

# 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

## Chemical composition

| Variant  | Cast | Weldability             |     | C %  | Si % | Mn % | P %   | S %   | Cr % | B %    |
|----------|------|-------------------------|-----|------|------|------|-------|-------|------|--------|
| SB24M13B | CC   | CEV 0.51 <sub>max</sub> | Mn  | 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> | Mn  | 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 |

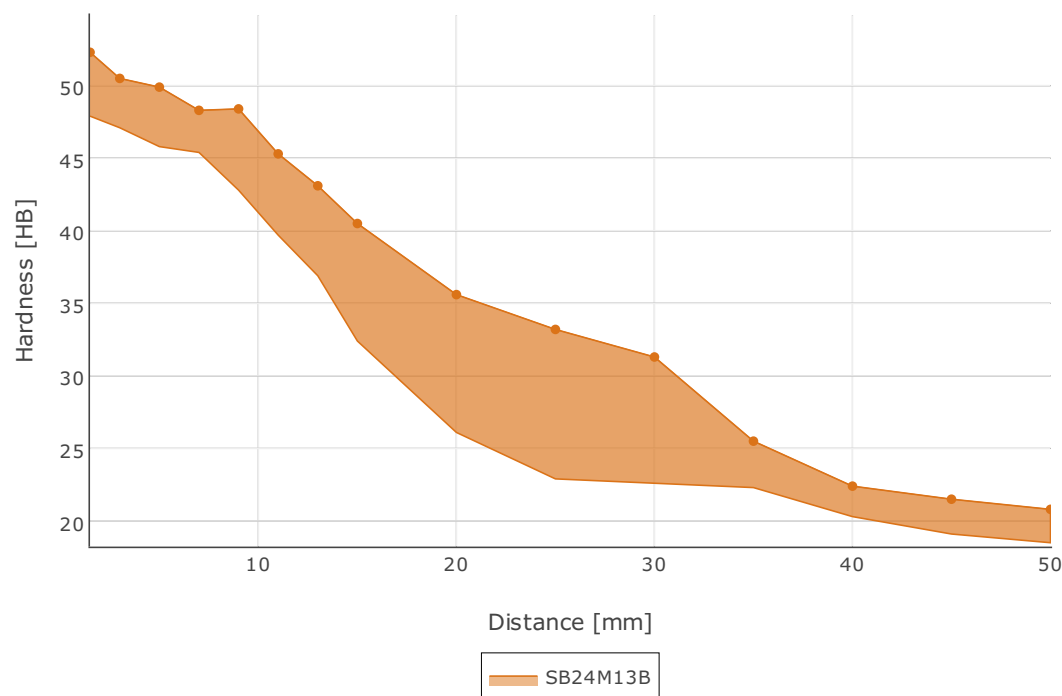
## Mechanical Properties

| Variant             |
|---------------------|
| Rp0.2 * Reh, ** Rel |

## Transformation temperatures

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

## Hardenability



## Other properties (typical values)

|  |   |   |  |
|--|---|---|--|
| Young's 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 <sup>2</sup> K) | Specific heat capacity 50/100°C (J/kg <sup>2</sup> K) | Thermal conductivity Ambient temperature (W/m <sup>2</sup> K) | Electrical resistivity Ambient temperature (µΩm) |
| 12   | 460 - 480   | 40 - 45   | 0.20 - 0.25                                      |

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