

Alloy Steel Pipe

Product Introduction

Alloy pipe is a kind of seamless steel pipe, its performance is much higher than that of general seamless steel pipe, because this type of steel pipe contains more Cr, its high temperature resistance, low temperature resistance, corrosion resistance performance is much better than other Steel pipe, so the alloy pipe is widely used in petroleum, aerospace, chemical, electric power, boiler, military and other industries.

Alloy steel is steel that is alloyed with a variety of elements in total amounts between 1.0% and 50% by weight to improve its mechanical properties. Alloy steels are broken down into two groups: low-alloy steels and high-alloy steels. The difference between the two is somewhat arbitrary: Smith and Hashemi define the difference at 4.0%, while Degarmo, et al., define it at 8.0%. Most commonly, the phrase "alloy steel" refers to low-alloy steels.

Strictly speaking, every steel is an alloy, but not all steels are called "alloy steels". The simplest steels are iron (Fe) alloyed with carbon (C) (about 0.1% to 1%, depending on type). However, the term "alloy steel" is the standard term referring to steels with other alloying elements added deliberately in addition to the carbon. Common alloyants include manganese (the most common one), nickel, chromium, molybdenum, vanadium, silicon, and boron. Less common alloyants include aluminum, cobalt, copper, cerium, niobium, titanium, tungsten, tin, zinc, lead and zirconium.

ASTM A335 seamless alloy steel pipe

ASTM A335 Pipe (ASME S/A335, Chrome-Moly) is a seamless ferritic Alloy-Steel Pipe for high temperature service. Pipe ordered to this specification shall be suitable for bending, flanging (vanstoning), and similar forming operations, and for fusion welding. Sometimes referred to as "P Grade", Chrome Moly Pipe is popular in P-Grades P5, P9, P11, P22, and P91. The most common use of grades P11, P22, and P91 is in the power industry and petro-chemical plants, Grades P5 and P9 are commonly used in refineries.

A335 is often called chrome moly pipe because of the chemical makeup of Molybdenum (Mo) and Chromium (Cr). Molybdenum increases the strength of steel as well as the elastic limit, resistance to wear, impact qualities, and hardenability. Moly increases the resistance to softening, restrains grain growth and makes chromium steel less susceptible to embrittlement. Moly is the most effective single additive that increases high temperature creep strength. It also enhances the corrosion resistance of steel, and inhibits pitting. Chromium (or chrome) is the essential constituent of stainless steel. Any steel with 12% or more Chrome is considered stainless. Chrome is virtually irreplaceable in resisting oxidation at elevated temperatures. Chrome raises the tensile, yield, and hardness at room temperatures. The composition chrome moly alloy steel pipe make it ideal for use in power plants, refineries, petro chemical plants, and oil field services where fluids and gases are transported at extremely high temperatures and pressures.

Stocks a full range of the following A335 pipe grades:

Standard Specification for Seamless Ferritic and Austenitic Alloy-Steel Boiler, Superheater, and Heat-Exchanger Tubes.

This specification covers seamless ferritic and austenitic steel boiler, superheater, and heat-exchanger tubes. Grades containing the letter H in their designation have requirements different from those of similar grades not containing the letter H. These different requirements provide higher creep-rupture strength than normally achievable in similar grades without these different requirements. The tubes shall be made by the seamless process and shall be either hot finished or cold finished, as specified. Grade TP347HFG shall be cold finished. Heat treatment shall be done separately and in addition to heating for hot forming. The ferritic alloy and ferritic stainless steels shall be reheated. On the other hand, austenitic stainless steel tubes shall be furnished in the heat-treated condition. Alternatively, immediately after hot forming, while the temperature of the tubes is not less than the minimum solution temperature, tubes may be individually quenched in water or rapidly cooled by other means. Tension test, hardness test, flattening test, and flaring test shall be done to each tube. Also, each tube shall be subjected to the nondestructive electric test or hydrostatic test.

