ASTM A335 P9 Alloy Steel Seamless Pipe Specification

Technical Datasheet for High-Temperature Ferritic Alloy Steel Pipe | ASME SA335 P9 / ASTM A335 P9

file name: astm-a335-p9-pipe-specification.pdf
Document type: Product technical datasheet
Recommended use: Product page PDF preview, download asset, RFQ support, and technical reference.

Standard	ASTM A335 / ASME SA335
Grade	P9
Material type	Seamless ferritic alloy steel pipe
Common name	9Cr-1Mo alloy steel pipe / P9 chrome moly pipe
Primary service	High-temperature and high-pressure service
Typical industries	Power generation, petrochemical plants, refineries, boilers, heat exchangers

Important note: This datasheet is prepared for product information and SEO/GEO content support. For final procurement, engineering design, inspection, and acceptance, always refer to the latest official ASTM A335/A335M and project specifications.

mail:bill@cnpipefitting.com

1. Product Overview

ASTM A335 P9 seamless alloy steel pipe is a ferritic alloy steel pipe grade intended for high-temperature service. It is commonly selected where resistance to oxidation, strength retention at elevated temperature, and weldability are required. P9 is often used in steam lines, boiler piping, refinery piping, heat exchangers, and process piping systems.

ASTM A335/A335M covers seamless ferritic alloy-steel pipe for high-temperature service. The specification includes requirements for chemical composition, tensile properties, hardness, heat treatment, hydrostatic testing or nondestructive electric testing, and supplementary requirements when specified by the purchaser.

2. Quick Specification Summary

Item	Typical Requirement / Supply Information
Product	ASTM A335 P9 / ASME SA335 P9 seamless alloy steel pipe
Manufacturing process	Seamless; hot finished or cold drawn depending on size and order requirement
Size range	Common supply range: 1/2 in. NB to 24 in. NB or project-specific OD and wall thickness
Wall thickness / schedule	SCH 40, SCH 80, SCH 160, XXS, and custom wall thickness subject to availability
Ends	Plain end, beveled end, threaded end, or capped end as required
Length	Single random length, double random length, or fixed length by agreement
Surface	Black, bare, oiled, varnished, painted, or project-specific coating
Documentation	Mill Test Certificate EN 10204 3.1 / 3.2, test reports, packing list, commercial invoice

3. Chemical Composition - ASTM A335 P9

Typical ASTM A335 P9 chemistry limits are shown below. Values are provided as percent by weight and should be verified against the latest official standard and purchase order requirements.

Element	Symbol	Typical ASTM A335 P9 Limit, %
Carbon	C	0.15 max
Manganese	Mn	0.30 - 0.60
Phosphorus	P	0.025 max
Sulfur	S	0.025 max
Silicon	Si	0.25 - 1.00
Chromium	Cr	8.00 - 10.00
Molybdenum	Mo	0.90 - 1.10

SEO note for product pages: include the phrase "ASTM A335 P9 chemical composition" near this table and use structured table markup on the HTML page.

mail:bill@cnpipefitting.com

4. Mechanical Properties

The following values are commonly referenced minimum tensile requirements for ASTM A335 P9 pipe. Final acceptance must follow the applicable ASTM edition, material test certificate, heat treatment condition, and purchaser specifications.

Property	Typical Minimum Requirement
Tensile strength	415 MPa min / 60 ksi min
Yield strength	205 MPa min / 30 ksi min
Elongation	Longitudinal or transverse value per applicable ASTM formula/table and test specimen
Hardness	Per ASTM A335/A335M and project requirement

5. Heat Treatment and Delivery Condition

P9 pipe is supplied in a heat-treated condition according to ASTM A335/A335M and the purchase order. Normalizing and tempering or full annealing may be used depending on the grade, manufacturing route, pipe size, and project requirement. Heat treatment records should be traceable to the heat number and lot number.

6. Testing and Inspection

- Chemical analysis and product analysis when required.
- Tension test according to the applicable ASTM requirements.
- Hydrostatic test or permitted nondestructive electric test, as specified.
- Dimensional inspection for outside diameter, wall thickness, length, straightness, and end finish.
- Visual inspection and marking verification.
- Optional third-party inspection: SGS, BV, TUV, Lloyds, ABS, DNV, or project nominated agency.
- MTC 3.1 or 3.2 can be supplied when specified in the purchase order.

7. Common Applications

Application Area	Typical Use
Power plants	Steam lines, boiler piping, superheater and reheater connections
Refineries	High-temperature process piping and heater tubes
Petrochemical plants	Process piping under elevated temperature and pressure
Heat exchangers	Tube and pipe systems requiring alloy steel performance
Industrial boilers	Boiler headers, pressure piping, and auxiliary systems

mail:bill@cnpipefitting.com

8. Dimensions and Schedules

ASTM A335 P9 pipe can be supplied in standard NPS sizes and schedule wall thicknesses, or in project-specific outside diameter and wall thickness. Availability should be confirmed before quotation.

