Material data sheet
Steel grade

Last revised: Thu, 23 Feb 2023 16:19:58 GMT

OVAKO

27MnB4 All

General Information

Grade SB27M12B is a boron steel for general purposes without any specified mechanical properties. Its closest equivalent is found in the EN 10263-4:2001 grade 27MnB4. The difference is the manganese content. SB27M12B may serve as wear parts in graders and snowploughs but also suitable for agriculture machinery.

Similar designations

SB27M12B - 27MnB5-4

Chemical composition

Variant	Cast	Weldability		C %	Si %	Mn %	P %	S %	Cr %	B %
SB27M12B	CC	CEV 0.53_{max}	Min	0.25	0.15	1.10	-	0.015	0.10	0.0010
		Pcm 0.38_{max}	Max	0.30	0.35	1.30	0.035	0.035	0.30	0.0060
27MnB4 EN 10263-4:2001	CC	CEV 0.57_{max}	Min	0.25	0.15	0.90	-	0.015	0.10	0.0008
		Pcm 0.42_{max}	Max	0.30	0.35	1.20	0.035	0.035	0.30	0.0050

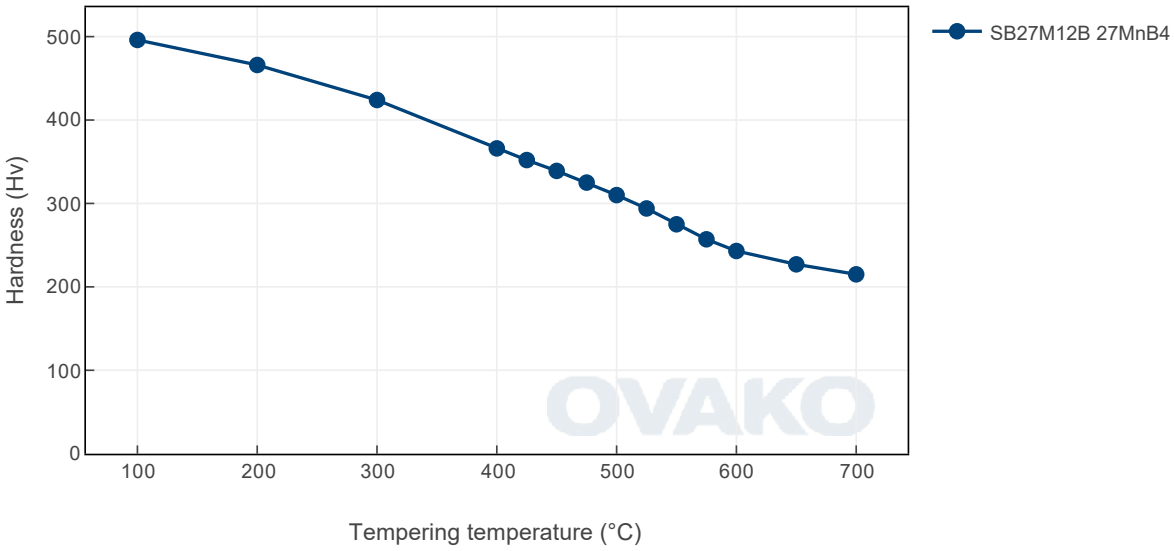
Transformation temperatures

	Temperature °C
MS	384
AC1	721
AC3	787

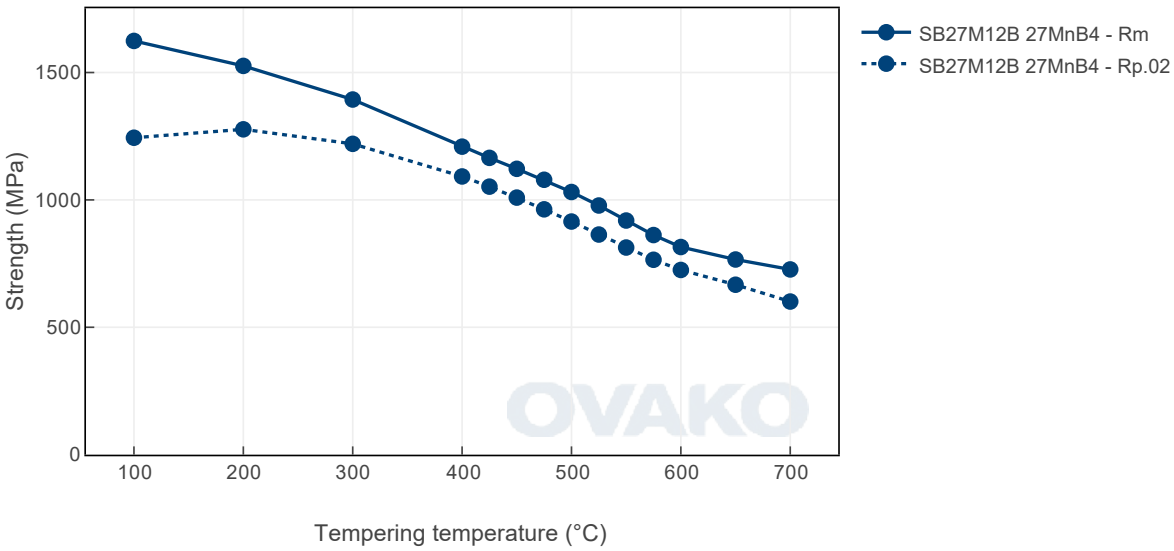
Heat Treatment Guide generated Graphs

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.

