

Custom 455® is a martensitic, age-hardenable stainless steel. This alloy represents a significant advancement in precipitation hardening stainless steel. Custom 455® has three times the yield strength of standard 304. It lends itself well to heat treatment and fabrication and has exceptionally high yield strength, good ductility, and toughness. Custom 455® resists staining in normal atmospheres and shows no corrosion in freshwater.

### Nominal Composition %

<b>Mn</b>	Manganese – 0.50%
<b>S</b>	Sulfur – 0.030%
<b>Cr</b>	Chromium – 11.00 – 12.00%
<b>Mo</b>	Molybdenum – 0.50%
<b>Ti</b>	Titanium – 0.80 – 1.40%
<b>Fe</b>	Iron – Balance
<b>C</b>	Carbon – 0.05%
<b>P</b>	Phosphorous – 0.040%
<b>Si</b>	Silicon – 0.50%
<b>Ni</b>	Nickel – 7.50 – 9.50%
<b>Cu</b>	Copper – 1.50 – 2.50%
<b>Nb Ta</b>	Columbium and Tantalum – 0.10 – 0.50%

Percent by weight, maximum unless a range is listed.

### Standard Inventory Specifications

- UNS S41600
- ASTM A 895
- ASTM A 582 (Chem-only)

### Forms Stocked

- 455 Bar Stock

### Thickness Stocked

- 0.1875" – 2.000" thick

### Applications

- Drill bits
- Drivers
- Distractors
- Shafts
- Surgical instruments for orthopedic, spinal, and dental markets



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### Industries

- Defense
- Medical
- Oil & Gas
- Space

## Physical Properties

Property	Value - Metric	Value - Imperial
Density	7.76 g/cm <sup>3</sup>	0.280 lb/in <sup>3</sup>

## Mechanical Properties

Property	Value – Metric	Value - Imperial
Tensile Strength	1413 Mpa	204900 psi
Yield Strength	1345 Mpa	195100 psi
Modulus of Elasticity	200 Gpa	29000 ksi
Poisson's Ratio	0.3	0.3
Elongation at Break	14%	14%
Brinell Hardness	411	411
Knoop Hardness, Rockwell C	450	450
Hardness, Rockwell C	430	430
Hardness, Rockwell C	44	44