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**(17) QW-420 BASE METAL GROUPINGS**

P-Numbers are assigned to base metals for the purpose of reducing the number of welding and brazing procedure qualifications required.

P-Numbers are alphanumeric designations: accordingly, each P-Number shall be considered a separate P-Number (e.g., base metals assigned P-No. 5A are considered a separate P-Number from those assigned P-No. 5B or P-No. 5C).

In addition, ferrous base metals have been assigned Group Numbers creating subsets of P-Numbers that are used when WPSs are required to be qualified by toughness testing by other Sections or Codes. These assignments are based essentially on comparable base metal characteristics, such as composition, weldability, brazability, and mechanical properties, where this can logically be done. These assignments do not imply that base metals may be indiscriminately substituted for a base metal that was used in the qualification test without consideration of compatibility from the standpoint of metallurgical properties, postweld heat treatment, design, mechanical properties, and service requirements. The following table shows the assignment groups for various alloy systems:

Base Metal	Welding	Brazing
Steel and steel alloys	P-No. 1 through P-No. 15F	P-No. 101 through P-No. 103
Aluminum and aluminum-base alloys	P-No. 21 through P-No. 26	P-No. 104 and P-No. 105
Copper and copper- base alloys	P-No. 31 through P-No. 35	P-No. 107 and P-No. 108
Nickel and nickel- base alloys	P-No. 41 through P-No. 49	P-No. 110 through P-No. 112
Titanium and titanium- base alloys	P-No. 51 through P-No. 53	P-No. 115
Zirconium and zirconium-base alloys	P-No. 61 and P-No. 62	P-No. 117

The values given in the column heading “Minimum Specified Tensile” of [Table QW/QB-422](#) are the acceptance values for the tensile tests of the welding or brazing procedure qualification, except as otherwise allowed in [QW-153](#) or [QB-153](#). Only base metals listed in [Table QW/QB-422](#) with minimum tensile strength values may be used for procedure qualification except as modified by the following paragraph.

If an unlisted base metal has the same UNS number designation as a base metal listed in [Table QW/QB-422](#), that base metal is also assigned that P-Number or P-Number

plus Group Number. If the unlisted base metal is used for procedure qualification, the minimum tensile value of the listed base metal shall apply for the tension test specimens.

Materials listed in [Table QW/QB-422](#) without a minimum specified tensile value shall not be used for the purpose of groove weld procedure qualification.

Material produced under an ASTM specification shall have the same P-Number or P-Number plus Group Number and minimum specified tensile strength value as that of the corresponding ASME specification listed in [Table QW/QB-422](#) with prefix A/SA- or B/SB- (e.g., listed under A/SA-240, SA-240 Type 304 is assigned P-No. 8, Group No. 1; and A240 Type 304 is also P-No. 8, Group No. 1).

The column “ISO/TR 15608 Group” in [Table QW/QB-422](#) is a listing of the assignments of materials in accordance with the grouping criteria of ISO/TR 15608:2005, *Welding — Guidelines for a metallic materials grouping system*, and it is consistent with the assignments found in ISO/TR 20173:2008, *Grouping systems for materials — American materials*. While this listing is provided as a convenience to users worldwide, it is provided for information only. Section IX does not refer to this grouping as a basis for establishing the range of base metals qualified for either procedure or performance qualification.

In 2009, S-Numbers were removed from [Table QW/QB-422](#). S-Numbers were assigned to materials that were acceptable for use by the ASME B31 Code for Pressure Piping, or by selected Boiler and Pressure Vessel Code Cases, but which were not included within ASME Boiler and Pressure Vessel Code Material Specifications (Section II). Base metals previously assigned S-Numbers were reassigned the corresponding P-Numbers or P-Numbers plus Group Numbers.

There are instances where materials assigned to one P- or S-Number or Group Number have been reassigned to a different P- or S-Number or Group Number in later editions. Procedure and performance qualifications that were qualified under the previous P- or S-Numbers or Group Number assignment may continue to be used under the new P-Number or Group Number assignment, see [QW-200.2\(c\)](#), provided the WPS is revised to limit the materials qualified for welding to those assigned to the new P- or S-number(s) and Group number(s) for the specific material(s) originally used for the procedure qualification test coupon. Other materials from the original P- or S-Number and Group Number must be reassigned to the same P- or S-Number or Group Number to be considered qualified for welding under the revised WPS.

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous</b>										
A/SA-36	...	...	58 (400)	1	1	101	11.1	C-Mn-Si		Plate, bar & shapes
A/SA-53	Type E, Gr. A	K02504	48 (330)	1	1	101	1.1	C		Resistance welded pipe
A/SA-53	Type S, Gr. A	K02504	48 (330)	1	1	101	1.1	C		Smls. pipe
A/SA-53	Type E, Gr. B	K03005	60 (415)	1	1	101	11.1	C-Mn		Resistance welded pipe
A/SA-53	Type F	K03005	48 (330)	1	1	101	11.1	C		Furnace welded pipe
A/SA-53	Type S, Gr. B	K03005	60 (415)	1	1	101	11.1	C-Mn		Smls. pipe
A/SA-105	...	K03504	70 (485)	1	2	101	11.1	C		Flanges & fittings
A/SA-106	A	K02501	48 (330)	1	1	101	1.1	C-Si		Smls. pipe
A/SA-106	B	K03006	60 (415)	1	1	101	11.1	C-Mn-Si		Smls. pipe
A/SA-106	C	K03501	70 (485)	1	2	101	11.1	C-Mn-Si		Smls. pipe
A108	1015	G10150	...	1	1	101	1.1	C		Bar
A108	1018	G10180	...	1	1	101	1.1	C		Bar
A108	1020	G10200	...	1	1	101	1.1	C		Bar
A108	8620	G86200	...	3	3	102	4.1	0.5Ni-0.5Cr-Mo		Bar
A/SA-134	SA283 Gr. A	K01400	45 (310)	1	1	101	1.1	C		Welded pipe
A/SA-134	SA285 Gr. A	K01700	45 (310)	1	1	101	1.1	C		Welded pipe
A/SA-134	SA283 Gr. B	K01702	50 (345)	1	1	101	1.1	C		Welded pipe
A/SA-134	SA285 Gr. B	K02200	50 (345)	1	1	101	1.1	C		Welded pipe
A/SA-134	SA283 Gr. C	K02401	55 (380)	1	1	101	1.1	C		Welded pipe
A/SA-134	SA283 Gr. D	K02702	60 (415)	1	1	101	11.1	C		Welded pipe
A/SA-134	SA285 Gr. C	K02801	55 (380)	1	1	101	11.1	C		Welded pipe
A/SA-135	A	K02509	48 (330)	1	1	101	1.1	C		E.R.W. pipe
A/SA-135	B	K03018	60 (415)	1	1	101	11.1	C		E.R.W. pipe
A139	A	K02508	48 (330)	1	1	101	1.1	C		Welded pipe
A139	B	K03003	60 (415)	1	1	101	11.1	C		Welded pipe
A139	C	K03004	60 (415)	1	1	101	11.1	C		Welded pipe
A139	D	K03010	60 (415)	1	1	101	11.1	C		Welded pipe
A139	E	K03012	66 (455)	1	1	101	11.1	C		Welded pipe
A167	Type 302B	S30215	75 (515)	8	1	102	8.1	18Cr-8Ni-2Si		Plate, sheet & strip
A167	Type 308	S30800	75 (515)	8	2	102	8.2	20Cr-10Ni		Plate, sheet & strip
A167	Type 309	S30900	75 (515)	8	2	102	8.2	23Cr-12Ni		Plate, sheet & strip

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	ISO 15608 Group		
<b>Ferrous (Cont'd)</b>									
A167	Type 310	S31000	75 (515)	8	2	102	8.2	25Cr-20Ni	Plate, sheet & strip
A/SA-178	A	K01200	47 (325)	1	1	101	1.1	C	E.R.W. tube
A/SA-178	D	K02709	70 (485)	1	2	101	11.1	C-Mn-Si	E.R.W. tube
A/SA-178	C	K03503	60 (415)	1	1	101	11.1	C	E.R.W. tube
A/SA-179	...	K01200	47 (325)	1	1	101	1.1	C	Smls. tube
A/SA-181	Cl. 60	K03502	60 (415)	1	1	101	11.1	C-Si	Pipe flange & fittings
A/SA-181	Cl. 70	K03502	70 (485)	1	2	101	11.1	C-Si	Pipe flange & fittings
A/SA-182	F12, Cl. 1	K11562	60 (415)	4	1	102	5.1	1Cr-0.5Mo	Forgings
A/SA-182	F12, Cl. 2	K11564	70 (485)	4	1	102	5.1	1Cr-0.5Mo	Forgings
A/SA-182	F11, Cl. 2	K11572	70 (485)	4	1	102	5.1	1.25Cr-0.5Mo-Si	Forgings
A/SA-182	F11, Cl. 3	K11572	75 (515)	4	1	102	5.1	1.25Cr-0.5Mo-Si	Forgings
A/SA-182	F11, Cl. 1	K11597	60 (415)	4	1	102	5.1	1.25Cr-0.5Mo-Si	Forgings
A/SA-182	F2	K12122	70 (485)	3	2	101	4.2	0.5Cr-0.5Mo	Forgings
A/SA-182	F1	K12822	70 (485)	3	2	101	1.1	C-0.5Mo	Forgings
A/SA-182	F22, Cl. 1	K21590	60 (415)	5A	1	102	5.2	2.25Cr-1Mo	Forgings
A/SA-182	F22, Cl. 3	K21590	75 (515)	5A	1	102	5.2	2.25Cr-1Mo	Forgings
A/SA-182	FR	K22035	63 (435)	9A	1	101	9.1	2Ni-1Cu	Forgings
A/SA-182	F3VCb	K31390	85 (585)	5C	1	102	6.2	3Cr-1Mo-0.25V-Cb-Ca	Forgings
A/SA-182	F21	K31545	75 (515)	5A	1	102	5.2	3Cr-1Mo	Forgings
A/SA-182	F3V	K31830	85 (585)	5C	1	102	6.2	3Cr-1Mo-V-Ti-B	Forgings
A/SA-182	F22V	K31835	85 (585)	5C	1	102	6.2	2.25Cr-1Mo-V	Forgings
A/SA-182	F5	K41545	70 (485)	5B	1	102	5.3	5Cr-0.5Mo	Forgings
A/SA-182	F5a	K42544	90 (620)	5B	1	102	5.3	5Cr-0.5Mo	Forgings
A/SA-182	F91	K90901	85 (585)	15E	1	102	6.4	9Cr-1Mo-V	Forgings
A/SA-182	F9	K90941	85 (585)	5B	1	102	5.4	9Cr-1Mo	Forgings
A/SA-182	F92	K92460	90 (620)	15E	1	102	6.4	9Cr-2W	Forgings
A/SA-182	...	N08367	95 (655)	45	...	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Forgings
A/SA-182	F904L	N08904	71 (490)	45	...	111	8.2	44Fe-25Ni-21Cr-Mo	Forgings
A/SA-182	FXM-19	S20910	100 (690)	8	3	102	8.3	22Cr-13Ni-5Mn	Forgings
A/SA-182	FXM-11	S21904	90 (620)	8	3	102	8.3	21Cr-6Ni-9Mn	Forgings
A/SA-182	F304	S30400	70 (485)	8	1	102	8.1	18Cr-8Ni	Forgings > 5 in. (127 mm)
A/SA-182	F304	S30400	75 (515)	8	1	102	8.1	18Cr-8Ni	Forgings
A/SA-182	F304L	S30403	65 (450)	8	1	102	8.1	18Cr-8Ni	Forgings > 5 in. (127 mm)
A/SA-182	F304L	S30403	70 (485)	8	1	102	8.1	18Cr-8Ni	Forgings

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-182	F304H	S30409	70 (485)	8	1	102	8.1	18Cr-8Ni	Forgings > 5 in. (127 mm)	
A/SA-182	F304H	S30409	75 (515)	8	1	102	8.1	18Cr-8Ni	Forgings	
A/SA-182	F304N	S30451	80 (550)	8	1	102	8.1	18Cr-8Ni-N	Forgings	
A/SA-182	F304LN	S30453	70 (485)	8	1	102	8.1	18Cr-8Ni-N	Forgings > 5 in. (127 mm)	
A/SA-182	F304LN	S30453	75 (515)	8	1	102	8.1	18Cr-8Ni-N	Forgings	
A/SA-182	F46	S30600	78 (540)	8	1	102	8.1	18Cr-15Ni-4Si	Forgings	
A/SA-182	F45	S30815	87 (600)	8	2	102	8.2	21Cr-11Ni-N	Forgings	
A/SA-182	F310	S31000	70 (485)	8	2	102	8.2	25Cr-20Ni	Forgings > 5 in. (127 mm)	
A/SA-182	F310	S31000	75 (515)	8	2	102	8.2	25Cr-20Ni	Forgings	
A/SA-182	F310MoLN	S31050	78 (540)	8	2	102	8.2	25Cr-22Ni-2Mo-N	Forgings	
A/SA-182	F50	S31200	100 (690)	10H	1	102	10.2	25Cr-6Ni-Mo-N	Forgings	
A/SA-182	F44	S31254	94 (650)	8	4	102	8.2	20Cr-18Ni-6Mo	Forgings	
A/SA-182	F58	S31266	109 (750)	45	...	102	8.2	24Cr-22Ni-6Mo-3Mn-Cu-W-N	Forgings	
A/SA-182	F316	S31600	70 (485)	8	1	102	8.1	16Cr-12Ni-2Mo	Forgings > 5 in. (127 mm)	
A/SA-182	F316	S31600	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Forgings	
A/SA-182	F316L	S31603	65 (450)	8	1	102	8.1	16Cr-12Ni-2Mo	Forgings > 5 in. (127 mm)	
A/SA-182	F316L	S31603	70 (485)	8	1	102	8.1	16Cr-12Ni-2Mo	Forgings	
A/SA-182	F316H	S31609	70 (485)	8	1	102	8.1	16Cr-12Ni-2Mo	Forgings > 5 in. (127 mm)	
A/SA-182	F316H	S31609	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Forgings	
A/SA-182	F316N	S31651	80 (550)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Forgings	
A/SA-182	F316LN	S31653	70 (485)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Forgings > 5 in. (127 mm)	
A/SA-182	F316LN	S31653	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Forgings	
A/SA-182	F317	S31700	70 (485)	8	1	102	8.1	18Cr-13Ni-3Mo	Forgings > 5 in. (127 mm)	
A/SA-182	F317	S31700	75 (515)	8	1	102	8.1	18Cr-13Ni-3Mo	Forgings	
A/SA-182	F317L	S31703	65 (450)	8	1	102	8.1	18Cr-13Ni-3Mo	Forgings > 5 in. (127 mm)	
A/SA-182	F317L	S31703	70 (485)	8	1	102	8.1	18Cr-13Ni-3Mo	Forgings	
A/SA-182	F51	S31803	90 (620)	10H	1	102	10.1	22Cr-5Ni-3Mo-N	Forgings	
A/SA-182	...	S32053	93 (640)	8	4	102	8.2	23Cr-25Ni-5.5Mo-N	Forgings	
A/SA-182	F321	S32100	70 (485)	8	1	102	8.1	18Cr-10Ni-Ti	Forgings > 5 in. (127 mm)	
A/SA-182	F321	S32100	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Forgings	
A/SA-182	F321H	S32109	70 (485)	8	1	102	8.1	18Cr-10Ni-Ti	Forgings > 5 in. (127 mm)	
A/SA-182	F321H	S32109	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Forgings	
A/SA-182	...	S32202	94 (650)	10H	1	102	10.1	22Cr-2Ni-Mo-N	Forgings	
A/SA-182	F60	S32205	95 (655)	10H	1	102	10.1	22Cr-5Ni-3Mo-N	Forgings	
A/SA-182	F53	S32750	116 (800)	10H	1	102	10.2	25Cr-7Ni-4Mo-N	Forgings	
A/SA-182	F55	S32760	109 (750)	10H	1	102	10.1	25Cr-8Ni-3Mo-W-Cu-N	Forgings	
A/SA-182	F10	S33100	80 (550)	8	2	102	8.1	20Ni-8Cr	Forgings	

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-182	F49	S34565	115 (795)	8	4	102	8.3	24Cr-17Ni-6Mn-4.5Mo-N	Forgings	
A/SA-182	F347	S34700	70 (485)	8	1	102	8.1	18Cr-10Ni-Cb	Forgings > 5 in. (127 mm)	
A/SA-182	F347	S34700	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Forgings	
A/SA-182	F347H	S34709	70 (485)	8	1	102	8.1	18Cr-10Ni-Cb	Forgings > 5 in. (127 mm)	
A/SA-182	F347H	S34709	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Forgings	
A/SA-182	F348	S34800	70 (485)	8	1	102	8.1	18Cr-10Ni-Cb	Forgings > 5 in. (127 mm)	
A/SA-182	F348	S34800	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Forgings	
A/SA-182	F348H	S34809	70 (485)	8	1	102	8.1	18Cr-10Ni-Cb	Forgings > 5 in. (127 mm)	
A/SA-182	F348H	S34809	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Forgings	
A/SA-182	F54	S39274	116 (800)	10H	1	102	10.2	25Cr-7Ni-3Mo-2W-Cu-N	Forgings	
A/SA-182	F6a, Cl. 1	S41000	70 (485)	6	1	102	7.2	13Cr	Forgings	
A/SA-182	F6a, Cl. 2	S41000	85 (585)	6	3	102	7.2	13Cr	Forgings	
A/SA-182	F6a, Cl. 3	S41000	110 (760)	6	3	102	7.2	13Cr	Forgings	
A/SA-182	F6a, Cl. 4	S41000	130 (895)	6	3	102	7.2	13Cr	Forgings	
A/SA-182	F6b	S41026	110 (760)	6	3	102	7.2	13Cr-0.5Mo	Forgings	
A/SA-182	F6NM	S41500	115 (795)	6	4	102	7.2	13Cr-4.5Ni-Mo	Forgings	
A/SA-182	F429	S42900	60 (415)	6	2	102	7.2	15Cr	Forgings	
A/SA-182	F430	S43000	60 (415)	7	2	102	7.1	17Cr	Forgings	
A/SA-182	FXM-27Cb	S44627	60 (415)	10I	1	102	7.1	27Cr-1Mo	Forgings	
A/SA-192	...	K01201	47 (325)	1	1	101	1.1	C-Si	Smls. tube	
A199	T11	K11597	60 (415)	4	1	102	5.1	1.25Cr-0.5Mo-Si	Smls. tube	
A199	T22	K21590	60 (415)	5A	1	102	5.2	2.25Cr-1Mo	Smls. tube	
A199	T21	K31545	60 (415)	5A	1	102	...	3Cr-1Mo	Smls. tube	
A199	T5	K41545	60 (415)	5B	1	102	5.3	5Cr-0.5Mo	Smls. tube	
A199	T9	K81590	60 (415)	5B	1	102	5.4	9Cr-1Mo	Smls. tube	
A/SA-203	F	...	75 (515)	9B	1	101	9.2	3.5Ni	Plate > 2 in. (51 mm)	
A/SA-203	F	...	80 (550)	9B	1	101	9.2	3.5Ni	Plate, 2 in. (51 mm) & under	
A/SA-203	A	K21703	65 (450)	9A	1	101	9.1	2.25Ni	Plate	
A/SA-203	B	K22103	70 (485)	9A	1	101	9.1	2.25Ni	Plate	
A/SA-203	D	K31718	65 (450)	9B	1	101	9.2	3.5Ni	Plate	
A/SA-203	E	K32018	70 (485)	9B	1	101	9.2	3.5Ni	Plate	
A/SA-204	A	K11820	65 (450)	3	1	101	1.1	C-0.5Mo	Plate	
A/SA-204	B	K12020	70 (485)	3	2	101	1.1	C-0.5Mo	Plate	
A/SA-204	C	K12320	75 (515)	3	2	101	1.2	C-0.5Mo	Plate	

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-209	T1b	K11422	53 (365)	3	1	101	1.1	C-0.5Mo	Smls. tube	
A/SA-209	T1	K11522	55 (380)	3	1	101	1.1	C-0.5Mo	Smls. tube	
A/SA-209	T1a	K12023	60 (415)	3	1	101	1.1	C-0.5Mo	Smls. tube	
A/SA-210	A-1	K02707	60 (415)	1	1	101	11.1	C-Si	Smls. tube	
A/SA-210	C	K03501	70 (485)	1	2	101	11.1	C-Mn-Si	Smls. tube	
A211	A570-30	K02502	49 (340)	1	1	101	1.1	C	Welded pipe	
A211	A570-33	K02502	52 (360)	1	1	101	1.1	C	Welded pipe	
A211	A570-40	K02502	55 (380)	1	1	101	1.1	C	Welded pipe	
A/SA-213	T2	K11547	60 (415)	3	1	101	4.2	0.5Cr-0.5Mo	Smls. tube	
A/SA-213	T12	K11562	60 (415)	4	1	102	5.1	1Cr-0.5Mo	Smls. tube	
A/SA-213	T11	K11597	60 (415)	4	1	102	5.1	1.25Cr-0.5Mo-Si	Smls. tube	
A/SA-213	T17	K12047	60 (415)	10B	1	102	4.1	1Cr-V	Smls. tube	
A/SA-213	T22	K21590	60 (415)	5A	1	102	5.2	2.25Cr-1Mo	Smls. tube	
A/SA-213	T21	K31545	60 (415)	5A	1	102	5.2	3Cr-1Mo	Smls. tube	
A/SA-213	T5c	K41245	60 (415)	5B	1	102	5.3	5Cr-0.5Mo-Ti	Smls. tube	
A/SA-213	T5	K41545	60 (415)	5B	1	102	5.3	5Cr-0.5Mo	Smls. tube	
A/SA-213	T5b	K51545	60 (415)	5B	1	102	5.3	5Cr-0.5Mo-Si	Smls. tube	
A/SA-213	T91	K90901	85 (585)	15E	1	102	6.4	9Cr-1Mo-V	Smls. tube	
A/SA-213	T9	K90941	60 (415)	5B	1	102	5.4	9Cr-1Mo	Smls. tube	
A/SA-213	T92	K92460	90 (620)	15E	1	102	6.4	9Cr-2W	Smls. tube	
A/SA-213	TP201	S20100	95 (655)	8	3	102	8.3	17Cr-4Ni-6Mn	Smls. tube	
A/SA-213	TP202	S20200	90 (620)	8	3	102	8.3	18Cr-5Ni-9Mn	Smls. tube	
A/SA-213	XM-19	S20910	100 (690)	8	3	102	8.3	22Cr-13Ni-5Mn	Smls. tube	
A/SA-213	TP304	S30400	75 (515)	8	1	102	8.1	18Cr-8Ni	Smls. tube	
A/SA-213	TP304L	S30403	70 (485)	8	1	102	8.1	18Cr-8Ni	Smls. tube	
A/SA-213	TP304H	S30409	75 (515)	8	1	102	8.1	18Cr-8Ni	Smls. tube	
A/SA-213	...	S30432	86 (595)	8	1	102	8.1	18Cr-9Ni-3Cu-Cb-N	Smls. tube	
A/SA-213	TP304N	S30451	80 (550)	8	1	102	8.1	18Cr-8Ni-N	Smls. tube	
A/SA-213	TP304LN	S30453	75 (515)	8	1	102	8.1	18Cr-8Ni-N	Smls. tube	
A/SA-213	S30815	S30815	87 (600)	8	2	102	8.2	21Cr-11Ni-N	Smls. tube	
A/SA-213	TP309S	S30908	75 (515)	8	2	102	8.2	23Cr-12Ni	Smls. tube	
A/SA-213	TP309H	S30909	75 (515)	8	2	102	8.2	23Cr-12Ni	Smls. tube	
A/SA-213	TP309Cb	S30940	75 (515)	8	2	102	8.2	23Cr-12Ni-Cb	Smls. tube	
A/SA-213	TP309HCb	S30941	75 (515)	8	2	102	8.2	23Cr-12Ni-Cb	Smls. tube	

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-213	TP310S	S31008	75 (515)	8	2	102	8.2	25Cr-20Ni	Smls. tube	
A/SA-213	TP310H	S31009	75 (515)	8	2	102	8.2	25Cr-20Ni	Smls. tube	
A/SA-213	TP310Cb	S31040	75 (515)	8	2	102	8.2	25Cr-20Ni-Cb	Smls. tube	
A/SA-213	TP310HCb	S31041	75 (515)	8	2	102	8.2	25Cr-20Ni-Cb	Smls. tube	
A/SA-213	TP310HCbN	S31042	95 (655)	8	3	102	8.2	25Cr-20Ni-Cb-N	Smls. tube	
A/SA-213	TP310MoLN	S31050	78 (540)	8	2	102	8.2	25Cr-22Ni-2Mo-N	Smls. tube, $t > \frac{1}{4}$ in. (6 mm)	
A/SA-213	TP310MoLN	S31050	84 (580)	8	2	102	8.2	25Cr-22Ni-2Mo-N	Smls. tube, $t \leq \frac{1}{4}$ in. (6 mm)	
A/SA-213	TP316	S31600	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Smls. tube	
A/SA-213	TP316L	S31603	70 (485)	8	1	102	8.1	16Cr-12Ni-2Mo	Smls. tube	
A/SA-213	TP316H	S31609	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Smls. tube	
A/SA-213	TP316Ti	S31635	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo-Ti	Smls. tube	
A/SA-213	TP316N	S31651	80 (550)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Smls. tube	
A/SA-213	TP316LN	S31653	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Smls. tube	
A/SA-213	TP317	S31700	75 (515)	8	1	102	8.1	18Cr-13Ni-3Mo	Smls. tube	
A/SA-213	TP317L	S31703	75 (515)	8	1	102	8.1	18Cr-13Ni-3Mo	Smls. tube	
A/SA-213	TP317LM	S31725	75 (515)	8	4	102	8.1	19Cr-15Ni-4Mo	Smls. tube	
A/SA-213	TP317LMN	S31726	80 (550)	8	4	102	8.1	19Cr-15.5Ni-4Mo	Smls. tube	
A/SA-213	TP321	S32100	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Smls. tube	
A/SA-213	TP321H	S32109	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Smls. tube	
A/SA-213	S32615	S32615	80 (550)	8	1	102	8.1	18Cr-20Ni-5.5Si	Smls. tube	
A/SA-213	S34565	S34565	115 (795)	8	4	102	8.3	24Cr-17Ni-6Mn-4.5Mo-N	Smls. tube	
A/SA-213	TP347	S34700	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Smls. tube	
A/SA-213	TP347H	S34709	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Smls. tube	
A/SA-213	TP347HFG	S34710	80 (550)	8	1	102	8.1	18Cr-10Ni-Cb	Smls. tube	
A/SA-213	TP347LN	S34751	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb-N	Smls. tube	
A/SA-213	TP348	S34800	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Smls. tube	
A/SA-213	TP348H	S34809	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Smls. tube	
A/SA-213	XM-15	S38100	75 (515)	8	1	102	8.1	18Cr-18Ni-2Si	Smls. tube	
A/SA-213	...	S38815	78 (540)	8	1	102	8.1	14Cr-16Ni-6Si-Cu-Mo	Smls. tube	
A/SA-214	...	K01807	47 (325)	1	1	101	1.1	C	E.R.W. tube	
A/SA-216	WCA	J02502	60 (415)	1	1	101	1.1	C-Si	Castings	
A/SA-216	WCC	J02503	70 (485)	1	2	101	1.1	C-Mn-Si	Castings	
A/SA-216	WCB	J03002	70 (485)	1	2	101	1.1	C-Si	Castings	
A/SA-217	WC6	J12072	70 (485)	4	1	102	5.1	1.25Cr-0.5Mo	Castings	
A/SA-217	WC4	J12082	70 (485)	4	1	101	9.1	1Ni-0.5Cr-0.5Mo	Castings	



**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-217	WC1	J12524	65 (450)	3	1	101	1.1	C-0.5Mo	Castings	
A/SA-217	WC9	J21890	70 (485)	5A	1	102	5.2	2.25Cr-1Mo	Castings	
A/SA-217	WC5	J22000	70 (485)	4	1	101	4.2	0.75Ni-1Mo-0.75Cr	Castings	
A/SA-217	C5	J42045	90 (620)	5B	1	102	5.3	5Cr-0.5Mo	Castings	
A/SA-217	C12	J82090	90 (620)	5B	1	102	5.4	9Cr-1Mo	Castings	
A/SA-217	C12A	J84090	85 (585)	15E	1	102	6.4	9Cr-1Mo-V	Castings	
A/SA-217	CA15	J91150	90 (620)	6	3	102	7.2	13Cr	Castings	
A/SA-225	D	K12004	75 (515)	10A	1	101	2.1	Mn-0.5Ni-V	Plate > 3 in. (76 mm)	
A/SA-225	D	K12004	80 (550)	10A	1	101	2.1	Mn-0.5Ni-V	Plate, 3 in. (76 mm) & under	
A/SA-225	C	K12524	105 (725)	10A	1	101	4.1	Mn-0.5Ni-V	Plate	
A/SA-234	WP11, Cl. 1	...	60 (415)	4	1	102	5.1	1.25Cr-0.5Mo-Si	Piping fittings	
A/SA-234	WP11, Cl. 3	...	75 (515)	4	1	102	5.1	1.25Cr-0.5Mo-Si	Piping fittings	
A/SA-234	WPB	K03006	60 (415)	1	1	101	11.1	C-Mn-Si	Piping fittings	
A/SA-234	WPC	K03501	70 (485)	1	2	101	11.1	C-Mn-Si	Piping fittings	
A/SA-234	WP12, Cl. 1	K12062	60 (415)	4	1	101	5.1	1Cr-0.5Mo	Piping fittings	
A/SA-234	WP12, Cl. 2	K12062	70 (485)	4	1	101	5.1	1Cr-0.5Mo	Piping fittings	
A/SA-234	WP1	K12821	55 (380)	3	1	101	11.2	C-0.5Mo	Piping fittings	
A/SA-234	WP22, Cl. 1	K21590	60 (415)	5A	1	102	5.2	2.25Cr-1Mo	Piping fittings	
A/SA-234	WP22, Cl. 3	K21590	75 (515)	5A	1	102	5.2	2.25Cr-1Mo	Piping fittings	
A/SA-234	WPR	K22035	63 (435)	9A	1	101	9.1	2Ni-1Cu	Piping fittings	
A/SA-234	WP5, Cl. 1	K41545	60 (415)	5B	1	102	5.3	5Cr-0.5Mo	Piping fittings	
A/SA-234	WP5, Cl. 3	K41545	75 (515)	5B	1	102	5.3	5Cr-0.5Mo	Piping fittings	
A/SA-234	WP91	K90901	85 (585)	15E	1	102	6.4	9Cr-1Mo-V	Piping fittings	
A/SA-234	WP9, Cl. 1	K90941	60 (415)	5B	1	102	5.4	9Cr-1Mo	Piping fittings	
A/SA-234	WP9, Cl. 3	K90941	75 (515)	5B	1	102	5.4	9Cr-1Mo	Piping fittings	
A/SA-240	...	N08367	95 (655)	45	...	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Plate ≥ 0.1875 in. (5 mm)	
A/SA-240	...	N08367	100 (690)	45	...	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Sheet & strip < 0.1875 in. (5 mm)	
A/SA-240	Type 904L	N08904	71 (490)	45	...	111	8.2	44Fe-25Ni-21Cr-Mo	Plate, sheet & strip	
A/SA-240	Type 201-1	S20100	75 (515)	8	3	102	8.3	17Cr-4Ni-6Mn	Plate, sheet & strip	
A/SA-240	Type 201-2	S20100	95 (655)	8	3	102	8.3	17Cr-4Ni-6Mn	Plate, sheet & strip	
A/SA-240	Type 201LN	S20153	95 (655)	8	3	...	8.3	16Cr-4Ni-6Mn	Plate, sheet & strip	
A/SA-240	Type 202	S20200	90 (620)	8	3	102	8.3	18Cr-5Ni-9Mn	Plate, sheet & strip	
A/SA-240	...	S20400	95 (655)	8	3	102	8.3	16Cr-9Mn-2Ni-N	Plate, sheet & strip	
A/SA-240	Type XM-19	S20910	100 (690)	8	3	102	8.3	22Cr-13Ni-5Mn	Plate	
A/SA-240	Type XM-19	S20910	105 (725)	8	3	102	8.3	22Cr-13Ni-5Mn	Sheet & strip	

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing	ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.			
<b>Ferrous (Cont'd)</b>									
A/SA-240	Type XM-17	S21600	90 (620)	8	3	102	8.3	19Cr-8Mn-6Ni-Mo-N	Plate
A/SA-240	Type XM-17	S21600	100 (690)	8	3	102	8.3	19Cr-8Mn-6Ni-Mo-N	Sheet & strip
A/SA-240	Type XM-18	S21603	90 (620)	8	3	102	8.3	19Cr-8Mn-6Ni-Mo-N	Plate
A/SA-240	Type XM-18	S21603	100 (690)	8	3	102	8.3	19Cr-8Mn-6Ni-Mo-N	Sheet & strip
A/SA-240	S21800	S21800	95 (655)	8	3	102	8.1	18Cr-8Ni-4Si-N	Plate, sheet & strip
A/SA-240	Type XM-29	S24000	100 (690)	8	3	102	8.3	18Cr-3Ni-12Mn	Plate, sheet & strip
A/SA-240	Type 301	S30100	75 (515)	8	1	102	8.1	17Cr-7Ni	Plate, sheet & strip
A/SA-240	Type 302	S30200	75 (515)	8	1	102	8.1	18Cr-8Ni	Plate, sheet & strip
A/SA-240	Type 304	S30400	75 (515)	8	1	102	8.1	18Cr-8Ni	Plate, sheet & strip
A/SA-240	Type 304L	S30403	70 (485)	8	1	102	8.1	18Cr-8Ni	Plate, sheet & strip
A/SA-240	Type 304H	S30409	75 (515)	8	1	102	8.1	18Cr-8Ni	Plate, sheet & strip
A/SA-240	Type 304N	S30451	80 (550)	8	1	102	8.1	18Cr-8Ni-N	Plate, sheet & strip
A/SA-240	Type XM-21	S30452	85 (585)	8	1	102	8.1	18Cr-8Ni-N	Plate
A/SA-240	Type XM-21	S30452	90 (620)	8	1	102	8.1	18Cr-8Ni-N	Sheet & strip
A/SA-240	Type 304LN	S30453	75 (515)	8	1	102	8.1	18Cr-8Ni-N	Plate, sheet & strip
A/SA-240	Type 305	S30500	70 (485)	8	1	102	8.1	18Cr-11Ni	Plate, sheet & strip
A/SA-240	S30600	S30600	78 (540)	8	1	102	8.1	18Cr-15Ni-4Si	Plate, sheet & strip
A/SA-240	S30601	S30601	78 (540)	8	1	102	8.1	17.5Cr-17.5Ni-5.3Si	Plate, sheet & strip
A/SA-240	S30815	S30815	87 (600)	8	2	102	8.2	21Cr-11Ni-N	Plate, sheet & strip
A/SA-240	Type 309S	S30908	75 (515)	8	2	102	8.2	23Cr-12Ni	Plate, sheet & strip
A/SA-240	Type 309H	S30909	75 (515)	8	2	102	8.2	23Cr-12Ni	Plate, sheet & strip
A/SA-240	Type 309Cb	S30940	75 (515)	8	2	102	8.2	23Cr-12Ni-Cb	Plate, sheet & strip
A/SA-240	Type 309HCb	S30941	75 (515)	8	2	102	8.2	23Cr-12Ni-Cb	Plate, sheet & strip
A/SA-240	Type 310S	S31008	75 (515)	8	2	102	8.2	25Cr-20Ni	Plate, sheet & strip
A/SA-240	Type 310H	S31009	75 (515)	8	2	102	8.2	25Cr-20Ni	Plate, sheet & strip
A/SA-240	Type 310Cb	S31040	75 (515)	8	2	102	8.2	25Cr-20Ni-Cb	Plate, sheet & strip
A/SA-240	Type 310HCb	S31041	75 (515)	8	2	102	8.2	25Cr-20Ni-Cb	Plate, sheet & strip
A/SA-240	Type 310MoLN	S31050	78 (540)	8	2	102	8.2	25Cr-22Ni-2Mo-N	Plate, sheet & strip, $t > \frac{1}{4}$ in. (6 mm)
A/SA-240	Type 310MoLN	S31050	84 (580)	8	2	102	8.2	25Cr-22Ni-2Mo-N	Plate, sheet & strip, $t \leq \frac{1}{4}$ in. (6 mm)
A/SA-240	S31200	S31200	100 (690)	10H	1	102	10.2	25Cr-6Ni-Mo-N	Plate, sheet & strip
A/SA-240	S31254	S31254	95 (655)	8	4	102	8.2	20Cr-18Ni-6Mo	Plate
A/SA-240	S31254	S31254	100 (690)	8	4	102	8.2	20Cr-18Ni-6Mo	Sheet & strip
A/SA-240	S31260	S31260	100 (690)	10H	1	102	10.2	25Cr-6.5Ni-3Mo-N	Plate, sheet & strip
A/SA-240	...	S31266	109 (750)	45	...	102	8.2	24Cr-22Ni-6Mo-3Mn-Cu-W-N	Plate, sheet & strip
A/SA-240	S31277	S31277	112 (770)	45	...	111	8.2	27Ni-22Cr-7Mo-Mn-Cu	Plate, sheet & strip
A/SA-240	Type 316	S31600	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Plate, sheet & strip
A/SA-240	Type 316L	S31603	70 (485)	8	1	102	8.1	16Cr-12Ni-2Mo	Plate, sheet & strip

