BÖHLER

BÖHLER M121 ISOPLAST®

CASE HARDENING STEELS

Available Product Variants

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.

Process Melting

Airmelted + Remelted

Properties

- Toughness & Ductility : very high
- Wear Resistance : high
- Machinability : very high
- Polishability : high
- Micro-cleanliness : high

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	0.55	0.9	0.15	3.15

Delivery condition

Normalized, Tempered	
Hardness (HB)	max. 255

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Heat treatment

Normalizing

Temperature	850 to 880 °C | 1,562 to 1,616 °F	Air cooling.

Case hardening

Temperature	880 to 980 °C | 1,616 to 1,796 °F	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	840 to 880 °C | 1,544 to 1,616 °F	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

Physical Properties

Density	7.85 | 0.28	[kg/dm^3 | lb/in^3]
Thermal conductivity	34 | 19.64	[W/(m.K) | BTU/ft h °F]
Specific heat	460 | 109.8691	[kJ/kg K | BTU/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 between 20°C | 68°F and ...

Temperature (°C | °F)	**100 | 212**	**200 | 392**	**300 | 572**	**400 | 752**	**500 | 932**	**600 | 1,112**	**700 | 1,292**
Thermal expansion (10^{-6} m/(m.K) | 10^{-6} inch/inch.°F)	11.1 | 6.2	12.1 | 6.7	12.9 | 7.2	13.5 | 7.5	13.9 | 7.7	14.1 | 7.8	14.2 | 7.9

For additional specifications and technical requirements, please contact our regional voestalpine BÖHLER sales companies.

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