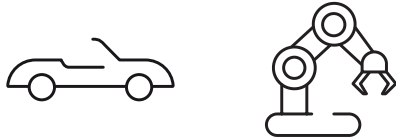


1.4523, UNS S18235, ASTM A581 / A581M Ferritic Stainless Free-Cutting Steel, Data Sheet



Zapp is certified to ISO 9001 | IATF 16949



Classification Material 1.4523 by Zapp

- Ferritic stainless free-cutting steel
- Abbreviated DIN designation: 1.4523
- ASTM A581 / A581M
- UNS S18235

Typical areas of application of material 1.4523

The material Ergste® 1.4523 IA/IM/IH by Zapp is a ferritic stainless **free-cutting steel**.

It is characterized by its **very good** machinability and **outstanding** corrosion resistance.

The Ergste® 1.4523 IM **variant** additionally has very good soft magnetic properties.

Corrosion resistance

Ergste® 1.4523 IA/IM/IH has excellent corrosion resistance.

Due to its low carbon and nitrogen content and the addition of titanium, Ergste® 1.4523 IA/IM/IH is resistant to **intergranular** corrosion.

Machining

Ergste® 1.4523 IA/IM/IH has good machining properties.

Weldability

Ergste® 1.4523 IA/IM/IH is weldable.

Surface finishes

Crack-tested according to DIN EN 10277,
Surface finish qualities 1–4

[Here you can find more materials.](#)

Typical chemical composition *

C	Si	Mn	P	S	Cr	Mo
≤ 0.03	≤ 0.5	≤ 0.5	≤ 0.04	~ 0.25	~18.00	~ 2.30
Ti	Fe					
~ 0.7	residual					

* weight percentage/reference value

Mechanical properties

	annealed 1.4523 IA/IM	strain-hardened 1.4523 IH
Tensile strength R_m	430 - 630 MPa	650 - 850 MPa
Yield strength R_e	≥ 280 MPa	≥ 500 MPa
Elongation A5	≥ 24 %	≥ 9 %

Physical properties

Density ρ	7.7 kg/dm ³
Modulus of elasticity E at 20 °C	225 GPa
Thermal conductivity λ at 20 °C	22 W/(m*K)
Thermal expansion coefficient α	(10 ⁻⁶ K ⁻¹)
20 - 100 °C	10.0
20 - 200 °C	11.0
20 - 400 °C	11.5

Magnetic properties of round bars 1.4523 IM

Coercivity H_c	≤ 240 A/m
Maximum permeability μ_{max}	≥ 1,500
Magnetic polarization J_s	≥ 1.40 T
Residual magnetism B_r	0.7 - 1.3 T
Specific electrical resistance ρ	≥ 0.60 $\mu\Omega m$

Delivery forms

Round bars	annealed, ground
Profiles	annealed, straightened

Zapp Precision Metals GmbH

PRECISION WIRE

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 on our homepage at www.zapp.com

The information, illustrations, drawings, dimensional and weight data, and other data 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 materials.

This cannot substitute for comprehensive consultation on the selection of our products and on their use in a specific application. This data sheet is not subject to change control.

Last revision: December 2023