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing	ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.			
<b>Ferrous (Cont'd)</b>									
A/SA-240	Type 316H	S31609	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Plate, sheet & strip
A/SA-240	Type 316Ti	S31635	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo-Ti	Plate, sheet & strip
A/SA-240	Type 316Cb	S31640	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo-Cb	Plate, sheet & strip
A/SA-240	Type 316N	S31651	80 (550)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Plate, sheet & strip
A/SA-240	Type 316LN	S31653	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Plate, sheet & strip
A/SA-240	Type 317	S31700	75 (515)	8	1	102	8.1	18Cr-13Ni-3Mo	Plate, sheet & strip
A/SA-240	Type 317L	S31703	75 (515)	8	1	102	8.1	18Cr-13Ni-3Mo	Plate, sheet & strip
A/SA-240	S31725	S31725	75 (515)	8	4	102	8.1	19Cr-15Ni-4Mo	Plate, sheet & strip
A/SA-240	S31726	S31726	80 (550)	8	4	102	8.1	19Cr-15.5Ni-4Mo	Plate, sheet & strip
A/SA-240	S31753	S31753	80 (550)	8	1	102	8.1	18Cr-13Ni-3Mo-N	Plate, sheet & strip
A/SA-240	S31803	S31803	90 (620)	10H	1	102	10.1	22Cr-5Ni-3Mo-N	Plate, sheet & strip
A/SA-240	...	S32003	90 (620)	10H	1	102	10.1	21Cr-3.5Ni-Mo-N	Plate, sheet & strip
A/SA-240	...	S32053	93 (640)	8	4	102	8.2	23Cr-25Ni-5.5Mo-N	Plate, sheet & strip
A/SA-240	Type 321	S32100	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Plate, sheet & strip
A/SA-240	...	S32101	95 (655)	10H	1	102	10.1	21Cr-5Mn-1.5Ni-Cu-N	Plate, sheet & strip > 0.187 in. (5 mm)
A/SA-240	...	S32101	101 (700)	10H	1	102	10.1	21Cr-5Mn-1.5Ni-Cu-N	Plate, sheet & strip ≤ 0.187 in. (5 mm)
A/SA-240	Type 321H	S32109	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Plate, sheet & strip
A/SA-240	...	S32202	94 (650)	10H	1	102	10.1	22Cr-2Ni-Mo-N	Plate, sheet & strip
A/SA-240	2205	S32205	95 (655)	10H	1	102	10.1	22Cr-5Ni-3Mo-N	Plate, sheet & strip
A/SA-240	...	S32304	87 (600)	10H	1	102	10.1	23Cr-4Ni-Mo-Cu-N	Plate, sheet & strip
A/SA-240	S32550	S32550	110 (760)	10H	1	102	10.2	25Cr-5Ni-3Mo-2Cu	Plate, sheet & strip
A/SA-240	S32615	S32615	80 (550)	8	1	102	8.1	18Cr-20Ni-5.5Si	Plate, sheet & strip
A/SA-240	...	S32654	109 (750)	8	4	102	8.2	24Cr-22Ni-7Mo-3Mn	Plate, sheet & strip
A/SA-240	S32750	S32750	116 (800)	10H	1	102	10.2	25Cr-7Ni-4Mo-N	Plate, sheet & strip
A/SA-240	S32760	S32760	108 (745)	10H	1	102	10.2	25Cr-8Ni-3Mo-W-Cu-N	Plate, sheet & strip
A/SA-240	Type 329	S32900	90 (620)	10H	1	102	10.2	26Cr-4Ni-Mo	Plate, sheet & strip
A/SA-240	S32906	S32906	109 (750)	10H	1	102	10.2	29Cr-6.5Ni-2Mo-N	Plate, sheet & strip ≥ 0.40 in. (10 mm)
A/SA-240	S32906	S32906	116 (800)	10H	1	102	10.2	29Cr-6.5Ni-2Mo-N	Plate, sheet & strip < 0.40 in. (10 mm)
A/SA-240	S32950	S32950	100 (690)	10H	1	102	10.2	26Cr-4Ni-Mo-N	Plate, sheet & strip
A/SA-240	S34565	S34565	115 (795)	8	4	102	8.3	24Cr-17Ni-6Mn-4.5Mo-N	Plate, sheet & strip
A/SA-240	Type 347	S34700	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Plate, sheet & strip
A/SA-240	Type 347H	S34709	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Plate, sheet & strip
A/SA-240	Type 348	S34800	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Plate, sheet & strip
A/SA-240	Type 348H	S34809	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Plate, sheet & strip
A/SA-240	Type XM-15	S38100	75 (515)	8	1	102	8.1	18Cr-18Ni-2Si	Plate, sheet & strip
A/SA-240	...	S38815	78 (540)	8	1	102	8.1	14Cr-16Ni-6Si-Cu-Mo	Plate, sheet & strip
A/SA-240	Type 405	S40500	60 (415)	7	1	102	7.1	12Cr-Al	Plate, sheet & strip

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-240	Type 409	S40910	55 (380)	7	1	102	7.1	11Cr-Ti	Plate, sheet & strip	
A/SA-240	Type 409	S40920	55 (380)	7	1	102	7.1	11Cr-Ti	Plate, sheet & strip	
A/SA-240	Type 409	S40930	55 (380)	7	1	102	7.1	11Cr-Ti	Plate, sheet & strip	
A/SA-240	Type 410	S41000	65 (450)	6	1	102	7.2	13Cr	Plate, sheet & strip	
A/SA-240	Type 410S	S41008	60 (415)	7	1	102	7.2	13Cr	Plate, sheet & strip	
A/SA-240	S41500	S41500	115 (795)	6	4	102	7.2	13Cr-4.5Ni-Mo	Plate, sheet & strip	
A/SA-240	Type 429	S42900	65 (450)	6	2	102	7.2	15Cr	Plate, sheet & strip	
A/SA-240	Type 430	S43000	65 (450)	7	2	102	7.1	17Cr	Plate, sheet & strip	
A/SA-240	Type 439	S43035	60 (415)	7	2	102	7.1	18Cr-Ti	Plate, sheet & strip	
A/SA-240	S43932	S43932	60 (415)	7	2	102	7.1	18Cr-Ti-Cb	Plate, sheet & strip	
A/SA-240	S43940	S43940	62 (425)	7	2	102	7.1	18Cr-Ti-Cb	Plate, sheet & strip	
A/SA-240	...	S44100	60 (415)	7	2	102	7.1	18Cr-Cb-Ti	Plate, sheet & strip	
A/SA-240	S44400	S44400	60 (415)	7	2	102	7.1	18Cr-2Mo	Plate, sheet & strip	
A/SA-240	Type XM-33	S44626	68 (470)	10I	1	102	7.1	27Cr-1Mo-Ti	Plate, sheet & strip	
A/SA-240	Type XM-27	S44627	65 (450)	10I	1	102	7.1	27Cr-1Mo	Plate, sheet & strip	
A/SA-240	S44635	S44635	90 (620)	10I	1	102	7.1	25Cr-4Ni-4Mo-Ti	Plate, sheet & strip	
A/SA-240	S44660	S44660	85 (585)	10K	1	102	7.1	26Cr-3Ni-3Mo	Plate, sheet & strip	
A/SA-240	S44700	S44700	80 (550)	10J	1	102	7.1	29Cr-4Mo	Plate, sheet & strip	
A/SA-240	S44800	S44800	80 (550)	10K	1	102	7.1	29Cr-4Mo-2Ni	Plate, sheet & strip	
A/SA-240	...	S82012	94 (650)	10H	1	102	10.1	20Cr-1Ni-Mo-N	Plate, sheet & strip > 0.187 in. (5 mm)	
A/SA-240	...	S82012	102 (705)	10H	1	102	10.1	20Cr-1Ni-Mo-N	Plate, sheet & strip ≤ 0.187 in. (5 mm)	
A/SA-240	...	S82031	94 (650)	10H	1	102	10.1	21Cr-3Ni-1Mo-N	Plate, sheet & strip > 0.187 in. (5 mm)	
A/SA-240	...	S82031	102 (705)	10H	1	102	10.1	21Cr-3Ni-1Mo-N	Plate, sheet & strip ≤ 0.187 in. (5 mm)	
A/SA-240	...	S82441	99 (680)	10H	1	102	10.1	24Cr-4Ni-3Mn-1.5Mo-N	Plate, sheet & strip ≥ 0.40 in. (10 mm)	
A/SA-240	...	S82441	107 (740)	10H	1	102	10.1	24Cr-4Ni-3Mn-1.5Mo-N	Plate, sheet & strip < 0.40 in. (10 mm)	
A/SA-249	...	N08367	95 (655)	45	...	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Welded tube > 0.1875 in. (5 mm)	
A/SA-249	...	N08367	100 (690)	45	...	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Welded tube ≤ 0.1875 in. (5 mm)	
A/SA-249	...	N08904	71 (490)	45	...	111	8.2	44Fe-25Ni-21Cr-Mo	Welded tube	
A/SA-249	TP 201	S20100	95 (655)	8	3	102	8.3	17Cr-4Ni-6Mn	Welded tube	
A/SA-249	TP 202	S20200	90 (620)	8	3	102	8.3	18Cr-5Ni-9Mn	Welded tube	
A/SA-249	TP XM-19	S20910	100 (690)	8	3	102	8.3	22Cr-13Ni-5Mn	Welded tube	
A/SA-249	TP XM-29	S24000	100 (690)	8	3	102	8.3	18Cr-3Ni-12Mn	Welded tube	
A/SA-249	TP304	S30400	75 (515)	8	1	102	8.1	18Cr-8Ni	Welded tube	
A/SA-249	TP304L	S30403	70 (485)	8	1	102	8.1	18Cr-8Ni	Welded tube	
A/SA-249	TP304H	S30409	75 (515)	8	1	102	8.1	18Cr-8Ni	Welded tube	
A/SA-249	TP304N	S30451	80 (550)	8	1	102	8.1	18Cr-8Ni-N	Welded tube	

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-249	TP304LN	S30453	75 (515)	8	1	102	8.1	18Cr-8Ni-N	Welded tube	
A/SA-249	S30815	S30815	87 (600)	8	2	102	8.2	21Cr-11Ni-N	Welded tube	
A/SA-249	TP309S	S30908	75 (515)	8	2	102	8.2	23Cr-12Ni	Welded tube	
A/SA-249	TP309H	S30909	75 (515)	8	2	102	8.2	23Cr-12Ni	Welded tube	
A/SA-249	TP309Cb	S30940	75 (515)	8	2	102	8.2	23Cr-12Ni-Cb	Welded tube	
A/SA-249	TP309HCb	S30941	75 (515)	8	2	102	8.2	23Cr-12Ni-Cb	Welded tube	
A/SA-249	TP310S	S31008	75 (515)	8	2	102	8.2	25Cr-20Ni	Welded tube	
A/SA-249	TP310H	S31009	75 (515)	8	2	102	8.2	25Cr-20Ni	Welded tube	
A/SA-249	TP310Cb	S31040	75 (515)	8	2	102	8.2	25Cr-20Ni-Cb	Welded tube	
A/SA-249	TP310HCb	S31041	75 (515)	8	2	102	8.2	25Cr-20Ni-Cb	Welded tube	
A/SA-249	TP310MoLN	S31050	78 (540)	8	2	102	8.2	25Cr-22Ni-2Mo-N	Welded tube, $t > \frac{1}{4}$ in. (6 mm)	
A/SA-249	TP310MoLN	S31050	84 (580)	8	2	102	8.2	25Cr-22Ni-2Mo-N	Welded tube, $t \leq \frac{1}{4}$ in. (6 mm)	
A/SA-249	S31254	S31254	95 (655)	8	4	102	8.2	20Cr-18Ni-6Mo	Welded tube, $t > \frac{3}{16}$ in. (5 mm)	
A/SA-249	S31254	S31254	98 (675)	8	4	102	8.2	20Cr-18Ni-6Mo	Welded tube, $t \leq \frac{3}{16}$ in. (5 mm)	
A/SA-249	TP316	S31600	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Welded tube	
A/SA-249	TP316L	S31603	70 (485)	8	1	102	8.1	16Cr-12Ni-2Mo	Welded tube	
A/SA-249	TP316H	S31609	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Welded tube	
A/SA-249	TP316N	S31651	80 (550)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Welded tube	
A/SA-249	TP316LN	S31653	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Welded tube	
A/SA-249	TP317	S31700	75 (515)	8	1	102	8.1	18Cr-13Ni-3Mo	Welded tube	
A/SA-249	TP317L	S31703	75 (515)	8	1	102	8.1	18Cr-13Ni-3Mo	Welded tube	
A/SA-249	S31725	S31725	75 (515)	8	4	102	8.1	19Cr-15Ni-4Mo	Welded tube	
A/SA-249	S31726	S31726	80 (550)	8	4	102	8.1	19Cr-15.5Ni-4Mo	Welded tube	
A/SA-249	...	S32053	93 (640)	8	4	102	8.2	23Cr-25Ni-5.5Mo-N	Welded tube	
A/SA-249	TP321	S32100	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Welded tube	
A/SA-249	TP321H	S32109	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Welded tube	
A/SA-249	TP347	S34700	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Welded tube	
A/SA-249	TP347H	S34709	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Welded tube	
A/SA-249	TP348	S34800	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Welded tube	
A/SA-249	TP348H	S34809	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Welded tube	
A/SA-249	TP XM-15	S38100	75 (515)	8	1	102	8.1	18Cr-18Ni-2Si	Welded tube	
A/SA-249	...	S38815	78 (540)	8	1	102	8.1	14Cr-16Ni-6Si-Cu-Mo	Welded tube	
A/SA-250	T1b	K11422	53 (365)	3	1	101	1.1	C-0.5Mo	E.R.W. tube	
A/SA-250	T1	K11522	55 (380)	3	1	101	1.1	C-0.5Mo	E.R.W. tube	
A/SA-250	T2	K11547	60 (415)	3	1	101	4.2	0.5Cr-0.5Mo	E.R.W. tube	
A/SA-250	T12	K11562	60 (415)	4	1	102	5.1	1Cr-0.5Mo	E.R.W. tube	

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-250	T11	K11597	60 (415)	4	1	102	5.1	1.25Cr-0.5Mo-Si	E.R.W. tube	
A/SA-250	T1a	K12023	60 (415)	3	1	101	1.1	C-0.5Mo	E.R.W. tube	
A/SA-250	T22	K21590	60 (415)	5A	1	102	5.2	2.25Cr-1Mo	E.R.W. tube	
A254	Cl. 1	K01001	42 (290)	...	...	101	NA	C	Cu brazed tube	
A254	Cl. 2	K01001	42 (290)	...	...	101	NA	C	Cu brazed tube	
A/SA-266	4	K03017	70 (485)	1	2	101	11.1	C-Mn-Si	Forgings	
A/SA-266	1	K03506	60 (415)	1	1	101	11.1	C-Si	Forgings	
A/SA-266	2	K03506	70 (485)	1	2	101	11.1	C-Si	Forgings	
A/SA-266	3	K05001	75 (515)	1	2	101	11.2	C-Si	Forgings	
A/SA-268	TP405	S40500	60 (415)	7	1	102	7.1	12Cr-Al	Smls. & welded tube	
A/SA-268	S40800	S40800	55 (380)	7	1	102	7.1	12Cr-Ti	Smls. & welded tube	
A/SA-268	TP409	S40900	55 (380)	7	1	102	7.1	11Cr-Ti	Smls. & welded tube	
A/SA-268	TP410	S41000	60 (415)	6	1	102	7.2	13Cr	Smls. & welded tube	
A/SA-268	S41500	S41500	115 (795)	6	4	102	7.2	13Cr-4.5Ni-Mo	Smls. & welded tube	
A/SA-268	TP429	S42900	60 (415)	6	2	102	7.2	15Cr	Smls. & welded tube	
A/SA-268	TP430	S43000	60 (415)	7	2	102	7.1	17Cr	Smls. & welded tube	
A/SA-268	TP439	S43035	60 (415)	7	2	102	7.1	18Cr-Ti	Smls. & welded tube	
A/SA-268	TP430Ti	S43036	60 (415)	7	2	102	7.1	18Cr-Ti	Smls. & welded tube	
A/SA-268	18Cr-2Mo	S44400	60 (415)	7	2	102	7.1	18Cr-2Mo	Smls. & welded tube	
A/SA-268	TP446-1	S44600	70 (485)	10I	1	102	7.1	27Cr	Smls. & welded tube	
A/SA-268	TP446-2	S44600	65 (450)	10I	1	102	7.1	27Cr	Smls. & welded tube	
A/SA-268	TPXM-33	S44626	68 (470)	10I	1	102	7.1	27Cr-1Mo-Ti	Smls. & welded tube	
A/SA-268	TPXM-27	S44627	65 (450)	10I	1	102	7.1	27Cr-1Mo	Smls. & welded tube	
A/SA-268	25-4-4	S44635	90 (620)	10I	1	102	7.1	25Cr-4Ni-4Mo-Ti	Smls. & welded tube	
A/SA-268	26-3-3	S44660	85 (585)	10K	1	102	7.1	26Cr-3Ni-3Mo	Smls. & welded tube	
A/SA-268	29-4	S44700	80 (550)	10J	1	102	7.1	29Cr-4Mo	Smls. & welded tube	
A/SA-268	S44735	S44735	75 (515)	10J	1	102	7.1	29Cr-4Mo-Ti	Smls. & welded tube	
A/SA-268	29-4-2	S44800	80 (550)	10K	1	102	7.1	29Cr-4Mo-2Ni	Smls. & welded tube	
A269	TP304	S30400	...	8	1	102	8.1	18Cr-8Ni	Smls. & welded tube	
A269	TP304L	S30403	...	8	1	102	8.1	18Cr-8Ni	Smls. & welded tube	
A269	TP316	S31600	...	8	1	102	8.1	16Cr-12Ni-2Mo	Smls. & welded tube	
A269	TP316L	S31603	...	8	1	102	8.1	16Cr-12Ni-2Mo	Smls. & welded tube	
A/SA-276	TP304	S30400	75 (515)	8	1	102	8.1	18Cr-8Ni	Bar	
A/SA-276	TP304L	S30403	70 (485)	8	1	102	8.1	18Cr-8Ni	Bar	

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing	ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.			
<b>Ferrous (Cont'd)</b>									
A/SA-276	TP316	S31600	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Bar
A/SA-276	TP316L	S31603	70 (485)	8	1	102	8.1	16Cr-12Ni-2Mo	Bar
A/SA-276	S32205	S32205	95 (655)	10H	1	102	10.1	22Cr-5Ni-3Mo-N	Bar
A/SA-276	TP410	S41000	70 (485)	6	1	102	7.2	13Cr	Bar
A/SA-283	A	K01400	45 (310)	1	1	101	1.1	C	Plate
A/SA-283	B	K01702	50 (345)	1	1	101	1.1	C	Plate
A/SA-283	C	K02401	55 (380)	1	1	101	1.1	C	Plate
A/SA-283	D	K02702	60 (415)	1	1	101	1.1	C	Plate
A/SA-285	A	K01700	45 (310)	1	1	101	1.1	C	Plate
A/SA-285	B	K02200	50 (345)	1	1	101	1.1	C	Plate
A/SA-285	C	K02801	55 (380)	1	1	101	11.1	C	Plate
A/SA-299	A	K02803	75 (515)	1	2	101	11.1	C-Mn-Si	Plate
A/SA-299	B	K02803	80 (550)	1	3	101	11.1	C-Mn-Si	Plate
A/SA-302	A	K12021	75 (515)	3	2	101	1.1	Mn-0.5Mo	Plate
A/SA-302	B	K12022	80 (550)	3	3	101	1.2	Mn-0.5Mo	Plate
A/SA-302	C	K12039	80 (550)	3	3	101	...	Mn-0.5Mo-0.5Ni	Plate
A/SA-302	D	K12054	80 (550)	3	3	101	...	Mn-0.5Mo-0.75Ni	Plate
A/SA-312	N08367	N08367	95 (655)	45	...	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Smls. & welded pipe > 0.1875 in. (5 mm)
A/SA-312	N08367	N08367	100 (690)	45	...	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Smls. & welded pipe ≤ 0.1875 in. (5 mm)
A/SA-312	...	N08904	71 (490)	45	...	111	8.2	44Fe-25Ni-21Cr-Mo	Smls. & welded pipe
A/SA-312	TPXM-19	S20910	100 (690)	8	3	102	8.3	22Cr-13Ni-5Mn	Smls. & welded pipe
A/SA-312	TPXM-11	S21904	90 (620)	8	3	102	8.3	21Cr-6Ni-9Mn	Smls. & welded pipe
A/SA-312	TPXM-29	S24000	100 (690)	8	3	102	8.3	18Cr-3Ni-12Mn	Smls. & welded pipe
A/SA-312	TP304	S30400	75 (515)	8	1	102	8.1	18Cr-8Ni	Smls. & welded pipe
A/SA-312	TP304L	S30403	70 (485)	8	1	102	8.1	18Cr-8Ni	Smls. & welded pipe
A/SA-312	TP304H	S30409	75 (515)	8	1	102	8.1	18Cr-8Ni	Smls. & welded pipe
A/SA-312	TP304N	S30451	80 (550)	8	1	102	8.1	18Cr-8Ni-N	Smls. & welded pipe
A/SA-312	TP304LN	S30453	75 (515)	8	1	102	8.1	18Cr-8Ni-N	Smls. & welded pipe
A/SA-312	S30600	S30600	78 (540)	8	1	102	8.1	18Cr-15Ni-4Si	Smls. & welded pipe
A/SA-312	S30815	S30815	87 (600)	8	2	102	8.2	21Cr-11Ni-N	Smls. & welded pipe
A/SA-312	TP309S	S30908	75 (515)	8	2	102	8.2	23Cr-12Ni	Smls. & welded pipe
A/SA-312	TP309H	S30909	75 (515)	8	2	102	8.2	23Cr-12Ni	Smls. & welded pipe

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing	ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.			
<b>Ferrous (Cont'd)</b>									
A/SA-312	TP309Cb	S30940	75 (515)	8	2	102	8.2	23Cr-12Ni-Cb	Smls. & welded pipe
A/SA-312	TP309HCb	S30941	75 (515)	8	2	102	8.2	23Cr-12Ni-Cb	Smls. & welded pipe
A/SA-312	TP310S	S31008	75 (515)	8	2	102	8.2	25Cr-20Ni	Smls. & welded pipe
A/SA-312	TP310H	S31009	75 (515)	8	2	102	8.2	25Cr-20Ni	Smls. & welded pipe
A/SA-312	TP310Cb	S31040	75 (515)	8	2	102	8.2	25Cr-20Ni-Cb	Smls. & welded pipe
A/SA-312	TP310HCb	S31041	75 (515)	8	2	102	8.2	25Cr-20Ni-Cb	Smls. & welded pipe
A/SA-312	TP310MoLN	S31050	78 (540)	8	2	102	8.2	25Cr-22Ni-2Mo-N	Smls. & welded pipe, $t > \frac{1}{4}$ in. (6 mm)
A/SA-312	TP310MoLN	S31050	84 (580)	8	2	102	8.2	25Cr-22Ni-2Mo-N	Smls. & welded pipe, $t \leq \frac{1}{4}$ in. (6 mm)
A/SA-312	S31254	S31254	95 (655)	8	4	102	8.2	20Cr-18Ni-6Mo	Smls. & welded pipe, $t > \frac{3}{16}$ in. (5 mm)
A/SA-312	S31254	S31254	98 (675)	8	4	102	8.2	20Cr-18Ni-6Mo	Smls. & welded pipe, $t \leq \frac{3}{16}$ in. (5 mm)
A/SA-312	TP316	S31600	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Smls. & welded pipe
A/SA-312	TP316L	S31603	70 (485)	8	1	102	8.1	16Cr-12Ni-2Mo	Smls. & welded pipe
A/SA-312	TP316H	S31609	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Smls. & welded pipe
A/SA-312	TP316Ti	S31635	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo-Ti	Smls. & welded pipe
A/SA-312	TP316N	S31651	80 (550)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Smls. & welded pipe
A/SA-312	TP316LN	S31653	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Smls. & welded pipe
A/SA-312	TP317	S31700	75 (515)	8	1	102	8.1	18Cr-13Ni-3Mo	Smls. & welded pipe
A/SA-312	TP317L	S31703	75 (515)	8	1	102	8.1	18Cr-13Ni-3Mo	Smls. & welded pipe
A/SA-312	S31725	S31725	75 (515)	8	4	102	8.1	19Cr-15Ni-4Mo	Smls. & welded pipe
A/SA-312	S31726	S31726	80 (550)	8	4	102	8.1	19Cr-15.5Ni-4Mo	Smls. & welded pipe
A/SA-312	...	S32053	93 (640)	8	4	102	8.2	23Cr-25Ni-5.5Mo-N	Smls. & welded pipe
A/SA-312	TP321	S32100	70 (485)	8	1	102	8.1	18Cr-10Ni-Ti	Smls. pipe $> \frac{3}{8}$ in. (10 mm)
A/SA-312	TP321	S32100	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Smls. pipe $\leq \frac{3}{8}$ in. (10 mm)
A/SA-312	TP321	S32100	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Welded pipe
A/SA-312	TP321H	S32109	70 (485)	8	1	102	8.1	18Cr-10Ni-Ti	Smls. pipe $> \frac{3}{8}$ in. (10 mm)
A/SA-312	TP321H	S32109	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Smls. pipe $\leq \frac{3}{8}$ in. (10 mm)
A/SA-312	TP321H	S32109	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Welded pipe
A/SA-312	S32615	S32615	80 (550)	8	1	102	8.1	18Cr-20Ni-5.5Si	Smls. & welded pipe
A/SA-312	S34565	S34565	115 (795)	8	4	102	8.3	24Cr-17Ni-6Mn-4.5Mo-N	Smls. & welded pipe
A/SA-312	TP347	S34700	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Smls. & welded pipe
A/SA-312	TP347H	S34709	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Smls. & welded pipe
A/SA-312	TP347LN	S34751	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb-N	Smls. & welded pipe
A/SA-312	TP348	S34800	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Smls. & welded pipe
A/SA-312	TP348H	S34809	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Smls. & welded pipe
A/SA-312	TPXM-15	S38100	75 (515)	8	1	102	8.1	18Cr-18Ni-2Si	Smls. & welded pipe
A/SA-333	10	...	80 (550)	1	3	101	11.1	C-Mn-Si	Smls. & welded pipe



**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-333	6	K03006	60 (415)	1	1	101	11.1	C-Mn-Si	Smls. & welded pipe	
A/SA-333	1	K03008	55 (380)	1	1	101	11.1	C-Mn	Smls. & welded pipe	
A/SA-333	4	K11267	60 (415)	4	2	102	4.1	0.75Cr-0.75Ni-Cu-Al	Smls. & welded pipe	
A/SA-333	7	K21903	65 (450)	9A	1	101	9.1	2.5Ni	Smls. & welded pipe	
A/SA-333	9	K22035	63 (435)	9A	1	101	9.1	2Ni-1Cu	Smls. & welded pipe	
A/SA-333	3	K31918	65 (450)	9B	1	101	9.2	3.5Ni	Smls. & welded pipe	
A/SA-333	8	K81340	100 (690)	11A	1	101	9.3	9Ni	Smls. & welded pipe	
A/SA-334	6	K03006	60 (415)	1	1	101	11.1	C-Mn-Si	Welded tube	
A/SA-334	1	K03008	55 (380)	1	1	101	11.1	C-Mn	Welded tube	
A/SA-334	7	K21903	65 (450)	9A	1	101	9.1	2.5Ni	Welded tube	
A/SA-334	9	K22035	63 (435)	9A	1	101	9.1	2Ni-1Cu	Welded tube	
A/SA-334	3	K31918	65 (450)	9B	1	101	9.2	3.5Ni	Welded tube	
A/SA-334	8	K81340	100 (690)	11A	1	101	9.3	9Ni	Welded tube	
A/SA-335	P1	K11522	55 (380)	3	1	101	1.1	C-0.5Mo	Smls. pipe	
A/SA-335	P2	K11547	55 (380)	3	1	101	4.2	0.5Cr-0.5Mo	Smls. pipe	
A/SA-335	P12	K11562	60 (415)	4	1	102	5.1	1Cr-0.5Mo	Smls. pipe	
A/SA-335	P15	K11578	60 (415)	3	1	101	...	1.5Si-0.5Mo	Smls. pipe	
A/SA-335	P11	K11597	60 (415)	4	1	102	5.1	1.25Cr-0.5Mo-Si	Smls. pipe	
A/SA-335	P22	K21590	60 (415)	5A	1	102	5.2	2.25Cr-1Mo	Smls. pipe	
A/SA-335	P21	K31545	60 (415)	5A	1	102	5.2	3Cr-1Mo	Smls. pipe	
A/SA-335	P5c	K41245	60 (415)	5B	1	102	5.3	5Cr-0.5Mo-Ti	Smls. pipe	
A/SA-335	P5	K41545	60 (415)	5B	1	102	5.3	5Cr-0.5Mo	Smls. pipe	
A/SA-335	P5b	K51545	60 (415)	5B	1	102	5.3	5Cr-0.5Mo-Si	Smls. pipe	
A/SA-335	P91	K90901	85 (585)	15E	1	102	6.4	9Cr-1Mo-V	Smls. pipe	
A/SA-335	P9	K90941	60 (415)	5B	1	102	5.4	9Cr-1Mo	Smls. pipe	
A/SA-335	P92	K92460	90 (620)	15E	1	102	6.4	9Cr-2W	Smls. pipe	
A/SA-336	F12	K11564	70 (485)	4	1	102	5.1	1Cr-0.5Mo	Forgings	
A/SA-336	F11, Cl. 2	K11572	70 (485)	4	1	102	5.1	1.25Cr-0.5Mo-Si	Forgings	
A/SA-336	F11, Cl. 3	K11572	75 (515)	4	1	102	5.1	1.25Cr-0.5Mo-Si	Forgings	
A/SA-336	F11, Cl. 1	K11597	60 (415)	4	1	102	5.1	1.25Cr-0.5Mo-Si	Forgings	
A/SA-336	F1	K12520	70 (485)	3	2	101	1.1	C-0.5Mo	Forgings	
A/SA-336	F22, Cl. 1	K21590	60 (415)	5A	1	102	5.2	2.25Cr-1Mo	Forgings	
A/SA-336	F22, Cl. 3	K21590	75 (515)	5A	1	102	5.2	2.25Cr-1Mo	Forgings	
A/SA-336	F3VCb	K31390	85 (585)	5C	1	102	6.2	3Cr-1Mo-0.25V-Cb-Ca	Forgings	
A/SA-336	F21, Cl. 1	K31545	60 (415)	5A	1	102	5.2	3Cr-1Mo	Forgings	

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-336	F21, Cl. 3	K31545	75 (515)	5A	1	102	5.2	3Cr-1Mo	Forgings	
A/SA-336	F3V	K31830	85 (585)	5C	1	102	6.2	3Cr-1Mo-V-Ti-B	Forgings	
A/SA-336	F22V	K31835	85 (585)	5C	1	102	6.2	2.25Cr-1Mo-V	Forgings	
A/SA-336	F5	K41545	60 (415)	5B	1	102	5.3	5Cr-0.5Mo	Forgings	
A/SA-336	F5A	K42544	80 (550)	5B	1	102	5.3	5Cr-0.5Mo	Forgings	
A/SA-336	F91	K90901	85 (585)	15E	1	102	6.4	9Cr-1Mo-V	Forgings	
A/SA-336	F9	K90941	85 (585)	5B	1	102	5.4	9Cr-1Mo	Forgings	
A/SA-336	F6	S41000	85 (585)	6	3	102	7.2	13Cr	Forgings	
A/SA-350	LF1	K03009	60 (415)	1	1	101	11.1	C-Mn-Si	Forgings	
A/SA-350	LF2	K03011	70 (485)	1	2	101	11.1	C-Mn-Si	Forgings	
A/SA-350	LF6, Cl. 2	K12202	75 (515)	1	3	101	4.1	C-Mn-Si-V	Forgings	
A/SA-350	LF5 Cl. 1	K13050	60 (415)	9A	1	101	9.1	1.5Ni	Forgings	
A/SA-350	LF5 Cl. 2	K13050	70 (485)	9A	1	101	9.1	1.5Ni	Forgings	
A/SA-350	LF9	K22036	63 (435)	9A	1	101	9.1	2Ni-1Cu	Forgings	
A/SA-350	LF3	K32025	70 (485)	9B	1	101	9.2	3.5Ni	Forgings	
A/SA-351	CF3	J92500	70 (485)	8	1	102	8.1	18Cr-8Ni	Castings	
A/SA-351	CF3A	J92500	77 (530)	8	1	102	8.1	18Cr-8Ni	Castings	
A/SA-351	CF10	J92590	70 (485)	8	1	102	8.1	19Cr-9Ni-0.5Mo	Castings	
A/SA-351	CF8	J92600	70 (485)	8	1	102	8.1	18Cr-8Ni	Castings	
A/SA-351	CF8A	J92600	77 (530)	8	1	102	8.1	18Cr-8Ni	Castings	
A/SA-351	CF8C	J92710	70 (485)	8	1	102	8.1	18Cr-10Ni-Cb	Castings	
A/SA-351	CF3M	J92800	70 (485)	8	1	102	8.1	18Cr-12Ni-2Mo	Castings	
A/SA-351	CE20N	J92802	80 (550)	8	2	102	8.2	25Cr-8Ni-N	Castings	
A/SA-351	CF8M	J92900	70 (485)	8	1	102	8.1	18Cr-12Ni-2Mo	Castings	
A/SA-351	CF10M	J92901	70 (485)	8	1	102	8.1	19Cr-9Ni-2Mo	Castings	
A/SA-351	CF10MC	J92971	70 (485)	8	1	102	8.1	16Cr-14Ni-2Mo	Castings	
A/SA-351	CG8M	J93000	75 (515)	8	1	102	8.1	19Cr-10Ni-3Mo	Castings	
A/SA-351	CK3MCuN	J93254	80 (550)	8	4	102	8.2	20Cr-18Ni-6Mo	Castings	
A/SA-351	CD3MWCuN	J93380	100 (690)	10H	1	102	10.2	25Cr-8Ni-3Mo-W-Cu-N	Castings	
A/SA-351	CH8	J93400	65 (450)	8	2	102	8.2	25Cr-12Ni	Castings	
A/SA-351	CH10	J93401	70 (485)	8	2	102	8.2	25Cr-12Ni	Castings	
A/SA-351	CH20	J93402	70 (485)	8	2	102	8.2	25Cr-12Ni	Castings	
A/SA-351	CG6MMN	J93790	85 (585)	8	3	102	8.3	22Cr-12Ni-5Mn	Castings	
A/SA-351	CK20	J94202	65 (450)	8	2	102	8.2	25Cr-20Ni	Castings	
A/SA-351	HK30	J94203	65 (450)	8	2	102	8.2	25Cr-20Ni-0.5Mo	Castings	
A/SA-351	HK40	J94204	62 (425)	8	2	102	8.2	25Cr-20Ni-0.5Mo	Castings	

