

STEEL GRADE

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38MnVS6 All

General Information

Grade 38MnVS6 is a micro-alloyed medium carbon steel for general purposes. The steel is recommended for applications demanding high mechanical properties and smooth surfaces.

482A - Ingot cast variant

7221 - Continuous cast variant.

SB9857 - Continuous cast variant.

For additional Heat Treatment Data, please visit the Heat Treatment Guide

Similar designations

39MnV5, 1.1303

Chemical composition

| Variant | Cast | Di | Weldability | | C % | Si % | Mn % | P % | S % | Cr % | Ni % | Mo % | V % | Cu % | Al % | N % |
|-----------------------------|------|------|--------------------------|-----|------|------|------|-------|-------|------|------|------|-------|------|-------|--------|
| 482A | IC | 3.5 | CEV 0.75 _{max} | Min | 0.37 | 0.35 | 1.25 | - | 0.020 | 0.20 | 0.15 | - | 0.110 | - | - | - |
| | | | Pcm 0.53 _{max} | Max | 0.40 | 0.42 | 1.35 | 0.025 | 0.028 | 0.26 | 0.20 | 0.05 | 0.150 | - | - | - |
| 7221 | CC | 2.81 | CEV 0.68 _{max} | Min | 0.36 | 0.30 | 1.00 | - | 0.010 | - | - | 0.02 | 0.100 | - | 0.010 | 0.0100 |
| | | | Pcm 0.498 _{max} | Max | 0.41 | 0.50 | 1.40 | 0.025 | 0.025 | 0.30 | - | 0.06 | 0.200 | - | 0.040 | 0.0180 |
| SB9857 | CC | | CEV 0.7 _{max} | Min | 0.37 | 0.30 | 1.20 | - | - | - | - | - | 0.110 | - | - | - |
| | | | Pcm 0.51 _{max} | Max | 0.43 | 0.50 | 1.40 | 0.025 | 0.030 | 0.30 | - | - | 0.160 | - | - | - |
| 38MnVS6 EN 10267:1998 | Std | | CEV 0.72 _{max} | Min | 0.34 | 0.15 | 1.20 | - | 0.020 | - | - | - | 0.080 | - | - | - |
| | | | Pcm 0.5 _{max} | Max | 0.41 | 0.80 | 1.60 | 0.025 | 0.060 | 0.30 | - | - | 0.200 | - | - | - |

Mechanical Properties

| Variant | Condition ⓘ | Format | Dimension [mm] | Yield strength min [MPa] | Tensile strength [MPa] | Elongation A ₅ [%] | Reduction of area Z _{min} [%] | Hardness | Impact (ISO-V) strength _{min} |
|-----------------------|-------------|-------------|----------------|--------------------------|------------------------|-------------------------------|--|------------|--|
| 482A | +AR | Round bar | 90 < 140 | 580* | 850-1000 | 14 | - | < 300 HB | 20 °C 20 J (long) |
| 7221 | +AR | Round bar | 22 < 120 | 580 | 850-1000 | 12 | 25 | 250-300 HB | - |
| SB9857 | +AR | Round bar | 20 < 95 | 580** | 850-1000 | 14 | - | 250-300 HB | 0 °C 0 J (long) |
| 38MnVS6 EN 10267:1998 | +AR | All formats | - | 520** | 800-950 | 12 | 25 | - | - |

