

## STEEL GRADE

Last revised: Fri, 17 Jan 2025 10:36:15 GMT

22MnB5 All

## General Information

Grade SB24M13B is a boron steel for general purposes without any specified mechanical properties. Its closest equivalent is found in the standard number 22MnB5. This grade is suitable to serve as chains (side-links) in materials handling equipment of various kinds that are exposed to heavy wear and varying stresses (bending, tensile, fatigue). This grade also works well as wear parts in snow ploughs/ graders and in the machinery of agriculture machines because of its good hardness and toughness in heat-treated condition in dimensions up to Ø 40 mm or equivalent thickness.

## Similar designations

SB24M13B - 24MnB5-4, 1.5528

## Chemical composition

| Variant  | Cast | Weldability             |     | C %  | Si % | Mn % | P %   | S %   | Cr % | B %    |
|----------|------|-------------------------|-----|------|------|------|-------|-------|------|--------|
| SB24M13B | CC   | CEV 0.51 <sub>max</sub> | Min | 0.22 | 0.15 | 1.20 | -     | -     | 0.10 | 0.0010 |
|          |      | Pcm 0.35 <sub>max</sub> | Max | 0.26 | 0.35 | 1.40 | 0.035 | 0.035 | 0.30 | 0.0060 |
| 22MnB5   | Std  | CEV 0.52 <sub>max</sub> | Min | 0.19 | -    | 1.10 | -     | -     | -    | 0.0008 |
|          |      | Pcm 0.33 <sub>max</sub> | Max | 0.25 | 0.40 | 1.40 | 0.025 | 0.015 | 0.40 | 0.0050 |

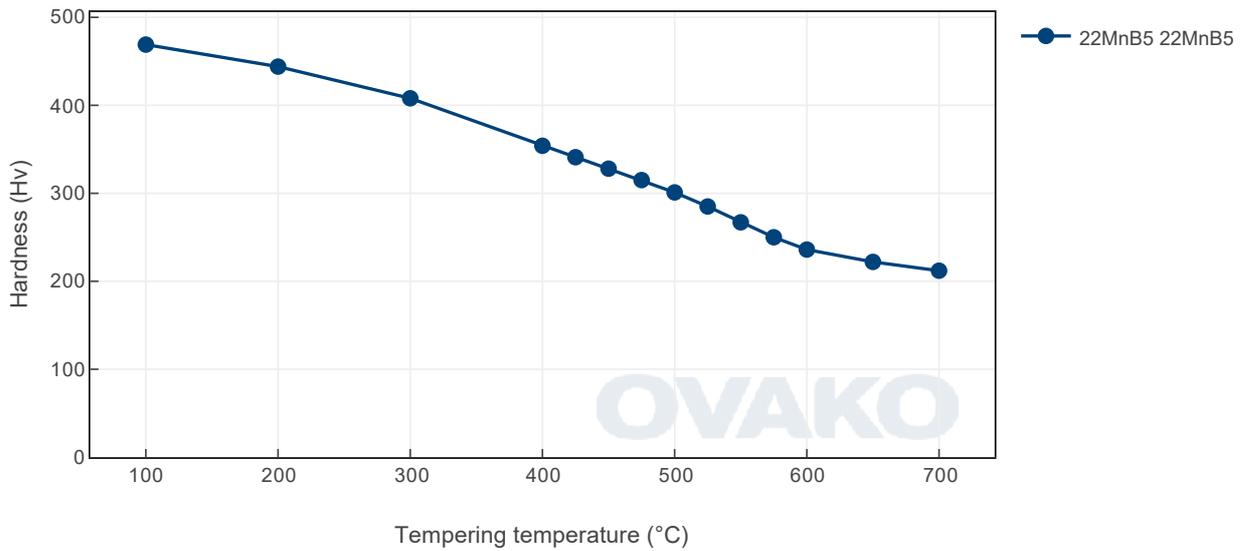
## Transformation temperatures

|     | Temperature °C |
|-----|----------------|
| MS  | 400            |
| AC1 | 719            |
| AC3 | 790            |