Product Specification

Item	Cold rolled/Hot rolled alloy steel seamless pipe
Standard	ASTM A209M/ASME 209M, ASME SA210, ASTM A213/ASME SA213M ASTM A333M/ASME SA333/SA333M, ASTM A334M/ASME SA334/SA334M ASTM A335/ASME SA335, ASTM A519, ASTM A691 GB3087, GB6479-2000, GB9948-2006, GB5310-2013, GB5310-95, GB9948-88 DIN 17175, EN10216-2, JISG3467, JISG3458, JIS G3441, NF A49-213/215, BS3059, BS3604, BS3606
Materials	A209 T1/SA209 T1, A209 T1b/SA-209 T1b, A209 T1a/SA209 T1a. T2, T5, T9, T11, T12, T22, T23, T24, T91, T911, T92, T122. P1, P2, P5, P5b, P5c, P9, P11, P12, P21, P22, P23, P24, P91, P92. 4118, 4130, 4135, 4137, 4140. 20G, 25MnG, 15MoG, 15CrMoG, 20MoG, 12CrMoG, 12Cr2MoG, 12Cr1MoVG, 12Cr2MoWVTiB, 10Cr9Mo1VNb, 15CrMoG, 10CrMo910. ST35.8, ST45.8, 15Mo3, 13CrMo44, 10CrMo910, 14MoV63, 12Cr1MoV. P195GH, P235GH, P265GH, 13CrMo4-5, 10CrMo9-10, 16Mo3, 10CrMo5-5, X10CrMoVNb9-1. GRADE 91, CM65, CM70, CM75, CMSH70, CMS75, CMSH80. GRADE 1/2 Cr, GRADE 1CR, GRADE 1 1/4 CR, 2 1/4 Cr, 3CR, 5CR, 9CR. STPA12, STPA20, STPA22, STPA23, STPA24, STPA25, STPA26. SCR420 TK, SCM415 TK, SCM418 TK, SCM420TK, SCM430TK, SCM435TK, SCM440TK. TU15D3, TU13CD4-04, TU10CD910, TUZ10CD505. S1-622-440, S2-622-440, S1-622-490, S2-622-490, S1-629-470, S2-629-470, S2-629-590. HFS625 CFS625, CFS625.

Description	Surface	black painted, PE coated, galvanized
	Length	5.8m, 6m, 11.8m, 12m, or as required
	Wall Thickness	1-120mm
	Outer Diameter	6-1200mm
Trade terms	Payment terms	T/T, L/C, D/P
	Price terms	FOB, CIF
Package	Standard export seaworthy package or as required.	
Delivery time	Prompt delivery or as the order quantity.	
Export to	Alloy steel pipe applies to petroleum, chemical industry, electric power, boiler, high temperature resistant, low temperature resistant, corrosion resistant seamless steel pipe used. Alloy steel pipe also can be made according to the customer.	
Container size	20ft GP: 5898mm (Length) x 2352mm (Width) x 2393mm (High) 24-26CBM 40ft GP: 12032mm (Length) x 2352mm (Width) x 2393mm (High) 54CBM 40ft HC: 12032mm (Length) x 2352mm (Width) x 2698mm (High) 68CBM	
Contact	If you have any question, please feel free to contact me.	

AISI A519 4130, 4140 Seamless Alloy Steel Pipe

The good strength and its hardenability make alloy 4130 steel seamless round tubing a good fit for applications that deal with structural employment. If this low alloy steel is manufactured using specification ASTM A519, they are either hot finished or they may be cold finished. If the ASTM A519 Grade 4130 Pipe is to be a part of mechanical tubing, they could be strand cast or cast in ingots. 4130 Alloy Steel Seamless Pipe is customarily contrived by hot working steel. If imminent, these hot worked tubular pipes are subsequently cold finished in order to construct the solicited dimensions, shape or properties. Pipes are commonly furnished in any one of the following shapes - square, round, rectangular as well as sections of a specific nature. To circumscribe the portions of the elements specified, a heat analysis could be employed. The 4130 Chromoly Steel Pipe could be coated with a film of oil before the performance of any shaping operation. Coating is applied on these pipes to hinder rust if specified by the buyer.

Chemical Composition:

Standard	Steel Grade	C(%)	Si(%)	Mn(%)	P(%)	S(%)	Cr(%)	Mo(%)
A519	1010	0.05-0.15	0.15-0.35	0.3-0.6	≤0.04	≤0.05	-	-
	1020	0.15-0.25	0.15-0.35	0.3-0.6	≤0.04	≤0.05	-	-
	1045	0.43-0.50	0.15-0.35	0.6-0.9	≤0.04	≤0.05	-	-
	4130	0.28-0.33	0.15-0.35	0.4-0.6	≤0.04	≤0.04	0.8-1.1	0.15-0.25
	4135	0.32-0.39	0.15-0.35	0.6-0.9	≤0.04	≤0.04	0.8-1.1	0.15-0.25
	4140	0.38-0.42	0.15-0.35	0.7-1.0	≤0.04	≤0.04	0.8-1.1	0.15-0.25

Other Specification:

