

STEEL GRADE

Last revised: Tue, 28 Jan 2025 16:19:44 GMT

28MnB5* All

General Information

Grade SB27M12Bm is boron steel used in quenched and tempered condition. The material is suitable for moderately or highly stressed parts such as wear parts on agricultural, forestry and excavators. The grade has tighter chemical analysis than grade SB27M12CB and is recommended for thickness ≤ 15 mm. Its closest equivalent is 28MnB5 (1.0871).

Similar designations

SB27M12Bm - 26MnB5-3, 1.0871

Chemical composition

| Variant | Cast | Weldability | | C % | Si % | Mn % | P % | S % | Cr % | Al % | B % |
|-----------|------|-------------------------|-----|------|------|------|-------|-------|------|-------|--------|
| SB27M12Bm | CC | CEV 0.53 _{max} | Min | 0.25 | 0.15 | 1.10 | - | - | 0.15 | 0.010 | 0.0010 |
| | | Pcm 0.38 _{max} | Max | 0.30 | 0.35 | 1.30 | 0.025 | 0.015 | 0.25 | 0.040 | 0.0050 |
| 28MnB5 | CC | CEV 0.57 _{max} | Min | 0.25 | 0.15 | 1.00 | - | - | - | - | 0.0008 |
| | | Pcm 0.4 _{max} | Max | 0.32 | 0.40 | 1.50 | 0.035 | 0.035 | 0.30 | 0.020 | 0.0050 |

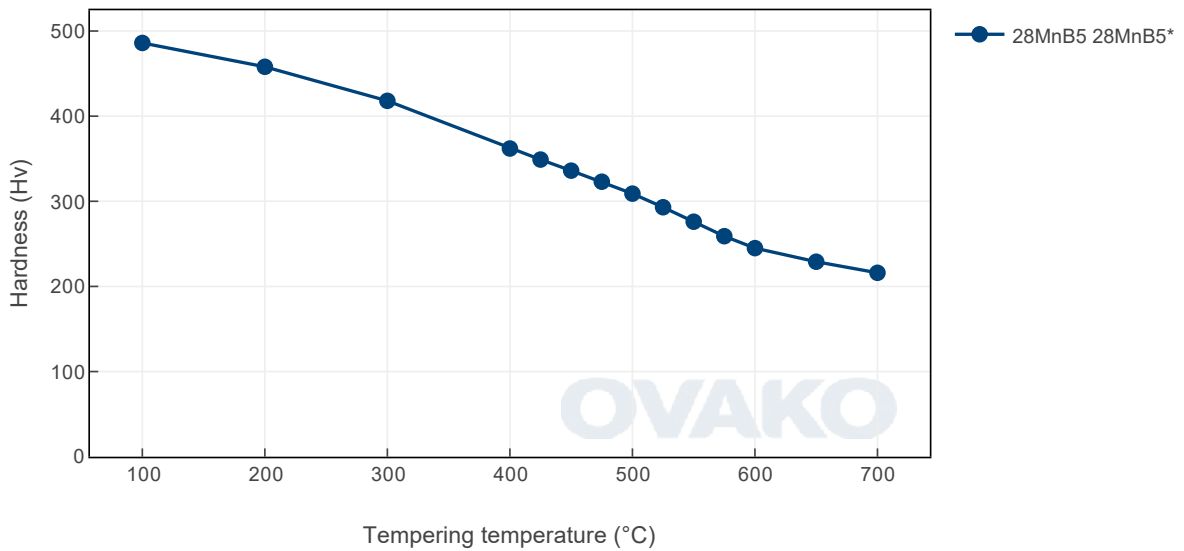
Transformation temperatures

| | Temperature °C |
|-----|----------------|
| MS | 379 |
| AC1 | 720 |
| AC3 | 784 |

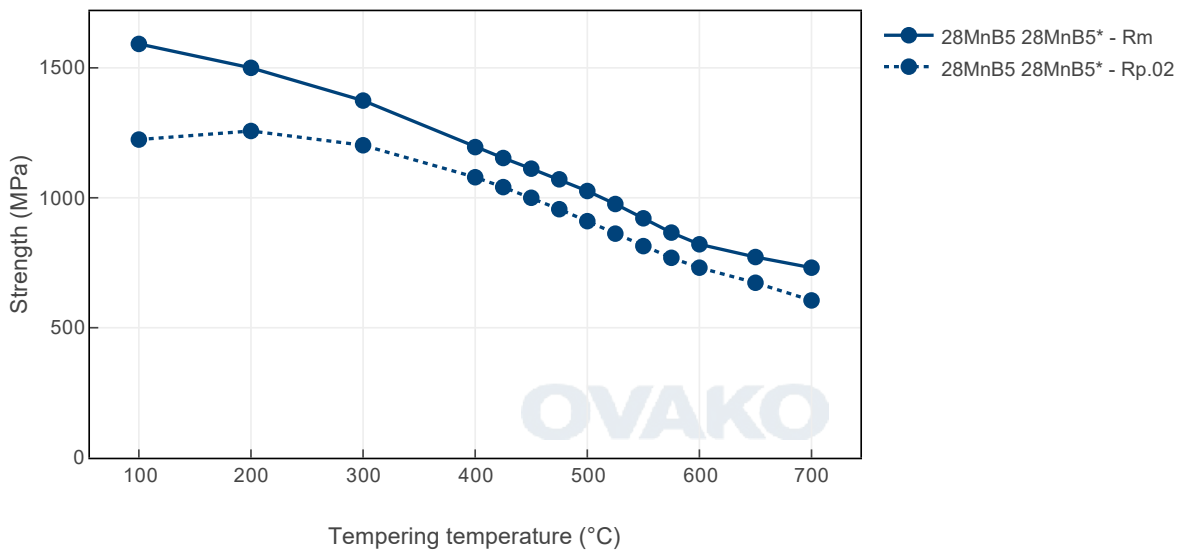
Heat Treatment Guide generated Graphs

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.

