

STEEL GRADE

Last revised: Thu, 30 Jan 2025 11:02:02 GMT

42MnV5* All

General Information

SB690 is a micro-alloyed steel for general purposes where high yield strength is needed without impact requirements. The bars are delivered as rolled. The properties will change if the bars are heat-treated.

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

Chemical composition

| Variant | Cast | Weldability | | C % | Si % | Mn % | P % | S % | Cr % | Ni % | Mo % | V % | Cu % | Al % | N % |
|---------|------|-------------------------|-----|------|------|------|-------|-------|------|------|------|-------|------|-------|--------|
| SB690 | CC | CEV 0.79 _{max} | Min | 0.40 | 0.30 | 1.30 | - | 0.010 | 0.25 | 0.15 | - | 0.130 | - | - | 0.0180 |
| | | Pcm 0.55 _{max} | Max | 0.43 | 0.50 | 1.50 | 0.035 | 0.035 | 0.35 | 0.30 | 0.10 | 0.180 | 0.30 | 0.010 | 0.0260 |

Mechanical Properties

| Variant | Condition | Format | Dimension [mm] | Yield strength min [MPa] | Tensile strength [MPa] | Elongation A ₅ [%] | Hardness |
|---------|-----------|-----------|----------------|--------------------------|------------------------|-------------------------------|------------|
| SB690 | +AR | Round bar | 45 < 95 | 690* | 950-1100 | 10 | 285-330 HB |

*R_{p0.2} * R_{eh} ** R_{el}*

Transformation temperatures

| | Temperature °C |
|-----|----------------|
| MS | 310 |
| AC1 | 721 |
| AC3 | 778 |

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) |
|-------------|-----------|-----------|------------------------------------|---|
| SB690 | Round bar | +AR | 439 | 206 |

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:

Via e-mail: info@ovako.com

Via telephone: +46 8 622 1300

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

Disclaimer

The information in this document is for illustrative purposes only. The data and examples are only general recommendations and not a warranty or a guarantee. The suitability of a product for a specific application can be confirmed only by Ovako once given the actual conditions. The purchaser of an Ovako product has the responsibility to ascertain and control the applicability of the products before using them. Continuous development may necessitate changes in technical data without notice. This document is only valid for Ovako material. Other material, covering the same international specifications, does not necessarily comply with the properties presented in this document.