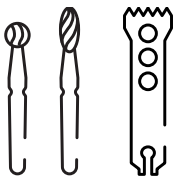


Zapp is certified to ISO 9001



Grade Zapp® 1.4123 YN

Zapp® 1.4123 YN 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 Applications

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

Zapp® 1.4123 YN is magnetizable.

Corrosion Resistance

Through the addition of nitrogen, Zapp® 1.4123 YN 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

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

Machining

Zapp® 1.4123 YN is characterized by an outstanding machinability.

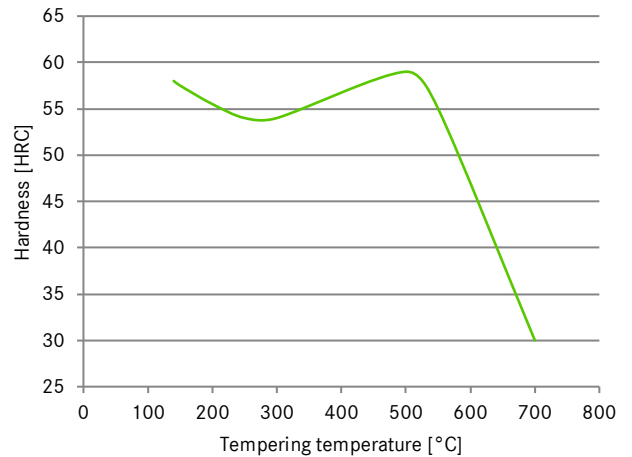
Hot Working

Forging at 1,220 – 1,000 °C.

Polishability

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

Tempering Chart (Hardening with Subzero Refrigeration)



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Further information regarding our products and locations are available in our image brochure and under www.zapp.com

The illustrations, drawings, dimensional and weight data and other information included in this data sheet are intended only for the purposes of describing our products and represent non-binding average values. They do not constitute quality data, nor can they be used as the basis for any guarantee of quality or durability. The applications presented serve only as illustrations and can be construed neither as quality data nor as a guarantee in relation to the suitability of the material. This cannot substitute for comprehensive consultation on the selection of our products and on their use in a specific application. The data sheet is not subject to change control.

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