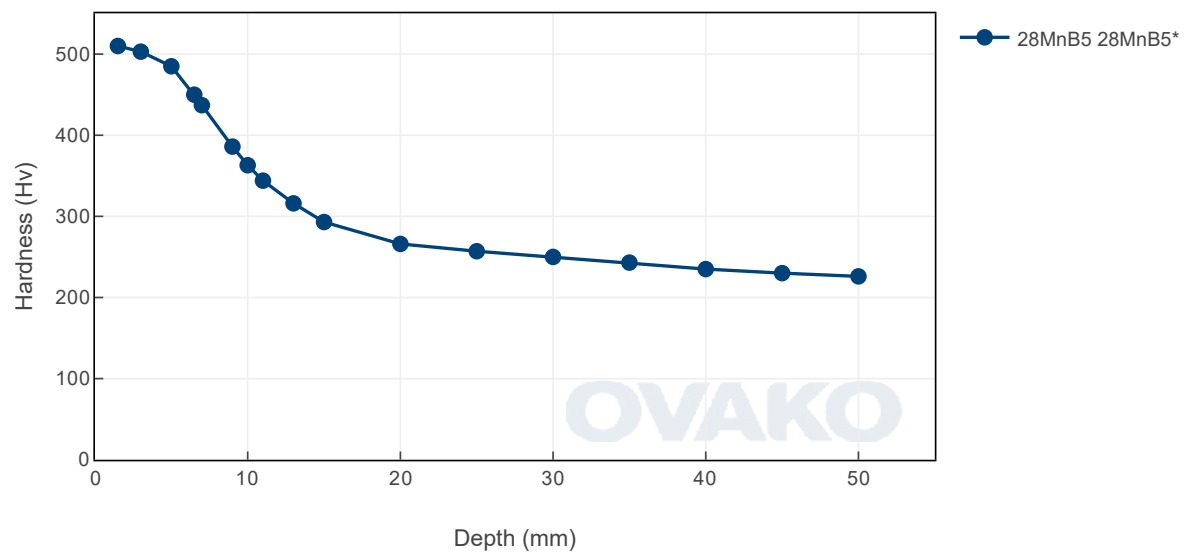
Tempering Diagram (hardness)



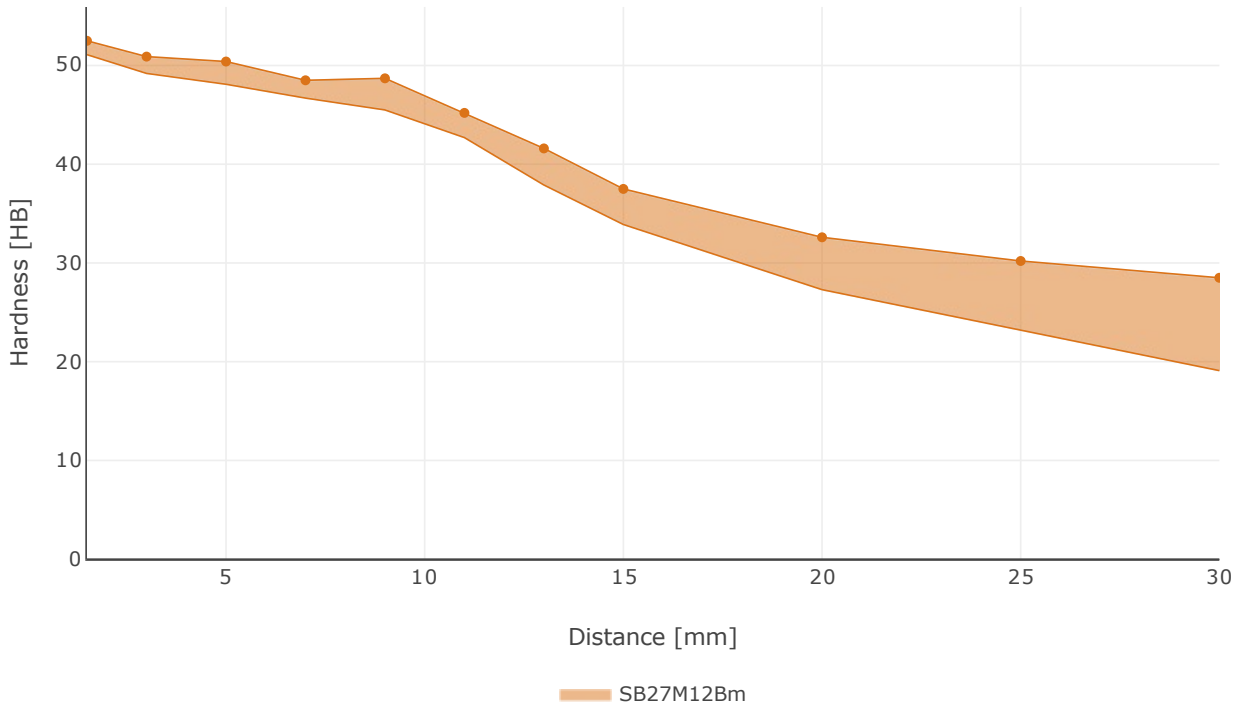
Tempering Diagram (strength)



Jominy



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](#).

| 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 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.

| 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) |
|-------------|----------|-----------|------------------------------------|---|
| 28MnB5 | Flat bar | +AR | 409 | 172 |
| SB27M12Bm | Flat bar | +AR | 398 | 162 |

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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Via telephone: +46 8 622 1300

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

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