

High-N/Medical Wire Datasheet

Wire



Zapp is certified according to ISO 9001

High-N

is a molybdenum and nitrogen alloyed austenitic stainless steel, used for orthopedic implants and fracture fixation devices.

The grade is characterized by

- Proof strength is up to twice that of 316LVM in the annealed condition
- Higher corrosion resistance than 316LVM
- High micro cleanliness
- Very good surface finish
- Good forgeability

Standards

- UNS: S31675
- BS: 7252-9

Product standard

- ASTM F1586

Chemical composition (nominal) %

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C	Si	Mn	P	S	Cr	Ni	Mo	Cu	N	Nb
≤ 0.06	≤ 0.06	4.0	≤ 0.025	≤ 0.003	20.5	9.5	2.4	≤ 0.20	0.4	0.3

Forms of supply

Wire

- Wire can be delivered in the following size ranges.

Spools/coils

- diameter 0.1–6 mm
- Drawn in straight lengths or ground straightened lengths: 0.6–6 mm

Tolerances

- h8: ground finish as standard (tighter tolerances can be offered on request)
- h9: drawn and straightened

Mechanical properties

Product	Condition	Tensile strength	Proof strength	Elongation A _g		
		R _m	R _{p0.2}	%		
		MPa	ksi	MPa	ksi	
		min	min	min	min	typical
Wire		max. 1,500	max. 217			

Specific tensile requirements available on request

Physical properties

Property		
Density (20 °C)	8.0 g/cm ³	0.29 lb/in ³
Modulus of elasticity, x10 ³ (20 °C)	200 MPa	29.0ksi
Specific heat capacity (20 °C)	485 J/(kg °C)	0.11Btu/(lb°F)
Thermal conductivity (20 °C)	14W /(m°C)	8 Btu/(ft h °F)
Thermal expansion, x10 ⁻⁶ (30 - 100 °C)	16.5 per °C	9.5 per °F

Corrosion Resistance

High-N has a very good resistance in physiological environments to:

- General and intergranular corrosion due to high purity and low ferrite content
- Pitting and crevice corrosion due to the high molybdenum content

High-N is capable of passing the Money Penny Strauss corrosion test in accordance with ISO / ASTM requirements.

Machining

	Hardness	Cutting speed range	Feed range		
		SFM	m/min	IPR	mm/rev
Turning	250 - 400	855 - 145	270 - 45	0.002 - 0.024	0.05 - 0.6
Milling	250 - 400	855 - 245	260 - 75	0.002 - 0.016	0.05 - 0.4
Drilling	250 - 400	115 - 195	35 - 60	0.002 - 0.012	0.05 - 0.3

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