

SPECIFICATIONS

European standard:

- X5CrNiCu15-5

WL : 1.4545

UNS : S15500

AMS : 5659

COMPOSITION

Carbon.....	< 0.07
Chromium.....	15.00
Nickel.....	5.00
Copper.....	3.00
Niobium.....	0.30

TYPICAL MECHANICAL PROPERTIES

HEAT TREATMENT REFERENCE

- Harden for 4 hrs at 550°C followed by air cooling.
 - UTS: 1120 N/mm²
 - 0.2 % Yield strength: 1060 N/mm²
 - Elongation (5d): 15 %
 - Impact strength KV: 130 J
- Harden for 4 hrs at 620°C followed by air cooling.
 - UTS: 950 N/mm²
 - 0.2 % Yield strength: 750 N/mm²
 - Elongation (5d): 16 %
 - Impact strength KV: 160 J

APPLICATIONS

- Forgings and mechanical parts requiring very good mechanical properties as well as good resistance to fatigue and sudden rupture. Better coefficient of friction than austenitic stainless steels.

CHARACTERISTICS

- Precipitation hardened martensitic stainless steel.
- Melting: consumable electrode remelted steel.
- Good mechanical properties in the longitudinal and transverse directions.
- Excellent toughness, ductility and fatigue properties.
- Good resistance to various corrosive agents.
- Good weldability.

HEAT TREATMENT

- Delivered condition:
 - We supply this steel either in the “solution treated” or the “solution treated and aged” condition, in most cases 550°C/ 4hrs for UTS \geq 1070 N/mm².
- Aging
 - After solution treatment this steel must undergo precipitation hardening (or “aging”) in order to achieve its mechanical properties.
- The two most common aging treatments are:
 - 4 hours at 550°C for UTS: 1120 N/mm².
 - 4 hours at 620°C for UTS: 950 N/mm².
- Other strength levels can be achieved; the highest level corresponds to aging for 1 hr at 480°C for UTS: 1350 N/mm² approx.

PHYSICAL PROPERTIES

- | | | | |
|--|-------------------------|---|------|
| • Density: | 7.8 | • Thermal conductivity in W.m/m ² .°C: | |
| | | - at 20°C: | 16 |
| • Mean coefficient of expansion in m/m.°C: | | • Specific heat in J/g.°C: | |
| - between 20°C and 200°C: | 10.4 x 10 ⁻⁶ | - at 20°C: | 0.46 |
| -between 20°C and 400°C: | 11.1 x 10 ⁻⁶ | | |
| -between 20°C and 600°C: | 11.7 x 10 ⁻⁶ | • Electrical resistivity in $\mu\Omega$.cm ² /cm: | |
| • Modulus of elasticity in N/mm ² : | | - at 20°C: | 80 |
| -at 20°C: | 200 x 10 ³ | | |

Contact:

www.aubertduval.com

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