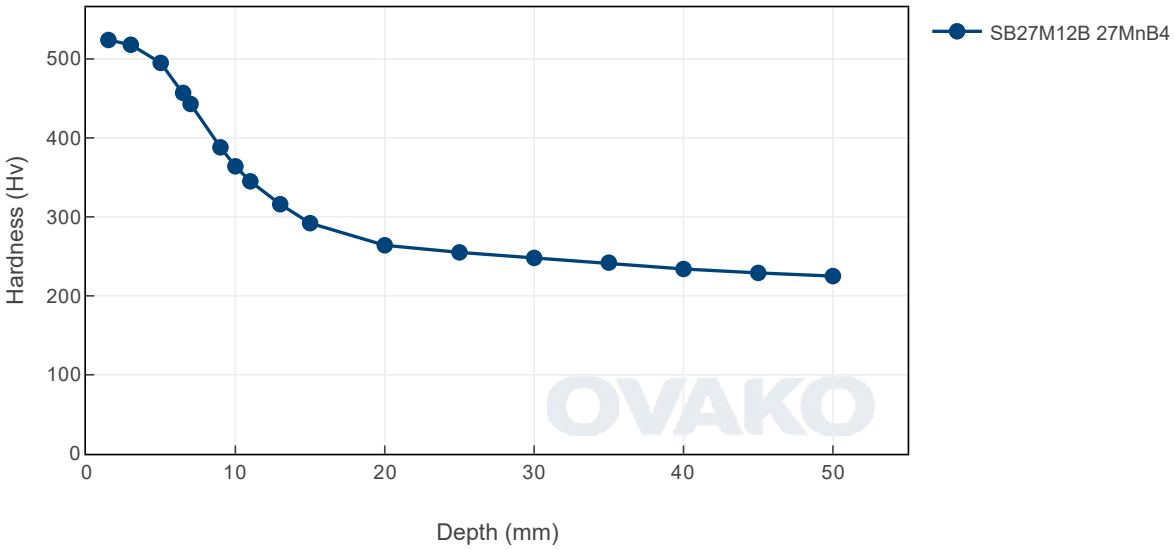
Tempering Diagram (hardness)



Tempering Diagram (strength)



Jominy


SB27M12B 27MnB4
Hardness (Hv)
500
400
300
200
100
0
0
10
20
30
40
50
Depth (mm)
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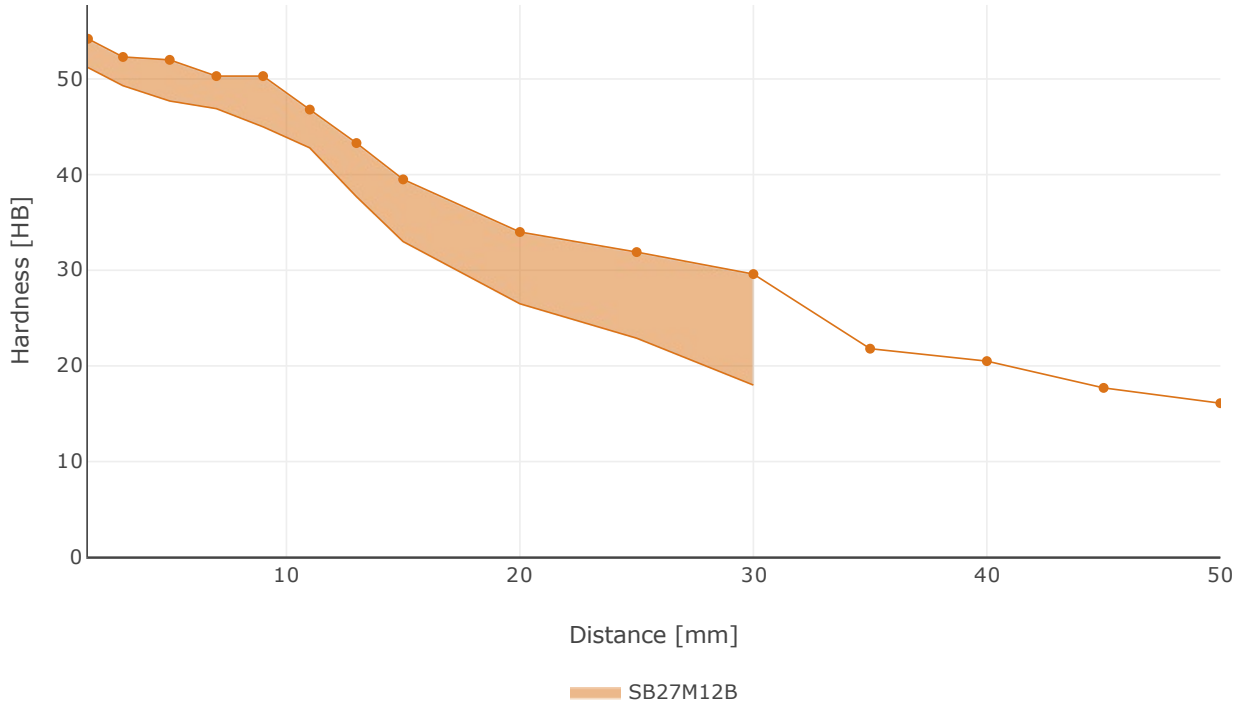
Hardenability



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)
SB27M12B	Flat bar	+AR		

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/