

ASTM A335 Alloy Steel Pipe: Reliable High-Temperature Solution for Russian Power & Refinery Projects

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Russia's power generation, oil refining and petrochemical sectors are undergoing continuous modernization and capacity expansion, driving strong demand for high-temperature, high-pressure alloy piping systems. Plain carbon steel pipes often suffer from creep deformation and oxidation failure under sustained high-heat conditions, making chromium-molybdenum (chrome-moly) alloy steel the preferred material for critical high-temperature service.

[ASTM A335](#) is the globally recognized standard for seamless ferritic chrome-moly alloy steel pipes engineered for elevated-temperature and high-pressure operation. As a professional stockist and trader specializing in industrial piping solutions, SANONPIPE maintains a comprehensive inventory of [ASTM A335 pipes](#) in all mainstream grades, with full supporting documentation and optimized delivery routes for Russian projects. We help customers select the optimal alloy grade to match their operating conditions and cut procurement lead times.

What Is ASTM A335 Standard?

[ASTM A335 / ASME SA335](#) is the standard specification for seamless ferritic alloy steel pipes intended for high-temperature and high-pressure service. It covers a series of alloy grades strengthened by chromium and molybdenum additions, which deliver far superior creep resistance, oxidation resistance and high-temperature strength compared to ordinary carbon steel such as [API 5L Grade B](#).

All pipes under this standard must be manufactured in seamless construction and undergo controlled heat treatment (normalizing + tempering, or quenching + tempering for high-alloy grades) to achieve the required ferritic microstructure and stable mechanical properties. They are designed for long-term operation in scenarios where carbon steel cannot withstand sustained thermal stress.

Core Grades & Russian GOST Equivalents

SANONPIPE stocks the most widely used ASTM A335 grades in the Russian market, each with a widely accepted equivalent under the Russian ГОСТ 550 standard for seamless alloy steel pipes. Russian designations are marked in **Russian** for easy reference by local engineers and procurement teams.

P11 Φ 12X1M Φ

As the entry-level chrome-moly grade, P11 contains approximately 1.25% chromium and 0.5% molybdenum. It offers good oxidation resistance up to 550°C and reliable creep strength for medium-temperature service. It is the most cost-effective choice for boiler tubes, steam headers and auxiliary piping in conventional thermal power plants.

P22 (10X2M / 15X2M Φ)

P22 upgrades the alloy content to ~2.25% chromium and 1% molybdenum, raising maximum service temperature to 595°C. It provides enhanced hydrogen attack resistance and better creep performance,

making it the industry-standard material for main steam lines, superheater headers and high-temperature process piping in refineries and petrochemical plants.

P91 (10X9B2MΦ)

P91 is a high-alloy 9Cr-1Mo-V grade engineered for ultra-high-temperature service up to 620°C. With additions of vanadium and niobium for precipitation strengthening, it delivers significantly higher creep rupture strength and is the preferred material for supercritical and ultra-supercritical power plant main steam piping, where extreme pressure and high temperature coexist.

Additional Grades Available

❓ P5 (15X5M / 12X5M): 5% chromium grade for sulfidation-resistant refinery heater tubes

❓ P9 (10X9M / 15X9M): 9% chromium grade for high-chromium refinery service and high-temperature heaters

Full Grade Performance Comparison

ASTM A335 P11

Russian GOST Equivalent: 12X1MΦ

Chromium Content: 1.0–1.5%

Molybdenum Content: 0.44–0.65%

Max Service Temp: 550°C

Tensile Strength (Min): 415 MPa

Yield Strength (Min): 205 MPa

Primary Application: Boiler Piping, Medium-Pressure Steam Lines, Auxiliary Systems

ASTM A335 P22

Russian GOST Equivalent: 10X2M / 15X2MΦ

Chromium Content: 1.9–2.6%

Molybdenum Content: 0.87–1.13%

Max Service Temp: 595°C

Tensile Strength (Min): 415 MPa

Yield Strength (Min): 205 MPa

Primary Application: Main Steam Lines, Superheater Headers, Refinery Process Piping

ASTM A335 P91

Russian GOST Equivalent: 10X9B2MΦ

Chromium Content: 8.0–9.5%

Molybdenum Content: 0.85–1.05%

Max Service Temp: 620°C

Tensile Strength (Min): 585 MPa

Yield Strength (Min): 415 MPa

Primary Application: Supercritical Power Plants, High-Pressure High-Temperature Main Lines

ASTM A335 P5

Russian GOST Equivalent: 15X5M / 12X5M

Chromium Content: 4.0–6.0%

Molybdenum Content: 0.45–0.65%

Max Service Temp: 600°C

Tensile Strength (Min): 415 MPa

Yield Strength (Min): 205 MPa

Primary Application: Refinery Heater Tubes, Sulfidation Environments

ASTM A335 P9

Russian GOST Equivalent: 10X9M / 15X9M

Chromium Content: 8.0–10.0%

Molybdenum Content: 0.90–1.10%

Max Service Temp: 600°C

Tensile Strength (Min): 415 MPa

Yield Strength (Min): 205 MPa

Primary Application: High-Chromium Refinery Service, High-Temperature Heaters

Key Application Sectors in the Russian Market

ASTM A335 chrome-moly pipes are widely deployed across Russia's core industrial sectors where high-temperature pressure-bearing piping is required.

Thermal & Nuclear Power Generation

Russia's large fleet of thermal power plants and ongoing supercritical power station projects create steady demand for ASTM A335 piping. P11 and P22 are widely used in conventional steam power stations for boiler tubes, reheat lines and steam headers. P91 is the material of choice for new-generation supercritical and ultra-supercritical units, enabling higher generation efficiency and lower emissions.

