

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	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}*

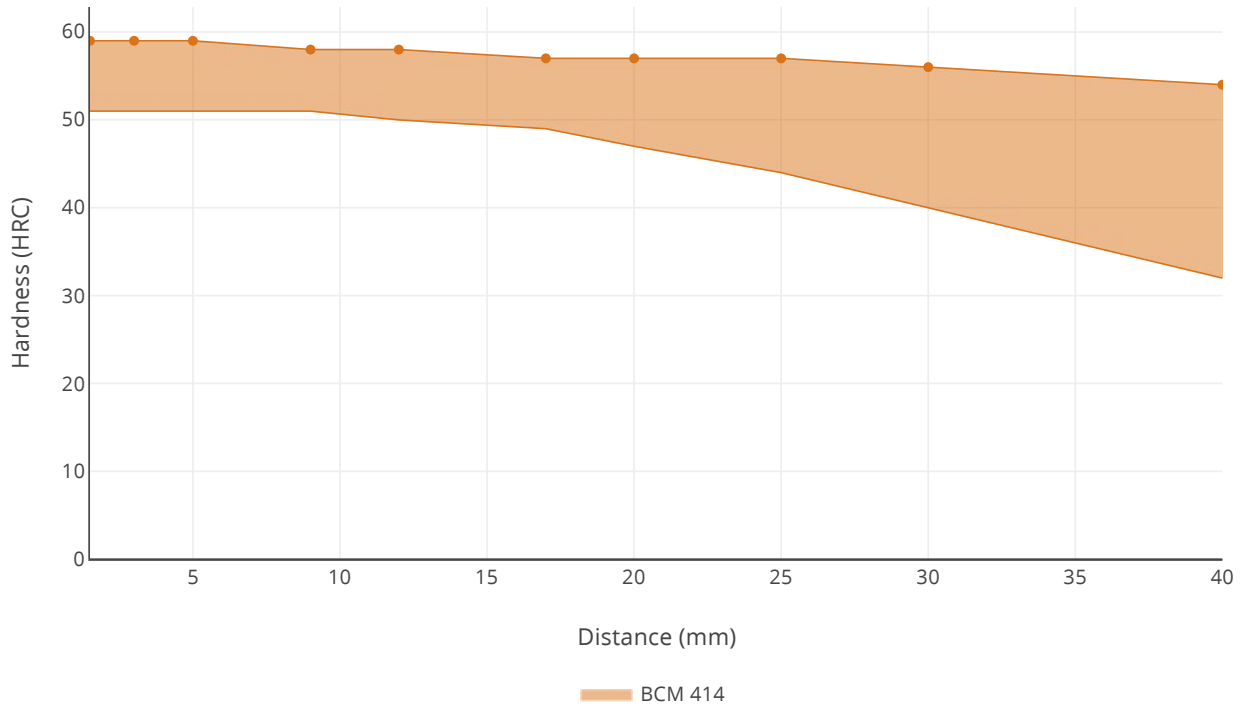
Transformation temperatures

	Temperature °C
MS	350
AC1	720
AC3	805

Heat treatment recommendations

Treatment	Condition	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

Hardenability



Other properties (typical values)

Youngs module (GPa)	Poisson's ratio (-)	Shear module (GPa)	Density (kg/m ³)
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

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