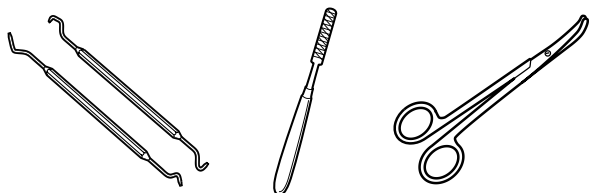


Ergste® 1.4021YB Data Sheet

Medical Alloys



Zapp certified to ISO 9001



Material Ergste® 1.4021yb

Ergste® 1.4021YB 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. In the high-tempered or annealed condition, the corrosion resistance is reduced.

Typical applications

- Dental applications
- Surgical instruments e.g.
 - _ retractor/ surgical hooks
 - _ Tweezers
 - _ Scissors
 - _ Ring pliers
 - _ Bone Cutting Forceps
 - _ Probes
 - _ Chisels

Polishability

The polishing ability of Ergste® 1.4021YB is very good.

Weldability

Welding is only possible when certain precautions are taken. Generally, welding is not recommended.

Machinability

Machining conditions of Ergste® 1.4021YB equalize with unalloyed mild steel.

Magnetism

Ergste® 1.4021YB is magnetizable.

Hot working

Forging at 1100 – 800 °C, slow cooling.

Corrosion resistance

Due to its chromium content, Ergste® 1.4021YB shows good corrosion resistance in moderately aggressive, non-chlorine-containing media, such as soaps, solvents and organic acids. This steel is also scaling resistant to oxidizing atmosphere at temperatures up to 600 ° C.

Corresponding standards

- DIN EN 10088-3 (X20Cr13)
- ASTM F899, AISI 420A (UNS S42000)

Chemical composition *

C	Si	Mn	P	S	Cr
0.22	0.45	0.80	0.02	0.02	12.30

* Average in mass -%

Product conditions*

Bars, drawn, straightened, ground, polished	Tensile [MPa]	650 - 850
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* Other conditions on request

Physical properties

Modulus of Elasticity at 20 °C [GPa]	215
Specific Gravity ρ [kg/dm³]	7.7
Thermal Conductivity λ at 20°C [W/m*K]	30
Coefficient of Thermal Expansion α [10 ⁻⁶ *K ⁻¹]	
20 - 100 °C	10.5
20 - 200 °C	11.0
20 - 300 °C	11.5
20 - 400 °C	12.0
20 - 500 °C	12.0
Specific Heat at 20 °C [kJ/kg*°C]	460
Electric Resistivity ρ at 20 °C [Ω*mm²/m]	0.60

Heat treatment

Soft annealing

Temperature: 745 – 825 °C

Cooling: Air

Hardening

Temperature: 950 – 1050 °C

Cooling: Oil, air

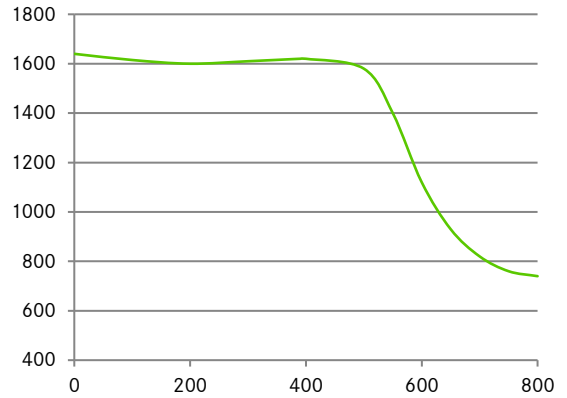
Tempering

Temperature I: 650 – 750 °C

Temperature II: 600 – 700 °C

Tempering chart

Tensile strength [MPa]



Tempering temperature [°C]

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Last revision: November 2019