Commercial Proposal for Supply

Stainless Steel Bar, Rod, and Section for Food-Grade and Chemical-Resistant Applications

Cold-rolled stainless steel sheet metal

Stainless steel thickness gauge and tolerances

Introduction

Stainless steel bar, rod, and structural section products encompass round bar (rod), square bar, hexagonal bar, angle, and flat bar. These products are utilized for manufacturing shafts, axles, bolts, nuts, studs, fasteners, support structures, and components for food processing equipment operating in contact with aggressive media. The critical requirement is the retention of corrosion resistance after machining operations (turning, milling, grinding), which disrupts the passive surface film.

Supply Chain Pain Points and Solutions

Pain Point 1: Post-Machining Surface Corrosion. During turning and milling of bar stock, the passive chromium oxide film is mechanically disrupted. Without subsequent passivation treatment, rust spots appear on machined surfaces within 2-4 weeks, compromising both aesthetics and hygiene compliance.

Solution: Metal-Asia.pw provides passivation treatment guidelines for machined components: immersion in nitric acid solution (20-25% by volume) with sodium dichromate addition (2-3%) at 50-60 C for 20-30 minutes, followed by demineralized water rinsing and air drying. Citric acid passivation (20-50% concentration, ambient temperature, 30-120 minutes) is offered as an environmentally friendly alternative per ASTM A967.

Pain Point 2: Mechanical Properties Non-Conformance. AISI 304 round bar with yield strength of 170 MPa instead of the specified 205 MPa fails to provide the calculated load-bearing capacity for structural and rotating components, creating safety risks in operational equipment.

Solution: Mandatory provision of mechanical test certificates with tensile test results. Verification of yield strength, tensile strength, and elongation for every heat number, documented in the Mill Test Certificate per EN 10204 3.1 or 3.2.

Pain Point 3: Straightness and Twist Tolerances. Round bar with 50 mm diameter and twist of 3 mm per meter of length is unsuitable for automatic feeding in CNC lathes, causing production stoppages and tool damage.

Solution: Delivery of bar stock with h9-h11 tolerance class, straightness <= 1 mm/m, twist <= 0.5 mm/m. Special packaging in straight rigid containers to prevent deformation during ocean freight. Calibration certificates with actual straightness measurements.

Product Range — Bar, Rod, and Section

Product Name	Steel Grades	Size Range, mm	Length, mm	Tolerance	Surface	International Standard
Round bar, cold-drawn	AISI 304/304L	3 — 250	3000-6000	h9, h10, h11	Bright	EN 10088-3, ASTM A276
Round bar, cold-drawn	AISI 316/316L	3 — 250	3000-6000	h9, h10, h11	Bright	EN 10088-3, ASTM A276
Round bar, hot-rolled	AISI 304	10 — 300	3000-6000	+/- 0.5 mm	Black	EN 10088-3, ASTM A276
Round bar, hot-rolled	AISI 321	10 — 200	3000-6000	+/- 0.5 mm	Black	EN 10088-3
Square bar, cold-drawn	AISI 304	5 — 100	3000-6000	h11	Bright	EN 10088-3
Square bar, hot-rolled	AISI 304	10 — 150	3000-6000	+/- 0.5 mm	Black	EN 10088-3
Hexagonal bar, cold-drawn	AISI 304	5 — 100	3000-6000	h11	Bright	EN 10088-3
Hexagonal bar, cold-drawn	AISI 316	5 — 100	3000-6000	h11	Bright	EN 10088-3
Equal angle	AISI 304	20x20x3 — 100x100x10	3000-6000	+/- 1.0 mm	2B, No.1	EN 10056-1
Unequal angle	AISI 304	30x20x3 — 150x100x12	3000-6000	+/- 1.0 mm	2B, No.1	EN 10056-1
Flat bar	AISI 304/316	10x2 — 200x20	3000-6000	+/- 0.2 mm	2B, BA	EN 10088-3

Technical Parameters — Bar and Rod

Parameter	Cold-Drawn Round AISI 304	Hot-Rolled Round AISI 304	Cold-Drawn Hex AISI 316
Diameter / size range	3 — 250 mm	10 — 300 mm	5 — 100 mm
Tolerance	h9 (+/- 0.025 mm for 3-6 mm)	+/- 0.5 mm	h11
Straightness	<= 1 mm/m	<= 2 mm/m	<= 1 mm/m
Tensile strength	515-620 MPa	515-620 MPa	515-620 MPa
Yield strength	205 MPa	205 MPa	205 MPa
Elongation	40%	40%	40%
Hardness	70-90 HRB	70-90 HRB	79 HRB
Surface	Bright (pickled)	Black (mill scale)	Bright
International standard	ASTM A276, EN 10088-3	ASTM A276, EN 10088-3	ASTM A276, EN 10088-3

HS Codes for Bar, Rod, and Section

Product Description	HS Code	Typical Duty Rate
Cold-drawn round bars AISI 304/316	7222.40.900	0-5%
Hot-rolled round bars AISI 304/316	7222.40.900	0-5%
Cold-drawn square bars	7222.40.900	0-5%
Cold-drawn hexagonal bars	7222.40.900	0-5%
Stainless steel angles	7222.40.900	0-5%
Stainless steel flat bars	7222.40.900	0-5%

