

Zapp is certified to ISO 9001 | IATF 16949



Categorization

- Ferritic, corrosion resistant steel
- DIN EN 10088-3
- AISI 430F

Typical Applications

Zapp® 1.4105 IM is mainly used in solenoid valves for pneumatic, hydraulic and HVAC applications.

Processing and Usage Properties

Zapp® 1.4105 IM (similar to X6CrMoS17) is a stainless free cutting steel with good soft magnetic properties. It is designed for the volume production of precision turned parts.

It is resistant in water, steam and other less aggressive media. If welding is necessary, plasma- or laser welding should be preferred. The steel is suitable for cold forming operations within certain limits.

For improved properties in selective cases we recommend the following Zapp® grades:

Surface Finish

2G DIN EN 10088-3 – Class 3

Cold Heading

Zapp® 1.4003 IA

Zapp® 1.4016 IM

Corrosion Resistance

Zapp® 1.4113 IM

Machinability

Zapp® 1.4005 IA

Magnetic Properties

Zapp® 1.4005 IA

Zapp® 1.4105 IL

Weldability

Zapp® 1.4511 IA

Typical Analysis*

C	Si	Mn	S	Cr	Mo
≤ 0.05	≤ 1.0	≤ 1.25	0.2-0.35	16.0-18.0	0.20 – 0.60

* Weight percentage/approximate value

Mechanical and Physical Properties

Tensile strength (soft annealed)	350 – 550 [MPa]
----------------------------------	-----------------

Magnetic Properties of Round Bars*

∅ 3.8 – < 6.8 mm

Coercitive strength	H _c ≤ 260 [A/m]
Maximum relative permeability	μ _{max} ≥ 1,000
Saturation polarization	J _s ≥ 1.55 [T]
Remanence	B _r 0.5 – 1.1 [T]
Specific electrical resistance	ρ ≥ 0.62 [μΩm]

∅ 6.8 – ≤ 27.0 mm

Coercitive strength	H _c ≤ 240 [A/m]
Maximum relative permeability	μ _{max} ≥ 1,200
Saturation polarization	J _s ≥ 1.55 [T]
Remanence	B _r 0.5 – 1.1 [T]
Specific electrical resistance	ρ ≥ 0.62 [μΩm]

* Profiles and other sizes may differ. These values represent our standard properties. Improved properties are possible but must be agreed upon.

Delivery Forms*

Round bars	Annealed, ground
Profiles	Annealed, straightened

* Crack tested according to DIN EN 10277-1, Table 1 Surface class 1-4, US-Testing: KSR (FBH) 0.7 mm or better on request

PRECISION WIRE

Zapp Precision Metals GmbH
Letmather Straße 69
58239 Schwerte
precisionwire@zapp.com
www.zapp.com

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 datasheet is not subject to change control.

Last revision: June 2026