Technical Datasheet

34CrNiMo6 +QT +SH
Quenched and tempered Steel

31.05.23 Rev. N°1

Usage instructions

The compensation steel 34CrNiMo6 is used for through-hardened components in the automotive and general mechanical engineering industries with high requirements for strength and toughness, such as fasteners.

Individual bar hardening - homogeneity makes the difference

Compared to conventionally heat-treated products, the microstructure, strength, toughness, straightness, and residual stress state are significantly improved after single bar quenching. Additionally, this process operates with low decarburization and scale formation and drastically reduces hardness deviations. The dimension range for single bar quenching is Ø 15-80 mm.

International designation

Steel number	EU/DE	ASTM	JIS	AFNOR	B.S.	SIS
1.6582	34CrNiMo6	4337 4340	SNCM447	34CrNiMo8 35NCD6	816M40 817M40	2541

Chemical composition (cast analysis in percentage by mass)

Element	C	Si	Mn	P	S	Cr	Mo	Ni
min.	0,30	0,10	0,50	-	-	1,30	0,15	1,30
max.	0,38	0,40	0,80	0,025	0,035	1,70	0,30	1,70

Deviation of product analysis from melt analysis acc. to DIN EN 683-2 : 2018 Table 4.
Customer-specific analyses are possible after consultation.

Mechanical properties at room temperature in the state +QT +SH

Characteristic d [mm]	$R_{p0,2}$ [MPa] min.	R_m [MPa]	A_5 [%]	KV_2 [J] min.
16 < d ≤ 40	900	1100 – 1300	10	40
40 < d ≤ 80	800	1000 – 1200	11	45

- According to DIN EN 10277:2018
- Customized mechanical properties and other dimensions are possible upon consultation.
- The material can be heat-treated considering the strength classes 8.8, 10.9, and 12.9. Please contact us regarding this.

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Dynamic properties

34CrNiMo6 +HH +QT +SH	Bending fatigue strength σ_{bw} [MPa]	Tensile strength R_m [MPa]
Formula: $\sigma_{bw} \sim 0{,}5\ R_m$	600	1200

Calculated

Physical properties

properties	approx.- value
Density in kg/dm^3	7,73
E-Module in GPa	210
Electrical resistance at 20 °C in Ω mm^2/m	0,19
Thermal conductivity at 20 °C in W / (m K)	42,6
Specific heat capacity at 20 °C in J / (kg K)	470

Microstructure

The microscopic oxidic purity level according to DIN 50602 can be agreed upon. The grain size according to ASTM E 112 is > 5. A surface hardness of at least 50 HRC according to EN ISO 683-2:2018 can be achieved.

Surface finish

The surface condition complies with the requirements of EN 10277. Ultrasonic volumetric testing is possible. In the standard version, the rod ends up to 50 mm are not tested.

Delivery condition

Bright steel, drawn.

Miscellaneous

Other agreements according to order.

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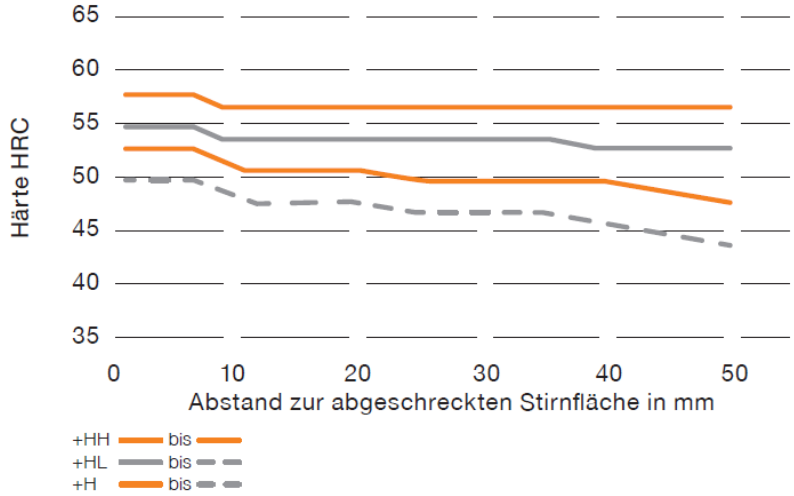
Hardenability

34CrNiMo6



Without further specifications, we use the quality +HH according to DIN EN 683-2:2018.

For further info on our product range of tool steel, stainless steel and engineering steel please visit www.swissssteelgroup.com

Discover our Green Steel portfolio on www.swissgreensteel.com

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