM	B163	Ni-Cr-Fe (Alloy 690)	N06690		85/35	Seamless Tube	58Ni-29Cr-9Fe
43	ASTM	B166	Ni-Cr-Fe (Alloy 6025 HT)	N06025		98/39	Rod & Bar	62.5Ni-25Cr-9.5Fe-2.1Al
43	ASTM	B166	Ni-Cr-Fe (Alloy 600)	N06600		80/35	Rod & Bar	72Ni-15Cr-8Fe
43	ASTM	B166	Ni-Cr-Fe (Alloy 601)	N06601		80/30	Rod & Bar	60Ni-23Cr-12Fe-Al
43	ASTM	B166	Ni-Cr-Co-Mo (Alloy 617)	N06617		95/35	Rod & Bar	54Ni-22Cr-12Co-9Mo
43	ASTM	B166	Ni-Cr-Fe (Alloy 690)	N06690		85/35	Rod & Bar	58Ni-29Cr-9Fe

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Nickel and Nickel Base Alloys								
43	ASTM	B167	Ni-Cr-Fe (Alloy 6025HT)	N06025		98/39	Seamless Pipe & Tube	62.5Ni-25Cr-9.5Fe-2.1Al
43	ASTM	B167	Ni-Cr-Fe (Alloy 600)	N06600	0.400≤ 5 O.D.	80/30	Seamless Pipe & Tube	75Ni-15Cr-8Fe
43	ASTM	B167	Ni-Cr-Fe (Alloy 600)	N06600	>5.0≤ 9.25 O.D	75/25	Seamless Pipe & Tube	75Ni-15Cr-8Fe
43	ASTM	B167	Ni-Cr-Fe (Alloy 601)	N06601	0.400≤ 9.25 O.D	80/30	Seamless Pipe & Tube	60Ni-23Cr-12Fe-Al
43	ASTM	B167	Ni-Cr-Fe (Alloy 690)	N06690	0.400≤ 5 O.D.	85/30	Seamless Pipe & Tube	58Ni-29Cr-9Fe
43	ASTM	B167	Ni-Cr-Fe (Alloy 690)	N06690	>5.0≤ 9.25 O.D	75/25	Seamless Pipe & Tube	58Ni-29Cr-9Fe
43	ASTM	B168	Alloy 6025 HT	N06025		98/39	Sheet, Strip & Plate	62.5Ni-25Cr-9.5Fe-2.1Al
43	ASTM	B168	Alloy 600	N06600		80/35	Sheet, Strip & Plate	75Ni-15Cr-8Fe
43	ASTM	B168	Alloy 601	N06601		80/30	Plate, Sheet & Strip	60Ni-23Cr-12Fe-Al
43	ASTM	B168	Alloy 617	N06617		95/35	Plate, Sheet & Strip	54Ni-22Cr-12Co-9Mo
43	ASTM	B168	Alloy 690	N06690		85/35	Plate, Sheet & Strip	58Ni-29Cr-9Fe
43	ASTM	B366	CRHX/WPHX	N06002		100/-	Fittings	47Ni-22Cr-18Fe-9Mo
43	ASTM	B366	CRHG/WPHG	N06007		90/-	Fittings	47Ni-22Cr-19Fe-6Mo
43	ASTM	B366	CRHC22/WPHC2 2	N06022		100/45	Fittings	55Ni-21Cr-13.5Mo
43	ASTM	B366	CRV602/WPV60 2	N06025		98/39	Fittings	60Ni-22Cr-9Mo-3.5Cb
43	ASTM	B366	CRHG30/WPHG 30	N06030		85/35	Fittings	40Ni-29Cr-15Fe-5Mo
43	ASTM	B366	CR5923/WP5923	N06059		85/35	Fittings	59Ni-23Cr-16Mo
43	ASTM	B366	CRHC2000/WPH C2000	N06200		100/41	Fittings	58Ni-23Cr-16Mo-1.6Cu
43	ASTM	B366	CRM21/WPM21	N06210		100/45	Fittings	59Ni-19Cr-19Mo-1.8Ta
43	ASTM	B366	CRH230/WPH23 0	N06230		110/45	Fittings	56Ni-22Cr-14W-2Mb
43	ASTM	B366	CRHC4/WPHC4	N06455		100/40	Fittings	65Ni-10Cr-15.5Mo

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Nickel and Nickel Base Alloys								
43	ASTM	B366	CRNCI/WPNCI	N06600		80/	Fittings	75Ni-15Cr-8Fe
43	ASTM	B366	CR603GT/WP603 GT	N06603		94/43	Fittings	62Ni-25Cr-9Fe-2.7Al
43	ASTM	B366	CRNCMC/WPNC MC	N06625		110/-	Fittings	60Ni-22Cr-9Mo-3.5Cb
43	ASTM	B366	CRHG3/WPHG3	N06985		90/-	Fittings	47Ni-22Cr-20Fe-7Mn
43	ASTM	B366	CRHC276/WPHC 276	N10276		100/41	Fittings	54Ni-16Mo-15Cr-5.5Fe-3.8W
43	ASTM	B435	Alloy X	N06002		95/35	Plate, Sheet & Strip	47Ni-22Cr-18Fe-9Mo
43	ASTM	B435	Alloy 230	N06230		110/45	Plate, Sheet & Strip	53Ni-22Cr-14W-2Mo
43	ASTM	B443	Alloy 625, Grade 1	N06625		120/60	Cold Rolled Strip & Sheet	60Ni-22Cr-9Mo-3.5Cb
43	ASTM	B443	Alloy 625, Grade 2	N06625		110/55	Plate & Hot Rolled Sheet (Sol. Anneal)	60Ni-22Cr-9Mo-3.5Cb
43	ASTM	B444	Alloy 625, Grade 1	N06625		120/60	Pipe & Tube	60Ni-22Cr-9Mo-3.5Cb
43	ASTM	B444	Alloy 625, Grade 2	N06625		100/40	Pipe & Tube	60Ni-22Cr-9Mo-3.5Cb
43	ASTM	B446	Alloy 625, Grade 1	N06625	≤ 4	120/60	Rod & Bar	60Ni-22Cr-9Mo-3.5Cb
43	ASTM	B446	Alloy 625, Grade 1	N06625	>4≤ 10	110/50	Rod & Bar	60Ni-22Cr-9Mo-3.5Cb
43	ASTM	B446	Alloy 625, Grade 2	N06625		110/40	Rod & Bar	60Ni-22Cr-9Mo-3.5Cb
43	ASTM	B516	Alloy 6025 HT	N06025		98/39	Welded Tube	62.5Ni-25Cr-9.5Fe-2.1Al
43	ASTM	B516	Alloy 600	N06600		80/35	Welded Tube	75Ni-15Cr-8Fe
43	ASTM	B516	Alloy 603 GT	N06603		94/43	Welded Tube	62Ni-25Cr-9Fe-2.7Al
43	ASTM	B517	Alloy 6025 HT	N06025		98/39	Welded Pipe	62.5Ni-25Cr-9.5Fe-2.1Al
43	ASTM	B517	Alloy 600	N06600		80/35	Welded Pipe	75Ni-15Cr-8Fe
43	ASTM	B517	Alloy 603GT	N06603		94/43	Welded Pipe	62Ni-25Cr-9Fe-2.7Al
43	ASTM	B564	Alloy C-22	N06022		100/45	Forgings	56Ni-21Cr-13.5Mo
43	ASTM	B564	Alloy 6025 HT	N06025	≤ 4	98/39	Forgings	62.5Ni-25Cr-9.5Fe-2.1Al

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Nickel and Nickel Base Alloys								
43	ASTM	B564	Alloy 6025 HT	N06025	>4	84/39	Forgings	62.5Ni-25Cr-9.5Fe-2.1Al
43	ASTM	B564	Alloy 59	N06059		100/45	Forgings	59Ni-23Cr-16Mo
43	ASTM	B564	Ni-Cr-Mo-W	N06110	≤ 4	95/45	Forgings	51Ni-31Cr-10Mo-W
43	ASTM	B564	Ni-Cr-Mo-W	N06110	>4.0	90/40	Forgings	51Ni-31Cr-10Mo-W
43	ASTM	B564	Alloy C2000	N06200		100/41	Forgings	53Ni-23Cr-16Mo-1.6Cu
43	ASTM	B564	Alloy 21	N06210		100/45	Forgings	60Ni-19Cr-19Mo-1.8Ta
43	ASTM	B564	Alloy 230	N06230		110/45	Forgings	53Ni-22Cr-14W-2Mo
43	ASTM	B564	Alloy 600	N06600		80/35	Forgings	75Ni-15Cr-8Fe
43	ASTM	B564	Alloy 603GT	N06603		94/43	Forgings	62Ni-25Cr-9Fe-2.7Al
43	ASTM	B564	Alloy 617	N06617		95/35	Forgings	54Ni-22Cr-12Co-9Mo
43	ASTM	B564	Alloy 625	N06625	≤ 4	120/60	Forgings	60Ni-22Cr-9Mo-3.5Cb
43	ASTM	B564	Alloy 625	N06625	>4.0	110/50	Forgings	60Ni-22Cr-9Mo-3.5Cb
43	ASTM	B564	Alloy 686	N06686		100/45	Forgings	58Ni-21Cr-16Mo-3.7W
43	ASTM	B564	Alloy 690	N06690		85/35	Forgings	58Ni-29Cr-9Fe
43	ASTM	B564	Alloy C-276	N10276		100/41	Forgings	54Ni-16Mo-15Cr-5.5Fe-3.8W
43	ASTM	B564	Alloy CRB10	N10624		104/46	Forgings	65Ni-22.5Mo-6.5Fe-6Cr
43	ASTM	B572	Alloy 230	N06230		110/45	Rod	56Ni-22Cr-14W-2Mo
43	ASTM	B572	Alloy X	N06002		95/35	Rod	47Ni-22Cr-18Fe-9Mo
43	ASTM	B574	Alloy C22	N06022		100/45	Rod	56Ni-21Cr-13.5Mo
43	ASTM	B574	Alloy 59	N06059		100/45	Rod	59Ni-23Cr-16Mo
43	ASTM	B574	Alloy C2000	N06200		100/41	Rod	53Ni-23Cr-16Mo-1.6Cu
43	ASTM	B574	Alloy C-4	N06455		100/40	Rod	61Ni-16Mo-16Cr
43	ASTM	B574	Alloy C686	N06686		100/45	Rod	58Ni-21Cr-16Mo-3.5W
43	ASTM	B574	Alloy C-276	N10276		100/41	Rod	54Ni-16Mo-15Cr-5.5Fe-3.8W
43	ASTM	B575	Alloy C22	N06022		100/45	Plate, Sheet & Strip	56Ni-21Cr-13.5Mo
43	ASTM	B575	Alloy 59	N06059		100/45	Plate, Sheet & Strip	59Ni-23Cr-16Mo
43	ASTM	B575	Alloy C2000	N06200		100/41	Plate, Sheet & Strip	53Ni-23Cr-16Mo-1.6Cu
43	ASTM	B575	Alloy C-4	N06455		100/40	Plate, Sheet & Strip	61Ni-16Mo-16Cr
43	ASTM	B575	Alloy 686	N06686		100/45	Plate, Sheet & Strip	58Ni-21Cr-16Mo-3.5W

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Nickel and Nickel Base Alloys								
43	ASTM	B575	Alloy C-276	N10276		100/41	Plate, Sheet & Strip	54Ni-16Mo-15Cr-5.5Fe-3.8W
43	ASTM	B581	Alloy G	N06007	5/16 ≤ 3/4	90/35	Rod	47Ni-22Cr-19Fe-6Mo
43	ASTM	B581	Alloy G	N06007	>3/4 ≤ 3.5	85/30	Rod	47Ni-22Cr-19Fe-6Mo
43	ASTM	B581	Alloy G-30	N06030		85/35	Rod	40Ni-29Cr-15Fe-5Mo
43	ASTM	B581	Alloy G-2	N06975		85/32	Rod	49Ni-25Cr-18Fe-6Mo
43	ASTM	B581	Alloy G-3	N06985	5/16 ≤ 3/4	90/35	Rod	47Ni-22Cr-18Fe-6Mo
43	ASTM	B581	Alloy G-3	N06985	>3/4 ≤ 3.5	85/30	Rod	47Ni-22Cr-18Fe-6Mo
43	ASTM	B582	Alloy G	N06007	0.20 ≤ 3/4	90/35	Plate, Sheet & Strip	47Ni-22Cr-19Fe-6Mo
43	ASTM	B582	Alloy G	N06007	>3/4 ≤ 2.5	85/30	Plate	47Ni-22Cr-19Fe-6Mo
43	ASTM	B582	Alloy G-30	N06030		85/35	Plate, Sheet & Strip	40Ni-29Cr-15Fe-5Mo
43	ASTM	B582	Alloy G-2	N06975		85/32	Plate, Sheet & Strip	49Ni-25Cr-18Fe-6Mo
43	ASTM	B582	Alloy G-3	N06985	0.20 ≤ 3/4	90/35	Plate, Sheet & Strip	47Ni-22Cr-20Fe-7Mo
43	ASTM	B582	Alloy G-3	N06985	>3/4 ≤ 2.5	85/30	Plate	47Ni-22Cr-20Fe-7Mo
43	ASTM	B619	Alloy X	N06002		100/40	Welded Pipe	47Ni-22Cr-18Fe-9Mo
43	ASTM	B619	Alloy G	N06007		90/35	Welded Pipe	47Ni-22Cr-19Fe-6Mo
43	ASTM	B619	Alloy C-22	N06022		100/45	Welded Pipe	56Ni-21Cr-13.5Mo
43	ASTM	B619	Alloy G-30	N06030		85/35	Welded Pipe	40Ni-29Cr-15Fe-5Mo
43	ASTM	B619	Alloy 59	N06059		100/45	Welded Pipe	59Ni-23Cr-16Mo
43	ASTM	B619	Alloy C2000	N06200		100/41	Welded Tube	53Ni-23Cr-16Mo-1.6Cu
43	ASTM	B619	Alloy 230	N06230		110/45	Welded Pipe	53Ni-22Cr-14W-2Mo
43	ASTM	B619	Alloy C-4	N06455		100/40	Welded Pipe	61Ni-16Mo-16Cr
43	ASTM	B619	Alloy 686	N06686		100/45	Welded Pipe	58Ni-21Cr-16Mo-3.5W
43	ASTM	B619	Alloy G-2	N06975		85/32	Welded Pipe	49Ni-25Cr-18Fe-6Mo
43	ASTM	B619	Alloy G-3	N06985		90/35	Welded Pipe	47Ni-22Cr-20Fe-7Mo
43	ASTM	B619	Alloy C-276	N10276		100/41	Welded Pipe	54Ni-16Mo-15Cr-5.5Fe-3.8W
43	ASTM	B622	Alloy X	N06002		100/40	Seamless Pipe & Tube	47Ni-22Cr-18Fe-9Mo
43	ASTM	B622	Alloy G	N06007		90/35	Seamless Pipe & Tube	47Ni-22Cr-19Fe-6Mo
43	ASTM	B622	Alloy C-22	N06022		100/45	Seamless Pipe & Tube	56Ni-21Cr-13.5Mo
43	ASTM	B622	Alloy G-30	N06030		85/35	Seamless Pipe & Tube	40Ni-29Cr-15Fe-5Mo

