301 Stainless Steel Coil Technical Datasheet

Type 301 · UNS S30100

Myriad supplies 301 stainless steel coils and slit coils for industrial manufacturing. Select the delivery condition to suit the strength, forming and service requirements of the finished part.

Supply range

Parameter	Supply information
Product	301 stainless steel coils or slit coils; final configuration by agreement.
Thickness range	0.01-0.30 mm, approximately 0.000394-0.011811 in.
Width range	1.5-620 mm, approximately 0.059-24.409 in. At 0.01 mm nominal thickness, the minimum width is 4 mm, approximately 0.157 in.
Surface	BA and 2B are the principal finishes. Mirror finish is a special-case request, subject to confirmation.
Edge options	Slit, deburred, rounded/conditioned or scraped edges. Confirm suitability for the selected dimensions and condition.
Material condition	Agree the delivery condition and numerical mechanical limits for the selected grade and dimensions. The reference properties below do not establish availability of every size and condition combination.
Coil configuration	Agree the core/inside diameter, maximum outside diameter, coil weight and winding requirements.

These dimensions describe Myriad’s overall supply envelope. Confirm the required grade, thickness, width and condition combination individually. Millimetres control the stated supply limits; inch values are approximate conversions.

Technical enquiries

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Dimensions and measurement

Thickness tolerances

Nominal thickness t	Deviation	Resulting limit
0.010 mm	+0.002 / 0 mm	0.010-0.012 mm
0.015 mm	+0.002 / 0 mm	0.015-0.017 mm
0.020-0.100 mm, inclusive	±0.002 mm	Nominal t ±0.002 mm
Greater than 0.100 mm up to 0.300 mm, inclusive	±0.030 mm	Nominal t ±0.030 mm

These are Myriad-declared supply tolerances. Confirm their applicability to the selected grade, dimensions and condition. For other nominal thicknesses between 0.010 and 0.020 mm, agree a tolerance separately; do not interpolate between the listed values.

Exactly 0.100 mm belongs to the ±0.002 mm interval. All boundaries and deviations in this table are defined in millimetres.

Measurement

Agree the measurement method, sampling locations and acceptance rule. For thin material, define handling tension and instrument contact conditions. Specify burr height, camber over a stated length, flatness or coil set, and surface acceptance criteria where these affect the application.

Dimensional standards

Select any dimensional standard according to the manufacturing route and its actual thickness and width coverage. A narrow finished width alone does not establish that material was narrow-rolled.

ISO 9445 distinguishes narrow-rolled strip from material slit from wide strip. Its tables do not automatically cover the entire 0.01-0.30 mm range shown here. Where a standard does not cover the selected configuration, agree the dimensional requirements separately.

Selecting 301 for your part

Consider 301 for spring elements, mechanical switches and formed components requiring strength after cold working. Evaluate spring response and forming performance on the finished part using the intended thickness and delivery condition.

Agree the required strength range and dimensions rather than relying on a temper name alone. Material strength does not by itself establish the fatigue life or load response of a finished component.

Corrosion considerations

301 offers resistance to atmospheric exposure and mild corrosive media. Check suitability against the actual medium, temperature, chloride exposure and surface condition.

Welded areas require particular attention in corrosive service because thermal exposure can promote sensitisation. A grade designation alone does not establish corrosion performance in a particular application.

Grade and material properties

Grade identity

Identifier	Meaning
Type 301 / UNS S30100	US grade designation; confirm the governing product requirements.
EN 1.4310	Related European grade. Verify the complete requirements if both designations are required.

Grade references do not establish dual certification of supplied material. This datasheet addresses Type 301; it does not automatically cover 301L or 301LN.

Chemical composition

Reference composition, mass %. Maximum values unless a range is shown. Iron is the balance.

Grade	Carbon	Manganese	Sulfur	Phosphorus	Silicon	Chromium	Nickel	Nitrogen
Type 301	0.15	2.00	0.030	0.045	1.00	16.0-18.0	6.0-8.0	0.10

These are external technical reference values, not Myriad heat-analysis results. For acceptance, use the agreed product specification, edition and applicable heat or product analysis requirements. Assess a particular batch using its traceable material analysis.

Mechanical properties

Reference minimum values for material selection at room temperature. Strength values are shown as MPa (ksi), using the paired values in the historical ASTM A666-15 table.

Grade	Condition	0.2% proof strength Rp0.2	Tensile strength Rm	Elongation
301	Annealed	205 (30)	515 (75)	40%
301	¼ Hard	515 (75)	860 (125)	25%
301	½ Hard	760 (110)	1035 (150)	15%
301	¾ Hard	930 (135)	1205 (175)	10%
301	Full Hard	965 (140)	1275 (185)	8%

The cold-worked elongation entries use the reference thickness category below 0.015 in. (0.381 mm by conversion). The 0.01-0.30 mm nominal supply range falls below that boundary. The annealed entry is a separate reference condition.

The source table gives elongation on a 2 in. or 50 mm gauge-length basis. Identify the actual gauge length, specimen geometry and test direction; do not treat different gauge lengths as interchangeable acceptance criteria.

These are historical technical references, not Myriad batch measurements, current-standard compliance declarations or guaranteed limits across the supply range. Confirm the governing edition, numerical acceptance limits and a valid test method for the selected thickness and condition. Other strengthening conditions require separate confirmation.

For hardness, specify the method, test force, dwell time and acceptable range. Confirm that specimen thickness, preparation and support permit a valid indentation. Do not use a hardness conversion as a substitute for a measured tensile acceptance result.

Grade and material properties

Work hardening and welding

301 is an austenitic chromium-nickel stainless steel with a high work-hardening rate. Cold work raises strength and hardness while reducing ductility, and can increase magnetic response. Magnetic attraction alone cannot identify the grade or establish acceptance.

For welded components, confirm a procedure suited to the thickness and joint. Welding can reduce strength gained through cold work. Assess the finished joint where strength or corrosion performance is critical.

Product standards

ASTM A666/A666M covers annealed and cold-worked austenitic stainless products. ASTM A240/A240M with applicable A480/A480M requirements may also be considered after checking scope and the selected condition. Agree the governing edition and unit system.

For thin-material tensile testing, consider ASTM E345 where suitable. Confirm specimen preparation, gripping, test direction, gauge length and strain measurement.

The reference tables do not establish complete compliance with a product standard. Any required standard compliance or dual certification must be verified for the specific supplied material.