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-351	CN3MN	J94651	80 (550)	45	...	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Castings	
A/SA-351	CN7M	N08007	62 (425)	45	...	111	8.2	28Ni-19Cr-Cu-Mo	Castings	
A/SA-351	CT15C	N08151	63 (435)	45	...	111	45	32Ni-45Fe-20Cr-Cb	Castings	
A/SA-351	HT30	N08603	65 (450)	45	...	111	45	35Ni-15Cr-0.5Mo	Castings	
A/SA-352	LCA	J02504	60 (415)	1	1	101	11.1	C-Si	Castings	
A/SA-352	LCC	J02505	70 (485)	1	2	101	11.1	C-Mn-Si	Castings	
A/SA-352	LCB	J03003	65 (450)	1	1	101	1.1	C-Si	Castings	
A/SA-352	LC1	J12522	65 (450)	3	1	101	1.1	C-0.5Mo	Castings	
A/SA-352	LC2	J22500	70 (485)	9A	1	101	9.1	2.5Ni	Castings	
A/SA-352	LC3	J31550	70 (485)	9B	1	101	9.3	3.5Ni	Castings	
A/SA-352	LC4	J41500	70 (485)	9C	1	101	9.3	4.5Ni	Castings	
A/SA-352	LC2-1	J42215	105 (725)	11A	5	102	9.2	3Ni-1.5Cr-0.5Mo	Castings	
A/SA-352	CA6NM	J91540	110 (760)	6	4	102	7.2	13Cr-4Ni	Castings	
A/SA-353	...	K81340	100 (690)	11A	1	101	9.3	9Ni	Plate	
A356	1	J03502	70 (485)	1	2	101	11.1	C-Si	Castings	
A356	8	J11697	80 (550)	4	1	102	6.2	1Cr-1Mo-V	Castings	
A356	6	J12073	70 (485)	4	1	102	5.1	1.25Cr-0.5Mo	Castings	
A356	2	J12523	65 (450)	3	1	101	1.1	C-0.5Mo	Castings	
A356	9	J21610	85 (585)	4	1	102	6.2	1Cr-1Mo-V	Castings	
A356	10	J22090	85 (585)	5A	1	102	5.2	2.25Cr-1Mo	Castings	
A356	12A	J84090	85 (585)	15E	1	102	6.4	9Cr-1Mo-V	Castings	
A/SA-358	N08367	N08367	95 (655)	45	...	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Fusion welded pipe ≥ 0.1875 in. (5 mm)	
A/SA-358	N08367	N08367	100 (690)	45	...	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Fusion welded pipe < 0.1875 in. (5 mm)	
A/SA-358	XM-19	S20910	100 (690)	8	3	102	8.3	22Cr-13Ni-5Mn	Fusion welded pipe	
A/SA-358	XM-29	S24000	100 (690)	8	3	102	8.3	18Cr-3Ni-12Mn	Fusion welded pipe	
A/SA-358	304	S30400	75 (515)	8	1	102	8.1	18Cr-8Ni	Fusion welded pipe	
A/SA-358	304L	S30403	70 (485)	8	1	102	8.1	18Cr-8Ni	Fusion welded pipe	
A/SA-358	304H	S30409	75 (515)	8	1	102	8.1	18Cr-8Ni	Fusion welded pipe	
A/SA-358	304N	S30451	80 (550)	8	1	102	8.1	18Cr-8Ni-N	Fusion welded pipe	
A/SA-358	304LN	S30453	75 (515)	8	1	102	8.1	18Cr-8Ni-N	Fusion welded pipe	
A/SA-358	S30815	S30815	87 (600)	8	2	102	8.2	21Cr-11Ni-N	Fusion welded pipe	
A/SA-358	309S	S30908	75 (515)	8	2	102	8.2	23Cr-12Ni	Fusion welded pipe	

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-358	309Cb	S30940	75 (515)	8	2	102	8.2	23Cr-12Ni-Cb	Fusion welded pipe	
A/SA-358	310S	S31008	75 (515)	8	2	102	8.2	25Cr-20Ni	Fusion welded pipe	
A/SA-358	310Cb	S31040	75 (515)	8	2	102	8.2	25Cr-20Ni-Cb	Fusion welded pipe	
A/SA-358	S31254	S31254	95 (655)	8	4	102	8.2	20Cr-18Ni-6Mo	Fusion welded pipe ≥ 0.1875 in. (5 mm)	
A/SA-358	S31254	S31254	100 (690)	8	4	102	8.2	20Cr-18Ni-6Mo	Fusion welded pipe < 0.1875 in. (5 mm)	
A/SA-358	...	S31266	109 (750)	45	...	102	8.2	24Cr-22Ni-6Mo-3Mn-Cu-W-N	Fusion welded pipe	
A/SA-358	316	S31600	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Fusion welded pipe	
A/SA-358	316L	S31603	70 (485)	8	1	102	8.1	16Cr-12Ni-2Mo	Fusion welded pipe	
A/SA-358	316H	S31609	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Fusion welded pipe	
A/SA-358	316N	S31651	80 (550)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Fusion welded pipe	
A/SA-358	316LN	S31653	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Fusion welded pipe	
A/SA-358	S31725	S31725	75 (515)	8	4	102	8.1	19Cr-15Ni-4Mo	Fusion welded pipe	
A/SA-358	S31726	S31726	80 (550)	8	4	102	8.1	19Cr-15.5Ni-4Mo	Fusion welded pipe	
A/SA-358	...	S32053	93 (640)	8	4	102	8.2	23Cr-25Ni-5.5Mo-N	Fusion welded pipe	
A/SA-358	321	S32100	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Fusion welded pipe	
A/SA-358	347	S34700	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Fusion welded pipe	
A/SA-358	348	S34800	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Fusion welded pipe	
A/SA-369	FPA	K02501	48 (330)	1	1	101	1.1	C-Si	Forged pipe	
A/SA-369	FPB	K03006	60 (415)	1	1	101	1.1	C-Mn-Si	Forged pipe	
A/SA-369	FP1	K11522	55 (380)	3	1	101	1.1	C-0.5Mo	Forged pipe	
A/SA-369	FP2	K11547	55 (380)	3	1	101	4.2	0.5Cr-0.5Mo	Forged pipe	
A/SA-369	FP12	K11562	60 (415)	4	1	102	5.1	1Cr-0.5Mo	Forged pipe	
A/SA-369	FP11	K11597	60 (415)	4	1	102	5.1	1.25Cr-0.5Mo-Si	Forged pipe	
A/SA-369	FP22	K21590	60 (415)	5A	1	102	5.2	2.25Cr-1Mo	Forged pipe	
A/SA-369	FP21	K31545	60 (415)	5A	1	102	5.2	3Cr-1Mo	Forged pipe	
A/SA-369	FP5	K41545	60 (415)	5B	1	102	5.3	5Cr-0.5Mo	Forged pipe	
A/SA-369	FP91	K90901	85 (585)	15E	1	102	6.4	9Cr-1Mo-V	Forged pipe	
A/SA-369	FP9	K90941	60 (415)	5B	1	102	5.4	9Cr-1Mo	Forged pipe	
A/SA-369	FP92	K92460	90 (620)	15E	1	102	6.4	9Cr-2W	Forged pipe	
A/SA-372	A	K03002	60 (415)	1	1	101	11.1	C-Si	Forgings	
A/SA-372	B	K04001	75 (515)	1	2	101	11.1	C-Mn-Si	Forgings	
A/SA-376	16-8-2H	S16800	75 (515)	8	1	102	8.1	16Cr-8Ni-2Mo	Smls. pipe	
A/SA-376	TP304	S30400	70 (485)	8	1	102	8.1	18Cr-8Ni	Smls. pipe ≥ 0.812 in. (21 mm)	
A/SA-376	TP304	S30400	75 (515)	8	1	102	8.1	18Cr-8Ni	Smls. pipe < 0.812 in. (21 mm)	
A/SA-376	TP304H	S30409	75 (515)	8	1	102	8.1	18Cr-8Ni	Smls. pipe	

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group		
ISO 15608									
Ferrous (Cont'd)									
A/SA-376	TP304N	S30451	80 (550)	8	1	102	8.1	18Cr-8Ni-N	Smls. pipe
A/SA-376	TP304LN	S30453	75 (515)	8	1	102	8.1	18Cr-8Ni-N	Smls. pipe
A/SA-376	TP316	S31600	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Smls. pipe
A/SA-376	TP316H	S31609	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Smls. pipe
A/SA-376	TP316N	S31651	80 (550)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Smls. pipe
A/SA-376	TP316LN	S31653	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Smls. pipe
A/SA-376	S31725	S31725	75 (515)	8	4	102	8.1	19Cr-15Ni-4Mo	Smls. pipe
A/SA-376	S31726	S31726	80 (550)	8	4	102	8.1	19Cr-15.5Ni-4Mo	Smls. pipe
A/SA-376	TP321	S32100	70 (485)	8	1	102	8.1	18Cr-10Ni-Ti	Smls. pipe > 3/8 in. (10 mm)
A/SA-376	TP321	S32100	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Smls. pipe ≤ 3/8 in. (10 mm)
A/SA-376	TP321H	S32109	70 (485)	8	1	102	8.1	18Cr-10Ni-Ti	Smls. pipe > 3/8 in. (10 mm)
A/SA-376	TP321H	S32109	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Smls. pipe ≤ 3/8 in. (10 mm)
A/SA-376	S34565	S34565	115 (795)	8	4	102	8.3	24Cr-17Ni-6Mn-4.5Mo-N	Smls. pipe
A/SA-376	TP347	S34700	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Smls. pipe
A/SA-376	TP347H	S34709	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Smls. pipe
A/SA-376	TP348	S34800	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Smls. pipe
A381	Y35	...	60 (415)	1	1	101	11.1	C	Welded pipe
A381	Y42	...	60 (415)	1	1	101	11.1	C	Welded pipe
A381	Y46	...	63 (435)	1	1	101	11.1	C	Welded pipe
A381	Y48	...	62 (425)	1	1	101	11.1	C	Welded pipe
A381	Y50	...	64 (440)	1	1	101	11.1	C	Welded pipe
A381	Y52	...	66 (455)	1	2	101	11.1	C	Welded pipe
A381	Y56	...	71 (490)	1	2	101	11.1	C	Welded pipe
A381	Y60	...	75 (515)	1	2	101	11.1	C	Welded pipe
A/SA-387	12, Cl. 1	K11757	55 (380)	4	1	102	5.1	1Cr-0.5Mo	Plate
A/SA-387	12, Cl. 2	K11757	65 (450)	4	1	102	5.1	1Cr-0.5Mo	Plate
A/SA-387	11, Cl. 1	K11789	60 (415)	4	1	102	5.1	1.25Cr-0.5Mo-Si	Plate
A/SA-387	11, Cl. 2	K11789	75 (515)	4	1	102	5.1	1.25Cr-0.5Mo-Si	Plate
A/SA-387	2, Cl. 1	K12143	55 (380)	3	1	101	4.2	0.5Cr-0.5Mo	Plate
A/SA-387	2, Cl. 2	K12143	70 (485)	3	2	101	4.2	0.5Cr-0.5Mo	Plate
A/SA-387	22, Cl. 1	K21590	60 (415)	5A	1	102	5.2	2.25Cr-1Mo	Plate
A/SA-387	22, Cl. 2	K21590	75 (515)	5A	1	102	5.2	2.25Cr-1Mo	Plate
A/SA-387	21, Cl. 1	K31545	60 (415)	5A	1	102	5.2	3Cr-1Mo	Plate
A/SA-387	21, Cl. 2	K31545	75 (515)	5A	1	102	5.2	3Cr-1Mo	Plate
A/SA-387	5, Cl. 1	K41545	60 (415)	5B	1	102	5.3	5Cr-0.5Mo	Plate
A/SA-387	5, Cl. 2	K41545	75 (515)	5B	1	102	5.3	5Cr-0.5Mo	Plate

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-387	91, Cl. 2	K90901	85 (585)	15E	1	102	6.4	9Cr-1Mo-V	Plate	
A/SA-387	9, Cl. 1	K90941	60 (415)	5B	1	102	5.4	9Cr-1Mo	Plate	
A/SA-387	9, Cl. 2	K90941	75 (515)	5B	1	102	5.4	9Cr-1Mo	Plate	
A403	...	N08367	95 (655)	45	...	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Wrought piping fittings	
A/SA-403	...	N08904	71 (490)	45	...	111	8.2	44Fe-25Ni-21Cr-Mo	Wrought piping fittings	
A/SA-403	WPXM-19	S20910	100 (690)	8	3	102	8.3	22Cr-13Ni-5Mn	Wrought piping fittings	
A/SA-403	WP304	S30400	75 (515)	8	1	102	8.1	18Cr-8Ni	Wrought piping fittings	
A/SA-403	WP304L	S30403	70 (485)	8	1	102	8.1	18Cr-8Ni	Wrought piping fittings	
A/SA-403	WP304H	S30409	75 (515)	8	1	102	8.1	18Cr-8Ni	Wrought piping fittings	
A/SA-403	WP304N	S30451	80 (550)	8	1	102	8.1	18Cr-8Ni-N	Wrought piping fittings	
A/SA-403	WP304LN	S30453	75 (515)	8	1	102	8.1	18Cr-8Ni-N	Wrought piping fittings	
A/SA-403	WP309	S30900	75 (515)	8	2	102	8.2	23Cr-12Ni	Wrought piping fittings	
A/SA-403	WP310S	S31008	75 (515)	8	2	102	8.2	25Cr-20Ni	Wrought piping fittings	
A/SA-403	...	S31254	94 (650)	8	4	102	8.2	20Cr-18Ni-6Mo	Wrought piping fittings	
A/SA-403	WP316	S31600	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Wrought piping fittings	
A/SA-403	WP316L	S31603	70 (485)	8	1	102	8.1	16Cr-12Ni-2Mo	Wrought piping fittings	
A/SA-403	WP316H	S31609	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Wrought piping fittings	
A/SA-403	WP316N	S31651	80 (550)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Wrought piping fittings	
A/SA-403	WP316LN	S31653	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Wrought piping fittings	
A/SA-403	WP317	S31700	75 (515)	8	1	102	8.1	18Cr-13Ni-3Mo	Wrought piping fittings	
A/SA-403	WP317L	S31703	75 (515)	8	1	102	8.1	18Cr-13Ni-3Mo	Wrought piping fittings	
A/SA-403	WP S31726	S31726	80 (550)	8	4	102	8.1	19Cr-15.5Ni-4Mo	Wrought piping fittings	
A/SA-403	...	S32053	93 (640)	8	4	102	8.2	23Cr-25Ni-5.5Mo-N	Wrought piping fittings	
A/SA-403	WP321	S32100	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Wrought piping fittings	
A/SA-403	WP321H	S32109	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Wrought piping fittings	
A/SA-403	S34565	S34565	115 (795)	8	4	102	8.3	24Cr-17Ni-6Mn-4.5Mo-N	Wrought piping fittings	
A/SA-403	WP347	S34700	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Wrought piping fittings	
A/SA-403	WP347H	S34709	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Wrought piping fittings	
A/SA-403	WP348	S34800	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Wrought piping fittings	
A/SA-403	WP348H	S34809	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Wrought piping fittings	
A/SA-403	WP S38815	S38815	78 (540)	8	1	102	8.1	14Cr-16Ni-6Si-Cu-Mo	Wrought piping fittings	
A/SA-409	TP304	S30400	75 (515)	8	1	102	8.1	18Cr-8Ni	Welded pipe	
A/SA-409	TP304L	S30403	70 (485)	8	1	102	8.1	18Cr-8Ni	Welded pipe	
A/SA-409	S30815	S30815	87 (600)	8	2	102	8.2	21Cr-11Ni-N	Welded pipe	
A/SA-409	TP309S	S30908	75 (515)	8	2	102	8.2	23Cr-12Ni	Welded pipe	

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing	ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.			
<b>Ferrous (Cont'd)</b>									
A/SA-409	TP309Cb	S30940	75 (515)	8	2	102	8.2	23Cr-12Ni-Cb	Welded pipe
A/SA-409	TP310S	S31008	75 (515)	8	2	102	8.2	25Cr-20Ni	Welded pipe
A/SA-409	TP310Cb	S31040	75 (515)	8	2	102	8.2	25Cr-20Ni-Cb	Welded pipe
A/SA-409	S31254	S31254	94 (650)	8	4	102	8.2	20Cr-18Ni-6Mo	Welded pipe
A/SA-409	TP316	S31600	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Welded pipe
A/SA-409	TP316L	S31603	70 (485)	8	1	102	8.1	16Cr-12Ni-2Mo	Welded pipe
A/SA-409	TP317	S31700	75 (515)	8	1	102	8.1	18Cr-13Ni-3Mo	Welded pipe
A/SA-409	S31725	S31725	75 (515)	8	4	102	8.1	19Cr-15Ni-4Mo	Welded pipe
A/SA-409	S31726	S31726	80 (550)	8	4	102	8.1	19Cr-15.5Ni-4Mo	Welded pipe
A/SA-409	...	S32053	93 (640)	8	4	102	8.2	23Cr-25Ni-5.5Mo-N	Welded pipe
A/SA-409	TP321	S32100	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Welded pipe
A/SA-409	S34565	S34565	115 (795)	8	4	102	8.3	24Cr-17Ni-6Mn-4.5Mo-N	Welded pipe
A/SA-409	TP347	S34700	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Welded pipe
A/SA-409	TP348	S34800	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Welded pipe
A/SA-414	A	K01501	45 (310)	1	1	101	1.1	C	Sheet
A/SA-414	B	K02201	50 (345)	1	1	101	1.1	C	Sheet
A/SA-414	C	K02503	55 (380)	1	1	101	1.1	C	Sheet
A/SA-414	D	K02505	60 (415)	1	1	101	1.1	C-Mn	Sheet
A/SA-414	E	K02704	65 (450)	1	1	101	11.1	C-Mn	Sheet
A/SA-414	F	K03102	70 (485)	1	2	101	11.1	C-Mn	Sheet
A/SA-414	G	K03103	75 (515)	1	2	101	11.1	C-Mn	Sheet
A/SA-420	WPL6	K03006	60 (415)	1	1	101	11.1	C-Mn-Si	Piping fittings
A/SA-420	WPL9	K22035	63 (435)	9A	1	101	9.1	2Ni-1Cu	Piping fittings
A/SA-420	WPL3	K31918	65 (450)	9B	1	101	9.2	3.5Ni	Piping fittings
A/SA-420	WPL8	K81340	100 (690)	11A	1	101	9.3	9Ni	Piping fittings
A/SA-423	1	K11535	60 (415)	4	2	102	5.1	0.75Cr-0.5Ni-Cu	Smls. & welded tube
A/SA-423	2	K11540	60 (415)	4	2	102	5.1	0.75Ni-0.5Cu-Mo	Smls. & welded tube
A/SA-426	CP15	J11522	60 (415)	3	1	101	1.1	C-0.5Mo-Si	Centrifugal cast pipe
A/SA-426	CP2	J11547	60 (415)	3	1	101	4.2	0.5Cr-0.5Mo	Centrifugal cast pipe
A/SA-426	CP12	J11562	60 (415)	4	1	102	5.1	1Cr-0.5Mo	Centrifugal cast pipe
A/SA-426	CP11	J12072	70 (485)	4	1	102	5.1	1.25Cr-0.5Mo	Centrifugal cast pipe
A/SA-426	CP1	J12521	65 (450)	3	1	101	1.1	C-0.5Mo	Centrifugal cast pipe
A/SA-426	CP22	J21890	70 (485)	5A	1	102	5.2	2.25Cr-1Mo	Centrifugal cast pipe
A/SA-426	CP21	J31545	60 (415)	5A	1	102	5.2	3Cr-1Mo	Centrifugal cast pipe

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-426	CP5	J42045	90 (620)	5B	1	102	5.3	5Cr-0.5Mo	Centrifugal cast pipe	
A/SA-426	CP5b	J51545	60 (415)	5B	1	102	5.3	5Cr-1.5Si-0.5Mo	Centrifugal cast pipe	
A/SA-426	CP9	J82090	90 (620)	5B	1	102	5.4	9Cr-1Mo	Centrifugal cast pipe	
A/SA-426	CPA15	J91150	90 (620)	6	3	102	7.2	13Cr	Centrifugal cast pipe	
A/SA-451	CPF3	J92500	70 (485)	8	1	102	8.1	18Cr-8Ni	Centrifugal cast pipe	
A/SA-451	CPF3A	J92500	77 (530)	8	1	102	8.1	18Cr-8Ni	Centrifugal cast pipe	
A/SA-451	CPF8	J92600	70 (485)	8	1	102	8.1	18Cr-8Ni	Centrifugal cast pipe	
A/SA-451	CPF8A	J92600	77 (530)	8	1	102	8.1	18Cr-8Ni	Centrifugal cast pipe	
A/SA-451	CPF8C	J92710	70 (485)	8	1	102	8.1	18Cr-10Ni-Cb	Centrifugal cast pipe	
A/SA-451	CPF3M	J92800	70 (485)	8	1	102	8.1	18Cr-12Ni-2Mo	Centrifugal cast pipe	
A/SA-451	CPE20N	J92802	80 (550)	8	2	102	8.2	25Cr-8Ni-N	Centrifugal cast pipe	
A/SA-451	CPF8M	J92900	70 (485)	8	1	102	8.1	18Cr-12Ni-2Mo	Centrifugal cast pipe	
A/SA-451	CPF10MC	J92971	70 (485)	8	1	102	8.1	16Cr-14Ni-2Mo	Centrifugal cast pipe	
A/SA-451	CPH8	J93400	65 (450)	8	2	102	8.2	25Cr-12Ni	Centrifugal cast pipe	
A/SA-451	CPH20	J93402	70 (485)	8	2	102	8.2	25Cr-12Ni	Centrifugal cast pipe	
A/SA-451	CPK20	J94202	65 (450)	8	2	102	8.2	25Cr-20Ni	Centrifugal cast pipe	
A/SA-455	...	K03300	70 (485)	1	2	101	11.2	C-Mn-Si	Plate > 0.580 in. - 0.750 in. (15 mm - 19 mm)	
A/SA-455	...	K03300	73 (505)	1	2	101	11.2	C-Mn-Si	Plate > 0.375 in. - 0.580 in. (10 mm - 15 mm)	
A/SA-455	...	K03300	75 (515)	1	2	101	11.2	C-Mn-Si	Plate, up to 0.375 in. (10 mm)	
A/SA-479	...	N08367	95 (655)	45	...	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Bars & shapes	
A479	904L	N08904	71 (490)	45	...	111	8.2	44Fe-25Ni-21Cr-Mo	Bars & shapes	
A/SA-479	XM-19	S20910	100 (690)	8	3	102	8.3	22Cr-13Ni-5Mn	Bars & shapes	
A/SA-479	XM-17	S21600	90 (620)	8	3	102	8.3	19Cr-8Mn-6Ni-Mo-N	Bars & shapes	
A/SA-479	XM-18	S21603	90 (620)	8	3	102	8.3	19Cr-8Mn-6Ni-Mo-N	Bars & shapes	
A/SA-479	S21800	S21800	95 (655)	8	3	102	8.1	18Cr-8Ni-4Si-N	Bars & shapes	
A/SA-479	XM-11	S21904	90 (620)	8	3	102	8.3	21Cr-6Ni-9Mn	Bars & shapes	
A/SA-479	XM-29	S24000	100 (690)	8	3	102	8.3	18Cr-3Ni-12Mn	Bars & shapes	
A/SA-479	302	S30200	75 (515)	8	1	102	8.1	18Cr-8Ni	Bars & shapes	
A/SA-479	304	S30400	75 (515)	8	1	102	8.1	18Cr-8Ni	Bars & shapes	
A/SA-479	304L	S30403	70 (485)	8	1	102	8.1	18Cr-8Ni	Bars & shapes	
A/SA-479	304H	S30409	75 (515)	8	1	102	8.1	18Cr-8Ni	Bars & shapes	
A/SA-479	304N	S30451	80 (550)	8	1	102	8.1	18Cr-8Ni-N	Bars & shapes	



**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing	ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.			
<b>Ferrous (Cont'd)</b>									
A/SA-479	304LN	S30453	75 (515)	8	1	102	8.1	18Cr-8Ni-N	Bars & shapes
A/SA-479	S30600	S30600	78 (540)	8	1	102	8.1	18Cr-15Ni-4Si	Bars & shapes
A/SA-479	S30815	S30815	87 (600)	8	2	102	8.2	21Cr-11Ni-N	Bars & shapes
A/SA-479	309S	S30908	75 (515)	8	2	102	8.2	23Cr-12Ni	Bars & shapes
A/SA-479	309Cb	S30940	75 (515)	8	2	102	8.2	23Cr-12Ni-Cb	Bars & shapes
A/SA-479	310S	S31008	75 (515)	8	2	102	8.2	25Cr-20Ni	Bars & shapes
A/SA-479	310Cb	S31040	75 (515)	8	2	102	8.2	25Cr-20Ni-Cb	Bars & shapes
A/SA-479	S31254	S31254	95 (655)	8	4	102	8.2	20Cr-18Ni-6Mo	Bars & shapes
A/SA-479	316	S31600	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Bars & shapes
A/SA-479	316L	S31603	70 (485)	8	1	102	8.1	16Cr-12Ni-2Mo	Bars & shapes
A/SA-479	316H	S31609	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Bars & shapes
A/SA-479	316Ti	S31635	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo-Ti	Bars & shapes
A/SA-479	316Cb	S31640	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo-Cb	Bars & shapes
A/SA-479	316N	S31651	80 (550)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Bars & shapes
A/SA-479	316LN	S31653	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Bars & shapes
A/SA-479	S31725	S31725	75 (515)	8	4	102	8.1	19Cr-15Ni-4Mo	Bars & shapes
A/SA-479	S31726	S31726	80 (550)	8	4	102	8.1	19Cr-15.5Ni-4Mo	Bars & shapes
A/SA-479	...	S31803	90 (620)	10H	1	102	10.1	22Cr-5Ni-3Mo-N	Bars & shapes
A/SA-479	...	S32053	93 (640)	8	4	102	8.2	23Cr-25Ni-5.5Mo-N	Bars & shapes
A/SA-479	321	S32100	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Bars & shapes
A/SA-479	...	S32101	94 (650)	10H	1	102	10.1	21Cr-5Mn-1.5Ni-Cu-N	Bars & shapes
A/SA-479	321H	S32109	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Bars & shapes
A/SA-479	...	S32202	94 (650)	10H	1	102	10.1	22Cr-2Ni-Mo-N	Bars & shapes
A/SA-479	...	S32205	95 (655)	10H	1	102	10.1	22Cr-5Ni-3Mo-N	Bars & shapes
A/SA-479	S32550	S32550	110 (760)	10H	1	102	10.2	25Cr-5Ni-3Mo-2Cu	Bars & shapes
A/SA-479	S32615	S32615	80 (550)	8	1	102	8.1	18Cr-20Ni-5.5Si	Bars & shapes
A/SA-479	S32750	S32750	116 (800)	10H	1	102	10.2	25Cr-7Ni-4Mo-N	Bars & shapes
A/SA-479	S32906	S32906	109 (750)	10H	1	102	10.2	29Cr-6.5Ni-2Mo-N	Bars & shapes
A/SA-479	...	S34565	115 (795)	8	4	102	8.3	24Cr-17Ni-6Mn-4.5Mo-N	Bars & shapes
A/SA-479	347	S34700	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Bars & shapes
A/SA-479	347H	S34709	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Bars & shapes
A/SA-479	348	S34800	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Bars & shapes
A/SA-479	348H	S34809	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Bars & shapes
A/SA-479	...	S38815	78 (540)	8	1	102	8.1	14Cr-16Ni-6Si-Cu-Mo	Bars & shapes
A/SA-479	403	S40300	70 (485)	6	1	102	7.1	12Cr	Bars & shapes
A/SA-479	405	S40500	60 (415)	7	1	102	7.1	12Cr-Al	Bars & shapes
A/SA-479	410	S41000	70 (485)	6	1	102	7.2	13Cr	Bars & shapes

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-479	414	S41400	115 (795)	6	4	102	7.2	12.5Cr-2Ni-Si	Bars & shapes	
A/SA-479	S41500	S41500	115 (795)	6	4	102	7.2	13Cr-4.5Ni-Mo	Bars & shapes	
A/SA-479	430	S43000	70 (485)	7	2	102	7.1	17Cr	Bars & shapes	
A/SA-479	439	S43035	70 (485)	7	2	102	7.1	18Cr-Ti	Bars & shapes	
A/SA-479	S44400	S44400	60 (415)	7	2	102	7.1	18Cr-2Mo	Bars & shapes	
A/SA-479	XM-27	S44627	65 (450)	10I	1	102	7.1	27Cr-1Mo	Bars & shapes	
A/SA-479	S44700	S44700	70 (485)	10J	1	102	7.1	29Cr-4Mo	Bars & shapes	
A/SA-479	S44800	S44800	70 (485)	10K	1	102	7.1	29Cr-4Mo-2Ni	Bars & shapes	
A/SA-479	...	S82441	99 (680)	10H	1	102	10.1	24Cr-4Ni-3Mn-1.5Mo-N	Bars $\geq$ 7/16 in. (11 mm)	
A/SA-479	...	S82441	107 (740)	10H	1	102	10.1	24Cr-4Ni-3Mn-1.5Mo-N	Bars $<$ 7/16 in. (11 mm)	
A/SA-487	Gr. 1, Cl. A	J13002	85 (585)	10A	1	101	2.1	Mn-V	Castings	
A/SA-487	Gr. 1, Cl. B	J13002	90 (620)	10A	1	101	2.1	Mn-V	Castings	
A/SA-487	Gr. 2, Cl. A	J13005	85 (585)	3	3	101	2.1	Mn-0.25Mo-V	Castings	
A/SA-487	Gr. 2, Cl. B	J13005	90 (620)	3	3	101	2.1	Mn-0.25Mo-V	Castings	
A/SA-487	Gr. 4, Cl. A	J13047	90 (620)	3	3	101	3.1	0.5Ni-0.5Cr-0.25Mo-V	Castings	
A/SA-487	Gr. 4, Cl. B	J13047	105 (725)	11A	3	101	3.1	0.5Ni-0.5Cr-0.25Mo-V	Castings	
A/SA-487	Gr. 4, Cl. E	J13047	115 (795)	11A	3	101	3.1	0.5Ni-0.5Cr-0.25Mo-V	Castings	
A/SA-487	Gr. 8, Cl. A	J22091	85 (585)	5C	1	102	5.2	2.25Cr-1Mo	Castings	
A/SA-487	Gr. 8, Cl. B	J22091	105 (725)	5C	4	102	5.2	2.25Cr-1Mo	Castings	
A/SA-487	Gr. 8, Cl. C	J22091	100 (690)	5C	4	102	5.2	2.25Cr-1Mo	Castings	
A/SA-487	Gr. 16, Cl. A	J31200	70 (485)	1	2	101	1.1	Low C-Mn-Ni	Castings	
A/SA-487	CA15 Cl. C	J91150	90 (620)	6	3	102	7.2	13Cr	Castings	
A/SA-487	CA15M Cl. A	J91151	90 (620)	6	3	102	7.2	13Cr-Mo	Castings	
A/SA-487	CA15 Cl. B	J91171	90 (620)	6	3	102	7.2	13Cr	Castings	
A/SA-487	CA15 Cl. D	J91171	100 (690)	6	3	102	7.2	13Cr	Castings	
A/SA-487	CA6NM Cl. A	J91540	110 (760)	6	4	102	7.2	13Cr-4Ni	Castings	
A/SA-487	CA6NM Cl. B	J91540	100 (690)	6	4	102	7.2	13Cr-4Ni	Castings	
A/SA-494	M35-2	N04020	65 (450)	42	...	110	42	67Ni-30Cu-Fe-Si	Castings	
A/SA-494	CY40	N06040	70 (485)	43	...	111	43	72Ni-15Cr-8Fe-Si	Castings	
A/SA-494	CU5MCuC	N08826	75 (515)	45	...	111	45	42Ni-21.5Cr-3Mo-2.3Cu	Castings	
A/SA-494	M30C	N24130	65 (450)	42	...	110	42	67Ni-30Cu-2Fe-Cb	Castings	
A/SA-494	M35-1	N24135	65 (450)	42	...	110	42	67Ni-30Cu-2Fe-Cb	Castings	
A/SA-494	CX2MW	N26022	80 (550)	43	...	111	44	59Ni-22Cr-14Mo-4Fe-3W	Castings	
A/SA-494	CW2M	N26455	72 (495)	43	...	111	43	66Ni-16Mo-16Cr-Fe-W	Castings	
A/SA-494	CW6MC	N26625	70 (485)	43	...	111	43	60Ni-21.5Cr-9Mo-4Cb-Fe	Castings	
A/SA-494	N7M	N30007	76 (525)	44	...	112	44	65Ni-31.5Mo-1.5Fe-Cr	Castings	

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-494	CW6M	N30107	72 (495)	44	...	112	44	56Ni-19Mo-18Cr-2Fe	Castings	
A500	C	K02705	62 (425)	1	1	101	1.2	C	Smls. & welded tube	
A500	B	K03000	58 (400)	1	1	101	11.1	C	Smls. & welded tube	
A501	A	K03000	58 (400)	1	1	101	11.1	C	Smls. & welded tube	
A501	B	K03000	70 (485)	1	2	101	1.2	C	Smls. & welded tube	
A/SA-508	3, Cl. 1	K12042	80 (550)	3	3	101	3.1	0.75Ni-0.5Mo-Cr-V	Forgings	
A/SA-508	3, Cl. 2	K12042	90 (620)	3	3	102	3.1	0.75Ni-0.5Mo-Cr-V	Forgings	
A/SA-508	2, Cl. 1	K12766	80 (550)	3	3	101	3.1	0.75Ni-0.5Mo-0.3Cr-V	Forgings	
A/SA-508	2, Cl. 2	K12766	90 (620)	3	3	101	3.1	0.75Ni-0.5Mo-0.3Cr-V	Forgings	
A/SA-508	1	K13502	70 (485)	1	2	101	11.1	C	Forgings	
A/SA-508	1A	K13502	70 (485)	1	2	101	11.1	C	Forgings	
A/SA-508	22, Cl. 3	K21590	85 (585)	5C	1	102	5.2	2.25Cr-1Mo	Forgings	
A/SA-508	4N, Cl. 1	K22375	105 (725)	11A	5	102	3.1	3.5Ni-1.75Cr-0.5Mo-V	Forgings	
A/SA-508	4N, Cl. 2	K22375	115 (795)	11B	10	102	3.1	3.5Ni-1.75Cr-0.5Mo-V	Forgings	
A/SA-508	4N, Cl. 3	K22375	90 (620)	3	3	102	3.1	3.5Ni-1.75Cr-0.5Mo-V	Forgings	
A/SA-508	3VCb	K31390	85 (585)	5C	1	102	6.2	3Cr-1Mo-0.25V-Cb-Ca	Forgings	
A/SA-508	3V	K31830	85 (585)	5C	1	102	6.2	3Cr-1Mo-V-Ti-B	Forgings	
A/SA-508	5, Cl. 1	K42365	105 (725)	11A	5	102	3.1	3.5Ni-1.75Cr-0.5Mo-V	Forgings	
A/SA-508	5, Cl. 2	K42365	115 (795)	11B	10	102	3.1	3.5Ni-1.75Cr-0.5Mo-V	Forgings	
A/SA-513	1008	G10080	42 (290)	1	1	101	1.1	C	Tube	
A/SA-513	1010	G10100	45 (310)	1	1	101	1.1	C	Tube	
A/SA-513	1015	G10150	48 (330)	1	1	101	1.1	C	Tube	
A513	1015 CW	G10150	...	1	1	101	1.1	C	Tube	
A513	1020 CW	G10200	...	1	2	101	1.1	C	Tube	
A513	1025 CW	G10250	...	1	2	101	1.2	C	Tube	
A513	1026 CW	G10260	...	1	3	101	11.1	C	Tube	
A514	Q	...	100 (690)	11B	9	102	3.1	1.3Ni-1.3Cr-0.5Mo-V	Plate > 2 <sup>1</sup> / <sub>2</sub> in. - 6 in. (64 mm - 152 mm), incl.	
A514	Q	...	110 (760)	11B	9	102	3.1	1.3Ni-1.3Cr-0.5Mo-V	Plate, 2 <sup>1</sup> / <sub>2</sub> in. (64 mm) max.	
A514	F	K11576	110 (760)	11B	3	101	3.1	0.75Ni-0.5Cr-0.5Mo-V	Plate, 2 <sup>1</sup> / <sub>2</sub> in. (64 mm) max.	
A514	B	K11630	110 (760)	11B	4	101	3.1	0.5Cr-0.2Mo-V	Plate, 1 <sup>1</sup> / <sub>4</sub> in. (32 mm) max.	
A514	A	K11856	110 (760)	11B	1	101	3.1	0.5Cr-0.25Mo-Si	Plate, 1 <sup>1</sup> / <sub>4</sub> in. (32 mm) max.	