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Nickel and Nickel Base Alloys								
43	ASTM	B622	Alloy 59	N06059		100/45	Seamless Pipe & Tube	59Ni-23Cr-16Mo
43	ASTM	B622	Alloy 2060 Mo	N06060		90/35	Seamless Pipe & Tube	57Ni-20.5Cr-13Mo-6Fe
43	ASTM	B622	Alloy C2000	N06200		100/41	Seamless Pipe & Tube	53Ni-23Cr-16Mo-1.6Cu
43	ASTM	B622	Alloy 230	N06230		110/45	Seamless Pipe & Tube	53Ni-22Cr-14W-2Mo
43	ASTM	B622	Alloy 2050	N06250		90/35	Seamless Pipe & Tube	52Ni-21Cr-13Fe-11Mo
43	ASTM	B622	Alloy 2550	N06255		85/32	Seamless Pipe & Tube	49.5Ni-24Cr-17Fe-7Mo
43	ASTM	B622	Alloy 686	N06686		100/45	Seamless Pipe & Tube	58Ni-21Cr-16Mo-3.5W
43	ASTM	B622	Alloy G-2	N06975		85/32	Seamless Pipe & Tube	49Ni-25Cr-18Fe-6Mo
43	ASTM	B622	Alloy G-3	N06985		90/35	Seamless Pipe & Tube	47Ni-22Cr-20Fe-7Mo
43	ASTM	B622	Alloy C-276	N10276		100/41	Seamless Pipe & Tube	54Ni-16Mo-15Cr-5.5Fe-3.8W
43	ASTM	B626	Ni-Cr-Fe-Mo	N06002			Welded Tube	
43	ASTM	B626	Alloy G	N06007		90/35	Welded Tube	47Ni-22Cr-19Fe-6Mo
43	ASTM	B626	Alloy C-22	N06022		100/45	Welded Tube	56Ni-21Cr-13.5Mo
43	ASTM	B626	Alloy G30	N06030		85/35	Welded Tube	40Ni-29Cr-15Fe-5Mo
43	ASTM	B626	Alloy 59	N06059		100/45	Welded Tube	59Ni-23Cr-16Mo
43	ASTM	B626	Alloy C2000	N06200		100/41	Welded Tube	53Ni-23Cr-16Mo-1.6Cu
43	ASTM	B626	Alloy 230	N06230		110/45	Welded Tube	59Ni-22Cr-14W-Fe-Mo
43	ASTM	B626	Alloy C-4	N06455		100/40	Welded Tube	65.6Ni-16.2Cr-16.2Mo
43	ASTM	B626	Alloy 686	N06686		100/45	Welded Tube	58Ni-21Cr-16Mo-3.5W
43	ASTM	B626	Alloy G-2	N06975		85/32	Welded Tube	49Ni-25Cr-18Fe-6Mo-Ti
43	ASTM	B626	Alloy G-3	N06985		90/32	Welded Tube	47Ni-22Cr-20Fe-7Mo-2Cu
43	ASTM	B626	Alloy C-276	N10276		100/41	Welded Tube	54Ni-16Mo-15Cr-5.5Fe-3.8W
43	ASTM	B704	Alloy 625	N06625		120/60	Welded Tube	60Ni-22Cr-9Mo-3.5Cb
43	ASTM	B705	Alloy 625	N06625	—	120/60	Welded Pipe	60Ni-22Cr-9Mo-3.5Cb
43	ASTM	B755	Ni-Cr-Mo-W	N06110		95/45	Plate, Sheet & Strip	51Ni-31Cr-10Mo-2.5W
43	ASTM	B756	Ni-Cr-Mo-W	N06110	≤ 4	95/45	Rod & Bar	51Ni-31Cr-10Mo-2.5W
43	ASTM	B756	Ni-Cr-Mo-W	N06110	>4.0≤ 10	90/40	Rod & Bar	51Ni-31Cr-10Mo-2.5W
43	ASTM	B757	Ni-Cr-Mo-W	N06110		95/45	Welded Pipe	51Ni-31Cr-10Mo-2.5W
43	ASTM	B758	Ni-Cr-Mo-W	N06110		95/45	Welded Tube	51Ni-31Cr-10Mo-2.5W

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Nickel and Nickel Base Alloys								
43	ASTM	B759	Ni-Cr-Mo-W	N06110		95/45	Pipe & Tube	51Ni-31Cr-10Mo-2.5W
44	ASTM	A494	Grade N7M	J30007		76/40	Castings	61Ni-31.5Mo
44	ASTM	B333	Alloy B (Ni-Mo-Fe)	N10001	≤ 3/16	115/50	Sheet & Strip	62Ni-28Mo-5maxFe
44	ASTM	B333	Alloy B (Ni-Mo-Fe)	N10001	3/16 ≤ 2.5	100/45	Plate	62Ni-28Mo-5maxFe
44	ASTM	B333		N10624		104/46	Plate, Sheet & Strip	60Ni-23Mo-8Cr-6.5Fe
44	ASTM	B333	Alloy B-4 (Ni-Mo-Fe)	N10629		110/51	Plate, Sheet & Strip	62Ni-28Mo-3Fe-1.3Cr-Al
44	ASTM	B333	Alloy B-2 (Ni-Mo)	N10665		110/51	Plate, Sheet & Strip	65Min.Ni-28Mo-2Fe
44	ASTM	B333	Alloy B-3 (Ni-Mo-Cr-Fe)	N10675		110/51	Plate, Sheet & Strip	65Ni-30Mo-2Cr-2Fe
44	ASTM	B335	Alloy B (Ni-Mo-Fe)	N10001	5/16 ≤ 1.5	115/46	Rod	62Ni-28Mo-5Max.Fe
44	ASTM	B335	Alloy B (Ni-Mo-Fe)	N10001	>1.5 ≤ 2.5	100/45	Rod	62Ni-28Mo-5Max.Fe
44	ASTM	B335		N10624		104/46	Rod	60Ni-23Mo-8Cr-6.5Fe
44	ASTM	B335	Alloy B-4 (Ni-Mo-Fe)	N10629		110/51	Rod	62Ni-28Mo-3Fe-1.3Cr-Al
44	ASTM	B335	Alloy B-2 (Ni-Mo)	N10665		110/51	Rod	65Min.Ni-28Mo-2Fe-2C
44	ASTM	B335	Alloy B-3 (Ni-Mo-Cr-Fe)	N10675		110/51	Rod	65Ni-30Mo-2Cr-2Fe
44	ASTM	B366	CRHB/WPHB	N10001		100/45	Fittings	62Ni-28Mo-5maxFe
44	ASTM	B366	CRHN/WPHN	N10003		100/-	Fittings	70Ni-16Mo-7Cr-5Fe
44	ASTM	B366	CRB10/WPB10	N10624		104/46	Fittings	60Ni-23Mo-8Cr-6.5Fe
44	ASTM	B366	CRVB4/WPVB4	N10629		110/51	Fittings	62Ni-28Mo-3Fe-1.3Cr-Al
44	ASTM	B366	CRHB2/WPHB2	N10665		100/-	Fittings	65Ni-28Mo-2Max.Fe
44	ASTM	B366	CRHB3/WPHB3	N10675		110/51	Fittings	65Min.Ni-29.5Mo-2Cr-2Fe
44	ASTM	B434	Alloy N	N10003		100/40	Plate, Sheet & Strip	70Ni-16Mo-7Cr-5Fe

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Nickel and Nickel Base Alloys								
44	ASTM	B564	Alloy B-10	N10624		104/46	Forgings	60Ni-23Mo-8Cr-6.5Fe
44	ASTM	B564	Alloy B-4 (Ni- Mo-Fe)	N10629		110/51	Forgings	62Ni-28Mo-3.5Fe-1Cr
44	ASTM	B564	Alloy B-3	N10675		110/51	Forgings	65Min.Ni-29.5Mo-2Cr-2Fe
44	ASTM	B573	Alloy N	N10003		100/40	Rod	70Ni-16Mo-7Cr-5Fe
44	ASTM	B619	Alloy B	N10001		100/45	Welded Pipe	62Ni-28Mo-5maxFe
44	ASTM	B619	Alloy B-10	N10624		104/46	Welded Pipe	60Ni-23Mo-8Cr-6.5Fe
44	ASTM	B619	Alloy B-4	N10629		110/51	Welded Pipe	62Ni-28Mo-3.5Fe-1Cr
44	ASTM	B619	Alloy B-2	N10665		110/51	Welded Pipe	65Ni-28Mo-2Max.Fe
44	ASTM	B619	Alloy B-3	N10675		110/51	Welded Pipe	65Min.Ni-29.5Mo-2Cr-2Fe
44	ASTM	B622	Alloy B	N10001		100/45	Seamless Pipe & Tube	62Ni-28Mo-2Max.Fe
44	ASTM	B622	Alloy B-10	N10624		104/46	Seamless Pipe & Tube	60Ni-23Mo-8Cr-6.5Fe
44	ASTM	B622	Alloy B-4	N10629		110/51	Seamless Pipe & Tube	62Ni-28Mo-3.5Fe-1Cr
44	ASTM	B622	Alloy B-2	N10665		110/51	Seamless Pipe & Tube	65Ni-28Mo-2Max.Fe
44	ASTM	B622	Alloy B-3	N10675		110/51	Seamless Pipe & Tube	65Min.Ni-29.5Mo-2Cr-2Fe
44	ASTM	B626	Alloy B	N10001		100/45	Welded Tube	62Ni-28Mo-5maxFe
44	ASTM	B626	Alloy B-10	N10624		104/46	Welded Tube	60Ni-23Mo-8Cr-6.5Fe
44	ASTM	B626	Alloy B-4	N10629		110/51	Welded Tube	62Ni-28Mo-3.5Fe-1Cr
44	ASTM	B626	Alloy B-2	N10665		110/51	Welded Tube	65Ni-28Mo-2Max.Fe
44	ASTM	B626	Alloy B-3	N10675		110/51	Welded Tube	65Min.Ni-29.5Mo-2Cr-2Fe
45	ASTM	A351	CN7M	N08007		62/25	Castings	43Fe-28Ni-19Cr-Cu-Mn
45	ASTM	A351	CT15C	N08151		63/25	Castings	46Fe-32Ni-20Cr-Cb
45	ASTM	B163	Ni-Fe-Cr (Alloy 800)	N08800		75/30	Seamless Tube	44Fe-33Ni-21Cr
45	ASTM	B163	Ni-Fe-Cr (Alloy 801)	N08801		65/25	Seamless Tube	45Fe-32Ni-20.5Cr-Ti
45	ASTM	B163	Ni-Fe-Cr (Alloy 800H)	N08810		65/25	Seamless Tube	44Fe-33Ni-21Cr
45	ASTM	B163	Ni-Fe-Cr (Alloy 800HT)	N08811		65/25	Seamless Tube	42Fe-33Ni-21Cr-Al-Ti

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Nickel and Nickel Base Alloys								
45	ASTM	B163	Ni-Fe-Cr (Alloy 825)	N08825		85/35	Seamless Tube	42Fe-30Ni-21.5Cr-3Mo-2.3Cu
45	ASTM	B366	CR20CB/WP20C B	N08020		80/35	Fittings	36Fe-35Ni-20Cr-4Cu-2Mo
45	ASTM	B366	CR3127/WP3127	N08031		94/40	Fittings	31Ni-31Fe-27Cr-7Mo
45	ASTM	B366	CRH120/WPH120	N08120		90/40	Fittings	37Ni-28Fe-25Cr-3Co-2Mo-2W
45	ASTM	B366	CR330/WP330	N08330		70/30	Fittings	43Fe-35.5Ni-18.5Cr-Si
45	ASTM	B366	CR6XN/WP6XN	N08367		95/45	Fittings	46Fe-24Ni-21Cr-6.5Mo-N
45	ASTM	B366	CRNIC/WPNIC	N08800		75/30	Fittings	44Fe-33Ni-21Cr
45	ASTM	B366	CRNIC10/WPNI C10	N08810		65/25	Fittings	44Fe-32.5Ni-21Cr-Al-Ti
45	ASTM	B366	CRNIC11/WPNI C11	N08811		65/25	Fittings	42Fe-33Ni-21Cr-Al-Ti
45	ASTM	B366	CRNICMC/WPNI CMC	N08825		85/35	Fittings	42Fe-22MinNi-21.5Cr-3Mo-2Cu
45	ASTM	B366	CR904L/WP904L	N08904		71/31	Fittings	44Fe-25.5Ni-21Cr-4.5Mo-1.5Cu
45	ASTM	B366	CR1925/WP1925	N08925		87/-	Fittings	46Fe-25Ni-20Cr-6.5Mo-1Cu-N
45	ASTM	B366	CR1925N/WP1925N	N08926		87/-	Fittings	45Fe-25Ni-20Cr-6.5Mo-1Cu-Mn-N
45	ASTM	B366	CR3033/WP3033	R20033		109/55	Fittings	33Fe-33Cr-31.5Ni-1Mo-1Mn-Cu-N
45	ASTM	B366	CRH556/WPH556	R30556		100/45	Fittings	30Fe-22Cr-21Ni-18.5Co-3Mo-2.7W
45	ASTM	B407	Alloy HR120	N08120		90/40	Seamless Pipe & Tube	37Ni-28Fe-25Cr-3Co-2Mo-2W
45	ASTM	B407	Alloy 800	N08800		75/30	Seamless Pipe & Tube	42Fe-33Ni-21Cr
45	ASTM	B407	Alloy 801	N08801		65/25	Seamless Pipe & Tube	45Fe-32Ni-20.5Cr
45	ASTM	B407	Alloy 800H	N08810		65/25	Seamless Pipe & Tube	47Fe-32Ni-20.5Cr
45	ASTM	B407	Alloy 800 HT	N08811		65/25	Seamless Pipe & Tube	39.5Fe-32.5Ni-21Cr-1Mn-Cb
45	ASTM	B408	Alloy HR120	N08120		90/40	Rod & Bar	37Ni-28Fe-25Cr-3Co-2Mo-2W

