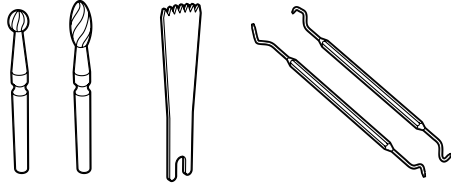


Ergste® 1.4123YN Datasheet

Medical Alloys



Zapp is Certified to ISO 9001



Grade Ergste® 1.4123YN

Ergste® 1.4123YN is a nitrogen alloyed, martensitic, hardenable, stainless steel with extraordinary corrosion resistance and high hardness up to 57 HRC.

This material is preferred if special edge retention and abrasive resistance is required.

Typical Fields of Application

Medical instruments e. g.

- Cutting tools
- Drills
- Screwdrivers
- Chisels
- Saw blades

Weldability

Welding is possible without filler metal or with welding wire from 1.4016.

Magnetism

Ergste® 1.4123YN is magnetizable.

Corrosion Resistance

Through the addition of nitrogen, Ergste® 1.4123YN shows an exceptional corrosion resistance.

Chemical Composition

C	Si	Mn	Cr	Mo	N	P	S	V
0.37-0.45	≤ 0.60	≤ 0.60	15.00-16.50	1.50-1.90	0.16-0.25	≤ 0.02	≤ 0.005	0.20-0.40

Corresponding Standards

1.4123 (X40CrMoVN16-2) acc. EN 10088-3
AISI 420Mod acc. to ASTM F899

Product Conditions*

Bars, ground or ground and polished	Tensile [MPa]	700 - 900
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* Special conditions on request

Physical Properties

Modulus of Elasticity at 20 °C [GPa]	195
Specific Gravity [kg/dm³]	7.7
Thermal Conductivity 20°C [W/m*K]	24
Coefficient of Thermal Expansion [10 ⁻⁶ *K ⁻¹]	
20 - 100 °C	10.4
20 - 200 °C	10.5
20 - 300 °C	10.8
20 - 400 °C	11.1
20 - 500 °C	11.4
Specific Heat at 20 °C [kJ/kg*°C]	430
Electric Resistivity at 20 °C [Ω*mm²/m]	0.80

Heat Treatment

Soft Annealing

780 – 820 °C/ 7 h / Cooling: Furnace or air

Stress Relief Annealing

150 – 220 °C/ 2 x 2 h/ Cooling: Air

Hardening

1,000 – 1,050 °C/ 0,5 h/ Cooling: Oil

Hardening has to be conducted under nitrogen partial pressure to prevent reduction or increase of the nitrogen content.

Tempering

See tempering chart/ 2 x 2 h/ Cooling: Air

Subzero Refrigeration

-80 – -196 °C/ 1 h/ applied to eliminate remaining austenite at hardening temperatures of > 1,010 °C.

Surface Hardening

Ergste® 1.4123YN can be hardened by inductive heating. As initial condition, tempering to 35 – 40 HRC is recommended.

Machining

Ergste® 1.4123YN is characterized by an outstanding machinability.

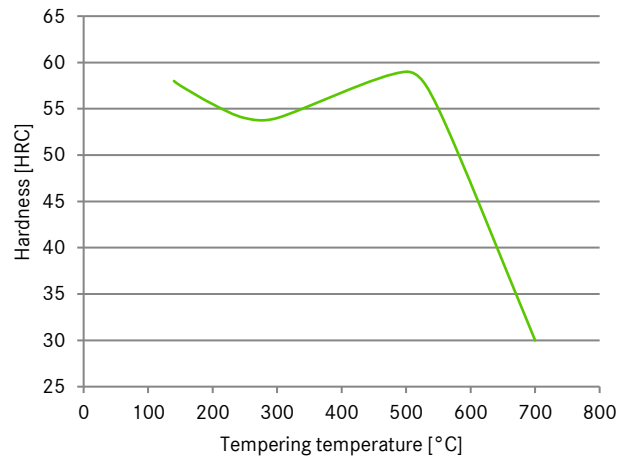
Hot Working

Forging at 1,220 – 1,000 °C.

Polishability

Ergste® 1.4123YN shows excellent abilities for grinding and polishing.

Tempering Chart (Hardening with Subzero Refrigeration)



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