End Shape	Beveled end, plain end, vanished, or adding plastic caps to protect the two ends as per customer's requirements	
Surface Treatment	Oiled, Galvanized, Phosphate etc	
Technique	Hot Rolled	
Application	1. Automotive and mechanical pipes	
	2. Petroleum cracking pipes	
	3. High Pressure Boiler Pipe	
	4. Low and middle pressure fluid transportation pipeline	
	5. Chemical fertilizer equipment pipes	
	6. Heat exchanger pipes	
Delivery Conditions	1. BK (+C)	No heat treatment after last cold forming process.
	2. BKW (+LC)	After last heat treatment there is a light finishing pass (cold drawing)
	3. BKS (+SR)	After the final cold forming process the tubes are stress relieve annealed.
	4. GBK (+A)	After the final cold forming process the tubes are annealed in a controlled atmosphere.
	5. NBK (+N)	After the final cold forming process the tubes are annealed above the upper transformation point in a controlled atmosphere.
Package	1. Bundle Packing.	
	2. Plain end or vanished as per customer's request.	
	3. Wrapped in waterproof paper.	
	4. Sackcloth with several steel strips.	
	5. Pack in heavy tri-wall boxes.	

ASTM A335 Seamless Alloy Steel Pipe

A335 is often called chrome moly pipe because of the chemical makeup of Molybdenum (Mo) and Chromium (Cr). Molybdenum increases the strength of steel as well as the elastic limit, resistance to wear, impact qualities, and hardenability. Moly increases the resistance to softening, restrains grain growth and makes chromium steel less susceptible to embrittlement. Moly is the most effective single additive that increases high temperature creep strength. It also enhances the corrosion resistance of steel, and inhibits pitting. Chromium (or chrome) is the essential constituent of stainless steel. Any steel with 12% or more Chrome is considered stainless. Chrome is virtually irreplaceable in resisting oxidation at elevated temperatures. Chrome raises the tensile, yield, and hardness at room temperatures. The composition chrome moly alloy steel pipe make it ideal for use in power plants, refineries, petro chemical plants, and oil field services where fluids and gases are transported at extremely high temperatures and pressures.

Chemical Composition:

Grade	ASTM A335 P5	ASTM A335 P9	ASTM A335 P11	ASTM A335 P12	ASTM A335 P22	ASTM A335 P91
Carbon	≤0.15	≤0.15	0.05 – 0.15	0.05 – 0.15	0.05 – 0.15	0.08 – 0.12
Manganese	0.30 – 0.60	0.30 – 0.60	0.30 – 0.60	0.30 – 0.60	0.30 – 0.60	0.30 – 0.60
Phosphorous	≤0.025	≤0.025	≤0.025	≤0.025	≤0.025	≤0.020
Sulfur	≤0.025	≤0.025	≤0.025	≤0.025	≤0.025	≤0.010
Silicon	≤0.50	0.25 – 1.00	0.50 – 1.00	≤0.50	≤0.50	0.20 -0.50
Chromium	4.00 – 6.00	8.00 – 10.00	1.00 – 1.50	0.80 – 1.25	1.90 – 2.60	8.00 – 9.50
Molybdenum	0.45 -0.65	0.90 – 1.10	0.44 – 0.65	0.44 – 0.65	0.87 – 1.13	0.85 – 1.05

Mechanical Properties:

Tensile Strength, min., psi	P-5	P-9	P-11	P-22	P-91
ksi	60	60	60	60	85
MPa	415	415	415	415	585
Yield Strength, min., psi					
ksi	30	30	30	30	60
MPa	205	205	205	205	415

Tensile Strength, min., psi	P-5	P-9	P-11	P-22	P-91	P91 shall not have a hardness not exceeding 250 HB/265 HV [25HRC].
ksi	60	60	60	60	85	
MPa	415	415	415	415	585	
Yield Strength, min., psi						
ksi	30	30	30	30	60	
MPa	205	205	205	205	415	

Tensile Requirements:

Mechanical properties	P1,P2	P12	P23	P91	P92	P122
Tensile strength	380	415	510	585	620	620
Yield strength	205	220	400	415	440	400

A213 / SA 213

Standard Specification for Seamless Ferritic and Austenitic Alloy-Steel Boiler, Superheater, and Heat-Exchanger Tubes

ASTM A213 specification covers seamless ferritic and austenitic steel boiler, superheater, and heat-exchanger tubes, designated Grades T5, T9, T11, T12, T22, T91, etc. Grades containing the letter H in their designation have requirements different from those of similar grades not containing the letter H. These different requirements provide higher creep-rupture strength than normally achievable in similar grades without these different requirements.