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Nickel and Nickel Base Alloys								
45	ASTM	B408	Alloy 800	N08800		75/30	Rod & Bar	42Fe-33Ni-21Cr
45	ASTM	B408	Alloy 800H	N08810		65/25	Rod & Bar	47Fe-32Ni-20.5Cr
45	ASTM	B408	Alloy 800HT	N08811		65/25	Rod & Bar	39.5Fe-32.5Ni-21Cr-1Mn-Cb
45	ASTM	B409	Alloy HR120	N08120		90/40	Plate, Sheet & Strip	37Ni-28Fe-25Cr-3Co-2Mo-2W
45	ASTM	B409	Alloy 800	N08800		75/30	Plate, Sheet & Strip	42Fe-33Ni-21Cr
45	ASTM	B409	Alloy 810	N08810		65/25	Plate, Sheet & Strip	47Fe-32Ni-20.5Cr
45	ASTM	B409	Alloy 811	N08811		65/25	Plate, Sheet & Strip	39.5Fe-32.5Ni-21Cr-1Mn-Cb
45	ASTM	B423	Alloy 20Cb3Mod.	N08221		79/34	Seamless Pipe & Tube	41Ni-30Fe-21Cr-5.7Mo-2Cu
45	ASTM	B423	Alloy 825	N08825		75/25	Seamless Pipe & Tube	42Ni-30Fe-21.5Cr-3Mo-2.3Cu
45	ASTM	B424	Alloy 20Cb3Mod.	N08221		79/34	Plate, Sheet & Strip	41Ni-30Fe-21Cr-5.7Mo-2Cu
45	ASTM	B424	Alloy 825	N08825		85/35	Plate, Sheet & Strip	42Ni-30Fe-21.5Cr-3Mo-2.3Cu
45	ASTM	B425	Alloy 20Cb3Mod.	N08221		79/34	Rod & Bar	41Ni-30Fe-21Cr-5.7Mo-2Cu
45	ASTM	B425	Alloy 825	N08825		85/35	Rod & Bar	42Ni-30Fe-21.5Cr-3Mo-2.3Cu
45	ASTM	B435	Alloy 556	R30556		100/45	Plate, Sheet & Strip	30Fe-22Cr-21Ni-18Co-3Mo-2.7W
45	ASTM	B462	Alloy 20Cb3	N08020		80/35	Forged or Rolled Pipe Flanges, etc.	35Ni-35Fe-20Cr-3Cb-2.5Mo
45	ASTM	B462	Alloy 20Mo-4	N08024		80/35	Forged or Rolled Pipe Flanges, etc.	37Ni-33Fe-24Cr-4Mo-2Cu
45	ASTM	B462	Alloy 20 Mo-6	N08026		80/35	Forged or Rolled Pipe Flanges, etc.	35Ni-31Fe-24Cr-6Mo-3Cu
45	ASTM	B462	Alloy 6XN	N08367		95/45	Forged or Rolled Pipe Flanges, etc.	46Fe-24Ni-21Cr-6.5Mo-Cu-N
45	ASTM	B462	Alloy 33	R20033		109/55	Forged or Rolled Pipe Flanges, etc.	33Fe-33Cr-32Ni-Mo-Cu-N
45	ASTM	B463	Alloy 20Cb3	N08020		80/35	Plate, Sheet & Strip	35Ni-35Fe-20Cr-3Cb-2.5Mo
45	ASTM	B463	Alloy 20Mo-4	N08024		80/35	Plate, Sheet & Strip	37Ni-33Fe-24Cr-4Mo-2Cu
45	ASTM	B463	Alloy 20 Mo-6	N08026		80/35	Plate, Sheet & Strip	35Ni-31Fe-24Cr-6Mo-3Cu
45	ASTM	B464	Alloy 20Cb3	N08020		80/35	Welded Pipe	35Ni-35Fe-20Cr-3Cb-2.5Mo
45	ASTM	B464	Alloy 20Mo-4	N08024		80/35	Welded Pipe	37Ni-33Fe-24Cr-4Mo-2Cu
45	ASTM	B464	Alloy 20 Mo-6	N08026		80/35	Welded Pipe	35Ni-31Fe-24Cr-6Mo-3Cu
45	ASTM	B468	Alloy 20Cb3	N08020		80/35	Welded Tube	35Ni-35Fe-20Cr-3Cb-2.5Mo
45	ASTM	B468	Alloy 20Mo-4	N08024		80/35	Welded Tube	37Ni-33Fe-24Cr-4Mo-2Cu
45	ASTM	B468	Alloy 20 Mo-6	N08026		80/35	Welded Tube	35Ni-31Fe-24Cr-6Mo-3Cu
45	ASTM	B473	Alloy 20Cb3	N08020		80/35	Bars	35Ni-35Fe-20Cr-3Cb-2.5Mo

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Nickel and Nickel Base Alloys								
45	ASTM	B473	Alloy 20Mo-4	N08024		80/35	Bars	37Ni-33Fe-24Cr-4Mo-2Cu
45	ASTM	B473	Alloy 20 Mo-6	N08026		80/35	Bars	35Ni-31Fe-24Cr-6Mo-3Cu
45	ASTM	B511	Alloy 330	N08330		70/30	Bars & Shapes	43Fe-35.5Ni-18.5Cr-Si
45	ASTM	B511	Alloy 330 TX	N08332		67/27	Bars & Shapes	42Fe-35.5Ni-18.5Cr-1Si-Ti
45	ASTM	B512	Alloy 330	N08330		70/30	Billets & Bars	43Fe-35.5Ni-18.5Cr-1Si
45	ASTM	B514	Alloy HR120	N08120		90/40	Welded Pipe	37Ni-30Fe-25Cr-Co-Mo-Cb
45	ASTM	B514	Alloy 800	N08800		75/30	Welded Pipe	44Fe-33Ni-21Cr
45	ASTM	B514	Alloy 800H	N08810		65/25	Welded Pipe	44Fe-33Ni-21Cr
45	ASTM	B515	Alloy HR120	N08120		90/40	Welded Tube	37Ni-30Fe-25Cr-Co-Mo-Cb
45	ASTM	B515	Alloy 800	N08800		75/30	Welded Tube	44Fe-33Ni-21Cr
45	ASTM	B515	Alloy 800H	N08810		65/25	Welded Tube	44Fe-33Ni-21Cr
45	ASTM	B515	Alloy 800HT	N08811		65/25	Welded Tube	42Fe-33Ni-21Cr-Al-Ti
45	ASTM	B535	Alloy 330	N08330		70/30	Seamless Pipe & Tube	43Fe-35.5Ni-18.5Cr-Si
45	ASTM	B535	Alloy 330TX	N08332		67/27	Seamless Pipe & Tube	42Fe-35.5Ni-18.5Cr-1Si-Ti
45	ASTM	B536	Alloy 330	N08330		70/30	Plate, Sheet & Strip	43Fe-35.5Ni-18.5Cr-Si
45	ASTM	B536	Alloy 330TX	N08332		67/27	Plate, Sheet & Strip	42Fe-35.5Ni-18.5Cr-1Si-Ti
45	ASTM	B564	Alloy 31	N08031		94/40	Forgings	31Ni-31Fe-27Cr-7Mo-Cu
45	ASTM	B564	Alloy HR120	N08120		90/40	Forgings	37Ni-30Fe-25Cr-Mo-Cb
45	ASTM	B564	Alloy AL-6XN	N08367		95/45	Forgings	46Fe-24Ni-21Cr-6.5Mo
45	ASTM	B564	Alloy 800	N08800		75/30	Forgings	44Fe-33Ni-21Cr
45	ASTM	B564	Alloy 800H	N08810		65/25	Forgings	44Fe-33Ni-21Cr
45	ASTM	B564	Alloy 800HT	N08811		65/25	Forgings	42Fe-33Ni-21Cr-Al-Ti
45	ASTM	B564	Alloy 825	N08825		85/35	Forgings	42Ni-30Fe-21.5Cr-3Mo-2.3Cu
45	ASTM	B564	Alloy 33	R20033		109/55	Forgings	33Fe-33Cr-32Ni-Mo-Cu-N
45	ASTM	B572	Fe-Cr-Ni-Co-Mo- W (Alloy 556)	R30556		100/45	Rod	33Fe-22Cr-21Ni-18Co-3Mo- 3W
45	ASTM	B599	Alloy 700	N08700		80/35	Plate, Sheet & Strip	47Fe-25Ni-21Cr-5Mo
45	ASTM	B619	Alloy 31	N08031		94/40	Welded Pipe	31Fe-31Ni-27Cr-7Mo-Cu
45	ASTM	B619	Alloy 20 Mod.	N08320		75/28	Welded Pipe	43Fe-26Ni-22Cr-5Mo
45	ASTM	B619	Alloy 33	R20033		109/55	Welded Pipe	33Fe-33Cr-32Ni-Mo-Cu-N

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Nickel and Nickel Base Alloys								
45	ASTM	B619	Alloy 556	R30556		100/45	Welded Pipe	30Fe-22Cr-21Ni-18Co-3Mo-2.7W
45	ASTM	B620	Alloy 20 Mod.	N08320		75/28	Plate, Sheet & Strip	43Fe-26Ni-22Cr-5Mo
45	ASTM	B621	Alloy 20 Mod.	N08320		75/28	Rod	43Fe-26Ni-22Cr-5Mo
45	ASTM	B622	Alloy 31	N08031		94/40	Seamless Pipe & Tube	31Fe-31Ni-27Cr-7Mo-Cu
45	ASTM	B622	Alloy 2035	N08135		73/31	Seamless Pipe & Tube	36Ni-35Fe-22Cr-4.5Mo
45	ASTM	B622	Alloy 20 Mod.	N08320		75/28	Seamless Pipe & Tube	43Fe-26Ni-22Cr-5Mo
45	ASTM	B622	Fe -Ni-Cr- Mo-Cu	N08535		73/31	Seamless Pipe & Tube	37Fe-33Ni-25.5Cr-3.2Mo-Cu
45	ASTM	B622	Alloy 33	R20033		109/55	Seamless Pipe & Tube	33Fe-33Cr-32Ni-Mo-Cu-N
45	ASTM	B622	Alloy 556	R30556		100/45	Seamless Pipe & Tube	30Fe-22Cr-21Ni-18Co-3Mo-2.7W
45	ASTM	B625	Alloy 31	N08031		94/40	Plate, Sheet & Strip	31Fe-31Ni-27Cr-7Mo-Cu
45	ASTM	B625	Alloy 904L	N08904		71/31	Plate, Sheet & Strip	44Fe-25Ni-21Cr-4.5Mo
45	ASTM	B625	Alloy 1925	N08925		87/43	Plate, Sheet & Strip	44Fe-25Ni-20Cr-6.5Mo-Cu-N
45	ASTM	B625	Alloy 926	N08926		94/43	Plate, Sheet & Strip	44Fe-25Ni-20Cr-6.5Mo-Cu-N
45	ASTM	B625	Alloy UR-SB-8	N08932		87/44	Plate, Sheet & Strip	41Fe-25Ni-25Cr-5.5Mo-Cu-N
45	ASTM	B625	Alloy 33	R20033		109/55	Plate, Sheet & Strip	33Fe-33Cr-32Ni-Mo-Cu-N
45	ASTM	B626	Alloy 33	R20033		109/55	Welded Tube	33Fe-33Cr-32Ni-Mo-Cu-N
45	ASTM	B626	Alloy 556	R30556		100/45	Welded Tube	30Fe-22Cr-21Ni-18Co-3Mo-2.7W
45	ASTM	B626	Alloy 31	N08031		94/40	Welded Tube	31Fe-31Ni-27Cr-7Mo-Cu
45	ASTM	B626	Alloy 20 Mod.	N08320		75/28	Welded Tube	43Fe-26Ni-22Cr-5Mo
45	ASTM	B649	Alloy 31	N08031		94/40	Bar & Wire	31Fe-31Ni-27Cr-7Mo-Cu
45	ASTM	B649	Alloy 904L	N08904		71/31	Bar & Wire	44Fe-25Ni-21Cr-4.5Mo
45	ASTM	B649	Alloy 1925	N08925		87/43	Bar & Wire	44Fe-25Ni-20Cr-6Mo-Cu-N
45	ASTM	B649	Alloy 926	N08926		94/43	Bar & Wire	44Fe-25Ni-20Cr-6.5Mo-Cu-N
45	ASTM	B649	Alloy 33	R20033		109/55	Bar & Wire	33Fe-33Cr-31.5Ni-Mo-Cu-N
45	ASTM	B668	Alloy 28	N08028		73/31	Seamless Tube	31Ni-31Fe-29Cr-Mo
45	ASTM	B672	Alloy 700	N08700		80/35	Bar	47Fe-25Ni-21Cr-5Mo-Cb
45	ASTM	B673	Alloy 904L	N08904		71/31	Welded Pipe	44Fe-25Ni-21Cr-4.5Mo-Cu

