

316 Stainless Steel Coil

Data Reference Summary | ASTM Type 316 | UNS S31600 | EN 1.4401 | JIS SUS 316

This PDF summarizes key technical data commonly checked for **316 stainless steel coil**: grade designation, chemistry, mechanical properties, physical properties, representative coil routes, surface finish descriptions, and order-control points. It is a practical reference for quotation review, RFQ preparation, and website/download use. It does not replace the purchased standard, project PO, MTC, or third-party inspection requirements.

1. Grade Identity and Standard References

Item	Reference / Value
Primary ASTM grade	Type 316 stainless steel coil to ASTM A240/A240M flat rolled product route
General flat rolled requirements	ASTM A480/A480M is commonly used for tolerances and general requirements for plate, sheet, strip, and coil
UNS	S31600
EN designation	1.4401 / X5CrNiMo17-12-2
JIS designation	SUS 316
Commercial note	Many current coil catalogues list wider stock availability under 316L / 1.4404. When ordering straight 316 / 1.4401, the exact grade route should be fixed before production release.

2. Chemical Composition and Minimum Mechanical Properties

The composition table below keeps **ASTM Type 316 / UNS S31600** as the main data line. A second column is included for **EN 1.4401** because many export enquiries quote European designation rather than ASTM wording. Mechanical-property values are shown as minimum annealed flat rolled values commonly used in grade sheets.

Property	ASTM Type 316 / UNS S31600	EN 1.4401 / X5CrNiMo17-12-2
Carbon	0.08% max	0.07% max
Manganese	2.00% max	2.00% max
Phosphorus	0.045% max	0.045% max
Sulfur	0.030% max	0.015% max
Silicon	0.75% max	0.75% max
Chromium	16.0 - 18.0%	16.5 - 18.5%
Nickel	10.0 - 14.0%	10.0 - 13.0%
Nitrogen	0.10% max	0.10% max
Molybdenum	2.0 - 3.0%	2.0 - 2.5%
Tensile strength	515 MPa min (75 ksi min)	515 MPa min (75 ksi min)
0.2% proof / yield strength	205 MPa min (30 ksi min)	240 MPa min (34.81 ksi min)
Elongation	40% min	40% min
Hardness	95 HRB max	Usually controlled by ordered route

3. Physical Properties and Process Notes

Physical property	Typical value for 316 / 316L family in annealed condition
Density	8000 kg/m3
Elastic modulus	193 GPa

Physical property	Typical value for 316 / 316L family in annealed condition
Thermal expansion 0-100 C	15.9 x 10 ⁻⁶ / C
Thermal expansion 0-315 C	16.2 x 10 ⁻⁶ / C
Thermal expansion 0-538 C	17.5 x 10 ⁻⁶ / C
Thermal conductivity at 100 C	16.3 W/m.K
Thermal conductivity at 500 C	21.5 W/m.K
Specific heat 0-100 C	500 J/kg.K
Electrical resistivity	740 nOhm.m
Solution treatment	Heat to 1010 - 1120 C and cool rapidly
Heat treatment note	316 cannot be hardened by thermal treatment

Technical note: continuous use of **316** in the **425 - 860 C** range is generally not recommended if subsequent aqueous corrosion resistance is important. For heavy welded sections where intergranular corrosion risk matters, coil enquiries often move to **316L / 1.4404** instead of straight 316.

4. Coil Forms, Finishes, and Representative Size Routes

Finish and size availability for **316 stainless steel coil** depends on the mill route. Current coil catalogues commonly show the most complete commercial size range under the **316L / 1.4404** family. The table below is therefore a practical market reference for the 316 family and should be confirmed against the final mill offer.