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A514	E	K21604	100 (690)	11B	2	102	3.1	1.75Cr-0.5Mo-Cu	Plate > 2½ in. - 6 in. (64 mm - 152 mm), incl.	
A514	E	K21604	110 (760)	11B	2	102	3.1	1.75Cr-0.5Mo-Cu	Plate, 2½ in. (64 mm) max.	
A514	P	K21650	100 (690)	11B	8	102	3.1	1.25Ni-1Cr-0.5Mo	Plate > 2½ in. - 6 in. (64 mm - 152 mm), incl.	
A514	P	K21650	110 (760)	11B	8	102	3.1	1.25Ni-1Cr-0.5Mo	Plate, 2½ in. (64 mm) max.	
A/SA-515	60	...	60 (415)	1	1	101	11.1	C-Si	Plate > 1 in. (25 mm)	
A/SA-515	60	K02401	60 (415)	1	1	101	1.1	C	Plate ≤ 1 in. (25 mm)	
A/SA-515	65	K02800	65 (450)	1	1	101	11.1	C-Si	Plate	
A/SA-515	70	K03101	70 (485)	1	2	101	11.1	C-Si	Plate	
A/SA-516	55	K01800	55 (380)	1	1	101	1.1	C-Si	Plate	
A/SA-516	60	K02100	60 (415)	1	1	101	1.1	C-Mn-Si	Plate	
A/SA-516	65	K02403	65 (450)	1	1	101	1.1	C-Mn-Si	Plate	
A/SA-516	70	K02700	70 (485)	1	2	101	11.1	C-Mn-Si	Plate	
A/SA-517	F	K11576	115 (795)	11B	3	101	3.1	0.75Ni-0.5Cr-0.5Mo-V	Plate ≤ 2½ in. (64 mm)	
A/SA-517	B	K11630	115 (795)	11B	4	101	3.1	0.5Cr-0.2Mo-V	Plate ≤ 1¼ in. (32 mm)	
A/SA-517	A	K11856	115 (795)	11B	1	101	3.1	0.5Cr-0.25Mo-Si	Plate ≤ 1¼ in. (32 mm)	
A/SA-517	E	K21604	105 (725)	11B	2	102	3.1	1.75Cr-0.5Mo-Cu	Plate > 2½ in. - 6 in. (64 mm - 152 mm), incl.	
A/SA-517	E	K21604	115 (795)	11B	2	102	3.1	1.75Cr-0.5Mo-Cu	Plate ≤ 2½ in. (64 mm)	
A/SA-517	P	K21650	105 (725)	11B	8	102	3.1	1.25Ni-1Cr-0.5Mo	Plate > 2½ in. - 4 in. (64 mm - 102 mm), incl.	
A/SA-517	P	K21650	115 (795)	11B	8	102	3.1	1.25Ni-1Cr-0.5Mo	Plate ≤ 2½ in. (64 mm)	
A519	1018 CW	G10180	...	1	2	101	1.1	C	Tube	
A519	1018 HR	G10180	...	1	1	101	1.1	C	Tube	
A519	1020 CW	G10200	...	1	2	101	1.1	C	Tube	
A519	1020 HR	G10200	...	1	1	101	1.1	C	Tube	
A519	1022 CW	G10220	...	1	2	101	1.1	C	Tube	
A519	1022 HR	G10220	...	1	1	101	1.1	C	Tube	
A519	1025 CW	G10250	...	1	2	101	1.2	C	Tube	
A519	1025 HR	G10250	...	1	1	101	1.1	C	Tube	
A519	1026 CW	G10260	...	1	2	101	11.1	C	Tube	
A519	1026 HR	G10260	...	1	1	101	11.1	C	Tube	
A/SA-522	Type II	K71340	100 (690)	11A	1	101	9.3	8Ni	Forgings	

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-522	Type I	K81340	100 (690)	11A	1	101	9.3	9Ni		Forgings
A/SA-524	I	K02104	60 (415)	1	1	101	1.1	C-Mn-Si		Smls. pipe
A/SA-524	II	K02104	55 (380)	1	1	101	1.1	C-Mn-Si		Smls. pipe
A/SA-533	Type A, Cl. 1	K12521	80 (550)	3	3	101	3.1	Mn-0.5Mo		Plate
A/SA-533	Type A, Cl. 2	K12521	90 (620)	3	3	101	3.1	Mn-0.5Mo		Plate
A/SA-533	Type A, Cl. 3	K12521	100 (690)	11A	4	101	3.1	Mn-0.5Mo		Plate
A/SA-533	Type D, Cl. 1	K12529	80 (550)	3	3	101	3.1	Mn-0.5Mo-0.25Ni		Plate
A/SA-533	Type D, Cl. 2	K12529	90 (620)	3	3	101	3.1	Mn-0.5Mo-0.25Ni		Plate
A/SA-533	Type D, Cl. 3	K12529	100 (690)	11A	4	101	3.1	Mn-0.5Mo-0.25Ni		Plate
A/SA-533	Type B, Cl. 1	K12539	80 (550)	3	3	101	3.1	Mn-0.5Mo-0.5Ni		Plate
A/SA-533	Type B, Cl. 2	K12539	90 (620)	3	3	101	3.1	Mn-0.5Mo-0.5Ni		Plate
A/SA-533	Type B, Cl. 3	K12539	100 (690)	11A	4	101	3.2	Mn-0.5Mo-0.5Ni		Plate
A/SA-533	Type C, Cl. 1	K12554	80 (550)	3	3	101	3.1	Mn-0.5Mo-0.75Ni		Plate
A/SA-533	Type C, Cl. 2	K12554	90 (620)	3	3	101	3.1	Mn-0.5Mo-0.75Ni		Plate
A/SA-533	Type C, Cl. 3	K12554	100 (690)	11A	4	101	3.2	Mn-0.5Mo-0.75Ni		Plate
A/SA-533	Type E, Cl. 1	K12554	80 (550)	3	3	101	3.1	Mn-0.5Mo-0.75Ni		Plate
A/SA-533	Type E, Cl. 2	K12554	90 (620)	3	3	101	3.1	Mn-0.5Mo-0.75Ni		Plate
A/SA-537	Cl. 1	K12437	65 (450)	1	2	101	1.2	C-Mn-Si		Plate > 2½ in. - 4 in. (64 mm - 102 mm), incl.
A/SA-537	Cl. 1	K12437	70 (485)	1	2	101	1.2	C-Mn-Si		Plate, 2½ in. (64 mm) & under
A/SA-537	Cl. 2	K12437	70 (485)	1	3	101	1.2	C-Mn-Si		Plate > 4 in. - 6 in. (102 mm - 152 mm), incl.
A/SA-537	Cl. 2	K12437	75 (515)	1	3	101	1.2	C-Mn-Si		Plate > 2½ in. - 4 in. (64 mm - 102 mm), incl.
A/SA-537	Cl. 2	K12437	80 (550)	1	3	101	1.2	C-Mn-Si		Plate, 2½ in. (64 mm) & under
A/SA-537	Cl. 3	K12437	70 (485)	1	3	101	1.2	C-Mn-Si		Plate > 4 in. (102 mm)
A/SA-537	Cl. 3	K12437	75 (515)	1	3	101	1.2	C-Mn-Si		Plate, 2½ in. < t ≤ 4 in. (64 mm < t ≤ 102 mm)
A/SA-537	Cl. 3	K12437	80 (550)	1	3	101	1.2	C-Mn-Si		Plate ≤ 2½ in. (64 mm)
A/SA-541	1A	K03020	70 (485)	1	2	101	11.1	C-Mn-Si		Forgings
A/SA-541	1	K03506	70 (485)	1	2	101	11.1	C-Si		Forgings
A/SA-541	11, Cl. 4	K11572	80 (550)	4	1	102	5.2	1.25Cr-0.5Mo-Si		Forgings
A/SA-541	3, Cl. 1	K12045	80 (550)	3	3	101	4.1	0.5Ni-0.5Mo-V		Forgings
A/SA-541	3, Cl. 2	K12045	90 (620)	3	3	101	4.1	0.5Ni-0.5Mo-V		Forgings

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing	ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.			
<b>Ferrous (Cont'd)</b>									
A/SA-541	2, Cl. 1	K12765	80 (550)	3	3	101	4.2	0.75Ni-0.5Mo-0.3Cr-V	Forgings
A/SA-541	2, Cl. 2	K12765	90 (620)	3	3	101	4.2	0.75Ni-0.5Mo-0.3Cr-V	Forgings
A/SA-541	22, Cl. 3	K21390	85 (585)	5C	1	102	5.2	2.25Cr-1Mo	Forgings
A/SA-541	22, Cl. 4	K21390	105 (725)	5C	4	102	5.2	2.25Cr-1Mo	Forgings
A/SA-541	22, Cl. 5	K21390	115 (795)	5C	5	102	5.2	2.25Cr-1Mo	Forgings
A/SA-541	3VCb	K31390	85 (585)	5C	1	102	6.2	3Cr-1Mo-0.25V-Cb-Ca	Forgings
A/SA-541	3V	K31830	85 (585)	5C	1	102	6.2	3Cr-1Mo-V-Ti-B	Forgings
A/SA-541	22V	K31835	85 (585)	5C	1	102	5.2	2.25Cr-1Mo-V	Forgings
A/SA-542	A, Cl. 1	K21590	105 (725)	5C	4	102	5.2	2.25Cr-1Mo	Plate
A/SA-542	A, Cl. 2	K21590	115 (795)	5C	5	102	5.2	2.25Cr-1Mo	Plate
A/SA-542	A, Cl. 3	K21590	95 (655)	5C	3	102	5.2	2.25Cr-1Mo	Plate
A/SA-542	A, Cl. 4	K21590	85 (585)	5C	1	102	5.2	2.25Cr-1Mo	Plate
A/SA-542	A, Cl. 4a	K21590	85 (585)	5C	1	102	5.2	2.25Cr-1Mo	Plate
A/SA-542	B, Cl. 1	K21590	105 (725)	5C	4	102	5.2	2.25Cr-1Mo	Plate
A/SA-542	B, Cl. 2	K21590	115 (795)	5C	5	102	5.2	2.25Cr-1Mo	Plate
A/SA-542	B, Cl. 3	K21590	95 (655)	5C	3	102	5.2	2.25Cr-1Mo	Plate
A/SA-542	B, Cl. 4	K21590	85 (585)	5C	1	102	5.2	2.25Cr-1Mo	Plate
A/SA-542	B, Cl. 4a	K21590	85 (585)	5C	1	102	5.2	2.25Cr-1Mo	Plate
A/SA-542	E, Cl. 4a	K31390	85 (585)	5C	1	102	6.2	3Cr-1Mo-0.25V-Cb-Ca	Plate
A/SA-542	C, Cl. 1	K31830	105 (725)	5C	4	102	6.2	3Cr-1Mo-V-Ti-B	Plate
A/SA-542	C, Cl. 2	K31830	115 (795)	5C	5	102	6.2	3Cr-1Mo-V-Ti-B	Plate
A/SA-542	C, Cl. 3	K31830	95 (655)	5C	3	102	6.2	3Cr-1Mo-V-Ti-B	Plate
A/SA-542	C, Cl. 4	K31830	85 (585)	5C	1	102	6.2	3Cr-1Mo-V-Ti-B	Plate
A/SA-542	C, Cl. 4a	K31830	85 (585)	5C	1	102	6.2	3Cr-1Mo-V-Ti-B	Plate
A/SA-542	D, Cl. 4a	K31835	85 (585)	5C	1	102	6.3	2.25Cr-1Mo-V	Plate
A/SA-543	C, Cl. 1	...	105 (725)	11A	5	102	3.1	2.75Ni-1.5Cr-0.5Mo	Plate
A/SA-543	C, Cl. 2	...	115 (795)	11B	10	102	3.1	2.75Ni-1.5Cr-0.5Mo	Plate
A/SA-543	C, Cl. 3	...	90 (620)	3	3	102	3.1	2.75Ni-1.5Cr-0.5Mo	Plate
A/SA-543	B, Cl. 1	K42339	105 (725)	11A	5	102	3.1	3Ni-1.75Cr-0.5Mo	Plate
A/SA-543	B, Cl. 2	K42339	115 (795)	11B	10	102	3.1	3Ni-1.75Cr-0.5Mo	Plate
A/SA-543	B, Cl. 3	K42339	90 (620)	3	3	102	3.1	3Ni-1.75Cr-0.5Mo	Plate
A/SA-553	II	K71340	100 (690)	11A	1	101	9.3	8Ni	Plate
A/SA-553	I	K81340	100 (690)	11A	1	101	9.3	9Ni	Plate
A/SA-556	A2	K01807	47 (325)	1	1	101	1.1	C	Smls. tube

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-556	B2	K02707	60 (415)	1	1	101	11.1	C-Si		Smls. tube
A/SA-556	C2	K03006	70 (485)	1	2	101	11.1	C-Mn-Si		Smls. tube
A/SA-557	A2	K01807	47 (325)	1	1	101	1.1	C		E.R.W. tube
A/SA-557	B2	K03007	60 (415)	1	1	101	11.1	C		E.R.W. tube
A/SA-557	C2	K03505	70 (485)	1	2	101	11.1	C-Mn		E.R.W. tube
A/SA-562	...	K11224	55 (380)	1	1	101	1.1	C-Mn-Ti		Plate
A/SA-572	42	...	60 (415)	1	1	101	1.2	C-Mn-Si		Plate & shapes
A/SA-572	50	...	65 (450)	1	1	101	1.2	C-Mn-Si		Plate & shapes
A/SA-572	55	...	70 (485)	1	2	101	1.3	C-Mn-Si		Plate & shapes
A/SA-572	60	...	75 (515)	1	2	101	11.1	C-Mn-Si		Plate & shapes
A/SA-572	65	...	80 (550)	1	3	101	1.3	C-Mn-Si		Plate & shapes
A573	58	...	58 (400)	1	1	101	11.1	C		Plate
A573	65	...	65 (450)	1	1	101	11.1	C		Plate
A573	70	...	70 (485)	1	2	101	11.1	C		Plate
A575	M 1008	...	...	1	1	101	1.1	C		Bar
A575	M 1010	...	...	1	1	101	1.1	C		Bar
A575	M 1012	...	...	1	1	101	1.1	C		Bar
A575	M 1015	...	...	1	1	101	1.1	C		Bar
A575	M 1017	...	...	1	1	101	1.1	C		Bar
A575	M 1020	...	...	1	1	101	11.1	C		Bar
A575	M 1023	...	...	1	1	101	11.1	C		Bar
A575	M 1025	...	...	1	1	101	11.1	C		Bar
A576	G10080	...	...	1	1	101	1.1	C		Bar
A576	G10100	...	...	1	1	101	1.1	C		Bar
A576	G10120	...	...	1	1	101	1.1	C		Bar
A576	G10150	...	...	1	1	101	1.1	C		Bar
A576	G10160	...	...	1	1	101	1.1	C		Bar
A576	G10170	...	...	1	1	101	1.1	C		Bar
A576	G10180	...	...	1	1	101	1.1	C		Bar
A576	G10190	...	...	1	1	101	1.1	C		Bar
A576	G10200	...	...	1	1	101	1.1	C		Bar
A576	G10210	...	...	1	1	101	11.1	C		Bar
A576	G10220	...	...	1	1	101	11.1	C		Bar

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A576	G10230	...	...	1	1	101	11.1	C		Bar
A576	G10250	...	...	1	1	101	11.1	C		Bar
A/SA-587	...	K11500	48 (330)	1	1	101	1.1	C		E.R.W. pipe
A588	A	K11430	63 (435)	3	1	101	1.4	Mn-0.5Cr-0.3Cu-Si-V		Plate & bar > 5 in. - 8 in. (125 mm - 200 mm), incl.
A588	A	K11430	67 (460)	3	1	101	1.4	Mn-0.5Cr-0.3Cu-Si-V		Plate & bar > 4 in. - 5 in. (100 mm - 125 mm), incl.
A588	A	K11430	70 (485)	3	1	101	1.4	Mn-0.5Cr-0.3Cu-Si-V		Shapes
A588	A	K11430	70 (485)	3	1	101	1.4	Mn-0.5Cr-0.3Cu-Si-V		Plate & bar ≤ 4 in. (100 mm)
A588	B	K12043	63 (435)	3	1	101	1.4	Mn-0.6Cr-0.3Cu-Si-V		Plate & bar > 5 in. - 8 in. (125 mm - 200 mm), incl.
A588	B	K12043	67 (460)	3	1	101	1.4	Mn-0.6Cr-0.3Cu-Si-V		Plate & bar > 4 in. - 5 in. (100 mm - 125 mm), incl.
A588	B	K12043	70 (485)	3	1	101	1.4	Mn-0.6Cr-0.3Cu-Si-V		Shapes
A588	B	K12043	70 (485)	3	1	101	1.4	Mn-0.6Cr-0.3Cu-Si-V		Plate & bar ≤ 4 in. (100 mm)
A/SA-592	F	K11576	105 (725)	11B	3	101	3.1	0.75Ni-0.5Cr-0.5Mo-V		Forgings, 2½ in. - 4 in. (64 mm - 102 mm), incl.
A/SA-592	F	K11576	115 (795)	11B	3	101	3.1	0.75Ni-0.5Cr-0.5Mo-V		Forgings, 2½ in. (64 mm) & under
A/SA-592	E	K11695	105 (725)	11B	2	102	3.1	1.75Cr-0.5Mo-Cu		Forgings, 2½ in. - 4 in. (64 mm - 102 mm), incl.
A/SA-592	E	K11695	115 (795)	11B	2	102	3.1	1.75Cr-0.5Mo-Cu		Forgings, 2½ in. (64 mm) & under
A/SA-592	A	K11856	115 (795)	11B	1	101	3.1	0.5Cr-0.25Mo-Si		Forgings, 1½ in. (38 mm) & under
A/SA-612	...	K02900	81 (560)	10C	1	101	1.3	C-Mn-Si		Plate > ½ in. - 1 in. (13 mm - 25 mm)
A/SA-612	...	K02900	83 (570)	10C	1	101	1.3	C-Mn-Si		Plate, ½ in. (13 mm) & under
A618	Ia	...	67 (460)	1	2	101	1.2	Mn-Cu-V		Tube > ¾ in. - 1½ in. (19 mm - 38 mm)
A618	Ia	...	70 (485)	1	2	101	1.2	Mn-Cu-V		Tube ≤ ¾ in. (19 mm)
A618	Ib	K02601	67 (460)	1	2	101	1.2	Mn-Cu-V		Tube > ¾ in. - 1½ in. (19 mm - 38 mm)
A618	Ib	K02601	70 (485)	1	2	101	1.2	Mn-Cu-V		Tube ≤ ¾ in. (19 mm)
A618	II	K12609	67 (460)	1	2	101	1.2	Mn-Cu-V		Tube > ¾ in. - 1½ in. (19 mm - 38 mm)
A618	II	K12609	70 (485)	1	2	101	1.2	Mn-Cu-V		Tube, ¾ in. (19 mm) & under
A618	III	K12700	65 (450)	1	1	101	1.2	Mn-V		Tube



**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	ISO 15608 Group		
<b>Ferrous (Cont'd)</b>									
A633	A	K01802	63 (435)	1	1	101	1.1	Mn-Cb	Plate
A633	C	K12000	65 (450)	1	1	101	1.1	Mn-Cb	Plate > 2½ in. - 4 in. (64 mm - 102 mm), incl.
A633	C	K12000	70 (485)	1	2	101	1.1	Mn-Cb	Plate to 2½ in. (64 mm)
A633	D	K12037	65 (450)	1	1	101	1.1	C-Mn-Si	Plate > 2½ in. - 4 in. (64 mm - 102 mm), incl.
A633	D	K12037	70 (485)	1	2	101	1.1	C-Mn-Si	Plate to 2½ in. (64 mm)
A633	E	K12202	80 (550)	1	3	101	4.1	C-Mn-Si-V	Plate
A/SA-645	A	K41583	95 (655)	11A	2	101	9.2	5Ni-0.25Mo	Plate
A/SA-656	T3, Gr. 50	...	60 (415)	1	1	101	1.2	C-Mn-Si-V-Cb	Plate
A/SA-656	T3, Gr. 60	...	70 (485)	1	2	101	1.3	C-Mn-Si-V-Cb	Plate
A/SA-656	T3, Gr. 70	...	80 (550)	1	3	101	2.2	C-Mn-Si-V-Cb	Plate
A/SA-656	T3, Gr. 80	...	90 (620)	1	4	101	2.2	C-Mn-Si-V-Cb	Plate
A/SA-656	T7, Gr. 50	...	60 (415)	1	1	101	1.2	C-Mn-Si-V-Cb	Plate
A/SA-656	T7, Gr. 60	...	70 (485)	1	2	101	1.3	C-Mn-Si-V-Cb	Plate
A/SA-656	T7, Gr. 70	...	80 (550)	1	3	101	2.2	C-Mn-Si-V-Cb	Plate
A/SA-656	T7, Gr. 80	...	90 (620)	1	4	101	2.2	C-Mn-Si-V-Cb	Plate
A/SA-660	WCA	J02504	60 (415)	1	1	101	11.1	C-Si	Centrifugal cast pipe
A/SA-660	WCC	J02505	70 (485)	1	2	101	11.1	C-Mn-Si	Centrifugal cast pipe
A/SA-660	WCB	J03003	70 (485)	1	2	101	1.1	C-Si	Centrifugal cast pipe
A/SA-662	A	K01701	58 (400)	1	1	101	1.1	C-Mn-Si	Plate
A/SA-662	C	K02007	70 (485)	1	2	101	1.1	C-Mn-Si	Plate
A/SA-662	B	K02203	65 (450)	1	1	101	1.1	C-Mn-Si	Plate
A663	...	...	...	1	1	101	...	C	Bar
A/SA-666	201-1	S20100	75 (515)	8	3	102	8.3	17Cr-4Ni-6Mn	Plate, sheet & strip
A/SA-666	201-2	S20100	95 (655)	8	3	102	8.3	17Cr-4Ni-6Mn	Plate, sheet & strip
A/SA-666	XM-11	S21904	90 (620)	8	3	102	8.3	21Cr-6Ni-9Mn	Plate, sheet & strip
A/SA-666	302	S30200	75 (515)	8	1	102	8.1	18Cr-8Ni	Plate, sheet & strip
A/SA-666	304	S30400	75 (515)	8	1	102	8.1	18Cr-8Ni	Plate, sheet & strip
A/SA-666	304L	S30403	70 (485)	8	1	102	8.1	18Cr-8Ni	Plate, sheet & strip
A/SA-666	304N	S30451	80 (550)	8	1	102	8.1	18Cr-8Ni-N	Plate, sheet & strip
A/SA-666	304LN	S30453	75 (515)	8	1	102	8.1	18Cr-8Ni-N	Plate, sheet & strip
A/SA-666	316	S31600	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Plate, sheet & strip

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing	ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.			
<b>Ferrous (Cont'd)</b>									
A/SA-666	316L	S31603	70 (485)	8	1	102	8.1	16Cr-12Ni-2Mo	Plate, sheet & strip
A/SA-666	316N	S31651	80 (550)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Plate, sheet & strip
A/SA-671	CC60	K02100	60 (415)	1	1	101	1.1	C-Mn-Si	Fusion welded pipe
A/SA-671	CE55	K02202	55 (380)	1	1	101	11.1	C	Fusion welded pipe
A/SA-671	CB60	K02401	60 (415)	1	1	101	1.1	C	Fusion welded pipe
A/SA-671	CE60	K02402	60 (415)	1	1	101	11.1	C-Mn-Si	Fusion welded pipe
A/SA-671	CC65	K02403	65 (450)	1	1	101	1.1	C-Mn-Si	Fusion welded pipe
A/SA-671	CC70	K02700	70 (485)	1	2	101	11.1	C-Mn-Si	Fusion welded pipe
A/SA-671	CB65	K02800	65 (450)	1	1	101	11.1	C-Si	Fusion welded pipe
A/SA-671	CA55	K02801	55 (380)	1	1	101	11.1	C	Fusion welded pipe
A/SA-671	CK75	K02803	75 (515)	1	2	101	11.1	C-Mn-Si	Fusion welded pipe
A/SA-671	CB70	K03101	70 (485)	1	2	101	11.1	C-Si	Fusion welded pipe
A/SA-671	CD70	K12437	70 (485)	1	2	101	1.2	C-Mn-Si	Fusion welded pipe
A/SA-671	CD80	K12437	80 (550)	1	3	101	1.2	C-Mn-Si	Fusion welded pipe
A/SA-672	J80	...	80 (550)	3	3	101	3.1	Mn-0.5Mo-0.75Ni	Fusion welded pipe
A/SA-672	J90	...	90 (620)	3	3	101	3.1	Mn-0.5Mo-0.75Ni	Fusion welded pipe
A/SA-672	A45	K01700	45 (310)	1	1	101	1.1	C	Fusion welded pipe
A/SA-672	C55	K01800	55 (380)	1	1	101	1.1	C-Si	Fusion welded pipe
A/SA-672	B55	K02001	55 (380)	1	1	101	1.1	C-Si	Fusion welded pipe
A/SA-672	C60	K02100	60 (415)	1	1	101	1.1	C-Mn-Si	Fusion welded pipe
A/SA-672	A50	K02200	50 (345)	1	1	101	1.1	C	Fusion welded pipe
A/SA-672	E55	K02202	55 (380)	1	1	101	11.1	C	Fusion welded pipe
A/SA-672	B60	K02401	60 (415)	1	1	101	1.1	C	Fusion welded pipe
A/SA-672	E60	K02402	60 (415)	1	1	101	11.1	C-Mn-Si	Fusion welded pipe
A/SA-672	C65	K02403	65 (450)	1	1	101	1.1	C-Mn-Si	Fusion welded pipe
A/SA-672	C70	K02700	70 (485)	1	2	101	11.1	C-Mn-Si	Fusion welded pipe
A/SA-672	B65	K02800	65 (450)	1	1	101	11.1	C-Si	Fusion welded pipe
A/SA-672	A55	K02801	55 (380)	1	1	101	11.1	C	Fusion welded pipe
A/SA-672	N75	K02803	75 (515)	1	2	101	11.1	C-Mn-Si	Fusion welded pipe
A/SA-672	B70	K03101	70 (485)	1	2	101	11.1	C-Si	Fusion welded pipe
A/SA-672	L65	K11820	65 (450)	3	1	101	1.1	C-0.5Mo	Fusion welded pipe
A/SA-672	L70	K12020	70 (485)	3	2	101	1.2	C-0.5Mo	Fusion welded pipe
A/SA-672	H75	K12021	75 (515)	3	2	101	1.1	Mn-0.5Mo	Fusion welded pipe
A/SA-672	H80	K12022	80 (550)	3	3	101	1.2	Mn-0.5Mo	Fusion welded pipe
A/SA-672	L75	K12320	75 (515)	3	2	101	1.2	C-0.5Mo	Fusion welded pipe
A/SA-672	D70	K12437	70 (485)	1	2	101	1.2	C-Mn-Si	Fusion welded pipe

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-672	D80	K12437	80 (550)	1	3	101	1.2	C-Mn-Si		Fusion welded pipe
A/SA-672	J100	K12521	100 (690)	11A	4	101	3.2	Mn-0.5Mo		Fusion welded pipe
A/SA-675	45	...	45 (310)	1	1	101	11.1	C		Bar
A/SA-675	50	...	50 (345)	1	1	101	11.1	C		Bar
A/SA-675	55	...	55 (380)	1	1	101	11.1	C		Bar
A/SA-675	60	...	60 (415)	1	1	101	11.1	C		Bar
A/SA-675	65	...	65 (450)	1	1	101	11.1	C		Bar
A/SA-675	70	...	70 (485)	1	2	101	11.1	C		Bar
A/SA-688	XM-29	S24000	100 (690)	8	3	102	8.3	18Cr-3Ni-12Mn		Welded tube
A/SA-688	TP304	S30400	75 (515)	8	1	102	8.1	18Cr-8Ni		Welded tube
A/SA-688	TP304L	S30403	70 (485)	8	1	102	8.1	18Cr-8Ni		Welded tube
A/SA-688	TP304N	S30451	80 (550)	8	1	102	8.1	18Cr-8Ni-N		Welded tube
A/SA-688	TP304LN	S30453	75 (515)	8	1	102	8.1	18Cr-8Ni-N		Welded tube
A/SA-688	TP316	S31600	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo		Welded tube
A/SA-688	TP316L	S31603	70 (485)	8	1	102	8.1	16Cr-12Ni-2Mo		Welded tube
A/SA-688	TP316N	S31651	80 (550)	8	1	102	8.1	16Cr-12Ni-2Mo-N		Welded tube
A/SA-688	TP316LN	S31653	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo-N		Welded tube
A/SA-691	CMS-75	K02803	75 (515)	1	2	101	11.1	C-Mn-Si		Fusion welded pipe
A/SA-691	1CR, Cl. 1	K11757	55 (380)	4	1	102	5.1	1Cr-0.5Mo		Fusion welded pipe
A/SA-691	1CR, Cl. 2	K11757	65 (450)	4	1	102	5.1	1Cr-0.5Mo		Fusion welded pipe
A/SA-691	1.25CR, Cl. 1	K11789	60 (415)	4	1	102	5.1	1.25Cr-0.5Mo-Si		Fusion welded pipe
A/SA-691	1.25CR, Cl. 2	K11789	75 (515)	4	1	102	5.1	1.25Cr-0.5Mo-Si		Fusion welded pipe
A/SA-691	CM-65	K11820	65 (450)	3	1	101	1.1	C-0.5Mo		Fusion welded pipe
A/SA-691	CM-70	K12020	70 (485)	3	2	101	1.2	C-0.5Mo		Fusion welded pipe
A/SA-691	0.5CR, Cl. 1	K12143	55 (380)	3	1	101	4.2	0.5Cr-0.5Mo		Fusion welded pipe
A/SA-691	0.5CR, Cl. 2	K12143	70 (485)	3	2	101	4.2	0.5Cr-0.5Mo		Fusion welded pipe
A/SA-691	CM-75	K12320	75 (515)	3	2	101	1.2	C-0.5Mo		Fusion welded pipe
A/SA-691	CMSH-70	K12437	65 (450)	1	2	101	1.2	C-Mn-Si		Fusion welded pipe > 2½ in. - 4 in. (64 mm - 102 mm)
A/SA-691	CMSH-70	K12437	70 (485)	1	2	101	1.2	C-Mn-Si		Fusion welded pipe ≤ 2½ in. (64 mm)
A/SA-691	CMSH-80	K12437	75 (515)	1	3	101	1.2	C-Mn-Si		Fusion welded pipe > 2½ in. - 4 in. (64 mm - 102 mm)
A/SA-691	CMSH-80	K12437	80 (550)	1	3	101	1.2	C-Mn-Si		Fusion welded pipe ≤ 2½ in. (64 mm)
A/SA-691	2.25CR, Cl. 1	K21590	60 (415)	5A	1	102	5.2	2.25Cr-1Mo		Fusion welded pipe
A/SA-691	2.25CR, Cl. 2	K21590	75 (515)	5A	1	102	5.2	2.25Cr-1Mo		Fusion welded pipe

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-691	3CR, Cl. 1	K31545	60 (415)	5A	1	102	5.2	3Cr-1Mo	Fusion welded pipe	
A/SA-691	3CR, Cl. 2	K31545	75 (515)	5A	1	102	5.2	3Cr-1Mo	Fusion welded pipe	
A/SA-691	5CR, Cl. 1	K41545	60 (415)	5B	1	102	5.3	5Cr-0.5Mo	Fusion welded pipe	
A/SA-691	5CR, Cl. 2	K41545	75 (515)	5B	1	102	5.3	5Cr-0.5Mo	Fusion welded pipe	
A/SA-691	91	K91560	85 (585)	15E	1	102	6.4	9Cr-1Mo-V	Fusion welded pipe	
A694	F42	K03014	60 (415)	1	1	101	11.1	C-Mn	Forgings	
A694	F46	K03014	60 (415)	1	1	101	11.1	C-Mn	Forgings	
A694	F48	K03014	62 (425)	1	1	101	11.1	C-Mn	Forgings	
A694	F50	K03014	64 (440)	1	1	101	11.1	C-Mn	Forgings	
A694	F52	K03014	66 (455)	1	1	101	11.1	C-Mn	Forgings	
A694	F56	K03014	68 (470)	1	2	101	11.1	C-Mn	Forgings	
A694	F60	K03014	75 (515)	1	2	101	11.1	C-Mn	Forgings	
A694	F65	K03014	77 (530)	1	2	101	11.1	C-Mn	Forgings	
A694	F70	K03014	82 (565)	1	3	101	11.1	C-Mn	Forgings	
A/SA-696	B	K03200	60 (415)	1	1	101	11.1	C-Mn-Si	Bar	
A/SA-696	C	K03200	70 (485)	1	2	101	11.1	C-Mn-Si	Bar	
A707	L1, Cl. 1	K02302	...	1	1	101	1.2	C-Mn	Forgings	
A707	L1, Cl. 2	K02302	...	1	1	101	1.2	C-Mn	Forgings	
A707	L2, Cl. 1	K03301	...	1	1	101	11.1	C-Mn	Forgings	
A707	L2, Cl. 2	K03301	...	1	1	101	11.1	C-Mn	Forgings	
A707	L2, Cl. 3	K03301	...	1	2	101	11.1	C-Mn	Forgings	
A707	L3, Cl. 1	K12510	...	1	1	101	1.2	C-Mn-V-N	Forgings	
A707	L3, Cl. 2	K12510	...	1	1	101	1.2	C-Mn-V-N	Forgings	
A707	L3, Cl. 3	K12510	...	1	2	101	1.3	C-Mn-V-N	Forgings	
A714	Gr. V	K22035	65 (450)	9A	1	102	9.1	2Ni-1Cu	Smls. & welded pipe	
A714	Gr. V, Tp. E	K22035	65 (450)	9A	1	102	9.1	2Ni-1Cu	Smls. & welded pipe	
A/SA-724	A	K11831	90 (620)	1	4	101	3.1	C-Mn-Si	Plate	
A/SA-724	B	K12031	95 (655)	1	4	101	3.1	C-Mn-Si	Plate	
A/SA-724	C	K12037	90 (620)	1	4	101	1.1	C-Mn-Si	Plate	
A/SA-727	...	K02506	60 (415)	1	1	101	11.1	C-Mn-Si	Forgings	
A/SA-731	S41500	S41500	115 (795)	6	4	102	7.2	13Cr-4.5Ni-Mo	Smls. & welded pipe	
A/SA-731	TP439	S43035	60 (415)	7	2	102	7.1	18Cr-Ti	Smls. & welded pipe	
A/SA-731	18Cr-2Mo	S44400	60 (415)	7	2	102	7.1	18Cr-2Mo	Smls. & welded pipe	