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Nickel and Nickel Base Alloys								
45	ASTM	B673	Alloy 1925	N08925		87/43	Welded Pipe	46Fe-25Ni-20Cr-6Mo-Cu-N
45	ASTM	B673	Alloy 926	N08926		94/43	Welded Pipe	35Ni-31Fe-24Cr-6Mo-3Cu
45	ASTM	B674	Alloy 904L	N08904		71/31	Welded Pipe	44Fe-25Ni-21Cr-4.5Mo-Cu
45	ASTM	B674	Alloy 1925	N08925		87/43	Welded Tube	46Fe-25Ni-20Cr-6Mo-Cu-N
45	ASTM	B674	Alloy 926	N08926		94/43	Welded Tube	35Ni-31Fe-24Cr-6Mo-3Cu
45	ASTM	B675	Fe-Ni-Cr-Mo	N08366			Welded Pipe	
45	ASTM	B675	Alloy AL-6XN	N08367	≤ 3/16	100/45	Welded Pipe	46Fe-24Ni-21Cr-6Mo-Cu-N
45	ASTM	B675	Alloy AL-6XN	N08367	>3/16	95/45	Welded Pipe	46Fe-24Ni-21Cr-6Mo-Cu-N
45	ASTM	B676	Alloy AL-6XN	N08367	≤ 3/16	100/45	Welded Tube	46Fe-24Ni-21Cr-6Mo-Cu-N
45	ASTM	B676	Alloy AL-6XN	N08367	>3/16	95/45	Welded Tube	46Fe-24Ni-21Cr-6Mo-Cu-N
45	ASTM	B677	Alloy 904L	N08904		71/31	Seamless Pipe & Tube	44Fe-25Ni-21Cr-4.5Mo-Cu
45	ASTM	B677	Alloy 1925	N08925		87/43	Seamless Pipe & Tube	46Fe-25Ni-20Cr-6Mo-Cu-N
45	ASTM	B677	Alloy 926	N08926		94/43	Seamless Pipe & Tube	35Ni-31Fe-24Cr-6Mo-3Cu
45	ASTM	B688	Fe-Ni-Cr-Mo	N08366			Sheet & Strip	
45	ASTM	B688	Alloy AL-6XN	N08367	≤ 3/16	100/45	Sheet & Strip	46Fe-24Ni-21Cr-6Mo-Cu-N
45	ASTM	B688	Alloy AL-6XN	N08367	>3/16 ≤ 3/4	95/45	Plate	46Fe-24Ni-21Cr-6Mo-Cu-N
45	ASTM	B690	Fe-Ni-Cr-Mo	N08366			Sheet & Strip	
45	ASTM	B690	Alloy AL-6XN	N08367	≤ 3/16	100/45	Seamless Pipe & Tube	46Fe-24Ni-21Cr-6Mo-Cu-N
45	ASTM	B690	Alloy AL-6XN	N08367	>3/16 ≤ 3/4	95/45	Seamless Pipe & Tube	46Fe-24Ni-21Cr-6Mo-Cu-N
45	ASTM	B691	Fe-Ni-Cr-Mo	N08366			Round & Square Rods & Bars	
45	ASTM	B691	Alloy AL-6XN	N08367		95/45	Round & Sq. Rods & Bars	46Fe-24Ni-21Cr-6Mo-Cu-N
45	ASTM	B704	Alloy 825	N08825		85/35	Welded Tube	42Ni-30Fe-21.5Cr-3Mo-2.3Cu
45	ASTM	B705	Alloy 825	N08825		85/35	Welded Pipe	42Ni-30Fe-21.5Cr-3Mo-2.3Cu
45	ASTM	B709	Alloy 28	N08028		73/31	Plate, Sheet & Strip	31Ni-31Fe-29Cr-Mo
45	ASTM	B710	Alloy 330	N08330		70/30	Welded Pipe	42Fe-35.5Ni-18.5Cr-Si
45	ASTM	B710	Alloy 330TX	N08332		67/27	Welded Pipe	42Fe-35.5Ni-18.5Cr-Si
45	ASTM	B718	Alloy 333	N06333		80/35	Plate, Sheet & Strip	46Ni-25.5Cr-16Fe-3.3Mo-3.3W-3.3Co
45	ASTM	B719	Alloy 333	N06333		80/35	Bars	46Ni-25.5Cr-16Fe-3.3Mo-3.3W-3.3Co

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Nickel and Nickel Base Alloys								
45	ASTM	B720	Fe-Cr-Ni-Mo	N08310			Seamless Tube	
45	ASTM	B722	Alloy 333	N06333		80/35	Seamless Pipe & Tube	46Ni-25.5Cr-16Fe-3.3Mo-3.3W-3.3Co
45	ASTM	B723	Alloy 333	N06333		80/35	Welded Pipe	46Ni-25.5Cr-16Fe-3.3Mo-3.3W-3.3Co
45	ASTM	B726	Alloy 333	N06333		80/35	Welded Tube	46Ni-25.5Cr-16Fe-3.3Mo-3.3W-3.3Co
45	ASTM	B804	Alloy AL-6XN	N08367	≤ 3/16	100/45	Welded Pipe & Tube	46Fe-24Ni-21Cr-6.5Mo-Cu-W
45	ASTM	B804	Alloy AL-6XN	N08367	>3/16	95/45	Welded Pipe & Tube	46Fe-24Ni-21Cr-6.5Mo-Cu-W
46	ASTM	B163	Ni-Cr-Fe-Si (Alloy 45)	N06045		90/35	Seamless Tube	46Ni-27.5Cr-23Fe-2.75Si
46	ASTM	B166	Ni-Cr-Fe (Alloy 45)	N06045		90/35	Rod & Bar	46Ni-27.5Cr-23Fe-2.75Si
46	ASTM	B167	Ni-Cr-Fe (Alloy 45)	N06045		90/35	Seamless Pipe & Tube	46Ni-27.5Cr-23Fe-2.75Si
46	ASTM	B168	Alloy 45	N06045		90/35	Plate, Sheet & Strip	46Ni-27.5Cr-23Fe-2.75Si
46	ASTM	B366	CRV45TM/WPV 45TM	N06045		90/35	Fittings	46Ni-27.5Cr-23Fe-2.75Si
46	ASTM	B366	CRH160/WPH160	N12160		90/35	Fittings	37Ni-30Co-28Cr-2.7Si-Ti
46	ASTM	B435	Alloy HR160	N12160		90/35	Plate, Sheet & Strip	37Ni-30Co-28Cr-2.7Si-Ti
46	ASTM	B516	Alloy 45	N06045		90/35	Welded Tube	46Ni-27.5Cr-23Fe-2.75Si
46	ASTM	B517	Alloy 45	N06045		90/35	Welded Pipe	46Ni-27.5Cr-23Fe-2.75Si
46	ASTM	B564	Alloy 45	N06045		90/35	Forging	46Ni-27.5Cr-23Fe-2.75Si
46	ASTM	B564	Alloy HR160	N12160		90/35	Forging	37Ni-30Co-28Cr-2.7Si-Ti
46	ASTM	B572	Alloy HR160	N12160		90/35	Rod	37Ni-30Co-28Cr-2.7Si-Ti
46	ASTM	B619	Alloy HR160	N12160		90/35	Welded Pipe	37Ni-30Co-28Cr-2.7Si-Ti
46	ASTM	B622	Alloy HR160	N12160		90/35	Seamless Pipe & Tube	37Ni-30Co-28Cr-2.7Si-Ti
46	ASTM	B626	Alloy HR160	N12160		90/35	Welded Tube	37Ni-30Co-28Cr-2.7Si-Ti

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Titanium and Titanium Base Alloys								
51	ASTM	B265	Grade 1	R50250	—	35/25	Plate, Sheet & Strip	UnalloyedTi
51	ASTM	B265	Grade 2	R50400	—	50/40	Plate, Sheet & Strip	UnalloyedTi
51	ASTM	B265	Grade 7	R52400	—	50/40	Plate, Sheet & Strip	0.18Pd
51	ASTM	B265	Grade 11	R52250	—	35/25	Plate, Sheet & Strip	0.18Pd
51	ASTM	B265	Grade 13	R53413	—	40/25	Plate, Sheet & Strip	0.5Ni-0.05Ru
51	ASTM	B265	Grade 16	R52402	—	50/40	Plate, Sheet & Strip	0.06Pd
51	ASTM	B265	Grade 17	R52252	—	35/25	Plate, Sheet & Strip	0.06Pd
51	ASTM	B265	Grade 26	—	—	50/40	Plate, Sheet & Strip	0.11Ru
51	ASTM	B265	Grade 27	—	—	35/25	Plate, Sheet & Strip	0.11Ru
51	ASTM	B265	Grade 30	—	—	50/40	Plate, Sheet & Strip	0.5Co-0.06Ru
51	ASTM	B265	Grade 33	—	—	50/40	Plate, Sheet & Strip	0.45Ni-0.15Cr-Ru-Pd
51	ASTM	B337	Grade 1	R50250	—	35/25	Seamless & Welded Pipe	UnalloyedTi
51	ASTM	B337	Grade 2	R50400	—	50/40	Seamless & Welded Pipe	UnalloyedTi
51	ASTM	B337	Grade 7	R52400	—	50/40	Seamless & Welded Pipe	0.18Pd
51	ASTM	B337	Grade 11	R52250	—	35/25	Seamless & Welded Pipe	0.18Pd
51	ASTM	B338	Grade 1	R50250	—	35/25	Seamless & Welded Tube	UnalloyedTi
51	ASTM	B338	Grade 2	R50400	—	50/40	Seamless & Welded Tube	UnalloyedTi
51	ASTM	B338	Grade 7	R52400	—	50/40	Seamless & Welded Tube	0.18Pd
51	ASTM	B338	Grade 11	R52250	—	35/25	Seamless & Welded Tube	0.18Pd
51	ASTM	B338	Grade 13	R53413	—	40/25	Seamless & Welded Tube	0.5Ni-0.05Ru
51	ASTM	B338	Grade 16	R52402	—	50/40	Seamless & Welded Tube	0.06Pd
51	ASTM	B338	Grade 17	R52252	—	35/25	Seamless & Welded Tube	0.06Pd
51	ASTM	B338	Grade 27	—	—	35/25	Seamless & Welded Tube	0.11Ru
51	ASTM	B338	Grade 30	—	—	50/40	Seamless & Welded Tube	0.5Co-0.06Pd
51	ASTM	B338	Grade 33	—	—	50/40	Seamless & Welded Tube	0.45Ni-0.15Cr-Ru-Pd
51	ASTM	B348	Grade 1	R50250	—	35/25	Flat Bars (Cold Finished)	UnalloyedTi
51	ASTM	B348	Grade 1	R50250	—	35/25	Hex., Oct. & Squares (Cold Finished)	UnalloyedTi
51	ASTM	B348	Grade 1	R50250	—	35/25	Rounds (Cold Finished)	UnalloyedTi
51	ASTM	B348	Grade 1	R50250	—	35/25	Rounds & Squares (Hot Rolled)	UnalloyedTi

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Titanium and Titanium Base Alloys								
51	ASTM	B348	Grade 1	R50250	—	35/25	Hexagons & Octagons (Hot Rolled)	UnalloyedTi
51	ASTM	B348	Grade 1	R50250	—	35/25	Flat Bars (Hot Rolled)	UnalloyedTi
51	ASTM	B348	Grade 2	R50400	—	50/40	Flat Bars (Cold Finished)	UnalloyedTi
51	ASTM	B348	Grade 2	R50400	—	50/40	Hex., Oct. & Squares (Cold Finished)	UnalloyedTi
51	ASTM	B348	Grade 2	R50400	—	50/40	Rounds (Cold Finished)	UnalloyedTi
51	ASTM	B348	Grade 2	R50400	—	50/40	Rounds & Squares (Hot Rolled)	UnalloyedTi
51	ASTM	B348	Grade 2	R50400	—	50/40	Hexagons & Octagons (Hot Rolled)	UnalloyedTi
51	ASTM	B348	Grade 2	R50400	—	50/40	Flat Bars (Hot Rolled)	UnalloyedTi
51	ASTM	B348	Grade 11	R52250	—	35/25	Flat Bars (Cold Finished)	0.18Pd
51	ASTM	B348	Grade 11	R52250	—	35/25	Hex., Oct. & Squares (Cold Finished)	0.18Pd
51	ASTM	B348	Grade 11	R52250	—	35/25	Rounds (Cold Finished)	0.18Pd
51	ASTM	B348	Grade 11	R52250	—	35/25	Rounds & Squares (Hot Rolled)	0.18Pd
51	ASTM	B348	Grade 11	R52250	—	35/25	Hexagons & Octagons (Hot Rolled)	0.18Pd
51	ASTM	B348	Grade 11	R52250	—	35/25	Flat Bars (Hot Rolled)	0.18Pd
51	ASTM	B348	Grade 17	R52252	—	35/25	Flat Bars (Cold Finished)	0.06Pd
51	ASTM	B348	Grade 17	R52252	—	35/25	Hex., Oct. & Squares (Cold Finished)	0.06Pd
51	ASTM	B348	Grade 17	R52252	—	35/25	Rounds (Cold Finished)	0.06Pd
51	ASTM	B348	Grade 17	R52252	—	35/25	Rounds & Squares (Hot Rolled)	0.06Pd
51	ASTM	B348	Grade 17	R52252	—	35/25	Hexagons & Octagons (Hot Rolled)	0.06Pd
51	ASTM	B348	Grade 17	R52252	—	35/25	Flat Bars (Hot Rolled)	0.06Pd
51	ASTM	B348	Grade 7	R52400	—	50/40	Flat Bars (Cold Finished)	0.18Pd
51	ASTM	B348	Grade 7	R52400	—	50/40	Hex., Oct. & Squares (Cold Finished)	0.18Pd
51	ASTM	B348	Grade 7	R52400	—	50/40	Rounds (Cold Finished)	0.18Pd
51	ASTM	B348	Grade 7	R52400	—	50/40	Rounds & Squares (Hot Rolled)	0.18Pd
51	ASTM	B348	Grade 7	R52400	—	50/40	Hexagons & Octagons (Hot Rolled)	0.18Pd
51	ASTM	B348	Grade 7	R52400	—	50/40	Flat Bars (Hot Rolled)	0.18Pd
51	ASTM	B348	Grade 16	R52402	—	50/40	Flat Bars (Cold Finished)	0.06Pd
51	ASTM	B348	Grade 16	R52402	—	50/40	Hex., Oct. & Squares (Cold Finished)	0.06Pd
51	ASTM	B348	Grade 16	R52402	—	50/40	Rounds (Cold Finished)	0.06Pd

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Titanium and Titanium Base Alloys								
51	ASTM	B348	Grade 16	R52402	—	50/40	Rounds & Squares (Hot Rolled)	0.06Pd
51	ASTM	B348	Grade 16	R52402	—	50/40	Hexagons & Octagons (Hot Rolled)	0.06Pd
51	ASTM	B348	Grade 16	R52402	—	50/40	Flat Bars (Hot Rolled)	0.06Pd
51	ASTM	B348	Grade 13	R53413	—	40/25	Flat Bars (Cold Finished)	0.5Ni-0.05Ru
51	ASTM	B348	Grade 13	R53413	—	40/25	Hex., Oct. & Squares (Cold Finished)	0.5Ni-0.05Ru
51	ASTM	B348	Grade 13	R53413	—	40/25	Rounds (Cold Finished)	0.5Ni-0.05Ru
51	ASTM	B348	Grade 13	R53413	—	40/25	Rounds & Squares (Hot Rolled)	0.5Ni-0.05Ru
51	ASTM	B348	Grade 13	R53413	—	40/25	Hexagons & Octagons (Hot Rolled)	0.5Ni-0.05Ru
51	ASTM	B348	Grade 13	R53413	—	40/25	Flat Bars (Hot Rolled)	0.5Ni-0.05Ru
51	ASTM	B348	Grade 30	—	—	50/40	Flat Bars (Cold Finished)	0.5Co-0.06Pd
51	ASTM	B348	Grade 30	—	—	50/40	Hex., Oct. & Squares (Cold Finished)	0.5Co-0.06Pd
51	ASTM	B348	Grade 30	—	—	50/40	Rounds (Cold Finished)	0.5Co-0.06Pd
51	ASTM	B348	Grade 30	—	—	50/40	Rounds & Squares (Hot Rolled)	0.5Co-0.06Pd
51	ASTM	B348	Grade 30	—	—	50/40	Hexagons & Octagons (Hot Rolled)	0.5Co-0.06Pd
51	ASTM	B348	Grade 30	—	—	50/40	Flat Bars (Hot Rolled)	0.5Co-0.06Pd
51	ASTM	B348	Grade 33	—	—	50/40	Flat Bars (Cold Finished)	0.45Ni-Cr-Ru-Pd
51	ASTM	B348	Grade 33	—	—	50/40	Hex., Oct. & Squares (Cold Finished)	0.45Ni-Cr-Ru-Pd
51	ASTM	B348	Grade 33	—	—	50/40	Rounds (Cold Finished)	0.45Ni-Cr-Ru-Pd
51	ASTM	B348	Grade 33	—	—	50/40	Rounds & Squares (Hot Rolled)	0.45Ni-Cr-Ru-Pd
51	ASTM	B348	Grade 33	—	—	50/40	Hexagons & Octagons (Hot Rolled)	0.45Ni-Cr-Ru-Pd
51	ASTM	B348	Grade 33	—	—	50/40	Flat Bars (Hot Rolled)	0.45Ni-Cr-Ru-Pd
51	ASTM	B363	WPT 1	R50250	—	35/25	Seamless & Welded Fittings	UnalloyedTi
51	ASTM	B363	WPT 2	R50400	—	50/40	Seamless & Welded Fittings	UnalloyedTi
51	ASTM	B363	WPT 7	R52400	—	50/40	Seamless & Welded Fittings	0.18Pd
51	ASTM	B363	WPT 11	R52250	—	35/25	Seamless & Welded Fittings	0.18Pd
51	ASTM	B363	WPT 13	R53413	—	40/25	Seamless & Welded Fittings	0.5Ni-0.05Ru
51	ASTM	B363	WPT 16	R52402	—	50/40	Seamless & Welded Fittings	0.06Pd
51	ASTM	B363	WPT 17	R52252	—	35/25	Seamless & Welded Fittings	0.06Pd
51	ASTM	B363	WPT 30	—	—	50/40	Seamless & Welded Fittings	0.5Ni-0.06Pd