Finish	Process route	Typical note for coil orders
No.1	Hot rolled, annealed, pickled / descaled	Standard hot rolled coil route
2D	Cold rolled, heat treated, pickled	Matt cold rolled finish
2B	2D plus final skin pass / light cold roll	Most common general-purpose cold rolled finish
BA / 2R	Bright annealed route	Brighter finish when appearance / cleanability matters
No.3 / No.4	Mechanical polishing from cold rolled base	Used when the visible surface is part of the PO

Supply route	Typical grade route in catalogue	Thickness (mm)	Width (mm)	Notes
Cold rolled coil (<1300 mm)	316L / 1.4404	0.4 - 6.35	standard coil widths	2D / 2B / 2E route; BA commonly 0.4 - 1.6 mm; polished commonly 0.4 - 3.0 mm
Cold rolled coil (>=1300 mm)	316L / 1.4404	0.7 - 6.35	up to 1524	Polished routes are narrower than base 2D / 2B availability
Hot rolled coil	316L / 1.4404 or 316 family	3.0 - 16.0	up to 1524	No.1 finish; width >1400 mm commonly starts from 3.5 mm
Slit coil	316 family	up to 6.35	min slit width by gauge	Minimum slit width commonly 10 mm (<=0.7), 25 mm (>0.7-3.0), 35 mm (>3.0-5.0), 45 mm (>5.0-6.35)

Standard trimmed widths commonly include **1000, 1219.2, 1250, 1500, and 1524 mm**. The maximum trimmed or good width is commonly listed as **1524 mm** in one current mill catalogue.

5. Order-Control Data for 316 Stainless Steel Coil

PO / RFQ field	Why it should be fixed before production release
Material standard and designation	Prevents confusion between ASTM Type 316, EN 1.4401, and generic '316 stainless steel coil' wording
Grade route	Straight 316 / S31600 or commercial 316L / 1.4404 route should be stated clearly, especially for welded fabrication
Finish	No.1, 2D, 2B, BA / 2R, or polished finish strongly affects fabrication, appearance, and acceptance
Thickness and width	Coil route, tolerance capability, slit feasibility, and yield planning all depend on these exact values
Supply form	Master coil, slit coil, precision strip, or cut-to-length route must match the fabrication process
Tolerance route	ASTM A480 / A480M or agreed tolerance basis should be fixed instead of assumed
Surface protection	PVC / paper interleave / protected face needs to be explicit when the visible surface must remain clean
Certification package	MTC / EN 10204 route, heat / coil traceability, and inspection record expectations should be aligned before release

6. Technical Notes

- 316 is a molybdenum-bearing austenitic stainless steel chosen where chloride-bearing or chemically aggressive service is more severe than the normal 304 range.

- For many flat rolled coil enquiries, stock is commercially offered as 316L / 1.4404 even when the end user asks for '316 coil'. The PO should therefore lock the exact grade route before order entry.
- 316 cannot be hardened by heat treatment. If higher strength, lower SCC risk, or different corrosion behavior is required, the grade decision may need to move beyond standard 316 family coil.
- For visible or hygiene-sensitive parts, chemistry alone is not enough. Finish route, surface protection, and width tolerance should be checked together before production release.

Source Basis Used for This PDF

Publisher / source	Document used
World Stainless / Atlas Steels	Stainless Steel Grade Datasheets - Grade 316 / 316L / 316H (designation cross-reference, chemistry, mechanical and physical data)
North American Stainless	Flat Product Stainless Steel Grade Sheet - 316 / 316L (flat product chemistry, ASTM / EN references, ksi-based mechanical values)
Columbus Stainless	Product Catalogue TCS-EDP-001 Rev.15 (representative coil gauge ranges, standard widths, slit-width rules, tolerance references, pack-mass notes)
Euro Inox / IMOA	Guide to Stainless Steel Finishes (finish route descriptions for 1D, 2D, 2B, 2R)
Outokumpu	Supra range datasheet (316 / 4401 market positioning, representative chemistry / PRE family note)

This document is a technical reference compiled from current public producer and association data. It is not a substitute for ASTM / EN standard text, project-specific PO wording, MTC, or third-party inspection requirements.