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-731	TPXM-33	S44626	65 (450)	10I	1	102	7.1	27Cr-1Mo-Ti	Smls. & welded pipe	
A/SA-731	TPXM-27	S44627	65 (450)	10I	1	102	7.1	27Cr-1Mo	Smls. & welded pipe	
A/SA-731	S44660	S44660	85 (585)	10K	1	102	7.1	26Cr-3Ni-3Mo	Smls. & welded pipe	
A/SA-731	S44700	S44700	80 (550)	10J	1	102	7.1	29Cr-4Mo	Smls. & welded pipe	
A/SA-731	S44800	S44800	80 (550)	10K	1	102	7.1	29Cr-4Mo-2Ni	Smls. & welded pipe	
A/SA-737	B	K12001	70 (485)	1	2	101	11.1	C-Mn-Si-Cb	Plate	
A/SA-737	C	K12202	80 (550)	1	3	101	4.1	C-Mn-Si-V	Plate	
A/SA-738	C	K02008	70 (485)	1	3	101	11.1	C-Mn-Si	Plate > 4 in. - 6 in. (102 mm - 152 mm), incl.	
A/SA-738	C	K02008	75 (515)	1	3	101	11.1	C-Mn-Si	Plate > 2½ in. - 4 in. (64 mm - 102 mm), incl.	
A/SA-738	C	K02008	80 (550)	1	3	101	11.1	C-Mn-Si	Plate, 2½ in. (64 mm) & under	
A/SA-738	B	K12007	85 (585)	1	3	101	11.1	C-Mn-Si-Cb	Plate	
A/SA-738	A	K12447	75 (515)	1	2	101	11.1	C-Mn-Si	Plate	
A/SA-739	B11	K11797	70 (485)	4	1	102	5.1	1.25Cr-0.5Mo	Bar	
A/SA-739	B22	K21390	75 (515)	5A	1	102	5.2	2.25Cr-1Mo	Bar	
A/SA-765	IV	K02009	80 (550)	1	3	101	1.1	C-Mn-Si	Forgings	
A/SA-765	I	K03046	60 (415)	1	1	101	11.1	C-Mn-Si	Forgings	
A/SA-765	II	K03047	70 (485)	1	2	101	11.1	C-Mn-Si	Forgings	
A/SA-765	III	K32026	70 (485)	9B	1	101	9.2	3.5Ni	Forgings	
A/SA-789	S31200	S31200	100 (690)	10H	1	102	10.2	25Cr-6Ni-Mo-N	Smls. & welded tube	
A/SA-789	S31260	S31260	100 (690)	10H	1	102	10.2	25Cr-6.5Ni-3Mo-N	Smls. & welded tube	
A/SA-789	S31500	S31500	92 (635)	10H	1	102	10.1	18Cr-5Ni-3Mo-N	Smls. & welded tube	
A/SA-789	S31803	S31803	90 (620)	10H	1	102	10.1	22Cr-5Ni-3Mo-N	Smls. & welded tube	
A/SA-789	...	S32003	100 (690)	10H	1	102	10.1	21Cr-3.5Ni-Mo-N	Smls. & welded tube	
A/SA-789	...	S32101	94 (650)	10H	1	102	10.1	21Cr-5Mn-1.5Ni-Cu-N	Smls. & welded tube > 0.187 in. (5 mm)	
A/SA-789	...	S32101	101 (700)	10H	1	102	10.1	21Cr-5Mn-1.5Ni-Cu-N	Smls. & welded tube ≤ 0.187 in. (5 mm)	
A/SA-789	...	S32202	94 (650)	10H	1	102	10.1	22Cr-2Ni-Mo-N	Smls. & welded tube	
A/SA-789	...	S32205	95 (655)	10H	1	102	10.1	22Cr-5Ni-3Mo-N	Smls. & welded tube	
A/SA-789	S32304	S32304	87 (600)	10H	1	102	10.1	23Cr-4Ni-Mo-Cu-N	Smls. & welded tube > 1 in. (25 mm)	
A/SA-789	S32304	S32304	100 (690)	10H	1	102	10.1	23Cr-4Ni-Mo-Cu-N	Smls. & welded tube ≤ 1 in. (25 mm)	
A/SA-789	S32550	S32550	110 (760)	10H	1	102	10.2	25Cr-5Ni-3Mo-2Cu	Smls. & welded tube	
A/SA-789	S32750	S32750	116 (800)	10H	1	102	10.2	25Cr-7Ni-4Mo-N	Smls. & welded tube	
A/SA-789	S32760	S32760	109 (750)	10H	1	102	10.2	25Cr-8Ni-3Mo-W-Cu-N	Smls. & welded tube	

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-789	S32900	S32900	90 (620)	10H	1	102	10.2	26Cr-4Ni-Mo	Smls. & welded tube	
A/SA-789	S32906	S32906	109 (750)	10H	1	102	10.2	29Cr-6.5Ni-2Mo-N	Smls. & welded tube ≥ 0.40 in. (10 mm)	
A/SA-789	S32906	S32906	116 (800)	10H	1	102	10.2	29Cr-6.5Ni-2Mo-N	Smls. & welded tube < 0.40 in. (10 mm)	
A/SA-789	S32950	S32950	100 (690)	10H	1	102	10.2	26Cr-4Ni-Mo-N	Smls. & welded tube	
A/SA-789	S39274	S39274	116 (800)	10H	1	102	10.2	25Cr-7Ni-3Mo-2W-Cu-N	Smls. & welded tube	
A/SA-789	...	S82441	99 (680)	10H	1	102	10.1	24Cr-4Ni-3Mn-1.5Mo-N	Smls. & welded tube ≥ 0.40 in. (10 mm)	
A/SA-789	...	S82441	107 (740)	10H	1	102	10.1	24Cr-4Ni-3Mn-1.5Mo-N	Smls. & welded tube < 0.40 in. (10 mm)	
A/SA-790	S31200	S31200	100 (690)	10H	1	102	10.2	25Cr-6Ni-Mo-N	Smls. & welded pipe	
A/SA-790	S31260	S31260	100 (690)	10H	1	102	10.2	25Cr-6.5Ni-3Mo-N	Smls. & welded pipe	
A/SA-790	S31500	S31500	92 (635)	10H	1	102	10.1	18Cr-5Ni-3Mo-N	Smls. & welded pipe	
A/SA-790	S31803	S31803	90 (620)	10H	1	102	10.1	22Cr-5Ni-3Mo-N	Smls. & welded pipe	
A/SA-790	...	S32003	90 (620)	10H	1	102	10.1	21Cr-3.5Ni-Mo-N	Smls. & welded pipe	
A/SA-790	...	S32101	94 (650)	10H	1	102	10.1	21Cr-5Mn-1.5Ni-Cu-N	Smls. & welded pipe > 0.187 in. (5 mm)	
A/SA-790	...	S32101	101 (700)	10H	1	102	10.1	21Cr-5Mn-1.5Ni-Cu-N	Smls. & welded pipe ≤ 0.187 in. (5 mm)	
A/SA-790	...	S32202	94 (650)	10H	1	102	10.1	22Cr-2Ni-Mo-N	Smls. & welded pipe	
A/SA-790	2205	S32205	95 (655)	10H	1	102	10.1	22Cr-5Ni-3Mo-N	Smls. & welded pipe	
A/SA-790	S32304	S32304	87 (600)	10H	1	102	10.1	23Cr-4Ni-Mo-Cu-N	Smls. & welded pipe	
A/SA-790	S32550	S32550	110 (760)	10H	1	102	10.2	25Cr-5Ni-3Mo-2Cu	Smls. & welded pipe	
A/SA-790	S32750	S32750	116 (800)	10H	1	102	10.2	25Cr-7Ni-4Mo-N	Smls. & welded pipe	
A/SA-790	S32760	S32760	109 (750)	10H	1	102	10.2	25Cr-8Ni-3Mo-W-Cu-N	Smls. & welded pipe	
A/SA-790	S32900	S32900	90 (620)	10H	1	102	10.2	26Cr-4Ni-Mo	Smls. & welded pipe	
A/SA-790	S32906	S32906	109 (750)	10H	1	102	10.2	29Cr-6.5Ni-2Mo-N	Smls. & welded pipe ≥ 0.40 in. (10 mm)	
A/SA-790	S32906	S32906	116 (800)	10H	1	102	10.2	29Cr-6.5Ni-2Mo-N	Smls. & welded pipe < 0.40 in. (10 mm)	
A/SA-790	S32950	S32950	100 (690)	10H	1	102	10.2	26Cr-4Ni-Mo-N	Smls. & welded pipe	
A/SA-790	S39274	S39274	116 (800)	10H	1	102	10.2	25Cr-7Ni-3Mo-2W-Cu-N	Smls. & welded pipe	
A/SA-790	...	S82441	99 (680)	10H	1	102	10.1	24Cr-4Ni-3Mn-1.5Mo-N	Smls. & welded pipe ≥ 0.40 in. (10 mm)	
A/SA-790	...	S82441	107 (740)	10H	1	102	10.1	24Cr-4Ni-3Mn-1.5Mo-N	Smls. & welded pipe < 0.40 in. (10 mm)	
A/SA-803	TP439	S43035	60 (415)	7	2	102	7.1	18Cr-Ti	Welded tube	
A/SA-803	26-3-3	S44660	85 (585)	10K	1	102	7.1	26Cr-3Ni-3Mo	Welded tube	
A/SA-813	N08367	N08367	95 (655)	45	...	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Welded pipe > 0.1875 in. (5 mm)	
A/SA-813	N08367	N08367	100 (690)	45	...	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Welded pipe ≤ 0.1875 in. (5 mm)	
A/SA-813	TPXM-19	S20910	100 (690)	8	3	102	8.3	22Cr-13Ni-5Mn	Welded pipe	
A/SA-813	TPXM-11	S21904	90 (620)	8	3	102	8.3	21Cr-6Ni-9Mn	Welded pipe	
A/SA-813	TPXM-29	S24000	100 (690)	8	3	102	8.3	18Cr-3Ni-12Mn	Welded pipe	
A/SA-813	TP304	S30400	75 (515)	8	1	102	8.1	18Cr-8Ni	Welded pipe	

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing	ISO 15608		Typical Product Form
				P-No.	Group No.	P-No.	Group	Nominal Composition	
<b>Ferrous (Cont'd)</b>									
A/SA-813	TP304L	S30403	70 (485)	8	1	102	8.1	18Cr-8Ni	Welded pipe
A/SA-813	TP304H	S30409	75 (515)	8	1	102	8.1	18Cr-8Ni	Welded pipe
A/SA-813	TP304N	S30451	80 (550)	8	1	102	8.1	18Cr-8Ni-N	Welded pipe
A/SA-813	TP304LN	S30453	75 (515)	8	1	102	8.1	18Cr-8Ni-N	Welded pipe
A/SA-813	S30815	S30815	87 (600)	8	2	102	8.2	21Cr-11Ni-N	Welded pipe
A/SA-813	TP309S	S30908	75 (515)	8	2	102	8.2	23Cr-12Ni	Welded pipe
A/SA-813	TP309Cb	S30940	75 (515)	8	2	102	8.2	23Cr-12Ni-Cb	Welded pipe
A/SA-813	TP310S	S31008	75 (515)	8	2	102	8.2	25Cr-20Ni	Welded pipe
A/SA-813	TP310Cb	S31040	75 (515)	8	2	102	8.2	25Cr-20Ni-Cb	Welded pipe
A/SA-813	S31254	S31254	94 (650)	8	4	102	8.2	20Cr-18Ni-6Mo	Welded pipe
A/SA-813	TP316	S31600	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Welded pipe
A/SA-813	TP316L	S31603	70 (485)	8	1	102	8.1	16Cr-12Ni-2Mo	Welded pipe
A/SA-813	TP316H	S31609	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Welded pipe
A/SA-813	TP316N	S31651	80 (550)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Welded pipe
A/SA-813	TP316LN	S31653	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Welded pipe
A/SA-813	TP317	S31700	75 (515)	8	1	102	8.1	18Cr-13Ni-3Mo	Welded pipe
A/SA-813	TP317L	S31703	75 (515)	8	1	102	8.1	18Cr-13Ni-3Mo	Welded pipe
A/SA-813	...	S32053	93 (640)	8	4	102	8.2	23Cr-25Ni-5.5Mo-N	Welded pipe
A/SA-813	TP321	S32100	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Welded pipe
A/SA-813	TP321H	S32109	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Welded pipe
A/SA-813	TP347	S34700	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Welded pipe
A/SA-813	TP347H	S34709	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Welded pipe
A/SA-813	TP348	S34800	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Welded pipe
A/SA-813	TP348H	S34809	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Welded pipe
A/SA-813	TPXM-15	S38100	75 (515)	8	1	102	8.1	18Cr-18Ni-2Si	Welded pipe
A/SA-814	N08367	N08367	95 (655)	45	...	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Cold worked welded pipe > 0.1875 in. (5 mm)
A/SA-814	N08367	N08367	100 (690)	45	...	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Cold worked welded pipe ≤ 0.1875 in. (5 mm)
A/SA-814	TPXM-19	S20910	100 (690)	8	3	102	8.3	22Cr-13Ni-5Mn	Cold worked welded pipe
A/SA-814	TPXM-11	S21904	90 (620)	8	3	102	8.3	21Cr-6Ni-9Mn	Cold worked welded pipe
A/SA-814	TPXM-29	S24000	100 (690)	8	3	102	8.3	18Cr-3Ni-12Mn	Cold worked welded pipe
A/SA-814	TP304	S30400	75 (515)	8	1	102	8.1	18Cr-8Ni	Cold worked welded pipe
A/SA-814	TP304L	S30403	70 (485)	8	1	102	8.1	18Cr-8Ni	Cold worked welded pipe
A/SA-814	TP304H	S30409	75 (515)	8	1	102	8.1	18Cr-8Ni	Cold worked welded pipe
A/SA-814	TP304N	S30451	80 (550)	8	1	102	8.1	18Cr-8Ni-N	Cold worked welded pipe

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	No.	P-No.	No.			
<b>Ferrous (Cont'd)</b>										
A/SA-814	TP304LN	S30453	75 (515)	8	1	102	8.1	18Cr-8Ni-N	Cold worked welded pipe	
A/SA-814	S30815	S30815	87 (600)	8	2	102	8.2	21Cr-11Ni-N	Cold worked welded pipe	
A/SA-814	TP309S	S30908	75 (515)	8	2	102	8.2	23Cr-12Ni	Cold worked welded pipe	
A/SA-814	TP309Cb	S30940	75 (515)	8	2	102	8.2	23Cr-12Ni-Cb	Cold worked welded pipe	
A/SA-814	TP310S	S31008	75 (515)	8	2	102	8.2	25Cr-20Ni	Cold worked welded pipe	
A/SA-814	TP310Cb	S31040	75 (515)	8	2	102	8.2	25Cr-20Ni-Cb	Cold worked welded pipe	
A/SA-814	S31254	S31254	94 (650)	8	4	102	8.2	20Cr-18Ni-6Mo	Cold worked welded pipe	
A/SA-814	TP316	S31600	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Cold worked welded pipe	
A/SA-814	TP316L	S31603	70 (485)	8	1	102	8.1	16Cr-12Ni-2Mo	Cold worked welded pipe	
A/SA-814	TP316H	S31609	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Cold worked welded pipe	
A/SA-814	TP316N	S31651	80 (550)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Cold worked welded pipe	
A/SA-814	TP316LN	S31653	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Cold worked welded pipe	
A/SA-814	TP317	S31700	75 (515)	8	1	102	8.1	18Cr-13Ni-3Mo	Cold worked welded pipe	
A/SA-814	TP317L	S31703	75 (515)	8	1	102	8.1	18Cr-13Ni-3Mo	Cold worked welded pipe	
A/SA-814	...	S32053	93 (640)	8	4	102	8.2	23Cr-25Ni-5.5Mo-N	Cold worked welded pipe	
A/SA-814	TP321	S32100	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Cold worked welded pipe	
A/SA-814	TP321H	S32109	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Cold worked welded pipe	
A/SA-814	TP347	S34700	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Cold worked welded pipe	
A/SA-814	TP347H	S34709	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Cold worked welded pipe	
A/SA-814	TP348	S34800	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Cold worked welded pipe	
A/SA-814	TP348H	S34809	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Cold worked welded pipe	
A/SA-814	TPXM-15	S38100	75 (515)	8	1	102	8.1	18Cr-18Ni-2Si	Cold worked welded pipe	
A/SA-815	S31803	S31803	90 (620)	10H	1	102	10.1	22Cr-5Ni-3Mo-N	Fittings	
A/SA-815	...	S32101	94 (650)	10H	1	102	10.1	21Cr-5Mn-1.5Ni-Cu-N	Fittings	
A/SA-815	...	S32202	94 (650)	10H	1	102	10.1	22Cr-2Ni-Mo-N	Fittings	
A/SA-815	S32205	S32205	95 (655)	10H	1	102	10.1	22Cr-5Ni-3Mo-N	Fittings	
A815	2507	S32750	116 (800)	10H	1	102	10.2	25Cr-7Ni-4Mo-N	Fittings	
A/SA-815	S32760	S32760	109 (750)	10H	1	102	10.2	25Cr-8Ni-3Mo-W-Cu-N	Fittings	
A/SA-815	S41500	S41500	110 (760)	6	4	102	7.2	13Cr-4.5Ni-Mo	Fittings	
A/SA-832	23V	...	85 (585)	5C	1	102	6.2	3Cr-1Mo-0.25V-Cb-Ca	Plate	
A/SA-832	21V	K31830	85 (585)	5C	1	102	6.2	3Cr-1Mo-V-Ti-B	Plate	
A/SA-832	22V	K31835	85 (585)	5C	1	102	6.2	2.25Cr-1Mo-V	Plate	
A/SA-836	...	...	55 (380)	1	1	101	1.1	C-Si-Ti	Forgings	



**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-841	A, Cl. 1	...	65 (450)	1	2	101	1.2	C-Mn-Si	Plate > 2.5 in. (65 mm)	
A/SA-841	A, Cl. 1	...	70 (485)	1	2	101	1.2	C-Mn-Si	Plate ≤ 2.5 in. (65 mm)	
A/SA-841	B, Cl. 2	...	75 (515)	1	3	101	1.3	C-Mn-Si	Plate > 2.5 in. (65 mm)	
A/SA-841	B, Cl. 2	...	80 (550)	1	3	101	1.3	C-Mn-Si	Plate ≤ 2.5 in. (65 mm)	
A859	A, Cl. 1	K20747	65 (450)	11C	1	101	3.3	1Ni-1Cu-0.75Cr-Mo-Nb	Forgings	
A859	A, Cl. 2	K20747	75 (515)	11C	1	101	3.3	1Ni-1Cu-0.75Cr-Mo-Nb	Forgings	
A860	WPHY 42	...	60 (415)	1	1	101	1.2	C-Mn	Smls. & welded fittings	
A860	WPHY 46	...	63 (435)	1	1	101	1.2	C-Mn	Smls. & welded fittings	
A860	WPHY 52	...	66 (455)	1	1	101	1.2	C-Mn	Smls. & welded fittings	
A860	WPHY 60	...	75 (515)	1	2	101	1.3	C-Mn	Smls. & welded fittings	
A860	WPHY 65	...	77 (530)	1	2	101	1.3	C-Mn	Smls. & welded fittings	
A860	WPHY 70	...	80 (550)	1	3	101	1.3	C-Mn	Smls. & welded fittings	
A890	4A	J92205	90 (620)	10H	1	102	10.1	22Cr-5Ni-3Mo-N	Castings	
A890	6A	J93380	100 (690)	10H	1	102	10.2	25Cr-8Ni-3Mo-W-Cu-N	Castings	
A928	S31803	S31803	90 (620)	10H	1	102	10.1	22Cr-5Ni-3Mo-N	Welded pipe	
A928	S32003	S32003	95 (655)	10H	1	102	10.1	21Cr-3.5Ni-Mo-N	Welded pipe > 0.1875 in. (5 mm)	
A928	S32003	S32003	100 (690)	10H	1	102	10.1	21Cr-3.5Ni-Mo-N	Welded pipe ≤ 0.1875 in. (5 mm)	
A928	2205	S32205	95 (655)	10H	1	102	10.1	22Cr-5Ni-3Mo-N	Welded pipe	
A928	2304	S32304	87 (600)	10H	1	102	10.1	23Cr-4Ni-Mo-Cu-N	Welded pipe	
A928	2507	S32750	116 (800)	10H	1	102	10.2	25Cr-7Ni-4Mo-N	Welded pipe	
A928	...	S32760	108 (745)	10H	1	102	10.2	25Cr-8Ni-3Mo-W-Cu-N	Welded pipe	
A/SA-965	FXM-19	S20910	100 (690)	8	3	102	8.3	22Cr-13Ni-5Mn	Forgings	
A/SA-965	FXM-11	S21904	90 (620)	8	3	102	8.3	21Cr-6Ni-9Mn	Forgings	
A/SA-965	F304	S30400	70 (485)	8	1	102	8.1	18Cr-8Ni	Forgings	
A/SA-965	F304L	S30403	65 (450)	8	1	102	8.1	18Cr-8Ni	Forgings	
A/SA-965	F304H	S30409	70 (485)	8	1	102	8.1	18Cr-8Ni	Forgings	
A/SA-965	F304N	S30451	80 (550)	8	1	102	8.1	18Cr-8Ni-N	Forgings	
A/SA-965	F304LN	S30453	70 (485)	8	1	102	8.1	18Cr-8Ni-N	Forgings	
A/SA-965	F46	S30600	78 (540)	8	1	102	8.1	18Cr-15Ni-4Si	Forgings	
A/SA-965	F310	S31000	75 (515)	8	2	102	8.2	25Cr-20Ni	Forgings	
A/SA-965	F316	S31600	70 (485)	8	1	102	8.1	16Cr-12Ni-2Mo	Forgings	
A/SA-965	F316L	S31603	65 (450)	8	1	102	8.1	16Cr-12Ni-2Mo	Forgings	
A/SA-965	F316H	S31609	70 (485)	8	1	102	8.1	16Cr-12Ni-2Mo	Forgings	

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-965	F316N	S31651	80 (550)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Forgings	
A/SA-965	F316LN	S31653	70 (485)	8	1	102	8.1	16Cr-12Ni-2Mo-N	Forgings	
A/SA-965	F321	S32100	70 (485)	8	1	102	8.1	18Cr-10Ni-Ti	Forgings	
A/SA-965	F321H	S32109	70 (485)	8	1	102	8.1	18Cr-10Ni-Ti	Forgings	
A/SA-965	F347	S34700	70 (485)	8	1	102	8.1	18Cr-10Ni-Cb	Forgings	
A/SA-965	F347H	S34709	70 (485)	8	1	102	8.1	18Cr-10Ni-Cb	Forgings	
A/SA-965	F348	S34800	70 (485)	8	1	102	8.1	18Cr-10Ni-Cb	Forgings	
A/SA-965	F348H	S34809	70 (485)	8	1	102	8.1	18Cr-10Ni-Cb	Forgings	
A992	...	...	65 (450)	1	1	101	1.2	C-Mn-Si	Shapes	
A/SA-995	4A	J92205	90 (620)	10H	1	102	10.1	22Cr-5Ni-3Mo-N	Castings	
A/SA-995	2A	J93345	95 (655)	10H	1	102	10.2	24Cr-10Ni-4Mo-N	Castings	
A/SA-995	1B	J93372	100 (690)	10H	1	102	10.2	25Cr-5Ni-3Mo-2Cu	Castings	
A/SA-995	6A	J93380	100 (690)	10H	1	102	10.2	25Cr-8Ni-3Mo-W-Cu-N	Castings	
A/SA-1008	CS Type A	...	40 (275)	1	1	101	1.1	C	Sheet	
A/SA-1008	CS Type B	...	40 (275)	1	1	101	1.1	C	Sheet	
A/SA-1008	DS Type B	...	40 (275)	1	1	101	1.1	C	Sheet	
A/SA-1010	40	S41003	66 (455)	7	1	102	7.2	12Cr-1Ni	Plate, sheet & strip	
A/SA-1010	50	S41003	70 (485)	7	1	102	7.2	12Cr-1Ni	Plate, sheet & strip	
A/SA-1011	CS Type B	...	40 (275)	1	1	101	1.1	C	Sheet & strip	
A/SA-1011	DS Type B	...	40 (275)	1	1	101	1.1	C	Sheet & strip	
A/SA-1011	HSLAS 45 Cl. 1	...	60 (415)	1	1	101	1.2	C	Sheet & strip	
A/SA-1011	HSLAS 45 Cl. 2	...	55 (380)	1	1	101	1.2	C	Sheet & strip	
A/SA-1011	HSLAS 50 Cl. 1	...	65 (450)	1	1	101	1.2	C	Sheet & strip	
A/SA-1011	HSLAS 50 Cl. 2	...	60 (415)	1	1	101	1.2	C	Sheet & strip	
A/SA-1011	HSLAS 55 Cl. 1	...	70 (485)	1	2	101	1.3	C	Sheet & strip	
A/SA-1011	HSLAS 55 Cl. 2	...	65 (450)	1	1	101	1.3	C	Sheet & strip	
A/SA-1011	HSLAS 60 Cl. 1	...	75 (515)	1	2	101	1.3	C	Sheet & strip	
A/SA-1011	HSLAS 60 Cl. 2	...	70 (485)	1	2	101	1.3	C	Sheet & strip	
A/SA-1011	SS 36 Type 1	...	53 (365)	1	1	101	1.2	C	Sheet & strip	
A/SA-1011	SS 36 Type 2	...	58 (400)	1	1	101	1.2	C	Sheet & strip	
A/SA-1011	SS 40	...	55 (380)	1	1	101	1.2	C	Sheet & strip	
A/SA-1011	SS 45	...	60 (415)	1	1	101	1.2	C	Sheet & strip	
A/SA-1011	SS 50	...	65 (450)	1	1	101	1.2	C	Sheet & strip	
A/SA-1011	SS 55	...	70 (485)	1	2	101	1.3	C	Sheet & strip	

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
A/SA-1011	SS 60	...	75 (515)	1	2	101	1.3	C		Sheet & strip
A1066	Grade 50	...	65 (450)	3	1	101	1.2	Mn-Ni-Cr-Mo		Plate
A1066	Grade 60	...	75 (515)	3	2	101	2.1	Mn-Ni-Cr-Mo		Plate
A1066	Grade 65	...	80 (550)	3	3	101	2.1	Mn-Ni-Cr-Mo		Plate
A1066	Grade 70	...	85 (585)	3	3	101	2.2	Mn-Ni-Cr-Mo		Plate
A1066	Grade 80	...	90 (620)	3	3	101	2.2	Mn-Ni-Cr-Mo		Plate
API 5L	A	...	49 (340)	1	1	101	1.1	C-Mn		Smls. & welded pipe
API 5L	A25	...	45 (310)	1	1	101	1.1	C-Mn		Smls. & welded pipe
API 5L	A25P	...	45 (310)	1	1	101	1.1	C-Mn		Smls. & welded pipe
API 5L	B	...	60 (415)	1	1	101	11.1	C-Mn		Smls. & welded pipe
API 5L	BM	...	60 (415)	1	1	101	1.1	C-Mn		Welded pipe
API 5L	BMO	...	60 (415)	1	1	101	1.1	C-Mn		Welded pipe
API 5L	BMS	...	60 (415)	1	1	101	1.1	C-Mn		Welded pipe
API 5L	BN	...	60 (415)	1	1	101	1.1	C-Mn		Smls. & welded pipe
API 5L	BNO	...	60 (415)	1	1	101	1.1	C-Mn		Smls. & welded pipe
API 5L	BNS	...	60 (415)	1	1	101	1.1	C-Mn		Smls. & welded pipe
API 5L	BQ	...	60 (415)	1	1	101	1.1	C-Mn		Smls. & welded pipe
API 5L	BQO	...	60 (415)	1	1	101	1.1	C-Mn		Smls. & welded pipe
API 5L	BQS	...	60 (415)	1	1	101	1.1	C-Mn		Smls. & welded pipe
API 5L	BR	...	60 (415)	1	1	101	1.1	C-Mn		Smls. & welded pipe
API 5L	X42	...	60 (415)	1	1	101	11.1	C-Mn		Smls. & welded pipe
API 5L	X42M	...	60 (415)	1	1	101	1.2	C-Mn		Welded pipe
API 5L	X42MO	...	60 (415)	1	1	101	1.2	C-Mn		Welded pipe
API 5L	X42MS	...	60 (415)	1	1	101	1.2	C-Mn		Welded pipe
API 5L	X42N	...	60 (415)	1	1	101	1.2	C-Mn		Smls. & welded pipe
API 5L	X42NO	...	60 (415)	1	1	101	1.2	C-Mn		Smls. & welded pipe
API 5L	X42NS	...	60 (415)	1	1	101	1.2	C-Mn		Smls. & welded pipe
API 5L	X42Q	...	60 (415)	1	1	101	1.2	C-Mn		Smls. & welded pipe
API 5L	X42QO	...	60 (415)	1	1	101	1.2	C-Mn		Smls. & welded pipe
API 5L	X42QS	...	60 (415)	1	1	101	1.2	C-Mn		Smls. & welded pipe
API 5L	X42R	...	60 (415)	1	1	101	1.2	C-Mn		Smls. & welded pipe
API 5L	X46	...	63 (435)	1	1	101	11.1	C-Mn		Smls. & welded pipe
API 5L	X46M	...	63 (435)	1	1	101	1.2	C-Mn		Welded pipe
API 5L	X46MO	...	63 (435)	1	1	101	1.2	C-Mn		Welded pipe
API 5L	X46MS	...	63 (435)	1	1	101	1.2	C-Mn		Welded pipe
API 5L	X46N	...	63 (435)	1	1	101	1.2	C-Mn		Smls. & welded pipe

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
API 5L	X46NO	...	63 (435)	1	1	101	1.2	C-Mn		Smls. & welded pipe
API 5L	X46NS	...	63 (435)	1	1	101	1.2	C-Mn		Smls. & welded pipe
API 5L	X46Q	...	63 (435)	1	1	101	1.2	C-Mn		Smls. & welded pipe
API 5L	X46QO	...	63 (435)	1	1	101	1.2	C-Mn		Smls. & welded pipe
API 5L	X46QS	...	63 (435)	1	1	101	1.2	C-Mn		Smls. & welded pipe
API 5L	X52	...	67 (460)	1	1	101	11.1	C-Mn		Smls. & welded pipe
API 5L	X52M	...	67 (460)	1	1	101	1.2	C-Mn		Welded pipe
API 5L	X52MO	...	67 (460)	1	1	101	1.2	C-Mn		Welded pipe
API 5L	X52MS	...	67 (460)	1	1	101	1.2	C-Mn		Welded pipe
API 5L	X52N	...	67 (460)	1	1	101	1.2	C-Mn		Smls. & welded pipe
API 5L	X52NO	...	67 (460)	1	1	101	1.2	C-Mn		Smls. & welded pipe
API 5L	X52NS	...	67 (460)	1	1	101	1.2	C-Mn		Smls. & welded pipe
API 5L	X52Q	...	67 (460)	1	1	101	1.2	C-Mn		Smls. & welded pipe
API 5L	X52QO	...	67 (460)	1	1	101	1.2	C-Mn		Smls. & welded pipe
API 5L	X52QS	...	67 (460)	1	1	101	1.2	C-Mn		Smls. & welded pipe
API 5L	X56	...	71 (490)	1	2	101	11.1	C-Mn		Smls. & welded pipe
API 5L	X56M	...	71 (490)	1	2	101	2.1	C-Mn		Welded pipe
API 5L	X56MO	...	71 (490)	1	2	101	2.1	C-Mn		Welded pipe
API 5L	X56MS	...	71 (490)	1	2	101	2.1	C-Mn		Welded pipe
API 5L	X56N	...	71 (490)	1	2	101	1.3	C-Mn		Smls. & welded pipe
API 5L	X56Q	...	71 (490)	1	2	101	3.1	C-Mn		Smls. & welded pipe
API 5L	X56QO	...	71 (490)	1	2	101	3.1	C-Mn		Smls. & welded pipe
API 5L	X56QS	...	71 (490)	1	2	101	3.1	C-Mn		Smls. & welded pipe
API 5L	X60	...	75 (515)	1	2	101	11.1	C-Mn		Smls. & welded pipe
API 5L	X60M	...	75 (515)	1	2	101	2.1	C-Mn		Welded pipe
API 5L	X60MO	...	75 (515)	1	2	101	2.1	C-Mn		Welded pipe
API 5L	X60MS	...	75 (515)	1	2	101	2.1	C-Mn		Welded pipe
API 5L	X60N	...	75 (515)	1	2	101	1.3	C-Mn		Smls. & welded pipe
API 5L	X60Q	...	75 (515)	1	2	101	3.1	C-Mn		Smls. & welded pipe
API 5L	X60QO	...	75 (515)	1	2	101	3.1	C-Mn		Smls. & welded pipe
API 5L	X60QS	...	75 (515)	1	2	101	3.1	C-Mn		Smls. & welded pipe
API 5L	X65	...	78 (540)	1	2	101	11.1	C-Mn		Smls. & welded pipe
API 5L	X65M	...	78 (540)	1	2	101	2.1	C-Mn		Welded pipe
API 5L	X65MO	...	78 (540)	1	2	101	2.1	C-Mn		Welded pipe
API 5L	X65MS	...	78 (540)	1	2	101	2.1	C-Mn		Welded pipe
API 5L	X65Q	...	78 (540)	1	2	101	3.1	C-Mn		Smls. & welded pipe
API 5L	X65QO	...	78 (540)	1	2	101	3.1	C-Mn		Smls. & welded pipe