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Titanium and Titanium Base Alloys								
51	ASTM	B367	Grade C-2	R50400	—	50/40	Castings (As-Cast)	UnalloyedTi
51	ASTM	B367	Pd 17	R52252	—	35/25	Castings (As-Cast)	0.06Pd
51	ASTM	B367	Pd 7B	R52401	—	50/40	Castings (As-Cast)	0.12minPd
51	ASTM	B367	Pd 16	R52402	—	50/40	Castings (As-Cast)	0.06Pd
51	ASTM	B381	F-1	R50250	—	35/25	Forgings	UnalloyedTi
51	ASTM	B381	F-2	R50400	—	50/40	Forgings	UnalloyedTi
51	ASTM	B381	F-7	R52400	—	50/40	Forgings	0.18Pd
51	ASTM	B381	F-11	R52250	—	35/25	Forgings	0.18Pd
51	ASTM	B381	F-13	R53413	—	40/25	Forgings	0.5Ni-0.05Ru
51	ASTM	B381	F-16	R52402	—	50/40	Forgings	0.06Pd
51	ASTM	B381	F-17	R52252	—	35/25	Forgings	0.06Pd
51	ASTM	B381	F-30	—	—	50/40	Forgings	0.5Co-0.06Pd
51	ASTM	B381	F-33	—	—	50/40	Forgings	0.4Ni-0.15Cr-Ru-Pd
51	ASTM	B861	Grade 1	R50250	—	35/25	Seamless Pipe	UnalloyedTi
51	ASTM	B861	Grade 2	R50400	—	50/40	Seamless Pipe	UnalloyedTi
51	ASTM	B861	Grade 7	R52400	—	50/40	Seamless Pipe	0.18Pd
51	ASTM	B861	Grade 11	R52250	—	35/25	Seamless Pipe	0.18Pd
51	ASTM	B861	Grade 13	R53413	—	40/25	Seamless Pipe	0.5Ni-0.05Ru
51	ASTM	B861	Grade 16	R52402	—	50/40	Seamless Pipe	0.06Pd
51	ASTM	B861	Grade 17	R52252	—	35/25	Seamless Pipe	0.06Pd
51	ASTM	B861	Grade 33	—	—	50/40	Seamless Pipe	0.4Ni-0.15Cr-Ru-Pd
51	ASTM	B862	Grade 1	R50250	—	35/25	Welded Pipe	UnalloyedTi
51	ASTM	B862	Grade 2	R50400	—	50/40	Welded Pipe	UnalloyedTi
51	ASTM	B862	Grade 7	R52400	—	50/40	Welded Pipe	0.18Pd
51	ASTM	B862	Grade 11	R50250	—	35/25	Welded Pipe	0.18Pd
51	ASTM	B862	Grade 13	R53413	—	40/25	Welded Pipe	0.5Ni-0.05Ru
51	ASTM	B862	Grade 16	R52402	—	50/40	Welded Pipe	0.06Pd
51	ASTM	B862	Grade 17	R52252	—	35/25	Welded Pipe	0.06Pd
51	ASTM	B862	Grade 26	R52404	—	50/40	Welded Pipe	0.11Ru

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Titanium and Titanium Base Alloys								
51	ASTM	B862	Grade 27	R52254	—	35/25	Welded Pipe	0.11Ru
51	ASTM	B862	Grade 33	—	—	50/40	Welded Pipe	0.4Ni-0.15Cr-Ru-Pd
52	ASTM	B265	Grade 3	R50550	—	65/55	Plate, Sheet & Strip	UnalloyedTi
52	ASTM	B265	Grade 12	R53400	—	70/50	Plate, Sheet & Strip	0.75Ni-0.3Mo
52	ASTM	B265	Grade 14	R53414	—	60/40	Plate, Sheet & Strip	0.5Ni-0.05Ru
52	ASTM	B265	Grade 15	R53415	—	70/55	Plate, Sheet & Strip	0.5Ni-0.05Ru
52	ASTM	B265	Grade 31	—	—	65/55	Plate, Sheet & Strip	0.5Co-0.06Pd
52	ASTM	B265	Grade 34	—	—	65/55	Plate, Sheet & Strip	0.4Ni-0.15Cr-Ru-Pd
52	ASTM	B337	Grade 3	R50550	—	66/55	Seamless & Welded Pipe	UnalloyedTi
52	ASTM	B337	Grade 12	R53400	—	70/50	Seamless & Welded Pipe	0.75Ni-0.3Mo
52	ASTM	B338	Grade 3	R50550	—	65/55	Seamless & Welded Tube	UnalloyedTi
52	ASTM	B338	Grade 12	R53400	—	70/50	Seamless & Welded Tube	0.75Ni-0.3Mo
52	ASTM	B338	Grade 14	R53414	—	60/40	Seamless & Welded Tube	0.5Ni-0.05Ru
52	ASTM	B338	Grade 15	R53415	—	70/55	Seamless & Welded Tube	0.5Ni-0.05Ru
52	ASTM	B338	Grade 31	—	—	65/55	Seamless & Welded Tube	0.5Co-0.06Pd
52	ASTM	B338	Grade 34	—	—	65/55	Seamless & Welded Tube	0.4Ni-0.15Cr-Ru-Pd
52	ASTM	B348	Grade 3	R50550	—	65/55	Rounds & Squares (Hot Rolled)	UnalloyedTi
52	ASTM	B348	Grade 3	R50550	—	65/55	Hexagons & Octagons (Hot Rolled)	UnalloyedTi
52	ASTM	B348	Grade 3	R50550	—	65/55	Flat Bars (Hot Rolled)	UnalloyedTi
52	ASTM	B348	Grade 3	R50550	—	65/55	Rounds (Cold Finished)	UnalloyedTi
52	ASTM	B348	Grade 3	R50550	—	65/55	Hex., Oct. & Squares (Cold Finished)	UnalloyedTi
52	ASTM	B348	Grade 3	R50550	—	65/55	Flat Bars (Cold Finished)	UnalloyedTi
52	ASTM	B348	Grade 12	R53400	—	70/50	Rounds & Squares (Hot Rolled)	0.75Ni-0.3Mo
52	ASTM	B348	Grade 12	R53400	—	70/50	Hexagons & Octagons (Hot Rolled)	0.75Ni-0.3Mo
52	ASTM	B348	Grade 12	R53400	—	70/50	Flat Bars (Hot Rolled)	0.75Ni-0.3Mo
52	ASTM	B348	Grade 12	R53400	—	70/50	Rounds (Cold Finished)	0.75Ni-0.3Mo
52	ASTM	B348	Grade 12	R53400	—	70/50	Hex., Oct. & Squares (Cold Finished)	0.75Ni-0.3Mo
52	ASTM	B348	Grade 12	R53400	—	70/50	Flat Bars (Cold Finished)	0.75Ni-0.3Mo

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Titanium and Titanium Base Alloys								
52	ASTM	B348	Grade 14	R53414	—	60/40	Rounds & Squares (Hot Rolled)	0.5Ni-0.05Ru
52	ASTM	B348	Grade 14	R53414	—	60/40	Hexagons & Octagons (Hot Rolled)	0.5Ni-0.05Ru
52	ASTM	B348	Grade 14	R53414	—	60/40	Flat Bars (Hot Rolled)	0.5Ni-0.05Ru
52	ASTM	B348	Grade 14	R53414	—	60/40	Rounds (Cold Finished)	0.5Ni-0.05Ru
52	ASTM	B348	Grade 14	R53414	—	60/40	Hex., Oct. & Squares (Cold Finished)	0.5Ni-0.05Ru
52	ASTM	B348	Grade 14	R53414	—	60/40	Flat Bars (Cold Finished)	0.5Ni-0.05Ru
52	ASTM	B348	Grade 15	R53415	—	70/55	Rounds & Squares (Hot Rolled)	0.5Ni-0.05Ru
52	ASTM	B348	Grade 15	R53415	—	70/55	Hexagons & Octagons (Hot Rolled)	0.5Ni-0.05Ru
52	ASTM	B348	Grade 15	R53415	—	70/55	Flat Bars (Hot Rolled)	0.5Ni-0.05Ru
52	ASTM	B348	Grade 15	R53415	—	70/55	Rounds (Cold Finished)	0.5Ni-0.05Ru
52	ASTM	B348	Grade 15	R53415	—	70/55	Hex., Oct. & Squares (Cold Finished)	0.5Ni-0.05Ru
52	ASTM	B348	Grade 15	R53415	—	70/55	Flat Bars (Cold Finished)	0.5Ni-0.05Ru
52	ASTM	B348	Grade 31	—	—	65/55	Rounds & Squares (Hot Rolled)	0.3Co-0.05Pd
52	ASTM	B348	Grade 31	—	—	65/55	Hexagons & Octagons (Hot Rolled)	0.3Co-0.05Pd
52	ASTM	B348	Grade 31	—	—	65/55	Flat Bars (Hot Rolled)	0.3Co-0.05Pd
52	ASTM	B348	Grade 31	—	—	65/55	Rounds (Cold Finished)	0.3Co-0.05Pd
52	ASTM	B348	Grade 31	—	—	65/55	Hex., Oct. & Squares (Cold Finished)	0.3Co-0.05Pd
52	ASTM	B348	Grade 31	—	—	65/55	Flat Bars (Cold Finished)	0.3Co-0.05Pd
52	ASTM	B348	Grade 34	—	—	65/55	Rounds & Squares (Hot Rolled)	0.4Ni-Cr-Ru-Pd
52	ASTM	B348	Grade 34	—	—	65/55	Hexagons & Octagons (Hot Rolled)	0.4Ni-Cr-Ru-Pd
52	ASTM	B348	Grade 34	—	—	65/55	Flat Bars (Hot Rolled)	0.4Ni-Cr-Ru-Pd
52	ASTM	B348	Grade 34	—	—	65/55	Rounds (Cold Finished)	0.4Ni-Cr-Ru-Pd
52	ASTM	B348	Grade 34	—	—	65/55	Hex., Oct. & Squares (Cold Finished)	0.4Ni-Cr-Ru-Pd
52	ASTM	B348	Grade 34	—	—	65/55	Flat Bars (Cold Finished)	0.4Ni-Cr-Ru-Pd
52	ASTM	B363	WPT 3	R50550	—	65/55	Seamless & Welded Fittings	UnalloyedTi
52	ASTM	B363	WPT 12	R53400	—	70/50	Seamless & Welded Fittings	0.75Ni-0.3Mo
52	ASTM	B363	WPT 14	R53414	—	60/40	Seamless & Welded Fittings	0.5Ni-0.05Ru
52	ASTM	B363	WPT 15	R53415	—	65/55	Seamless & Welded Fittings	0.5Ni-0.05Ru
52	ASTM	B367	Grade C-3	R50550	—	65/55	Castings (As-Cast)	UnalloyedTi

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Titanium and Titanium Base Alloys								
52	ASTM	B367	Pd 8A	R52401	—	65/55	Castings (As-Cast)	0.12minPd
52	ASTM	B381	F-3	R50550	—	65/55	Forgings	UnalloyedTi
52	ASTM	B381	F-12	R53400	—	70/50	Forgings	0.75Ni-0.3Mo
52	ASTM	B381	F-14	R53414	—	60/40	Forgings	0.5Ni-0.05Ru
52	ASTM	B381	F-15	R53415	—	70/55	Forgings	0.5Ni-0.05Ru
52	ASTM	B381	F-31	—	—	65/55	Forgings	0.3Co-0.05Pd
52	ASTM	B861	Grade 3	R50550	—	65/55	Seamless Pipe	UnalloyedTi
52	ASTM	B861	Grade 12	R53400	—	70/50	Seamless Pipe	0.8Ni-0.3Mo
52	ASTM	B861	Grade 14	R53414	—	60/40	Seamless Pipe	0.5Ni-0.05Ru
52	ASTM	B861	Grade 15	R53415	—	70/55	Seamless Pipe	0.5Ni-0.05Ru
52	ASTM	B861	Grade 34	—	—	65/55	Seamless Pipe	0.4Ni-0.15Cr-Ru-Pd
52	ASTM	B862	Grade 3	R50550	—	65/55	Seamless Pipe	UnalloyedTi
52	ASTM	B862	Grade 12	R53400	—	70/50	Seamless Pipe	0.03Co-0.05Pd
52	ASTM	B862	Grade 14	R53414	—	60/40	Seamless Pipe	0.5Ni-0.05Ru
52	ASTM	B862	Grade 15	R53415	—	70/55	Seamless Pipe	0.5Ni-0.05Ru
52	ASTM	B862	Grade 34	—	—	65/55	Welded Pipe	0.4Ni-0.15Cr-Ru-Pd
53	ASTM	B265	Grade 4	R50700	—	80/70	Plate, Sheet & Strip	UnalloyedTi
53	ASTM	B265	Grade 9	R56320	—	90/70	Plate, Sheet & Strip	3Al-2.5V
53	ASTM	B265	Grade 18	R56322	—	90/70	Plate, Sheet & Strip	3Al-2.5V-0.06Pd
53	ASTM	B265	Grade 28	R56323	—	90/70	Plate, Sheet & Strip	3Al-2.5V-0.11Ru
53	ASTM	B265	Grade 21	R58210	—	115/110	Plate, Sheet & Strip	15Mo-3Al-2.7Nb-0.25Si
53	ASTM	B265	Grade 19	R58640	—	115/110	Plate, Sheet & Strip	8V-6Cr-4Zr-4Mo-3Al
53	ASTM	B265	Grade 20	R58645	—	115/110	Plate, Sheet & Strip	8V-6Cr-4Zr-4Mo-3Al-0.06Pd
53	ASTM	B265	Grade 32	—	—	100/85	Plate, Sheet & Strip	5Al-1Sn-1Zr-1V-0.9Mo
53	ASTM	B337	Grade 9	R56320	—	90/70	Seamless & Welded Pipe	3Al-2.5V
53	ASTM	B338	Grade 9	R56320	—	90/70	Seamless & Welded Tube	3Al-2.5V
53	ASTM	B338	Grade 18	R56322	—	90/70	Seamless & Welded Tube	3Al-2.5V-0.06Pd
53	ASTM	B338	Grade 28	R56323	—	90/70	Seamless & Welded Tube	3Al-2.5V-0.11Ru