The tubing sizes and thicknesses usually furnished to this specification are 1/8 in. [3.2 mm] in inside diameter to 5 in. [127 mm] in outside diameter and 0.015 to 0.500 in. [0.4 to 12.7 mm], inclusive, in minimum wall thickness or, if specified in the order, average wall thickness.

Tubing having other diameters may be furnished, provided such tubes comply with all other requirements of this specification.

ASTM A213 specification covers seamless ferritic and austenitic steel boiler, superheater, and heat-exchanger tubes, designated Grades T5, T9, T11, T12, T22, T91, etc.

A213 Pipes is often called chrome moly tube because of the chemical makeup of Molybdenum (Mo) and Chromium (Cr). Molybdenum increases the strength of steel as well as the elastic limit, resistance to wear, impact qualities, and hardenability. Moly increases the resistance to softening, restrains grain growth and makes chromium steel less susceptible to embrittlement. Moly is the most effective single additive that increases high temperature creep strength. It also enhances the corrosion resistance of steel, and inhibits pitting. Chromium (or chrome) is the essential constituent of stainless steel. Any steel with 12% or more Chrome is considered stainless. Chrome is virtually irreplaceable in resisting oxidation at elevated temperatures. Chrome raises the tensile, yield, and hardness at room temperatures. The composition chrome moly alloy

steel Pipe make it ideal for use in power plants, refineries, petro chemical plants, and oil field services where fluids and gases are transported at extremely high temperatures and pressures.

ASTM A213/ASME SA213 T2, T11, T12, T22, T91, T92 Chemical Composition and Mechanical Properties

Grade	Chemical Composition%								
	C	Si	Mn	P, S Max	Cr	Mo	Ni Max	V	Al Max
T2	0.10~0.20	0.10~0.30	0.30~0.61	0.025	0.50~0.81	0.44~0.65	-	-	-
T11	0.05~0.15	0.50~1.00	0.30~0.60	0.025	1.00~1.50	0.44~0.65	-	-	-
T12	0.05~0.15	Max 0.5	0.30~0.61	0.025	0.80~1.25	0.44~0.65	-	-	-
T22	0.05~0.15	Max 0.5	0.30~0.60	0.025	1.90~2.60	0.87~1.13	-	-	-
T91	0.07~0.14	0.20~0.50	0.30~0.60	0.02	8.0~9.5	0.85~1.05	0.4	0.18~0.25	0.015
T92	0.07~0.13	Max 0.5	0.30~0.60	0.02	8.5~9.5	0.30~0.60	0.4	0.15~0.25	0.015
Grade	Chemical Composition%				Mechanical Properties				
	W	B	Nb	N	T. S	Y. P	Elongation	Hardness	
T2	-	-	-	-	≥ 415MPa	≥ 205MPa	≥ 30%	163HBW(85HRB)	
T11	-	-	-	-	≥ 415MPa	≥ 205MPa	≥ 30%	163HBW(85HRB)	
T12	-	-	-	-	≥ 415MPa	≥ 220MPa	≥ 30%	163HBW(85HRB)	
T22	-	-	-	-	≥ 415MPa	≥ 205MPa	≥ 30%	163HBW(85HRB)	
T91	-	-	0.06~0.10	0.03~0.07	≥ 585MPa	≥ 415MPa	≥ 20%	250HBW(25HRB)	
T92	1.50~2.00	0.001~0.006	0.04~0.09	0.03~0.07	≥ 620MPa	≥ 440MPa	≥ 20%	250HBW(25HRB)	

ASTM A213/ASME SA213 T2, T11, T12, T22, T91, T92 Dimensions Tolerance

Outside Diameter	OD Tolerance	WT Tolerance	Ovality Tolerance	Cut Length Tolerance
OD ≤ 12, 7 mm	± 0, 13 mm	± 15 %	-	+ 3, 18 mm, - 0 mm
12, 7 mm < OD ≤ 38, 1 mm	± 0, 13 mm	± 10 %	max, 1, 65 mm	+ 3, 18 mm, - 0 mm
38, 1 mm < OD ≤ 88, 9 mm	± 0, 25 mm	± 10 %	max, 2, 41 mm	+ 4, 76 mm, - 0 mm

