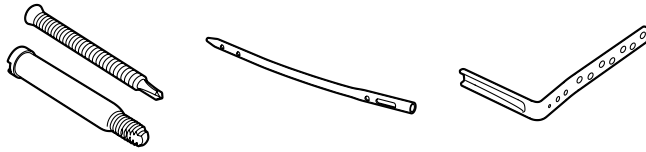


MEDICAL ALLOYS

DATASHEET ERGSTE® 1.4441 LA



ZAPP IS CERTIFIED TO ISO 9001



MATERIAL ERGSTE® 1.4441 LA

Ergste® 1.4441 LA is a stainless steel especially developed for medical implants. Due to the remelting procedure this material indicates excellent microstructural cleanliness and high fatigue strength. An optimized chemical composition guarantees high corrosion resistance, biocompatibility and antimagnetic behavior.

TYPICAL APPLICATIONS

Medical Devices in the area of osteosynthese

- _ Boneplates and screws
- _ System for hip screws
- _ Intramedullary nails
- _ High-strength Steinman-pins and fixing systems
- _ Cerclage-wire
- _ Coronary stents and minimal invasive instruments

WELDABILITY

The material Ergste® 1.4441 LA is weldable. Due to the fact that welding influences the microstructural constitution at the heat affected zone, this procedure is not recommended. Before welding a substantial validation is required.

POLISHABILITY

The material Ergste® 1.4441 LA shows an excellent polishability.

MAGNETUM

The material Ergste® 1.4441 LA shows no magnetic properties. Also after high forming process the microstructure remains fully austenitic without any magnetic properties.

CORROSION RESISTANCE

The material Ergste® 1.4441 LA indicates high resistance to intergranular corrosion, pitting and crevice corrosion.

COLD-WORKING

The material Ergste® 1.4441 LA indicates good properties for cold-workability.

CORRESPONDING STANDARDS

1.4441 (X2CrNiMo18-15-3) acc. to Stahl-Eisen-Liste, UNS S31673 acc. to ASTM F 138 and ISO 5832-1

TYPICAL CHEMICAL COMPOSITION

C	Si	Mn	Cr	Ni
max. 0.03	max. 0.75	max. 2.00	17.0-19.0	13.0-15.0
Mo	S	P	Other	
2.25-3.00	max. 0.010	max. 0.025	N max. 0.1 Cu max. 0.5	

MECHANICAL PROPERTIES

Condition*	Yield strength [MPa]	Tensile strength [MPa]	Elongation [%]
Solution annealed	min. 190	min. 490	min. 40
cold worked	min. 690	min. 860	min. 12
extra hard	-	min. 1400	-

* Other conditions available on request.

PHYSICAL PROPERTIES

Modulus of Elasticity E at 20°C	[GPa]	200
Density ρ	[kg/dm³]	8.0
Thermal Conductivity λ at 20°C	[W/m·K]	15.0
Coefficient of thermal Expansion α	[10 ⁻⁶ /K ⁻¹]	
100 °C		16.5
200 °C		17.5
300 °C		17.5
400 °C		18.5
500 °C		18.5
600 °C		19.0
700 °C		19.5
Specific Heat c at 20°C	[J/kg·K]	500
Electric Resistivity ρ at 20°C	[Ω·mm²/m]	0.75
Relative Magnetic Permeability		max. 1.02

HEAT TREATMENT

Solution Annealing:

Temperature: 1000 - 1100 °C

Rapid Cooling.

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