

302 Stainless Steel (UNS S30200) — Material Data Sheet

ASTM A276 bar · UNS S30200 · AISI 302

Higher-carbon austenitic 18-8 stainless steel

The original 18-8, with carbon to 0.15 percent for a little more strength in cold-worked springs and formed parts; largely replaced by 304 for fasteners.

TENSILE, ANNEALED BAR	75 ksi min	BOLTS	Ordered as 304 to ASTM F593 (302 is not an F593 alloy)
YIELD, ANNEALED BAR	30 ksi min	MAGNETIC	No (annealed)
CARBON	0.15 % max	COMMON SUBSTITUTE	304

Nominal composition



■ Fe balance ~ 71.3% ■ Cr ~ 18.00% ■ Ni ~ 9.00% ■ Mn ~ 1.00% ■ Si ~ 0.50% ■ C, P, S, N trace

Midpoints of the specification ranges, for orientation only. Limits are in the table.

Chemical composition — Type 302 (UNS S30200)

Element	Symbol	Min %	Max %
Carbon	C	—	0.15
Manganese	Mn	—	2.00
Phosphorus	P	—	0.045
Sulfur	S	—	0.030
Silicon	Si	—	1.00
Chromium	Cr	17.0	19.0
Nickel	Ni	8.0	10.0
Nitrogen	N	—	0.10

Values per ASTM A276/A276M-17 Tables 1 and 2 (verified against the specification). Confirm the edition called out on your purchase order with our estimating team.

Physical properties (typical)

DENSITY	0.289 lb/in ³ (8.00 g/cm ³)
MODULUS OF ELASTICITY	28.0 × 10 ⁶ psi (193 GPa)
THERMAL EXPANSION (68–212 °F)	9.6 μin/in·°F
MAGNETIC	No in the annealed condition; slightly magnetic after cold work

Heat treatment

Solution annealed and quenched; not hardenable by heat treatment. Cold worked for strength.

Bar properties — ASTM A276 Type 302

Condition and nominal diameter (in.)	Tensile strength, min (ksi)	Yield strength 0.2% offset, min (ksi)	Elongation, min (%)	Reduction of area, min (%)	Hardness
Condition A (annealed), hot finished — all	75	30	40	50	—
Condition A, cold finished — ½ and under	90	45	30	40	—
Condition A, cold finished — over ½	75	30	30	40	—
Condition B (cold worked) — ¾ and under	125	100	12	35	—
Condition B — over ¾ to 1	115	80	15	35	—
Condition B — over 1 to 1¼	105	65	20	35	—
Condition B — over 1¼ to 1½	100	50	24	45	—
Condition B — over 1½ to 1¾	95	45	28	45	—

Values per ASTM A276/A276M-17 Tables 1 and 2 (verified against the specification). Confirm the edition called out on your purchase order with our estimating team. Condition B limits are shared with 304 and 316.

Applicable standards

ASTM A276	Stainless steel bars and shapes
ASTM F593	Stainless steel bolts, hex cap screws and studs (Alloy Group 1)
ASTM A967	Passivation

Forms we supply in 302 Stainless

- Hex and heavy hex bolts and cap screws
- Full-thread studs and threaded rod
- Socket head cap and set screws
- Hex, jam and lock nuts
- Washers and spacers
- Machined components from certified bar

Typical applications

- Springs, spring pins and formed wire parts
- Legacy drawings specifying 302
- General stainless hardware where 304 is acceptable