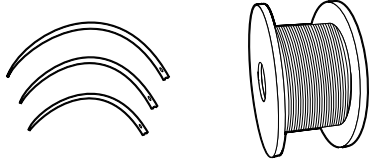


Ergste® 1.4031YC Datasheet US

Medical Alloys



Zapp is Certified According to ISO 9001



Material Ergste® 1.4031YC

Ergste® 1.4031YC is a martensitic stainless chromium steel that is corrosion resistant to water and steam. This requires the hardened and low tempered state and a shiny, polished surface preference. Due to a higher carbon content, Ergste® 1.4031YC can achieve a higher hardness than Ergste® 1.4021YB.

Typical Applications

_ Surgical needle wire (hardenable)

Polishability

Ergste® 1.4031YC enables best mirror finish after polishing.

Weldability

Generally, welding is not recommended.

MACHINABILITY

Machining conditions of Ergste® 1.4031YC can be equated with unalloyed mild steel.

Magnetism

Ergste® 1.4031YC is magnetizable.

Hot Working

Forging at 2012 – 1472 °F, slow cooling.

Corrosion Resistance

Due to its chromium content, Ergste® 1.4031YC has good corrosion resistance in moderately aggressive, non-chlorine-containing media, such as soaps, solvents and organic acids.

Corresponding standards

DIN EN 10088-3 (X20Cr13)

ASTM F899 AISI 420X (UNS S42000)

Chemical Composition *

C	Si	Mn	P	S	Cr
0.40	0.40	0.50	0.020	0.020	13.20

* Average in mass-%

Product Conditions*

Wire, drawn (Coils, Spools)	Tensile [ksi]	102 - 131
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* Other conditions on request

Physical Properties

Modulus of Elasticity at 68 °F [ksi]	31,183
Specific Gravity ρ [lb/in ³]	0,278
Thermal Conductivity λ at 68 °F [Btu in/hr ft ² °F]	208
Coefficient of Thermal Expansion α [10 ⁻⁶ *K ⁻¹]	
68 – 212 °F	5.83
68 – 392 °F	6.11
68 – 572 °F	6.39
68 – 752 °F	6.66
68 – 932 °F	6.66
Specific Heat at 68 °F [Btu/lb °F]	110
Electric Resistivity ρ at 68 °F [Ω circular-mil/ft]	331

Heat Treatment

Soft Annealing

Temperature: 1373 – 1517 °F

Cooling: Air

Hardening

Temperature: 1742 – 1922 °F

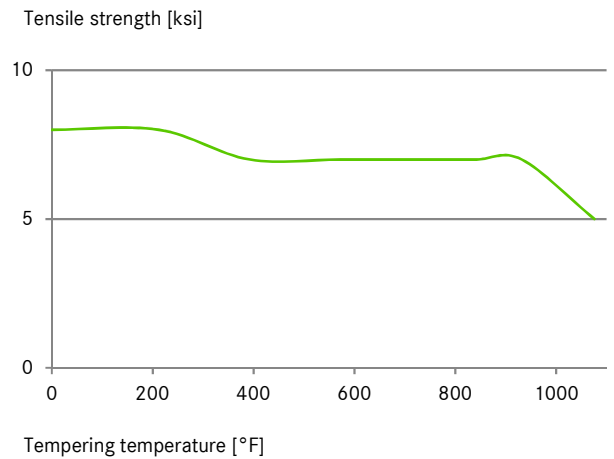
Cooling: Oil, air

Tempering

Temperature I: 1202 – 1382 °F

Temperature II: 1112 – 1292 °F

Tempering Chart



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