

Material Designation

1.6587 DIN EN

Standards

DIN EN ISO 683-3
DIN EN 10084

Chemical Composition Mass-%

	C	Si	Mn	P	S	Cr	Ni	Mo	Cu
min.	0,15	-	0,50	-	-	1,50	1,40	0,25	-
max.	0,21	0,40	0,90	0,025	0,035	1,80	1,70	0,35	0,4

Customer specific restrictions upon request

Properties

18CrNiMo7-6 is a low alloy case hardening steel with good machinability.

Application Area

Case-hardened components with the highest requirements for fatigue strength and surface wear resistance.

Delivery Condition

- ✘ annealed (+A), max. 229 HBW
- ✘ Ferrite-perlite annealed and treated to hardness range (+FP), 159 - 207 HBW
- ✘ treated to hardness range (+TH), 179 - 229 HBW
- ✘ cold shearable (+S), max. 255 HBW
- ✘ pre-quenched and tempered (+QT), max. 229 HBW

Typical Applications

- ✘ Drive pinions
- ✘ Ring gears
- ✘ Gear wheels
- ✘ Shafts

Mechanical Properties Typical reference values for blank hardness samples¹

Diameter d	Yield strength	Tensile strength	Reduction of area	Elongation	Impact toughness at 20 °C
[mm]	[N/mm ²]	[N/mm ²]	[%]	[%]	[J] Charpy-V
30	785	≥ 1080	8	35	40
40 ≤ d ≤ 160	785	≥ 1080	8	35	40
> 160	785	≥ 1080	8	25	25

¹Dimension-dependent values of the mechanical properties are not specified in DIN EN ISO 683-3. The above values are based on the outdated DIN 17210.

Heat treatment Typical values acc. to DIN EN ISO 683-3

	Temperature [°C]	Cooling medium
Carburization	880 - 980	Air
Direct hardening	810 - 850	Oil, polymer, warmbath
Double hardening	830 - 870 (Core hardening temperature) 780 - 820 (Case hardening temperature)	Oil, polymer, warmbath Oil, polymer, warmbath
Tempering	150 - 200 (min. 1h)	Air

Quality

- ISO 9001
- ISO 14001
- ISO 50001
- Approvals acc. to standards like ABS, BV, DNV ...
- Customer specific approval certificates

Innovation

- Fully automated ultrasonic testing up to dia. 1000 mm
- CO₂-reduction by innovative heat treatment solutions

Flexibility

- Product range from fine wire to forging
- Directly from stock close at hand

Individuality

- Dimensions
- Tolerances
- Surface qualities
- Delivery conditions

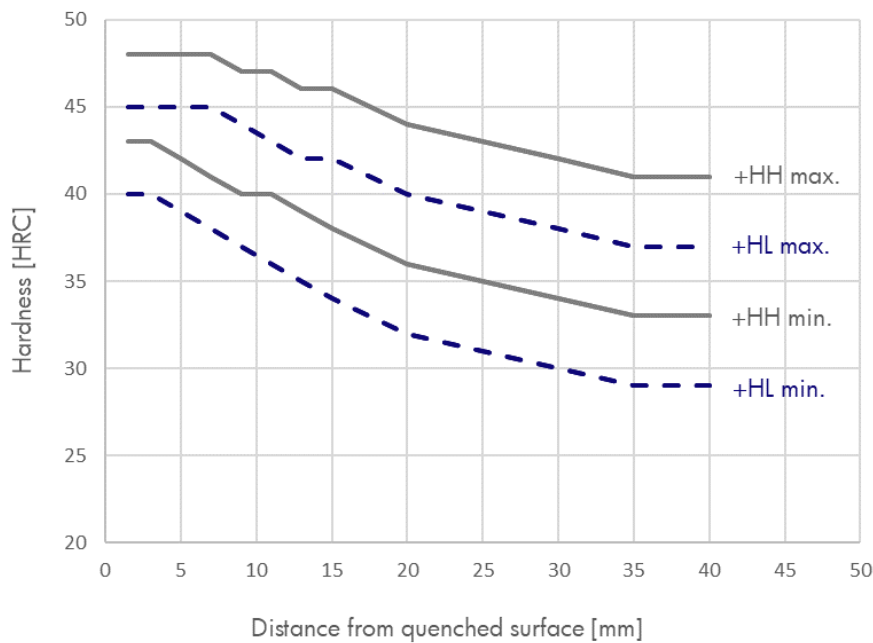
Your personal contact:

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Hardenability



Narrowed hardenability scatter bands for upper (+HH) and lower limit curve (+HL) for Jominy face quench test according to DIN EN ISO 683-3.

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