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
API 5L	X65QS	...	78 (540)	1	2	101	3.1	C-Mn		Smls. & welded pipe
API 5L	X70	...	83 (565)	1	3	101	11.1	C-Mn		Smls. & welded pipe
API 5L	X70M	...	83 (565)	1	3	101	2.2	C-Mn		Welded pipe
API 5L	X70MO	...	83 (565)	1	3	101	2.2	C-Mn		Welded pipe
API 5L	X70MS	...	83 (565)	1	3	101	2.2	C-Mn		Welded pipe
API 5L	X70Q	...	83 (565)	1	3	101	3.1	C-Mn		Smls. & welded pipe
API 5L	X70QO	...	83 (565)	1	3	101	3.1	C-Mn		Smls. & welded pipe
API 5L	X70QS	...	83 (565)	1	3	101	3.1	C-Mn		Smls. & welded pipe
API 5L	X80M	...	91 (625)	1	4	101	2.2	C-Mn		Welded pipe
API 5L	X80MO	...	91 (625)	1	4	101	2.2	C-Mn		Welded pipe
API 5L	X80Q	...	91 (625)	1	4	101	3.1	C-Mn		Smls. & welded pipe
API 5L	X80QO	...	91 (625)	1	4	101	3.1	C-Mn		Smls. & welded pipe
AS 1448	K3	...	59.5 (410)	1	1	101	1.1	C-Si		Forgings
AS 1448	K4	...	72.5 (500)	1	2	101	11.2	C-Si		Forgings
AS 1448	K5	...	78 (540)	1	2	101	11.2	C-Mn-Si		Forgings
AS 1448	K6	...	87 (600)	1	3	101	11.2	C-Mn-Si		Forgings
AS 1448	K8	...	69.5 (480)	1	1	101	1.2	C-Mn-Si		Forgings
AS 1448	K9	...	78 (540)	1	2	101	1.2	C-Mn-Si		Forgings
AS 1448	K10	...	84 (580)	1	3	101	11.1	C-Mn-Si		Forgings
AS 1448	S1	...	58 (400)	1	1	101	1.1	C-Si		Forgings
AS 1448	S3	...	59.5 (410)	1	1	101	1.1	C-Si		Forgings
AS 1448	S4	...	72.5 (500)	1	2	101	11.2	C-Si		Forgings
AS 1448	S5	...	78 (540)	1	2	101	11.2	C-Mn		Forgings
AS 1448	S6	...	87 (600)	1	3	101	11.2	C-Mn		Forgings
AS 4728	200 L0	...	46.5 (320)	1	1	101	1.1	C-Mn		E.R.W. pipe
AS 4728	240 L0	...	55 (380)	1	1	101	1.1	C-Mn		E.R.W. pipe
AS 4728	290 L0	...	60 (415)	1	1	101	1.2	C-Mn		E.R.W. pipe
MSS SP-75	WPHY-42	...	60 (415)	1	1	101	11.1	C-Mn		Smls. & welded fittings
MSS SP-75	WPHY-46	...	63 (435)	1	1	101	11.1	C-Mn		Smls. & welded fittings
MSS SP-75	WPHY-52	...	66 (455)	1	1	101	11.1	C-Mn		Smls. & welded fittings
MSS SP-75	WPHY-56	...	71 (490)	1	2	101	11.1	C-Mn		Smls. & welded fittings
MSS SP-75	WPHY-60	...	75 (515)	1	2	101	11.1	C-Mn		Smls. & welded fittings
MSS SP-75	WPHY-65	...	77 (530)	1	2	101	11.1	C-Mn		Smls. & welded fittings
MSS SP-75	WPHY-70	...	82 (565)	1	3	101	...	C-Mn		Smls. & welded fittings
SA/AS 1548	PT430	...	62.5 (430)	1	1	101	1.1	C		Plate
SA/AS 1548	PT460	...	66.5 (460)	1	1	101	1.1	C		Plate

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	ISO 15608 Group		
<b>Ferrous (Cont'd)</b>									
SA/AS 1548	PT490	...	71 (490)	1	2	101	1.2	C	Plate
SA/CSA-G40.21	Gr. 38W	...	60 (415)	1	1	101	1.1	C-Mn-Si	Plate, bar & shapes
SA/CSA-G40.21	Gr. 44W	...	65 (450)	1	1	101	1.2	C-Mn-Si	Plate, bar & shapes
SA/CSA-G40.21	Gr. 50W	...	65 (450)	1	1	101	1.2	C-Mn-Si	Plate, bar & shapes
SA/EN 10025-2	S235JR	...	52 (360)	1	1	...	1.1	C	Plate
SA/EN 10028-2	10CrMo9-10	...	65.5 (450)	5A	1	102	5.2	2.25Cr-1Mo	Plate > 6 in. (150 mm) ≤ 10 in. (250 mm)
SA/EN 10028-2	10CrMo9-10	...	66.5 (460)	5A	1	102	5.2	2.25Cr-1Mo	Plate > 4 in. (100 mm) ≤ 6 in. (150 mm)
SA/EN 10028-2	10CrMo9-10	...	68 (470)	5A	1	102	5.2	2.25Cr-1Mo	Plate > 2.4 in. (60 mm) ≤ 4 in. (100 mm)
SA/EN 10028-2	10CrMo9-10	...	69.5 (480)	5A	1	102	5.2	2.25Cr-1Mo	Plate ≤ 2.4 in. (60 mm)
SA/EN 10028-2	13CrMo4-5	...	61 (420)	4	1	102	5.1	1Cr-0.5Mo	Plate > 6 in. (150 mm) ≤ 10 in. (250 mm)
SA/EN 10028-2	13CrMo4-5	...	62.5 (430)	4	1	102	5.1	1Cr-0.5Mo	Plate > 4 in. (100 mm) ≤ 6 in. (150 mm)
SA/EN 10028-2	13CrMo4-5	...	64 (440)	4	1	102	5.1	1Cr-0.5Mo	Plate > 2.4 in. (60 mm) ≤ 4 in. (100 mm)
SA/EN 10028-2	13CrMo4-5	...	65.5 (450)	4	1	102	5.1	1Cr-0.5Mo	Plate ≤ 2.4 in. (60 mm)
SA/EN 10028-2	13CrMoSi5-5+QT	...	71 (490)	4	1	102	5.1	1.25Cr-0.5Mo-Si	Plate > 4 in. - 10 in. (100 mm - 250 mm), incl.
SA/EN 10028-2	13CrMoSi5-5+QT	...	72.5 (500)	4	1	102	5.1	1.25Cr-0.5Mo-Si	Plate > 2.4 in. - 4 in. (60 mm - 100 mm), incl.
SA/EN 10028-2	13CrMoSi5-5+QT	...	74 (510)	4	1	102	5.1	1.25Cr-0.5Mo-Si	Plate ≤ 2.4 in. (60 mm)
SA/EN 10028-2	P235GH	...	52 (360)	1	1	101	1.1	C-Mn	Plate ≤ 2.4 in. (60 mm)
SA/EN 10028-2	P265GH	...	59.5 (410)	1	1	101	1.1	C-Mn	Plate ≤ 2.4 in. (60 mm)
SA/EN 10028-2	P295GH	...	62.5 (430)	1	1	101	1.2	C-Mn-Si	Plate > 6 in. (150 mm) ≤ 10 in. (250 mm)
SA/EN 10028-2	P295GH	...	64 (440)	1	1	101	1.2	C-Mn-Si	Plate > 4 in. (100 mm) ≤ 6 in. (150 mm)
SA/EN 10028-2	P295GH	...	66.5 (460)	1	1	101	1.2	C-Mn-Si	Plate ≤ 4 in. (100 mm)
SA/EN 10028-2	P355GH	...	68 (470)	1	2	101	1.2	C-Mn-Si	Plate > 6 in. (150 mm) ≤ 10 in. (250 mm)
SA/EN 10028-2	P355GH	...	69.5 (480)	1	2	101	1.2	C-Mn-Si	Plate > 4 in. (100 mm) ≤ 6 in. (150 mm)

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
SA/EN 10028-2	P355GH	...	71 (490)	1	2	101	1.2	C-Mn-Si		Plate > 2.4 in. (60 mm) ≤ 4 in. (100 mm)
SA/EN 10028-2	P355GH	...	74 (510)	1	2	101	1.2	C-Mn-Si		Plate ≤ 2.4 in. (60 mm)
SA/EN 10028-3	P275NH	...	51 (350)	1	1	101	1.1	C		Plate > 6 in. (150 mm) ≤ 10 in. (250 mm)
SA/EN 10028-3	P275NH	...	52 (360)	1	1	101	1.1	C		Plate > 4 in. (100 mm) ≤ 6 in. (150 mm)
SA/EN 10028-3	P275NH	...	53.5 (370)	1	1	101	1.1	C		Plate > 2 in. (50 mm) ≤ 4 in. (100 mm)
SA/EN 10028-3	P275NH	...	56.5 (390)	1	1	101	1.1	C		Plate ≤ 2 in. (50 mm)
SA/EN 10028-3	P355NH	...	65.5 (450)	1	2	101	1.2	C-Mn-Si		Plate > 6 in. (150 mm) ≤ 10 in. (250 mm)
SA/EN 10028-3	P355NH	...	66.5 (460)	1	2	101	1.2	C-Mn-Si		Plate > 4 in. (100 mm) ≤ 6 in. (150 mm)
SA/EN 10028-3	P355NH	...	68 (470)	1	2	101	1.2	C-Mn-Si		Plate > 2.4 in. (60 mm) ≤ 4 in. (100 mm)
SA/EN 10028-3	P355NH	...	71 (490)	1	2	101	1.2	C-Mn-Si		Plate ≤ 2.4 in. (60 mm)
SA/EN 10028-3	P355NL2	...	65 (450)	1	2	101	1.2	C-Mn		Plate > 6 in. (150 mm) ≤ 10 in. (250 mm)
SA/EN 10028-3	P355NL2	...	67 (460)	1	2	101	1.2	C-Mn		Plate > 4 in. (100 mm) ≤ 6 in. (150 mm)
SA/EN 10028-3	P355NL2	...	68 (470)	1	2	101	1.2	C-Mn		Plate > 2.4 in. (60 mm) ≤ 4 in. (100 mm)
SA/EN 10028-3	P355NL2	...	71 (490)	1	2	101	1.2	C-Mn		Plate ≤ 2.4 in. (60 mm)
SA/EN 10028-4	X7Ni9	...	98.5 (680)	11A	1	...	9.3	9Ni		Plate
SA/EN 10028-4	X8Ni9	...	93 (640)	11A	1	...	9.3	9Ni		Plate
SA/EN 10028-7	X2CrNi18-9	...	72.5 (500)	8	1	102	8.1	18Cr-8Ni		Plate
SA/EN 10028-7	X2CrNiMo17-12-2	...	75.5 (520)	8	1	102	8.1	16Cr-12Ni-2Mo		Plate
SA/EN 10028-7	X2CrNiMoN17-11-2	...	84 (580)	8	1	102	8.1	16Cr-12Ni-2Mo-N		Plate
SA/EN 10028-7	X2CrNiMoN17-13-3	...	84 (580)	8	1	102	8.1	16Cr-12Ni-2Mo-N		Plate
SA/EN 10028-7	X2CrNi18-10	...	80 (550)	8	1	102	8.1	18Cr-8Ni-N		Plate
SA/EN 10028-7	X5CrNi18-10	...	75.5 (520)	8	1	102	8.1	18Cr-8Ni		Plate
SA/EN 10028-7	X5CrNiMo17-12-2	...	75.5 (520)	8	1	102	8.1	16Cr-12Ni-2Mo		Plate
SA/EN 10028-7	X5CrNi19-9	...	80 (550)	8	1	102	8.1	18Cr-8Ni-N		Plate
SA/EN 10028-7	X6CrNiTi18-10	...	72.5 (500)	8	1	102	8.1	18Cr-10Ni-Ti		Plate
SA/EN 10088-2	X6CrNiMoTi17-12-2	...	78.5 (540)	8	1	...	8.1	16Cr-12Ni-2Mo-Ti		Plate, sheet & strip
SA/EN 10216-2	10CrMo9-10	...	69.5 (480)	5A	1	...	5.2	2.25Cr-1Mo		Smls. tube
SA/EN 10216-2	13CrMo4-5	...	64 (440)	4	1	...	5.1	1Cr-0.5Mo		Smls. tube
SA/EN 10216-2	16Mo3	...	65.5 (450)	3	1	...	1.1	C-0.5Mo		Smls. tube
SA/EN 10216-2	P235GH	...	52 (360)	1	1	...	1.1	C		Smls. tube
SA/EN 10216-2	P265GH	...	59.5 (410)	1	1	...	1.1	C		Smls. tube
SA/EN 10216-2	X10CrMoVNb9-1	...	91.5 (630)	15E	1	...	6.4	9Cr-1Mo-V		Smls. tube

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
SA/EN 10217-1	P235TR2	...	52 (360)	1	1	...	1.1	C		E.R.W. tube
SA/EN 10222-2	11CrMo9-10	...	65.5 (450)	5A	1	102	5.2	2.25Cr-1Mo		Forgings > 8 in. (200 mm) ≤ 20 in. (500 mm)
SA/EN 10222-2	11CrMo9-10	...	75.5 (520)	5A	1	102	5.2	2.25Cr-1Mo		Forgings ≤ 8 in. (≤ 200 mm)
SA/EN 10222-2	13CrMo4-5	...	61 (420)	4	1	102	5.1	1Cr-0.5Mo		Forgings > 10 in. (250 mm) ≤ 20 in. (500 mm)
SA/EN 10222-2	13CrMo4-5	...	64 (440)	4	1	102	5.1	1Cr-0.5Mo		Forgings ≤ 10 in. (250 mm)
SA/EN 10222-2	P280GH	...	66.5 (460)	1	1	101	1.2	C-Mn-Si		Forgings
SA/EN 10222-2	P305GH	...	71 (490)	1	2	101	1.2	C-Mn-Si		Forgings
SA/EN 10222-2	X10CrMoVNb9-1	...	91.5 (630)	15E	1	102	6.4	9Cr-1Mo-V		Forgings
SA/GB 713	15CrMoR	...	64 (440)	4	1	101	5.1	1Cr-0.5Mo		Plate > 4 in. (100 mm) ≤ 6 in. (150 mm)
SA/GB 713	15CrMoR	...	65 (450)	4	1	101	5.1	1Cr-0.5Mo		Plate > 0.25 in. (6 mm) ≤ 4 in. (100 mm)
SA/GB 713	Q345R	...	68 (470)	1	1	101	1.1	C-Mn		Plate > 6 in. (150 mm) ≤ 10 in. (250 mm)
SA/GB 713	Q345R	...	69.5 (480)	1	1	101	1.2	C-Mn		Plate > 4 in. (100 mm) ≤ 6 in. (150 mm)
SA/GB 713	Q345R	...	71 (490)	1	2	101	1.2	C-Mn		Plate > 1.5 in. (36 mm) ≤ 4 in. (100 mm)
SA/GB 713	Q345R	...	72.5 (500)	1	2	101	1.2	C-Mn		Plate > 0.65 in. (16 mm) ≤ 1.5 in. (36 mm)
SA/GB 713	Q345R	...	74 (510)	1	2	101	1.2	C-Mn		Plate > 0.125 in. (3 mm) ≤ 0.65 in. (16 mm)
SA/GB 713	Q370R	...	75.5 (520)	1	2	101	1.2	C		Plate > 1.4 in. (36 mm) ≤ 2.4 in. (60 mm)
SA/GB 713	Q370R	...	77 (530)	1	2	101	1.2	C		Plate > 0.65 in. (16 mm) ≤ 1.4 in. (36 mm)
SA/GB 713	Q370R	...	77 (530)	1	2	101	1.3	C		Plate > 0.375 in. (10 mm) ≤ 0.65 in. (16 mm)
SA/IS 2062	E250 A	...	59.5 (410)	1	1	101	1.1	C-Mn-Si		Plate, bars & shapes
SA/IS 2062	E250 B	...	59.5 (410)	1	1	101	1.1	C-Mn-Si		Plate, bars & shapes
SA/IS 2062	E250 C	...	59.5 (410)	1	1	101	1.1	C-Mn-Si		Plate, bars & shapes
SA/JIS G3118	SGV480	...	70 (485)	1	2	101	1.2	C-Mn-Si		Plate
SA/JIS G4303	SUS 302	S30200	75 (515)	8	1	102	8.1	18Cr-8Ni		Bars & shapes



**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Type or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Group No.	P-No.	Group			
<b>Ferrous (Cont'd)</b>										
SA/JIS G4303	SUS 304	S30400	75 (515)	8	1	102	8.1	18Cr-8Ni	Bars & shapes	
SA/JIS G4303	SUS 304L	S30403	70 (485)	8	1	102	8.1	18Cr-8Ni	Bars & shapes	
SA/JIS G4303	SUS 309S	S30908	75 (515)	8	2	102	8.2	23Cr-12Ni	Bars & shapes	
SA/JIS G4303	SUS 310S	S31008	75 (515)	8	2	102	8.2	25Cr-20Ni	Bars & shapes	
SA/JIS G4303	SUS 316	S31600	75 (515)	8	1	102	8.1	16Cr-12Ni-2Mo	Bars & shapes	
SA/JIS G4303	SUS 316L	S31603	70 (485)	8	1	102	8.1	16Cr-12Ni-2Mo	Bars & shapes	
SA/JIS G4303	SUS 321	S32100	75 (515)	8	1	102	8.1	18Cr-10Ni-Ti	Bars & shapes	
SA/JIS G4303	SUS 347	S34700	75 (515)	8	1	102	8.1	18Cr-10Ni-Cb	Bars & shapes	
SA/JIS G4303	SUS 405	S40500	60 (415)	7	1	102	7.1	12Cr-Al	Bars & shapes	
SA/NF A 36-215	P440 NJ4	...	91.5 (630)	10A	1	101	4.1	Mn-0.5Ni-V	Plate	

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	P-No.			
<b>Nonferrous</b>								
A/SA-182	F58	S31266	109 (750)	45	102	8.2	24Cr-22Ni-6Mo-3Mn-Cu-W-N	Forgings
A/SA-240	...	S31266	109 (750)	45	102	8.2	24Cr-22Ni-6Mo-3Mn-Cu-W-N	Plate, sheet & strip
A/SA-240	...	S31277	112 (770)	45	111	8.2	27Ni-22Cr-7Mo-Mn-Cu	Plate, sheet & strip
A/SA-351	CN3MN	J94651	80 (550)	45	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Castings
A/SA-351	CN7M	N08007	62 (425)	45	111	8.2	28Ni-19Cr-Cu-Mo	Castings
A/SA-351	CT15C	N08151	63 (435)	45	111	45	32Ni-45Fe-20Cr-Cb	Castings
A/SA-351	HT30	N08603	65 (450)	45	111	45	35Ni-15Cr-0.5Mo	Castings
A/SA-358	...	S31266	109 (750)	45	102	8.2	24Cr-22Ni-6Mo-3Mn-Cu-W-N	Fusion welded pipe
A/SA-494	M35-2	N04020	65 (450)	42	110	42	67Ni-30Cu-Fe-Si	Castings
A/SA-494	CY40	N06040	70 (485)	43	111	43	72Ni-15Cr-8Fe-Si	Castings
A/SA-494	CU5MCuC	N08826	75 (515)	45	111	45	42Ni-21.5Cr-3Mo-2.3Cu	Castings
A/SA-494	M30C	N24130	65 (450)	42	110	42	67Ni-30Cu-2Fe-Cb	Castings
A/SA-494	M35-1	N24135	65 (450)	42	110	42	67Ni-30Cu-2Fe-Cb	Castings
A/SA-494	CX2MW	N26022	80 (550)	43	111	44	59Ni-22Cr-14Mo-4Fe-3W	Castings
A/SA-494	CW2M	N26455	72 (495)	43	111	43	66Ni-16Mo-16Cr-Fe-W	Castings
A/SA-494	CW6MC	N26625	70 (485)	43	111	43	60Ni-21.5Cr-9Mo-4Cb-Fe	Castings
A/SA-494	N7M	N30007	76 (525)	44	112	44	65Ni-31.5Mo-1.5Fe-Cr	Castings
A/SA-494	CW6M	N30107	72 (495)	44	112	44	56Ni-19Mo-18Cr-2Fe	Castings
B16	...	C36000	40 (275)	...	107	NA	65Cu-Zn-3Pb	Bar > 1 in. (25 mm)
B16	...	C36000	44 (305)	...	107	NA	65Cu-Zn-3Pb	Bar ≤ 1 in. (25 mm)
B16	...	C36000	40 (275)	...	107	NA	65Cu-Zn-3Pb	Rod > 2 in. (51 mm)
B16	...	C36000	44 (305)	...	107	NA	65Cu-Zn-3Pb	Rod > 1 in. - 2 in. (25 mm - 51 mm), incl.
B16	...	C36000	48 (330)	...	107	NA	65Cu-Zn-3Pb	Rod ≤ 1 in. (25 mm)
B16.18	...	C83600	30 (205)	...	107	NA	5Sn-5Zn-5Pb	Cast fittings
B16.18	...	C83800	30 (205)	...	107	NA	4Sn-6.5Zn-6Pb	Cast fittings
B16.18	...	C84400	29 (200)	...	107	NA	2.5Sn-8.5Zn-7Pb	Cast fittings
B16.22	...	C10200	30 (205)	...	107	NA	99.95Cu-P	Wrought piping fittings
B16.22	...	C12000	30 (205)	...	107	NA	99.9Cu-P	Wrought piping fittings
B16.22	...	C12200	30 (205)	...	107	NA	99.9Cu-P	Wrought piping fittings
B16.22	...	C23000	40 (275)	...	107	NA	85Cu-15Zn	Wrought piping fittings
B16.50	...	C10200	30 (205)	...	107	NA	99.95Cu-P	Wrought piping fittings
B16.50	...	C12000	30 (205)	...	107	NA	99.9Cu-P	Wrought piping fittings

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	P-No.			
<b>Nonferrous (Cont'd)</b>								
B16.50	...	C12200	30 (205)	...	107	NA	99.9Cu-P	Wrought piping fittings
B16.50	...	C23000	40 (275)	...	107	NA	85Cu-15Zn	Wrought piping fittings
B/SB-26	T6	A03560	30 (205)	26	...	24.2	Al-Si-Mg	Castings
B/SB-26	T71	A03560	25 (170)	26	...	24.2	Al-Si-Mg	Castings
B/SB-26	...	A24430	17 (115)	26	...	24.1	Al-Si	Castings
B/SB-42	...	C10200	30 (205)	31	107	31	99.95Cu-P	Smls. pipe
B/SB-42	...	C12000	30 (205)	31	107	31	99.9Cu-P	Smls. pipe
B/SB-42	...	C12200	30 (205)	31	107	31	99.9Cu-P	Smls. pipe
B/SB-43	...	C23000	40 (275)	32	107	32.1	85Cu-15Zn	Smls. pipe
B/SB-61	...	C92200	30 (205)	...	107	NA	88Cu-Sn-Zn-Pb	Castings
B/SB-62	...	C83600	30 (205)	...	107	NA	85Cu-5Sn-5Zn-5Pb	Castings
B68	...	C10200	30 (205)	31	107	31	99.95Cu-P	Tube
B68	...	C12000	30 (205)	31	107	31	99.9Cu-P	Tube
B68	...	C12200	30 (205)	31	107	31	99.9Cu-P	Tube
B/SB-75	...	C10200	30 (205)	31	107	31	99.95Cu-P	Smls. tube
B/SB-75	...	C12000	30 (205)	31	107	31	99.9Cu-P	Smls. tube
B/SB-75	...	C12200	30 (205)	31	107	31	99.9Cu-P	Smls. tube
B88	...	C10200	30 (205)	31	107	31	99.95Cu-P	Tube
B88	...	C12000	30 (205)	31	107	31	99.9Cu-P	Tube
B88	...	C12200	30 (205)	31	107	31	99.9Cu-P	Tube
B/SB-96	...	C65500	50 (345)	33	107	37	97Cu-3Si	Plate, sheet, strip & bar
B/SB-98	...	C65100	40 (275)	33	107	37	98.5Cu-1.5Si	Rod, bar & shapes
B/SB-98	...	C65500	52 (360)	33	107	37	97Cu-3Si	Rod, bar & shapes
B/SB-98	...	C66100	52 (360)	33	107	37	94Cu-3Si	Rod, bar & shapes
B/SB-111	...	C10200	30 (205)	31	107	31	99.95Cu-P	Smls. tube
B/SB-111	...	C12000	30 (205)	31	107	31	99.9Cu-P	Smls. tube
B/SB-111	...	C12200	30 (205)	31	107	31	99.9Cu-P	Smls. tube
B/SB-111	...	C14200	30 (205)	31	107	31	99.4Cu-As-P	Smls. tube
B/SB-111	...	C19200	38 (260)	31	107	31	99.7Cu-Fe-P	Smls. tube
B/SB-111	...	C23000	40 (275)	32	107	32.1	85Cu-15Zn	Smls. tube

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	P-No.			
<b>Nonferrous (Cont'd)</b>								
B/SB-111	...	C28000	50 (345)	32	107	32.1	60Cu-40Zn	Smls. tube
B/SB-111	...	C44300	45 (310)	32	107	32.2	71Cu-28Zn-1Sn-0.06As	Smls. tube
B/SB-111	...	C44400	45 (310)	32	107	32.2	71Cu-28Zn-1Sn-0.06Sb	Smls. tube
B/SB-111	...	C44500	45 (310)	32	107	32.2	71Cu-28Zn-1Sn-0.06P	Smls. tube
B/SB-111	...	C60800	50 (345)	35	108	35	95Cu-5Al	Smls. tube
B/SB-111	...	C68700	50 (345)	32	108	32.2	78Cu-20Zn-2Al	Smls. tube
B/SB-111	...	C70400	38 (260)	34	107	34	95Cu-5Ni	Smls. tube
B/SB-111	...	C70600	40 (275)	34	107	34	90Cu-10Ni	Smls. tube
B/SB-111	...	C71000	45 (310)	34	107	34	80Cu-20Ni	Smls. tube
B/SB-111	...	C71500	52 (360)	34	107	34	70Cu-30Ni	Smls. tube
B/SB-111	...	C72200	45 (310)	34	107	34	80Cu-16Ni-0.75Fe-0.5Cr	Smls. tube
B/SB-127	...	N04400	70 (485)	42	110	42	67Ni-30Cu	Plate, sheet & strip
B/SB-135	...	C23000	40 (275)	32	107	32.1	85Cu-15Zn	Smls. tube
B/SB-148	...	C95200	65 (450)	35	108	35	88Cu-9Al-3Fe	Castings
B/SB-148	...	C95300	65 (450)	35	108	35	89Cu-10Al-1Fe	Castings
B/SB-148	...	C95400	75 (515)	35	108	35	85Cu-11Al-4Fe	Castings
B/SB-148	...	C95500	90 (620)	35	108	35	82Cu-11Al-4Fe-3Mn	Castings
B/SB-148	...	C95600	60 (415)	35	108	35	90Cu-7Al-3Si	Castings
B/SB-148	...	C95800	85 (585)	35	108	35	81Cu-9Al-5Ni-4Fe-1Mn	Castings
B/SB-148	...	C95820	94 (650)	35	108	35	81Cu-9Al-5Ni-5Fe-1Mn	Castings
B/SB-150	...	C61400	70 (485)	35	108	35	90Cu-7Al-3Fe	Rod & bar
B/SB-150	...	C62300	75 (515)	35	108	35	88Cu-9Al-3Fe	Rod (round)
B/SB-150	...	C63000	85 (585)	35	108	35	81Cu-10Al-5Ni-3Fe	Rod & bar
B/SB-150	...	C64200	70 (485)	35	108	35	91Cu-7Al-2Si	Rod & bar
B/SB-151	...	C70600	38 (260)	34	107	34	90Cu-10Ni	Rod & bar
B/SB-152	...	C10200	30 (205)	31	107	31	99.95Cu-P	Plate, sheet, strip & bar
B/SB-152	...	C10400	30 (205)	31	107	31	99.95Cu + Ag	Plate, sheet, strip & bar
B/SB-152	...	C10500	30 (205)	31	107	31	99.95Cu + Ag	Plate, sheet, strip & bar
B/SB-152	...	C10700	30 (205)	31	107	31	99.95Cu + Ag	Plate, sheet, strip & bar
B/SB-152	...	C11000	30 (205)	31	107	31	99.90Cu	Plate, sheet, strip & bar
B/SB-152	...	C12200	30 (205)	31	107	31	99.9Cu-P	Plate, sheet, strip & bar
B/SB-152	...	C12300	30 (205)	31	107	31	99.9Cu-P	Plate, sheet, strip & bar
B/SB-152	...	C14200	30 (205)	31	107	31	99.4Cu-As-P	Plate, sheet, strip & bar

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	P-No.			
<b>Nonferrous (Cont'd)</b>								
B/SB-160	...	N02200	55 (380)	41	110	41	99.0Ni	Rod & bar
B/SB-160	...	N02201	50 (345)	41	110	41	99.0Ni-Low C	Rod & bar
B/SB-161	...	N02200	55 (380)	41	110	41	99.0Ni	Smls. pipe & tube
B/SB-161	...	N02201	50 (345)	41	110	41	99.0Ni-Low C	Smls. pipe & tube
B/SB-162	...	N02200	55 (380)	41	110	41	99.0Ni	Plate, sheet & strip
B/SB-162	...	N02201	50 (345)	41	110	41	99.0Ni-Low C	Plate, sheet & strip
B/SB-163	...	N02200	55 (380)	41	110	41	99.0Ni	Smls. tube
B/SB-163	...	N02201	50 (345)	41	110	41	99.0Ni-Low C	Smls. tube
B/SB-163	...	N04400	70 (485)	42	110	42	67Ni-30Cu	Smls. tube
B/SB-163	...	N06025	98 (675)	43	111	43	63Ni-25Cr-10Fe-2Al-Ti-Y-Zr	Smls. tube
B/SB-163	...	N06600	80 (550)	43	111	43	72Ni-15Cr-8Fe	Smls. tube
B/SB-163	...	N06601	80 (550)	43	111	43	60Ni-23Cr-12Fe-Al	Smls. tube
B/SB-163	...	N06690	85 (585)	43	111	43	58Ni-29Cr-9Fe	Smls. tube
B/SB-163	...	N08120	90 (620)	45	111	45	37Ni-33Fe-25Cr	Smls. tube
B/SB-163	...	N08800	75 (515)	45	111	45	33Ni-42Fe-21Cr	Smls. tube
B/SB-163	...	N08801	65 (450)	45	111	45	32Ni-45Fe-20.5Cr-Ti	Smls. tube
B/SB-163	...	N08810	65 (450)	45	111	45	33Ni-42Fe-21Cr	Smls. tube
B/SB-163	...	N08811	65 (450)	45	111	45	33Ni-42Fe-21Cr-Al-Ti	Smls. tube
B/SB-163	...	N08825	85 (585)	45	111	45	42Ni-21.5Cr-3Mo-2.3Cu	Smls. tube
B/SB-164	...	N04400	70 (485)	42	110	42	67Ni-30Cu	Rod, bar & wire
B/SB-164	...	N04405	70 (485)	42	110	42	67Ni-30Cu	Rod, bar & wire
B/SB-165	...	N04400	70 (485)	42	110	42	67Ni-30Cu	Smls. pipe & tube
B/SB-166	...	N06025	98 (675)	43	111	43	63Ni-25Cr-10Fe-2Al-Ti-Y-Zr	Rod, bar & wire
B/SB-166	...	N06045	90 (620)	46	111	45	46Ni-27Cr-23Fe-2.75Si	Rod, bar & wire
B/SB-166	...	N06600	80 (550)	43	111	43	72Ni-15Cr-8Fe	Rod, bar & wire
B/SB-166	...	N06601	80 (550)	43	111	43	60Ni-23Cr-12Fe-Al	Rod, bar & wire
B/SB-166	...	N06617	95 (655)	43	111	46	52Ni-22Cr-13Co-9Mo	Rod, bar & wire
B/SB-166	...	N06690	85 (585)	43	111	43	58Ni-29Cr-9Fe	Rod, bar & wire
B/SB-167	...	N06025	98 (675)	43	111	43	63Ni-25Cr-10Fe-2Al-Ti-Y-Zr	Smls. pipe & tube
B/SB-167	...	N06045	90 (620)	46	111	45	46Ni-27Cr-23Fe-2.75Si	Smls. pipe & tube
B/SB-167	...	N06600	75 (515)	43	111	43	72Ni-15Cr-8Fe	Smls. pipe & tube
B/SB-167	...	N06601	80 (550)	43	111	43	60Ni-23Cr-12Fe-Al	Smls. pipe & tube

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	P-No.			
<b>Nonferrous (Cont'd)</b>								
B/SB-167	...	N06617	95 (655)	43	111	46	52Ni-22Cr-13Co-9Mo	Smls. pipe & tube
B/SB-167	...	N06690	75 (515)	43	111	43	58Ni-29Cr-9Fe	Smls. pipe & tube
B/SB-168	...	N06025	98 (675)	43	111	43	63Ni-25Cr-10Fe-2Al-Ti-Y-Zr	Plate, sheet & strip
B/SB-168	...	N06045	90 (620)	46	111	45	46Ni-27Cr-23Fe-2.75Si	Plate, sheet & strip
B/SB-168	...	N06600	80 (550)	43	111	43	72Ni-15Cr-8Fe	Plate, sheet & strip
B/SB-168	...	N06601	80 (550)	43	111	43	60Ni-23Cr-12Fe-Al	Plate, sheet & strip
B/SB-168	...	N06617	95 (655)	43	111	46	52Ni-22Cr-13Co-9Mo	Plate, sheet & strip
B/SB-168	...	N06690	85 (585)	43	111	43	58Ni-29Cr-9Fe	Plate, sheet & strip
B/SB-169	...	C61400	65 (450)	35	108	35	90Cu-7Al-3Fe	Plate, sheet, strip & bar > 2 in. - 5 in. (51 mm - 127 mm) incl.
B/SB-169	...	C61400	70 (485)	35	108	35	90Cu-7Al-3Fe	Plate, sheet, strip & bar > 1/2 in. - 2 in. (13 mm - 51 mm) incl.
B/SB-169	...	C61400	72 (495)	35	108	35	90Cu-7Al-3Fe	Plate, sheet, strip & bar ≤ 1/2 in. (13 mm)
B/SB-171	...	C36500	40 (275)	32	107	32.2	60Cu-39Zn-Pb	Plate & sheet
B/SB-171	...	C44300	45 (310)	32	107	32.2	71Cu-28Zn-1Sn-0.06As	Plate & sheet
B/SB-171	...	C44400	45 (310)	32	107	32.2	71Cu-28Zn-1Sn-0.06Sb	Plate & sheet
B/SB-171	...	C44500	45 (310)	32	107	32.2	71Cu-28Zn-1Sn-0.06P	Plate & sheet
B/SB-171	...	C46400	50 (345)	32	107	32.2	60Cu-39Zn-Sn	Plate & sheet
B/SB-171	...	C46500	50 (345)	32	107	32.2	60Cu-39Zn-As	Plate & sheet
B/SB-171	...	C61400	65 (450)	35	108	35	90Cu-7Al-3Fe	Plate & sheet > 2 in. - 5 in. (51 mm - 127 mm) incl.
B/SB-171	...	C61400	70 (485)	35	108	35	90Cu-7Al-3Fe	Plate & sheet ≤ 2 in. (51 mm)
B/SB-171	...	C63000	80 (550)	35	108	35	81Cu-10Al-5Ni-3Fe	Plate & sheet > 3 1/2 in. - 5 in. (89 mm - 127 mm), incl.
B/SB-171	...	C63000	85 (585)	35	108	35	81Cu-10Al-5Ni-3Fe	Plate & sheet > 2 in. - 3.5 in. (51 mm - 89 mm), incl.
B/SB-171	...	C63000	90 (620)	35	108	35	81Cu-10Al-5Ni-3Fe	Plate & sheet ≤ 2 in. (51 mm)
B/SB-171	...	C70600	40 (275)	34	107	34	90Cu-10Ni	Plate & sheet
B/SB-171	...	C71500	45 (310)	34	107	34	70Cu-30Ni	Plate & sheet > 2.5 in. - 5 in. (64 mm - 127 mm), incl.
B/SB-171	...	C71500	50 (345)	34	107	34	70Cu-30Ni	Plate & sheet ≤ 2.5 in. (64 mm)
B/SB-187	O60	C10200	28 (195)	31	107	31	99.95Cu-P	Rod & bar
B/SB-187	O60	C11000	28 (195)	31	107	31	99.9Cu	Rod & bar

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Brazing P-No.			
<b>Nonferrous (Cont'd)</b>								
B/SB-209	Alclad 3003	...	13 (90)	21	104	...	Al-Mn-Cu	Plate & sheet > 0.05 in. (1.3 mm) < 0.5 in. (13 mm)
B/SB-209	Alclad 3003	...	14 (97)	21	104	...	Al-Mn-Cu	Plate & sheet ≥ 0.5 in. - 3 in. (13 mm - 76 mm), incl.
B/SB-209	Alclad 3004	...	21 (145)	22	104	...	Al-Mn-Mg	Plate & sheet > 0.05 in. (1.3 mm) < 0.5 in. (13 mm)
B/SB-209	Alclad 3004	...	22 (150)	22	104	...	Al-Mn-Mg	Plate & sheet ≥ 0.5 in. - 3 in. (13 mm - 76 mm), incl.
B/SB-209	Alclad 6061	...	24 (165)	23	105	...	Al-Mg-Si-Cu	Plate & sheet
B/SB-209	1060	A91060	8 (55)	21	104	21	99.60Al	Plate & sheet
B/SB-209	1100	A91100	11 (76)	21	104	21	99.0Al-Cu	Plate & sheet
B/SB-209	3003	A93003	14 (97)	21	104	22.1	Al-Mn-Cu	Plate & sheet
B/SB-209	3004	A93004	22 (150)	22	104	22.2	Al-Mn-Mg	Plate & sheet
B/SB-209	5050	A95050	18 (125)	21	105	22.2	Al-1.5Mg	Plate & sheet
B/SB-209	5052	A95052	25 (170)	22	105	22.3	Al-2.5Mg	Plate & sheet
B/SB-209	5083	A95083	36 (250)	25	105	22.4	Al-4.4Mg-Mn	Plate & sheet > 7 in. - 8 in. (178 mm - 203 mm), incl.
B/SB-209	5083	A95083	37 (255)	25	105	22.4	Al-4.4Mg-Mn	Plate & sheet > 5 in. - 7 in. (127 mm - 178 mm), incl.
B/SB-209	5083	A95083	38 (260)	25	105	22.4	Al-4.4Mg-Mn	Plate & sheet > 3 in. - 5 in. (76 mm - 127 mm), incl.
B/SB-209	5083	A95083	39 (270)	25	105	22.4	Al-4.4Mg-Mn	Plate & sheet > 1.5 in. - 3 in. (38 mm - 76 mm), incl.
B/SB-209	5083	A95083	40 (275)	25	105	22.4	Al-4.4Mg-Mn	Plate & sheet > 0.05 in. - 1.5 in. (1.3 mm - 38 mm), incl.
B/SB-209	5086	A95086	35 (240)	25	105	22.4	Al-4.0Mg-Mn	Plate & sheet
B/SB-209	5154	A95154	30 (205)	22	105	22.4	Al-3.5Mg	Plate & sheet
B/SB-209	5254	A95254	30 (205)	22	105	22.4	Al-3.5Mg	Plate & sheet
B/SB-209	5454	A95454	31 (215)	22	105	22.3	Al-2.7Mg-Mn	Plate & sheet
B/SB-209	5456	A95456	38 (260)	25	105	22.4	Al-5.1Mg-Mn	Plate & sheet > 7 in. - 8 in. (178 mm - 203 mm), incl.
B/SB-209	5456	A95456	39 (270)	25	105	22.4	Al-5.1Mg-Mn	Plate & sheet > 5 in. - 7 in. (127 mm - 178 mm), incl.
B/SB-209	5456	A95456	40 (275)	25	105	22.4	Al-5.1Mg-Mn	Plate & sheet > 3 in. - 5 in. (76 mm - 127 mm), incl.