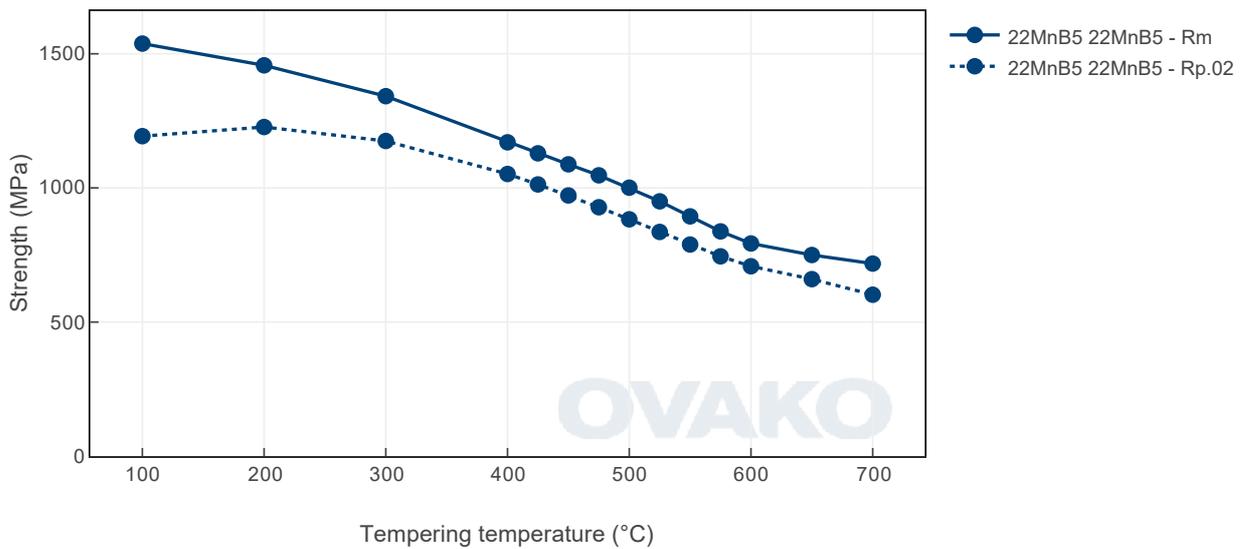
## Heat Treatment Guide generated Graphs

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.

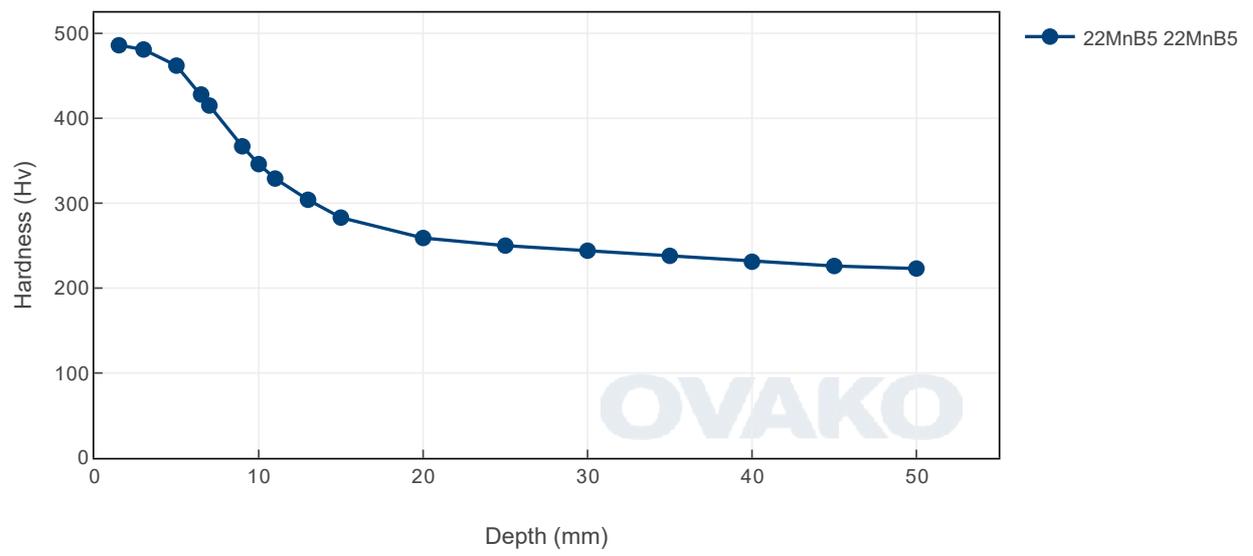
Tempering Diagram (hardness)



