

CASE HARDENING STEELS

Available Product Variants

Long Products

Product Description

Large and medium sized-moulds with complex geometries.

Process Melting

Airmelted

Properties

- > Toughness & Ductility : high
- > Wear Resistance : high
- > Machinability : good
- > Dimensional stability : high
- > Polishability : good

Applications

- > Automotive Racing
- > Automotive

Technical data

Material designation	
1.2764	SEL
X19NiCrMo4	EN

Chemical composition (wt. %)

C	Si	Mn	Cr	Mo	Ni
0.19	0.25	0.3	1.3	0.2	4.1

Delivery condition

Annealed	
Hardness (HB)	max. 250

Heat treatment

Case hardening

Temperature	900 to 950 °C 1,652 to 1,742 °F	Oil, (water), salt bath (320 - 482°F / 160 - 250°C), air. Quite on principle, water cooling only for large size parts of simple shape.
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Hardening and Tempering

Temperature	800 to 830 °C 1,472 to 1,526 °F	Oil, (water), salt bath (410 - 482°F / 160 - 250°C), air. After hardening: tempering at 338 to 410°F (170 to 210°C) Achievable Core strength: 1200 - 1500 MPa / 174 - 217 ksi (oil or salt bath hardening); 1100 - 1300 MPa / 160 - 189 ksi (air).
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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
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

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

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