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	P-No.			
<b>Nonferrous (Cont'd)</b>								
B/SB-209	5456	A95456	41 (285)	25	105	22.4	Al-5.1Mg-Mn	Plate & sheet > 1.5 in. - 3 in. (38 mm - 76 mm), incl.
B/SB-209	5456	A95456	42 (290)	25	105	22.4	Al-5.1Mg-Mn	Plate & sheet > 0.05 in. - 1.5 in. (1.3 mm - 38 mm), incl.
B/SB-209	5652	A95652	25 (170)	22	105	22.3	Al-2.5Mg	Plate & sheet
B/SB-209	6061	A96061	24 (165)	23	105	23.1	Al-Mg-Si-Cu	Plate & sheet
B/SB-210	Alclad 3003	...	13 (90)	21	104	...	Al-Mn-Cu	Smls. tube
B/SB-210	1060	A91060	8.5 (59)	21	104	21	99.60Al	Smls. tube
B/SB-210	3003	A93003	14 (97)	21	104	22.1	Al-Mn-Cu	Smls. tube
B/SB-210	5052	A95052	25 (170)	22	105	22.3	Al-2.5Mg	Smls. tube
B210	5083	A95083	39 (270)	25	105	22.4	Al-4.4Mg-Mn	Smls. tube
B210	5086	A95086	35 (240)	25	105	22.4	Al-4.0Mg-Mn	Smls. tube
B/SB-210	5154	A95154	30 (205)	22	105	22.4	Al-3.5Mg	Smls. tube
B210	5456	A95456	41 (285)	25	105	22.4	Al-5.1Mg-Mn	Smls. tube
B/SB-210	6061	A96061	24 (165)	23	105	23.1	Al-Mg-Si-Cu	Smls. tube
B/SB-210	6063	A96063	17 (115)	23	105	23.1	Al-Mg-Si	Smls. tube
B/SB-211	6061	A96061	24 (165)	23	105	23.1	Al-Mg-Si-Cu	Bar, rod & wire
B/SB-221	1060	A91060	8.5 (59)	21	104	21	99.60Al	Bar, rod & shapes
B/SB-221	1100	A91100	11 (76)	21	104	21	99.0Al-Cu	Bar, rod & shapes
B/SB-221	3003	A93003	14 (97)	21	104	22.1	Al-Mn-Cu	Bar, rod & shapes
B/SB-221	5083	A95083	39 (270)	25	105	22.4	Al-4.4Mg-Mn	Bar, rod & shapes
B/SB-221	5154	A95154	30 (205)	22	105	22.4	Al-3.5Mg	Bar, rod & shapes
B/SB-221	5454	A95454	31 (215)	22	105	22.3	Al-2.7Mg-Mn	Bar, rod & shapes
B/SB-221	5456	A95456	41 (285)	25	105	22.4	Al-5.1Mg-Mn	Bar, rod & shapes
B/SB-221	6061	A96061	24 (165)	23	105	23.1	Al-Mg-Si-Cu	Bar, rod & shapes
B/SB-221	6063	A96063	17 (115)	23	105	23.1	Al-Mg-Si	Bar, rod & shapes
B/SB-234	Alclad 3003	...	13 (90)	21	104	...	Al-Mn-Cu	Smls. tube
B/SB-234	1060	A91060	8.5 (59)	21	104	21	99.60Al	Smls. tube
B/SB-234	3003	A93003	14 (97)	21	104	22.1	Al-Mn-Cu	Smls. tube
B/SB-234	5052	A95052	25 (170)	22	105	22.3	Al-2.5Mg	Smls. tube
B/SB-234	5454	A95454	31 (215)	22	105	22.3	Al-2.7Mg-Mn	Smls. tube
B/SB-234	6061	A96061	24 (165)	23	105	23.1	Al-Mg-Si-Cu	Smls. tube



**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	P-No.			
<b>Nonferrous (Cont'd)</b>								
B/SB-241	Alclad 3003	...	13 (90)	21	104	...	Al-Mn-Cu	Smls. pipe & tube
B/SB-241	1060	A91060	8.5 (59)	21	104	21	99.60Al	Smls. pipe & tube
B/SB-241	1100	A91100	11 (76)	21	104	21	99.0Al-Cu	Smls. pipe & tube
B/SB-241	3003	A93003	14 (97)	21	104	22.1	Al-Mn-Cu	Smls. pipe & tube
B/SB-241	5052	A95052	25 (170)	22	105	22.3	Al-2.5Mg	Smls. pipe & tube
B/SB-241	5083	A95083	39 (270)	25	105	22.4	Al-4.4Mg-Mn	Smls. pipe & tube
B/SB-241	5086	A95086	35 (240)	25	105	22.4	Al-4.0Mg-Mn	Smls. pipe & tube
B/SB-241	5454	A95454	31 (215)	22	105	22.3	Al-2.7Mg-Mn	Smls. pipe & tube
B/SB-241	5456	A95456	41 (285)	25	105	22.4	Al-5.1Mg-Mn	Smls. pipe & tube
B/SB-241	6061	A96061	24 (165)	23	105	23.1	Al-Mg-Si-Cu	Smls. pipe & tube
B/SB-241	6063	A96063	17 (115)	23	105	23.1	Al-Mg-Si	Smls. pipe & tube
B/SB-247	3003	A93003	14 (97)	21	104	22.1	Al-Mn-Cu	Forgings
B/SB-247	5083	A95083	38 (260)	25	105	22.4	Al-4.4Mg-Mn	Forgings
B/SB-247	6061	A96061	24 (165)	23	105	23.1	Al-Mg-Si-Cu	Forgings
B/SB-265	1	R50250	35 (240)	51	115	51.1	Ti	Plate, sheet & strip
B/SB-265	2	R50400	50 (345)	51	115	51.2	Ti	Plate, sheet & strip
B/SB-265	2H	R50400	58 (400)	51	115	51.2	Ti	Plate, sheet & strip
B/SB-265	3	R50550	65 (450)	52	115	51.3	Ti	Plate, sheet & strip
B/SB-265	11	R52250	35 (240)	51	115	52	Ti-Pd	Plate, sheet & strip
B/SB-265	17	R52252	35 (240)	51	...	51.1	Ti-Pd	Plate, sheet & strip
B/SB-265	27	R52254	35 (240)	51	115	51.1	Ti-Ru	Plate, sheet & strip
B/SB-265	7	R52400	50 (345)	51	115	52	Ti-Pd	Plate, sheet & strip
B/SB-265	7H	R52400	58 (400)	51	115	52	Ti-Pd	Plate, sheet & strip
B/SB-265	16	R52402	50 (345)	51	115	51.2	Ti-Pd	Plate, sheet & strip
B/SB-265	16H	R52402	58 (400)	51	115	51.2	Ti-Pd	Plate, sheet & strip
B/SB-265	26	R52404	50 (345)	51	115	51.2	Ti-Ru	Plate, sheet & strip
B/SB-265	26H	R52404	58 (400)	51	115	51.2	Ti-Ru	Plate, sheet & strip
B/SB-265	12	R53400	70 (485)	52	115	52	Ti-0.3Mo-0.8Ni	Plate, sheet & strip
B/SB-265	38	R54250	130 (895)	54	115	53	Ti-4Al-2.5V-1.5Fe	Plate, sheet & strip
B/SB-265	9	R56320	90 (620)	53	115	53	Ti-3Al-2.5V	Plate, sheet & strip
B/SB-265	28	R56323	90 (620)	53	115	53	Ti-3Al-2.5V-0.1Ru	Plate, sheet & strip
B/SB-271	...	C95200	65 (450)	35	108	35	88Cu-9Al-3Fe	Castings
B/SB-271	...	C95400	75 (515)	35	108	35	85Cu-11Al-4Fe	Castings
B280	102	C10200	30 (205)	31	107	31	99.95Cu-P	Smls. tube

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Brazing P-No.			
<b>Nonferrous (Cont'd)</b>								
B280	120	C12000	30 (205)	31	107	31	99.9Cu-P	Smls. tube
B280	122	C12200	30 (205)	31	107	31	99.9Cu-P	Smls. tube
B/SB-283	Cu	C11000	33 (230)	31	107	31	99.9Cu	Forgings
B/SB-283	Forging Brass	C37700	46 (315)	...	107	NA	60Cu-38Zn-2Pb	Forgings > 1.5 in. (38 mm)
B/SB-283	Forging Brass	C37700	50 (345)	...	107	NA	60Cu-38Zn-2Pb	Forgings ≤ 1.5 in. (38 mm)
B/SB-283	Naval Brass	C46400	64 (440)	32	107	32.2	60Cu-39Zn-Sn	Forgings
B/SB-283	High Si Bronze	C65500	52 (360)	33	107	31	97Cu-3Si	Forgings
B/SB-283	Mn Bronze	C67500	72 (495)	32	107	32.2	59Cu-39Zn-Fe-Sn	Forgings
B302	...	C12000	30 (205)	31	107	31	99.9Cu-P	Pipe
B302	...	C12200	30 (205)	31	107	31	99.9Cu-P	Pipe
B/SB-308	6061	A96061	24 (165)	23	105	23.1	Al-Mg-Si-Cu	Shapes
B/SB-315	...	C65500	50 (345)	33	107	33	97Cu-3Si	Smls. pipe & tube
B/SB-333	...	N10001	100 (690)	44	112	44	62Ni-28Mo-5Fe	Plate, sheet & strip ≥ 0.1875 in. - 2.5 in. (5 mm - 64 mm), incl.
B/SB-333	...	N10001	115 (795)	44	112	44	62Ni-28Mo-5Fe	Plate, sheet & strip < 0.1875 in. (5 mm)
B/SB-333	...	N10629	110 (760)	44	112	44	66Ni-28Mo-3Fe-1.3Cr-0.25Al	Plate, sheet & strip
B/SB-333	...	N10665	110 (760)	44	112	44	65Ni-28Mo-2Fe	Plate, sheet & strip
B/SB-333	...	N10675	110 (760)	44	112	44	65Ni-29.5Mo-2Fe-2Cr	Plate, sheet & strip
B/SB-335	...	N10001	100 (690)	44	112	44	62Ni-28Mo-5Fe	Rod > 1.5 in. - 3.5 in. (38 mm - 89 mm), incl.
B/SB-335	...	N10001	115 (795)	44	112	44	62Ni-28Mo-5Fe	Rod ≥ 0.3125 in. - 1.5 in. (8 mm - 38 mm), incl.
B/SB-335	...	N10629	110 (760)	44	112	44	66Ni-28Mo-3Fe-1.3Cr-0.25Al	Rod
B/SB-335	...	N10665	110 (760)	44	112	44	65Ni-28Mo-2Fe	Rod
B/SB-335	...	N10675	110 (760)	44	112	44	65Ni-29.5Mo-2Fe-2Cr	Rod
B/SB-338	1	R50250	35 (240)	51	115	51.1	Ti	Smls. & welded tube
B/SB-338	2	R50400	50 (345)	51	115	51.2	Ti	Smls. & welded tube
B/SB-338	2H	R50400	58 (400)	51	115	51.2	Ti	Smls. & welded tube
B/SB-338	3	R50550	65 (450)	52	115	51.3	Ti	Smls. & welded tube
B/SB-338	7	R52400	50 (345)	51	115	52	Ti-Pd	Smls. & welded tube
B/SB-338	7H	R52400	58 (400)	51	115	52	Ti-Pd	Smls. & welded tube
B/SB-338	16	R52402	50 (345)	51	115	51.2	Ti-Pd	Smls. & welded tube
B/SB-338	16H	R52402	58 (400)	51	115	51.2	Ti-Pd	Smls. & welded tube
B/SB-338	26	R52404	50 (345)	51	115	51.2	Ti-Ru	Smls. & welded tube
B/SB-338	26H	R52404	58 (400)	51	115	51.2	Ti-Ru	Smls. & welded tube

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Brazing P-No.			
<b>Nonferrous (Cont'd)</b>								
B/SB-338	12	R53400	70 (485)	52	115	52	Ti-0.3Mo-0.8Ni	Smls. & welded tube
B/SB-338	38	R54250	130 (895)	54	115	53	Ti-4Al-2.5V-1.5Fe	Smls. & welded tube
B/SB-338	9	R56320	90 (620)	53	115	53	Ti-3Al-2.5V	Smls. & welded tube
B/SB-338	28	R56323	90 (620)	53	115	53	Ti-3Al-2.5V-0.1Ru	Smls. & welded tube
B345	1060	A91060	8.5 (59)	21	104	21	99.60Al	Smls. pipe & tube
B345	3003	A93003	14 (97)	21	104	22.1	Al-Mn-Cu	Smls. pipe & tube
B345	5083	A95083	39 (270)	25	105	22.4	Al-4.4Mg-Mn	Smls. pipe & tube
B345	5086	A95086	35 (240)	25	105	22.4	Al-4.0Mg-Mn	Smls. pipe & tube
B345	6061	A96061	24 (165)	23	105	23.1	Al-Mg-Si-Cu	Smls. pipe & tube
B345	6063	A96063	17 (115)	23	105	23.1	Al-Mg-Si	Smls. pipe & tube
B/SB-348	1	R50250	35 (240)	51	115	51.1	Ti	Bars & billets
B/SB-348	2	R50400	50 (345)	51	115	51.2	Ti	Bars & billets
B/SB-348	2H	R50400	58 (400)	51	115	51.2	Ti	Bars & billets
B/SB-348	3	R50550	65 (450)	52	115	51.3	Ti	Bars & billets
B/SB-348	7	R52400	50 (345)	51	115	52	Ti-Pd	Bars & billets
B/SB-348	7H	R52400	58 (400)	51	115	52	Ti-Pd	Bars & billets
B/SB-348	16	R52402	50 (345)	51	115	51.2	Ti-Pd	Bars & billets
B/SB-348	16H	R52402	58 (400)	51	115	51.2	Ti-Pd	Bars & billets
B/SB-348	26	R52404	50 (345)	51	115	51.2	Ti-Ru	Bars & billets
B/SB-348	26H	R52404	58 (400)	51	115	51.2	Ti-Ru	Bars & billets
B/SB-348	12	R53400	70 (485)	52	115	52	Ti-0.3Mo-0.8Ni	Bars & billets
B/SB-348	38	R54250	130 (895)	54	115	53	Ti-4Al-2.5V-1.5Fe	Bars & billets
B/SB-348	9	R56320	90 (620)	53	115	53	Ti-3Al-2.5V	Bars & billets
B/SB-348	28	R56323	90 (620)	53	115	53	Ti-3Al-2.5V-0.1Ru	Bars & billets
B/SB-359	...	C12200	30 (205)	31	107	31	99.9Cu-P	Smls. tube
B/SB-359	...	C44300	45 (310)	32	107	32.2	71Cu-28Zn-1Sn-0.06As	Smls. tube
B/SB-359	...	C44400	45 (310)	32	107	32.2	71Cu-28Zn-1Sn-0.06Sb	Smls. tube
B/SB-359	...	C44500	45 (310)	32	107	32.2	71Cu-28Zn-1Sn-0.06P	Smls. tube
B/SB-359	...	C70600	40 (275)	34	107	34	90Cu-10Ni	Smls. tube
B/SB-359	...	C71000	45 (310)	34	107	34	80Cu-20Ni	Smls. tube
B/SB-359	...	C71500	52 (360)	34	107	34	70Cu-30Ni	Smls. tube
B361	WP Alclad 3003	A83003	13 (90)	21	104	...	Al-Mn-Cu	Fittings
B361	WP1060	A91060	8.5 (59)	21	104	21	99.60Al	Fittings
B361	WP1100	A91100	11 (76)	21	104	21	99.0Al-Cu	Fittings

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Brazing P-No.			
<b>Nonferrous (Cont'd)</b>								
B361	WP3003	A93003	14 (97)	21	104	22.1	Al-Mn-Cu	Fittings
B361	5083	A95083	39 (270)	25	105	22.4	Al-4.4Mg-Mn	Fittings
B361	5154	A95154	30 (205)	22	105	22.3	Al-3.5Mg	Fittings
B361	WP6061	A96061	24 (165)	23	105	23.1	Al-Mg-Si-Cu	Fittings
B361	WP6063	A96063	17 (115)	23	105	23.1	Al-Mg-Si	Fittings
B/SB-363	WPT 1	R50250	35 (240)	51	115	51.1	Ti	Smls. & welded fittings
B/SB-363	WPT 2	R50400	50 (345)	51	115	51.2	Ti	Smls. & welded fittings
B/SB-363	WPT 3	R50550	65 (450)	52	115	51.3	Ti	Smls. & welded fittings
B/SB-363	WPT 7	R52400	50 (345)	51	115	52	Ti-Pd	Smls. & welded fittings
B/SB-363	WPT 7H	R52400	58 (400)	51	115	52	Ti-Pd	Smls. & welded fittings
B/SB-363	WPT 16	R52402	50 (345)	51	115	51.2	Ti-Pd	Smls. & welded fittings
B/SB-363	WPT 16H	R52402	58 (400)	51	115	51.2	Ti-Pd	Smls. & welded fittings
B/SB-363	WPT 26	R52404	50 (345)	51	115	51.2	Ti-Ru	Smls. & welded fittings
B/SB-363	WPT 26H	R52404	58 (400)	51	115	51.2	Ti-Ru	Smls. & welded fittings
B/SB-363	WPT 12	R53400	70 (485)	52	115	52	Ti-0.3Mo-0.8Ni	Smls. & welded fittings
B/SB-363	WPT 38	R54250	130 (895)	54	115	53	Ti-4Al-2.5V-1.5Fe	Smls. & welded fittings
B/SB-363	WPT 9	R56320	90 (620)	53	115	53	Ti-3Al-2.5V	Smls. & welded fittings
B/SB-363	WPT 28	R56323	90 (620)	53	115	53	Ti-3Al-2.5V-0.1Ru	Smls. & welded fittings
B/SB-366	...	N02200	55 (380)	41	110	41	99.0Ni	Fittings
B/SB-366	...	N02201	50 (345)	41	110	41	99.0Ni-Low C	Fittings
B/SB-366	...	N04400	70 (485)	42	110	42	67Ni-30Cu	Fittings
B/SB-366	...	N06002	100 (690)	43	111	43	47Ni-22Cr-9Mo-18Fe	Fittings
B/SB-366	...	N06007	90 (620)	45	111	43	47Ni-22Cr-19Fe-6Mo	Fittings
B/SB-366	...	N06022	100 (690)	43	111	44	55Ni-21Cr-13.5Mo	Fittings
B/SB-366	...	N06025	98 (675)	43	111	43	63Ni-25Cr-10Fe-2Al-Ti-Y-Zr	Fittings
B/SB-366	...	N06030	85 (585)	45	111	45	40Ni-29Cr-15Fe-5Mo	Fittings
B/SB-366	...	N06035	85 (585)	43	111	43	58Ni-33Cr-8Mo	Fittings
B/SB-366	...	N06045	90 (620)	46	111	45	46Ni-27Cr-23Fe-2.75Si	Fittings
B/SB-366	...	N06059	100 (690)	43	111	43	59Ni-23Cr-16Mo	Fittings
B/SB-366	...	N06200	100 (690)	43	111	43	59Ni-23Cr-16Mo-1.6Cu	Fittings
B/SB-366	...	N06210	100 (690)	43	111	43	60Ni-19Cr-19Mo-1.8Ta	Fittings
B/SB-366	...	N06230	110 (760)	43	111	43	53Ni-22Cr-14W-Co-Fe-Mo	Fittings
B/SB-366	...	N06455	100 (690)	43	111	43	61Ni-15Mo-16Cr	Fittings
B/SB-366	...	N06600	80 (550)	43	111	43	72Ni-15Cr-8Fe	Fittings
B/SB-366	...	N06625	110 (760)	43	111	43	60Ni-22Cr-9Mo-3.5Cb	Fittings
B/SB-366	...	N06985	90 (620)	45	111	45	47Ni-22Cr-20Fe-7Mo	Fittings

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	P-No.			
<b>Nonferrous (Cont'd)</b>								
B/SB-366	...	N08020	80 (550)	45	111	45	35Ni-35Fe-20Cr-Cb	Fittings
B/SB-366	...	N08031	94 (650)	45	111	45	31Ni-31Fe-27Cr-7Mo	Fittings
B/SB-366	...	N08120	90 (620)	45	111	45	37Ni-33Fe-25Cr	Fittings
B/SB-366	...	N08330	70 (485)	46	111	45	35Ni-19Cr-1.25Si	Fittings
B/SB-366	...	N08367	95 (655)	45	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Fittings > 3/16 in. (5 mm)
B/SB-366	...	N08367	100 (690)	45	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Fittings ≤ 3/16 in. (5 mm)
B/SB-366	...	N08800	75 (515)	45	111	45	33Ni-42Fe-21Cr	Fittings
B/SB-366	...	N08825	85 (585)	45	111	45	42Ni-21.5Cr-3Mo-2.3Cu	Fittings
B/SB-366	...	N08925	87 (600)	45	111	8.2	25Ni-20Cr-6Mo-Cu-N	Fittings
B/SB-366	...	N08926	94 (650)	45	111	8.2	25Ni-20Cr-6Mo-Cu-N	Fittings
B/SB-366	...	N10001	100 (690)	44	112	44	62Ni-28Mo-5Fe	Fittings
B/SB-366	...	N10003	100 (690)	44	112	44	70Ni-16Mo-7Cr-5Fe	Fittings
B/SB-366	...	N10242	105 (725)	44	112	44	62Ni-25Mo-8Cr-2Fe	Fittings
B/SB-366	...	N10276	100 (690)	43	111	43	54Ni-16Mo-15Cr	Fittings
B/SB-366	...	N10362	105 (725)	43	111	43	62Ni-22Mo-15Cr	Fittings
B/SB-366	...	N10629	110 (760)	44	112	44	66Ni-28Mo-3Fe-1.3Cr-0.25Al	Fittings
B/SB-366	...	N10665	110 (760)	44	112	44	65Ni-28Mo-2Fe	Fittings
B/SB-366	...	N10675	110 (760)	44	112	44	65Ni-29.5Mo-2Fe-2Cr	Fittings
B/SB-366	...	N12160	90 (620)	46	...	46	37Ni-30Co-28Cr-2.7Si	Fittings
B/SB-366	...	R20033	109 (750)	45	111	45	33Cr-31Ni-32Fe-1.5Mo-0.6Cu-N	Fittings
B/SB-366	...	R30556	100 (690)	45	111	45	21Ni-30Fe-22Cr-18Co-3Mo-3W	Fittings
B/SB-367	Gr. C-2	R52550	50 (345)	51	115	51.4	Ti	Castings
B/SB-367	Gr. C-3	R52550	65 (450)	52	115	51.4	Ti	Castings
B/SB-369	...	C96200	45 (310)	34	107	34	87.5Cu-10Ni-Fe-Mn	Castings
B/SB-381	F-1	R50250	35 (240)	51	115	51.1	Ti	Forgings
B/SB-381	F-2	R50400	50 (345)	51	115	51.2	Ti	Forgings
B/SB-381	F-2H	R50400	58 (400)	51	115	51.2	Ti	Forgings
B/SB-381	F-3	R50550	65 (450)	52	115	51.3	Ti	Forgings
B/SB-381	F-7	R52400	50 (345)	51	115	52	Ti-Pd	Forgings
B/SB-381	F-7H	R52400	58 (400)	51	115	52	Ti-Pd	Forgings
B/SB-381	F-16	R52402	50 (345)	51	115	51.2	Ti-Pd	Forgings
B/SB-381	F-16H	R52402	58 (400)	51	115	51.2	Ti-Pd	Forgings
B/SB-381	F-26	R52404	50 (345)	51	115	51.2	Ti-Ru	Forgings
B/SB-381	F-26H	R52404	58 (400)	51	115	51.2	Ti-Ru	Forgings
B/SB-381	F-12	R53400	70 (485)	52	115	52	Ti-0.3Mo-0.8Ni	Forgings

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Brazing P-No.			
<b>Nonferrous (Cont'd)</b>								
B/SB-381	F-38	R54250	130 (895)	54	115	53	Ti-4Al-2.5V-1.5Fe	Forgings
B/SB-381	F-9	R56320	90 (620)	53	115	53	Ti-3Al-2.5V	Forgings
B/SB-381	F-28	R56323	90 (620)	53	115	53	Ti-3Al-2.5V-0.1Ru	Forgings
B/SB-395	...	C10200	30 (205)	31	107	31	99.95Cu-P	Smls. tube
B/SB-395	...	C12000	30 (205)	31	107	31	99.9Cu-P	Smls. tube
B/SB-395	...	C12200	30 (205)	31	107	31	99.9Cu-P	Smls. tube
B/SB-395	...	C14200	30 (205)	31	107	31	99.4Cu-As-P	Smls. tube
B/SB-395	...	C19200	38 (260)	31	107	31	99.7Cu-Fe-P	Smls. tube
B/SB-395	...	C23000	40 (275)	32	107	32.1	85Cu-15Zn	Smls. tube
B/SB-395	...	C44300	45 (310)	32	107	32.2	71Cu-28Zn-1Sn-0.06As	Smls. tube
B/SB-395	...	C44400	45 (310)	32	107	32.2	71Cu-28Zn-1Sn-0.06Sb	Smls. tube
B/SB-395	...	C44500	45 (310)	32	107	32.2	71Cu-28Zn-1Sn-0.06P	Smls. tube
B/SB-395	...	C60800	50 (345)	35	108	35	95Cu-5Al	Smls. tube
B/SB-395	...	C68700	50 (345)	32	108	32.2	78Cu-20Zn-2Al	Smls. tube
B/SB-395	...	C70600	40 (275)	34	107	34	90Cu-10Ni	Smls. tube
B/SB-395	...	C71000	45 (310)	34	107	34	80Cu-20Ni	Smls. tube
B/SB-395	...	C71500	52 (360)	34	107	34	70Cu-30Ni	Smls. tube
B/SB-407	...	N08120	90 (620)	45	111	45	37Ni-33Fe-25Cr	Smls. pipe & tube
B/SB-407	...	N08800	75 (515)	45	111	45	33Ni-42Fe-21Cr	Smls. pipe & tube
B/SB-407	...	N08801	65 (450)	45	111	45	32Ni-45Fe-20.5Cr-Ti	Smls. pipe & tube
B/SB-407	...	N08810	65 (450)	45	111	45	33Ni-42Fe-21Cr	Smls. pipe & tube
B/SB-407	...	N08811	65 (450)	45	111	45	33Ni-42Fe-21Cr-Al-Ti	Smls. pipe & tube
B/SB-408	...	N08120	90 (620)	45	111	45	37Ni-33Fe-25Cr	Rod & bar
B/SB-408	...	N08800	75 (515)	45	111	45	33Ni-42Fe-21Cr	Rod & bar
B/SB-408	...	N08810	65 (450)	45	111	45	33Ni-42Fe-21Cr	Rod & bar
B/SB-408	...	N08811	65 (450)	45	111	45	33Ni-42Fe-21Cr-Al-Ti	Rod & bar
B/SB-409	...	N08120	90 (620)	45	111	45	37Ni-33Fe-25Cr	Plate, sheet & strip
B/SB-409	...	N08800	75 (515)	45	111	45	33Ni-42Fe-21Cr	Plate, sheet & strip
B/SB-409	...	N08810	65 (450)	45	111	45	33Ni-42Fe-21Cr	Plate, sheet & strip
B/SB-409	...	N08811	65 (450)	45	111	45	33Ni-42Fe-21Cr-Al-Ti	Plate, sheet & strip
B/SB-423	...	N08825	75 (515)	45	111	45	42Ni-21.5Cr-3Mo-2.3Cu	Smls. pipe & tube
B/SB-424	...	N08825	85 (585)	45	111	45	42Ni-21.5Cr-3Mo-2.3Cu	Plate, sheet & strip
B/SB-425	...	N08825	85 (585)	45	111	45	42Ni-21.5Cr-3Mo-2.3Cu	Rod & bar

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	P-No.			
<b>Nonferrous (Cont'd)</b>								
B/SB-434	...	N10003	100 (690)	44	112	44	70Ni-16Mo-7Cr-5Fe	Plate, sheet & strip
B/SB-434	...	N10242	105 (725)	44	112	44	62Ni-25Mo-8Cr-2Fe	Plate, sheet & strip
B/SB-435	...	N06002	95 (655)	43	111	43	47Ni-22Cr-9Mo-18Fe	Plate, sheet & strip
B/SB-435	...	N06230	110 (760)	43	111	43	53Ni-22Cr-14W-Co-Fe-Mo	Plate, sheet & strip
B/SB-435	...	N12160	90 (620)	46	...	46	37Ni-30Co-28Cr-2.7Si	Plate, sheet & strip
B/SB-435	...	R30556	100 (690)	45	111	45	21Ni-30Fe-22Cr-18Co-3Mo-3W	Plate, sheet & strip
B/SB-443	1	N06625	110 (760)	43	111	43	60Ni-22Cr-9Mo-3.5Cb	Plate, sheet & strip
B/SB-443	2	N06625	100 (690)	43	111	43	60Ni-22Cr-9Mo-3.5Cb	Plate, sheet & strip
B/SB-444	1	N06625	120 (825)	43	111	43	60Ni-22Cr-9Mo-3.5Cb	Smls. pipe & tube
B/SB-444	2	N06625	100 (690)	43	111	43	60Ni-22Cr-9Mo-3.5Cb	Smls. pipe & tube
B/SB-446	1	N06625	120 (825)	43	111	43	60Ni-22Cr-9Mo-3.5Cb	Rod & bar
B/SB-446	2	N06625	100 (690)	43	111	43	60Ni-22Cr-9Mo-3.5Cb	Rod & bar
B/SB-462	...	N06022	100 (690)	43	111	44	55Ni-21Cr-13.5Mo	Forgings
B/SB-462	...	N06030	85 (585)	45	111	45	40Ni-29Cr-15Fe-5Mo	Forgings
B/SB-462	...	N06035	85 (585)	43	111	43	58Ni-33Cr-8Mo	Forgings
B/SB-462	...	N06045	90 (620)	46	111	45	46Ni-27Cr-23Fe-2.75Si	Forgings
B/SB-462	...	N06059	100 (690)	43	111	43	59Ni-23Cr-16Mo	Forgings
B/SB-462	...	N06200	100 (690)	43	111	43	59Ni-23Cr-16Mo-1.6Cu	Forgings
B/SB-462	...	N06686	100 (690)	43	111	43	58Ni-21Cr-16Mo-3.5N	Forgings
B/SB-462	...	N08020	80 (550)	45	111	45	35Ni-35Fe-20Cr-Cb	Forgings
B/SB-462	...	N08031	94 (650)	45	111	45	31Ni-33Fe-22Cr-6.5Mo-Cu-N	Forgings
B/SB-462	...	N08367	95 (655)	45	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Forgings
B/SB-462	...	N10276	100 (690)	43	111	43	54Ni-16Mo-15Cr	Forgings
B/SB-462	...	N10362	105 (725)	43	111	43	62Ni-22Mo-15Cr	Forgings
B/SB-462	...	N10629	110 (760)	44	112	44	66Ni-28Mo-3Fe-1.3Cr-0.25Al	Forgings
B/SB-462	...	N10665	110 (760)	44	112	44	65Ni-28Mo-2Fe	Forgings
B/SB-462	...	N10675	110 (760)	44	112	44	65Ni-29.5Mo-2Fe-2Cr	Forgings
B/SB-462	...	R20033	109 (750)	45	111	45	33Cr-31Ni-32Fe-1.5Mo-0.6Cu-N	Forgings
B/SB-463	...	N08020	80 (550)	45	111	45	35Ni-35Fe-20Cr-Cb	Plate, sheet & strip
B/SB-463	...	N08024	80 (550)	45	111	45	37Ni-33Fe-23Cr-4Mo	Plate, sheet & strip
B/SB-463	...	N08026	80 (550)	45	111	45	35Ni-30Fe-24Cr-6Mo-3Cu	Plate, sheet & strip
B/SB-464	...	N08020	80 (550)	45	111	45	35Ni-35Fe-20Cr-Cb	Welded pipe