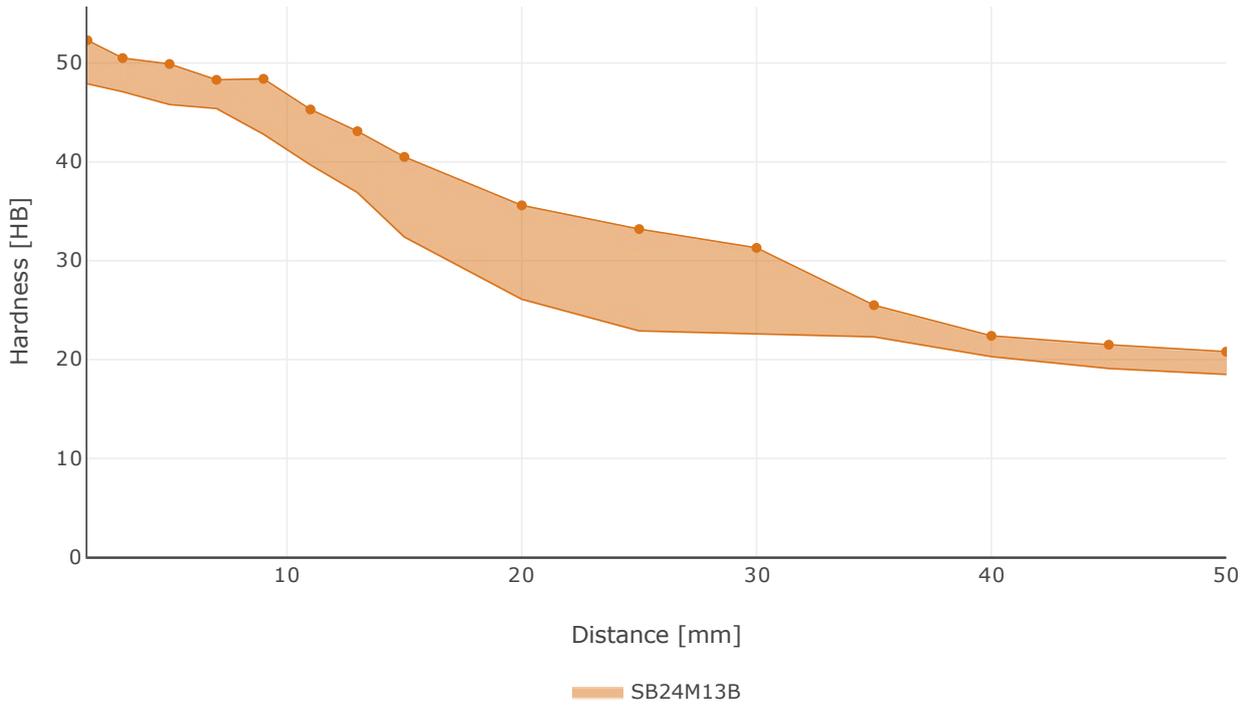
Tempering Diagram (strength)



# 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 |
|----------------------|--------|--------------|--------|
| CO <sub>2</sub> e/kg | 120    | 62           | 76     |

To get the full picture of our products environmental impact we have to look at all of our CO<sub>2</sub> 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 (CO <sub>2</sub> e kg /1000 kg steel) |
|-------------|----------|-----------|---|
| SB24M13B    | Flat bar | +AR       | 399   |
| 22MnB5      | Flat bar | +AR       | 399   |

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/m <sup>3</sup> )                     |
|-------------------------------|---|--|--|
| 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:

Via e-mail: [info@ovako.com](mailto:info@ovako.com)

Via telephone: +46 8 622 1300

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

**Disclaimer**

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