Metal-Asia.pw Global Procurement Services

Metal-Asia.pw delivers comprehensive stainless steel supply chain solutions from China, designed for international distributors, EPC contractors, and industrial OEMs:

- **Global Procurement Management:** Consolidated sourcing across multiple certified mills with single-point accountability
- **Supply Chain Compliance:** Full adherence to ASTM, EN, ASME, ISO, FDA, and destination-market regulatory requirements
- **Third-Party Quality Assurance:** Independent inspection by SGS, Bureau Veritas, or TUV; NDT (UT, RT, PT, MT), chemical analysis, and dimensional verification
- **Customs & Trade Compliance:** Accurate HS code classification, origin certification, and customs documentation for EU, North America, Middle East, Southeast Asia, and Latin America

- **Logistics & Freight Management:** Multimodal sea/rail/road/air freight with FOB, CIF, DAP, and DDP Incoterms options
- **Technical Documentation:** Mill Test Certificates 3.1/3.2 per EN 10204, material safety data sheets, inspection reports, and compliance declarations

For detailed service specifications, visit Metal-Asia.pw.

FAQ — Frequently Asked Questions

1. How can I verify genuine AISI 304 food-grade stainless steel and avoid counterfeit material?

Authentic AISI 304 contains 18-20% chromium and 8-10.5% nickel. Counterfeit products often substitute nickel with manganese (AISI 201 grade). AISI 201 contains only 14-16.5% chromium and 1-1.5% nickel, leading to corrosion within 6-12 months in food-contact environments. Metal-Asia.pw performs on-site spectrometric analysis at the manufacturer's facility in China before shipment. Every batch is accompanied by a Mill Test Certificate 3.1 per EN 10204 with actual chemical composition data.

2. Which stainless steel grade is suitable for chloride-containing environments such as salt brine or seawater?

For aggressive chloride environments — including salt solutions, seawater, and vinegar production — AISI 316 (UNS S31600) with 2-3% molybdenum content is the industry standard. Molybdenum enhances pitting and crevice corrosion resistance by a factor of 3-5 compared to AISI 304. For extreme marine or chemical applications, AISI 316L or super-austenitic AISI 904L is recommended.

3. What international standards apply to stainless steel procurement and compliance?

Key standards for global supply chains: ASTM A240 (sheet and plate), ASTM A269/A312 (seamless and welded pipes), ASTM A276 (bars and shapes), EN 10088 (European stainless steel grades), EN 10204 (inspection certificates), ISO 7153-1 (surgical instruments), ASME Section VIII (pressure vessels). Metal-Asia.pw ensures full compliance with destination-market standards, including FDA, EHEDG, and 3-A Sanitary Standards for food-contact applications.

4. What is the typical lead time for stainless steel deliveries from China?

Standard delivery from order confirmation to arrival at the client's designated port or warehouse ranges from 35-50 days for sea freight. Urgent air freight deliveries for small-gauge or critical components are available within 7-14 days. For large-scale industrial projects, we recommend procurement planning with a 60-day buffer to accommodate production scheduling and ocean freight consolidation.

5. What quality control procedures does Metal-Asia.pw implement during procurement?

Our multi-stage quality assurance protocol includes: spectrometric analysis of chemical composition at the mill, ultrasonic testing (UT) for internal defects, visual surface inspection per ASTM A480, dimensional verification with calibrated gauges, and third-party inspection by SGS, Bureau Veritas, or TUV upon client request. All results are documented in the Mill Test Certificate and inspection reports.

6. What HS codes apply to stainless steel imports for customs clearance?

Primary HS codes for international trade: 7219.33 (cold-rolled sheets <3mm), 7219.24 (hot-rolled sheets), 7304.41 (seamless pipes), 7306.40 (welded pipes), 7222.40 (bars and rods), 7307.29 (pipe fittings), 8481.80 (valves). Metal-Asia.pw provides full customs documentation support, including correct HS classification, country of origin certificates, and compliance declarations for EU, North American, Middle Eastern, and Southeast Asian markets.

7. Can I order custom cutting, forming, and surface finishing?

Yes. Our partner manufacturing facilities in China offer: CNC laser cutting (tolerance +/- 0.1 mm), press brake bending up to 180 degrees, surface polishing to mirror finish (Ra 0.2 micrometers), TIG/MIG welding with argon backing, and electropolishing for pharmaceutical-grade surfaces (Ra <0.4 micrometers). Minimum order quantity for custom fabrication starts at 500 kg per specification.

8. What supply chain risks does Metal-Asia.pw mitigate for international buyers?

Common procurement risks from China include: grade substitution (AISI 201 sold as AISI 304), thickness deviation beyond ASTM tolerances, missing or fraudulent certificates, customs delays due to incorrect documentation, and warranty disputes for defective material. Metal-Asia.pw eliminates these risks through direct mill relationships, independent pre-shipment inspection, full documentation compliance, bonded warehousing options, and contractual warranty terms with refund or replacement guarantees.

Contact Information

For all inquiries regarding food-grade and chemically resistant stainless steel procurement:

- **Client Relations Department:**
- WhatsApp: +86 132 50100874
- Telegram: @China_metal_supply
- Email: zakaz@metal-asia.pw
- Official Website: www.metal-asia.pw

Article Author: Milosh Kovachevic Supply Chain Manager: Metal-Asia.pw