Material data sheet
Steel grade

Last revised: Thu, 23 Feb 2023 16:19:57 GMT

OVAKO

11MnCrB5-3* All

General Information

SB11M13CB according to OVAKO standard is a boron steel grade for quench and tempering, with good weldability properties, high mechanical properties and excellent toughness.

The equivalent grade according to EN10027 is 11MnCr5-3.

For additional Heat Treatment Data, please visit the Heat Treatment Guide.

** Designation followed by "*" is not an official EN standard grade but named according to the rules in EN 10027.*

Similar designations

11MnCrB5-3*

Chemical composition

Variant	Cast	Di	Weldability		C%	Si%	Mn%	P%	S%	Cr%	Ti%	B%
SB11M13CB	CC	1.5	CEV 0.55_{max}	Min	0.09	0.20	1.20	-	-	0.70	0.020	0.0015
			Pcm 0.24_{max}	Max	0.12	0.40	1.40	0.020	0.010	0.90	0.050	0.0040

Mechanical Properties

Variant	Condition	Format	Dimension [mm]	Hardness
SB11M13CB	+AR	Flat bar	5 < 30	< 250 HB
		Flat bar	5 < 30	190 HB typical

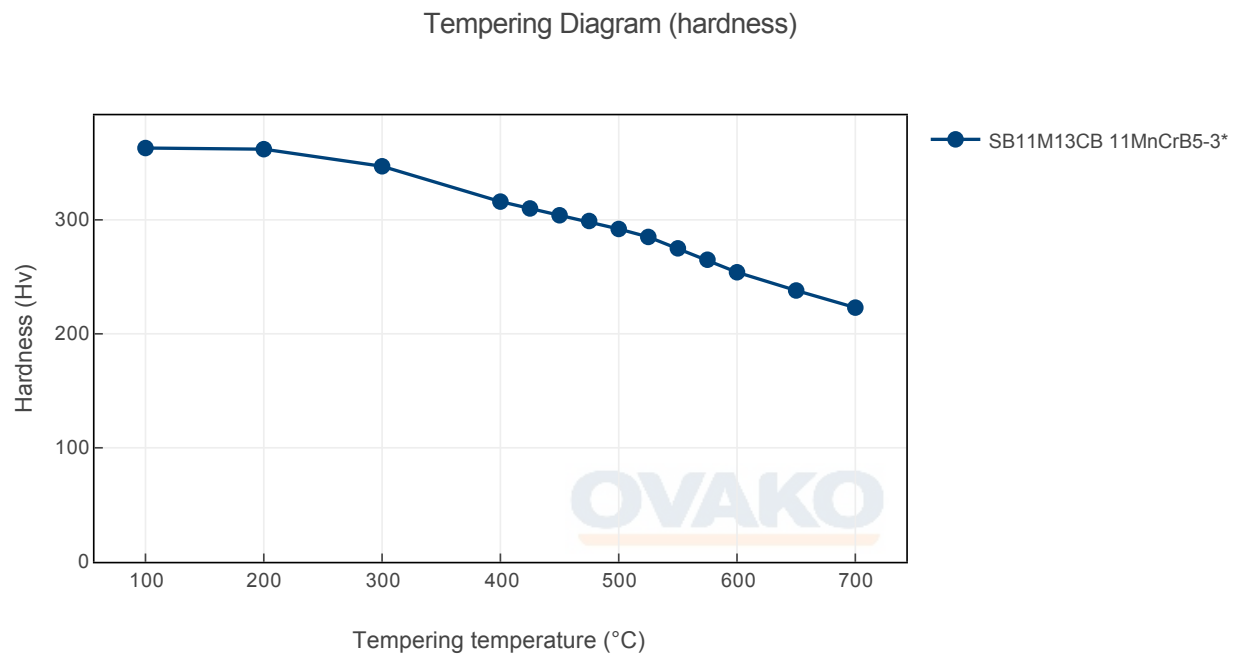
$Rp_{0.2}$ * R_{eh}, ** R_{el}

Transformation temperatures

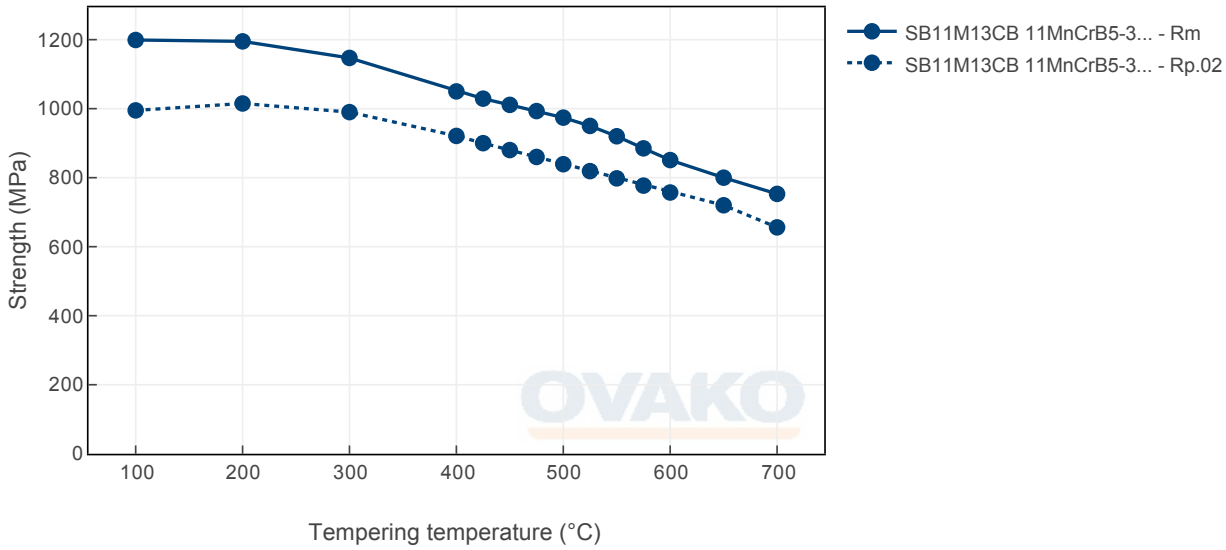
	Temperature °C
MS	443
AC1	731
AC3	831

Heat Treatment Guide generated Graphs

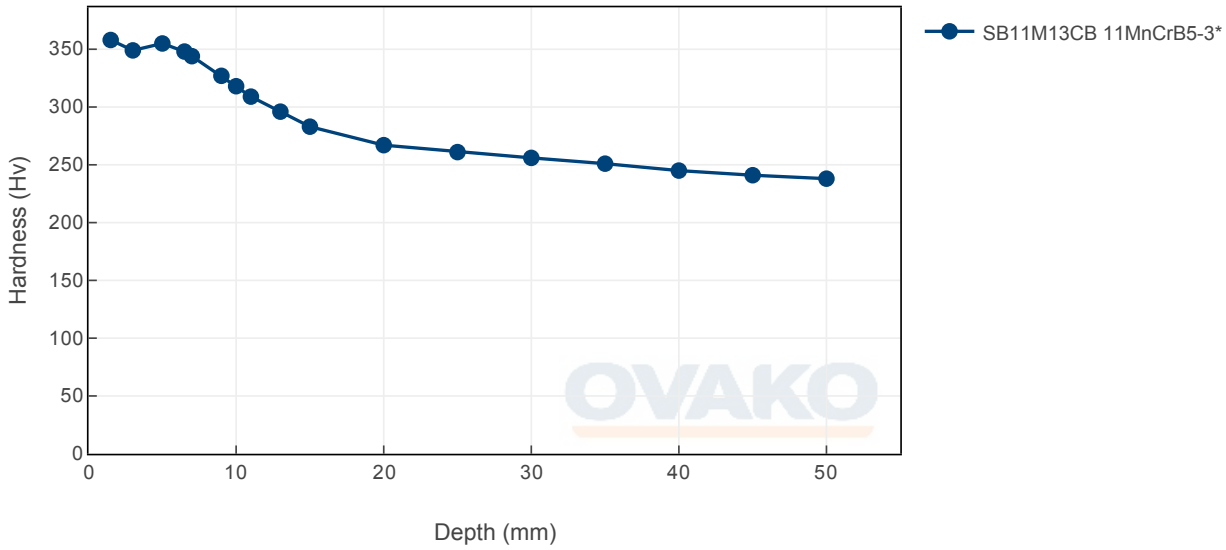
The following graphs are generated from a theoretical model. For further info see the Heat treatment guide module. Select a specific grade version for individual display.