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Titanium and Titanium Base Alloys								
53	ASTM	B348	Grade 4	R50700	—	80/70	Rounds & Squares (Hot Rolled)	UnalloyedTi
53	ASTM	B348	Grade 4	R50700	—	80/70	Hexagons & Octagons (Hot Rolled)	UnalloyedTi
53	ASTM	B348	Grade 4	R50700	—	80/70	Flat Bars (Hot Rolled)	UnalloyedTi
53	ASTM	B348	Grade 4	R50700	—	80/70	Rounds (Cold Finished)	UnalloyedTi
53	ASTM	B348	Grade 4	R50700	—	80/70	Hex., Oct. & Squares (Cold Finished)	UnalloyedTi
53	ASTM	B348	Grade 4	R50700	—	80/70	Flat Bars (Cold Finished)	UnalloyedTi
53	ASTM	B348	Grade 9	R56320	—	90/70	Rounds & Squares (Hot Rolled)	3Al-2.5V
53	ASTM	B348	Grade 9	R56320	—	90/70	Hexagons & Octagons (Hot Rolled)	3Al-2.5V
53	ASTM	B348	Grade 9	R56320	—	90/70	Flat Bars (Hot Rolled)	3Al-2.5V
53	ASTM	B348	Grade 9	R56320	—	90/70	Rounds (Cold Finished)	3Al-2.5V
53	ASTM	B348	Grade 9	R56320	—	90/70	Hex., Oct. & Squares (Cold Finished)	3Al-2.5V
53	ASTM	B348	Grade 9	R56320	—	90/70	Flat Bars (Cold Finished)	3Al-2.5V
53	ASTM	B348	Grade 18	R56322	—	90/70	Rounds & Squares (Hot Rolled)	3Al-2.5V-0.06Pd
53	ASTM	B348	Grade 18	R56322	—	90/70	Hexagons & Octagons (Hot Rolled)	3Al-2.5V-0.06Pd
53	ASTM	B348	Grade 18	R56322	—	90/70	Flat Bars (Hot Rolled)	3Al-2.5V-0.06Pd
53	ASTM	B348	Grade 18	R56322	—	90/70	Rounds (Cold Finished)	3Al-2.5V-0.06Pd
53	ASTM	B348	Grade 18	R56322	—	90/70	Hex., Oct. & Squares (Cold Finished)	3Al-2.5V-0.06Pd
53	ASTM	B348	Grade 18	R56322	—	90/70	Flat Bars (Cold Finished)	3Al-2.5V-0.06Pd
53	ASTM	B348	Grade 21	R58210	—	115/110	Rounds & Squares (Hot Rolled, Solution Treated)	15Mo-3Al-2.7Nb-0.25Si
53	ASTM	B348	Grade 21	R58210	—	115/110	Hex. & Oct. (Hot Rolled, Solution Treated)	15Mo-3Al-2.7Nb-0.25Si
53	ASTM	B348	Grade 21	R58210	—	115/110	Flat Bars (Hot Rolled, Solution Treated)	15Mo-3Al-2.7Nb-0.25Si
53	ASTM	B348	Grade 21	R58210	—	115/110	Rounds (Cold Finished,	15Mo-3Al-2.7Nb-0.25Si
53	ASTM	B348	Grade 21	R58210	—	115/110	Hex., Oct. & Squares (Cold Finished, Solution Treated)	15Mo-3Al-2.7Nb-0.25Si
53	ASTM	B348	Grade 21	R58210	—	115/110	Flat Bars (Cold Finished, (Cold Finished, Solution Treated)	15Mo-3Al-2.7Nb-0.25Si
53	ASTM	B348	Grade 19	R58640	—	115/110	Rounds & Squares (Hot Rolled, (Cold Finished, Solution Treated)	8V-6Cr-4Zr-4Mo-3Al

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Titanium and Titanium Base Alloys								
53	ASTM	B348	Grade 19	R58640	—	115/110	Hex. & Oct. (Hot Rolled, Solution Treated)	8V-6Cr-4Zr-4Mo-3Al
53	ASTM	B348	Grade 19	R58640	—	115/110	Flat Bars (Hot Rolled, Solution Treated)	8V-6Cr-4Zr-4Mo-3Al
53	ASTM	B348	Grade 19	R58640	—	115/110	Rounds (Cold Finished, Solution Treated)	8V-6Cr-4Zr-4Mo-3Al
53	ASTM	B348	Grade 19	R58640	—	115/110	Hex., Oct. & Squares (Cold Finished, Solution Treated)	8V-6Cr-4Zr-4Mo-3Al
53	ASTM	B348	Grade 19	R58640	—	115/110	Flat Bars (Cold Finished, Solution Treated)	8V-6Cr-4Zr-4Mo-3Al
53	ASTM	B348	Grade 20	R58645	—	115/110	Rounds & Squares (Hot Rolled, Solution Treated)	8V-6Cr-4Zr-4Mo-3Al-0.06Pd
53	ASTM	B348	Grade 20	R58645	—	115/110	Hex. & Oct. (Hot Rolled, Solution Treated)	8V-6Cr-4Zr-4Mo-3Al-0.06Pd
53	ASTM	B348	Grade 20	R58645	—	115/110	Flat Bars (Hot Rolled, Solution Treated)	8V-6Cr-4Zr-4Mo-3Al-0.06Pd
53	ASTM	B348	Grade 20	R58645	—	115/110	Rounds (Cold Finished, Solution Treated)	8V-6Cr-4Zr-4Mo-3Al-0.06Pd
53	ASTM	B348	Grade 20	R58645	—	115/110	Hex., Oct. & Squares (Cold Finished, Solution Treated)	8V-6Cr-4Zr-4Mo-3Al-0.06Pd
53	ASTM	B348	Grade 20	R58645	—	115/110	Flat Bars (Cold Finished, Solution Treated)	8V-6Cr-4Zr-4Mo-3Al-0.06Pd
53	ASTM	B348	Grade 32	—	—	100/85	Rounds & Squares (Hot Rolled, Solution Treated)	5Al-1Sn-1Zr-1V-0.9Mo
53	ASTM	B348	Grade 32	—	—	100/85	Hex. & Oct. (Hot Rolled, Solution Treated)	5Al-1Sn-1Zr-1V-0.9Mo
53	ASTM	B348	Grade 32	—	—	100/85	Flat Bars (Hot Rolled, Solution Treated)	5Al-1Sn-1Zr-1V-0.9Mo
53	ASTM	B348	Grade 32	—	—	100/85	Rounds (Cold Finished, Solution Treated)	5Al-1Sn-1Zr-1V-0.9Mo
53	ASTM	B348	Grade 32	—	—	100/85	Hex., Oct. & Squares (Cold Finished, Solution Treated)	5Al-1Sn-1Zr-1V-0.9Mo
53	ASTM	B348	Grade 32	—	—	100/85	Flat Bars (Cold Finished, Solution Treated)	5Al-1Sn-1Zr-1V-0.9Mo
53	ASTM	B363	WPT 9	R56320	—	90/70	Seamless & Welded Fittings	3Al-2.5V
53	ASTM	B363	WPT 18	R56322	—	90/70	Seamless & Welded Fittings	3Al-2.5V-0.06Pd

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Titanium and Titanium Base Alloys								
53	ASTM	B363	WPT 21	R58210	—	115/110	Seamless & Welded Fittings	15Mo-3Al-2.7Nb-0.25Si
53	ASTM	B363	WPT 19	R58640	—	115/110	Seamless & Welded Fittings	8V-6Cr-4Zr-4Mo-3Al
53	ASTM	B363	WPT 20	R58645	—	115/110	Seamless & Welded Fittings	8V-6Cr-4Zr-4Mo-3Al-0.06Pd
53	ASTM	B381	F-4	R50700	—	80/70	Forgings	UnalloyedTi
53	ASTM	B381	F-9	R56320	—	90/70	Forgings	3Al-2.5V
53	ASTM	B381	F-18	R56322	—	90/70	Forgings	3Al-2.5V-0.06Pd
53	ASTM	B381	F-21	R58210	—	115/110	Forgings (Solution Treated)	15Mo-3Al-2.7Nb-0.25Si
53	ASTM	B381	F-19	R58640	—	115/110	Forgings (Solution Treated)	8V-6Cr-4Zr-4Mo-3Al
53	ASTM	B381	F-20	R58645	—	115/110	Forgings (Solution Treated)	8V-6Cr-4Zr-4Mo-3Al-0.06Pd
53	ASTM	B861	Grade 9	R56320	—	90/70	Seamless Pipe	3Al-2.5V
53	ASTM	B861	Grade 18	R56322	—	90/70	Seamless Pipe	3Al-2.5V-0.06Pd
53	ASTM	B861	Grade 19	R58640	—	115/110	Seamless Pipe	8V-6Cr-4Zr-4Mo-3Al
53	ASTM	B861	Grade 20	R58645	—	115/110	Seamless Pipe	8V-6Cr-4Zr-4Mo-3Al-0.06Pd
53	ASTM	B861	Grade 21	R58210	—	140/130	Seamless Pipe	15Mo-3Al-2.7Nb-0.25Si
53	ASTM	B861	Grade 28	R56323	—	90/70	Seamless Pipe	3Al-2.5V-0.11Ru
53	ASTM	B862	Grade 9	R56320	—	90/70	Welded Pipe	3Al-2.5V
53	ASTM	B862	Grade 18	R56322	—	90/70	Welded Pipe	3Al-2.5V-0.06Pd
53	ASTM	B862	Grade 19	R58640	—	115/110	Welded Pipe	8V-6Cr-4Zr-4Mo-3Al
53	ASTM	B862	Grade 20	R58645	—	115/110	Welded Pipe	8V-6Cr-4Zr-4Mo-3Al-0.06Pd
53	ASTM	B862	Grade 21	R58210	—	140/130	Welded Pipe	15Mo-3Al-2.7Nb-0.25Si
53	ASTM	B862	Grade 28	R56323	—	90/70	Welded Pipe	3Al-2.5V-0.11Ru
53	AMS	4914	15-3	R58153	—	98/96	Sheet (Solution Treated)	15V-3Cr-3Sn-3Al
54	ASTM	B265	Grade 5	R56400	—	130/120	Plate, Sheet & Strip	6Al-4V
54	ASTM	B265	Grade 6	R54520	—	120/115	Plate, Sheet & Strip	5Al-2.5Sn
54	ASTM	B265	Grade 24	R56405	—	130/120	Plate, Sheet & Strip	6Al-4V-0.06Pd
54	ASTM	B265	Grade 25	R56403	—	130/120	Plate, Sheet & Strip	6Al-4V-0.55Ni-0.06Pd
54	ASTM	B265	Grade 29	R56404	—	120/110	Plate, Sheet & Strip	6Al-4V-0.11Ru
54	ASTM	B265	Grade 35	—	—	130/120	Plate, Sheet & Strip	4.5Al-2Mo-1.6V-Si-Fe

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Titanium and Titanium Base Alloys								
54	ASTM	B338	Grade 35	—	—	130/120	Seamless & Welded Tube	4.5Al-2Mo-1.6V-Si-Fe
54	ASTM	B348	Grade 5	R56400	—	130/120	Flat Bars (Cold Finished)	6Al-4V
54	ASTM	B348	Grade 5	R56400	—	130/120	Hex., Oct. & Squares (Cold Finished)	6Al-4V
54	ASTM	B348	Grade 5	R56400	—	130/120	Rounds (Cold Finished)	6Al-4V
54	ASTM	B348	Grade 5	R56400	—	130/120	Hexagons & Octagons (Hot Rolled)	6Al-4V
54	ASTM	B348	Grade 5	R56400	—	130/120	Rounds & Squares (Hot Rolled)	6Al-4V
54	ASTM	B348	Grade 5	R56400	—	130/120	Flat Bars (Hot Rolled)	6Al-4V
54	ASTM	B348	Grade 6	R54520	—	120/115	Flat Bars (Cold Finished)	5Al-2.5Sn
54	ASTM	B348	Grade 6	R54520	—	120/115	Hex., Oct. & Squares (Cold Finished)	5Al-2.5Sn
54	ASTM	B348	Grade 6	R54520	—	120/115	Rounds (Cold Finished)	5Al-2.5Sn
54	ASTM	B348	Grade 6	R54520	—	120/115	Hexagons & Octagons (Hot Rolled)	5Al-2.5Sn
54	ASTM	B348	Grade 6	R54520	—	120/115	Rounds & Squares (Hot Rolled)	5Al-2.5Sn
54	ASTM	B348	Grade 6	R54520	—	120/115	Flat Bars (Hot Rolled)	5Al-2.5Sn
54	ASTM	B348	Grade 23	R56402	—	120/110	Flat Bars (Cold Finished)	6Al-4V(ELI)
54	ASTM	B348	Grade 23	R56402	—	120/110	Hex., Oct. & Squares (Cold Finished)	6Al-4V(ELI)
54	ASTM	B348	Grade 23	R56402	—	120/110	Rounds (Cold Finished)	6Al-4V(ELI)
54	ASTM	B348	Grade 23	R56402	—	120/110	Hexagons & Octagons (Hot Rolled)	6Al-4V(ELI)
54	ASTM	B348	Grade 23	R56402	—	120/110	Rounds & Squares (Hot Rolled)	6Al-4V(ELI)
54	ASTM	B348	Grade 23	R56402	—	120/110	Flat Bars (Hot Rolled)	6Al-4V(ELI)
54	ASTM	B348	Grade 24	R56405	—	130/120	Flat Bars (Cold Finished)	6Al-4V-0.06Pd
54	ASTM	B348	Grade 24	R56405	—	130/120	Hex., Oct. & Squares (Cold Finished)	6Al-4V-0.06Pd
54	ASTM	B348	Grade 24	R56405	—	130/120	Rounds (Cold Finished)	6Al-4V-0.06Pd
54	ASTM	B348	Grade 24	R56405	—	130/120	Hexagons & Octagons (Hot Rolled)	6Al-4V-0.06Pd
54	ASTM	B348	Grade 24	R56405	—	130/120	Rounds & Squares (Hot Rolled)	6Al-4V-0.06Pd
54	ASTM	B348	Grade 24	R56405	—	130/120	Flat Bars (Hot Rolled)	6Al-4V-0.06Pd
54	ASTM	B348	Grade 25	R56403	—	130/120	Flat Bars (Cold Finished)	6Al-4V-0.55Ni-0.06Pd
54	ASTM	B348	Grade 25	R56403	—	130/120	Hex., Oct. & Squares (Cold Finished)	6Al-4V-0.55Ni-0.06Pd
54	ASTM	B348	Grade 25	R56403	—	130/120	Rounds (Cold Finished)	6Al-4V-0.55Ni-0.06Pd
54	ASTM	B348	Grade 25	R56403	—	130/120	Hexagons & Octagons (Hot Rolled)	6Al-4V-0.55Ni-0.06Pd

