



SEATTLE, WASHINGTON
1-800-426-9794
PHONE 253-627-2910 / FAX 253-926-4660

LOS ANGELES, CALIFORNIA
1-800-624-8073
PHONE 323-588-2688 / FAX 323-588-1767

WICHITA, KANSAS
1-800-426-9794
PHONE 316-838-7737 / FAX 316-821-9125

CANTON, OHIO
1-800-822-6358
PHONE 330-833-5800 / FAX 330-833-5815

WINDSOR, CONNECTICUT
1-800-641-4140
PHONE 860-688-8393 / FAX 860-683-2337

WWW.SSA-CORP.COM
EMAIL: SALES@SSA-CORP.COM

Custom 465[®] Stainless Steel - AMS 5936 - UNS S46500

Custom 465[®] is a premium double vacuum melted martensitic Stainless Steel manufactured by Carpenter Technology Corporation. This material is an excellent combination of strength, toughness, and corrosion resistance. It possesses high strength and toughness, has relative ease of fabrication, and provides reliable, long-term service in corrosive environments. The typical strength of this alloy can be as high as 1758 MPa (255 ksi), combined with fracture toughness of about 88-99 MPa-square-root-meter (80-90 ksi-square-root inch) and corrosion resistance approaching that of Type 304 stainless.

Custom 465 stainless can be considered as a corrosion resistant replacement for 300M, AISI 4340, and similar types of steels that must be plated or otherwise surface coated to provide corrosion resistance. This grade features improved tensile strength, fracture toughness and improved fabricability and excellent resistance to stress corrosion cracking.

Custom 465 stainless steel is typically used in the following applications:



- Aerospace: Landing gear, flap tracks, engine mounts, slat tracks, and actuators
- Medical: Surgical and dental instruments, needle wire
- Oil & Gas: Drive shafts, downhole drilling tools
- Firearms: Revolver cylinders
- Marine: Propulsion shafts
- Hand Tools: Hex keys, screwdrivers



SEATTLE, WASHINGTON
1-800-426-9794
PHONE 253-627-2910 / FAX 253-926-4660

LOS ANGELES, CALIFORNIA
1-800-624-8073
PHONE 323-588-2688 / FAX 323-588-1767

WICHITA, KANSAS
1-800-426-9794
PHONE 316-838-7737 / FAX 316-821-9125

CANTON, OHIO
1-800-822-6358
PHONE 330-833-5800 / FAX 330-833-5815

WINDSOR, CONNECTICUT
1-800-641-4140
PHONE 860-688-8393 / FAX 860-683-2337

WWW.SSA-CORP.COM
EMAIL: SALES@SSA-CORP.COM

Common Trade Names:

- Custom 465
- Alloy 465
- C465
- 465 Stainless

Common Specifications:

- AMS 5936 REV D
- AMS 2300 REV M
- AMS 2241 REV T
- ASTM F899 for sizes 3" Diameter and below
- ASTM A564/A5645M - 19A
- BMS 7-364 CL A REV A
- BSS 7025 (7/12/94)
- BSS 705 REV B
- SAFRAN MTL-1304

Stocked Sizes:

- Rounds: 24 diameters 0.5" through 8"
- Flats: Special sizes can be ordered as required by customers

Custom 465 Stainless Steel can be cold and hot worked with the following treatments:

- Hot working: Solution anneal before hardening, then heat to 1850-2000° F (1010-1093° C) and air cool
- Cold working: Alloy 465 can be readily cold formed by drawing or rolling



SEATTLE, WASHINGTON
 1-800-426-9794
 PHONE 253-627-2910 / FAX 253-926-4660

CANTON, OHIO
 1-800-822-6358
 PHONE 330-833-5800 / FAX 330-833-5815

LOS ANGELES, CALIFORNIA
 1-800-624-8073
 PHONE 323-588-2688 / FAX 323-588-1767

WINDSOR, CONNECTICUT
 1-800-641-4140
 PHONE 860-688-8393 / FAX 860-683-2337

WICHITA, KANSAS
 1-800-426-9794
 PHONE 316-838-7737 / FAX 316-821-9125

WWW.SSA-CORP.COM
 EMAIL: SALES@SSA-CORP.COM

Machinability:

Best machinability is in the overaged H1150M condition but can also be done in the Solution Annealed condition.

Physical Properties:

Condition	g/cm ³	lbs/in ³
Cond H900	7.82	0.2815
Cond 950	7.83	0.2819
Cond H1000	7.84	0.2822
Cond H1050	7.86	0.2830
Cond H1100	7.86	0.2830
Annealed	7.81	0.2812

Heat Treatment:

This Material is normally supplied in Condition A (Solution Annealed)

- Heat to 1800° F ± 15° F (982° C ± 8° C), then hold at that temperature for 1 hour. Cool rapidly by quenching for parts under 12", or air cool swiftly for parts over 12"
- Refrigerate to -100° F (-73° C) and hold for eight hours, followed by warming to room temperature
- This should within a 24-hour period
- Please note that this process should be done in a 24-hour timeframe after solution annealing

Achieving high strength levels of Custom 465 requires an additional age hardening step by heating to 900 to 1150°, hold 4 to 8 hours, air cool for sizes under 3", quenching for sizes over 3".



SEATTLE, WASHINGTON
1-800-426-9794
PHONE 253-627-2910 / FAX 253-926-4660

LOS ANGELES, CALIFORNIA
1-800-624-8073
PHONE 323-588-2688 / FAX 323-588-1767

WICHITA, KANSAS
1-800-426-9794
PHONE 316-838-7737 / FAX 316-821-9125

CANTON, OHIO
1-800-822-6358
PHONE 330-833-5800 / FAX 330-833-5815

WINDSOR, CONNECTICUT
1-800-641-4140
PHONE 860-688-8393 / FAX 860-683-2337

WWW.SSA-CORP.COM
EMAIL: SALES@SSA-CORP.COM

Mechanical Properties:

Condition	Orientation	Tensile	Yield 0.2% offset	Elongation 2" or 4D	Reduction of Area
H950	Longitudinal	240 ksi	220 ksi	10%	45% ksi
H950	Transverse	240 ksi	220 ksi	8%	35% ksi
H1000	Longitudinal	220 ksi	200 ksi	10%	50% ksi
H1000	Transverse	220 ksi	200 ksi	10%	40% ksi

Chemical Composition:

Symbol	Element	Min %	Max %
C	Carbon	-	0.02%
Mn	Manganese	-	0.25%
Si	Silicon	-	0.25%
S	Sulfur	-	0.01%
P	Phosphorus	-	0.015%
Cr	Chromium	11.00%	12.50%
N	Nitrogen	-	0.01%
Ni	Nickel	10.75%	11.25%
Mo	Molybdenum	0.75%	1.25%
Ti	Titanium	1.50%	1.80%
Al	Aluminum	0.90%	1.35%
Fe	Iron	-	Balance

Custom 465 is a registered trademark of Carpenter Technology Corporation.