

39MnCrB6-2 All

General Information

EN 10083-3 is one of the standards met by this steel grade.

This grade is classified as a WR-steel, which stands for wear-resistant steel. This group of steel includes a broad range of grades with a wide range of hardness levels 350 – 650 HV, dimensions and steel grades designed to give you a wear-resistant advantage when making product exposed to a high degree of wear and where service life is important. WR-steels are characterised by consistent properties and cost effectiveness due to optimized alloy content for different end applications.

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Similar designations

1.7189

Chemical composition

Variant	Cast		C %	Si %	Mn %	P %	S %	Cr %	B %
BCM414	CC	Min	0.36	0.15	1.30	-	-	0.30	0.0008
		Max	0.42	0.35	1.70	0.035	0.035	0.60	0.0050

Mechanical Properties

Variant	Condition ^①	Format	Dimension [mm]	Yield strength min [MPa]	Tensile strength [MPa]	Elongation A ₅ [%]	Reduction of area Z _{min} [%]	Hardness	Impact (ISO-V) strength _{min}
BCM414	+QT	Round bar	30 < 70	1150	1350-1550	9	45	43-48 HRC	20 °C 20 J (long)

*R_{p0.2} * R_{eh}, ** R_{el}*

Transformation temperatures

	Temperature °C
MS	350
AC1	720
AC3	805

Heat treatment recommendations

Treatment	Condition ^①	Temperature cycle	Cooling/quenching
Soft annealing	+AR	Soft annealing 650 - 700°C soaking 3-10hrs	Followed by slow cooling in air
Normalizing	+AR	840 - 870°C 1-2 hrs	In air
Hardening	+AR	Soaking at 840 - 870°C	Quenching in oil
Tempering	+QO	Tempering 180 - 230°C 1hr at temperature	In air

SUSTAINABILITY-ENVIRONMENTAL IMPACT DATA

At Ovako sustainability and reduction of our environmental impact is a major focus in everything we do.

Further information is found [here](#).

In many international comparisons the crude steel Scope 1-2 emission is a key parameter, ie. the CO₂ emission from the steel works itself.

As of 1 January 2022 we carbon offset all our scope 1 and 2 volume shown below.

Steel works	Hofors	Smedjebacken	Imatra
CO ₂ e/kg	120	62	76

To get the full picture of our products environmental impact we have to look at all of our CO₂ emission sources.

Not only the steel work Scope 1-2 itself, but all operations downstream in our production, heating and heat treatment furnaces etc (full scope 1-2) as well as all the emission from input material, eg. alloys, scope 3.

As of 1 January 2022 we use carbon offset for all our scope 1- 2 emissions, so in practice the climate compensated data is the same as the full Scope 3 level.

All above data are to be seen as typical values for the specified format and condition. Detailed information about your specific product please contact your sales contact.

Other properties (typical values)

Youngs module (GPa)	Poisson ´s ratio (-)	Shear module (GPa)	Density (kg/m3)
210	0.3	80	7800
Average CTE 20-300°C (µm/m°K)	Specific heat capacity 50/100°C (J/kg °K)	Thermal conductivity Ambient temperature (W/m°K)	Electrical resistivity Ambient temperature (µΩm)
12	460 - 480	40 - 45	0.20 - 0.25

Contact us

Would you like to know more about our offers? Don´t hesitate to contact us:

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For more detailed information please visit <http://www.ovako.com/en/Contact-Ovako/>

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