Chemical composition of high pressure boiler steel pipe

Standard	Steel grade	C	Si	Mn	P	S	Cr	Mo	Cu	Ni	V	Al	W	Ti	Nb	N
GB 3087	10	0.07-0.13	0.17-0.37	0.38-0.65	≤0.03	≤0.03	0.3-0.65	/	≤0.25	≤0.3	/	/	/	/	/	/
	20	0.07-0.23	0.17-0.37	0.38-0.65	≤0.03	≤0.03	0.3-0.65	/	≤0.25	≤0.3	/	/	/	/	/	/
GB 5310	20G	0.17-0.24	0.17-0.37	0.38-0.65	≤0.03	≤0.03	≤0.25	≤0.15	≤0.2	≤0.25	/	/	/	/	/	/
	20MnG	0.17-0.24	0.17-0.37	0.7-1.0	≤0.03	≤0.03	≤0.25	≤0.15	≤0.2	≤0.25	/	/	/	/	/	/
	25MnG	0.22-0.3	0.17-0.37	0.7-1.0	≤0.03	≤0.03	≤0.25	≤0.15	≤0.2	≤0.25	/	/	/	/	/	/
	15CrMoG	0.12-0.18	0.17-0.37	0.4-0.7	≤0.03	≤0.03	0.8-1.1	0.4-0.5	≤0.2	≤0.3	/	/	/	/	/	/
	12Cr2MoG	0.08-0.15	≤0.5	0.4-0.7	≤0.03	≤0.03	2.0-2.5	0.9-1.2	≤0.2	≤0.3	/	/	/	/	/	/
	12Cr1MoVG	0.08-0.15	0.17-0.37	0.4-0.7	≤0.03	≤0.03	0.9-1.2	0.25-0.35	≤0.2	≤0.3	0.15-0.3	/	/	/	/	/
	12Cr2MoWVTiB	0.08-0.15	0.45-0.75	0.45-0.65	≤0.03	≤0.03	1.6-2.1	0.5-0.6	≤0.2	≤0.3	0.28-0.42	/	0.3-0.5	0.08-0.18	B0.002-0.008	/
10Cr9Mo1VNb	0.08-0.12	0.2-0.5	0.3-0.6	≤0.02	≤0.01	8.0-9.5	0.85-1.05	≤0.2	≤0.4	0.18-0.25	≤0.04	/	/	0.06-0.1	0.03-0.07	

ASME SA210	SA210 A1	≤0.27	≥0.1	≤0.93	≤0.0 3	≤0.0 3	/	/	/	/	/	/	/	/	/	/
	SA210 C	≤0.35	≥0.1	0.29-1. 06	≤0.0 3	≤0.0 3	/	/	/	/	/	/	/	/	/	/
	SA213 T11	0.05-0. 15	0.5-1.0	0.3-0.6	≤0.0 3	≤0.0 3	1.0-1. 5	0.5-1.0	/	/	/	/	/	/	/	/
ASME SA213	SA213 T12	0.05-0. 15	≤0.5	0.3-0.6	≤0.0 3	≤0.0 3	0.8-1. 25	0.44-0. 65	/	/	/	/	/	/	/	/
	SA213 T22	0.05-0. 15	≤0.5	0.3-0.6	≤0.0 3	≤0.0 1	1.9-2. 6	0.87-1. 13	/	/	/	/	/	/	/	/
	SA213 T23	0.04-0. 1	≤0.5	0.1-0.6	≤0.0 3	≤0.0 3	1.9-2. 6	0.05-0. 3	/	/	/	≤0.0 3	1.45-1. 75	/	0.02-0.08	≤0.04
	SA213 T91	0.08-0. 12	0.2-0.5	0.3-0.6	≤0.0 2	≤0.0 1	8.0-9. 5	0.85-1. 05	/	≤0. 4	0.18-0. 25	≤0.0 15	/	/	0.06-0.1	0.03-0. 07
	SA213 T92	0.07-0. 13	≤0.5	0.3-0.6	≤0.0 2	≤0.0 1	8.5-9. 5	0.3-0.6	/	≤0. 4	0.15-0. 25	≤0.0 15	1.5-2.0	/	0.04-0.09	0.03-0. 07
DIN 17175	ST45.8-II I	≤0.21	0.1-0.3 5	0.4-1.2	≤0.0 4	≤0.0 4	/	/	/	/	/	/	/	/	/	/
	15Mo3	0.12-0. 2	0.1-0.3 5	0.4-0.8	≤0.0 35	≤0.0 35	/	0.25-0. 35	/	/	/	/	/	/	/	/
	13CrMo4 4	0.0-0.1 8	0.1-0.3 5	0.4-0.7	≤0.0 35	≤0.0 35	0.7-1. 1	0.45-0. 65	/	/	/	/	/	/	/	/
	10CrMo9 10	0.08-0. 15	≤0.5	0.3-0.7	≤0.0 25	≤0.0 25	2.0-2. 5	0.9-1.1	≤0. 3	≤0. 3	/	≤0.0 15	/	/	/	/

Product Display

We can produce different sizes, thicknesses, widths and materials according to your requirements

