

Ergste® 1.4310FD | FI Clamp Springs Datasheet | Precision Wire



Zapp is Certified to ISO 9001 | IATF 16949

Material Ergste® 1.4310FD/FI

Ergste® 1.4310FD is a stainless, austenitic chrome-nickel-steel with excellent spring characteristics. The Ergste® 1.4310FD is characterized by its great work hardening whereas a high tensile strength along with very good ductile properties is achieved.

The material Ergste® 1.4310FI is the development of the 1.4310FD and allows even smaller bending radii. Furthermore, this material has stronger starting behavior, see also tempering diagram.

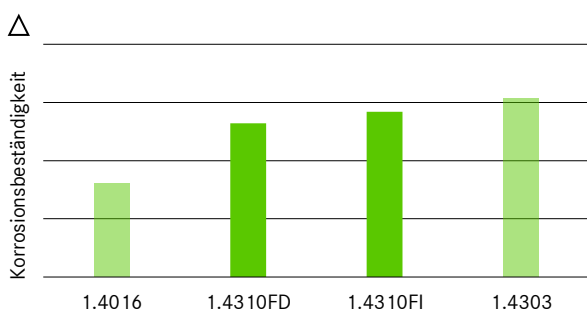
Typical Fields of Application

- Electrical and clamping spring industry

Cold Working

Very good cold-workable.

Corrosion Resistance



The material 1.4310FD is characterized by its good corrosion resistance in all saline solutions that do not contain Halogen additions as well as in strong oxidizing acids and weak acids, e.g. carbonic acid and in lyes.

Corresponding Standards

DIN EN 10088-3: X10CrNi18-8

Typical Chemical Composition

	C	Si	Mn	P	S	Cr	Mo	Ni
1.4310FD	0.07 - ≤ 1.00 0.15	≤ 1.6	< 0.04	< 0.015	16.50 - < 0.80 18.00	7.00 - 8.00		
1.4310FI	0,07 - ≤ 1.80 0.13	≤ 1.7	< 0.04	< 0.015	16.50 - < 0.80 18.00	6.80 - 7.80		

Mechanical Properties (Solution Annealed)

Tensile Strength Rm	[MPa]	650 - 850
Yield Strength Rp0,2	[MPa]	200 - 350
Elongation A5	[%]	≥ 40
Hardness HB	[HRC]	≤ 250

Mechanical Properties (Cold Worked) *

Tensile Strength Rm	[MPa]	1,600 - 2,400
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* higher values are available on request

Physical Properties

Modulus of Elasticity at 20° C	[GPa]	170 - 210
Specific Density ρ	[kg/ dm³]	7.90
Thermal Conductivity λ at 20°C	[W/ (m K)]	15
Coefficient of Thermal Expansion α	[10 ⁻⁶ K ⁻¹]	
20 - 100 °C		16.0
20 - 200 °C		17.0
20 - 300 °C		17.0
20 - 400 °C		18.0
20 - 500 °C		18.0
Specific Heat c _p at 20°C	[kJ/(kg K)]	500
Electric Resistancy ρ at 20°C	[Ω mm²/ m]	0.73

Heat Treatment

Solution Annealing

Temperature: 1,000 – 1,100 °C

Cooling: water, air

Tempering

Temperature: max. 420 °C

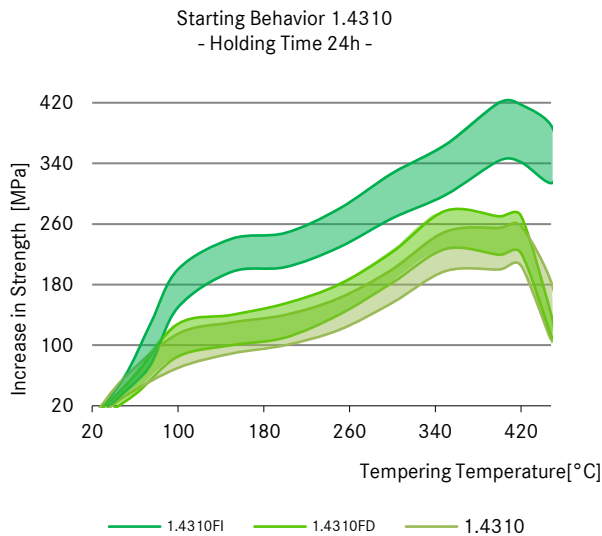
Cooling: air

Dimensional Range*

Width 0.5 – 7.5 mm

Thickness 0.2 – 0.8 mm

* other dimensions are available on request



Edge Design

Flat Wire

Flat rolled profiles show even edges that are free from burrs. Those with rounded narrow sides are made of drawn round wires. Due to this manufacturing process exceptional tight tolerances are enabled and tight shiny surfaces with best roughness values are guaranteed. Our flat wires are available with tightest straightness and bow tolerances.

Zapp Precision Metals GmbH

PRECISION WIRE

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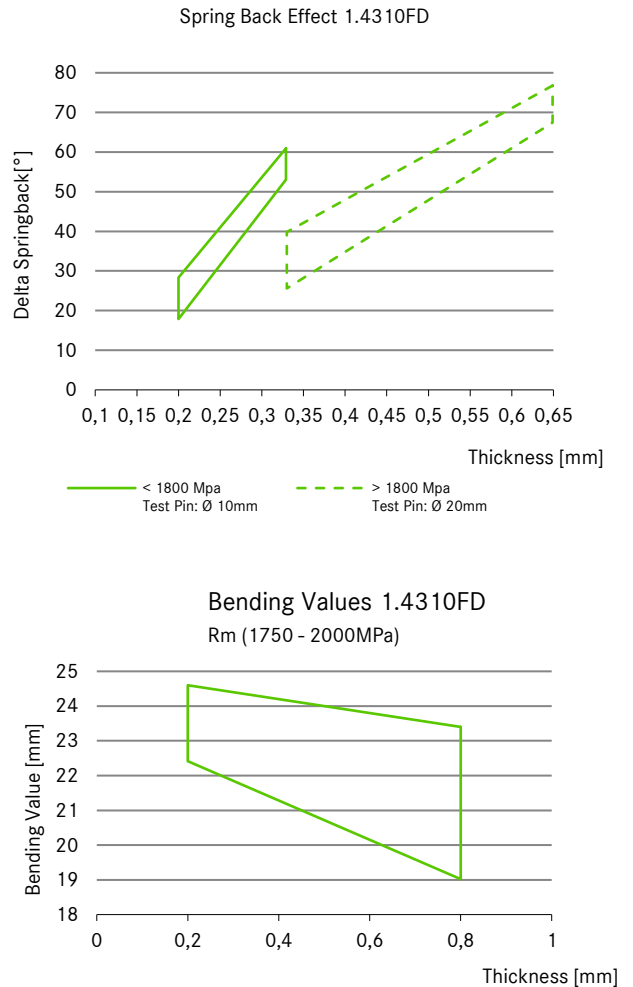
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Bending Properties for Flat Wire



Flat Wires are Available in Several Edge Designs:

_ flat rolled, rounded narrow sides



_ flat rolled, round narrow sides



_ flat rolled, rounded edges



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

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