

CASE HARDENING STEELS

Available Product Shapes

Long Products

Product Description

BÖHLER M121 ISOPLAST is a remelted nickel chrome molybdenum case hardening steel produced by the PESR (Pressurised ESR) method designed for components with high demand in toughness and core strength.

Properties

- > Toughness & Ductility: very high
- > Wear Resistance: high
- > Machinability: very high
- > polishability: high
- > micro-cleanliness: good

Applications

- > Automotive Racing
- > Automotive

Technical data

Material designation	
~1.5752	SEL
~15NiCr13	EN
~EN36C	BS

Chemical composition (wt. %)

C	Si	Mn	Cr	Mo	Ni
0.14	0.3	0.45	0.7	0.15	3.5

Delivery condition

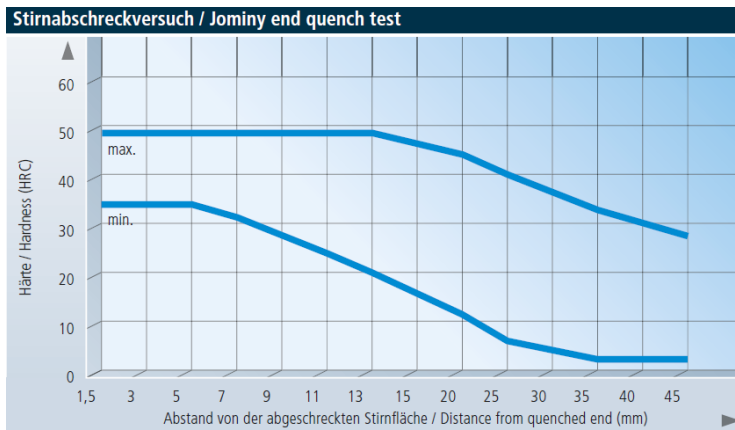
Normalized, Tempered

Hardness	max. 255 HB
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Heat treatment

Normalizing		
Temperature (°C °F)	850 1562 to 880 1616	Air cooling.
Case hardening		
Temperature (°C °F)	880 1616 to 980 1796	When direct hardening, carburising is generally carried out below 950°C (1740°F). Carburising temperatures up to over 1000°C (1830°F) are used in special cases. Cooling from case hardening temperature Oil (water), salt bath (160 – 250°C / 320 – 480°F)
Hardening and Tempering		
Temperature (°C °F)	840 1544 to 880 1616	Oil (water), salt bath (160 – 250 °C [320 – 480 °F]) After hardening, tempering to the desired working hardness at 150 – 200 °C (300 – 390 °F) Achievable core strength: min. 1080 MPa / 157 ksi

Jominy end quench test



Hardening temperature: 880 °C (1620 °F)

Physical Properties at 20°C / 68°F

Density	7.85 0.28	[kg/dm ³ lb/in ³]
Thermal conductivity	34 19.64	[W/(m.K) BTU (IT) ft/hr/ft ² /F]
Specific heat	460 109.87	[J/(kg.K) BTU (IT) lb/F]
Spec. electrical resistance	0.2 0.95	[Ohm.mm ² /m 10 ⁻⁴ Ohm.inch ² /ft]
Modulus of elasticity	210 30.46	[10 ³ N/mm ² 10 ³ ksi]

Thermal Expansions

Temperature (°C °F)	100 212	200 392	300 572	400 752	500 932	600 1112	700 1292
Thermal expansion (10 ⁻⁶ m/(m.K) 10 ⁻⁶ inch/(inch.F))	11.1 6.167	12.1 6.722	12.9 7.167	13.5 7.5	13.9 7.722	14.1 7.833	14.2 7.889

For more information see www.voestalpine.com/boehler-edelstahl

The data contained in this brochure is merely for general information and therefore shall not be binding on the company. We may be bound only through a contract explicitly stipulating such data as binding. Measurement data are laboratory values and can deviate from practical analyses. The manufacture of our products does not involve the use of substances detrimental to health or to the ozone layer.

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ONE STEP AHEAD.