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Titanium and Titanium Base Alloys								
54	ASTM	B348	Grade 25	R56403	—	130/120	Rounds & Squares (Hot Rolled)	6Al-4V-0.55Ni-0.06Pd
54	ASTM	B348	Grade 25	R56403	—	130/120	Flat Bars (Hot Rolled)	6Al-4V-0.55Ni-0.06Pd
54	ASTM	B348	Grade 35	—	—	130/120	Flat Bars (Cold Finished)	4Al-2Mo-1.6V-Fe-Si
54	ASTM	B348	Grade 35	—	—	130/120	Hex., Oct. & Squares (Cold Finished)	4Al-2Mo-1.6V-Fe-Si
54	ASTM	B348	Grade 35	—	—	130/120	Rounds (Cold Finished)	4Al-2Mo-1.6V-Fe-Si
54	ASTM	B348	Grade 35	—	—	130/120	Hexagons & Octagons (Hot Rolled)	4Al-2Mo-1.6V-Fe-Si
54	ASTM	B348	Grade 35	—	—	130/120	Rounds & Squares (Hot Rolled)	4Al-2Mo-1.6V-Fe-Si
54	ASTM	B348	Grade 35	—	—	130/120	Flat Bars (Hot Rolled)	4Al-2Mo-1.6V-Fe-Si
54	ASTM	B363	WPT 23	R56402	—	120/110	Seamless & Welded Fittings	6Al-4V
54	ASTM	B363	WPT 24	R56405	—	130/120	Seamless & Welded Fittings	6Al-4V-0.06Pd
54	ASTM	B363	WPT 25	R56403	—	130/120	Seamless & Welded Fittings	6Al-4V-0.55Ni-0.06Pd
54	ASTM	B367	Grade C-5	R56400	—	130/120	Castings (As-Cast)	6Al-4V
54	ASTM	B367	Grade C-6	R54520	—	115/105	Castings (As-Cast)	5Al-2.5Sn
54	ASTM	B381	F-5	R56400	—	130/120	Forgings	6Al-4V
54	ASTM	B381	F-6	R54520	—	120/115	Forgings	5Al-2.5Sn
54	ASTM	B381	F-23	R56402	—	120/110	Forgings	6Al-4V
54	ASTM	B381	F-24	R56405	—	130/120	Forgings	6Al-4V-0.06Pd
54	ASTM	B381	F-25	R56403	—	130/120	Forgings	6Al-4V-0.55Ni-0.06Pd
54	ASTM	B861	Grade 5	R56400	—	130/120	Seamless Pipe	6Al-4V
54	ASTM	B861	Grade 23	R56402	—	120/110	Seamless Pipe	6Al-4V(ELI)
54	ASTM	B861	Grade 24	R56405	—	130/120	Seamless Pipe	6Al-4V-0.06Pd
54	ASTM	B861	Grade 25	R56403	—	130/120	Seamless Pipe	6Al-4V-0.55Ni-0.06Pd
54	ASTM	B861	Grade 29	R56404	—	120/110	Seamless Pipe	6Al-4V-0.11Pd(ELI)
54	ASTM	B861	Grade 35	—	—	130/120	Seamless Pipe	4.5Al-2Mo-1.6V-0.5Fe-0.3Si
54	ASTM	B862	Grade 5	R56400	—	130/120	Welded Pipe	6Al-4V
54	ASTM	B862	Grade 23	R56402	—	120/110	Welded Pipe	6Al-4V(ELI)
54	ASTM	B862	Grade 24	R56405	—	130/120	Welded Pipe	6Al-4V-0.06Pd
54	ASTM	B862	Grade 25	R56403	—	130/120	Welded Pipe	6Al-4V-0.55Ni-0.06Pd
54	ASTM	B862	Grade 29	R56404	—	120/110	Welded Pipe	6Al-4V-0.11Pd(ELI)

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Titanium and Titanium Base Alloys								
54	ASTM	B862	Grade 35	—	—	130/120	Welded Pipe	4.5Al-2Mo-1.6V-0.5Fe-0.3Si
54	AMS	4915	8Al-1Mo-1V	R54810	≤ 0.187	145/135	Sheet & Strip (Single Annealed)	8Al-1Mo-1V
54	AMS	4915	8Al-1Mo-1V	R54810	0.1875–0.500	145/135	Plate (Single Annealed)	8Al-1Mo-1V
54	AMS	4915	8Al-1Mo-1V	R54810	0.501–1.000	140/130	Plate (Single Annealed)	8Al-1Mo-1V
54	AMS	4915	8Al-1Mo-1V	R54810	1.001–2.500	130/120	Plate (Single Annealed)	8Al-1Mo-1V
54	AMS	4915	8Al-1Mo-1V	R54810	2.501–4.000	120/110	Plate (Single Annealed)	8Al-1Mo-1V
54	AMS	4919	Al-Zr-Mo-Sn	R54620	—	135/125	Sheet (Duplex Annealed)	6Al-4Zr-2Mo-2Sn
54	AMS	4973	Al-Mo-V	R54810	≤ 2.500	130/120	Forgings (Solution Treated & Stabilized)	8Al-1Mo-1V
54	AMS	4973	Al-Mo-V	R54810	2.500–4.000	120/110	Forgings (Solution Treated & Stabilized)	8Al-1Mo-1V
54	AMS	4975	Al-Zr-Mo-Sn	R54620	—	130/120	Bar (Solution Treated, Duplex Annealed)	6Al-4Zr-2Mo-2Sn
54	AMS	4976	Al-Zr-Mo-Sn	R54620	—	130/120	Forging, STA (Duplex Annealed)	6Al-4Zr-2Mo-2Sn

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Zirconium and Zirconium Base Alloys								
61	ASTM	B351	R60001	R60001	—	42/20	Bars—Round, Square & Hexagon	99.9minZr
61	ASTM	B351	R60001	R60001	—	42/20	Flat Bars	99.9minZr
61	ASTM	B351	R60001	R60001	—	42/20	Rod	99.9minZr
61	ASTM	B351	R60001	R60001	—	42/20	Wire	99.9minZr
61	ASTM	B351	R60802	R60802	—	60/35	Bars—Round, Square & Hexagon	98Zr-1.45Sn-0.28(Fe+Ni+Cr)
61	ASTM	B351	R60802	R60802	—	60/35	Flat Bars	98Zr-1.45Sn-0.28(Fe+Ni+Cr)
61	ASTM	B351	R60802	R60802	—	60/35	Rod	98Zr-1.45Sn-0.28(Fe+Ni+Cr)
61	ASTM	B351	R60802	R60802	—	60/35	Wire	98Zr-1.45Sn-0.28(Fe+Ni+Cr)
61	ASTM	B351	R60804	R60804	—	60/35	Bars—Round, Square & Hexagon	98.2Zr-1.5Sn-0.32(Fe+Cr)
61	ASTM	B351	R60804	R60804	—	60/35	Flat Bars	98.2Zr-1.5Sn-0.32(Fe+Cr)
61	ASTM	B351	R60804	R60804	—	60/35	Rod	98.2Zr-1.5Sn-0.32(Fe+Cr)
61	ASTM	B351	R60804	R60804	—	60/35	Wire	98.2Zr-1.5Sn-0.32(Fe+Cr)
61	ASTM	B352	R60001	R60001	<3/16	42/20	Sheet & Strip	99.9minZr
61	ASTM	B352	R60001	R60001	≥3/16	42/20	Plate	99.9minZr
61	ASTM	B352	R60802	R60802	<3/16	58/35	Sheet & Strip	98Zr-1.45Sn-0.28(Fe+Ni+Cr)
61	ASTM	B352	R60802	R60802	≥3/16	58/35	Plate	98Zr-1.45Sn-0.28(Fe+Ni+Cr)
61	ASTM	B352	R60804	R60804	<3/16	56/35	Sheet & Strip	98.2Zr-1.5Sn-0.32(Fe+Cr)
61	ASTM	B352	R60804	R60804	≥3/16	58/35	Plate	98.2Zr-1.5Sn-0.32(Fe+Cr)
61	ASTM	B353	R60001	R60001	—	42/20	Seamless & Welded Tube	99.9minZr
61	ASTM	B353	R60802	R60802	—	60/35	Seamless & Welded Tube	98Zr-1.45Sn-0.28(Fe+Ni+Cr)
61	ASTM	B353	R60804	R60804	—	60/35	Seamless & Welded Tube	98.2Zr-1.5Sn-0.32(Fe+Cr)
61	ASTM	B493	R60702	R60702	—	55/30	Forgings	99.2min(Zr+Hf)
61	ASTM	B493	R60704	R60704	—	60/35	Forgings	97.5min(Zr+Hf)-1.5Sn-0.3(Fe+Cr)
61	ASTM	B523	R60702	R60702	—	55/30	Seamless & Welded Tube	99.2min(Zr+Hf)
61	ASTM	B523	R60704	R60704	—	60/35	Seamless & Welded Tube	97.5min(Zr+Hf)-1.5Sn-0.3(Fe+Cr)
61	ASTM	B550	R60702	R60702	—	55/30	Rounds (Cold Finished)	99.2min(Zr+Hf)
61	ASTM	B550	R60702	R60702	—	55/30	Hex., Oct. & Squares (Cold Finished)	99.2min(Zr+Hf)

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Zirconium and Zirconium Base Alloys								
61	ASTM	B550	R60702	R60702	—	55/30	Flat Bars (Cold Finished)	99.2min(Zr+Hf)
61	ASTM	B550	R60702	R60702	—	55/30	Round & Square Wire	99.2min(Zr+Hf)
61	ASTM	B550	R60702	R60702	—	55/30	Flat Bars (Hot Rolled)	99.2min(Zr+Hf)
61	ASTM	B550	R60702	R60702	—	55/30	Drawn Hexagons & Octagons	99.2min(Zr+Hf)
61	ASTM	B550	R60704	R60704	—	60/35	Flat Bars (Hot Rolled)	97.5min(Zr+Hf)-1.5Sn-0.3(Fe+Cr)
61	ASTM	B550	R60704	R60704	—	60/35	Rounds (Cold Finished)	97.5min(Zr+Hf)-1.5Sn-0.3(Fe+Cr)
61	ASTM	B550	R60704	R60704	—	60/35	Hex., Oct. & Squares (Cold Finished)	97.5min(Zr+Hf)-1.5Sn-0.3(Fe+Cr)
61	ASTM	B550	R60704	R60704	—	60/35	Flat Bars (Cold Finished)	97.5min(Zr+Hf)-1.5Sn-0.3(Fe+Cr)
61	ASTM	B550	R60704	R60704	—	60/35	Round & Square Wire	97.5min(Zr+Hf)-1.5Sn-0.3(Fe+Cr)
61	ASTM	B550	R60704	R60704	—	60/35	Drawn Hexagons & Octagons	97.5min(Zr+Hf)-1.5Sn-0.3(Fe+Cr)
61	ASTM	B551	R60702	R60702	<3/16	55/30	Sheet & Strip	99.2minZr
61	ASTM	B551	R60702	R60702	≥3/16	55/30	Plate	99.2minZr
61	ASTM	B551	R60704	R60704	<3/16	60/35	Sheet & Strip	97.5min(Zr+Hf)-1.5Sn-0.3(Fe+Cr)
61	ASTM	B551	R60704	R60704	≥3/16	60/35	Plate	97.5min(Zr+Hf)-1.5Sn-0.3(Fe+Cr)
61	ASTM	B658	R60702	R60702	—	55/30	Seamless & Welded Pipe	99.2min(Zr+Hf)
61	ASTM	B658	R60704	R60704	—	60/35	Seamless & Welded Pipe	97.5min(Zr+Hf)-1.5Sn-0.3(Fe+Cr)
62	ASTM	B351	R60901	R60901	—	65/45	Bars—Round, Square & Hexagon	97.3Zr-2.6Cb
62	ASTM	B351	R60901	R60901	—	65/45	Flat Bars	97.3Zr-2.6Cb
62	ASTM	B351	R60901	R60901	—	65/45	Rod	97.3Zr-2.6Cb
62	ASTM	B351	R60901	R60901	—	65/45	Wire	97.3Zr-2.6Cb
62	ASTM	B352	R60901	R60901	≥3/16	65/45	Sheet & Strip	97.3Zr-2.6Cb
62	ASTM	B352	R60901	R60901	>3/16	65/45	Plate	97.3Zr-2.6Cb

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Zirconium and Zirconium Base Alloys								
62	ASTM	B353	R60901	R60901	—	65/45	Seamless & Welded Tube	97.3Zr-2.6Cb
62	ASTM	B353	R60904	R60904	—	65/45	Seamless & Welded Tube	97.35Zr-2.65Cb
62	ASTM	B493	R60705	R60705	—	70/55	Forgings	95.5(Zr+Hf)-2.5Cb
62	ASTM	B523	R60705	R60705	—	80/55	Seamless & Welded Tube	95.5(Zr+Hf)-2.5Cb
62	ASTM	B550	R60705	R60705	—	80/55	Hex., Oct. & Squares (Cold Finished)	95.5(Zr+Hf)-2.5Cb
62	ASTM	B550	R60705	R60705	—	80/55	Flat Bars (Hot Rolled)	95.5(Zr+Hf)-2.5Cb
62	ASTM	B550	R60705	R60705	—	80/55	Rounds (Cold Finished)	95.5(Zr+Hf)-2.5Cb
62	ASTM	B550	R60705	R60705	—	80/55	Hex., Oct. & Squares (Cold Finished)	95.5(Zr+Hf)-2.5Cb
62	ASTM	B550	R60705	R60705	—	80/55	Flat Bars (Cold Finished)	95.5(Zr+Hf)-2.5Cb
62	ASTM	B550	R60705	R60705	—	80/55	Round & Square Wire	95.5(Zr+Hf)-2.5Cb
62	ASTM	B550	R60705	R60705	—	80/55	Drawn Hexagons & Octagons	95.5(Zr+Hf)-2.5Cb
62	ASTM	B551	R60705	R60705	—	80/55	Plate, Sheet & Strip	95.5(Zr+Hf)-2.5Cb
62	ASTM	B551	R60706	R60706	—	74/50	Plate, Sheet & Strip	95.5(Zr+Hf)-2.5Cb
62	ASTM	B658	R60705	R60705	—	80/55	Seamless & Welded Pipe	95.5(Zr+Hf)-2.5Cb

