

General product description

Boron-alloyed heat-treatable steel 33MnCrB5-2 is characterized by high strength after heat treatment. The strength properties are achieved not only through carbon, but also through the MnB content. Comparable strength properties to MnCr hardening steels can be achieved with a lower carbon content, which improves weldability.

Individual bar hardening - homogeneity makes the difference

Compared to conventionally hardened products, individual bar hardening significantly improves the microstructure, strength toughness, straightness, and residual stress state. Additionally this process operates with low decarburization and scale formation, and drastically reduces hardness distortions. The dimension range for individual bar hardening is Ø 15–80 mm.

International designation

Steel number	EU/DE	ASTM	JIS	AFNOR	B.S.
1.7185	33MnCrB5-2	-	-	-	-

Chemical composition (cast analysis in percentage by mass)

Element	C	Si	Mn	P	S	Cr	B
min.	0,30	-	1,20	-	-	0,30	0,0008
max.	0,36	0,40	1,50	0,025	0,035	0,60	0,0050

Deviation of piece analysis from melt analysis according to DIN EN 683-2:2018 Table 4. Customized analyses are possible after consultation with the customer.

Mechanical-technological properties

Characteristics d [mm]	R _{p0,2} [N/mm ²]	R _m [N/mm ²]	A ₅ [%]	Z [%]	KV _{RT} [J]
16 < d ≤ 40	800	950 – 1200	13	50	50
40 < d ≤ 63	750	900 – 1100	12	50	40

Customized mechanical properties and other dimensions are possible after consultation with the customer, according to EN ISO 683-2:2018.

Physical properties

Properties	approx. value
Density in kg/dm ³	7,8
E-Module in GPa	210
Electrical resistance at 20 °C in Ω mm ² /m	0,22
Thermal conductivity at 20 °C in W / (m K)	43
Specific heat capacity at 20 °C in J / (kg K)	470

Microstructure

The quenched and tempered microstructure consists of approximately 90% martensite. The microscopic oxide purity grade according to DIN 50602 can be agreed upon. The grain size according to ASTM E 112 is > 5.

Condition of delivery

Bright steel, drawn

Miscellaneous

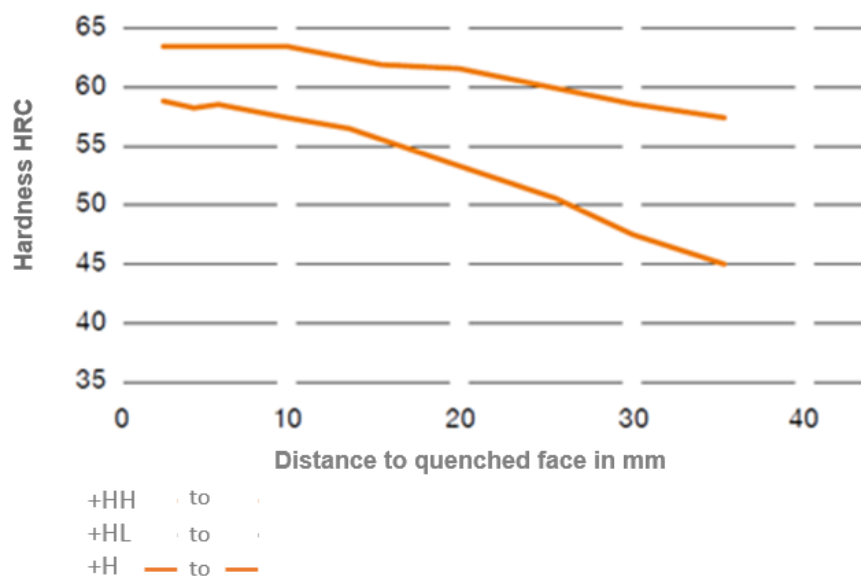
Other agreements according to order

Surface finish

The surface condition complies with the requirements of EN 10277. Full volume ultrasonic testing is possible. In the standard version, the rod ends up to 50 mm are untested.

Hardenability

33MnCrB5-2



Lower and upper limits of quality +H
 Without further specifications, we use the quality +H; 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.swisssteelgroup.com

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