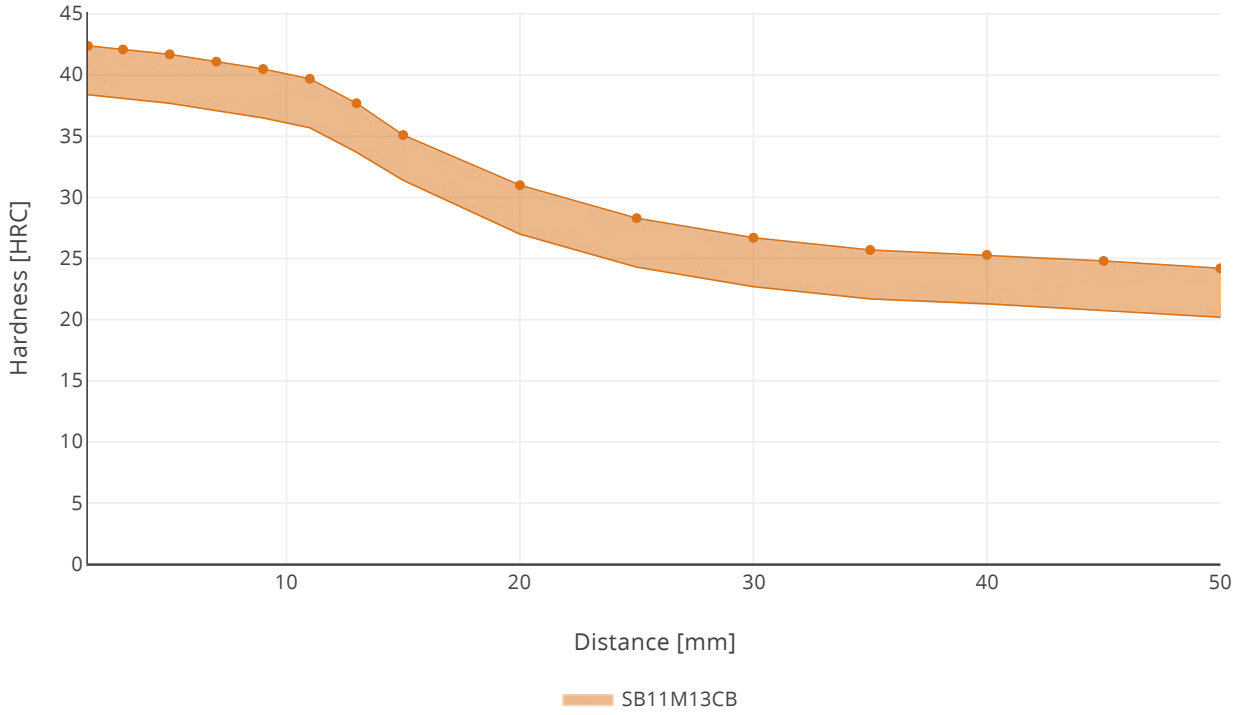
Tempering Diagram (strength)

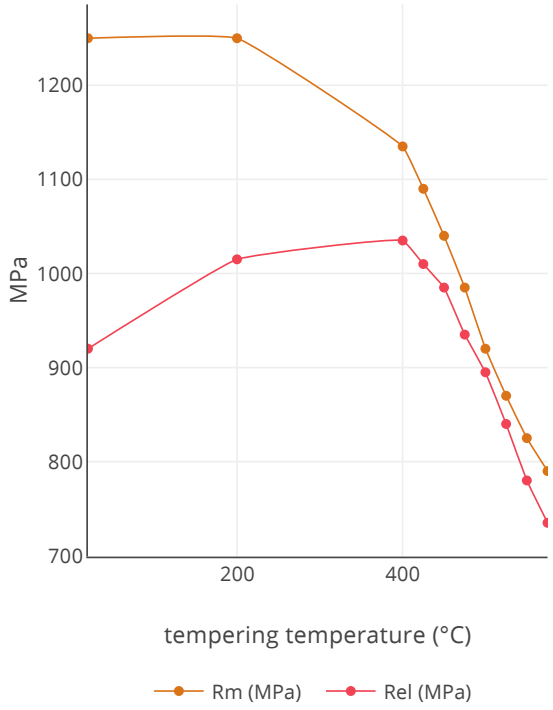


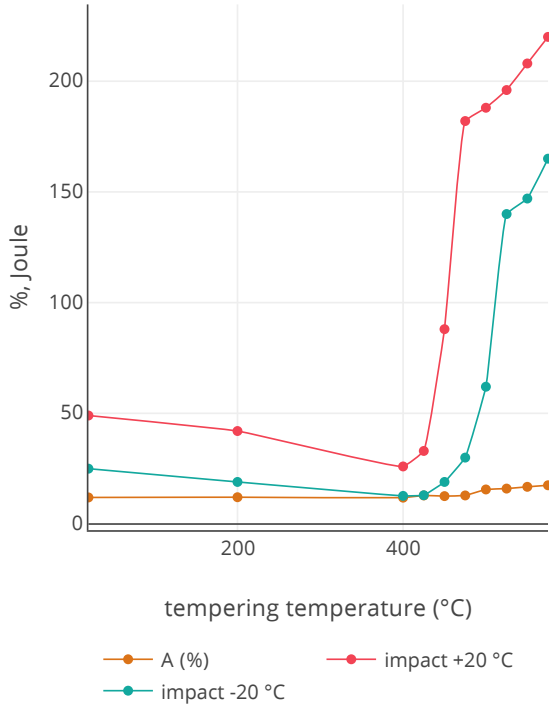
Jominy


Hardness (Hv)
350
300
250
200
150
100
50
0
0
10
20
30
40
50
Depth (mm)
SB11M13CB 11MnCrB5-3*

Hardenability







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 CO_2 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
CO2e/kg	120	62	76

To get the full picture of our products environmental impact we have to look at all of our CO_2 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.

Steel Grade	Format	Condition	Scope 1-3 (CO2e kg /1000 kg steel)	Climate compensated Net emission = Scope 3 (CO2e kg /1000 kg steel) Scope 1 - 2 = 0 (compensated)
SB11M13CB	Flat bar	+AR	382	196

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 resistivityAmbient 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/