Oil Refining & Petrochemical Industry

Russian refineries are upgrading their deep processing capacities, requiring high-temperature alloy piping for crude distillation units, hydrocrackers and catalytic reformers. P5, P9 and P22 grades are used for process piping handling hot hydrocarbons, hydrogen-rich streams and high-pressure reaction media, where resistance to hydrogen attack and sulfidation is critical.

Industrial Boiler & District Heating

Large-scale industrial boiler houses and district heating systems also adopt ASTM A335 chrome-moly pipes for high-temperature hot water and steam circuits, replacing carbon steel to extend maintenance intervals and reduce long-term operating costs.

Grade Comparison & Selection Guide

Selecting the right ASTM A335 grade depends on your maximum operating temperature, pressure level, fluid medium and project budget. Here is a practical comparison to support your procurement decision:

- **For 400–550°C medium-pressure steam systems:** Choose **P11 (12X1MΦ)**. It delivers reliable performance at the lowest cost, ideal for auxiliary piping and secondary steam lines.
- **For 550–595°C high-pressure main steam lines:** Choose **P22 (10X2M / 15X2MΦ)**. It is the industry workhorse grade for refineries and conventional power plants, balancing performance and procurement cost.

- **For 590–620 °C supercritical high-pressure systems:** Choose **P91 (10X9B2MΦ)**. It offers unmatched creep strength for ultra-high-temperature service, essential for high-efficiency power generation projects.
- **For sulfidic or hydrogen-rich refinery environments:** Choose **P5 / P9** grades for enhanced corrosion and sulfidation resistance.

Key selection tips for Russian projects:

- Always confirm the required GOST equivalence or ASTM grade in project specifications.
- Prioritize long-term creep life over initial cost for critical high-temperature trunk lines.
- Verify that welding procedures and post-weld heat treatment (PWHT) requirements match the selected grade.

Why Choose SANONPIPE as Your ASTM A335 Pipe Supplier?

We maintain a large inventory of ASTM A335 seamless pipes in all mainstream grades, covering common sizes from NPS 1/2" to NPS 24" with Schedule 40 to Schedule 160 wall thicknesses. Most standard specifications are available for immediate dispatch, significantly shortening procurement lead times for Russian customers.

Full-Grade Ready Stock for Immediate Shipment

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Specification Parameter: SANONPIPE Stock Range

Grades: P11, P22, P91, P5, P9 (all with Russian GOST equivalents)

Outside Diameter: 21.3 mm – 610 mm (1/2" – 24")

Wall Thickness: Schedule 20 – Schedule XXH, custom heavy-wall available

Length: Random length, 6m / 12m fixed length, precision custom cutting

Strict Quality Control & Russia-Friendly Documentation

All our ASTM A335 pipes are sourced from internationally certified mills and undergo full incoming quality inspection. Each batch is supplied with complete original Mill Test Certificates (MTC) including chemical composition, mechanical properties, heat treatment records and non-destructive test reports. Russian-translated documentation can be provided upon request to support project acceptance and customs clearance in Russia.

Value-Added Processing for On-Site Efficiency

To reduce on-site fabrication workload, we provide value-added services tailored to Russian project requirements:

- Precision cutting to custom project lengths
- End beveling and threading per construction drawings

- Prefabrication of simple pipe spools
- PWHT (post-weld heat treatment) technical consultation
- Reinforced packing suitable for long-distance land transport across Russia

Flexible Trade Terms & Optimized Russia Logistics

We support flexible trade terms (FOB, CIF, DAP to major Russian border crossings and cities) and work with experienced forwarders specializing in Russia-bound cargo. Whether you need a small batch for maintenance or full container loads for EPC projects, we can arrange efficient delivery to Moscow, Saint Petersburg, Novosibirsk, Kazan and other regions.

Frequently Asked Questions

Q1: Is ASTM A335 P11 fully equivalent to Russian 12X1MΦ steel? ASTM A335 P11 has nearly identical chemical composition and mechanical properties to GOST 9941 12X1MΦ steel, and they are interchangeable in most industrial applications. We can provide parallel material test data for engineering verification to confirm suitability for your specific project.

Q2: Can you supply pipes with official GOST certification for Russian state projects? We supply ASTM-standard pipes with full international mill test reports, and can also arrange third-party GOST conformity certification upon request for projects that strictly require Russian state standard documentation.

Q3: What is the typical delivery time to major Russian cities? For standard stock items, we can arrange export shipment within 3–5 working days. Land freight transit time to major western Russian cities is typically 14–25 days, depending on the destination. Urgent express delivery options are also available for shutdown-critical orders.

Conclusion

ASTM A335 chrome-moly alloy steel pipes are the proven, reliable solution for high-temperature, high-pressure piping systems in Russia's power, refining and petrochemical industries. Choosing the correct grade – from cost-effective P11 (**12X1MΦ**) to high-performance P91 (10X9B2MΦ) – is critical to ensuring long-term safe operation and optimal project economics.

SANONPIPE is your trusted stockist of ASTM A335 alloy steel pipes for the Russian market. With comprehensive ready stock, strict quality assurance, value-added processing and Russia-focused logistics services, we help customers reduce procurement costs and shorten project schedules. Whether you are upgrading a power plant, expanding a refinery or carrying out routine maintenance, we can provide the right piping solution with fast, reliable delivery.

Contact our sales team today for a detailed stock list, competitive quotation or technical grade selection support for your Russian project.

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