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	P-No.			
<b>Nonferrous (Cont'd)</b>								
B/SB-464	...	N08024	80 (550)	45	111	45	37Ni-33Fe-23Cr-4Mo	Welded pipe
B/SB-464	...	N08026	80 (550)	45	111	45	35Ni-30Fe-24Cr-6Mo-3Cu	Welded pipe
B/SB-466	...	C70600	38 (260)	34	107	34	90Cu-10Ni	Smls. pipe & tube
B/SB-466	...	C71000	45 (310)	34	107	34	80Cu-20Ni	Smls. pipe & tube
B/SB-466	...	C71500	52 (360)	34	107	34	70Cu-30Ni	Smls. pipe & tube
B/SB-467	...	C70600	38 (260)	34	107	34	90Cu-10Ni	Welded pipe > 4.5 in. (114 mm) O.D.
B/SB-467	...	C70600	40 (275)	34	107	34	90Cu-10Ni	Welded pipe ≤ 4.5 in. (114 mm) O.D.
B/SB-467	...	C71500	45 (310)	34	107	34	70Cu-30Ni	Welded pipe > 4.5 in. (114 mm) O.D.
B/SB-467	...	C71500	50 (345)	34	107	34	70Cu-30Ni	Welded pipe ≤ 4.5 in. (114 mm) O.D.
B/SB-468	...	N08020	80 (550)	45	111	45	35Ni-35Fe-20Cr-Cb	Welded tube
B/SB-468	...	N08024	80 (550)	45	111	45	37Ni-33Fe-23Cr-4Mo	Welded tube
B/SB-468	...	N08026	80 (550)	45	111	45	35Ni-30Fe-24Cr-6Mo-3Cu	Welded tube
B/SB-473	...	N08020	80 (550)	45	111	45	35Ni-35Fe-20Cr-Cb	Bar
B491	3003	A93003	14 (97)	21	104	22.1	Al-Mn-Cu	Extruded tube
B/SB-493	R60702	R60702	55 (380)	61	117	61	99.2Zr	Forgings
B/SB-493	R60705	R60705	70 (485)	62	117	62	95.5Zr+2.5Cb	Forgings
B/SB-505	...	C95200	68 (470)	35	108	35	88Cu-9Al-3Fe	Castings
B/SB-511	...	N08330	70 (485)	46	111	45	35Ni-19Cr-1.25Si	Bars & shapes
B/SB-514	...	N08120	90 (620)	45	111	45	37Ni-33Fe-25Cr	Welded pipe
B/SB-514	...	N08800	75 (515)	45	111	45	33Ni-42Fe-21Cr	Welded pipe
B/SB-514	...	N08810	65 (450)	45	111	45	33Ni-42Fe-21Cr	Welded pipe
B/SB-515	...	N08120	90 (620)	45	111	45	37Ni-33Fe-25Cr	Welded tube
B/SB-515	...	N08800	75 (515)	45	111	45	33Ni-42Fe-21Cr	Welded tube
B/SB-515	...	N08810	65 (450)	45	111	45	33Ni-42Fe-21Cr	Welded tube
B/SB-515	...	N08811	65 (450)	45	111	45	33Ni-42Fe-21Cr-Al-Ti	Welded tube
B/SB-516	...	N06025	98 (675)	43	111	43	63Ni-25Cr-10Fe-2Al-Ti-Y-Zr	Welded tube
B/SB-516	...	N06045	90 (620)	46	111	45	46Ni-27Cr-23Fe-2.75Si	Welded tube
B/SB-516	...	N06600	80 (550)	43	111	43	72Ni-15Cr-8Fe	Welded tube
B/SB-517	...	N06025	98 (675)	43	111	43	63Ni-25Cr-10Fe-2Al-Ti-Y-Zr	Welded pipe
B/SB-517	...	N06045	90 (620)	46	111	45	46Ni-27Cr-23Fe-2.75Si	Welded pipe



**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	P-No.			
<b>Nonferrous (Cont'd)</b>								
B/SB-517	...	N06600	80 (550)	43	111	43	72Ni-15Cr-8Fe	Welded pipe
B/SB-523	R60702	R60702	55 (380)	61	117	61	99.2Zr	Smls. & welded tube
B/SB-523	R60705	R60705	80 (550)	62	117	62	95.5Zr+2.5Cb	Smls. & welded tube
B/SB-535	...	N08330	70 (485)	46	111	45	35Ni-19Cr-1.25Si	Smls, pipe & tube
B/SB-536	...	N08330	70 (485)	46	111	45	35Ni-19Cr-1.25Si	Plate, sheet & strip
B/SB-543	...	C12200	30 (205)	31	107	31	99.9Cu-P	Welded tube
B/SB-543	...	C19400	45 (310)	31	107	31	97.5Cu-P	Welded tube
B/SB-543	...	C23000	40 (275)	32	107	32.1	85Cu-15Zn	Welded tube
B/SB-543	...	C44300	45 (310)	32	107	32.2	71Cu-28Zn-1Sn-0.06As	Welded tube
B/SB-543	...	C44400	45 (310)	32	107	32.2	71Cu-28Zn-1Sn-0.06Sb	Welded tube
B/SB-543	...	C44500	45 (310)	32	107	32.2	71Cu-28Zn-1Sn-0.06P	Welded tube
B/SB-543	...	C68700	50 (345)	32	108	32.2	78Cu-20Zn-2Al	Welded tube
B/SB-543	...	C70400	38 (260)	34	107	34	95Cu-5Ni	Welded tube
B/SB-543	...	C70600	40 (275)	34	107	34	90Cu-10Ni	Welded tube
B/SB-543	...	C71500	52 (360)	34	107	34	70Cu-30Ni	Welded tube
B547	Alclad 3003	A83003	13 (90)	21	104	...	Al-Mn-Cu	Welded tube
B547	3003	A93003	14 (97)	21	104	22.1	Al-Mn-Cu	Welded tube
B547	5083	A95083	40 (275)	25	105	22.4	Al-4.4Mg-Mn	Welded tube
B547	5454	A95454	31 (215)	22	105	22.3	Al-2.7Mg-Mn	Welded tube
B547	6061	A96061	24 (165)	23	105	23.1	Al-Mg-Si-Cu	Welded tube
B/SB-550	R60702	R60702	55 (380)	61	117	61	99.2Zr	Bar & wire
B/SB-550	R60705	R60705	80 (550)	62	117	62	95.5Zr+2.5Cb	Bar & wire
B/SB-551	R60702	R60702	55 (380)	61	117	61	99.2Zr	Plate, sheet & strip
B/SB-551	R60705	R60705	80 (550)	62	117	62	95.5Zr+2.5Cb	Plate, sheet & strip
B/SB-564	...	N04400	70 (485)	42	110	42	67Ni-30Cu	Forgings
B/SB-564	...	N06022	100 (690)	43	111	44	55Ni-21Cr-13.5Mo	Forgings
B/SB-564	...	N06025	84 (580)	43	111	43	63Ni-25Cr-10Fe-2Al-Ti-Y-Zr	Forgings > 4 in. - 12 in. (100 mm - 300 mm)
B/SB-564	...	N06025	98 (675)	43	111	43	63Ni-25Cr-10Fe-2Al-Ti-Y-Zr	Forgings ≤ 4 in. (100 mm)
B/SB-564	...	N06035	85 (585)	43	111	43	58Ni-33Cr-8Mo	Forgings
B/SB-564	...	N06045	90 (620)	46	111	45	46Ni-27Cr-23Fe-2.75Si	Forgings
B/SB-564	...	N06059	100 (690)	43	111	43	59Ni-23Cr-16Mo	Forgings
B/SB-564	...	N06200	100 (690)	43	111	43	59Ni-23Cr-16Mo-1.6Cu	Forgings

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	P-No.			
<b>Nonferrous (Cont'd)</b>								
B/SB-564	...	N06210	100 (690)	43	111	43	60Ni-19Cr-19Mo-1.8Ta	Forgings
B/SB-564	...	N06230	110 (760)	43	111	43	53Ni-22Cr-14W-Co-Fe-Mo	Forgings
B/SB-564	...	N06600	80 (550)	43	111	43	72Ni-15Cr-8Fe	Forgings
B/SB-564	...	N06617	95 (655)	43	111	46	52Ni-22Cr-13Co-9Mo	Forgings
B/SB-564	...	N06625	110 (760)	43	111	43	60Ni-22Cr-9Mo-3.5Cb	Forgings > 4 in. - 10 in. (102 mm - 254 mm), incl.
B/SB-564	...	N06625	120 (825)	43	111	43	60Ni-22Cr-9Mo-3.5Cb	Forgings ≤ 4 in. (102 mm)
B/SB-564	...	N06686	100 (690)	43	111	43	58Ni-21Cr-16Mo-3.5W	Forgings
B/SB-564	...	N06690	85 (585)	43	111	43	58Ni-29Cr-9Fe	Forgings
B/SB-564	...	N08031	94 (650)	45	111	45	31Ni-31Fe-27Cr-7Mo	Forgings
B/SB-564	...	N08120	90 (620)	45	111	45	37Ni-33Fe-25Cr	Forgings
B/SB-564	...	N08367	95 (655)	45	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Forgings
B/SB-564	...	N08800	75 (515)	45	111	45	33Ni-42Fe-21Cr	Forgings
B/SB-564	...	N08810	65 (450)	45	111	45	33Ni-42Fe-21Cr	Forgings
B/SB-564	...	N08811	65 (450)	45	111	44	33Ni-42Fe-21Cr-Al-Ti	Forgings
B/SB-564	...	N08825	85 (585)	45	111	45	42Ni-21.5Cr-3Mo-2.3Cu	Forgings
B/SB-564	...	N10242	105 (725)	44	112	44	62Ni-25Mo-8Cr-2Fe	Forgings
B/SB-564	...	N10276	100 (690)	43	111	43	54Ni-16Mo-15Cr	Forgings
B/SB-564	...	N10362	105 (725)	43	111	43	62Ni-22Mo-15Cr	Forgings
B/SB-564	...	N10629	110 (760)	44	112	44	66Ni-28Mo-3Fe-1.3Cr-0.25Al	Forgings
B/SB-564	...	N10665	110 (760)	44	112	44	65Ni-28Mo-2Fe	Forgings
B/SB-564	...	N10675	110 (760)	44	112	44	65Ni-29.5Mo-2Fe-2Cr	Forgings
B/SB-564	...	N12160	90 (620)	46	...	46	37Ni-30Co-28Cr-2.7Si	Forgings
B/SB-564	...	R20033	109 (750)	45	111	45	33Cr-31Ni-32Fe-1.5Mo-0.6Cu-N	Forgings
B/SB-572	...	N06002	95 (655)	43	111	43	47Ni-22Cr-9Mo-18Fe	Rod
B/SB-572	...	N06230	110 (760)	43	111	43	53Ni-22Cr-14W-Co-Fe-Mo	Rod
B/SB-572	...	N12160	90 (620)	46	...	46	37Ni-30Co-28Cr-2.7Si	Rod
B/SB-572	...	R30556	100 (690)	45	111	45	21Ni-30Fe-22Cr-18Co-3Mo-3W	Rod
B/SB-573	...	N10003	100 (690)	44	112	44	70Ni-16Mo-7Cr-5Fe	Rod
B/SB-573	...	N10242	105 (725)	44	112	44	62Ni-25Mo-8Cr-2Fe	Rod
B/SB-574	...	N06022	100 (690)	43	111	43	55Ni-21Cr-13.5Mo	Rod
B/SB-574	...	N06035	85 (585)	43	111	43	58Ni-33Cr-8Mo	Rod
B/SB-574	...	N06059	100 (690)	43	111	43	59Ni-23Cr-16Mo	Rod
B/SB-574	...	N06200	100 (690)	43	111	43	59Ni-23Cr-16Mo-1.6Cu	Rod
B/SB-574	...	N06210	100 (690)	43	111	43	60Ni-19Cr-19Mo-1.8Ta	Rod

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	P-No.			
<b>Nonferrous (Cont'd)</b>								
B/SB-574	...	N06455	100 (690)	43	111	43	61Ni-16Mo-16Cr	Rod
B/SB-574	...	N06686	100 (690)	43	111	43	58Ni-21Cr-16Mo-3.5W	Rod
B/SB-574	...	N10276	100 (690)	43	111	43	54Ni-16Mo-15Cr	Rod
B/SB-574	...	N10362	105 (725)	43	111	43	62Ni-22Mo-15Cr	Rod
B/SB-575	...	N06022	100 (690)	43	111	43	55Ni-21Cr-13.5Mo	Plate, sheet & strip
B/SB-575	...	N06035	85 (585)	43	111	43	58Ni-33Cr-8Mo	Plate, sheet & strip
B/SB-575	...	N06059	100 (690)	43	111	43	59Ni-23Cr-16Mo	Plate, sheet & strip
B/SB-575	...	N06200	100 (690)	43	111	43	59Ni-23Cr-16Mo-1.6Cu	Plate, sheet & strip
B/SB-575	...	N06210	100 (690)	43	111	43	60Ni-19Cr-19Mo-1.8Ta	Plate, sheet & strip
B/SB-575	...	N06455	100 (690)	43	111	43	61Ni-16Mo-16Cr	Plate, sheet & strip
B/SB-575	...	N06686	100 (690)	43	111	43	58Ni-21Cr-16Mo-3.5W	Plate, sheet & strip
B/SB-575	...	N10276	100 (690)	43	111	43	54Ni-16Mo-15Cr	Plate, sheet & strip
B/SB-575	...	N10362	105 (725)	43	111	43	62Ni-22Mo-15Cr	Plate, sheet & strip
B/SB-581	...	N06007	85 (585)	45	111	43	47Ni-22Cr-19Fe-6Mo	Rod > 0.75 in. - 3.5 in. (19 mm - 89 mm), incl.
B/SB-581	...	N06007	90 (620)	45	111	43	47Ni-22Cr-19Fe-6Mo	Rod 0.3125 in. - 0.75 in. (8 mm - 19 mm), incl.
B/SB-581	...	N06030	85 (585)	45	111	45	40Ni-29Cr-15Fe-5Mo	Rod
B/SB-581	...	N06975	85 (585)	45	111	45	49Ni-25Cr-18Fe-6Mo	Rod
B/SB-581	...	N06985	85 (585)	45	111	45	47Ni-22Cr-20Fe-7Mo	Rod > 0.75 in. - 3.5 in. (19 mm - 89 mm), incl.
B/SB-581	...	N06985	90 (620)	45	111	45	47Ni-22Cr-20Fe-7Mo	Rod 0.3125 in. - 0.75 in. (8 mm - 19 mm), incl.
B/SB-581	...	N08031	94 (650)	45	111	45	31Ni-31Fe-27Cr-7Mo	Rod
B/SB-582	...	N06007	85 (585)	45	111	43	47Ni-22Cr-19Fe-6Mo	Plate, sheet & strip > 0.75 in. - 2.5 in. (19 mm - 64 mm), incl.
B/SB-582	...	N06007	90 (620)	45	111	43	47Ni-22Cr-19Fe-6Mo	Plate, sheet & strip ≤ 0.75 in. (19 mm)
B/SB-582	...	N06030	85 (585)	45	111	45	40Ni-29Cr-15Fe-5Mo	Plate, sheet & strip
B/SB-582	...	N06975	85 (585)	45	111	45	49Ni-25Cr-18Fe-6Mo	Plate, sheet & strip
B/SB-582	...	N06985	85 (585)	45	111	45	47Ni-22Cr-20Fe-7Mo	Plate, sheet & strip > 0.75 in. - 2.5 in. (19 mm - 64 mm), incl.
B/SB-582	...	N06985	90 (620)	45	111	45	47Ni-22Cr-20Fe-7Mo	Plate, sheet & strip ≤ 0.75 in. (19 mm)
B/SB-599	...	N08700	80 (550)	45	111	8.2	25Ni-47Fe-21Cr-5Mo	Plate, sheet & strip
B/SB-619	...	N06002	100 (690)	43	111	43	47Ni-22Cr-9Mo-18Fe	Welded pipe
B/SB-619	...	N06007	90 (620)	45	111	43	47Ni-22Cr-19Fe-6Mo	Welded pipe
B/SB-619	...	N06022	100 (690)	43	111	44	55Ni-21Cr-13.5Mo	Welded pipe
B/SB-619	...	N06030	85 (585)	45	111	45	40Ni-29Cr-15Fe-5Mo	Welded pipe
B/SB-619	...	N06035	85 (585)	43	111	43	58Ni-33Cr-8Mo	Welded pipe

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	P-No.			
<b>Nonferrous (Cont'd)</b>								
B/SB-619	...	N06059	100 (690)	43	111	43	59Ni-23Cr-16Mo	Welded pipe
B/SB-619	...	N06200	100 (690)	43	111	43	59Ni-23Cr-16Mo-1.6Cu	Welded pipe
B/SB-619	...	N06210	100 (690)	43	111	43	60Ni-19Cr-19Mo-1.8Ta	Welded pipe
B/SB-619	...	N06230	110 (760)	43	111	43	53Ni-22Cr-14W-Co-Fe-Mo	Welded pipe
B/SB-619	...	N06455	100 (690)	43	111	43	61Ni-16Mo-16Cr	Welded pipe
B/SB-619	...	N06686	100 (690)	43	111	43	58Ni-21Cr-16Mo-3.5W	Welded pipe
B/SB-619	...	N06975	85 (585)	45	111	45	49Ni-25Cr-18Fe-6Mo	Welded pipe
B/SB-619	...	N06985	90 (620)	45	111	45	47Ni-22Cr-20Fe-7Mo	Welded pipe
B/SB-619	...	N08031	94 (650)	45	111	45	31Ni-31Fe-27Cr-7Mo	Welded pipe
B/SB-619	...	N08320	75 (515)	45	111	8.2	26Ni-22Cr-5Mo-Ti	Welded pipe
B/SB-619	...	N10001	100 (690)	44	112	44	62Ni-28Mo-5Fe	Welded pipe
B/SB-619	...	N10242	105 (725)	44	112	44	62Ni-25Mo-8Cr-2Fe	Welded pipe
B/SB-619	...	N10276	100 (690)	43	111	43	54Ni-16Mo-15Cr	Welded pipe
B/SB-619	...	N10362	105 (725)	43	111	43	62Ni-22Mo-15Cr	Welded pipe
B/SB-619	...	N10629	110 (760)	44	112	44	66Ni-28Mo-3Fe-1.3Cr-0.25Al	Welded pipe
B/SB-619	...	N10665	110 (760)	44	112	44	65Ni-28Mo-2Fe	Welded pipe
B/SB-619	...	N10675	110 (760)	44	112	44	65Ni-29.5Mo-2Fe-2Cr	Welded pipe
B/SB-619	...	N12160	90 (620)	46	...	46	37Ni-30Co-28Cr-2.7Si	Welded pipe
B/SB-619	...	R20033	109 (750)	45	111	45	33Cr-31Ni-32Fe-1.5Mo-0.6Cu-N	Welded pipe
B/SB-619	...	R30556	100 (690)	45	111	45	21Ni-30Fe-22Cr-18Co-3Mo-3W	Welded pipe
B/SB-620	...	N08320	75 (515)	45	111	8.2	26Ni-22Cr-5Mo-Ti	Plate, sheet & strip
B/SB-621	...	N08320	75 (515)	45	111	8.2	26Ni-22Cr-5Mo-Ti	Rod
B/SB-622	...	N06002	100 (690)	43	111	43	47Ni-22Cr-9Mo-18Fe	Smls. pipe & tube
B/SB-622	...	N06007	90 (620)	45	111	43	47Ni-22Cr-19Fe-6Mo	Smls. pipe & tube
B/SB-622	...	N06022	100 (690)	43	111	44	55Ni-21Cr-13.5Mo	Smls. pipe & tube
B/SB-622	...	N06030	85 (585)	45	111	45	40Ni-29Cr-15Fe-5Mo	Smls. pipe & tube
B/SB-622	...	N06035	85 (585)	43	111	43	58Ni-33Cr-8Mo	Smls. pipe & tube
B/SB-622	...	N06059	100 (690)	43	111	43	59Ni-23Cr-16Mo	Smls. pipe & tube
B/SB-622	...	N06200	100 (690)	43	111	43	59Ni-23Cr-16Mo-1.6Cu	Smls. pipe & tube
B/SB-622	...	N06210	100 (690)	43	111	43	60Ni-19Cr-19Mo-1.8Ta	Smls. pipe & tube
B/SB-622	...	N06230	110 (760)	43	111	43	53Ni-22Cr-14W-Co-Fe-Mo	Smls. pipe & tube
B/SB-622	...	N06455	100 (690)	43	111	43	61Ni-16Mo-16Cr	Smls. pipe & tube
B/SB-622	...	N06686	100 (690)	43	111	43	58Ni-21Cr-16Mo-3.5W	Smls. pipe & tube
B/SB-622	...	N06975	85 (585)	45	111	45	49Ni-25Cr-18Fe-6Mo	Smls. pipe & tube
B/SB-622	...	N06985	90 (620)	45	111	45	47Ni-22Cr-20Fe-7Mo	Smls. pipe & tube

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	P-No.			
<b>Nonferrous (Cont'd)</b>								
B/SB-622	...	N08031	94 (650)	45	111	45	31Ni-31Fe-27Cr-7Mo	Smls. pipe & tube
B/SB-622	...	N08320	75 (515)	45	111	8.2	26Ni-22Cr-5Mo-Ti	Smls. pipe & tube
B/SB-622	...	N10001	100 (690)	44	112	44	62Ni-28Mo-5Fe	Smls. pipe & tube
B/SB-622	...	N10242	105 (725)	44	112	44	62Ni-25Mo-8Cr-2Fe	Smls. pipe & tube
B/SB-622	...	N10276	100 (690)	43	111	43	54Ni-16Mo-15Cr	Smls. pipe & tube
B/SB-622	...	N10362	105 (725)	43	111	43	62Ni-22Mo-15Cr	Smls. pipe & tube
B/SB-622	...	N10629	110 (760)	44	112	44	66Ni-28Mo-3Fe-1.3Cr-0.25Al	Smls. pipe & tube
B/SB-622	...	N10665	110 (760)	44	112	44	65Ni-28Mo-2Fe	Smls. pipe & tube
B/SB-622	...	N10675	110 (760)	44	112	44	65Ni-29.5Mo-2Fe-2Cr	Smls. pipe & tube
B/SB-622	...	N12160	90 (620)	46	...	46	37Ni-30Co-28Cr-2.7Si	Smls. pipe & tube
B/SB-622	...	R20033	109 (750)	45	111	45	33Cr-31Ni-32Fe-1.5Mo-0.6Cu-N	Smls. pipe & tube
B/SB-622	...	R30556	100 (690)	45	111	45	21Ni-30Fe-22Cr-18Co-3Mo-3W	Smls. pipe & tube
B/SB-625	...	N08031	94 (650)	45	111	45	31Ni-31Fe-27Cr-7Mo	Plate, sheet & strip
B/SB-625	...	N08904	71 (490)	45	111	8.2	44Fe-25Ni-21Cr-Mo	Plate, sheet & strip
B/SB-625	...	N08925	87 (600)	45	111	8.2	25Ni-20Cr-6Mo-Cu-N	Plate, sheet & strip
B/SB-625	...	N08926	94 (650)	45	111	8.2	25Ni-20Cr-6Mo-Co-N	Plate, sheet & strip
B/SB-625	...	R20033	109 (750)	45	111	45	33Cr-31Ni-32Fe-1.5Mo-0.6Cu-N	Plate, sheet & strip
B/SB-626	...	N06002	100 (690)	43	111	43	47Ni-22Cr-9Mo-18Fe	Welded tube
B/SB-626	...	N06007	90 (620)	45	111	43	47Ni-22Cr-19Fe-6Mo	Welded tube
B/SB-626	...	N06022	100 (690)	43	111	44	55Ni-21Cr-13.5Mo	Welded tube
B/SB-626	...	N06030	85 (585)	45	111	45	40Ni-29Cr-15Fe-5Mo	Welded tube
B/SB-626	...	N06035	85 (585)	43	111	43	58Ni-33Cr-8Mo	Welded tube
B/SB-626	...	N06059	100 (690)	43	111	43	59Ni-23Cr-16Mo	Welded tube
B/SB-626	...	N06200	100 (690)	43	111	43	59Ni-23Cr-16Mo-1.6Cu	Welded tube
B/SB-626	...	N06210	100 (690)	43	111	43	60Ni-19Cr-19Mo-1.8Ta	Welded tube
B/SB-626	...	N06230	110 (760)	43	111	43	53Ni-22Cr-14W-Co-Fe-Mo	Welded tube
B/SB-626	...	N06455	100 (690)	43	111	43	61Ni-16Mo-16Cr	Welded tube
B/SB-626	...	N06686	100 (690)	43	111	43	58Ni-21Cr-16Mo-3.5W	Welded tube
B/SB-626	...	N06975	85 (585)	45	111	45	49Ni-25Cr-18Fe-6Mo	Welded tube
B/SB-626	...	N06985	90 (620)	45	111	45	47Ni-22Cr-20Fe-7Mo	Welded tube
B/SB-626	...	N08031	94 (650)	45	111	45	31Ni-31Fe-27Cr-7Mo	Welded tube
B/SB-626	...	N08320	75 (515)	45	111	8.2	26Ni-22Cr-5Mo-Ti	Welded tube
B/SB-626	...	N10001	100 (690)	44	112	44	62Ni-28Mo-5Fe	Welded tube
B/SB-626	...	N10242	105 (725)	44	112	44	62Ni-25Mo-8Cr-2Fe	Welded tube
B/SB-626	...	N10276	100 (690)	43	111	43	54Ni-16Mo-15Cr	Welded tube
B/SB-626	...	N10362	105 (725)	43	111	43	62Ni-22Mo-15Cr	Welded tube

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	P-No.			
<b>Nonferrous (Cont'd)</b>								
B/SB-626	...	N10629	110 (760)	44	112	44	66Ni-28Mo-3Fe-1.3Cr-0.25Al	Welded tube
B/SB-626	...	N10665	110 (760)	44	112	44	65Ni-28Mo-2Fe	Welded tube
B/SB-626	...	N10675	110 (760)	44	112	44	65Ni-29.5Mo-2Fe-2Cr	Welded tube
B/SB-626	...	N12160	90 (620)	46	...	46	37Ni-30Co-28Cr-2.7Si	Welded tube
B/SB-626	...	R20033	109 (750)	45	111	45	33Cr-31Ni-32Fe-1.5Mo-0.6Cu-N	Welded tube
B/SB-626	...	R30556	100 (690)	45	111	45	21Ni-30Fe-22Cr-18Co-3Mo-3W	Welded tube
B/SB-649	...	N08904	71 (490)	45	111	8.2	44Fe-25Ni-21Cr-Mo	Bar & wire
B/SB-649	...	N08925	87 (600)	45	111	8.2	25Ni-20Cr-6Mo-Cu-N	Bar & wire
B/SB-649	...	N08926	94 (650)	45	111	8.2	25Ni-20Cr-6Mo-Cu-N	Bar & wire
B/SB-649	...	R20033	109 (750)	45	111	45	33Cr-31Ni-32Fe-1.5Mo-0.6Cu-N	Bar & wire
B/SB-653	R60702	R60702	55 (380)	61	117	61	99.2Zr	Smls. & welded fittings
B/SB-658	R60702	R60702	55 (380)	61	117	61	99.2Zr	Smls. & welded pipe
B/SB-658	R60705	R60705	80 (550)	62	117	62	95.5Zr+2.5Cb	Smls. & welded pipe
B/SB-668	...	N08028	73 (505)	45	111	45	31Ni-31Fe-29Cr-Mo	Smls. tube
B/SB-672	...	N08700	80 (550)	45	111	8.2	25Ni-47Fe-21Cr-5Mo	Bar & wire
B/SB-673	...	N08904	71 (490)	45	111	8.2	44Fe-25Ni-21Cr-Mo	Welded pipe
B/SB-673	...	N08925	87 (600)	45	111	8.2	25Ni-20Cr-6Mo-Cu-N	Welded pipe
B/SB-673	...	N08926	94 (650)	45	111	8.2	25Ni-20Cr-6Mo-Cu-N	Welded pipe
B/SB-674	...	N08904	71 (490)	45	111	8.2	44Fe-25Ni-21Cr-Mo	Welded tube
B/SB-674	...	N08925	87 (600)	45	111	8.2	25Ni-20Cr-6Mo-Cu-N	Welded tube
B/SB-674	...	N08926	94 (650)	45	111	8.2	25Ni-20Cr-6Mo-Cu-N	Welded tube
B/SB-675	...	N08367	95 (655)	45	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Welded pipe > 3/16 in. (5 mm)
B/SB-675	...	N08367	100 (690)	45	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Welded pipe ≤ 3/16 in. (5 mm)
B/SB-676	...	N08367	95 (655)	45	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Welded tube > 3/16 in. (5 mm)
B/SB-676	...	N08367	100 (690)	45	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Welded tube ≤ 3/16 in. (5 mm)
B/SB-677	...	N08904	71 (490)	45	111	8.2	44Fe-25Ni-21Cr-Mo	Smls. pipe & tube
B/SB-677	...	N08925	87 (600)	45	111	8.2	25Ni-20Cr-6Mo-Cu-N	Smls. pipe & tube
B/SB-677	...	N08926	94 (650)	45	111	8.2	25Ni-20Cr-6Mo-Cu-N	Smls. pipe & tube
B/SB-688	...	N08367	95 (655)	45	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Plate, sheet & strip > 3/16 in. (5 mm)
B/SB-688	...	N08367	100 (690)	45	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Plate, sheet & strip ≤ 3/16 in. (5 mm)

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding Brazing		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	P-No.			
<b>Nonferrous (Cont'd)</b>								
B/SB-690	...	N08367	95 (655)	45	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Smls. pipe & tube > 3/16 in. (5 mm)
B/SB-690	...	N08367	100 (690)	45	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Smls. pipe & tube ≤ 3/16 in. (5 mm)
B/SB-691	...	N08367	95 (655)	45	111	8.2	46Fe-24Ni-21Cr-6Mo-Cu-N	Rod, bar & wire
B/SB-704	...	N06625	120 (825)	43	111	43	60Ni-22Cr-9Mo-3.5Cb	Welded tube
B/SB-704	...	N08825	85 (585)	45	111	45	42Ni-21.5Cr-3Mo-2.3Cu	Welded tube
B/SB-705	...	N06625	120 (825)	43	111	43	60Ni-22Cr-9Mo-3.5Cb	Welded pipe
B/SB-705	...	N08825	85 (585)	45	111	45	42Ni-21.5Cr-3Mo-2.3Cu	Welded pipe
B/SB-709	...	N08028	73 (505)	45	111	45	31Ni-31Fe-29Cr-Mo	Plate, sheet & strip
B/SB-710	...	N08330	70 (485)	46	111	45	35Ni-19Cr-1.25Si	Welded pipe
B725	...	N02200	55 (380)	41	110	41	99.0Ni	Welded pipe
B725	...	N02201	50 (345)	41	110	41	99.0Ni-Low C	Welded pipe
B725	...	N04400	70 (485)	42	110	42	67Ni-30Cu	Welded pipe
B/SB-729	...	N08020	80 (550)	45	111	45	35Ni-35Fe-20Cr-Cb	Smls. pipe & tube
B730	...	N02200	55 (380)	41	110	41	99.0Ni	Welded tube
B730	...	N02201	50 (345)	41	110	41	99.0Ni-Low C	Welded tube
B730	...	N04400	70 (485)	42	110	42	67Ni-30Cu	Welded tube
B/SB-815	...	R31233	120 (825)	49	...	...	Co-26Cr-9Ni-5Mo-3Fe-2W	Rod
B/SB-818	...	R31233	120 (825)	49	...	...	Co-26Cr-9Ni-5Mo-3Fe-2W	Plate, sheet & strip
B819	C12200	C12200	30 (205)	...	107	NA	99.9Cu-P	Wrought pipe
B/SB-861	1	R50250	35 (240)	51	115	51.1	Ti	Smls. pipe
B/SB-861	2	R50400	50 (345)	51	115	51.2	Ti	Smls. pipe
B/SB-861	2H	R50400	58 (400)	51	115	51.2	Ti	Smls. pipe
B/SB-861	3	R50550	65 (450)	52	115	51.3	Ti	Smls. pipe
B/SB-861	7	R52400	50 (345)	51	115	52	Ti-Pd	Smls. pipe
B/SB-861	7H	R52400	58 (400)	51	115	52	Ti-Pd	Smls. pipe
B/SB-861	16	R52402	50 (345)	51	115	51.2	Ti-Pd	Smls. pipe
B/SB-861	16H	R52402	58 (400)	51	115	51.2	Ti-Pd	Smls. pipe

**Table QW/QB-422  
Ferrous and Nonferrous P-Numbers  
Grouping of Base Metals for Qualification (Cont'd)**

Spec. No.	Alloy, Type, or Grade	UNS No.	Minimum Specified Tensile, ksi (MPa)	Welding		ISO 15608 Group	Nominal Composition	Typical Product Form
				P-No.	Brazing P-No.			
<b>Nonferrous (Cont'd)</b>								
B/SB-861	26	R52404	50 (345)	51	115	51.2	Ti-Ru	Smls. pipe
B/SB-861	26H	R52404	58 (400)	51	115	51.2	Ti-Ru	Smls. pipe
B/SB-861	12	R53400	70 (485)	52	115	52	Ti-0.3Mo-0.8Ni	Smls. pipe
B/SB-861	38	R54250	130 (895)	54	115	53	Ti-4Al-2.5V-1.5Fe	Smls. pipe
B/SB-861	9	R56320	90 (620)	53	115	53	Ti-3Al-2.5V	Smls. pipe
B/SB-861	28	R56323	90 (620)	53	115	53	Ti-3Al-2.5V-0.1Ru	Smls. pipe
B/SB-862	1	R50250	35 (240)	51	115	51.1	Ti	Welded pipe
B/SB-862	2	R50400	50 (345)	51	115	51.2	Ti	Welded pipe
B/SB-862	2H	R50400	58 (400)	51	115	51.2	Ti	Welded pipe
B/SB-862	3	R50550	65 (450)	52	115	51.3	Ti	Welded pipe
B/SB-862	7	R52400	50 (345)	51	115	52	Ti-Pd	Welded pipe
B/SB-862	7H	R52400	58 (400)	51	115	52	Ti-Pd	Welded pipe
B/SB-862	16	R52402	50 (345)	51	115	51.2	Ti-Pd	Welded pipe
B/SB-862	16H	R52402	58 (400)	51	115	51.2	Ti-Pd	Welded pipe
B/SB-862	26	R52404	50 (345)	51	115	51.2	Ti-Ru	Welded pipe
B/SB-862	26H	R52404	58 (400)	51	115	51.2	Ti-Ru	Welded pipe
B/SB-862	12	R53400	70 (485)	52	115	52	Ti-0.3Mo-0.8Ni	Welded pipe
B/SB-862	38	R54250	130 (895)	54	115	53	Ti-4Al-2.5V-1.5Fe	Welded pipe
B/SB-862	9	R56320	90 (620)	53	115	53	Ti-3Al-2.5V	Welded pipe
B/SB-862	28	R56323	90 (620)	53	115	53	Ti-3Al-2.5V-0.1Ru	Welded pipe
B/SB-928	5083	A95083	39 (270)	25	105	22.4	Al-4.4Mg-Mn	Plate & sheet > 1.5 in. - 3 in. (38 mm - 76 mm), incl.
B/SB-928	5086	A95086	35 (240)	25	105	22.4	Al-4.0Mg-Mn	Plate & sheet > 0.05 in. - 2 in. (1.3 mm - 51 mm), incl.
B/SB-928	5456	A95456	41 (285)	25	105	22.4	Al-5.1Mg-Mn	Plate & sheet > 1.5 in. - 3 in. (38 mm - 76 mm), incl.
B/SB-956	...	C70600	40 (275)	34	107	34	90Cu-10Ni	Finned welded tube
B/SB-956	...	C71500	52 (360)	34	107	34	70Cu-30Ni	Finned welded tube
SB/EN 1706	EN AC 43000	...	22 (150)	26	104	24.2	Al-10Si-Mg	Castings



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