Parameter	Common Options
Nominal pipe size	1/2 in. to 24 in. NB commonly requested; larger sizes by mill capability
Wall schedule	SCH 40, SCH 80, SCH 120, SCH 160, STD, XS, XXS
Outside diameter / wall	ASME B36.10M or project-specific dimensional standard
End finish	Plain end, beveled end, threaded end, protected with plastic or steel caps
Tolerance	According to ASTM A335/A335M and applicable dimensional standard

9. Equivalent / Related Grades

Grade / Standard	Relationship
ASME SA335 P9	ASME Boiler and Pressure Vessel Code designation for similar grade usage
ASTM A335 P5	Lower chromium-molybdenum grade, often compared with P9
ASTM A335 P11 / P22	Common high-temperature alloy steel pipe alternatives
ASTM A335 P91	Modified 9Cr-1Mo-V-Nb grade with higher creep strength than P9

10. P9 vs P11 vs P22 vs P91 - Selection Notes

Grade	General Alloy Type	Typical Selection Consideration
P9	9Cr-1Mo	Used where higher chromium content than P5/P11 is desired for high-temperature service
P11	1.25Cr-0.5Mo	Common boiler and process piping grade for moderate high-temperature service
P22	2.25Cr-1Mo	Widely used for higher temperature and pressure service than P11
P91	Modified 9Cr-1Mo-V-Nb	Higher creep strength grade for advanced power plant applications

mail:bill@cnpipefitting.com

11. Packing, Marking, and Export Documents

- Pipe marking: ASTM A335 / ASME SA335, grade P9, size, heat number, lot number, manufacturer mark, and required inspection mark.
- Packing: bundled, strapped, end protected, waterproof wrapping, wooden box or steel frame for export where required.
- Documents: MTC, packing list, commercial invoice, certificate of origin, inspection certificate, and project-specific documents.
- Traceability: heat number and test results should match pipe marking and MTC.

12. RFQ Information Required

To receive an accurate quotation for ASTM A335 P9 seamless pipe, provide the following information:

Required RFQ Detail	Example
Standard and grade	ASTM A335 P9 / ASME SA335 P9
Size	NPS 2 in., 4 in., 6 in., or OD x WT
Wall thickness	SCH 40 / SCH 80 / SCH 160 / custom wall
Quantity	Meters, pieces, or metric tons
Length	SRL, DRL, or fixed length
End finish	Plain end or beveled end
Inspection	MTC 3.1, MTC 3.2, third-party inspection
Destination port	For CIF/CFR quotation and freight estimation

13. FAQ

What is ASTM A335 P9 pipe?

ASTM A335 P9 pipe is a seamless ferritic alloy steel pipe grade designed for high-temperature service. It is commonly known as 9Cr-1Mo chrome moly pipe.

Is ASTM A335 P9 pipe seamless?

Yes. ASTM A335 covers seamless ferritic alloy-steel pipe for high-temperature service.

What is ASTM A335 P9 pipe used for?

It is used in power plants, refineries, petrochemical plants, boilers, heat exchangers, steam lines, and high-temperature process piping.

What is the main alloy content of P9 pipe?

P9 contains chromium and molybdenum as the key alloying elements. Typical Cr is 8.00-10.00% and typical Mo is 0.90-1.10%.

What is the difference between P9 and P91?

P9 is a 9Cr-1Mo alloy steel pipe. P91 is a modified 9Cr-1Mo grade with additional strengthening elements and higher creep strength for advanced high-temperature applications.

mail:bill@cnpipefitting.com

14. Suggested HTML Product Page Placement

For best SEO and GEO performance, embed this PDF inside the ASTM A335 P9 product page and also provide a download button. Place the PDF preview after the chemical composition, mechanical properties, and dimensions sections, then follow it with FAQ and an RFQ call-to-action.

Recommended Page Element	Purpose
H1: ASTM A335 P9 Alloy Steel Seamless Pipe	Main SEO target
Specification table	Fast buyer evaluation
Chemical composition table	Technical long-tail traffic
Mechanical properties table	Engineering and procurement traffic
PDF preview and download	Trust, conversion, and PDF SEO
FAQ schema	GEO and AI search visibility
RFQ button	Lead conversion

15. Disclaimer

This datasheet is for general product information, quotation support, and online content marketing. It is not a replacement for the official ASTM A335/A335M standard, engineering calculations, pressure design codes, or project specifications. Material acceptance must be based on the latest official standard, purchase order, MTC, inspection results, and applicable regulatory requirements.

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