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Magnesium and Magnesium Base Alloys								
81	ASTM	B90	AZ31B (-O, H24, H26)	M11311	0.016–3.000	32/–	Plate & Sheet	95.5Mg-3Al-1Zn
81	ASTM	B90	AZ31C (-O, H24, H26)	M11312	0.016–0.060	32/18	Sheet	95.5Mg-3Al-1Zn
81	ASTM	B90	AZ31C (-O, H24, H26)	M11312	0.061–3.000	32/15	Plate & Sheet	95.5Mg-3Al-1Zn
81	ASTM	B90	HK31A (-O, H24)	M13310	0.016–0.500	30/16	Plate & Sheet	95.5Mg-3Al-1Zn
81	ASTM	B90	HK31A (-O, H24)	M13310	0.501–1.000	30/15	Plate	95.5Mg-3Al-1Zn
81	ASTM	B90	HK31A (-O, H24)	M13310	1.001–3.000	29/14	Plate	95.5Mg-3Al-1Zn
81	ASTM	B90	ZE10A (-O)	M16100	0.016–0.060	30/18	Sheet	98Mg-1.25Zn-0.17Re
81	ASTM	B90	ZE10A (-O)	M16100	0.061–0.250	30/15	Sheet	98Mg-1.25Zn-0.17Re
81	ASTM	B90	ZE10A (-O)	M16100	0.251–0.500	29/12	Plate	98Mg-1.25Zn-0.17Re
81	ASTM	B91	AZ31B (-F)	M11311	—	32/15	Forgings	95.5Mg-3Al-1Zn
81	ASTM	B91	AZ61A (-F)	M11610	—	35/19	Forgings	92.5Mg-6Al-1Zn
81	ASTM	B107	AZ31B (-F)	M11311	≤ 0.249	32/18	Extruded Bars, Rods, Profiles & Wires	95.5Mg-3Al-1Zn
81	ASTM	B107	AZ31B (-F)	M11311	0.250–1.499	32/19	Extruded Bars, Rods, Profiles & Wires	95.5Mg-3Al-1Zn
81	ASTM	B107	AZ31B (-F)	M11311	1.500–2.499	31/19	Extruded Bars, Rods, Profiles & Wires	95.5Mg-3Al-1Zn
81	ASTM	B107	AZ31B (-F)	M11311	2.500–4.999	29/17	Extruded Bars, Rods, Profiles & Wires	95.5Mg-3Al-1Zn
81	ASTM	B107	AZ31B (-F)	M11311	—	29/13	Extruded Hollow Profiles	95.5Mg-3Al-1Zn
81	ASTM	B107	AZ31B (-F)	M11311	0.078–0.250	29/17	Extruded Tubes	95.5Mg-3Al-1Zn
81	ASTM	B107	AZ31B (-F)	M11311	0.251–0.750	29/13	Extruded Tubes	95.5Mg-3Al-1Zn
81	ASTM	B107	AZ31C (-F)	M11312	≤ 0.249	32/18	Extruded Bars, Rods, Profiles & Wires	95.5Mg-3Al-1Zn
81	ASTM	B107	AZ31C (-F)	M11312	0.250–1.499	32/19	Extruded Bars, Rods, Profiles & Wires	95.5Mg-3Al-1Zn
81	ASTM	B107	AZ31C (-F)	M11312	1.500–2.499	31/19	Extruded Bars, Rods, Profiles & Wires	95.5Mg-3Al-1Zn
81	ASTM	B107	AZ31C (-F)	M11312	2.500–4.999	29/17	Extruded Bars, Rods, Profiles & Wires	95.5Mg-3Al-1Zn
81	ASTM	B107	AZ31C (-F)	M11312	—	29/13	Extruded Hollow Profiles	95.5Mg-3Al-1Zn
81	ASTM	B107	AZ31C (-F)	M11312	0.028-0.250	29/17	Extruded Tubes	95.5Mg-3Al-1Zn
81	ASTM	B107	AZ31C (-F)	M11312	0.251-0.750	29/13	Extruded Tubes	95.5Mg-3Al-1Zn
81	ASTM	B107	AZ61A (-F)	M11610	≤ 0.249	35/18	Extruded Bars, Rods, Profiles & Wires	92.5Mg-6.5Al-1Zn

Table IV-2—Nonferrous Alloys (Continued)

Material Number	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Thickness or Diameter Limitations (in.)	Minimum Tensile/Yield Strength (ksi)	Product Form	Nominal Composition
Magnesium and Magnesium Base Alloys								
81	ASTM	B107	AZ61A (-F)	M11610	0.250–2.499	37/21	Extruded Bars, Rods, Profiles & Wires	92.5Mg-6.5Al-1Zn
81	ASTM	B107	AZ61A (-F)	M11610	2.500–4.999	37/19	Extruded Bars, Rods, Profiles & Wires	92.5Mg-6.5Al-1Zn
81	ASTM	B107	AZ61A (-F)	M11610	—	33/13	Extruded Hollow Profiles	92.5Mg-6.5Al-1Zn
81	ASTM	B107	AZ61A (-F)	M11610	0.028–0.750	33/13	Extruded Tubes	92.5Mg-6.5Al-1Zn
81	ASTM	B107	M1A (-F)	M15100	≤ 0.249	27/–	Extruded Bars, Rods, Profiles & Wires	98Mg-1.6Mn
81	ASTM	B107	M1A (-F)	M15100	0.250–2.499	29/–	Extruded Bars, Rods, Profiles & Wires	98Mg-1.6Mn
81	ASTM	B107	M1A (-F)	M15100	2.500–4.999	26/–	Extruded Bars, Rods, Profiles & Wires	98Mg-1.6Mn
81	ASTM	B107	M1A (-F)	M15100	—	25/–	Extruded Hollow Profiles	98Mg-1.6Mn
81	ASTM	B107	M1A (-F)	M15100	0.028–0.750	25/–	Extruded Tubes	98Mg-1.6Mn
83	ASTM	B80	AZ91C (-F)	M11914	—	21/10	Sand Castings	90.5Mg-8.7Al-0.7Zn-0.2Mn
83	ASTM	B80	AZ92A (-F)	M11920	—	21/10	Sand Castings	88.5Mg-9Al-2Zn
83	ASTM	B80	K1A (-F)	M18010	—	22/5	Sand Castings	99.3Mg-0.6Zr
83	ASTM	B199	AM100A (-F)	M10100	—	18/9	Permanent Mold Casting	89.5Mg-10Al-0.2Mn
83	ASTM	B199	AZ91C (-F)	M11914	—	21/10	Permanent Mold Casting	90.5Mg-8.7Al-0.7Zn-0.2Mn
83	ASTM	B199	AZ92A (-F)	M11920	—	21/10	Permanent Mold Casting	88.5Mg-9Al-2Zn
83	ASTM	B403	AM100A (-F)	M10100	—	18/9	Investment Castings	89.5Mg-10Al-0.2Mn
83	ASTM	B403	AZ91C (-F)	M11914	—	16/9	Investment Castings	90.5Mg-8.7Al-0.7Zn-0.2Mn
83	ASTM	B403	AZ92A (-F)	M11920	—	18/9	Investment Castings	88.5Mg-9Al-2Zn
83	ASTM	B403	K1A (-F)	M18010	—	22/5	Investment Castings	99.3Mg-0.6Zr

Table IV-3
Listing of Base Metal Specifications—Iron Castings

AWS D11.2 Group	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Minimum As-Welded Tensile/Yield Strength (ksi)	Type of Base Metal	Nominal Composition
Iron Castings^{(a)(b)}							
A	ASTM	A48	Class 20	F11401	20/—	Gray Cast Iron	Not Specified
A	ASTM	A48	Class 25	F11701	25/—	Gray Cast Iron	Not Specified
A	ASTM	A48	Class 30	F12101	30/—	Gray Cast Iron	Not Specified
A	ASTM	A48	Class 35	F12401	35/—	Gray Cast Iron	Not Specified
A	ASTM	A48	Class 40	F12801	40/—	Gray Cast Iron	Not Specified
A	ASTM	A48	Class 45	F13101	45/—	Gray Cast Iron	Not Specified
A	ASTM	A48	Class 50	F13501	50/—	Gray Cast Iron	Not Specified
A	ASTM	A48	Class 55	F13801	55/—	Gray Cast Iron	Not Specified
A	ASTM	A48	Class 60	F14101	60/—	Gray Cast Iron	Not Specified
A	ASTM	A74	Class A		21/—	Gray Cast Iron	0.75 Max.P, 0.15 Max.S
A	ASTM	A126	Class A	F11501	21/—	Gray Cast Iron	0.75 Max.P, 0.15 Max.S
A	ASTM	A126	Class B	F12102	31/—	Gray Cast Iron	0.75 Max.P, 0.15 Max.S
A	ASTM	A126	Class C	F12103	41/—	Gray Cast Iron	0.75 Max.P, 0.15 Max.S
A	ASTM	A159	Grade 1800	F10004	18/—	Gray Cast Iron	0.55Si-0.65Mn; 4.35CE
A	ASTM	A159	Grade 2500	F10005	25/—	Gray Cast Iron	2.2 Si-0.75Mn; 4.12CE
A	ASTM	A159	Grade 2500a	F10009	25/—	Gray Cast Iron	1.85Si-0.75Mn; 4.12 CE
A	ASTM	A159	Grade 3000	F10006	30/—	Gray Cast Iron	2.1Si-0.75Mn; 4.02CE
A	ASTM	A159	Grade 3500	F10007	35/—	Gray Cast Iron	2.0Si-0.75Mn; 3.8CE
A	ASTM	A159	Grade 3500b	F10010	35/—	Gray Cast Iron	1.55Si-0.75Mn; 3.8CE
A	ASTM	A159	Grade 3500c	F10011	35/—	Gray Cast Iron	1.55Si-0.75Mn; 3.8CE
A	ASTM	A159	Grade 4000	F10008	40/—	Gray Cast Iron	1.95Si-0.85Mn; 3.8CE
A	ASTM	A159	Grade 4000d	F10012	40/—	Gray Cast Iron	1.95Si-0.85Mn; 3.8CE
A	ASTM	A319	Class I	F10001	25/—	Gray Cast Iron	Not Specified
A	ASTM	A319	Class II	F10002	30/—	Gray Cast Iron	Not Specified
A	ASTM	A319	Class III	F10003	40/—	Gray Cast Iron	Not Specified

Table IV-3—Iron Castings (Continued)

AWS D11.2 Group	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Minimum As-Welded Tensile/Yield Strength (ksi)	Type of Base Metal	Nominal Composition
Iron Castings^{(a)(b)}							
A	SAE	J431	G1800	F10004	18/–	Gray Cast Iron	2.3Si-0.65Mn; 4.35CE
A	SAE	J431	G2500	F10005	25	Gray Cast Iron	2.3Si-0.75Mn; 4.12CE
A	SAE	J431	G3000	F10006	30	Gray Cast Iron	2.1Si-0.65Mn; 4.02CE
A	SAE	J431	G3500	F10007	35	Gray Cast Iron	2.0Si-0.75Mn; 3.8CE
A	SAE	J431	G4000	F10008	40	Gray Cast Iron	1.95Si-0.95Mn; 3.8CE
B	ASTM	A536	100-70-03	F34800	100/70	Ductile	Not specified
B	ASTM	A536	120-90-02	F36200	120/90	Ductile	Not specified
B	ASTM	A536	60-40-18	F32800	60/40	Ductile	Not specified
B	ASTM	A536	65-45-12	F33100	65/42	Ductile	Not specified
B	ASTM	A536	80-55-06	F33800	80/55	Ductile	Not specified
B	ASTM	A716	60-42-10	F32900	60/–	Ductile	Not specified
B	ASTM	A746	60-42-10		60/–	Ductile	Not specified
B	ASTM	A874			45/30	Ductile	3.35C-1.75Si
B	ASTM	A897	125-80-10		125/80	Ductile	1.0Ni-0.5Cu-0.35Mn- 0.015Mo
B	SAE	J434	D4018	F32800	60/–	Ductile	Not specified
B	SAE	J434	D4512	F33100	65/–	Ductile	Not specified
B	SAE	J434	D5506	F33800	80/–	Ductile	Not specified
B	SAE	J434	D7003	F34800	100/–	Ductile	Not specified
C	ASTM	A47	32510	F22200	50/–	Malleable	Not Specified
C	ASTM	A47	35018	F22400	53/–	Malleable	Not Specified
C	ASTM	A197		F22200	40/–	Malleable	Not Specified
C	ASTM	A220	40010	F22830	60/–	Malleable	Not Specified
C	ASTM	A220	45006	F23131	65/–	Malleable	Not Specified
C	ASTM	A220	45008	F23130	65/–	Malleable	Not Specified
C	ASTM	A220	50005	F23530	70/–	Malleable	Not Specified
C	ASTM	A220	60004	F24130	80/–	Malleable	Not Specified
C	ASTM	A220	70003	F24830	85/–	Malleable	Not Specified

Table IV-3—Iron Castings (Continued)

AWS D11.2 Group	Standard	Base Metal Specification	Type, Grade, or Alloy Designation	UNS Number	Minimum As-Welded Tensile/Yield Strength (ksi)	Type of Base Metal	Nominal Composition
Iron Castings^{(a)(b)}							
C	ASTM	A220	80002	F25530	95/–	Malleable	Not Specified
C	ASTM	A220	90001	F26230	105/–	Malleable	Not Specified
C	ASTM	A602	M3210	F20000	50/–	Malleable	Not Specified
C	ASTM	A602	M4504	F20000	65/–	Malleable	Not Specified
C	ASTM	A602	M5003	F20000	75/–	Malleable	Not Specified
C	SAE	J158a	M3210	F20000	50/–	Malleable	Not Specified
C	SAE	J158a	M4504	F20001	65/–	Malleable	Not Specified

Notes:

(a) In the absence of an M number to group the alloys, a separate procedure qualification is required for each group of the above materials.

(b) The groups are based on AWS D11.2.