*RP_{0.2} * R_{eh} ** R_{el}*

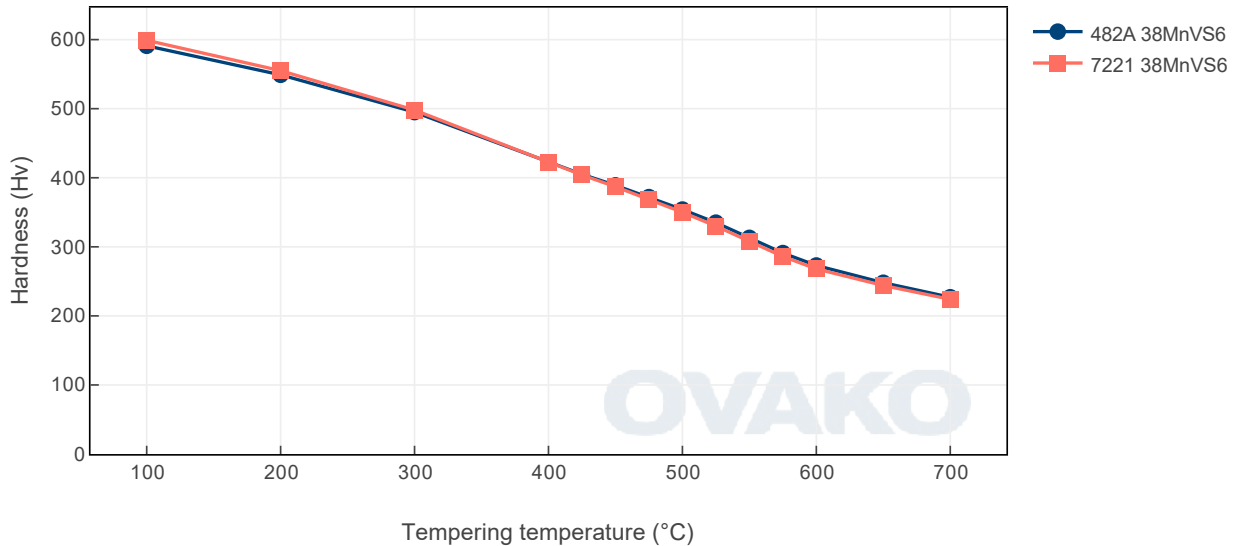
Transformation temperatures

| | Temperature °C |
|-----|----------------|
| MS | 330 |
| AC1 | 720 |
| AC3 | 780 |

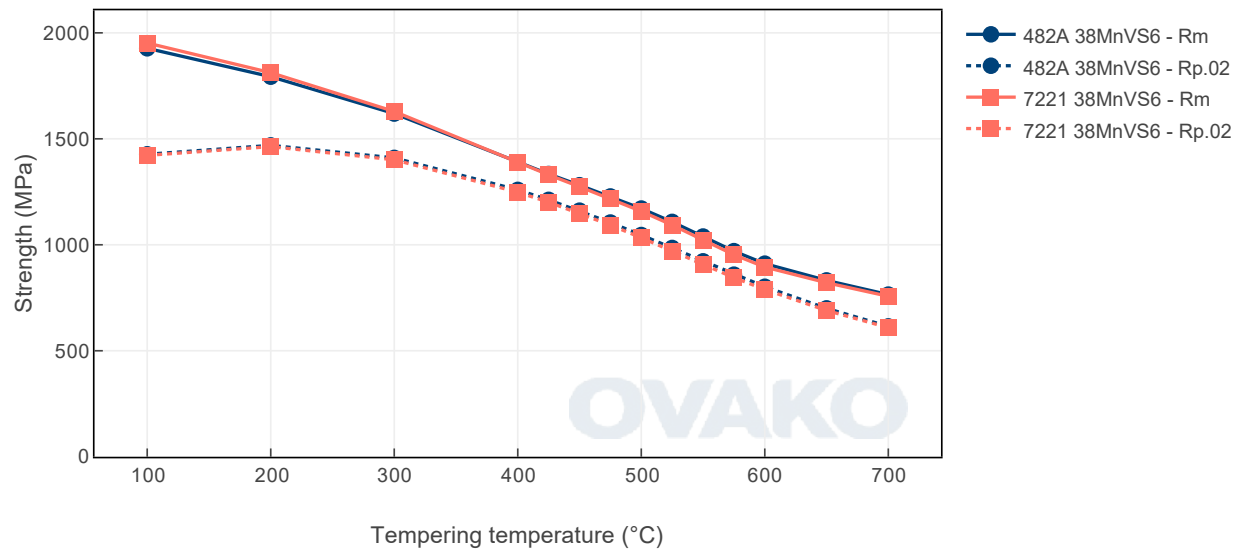
Heat Treatment Guide generated Graphs

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.

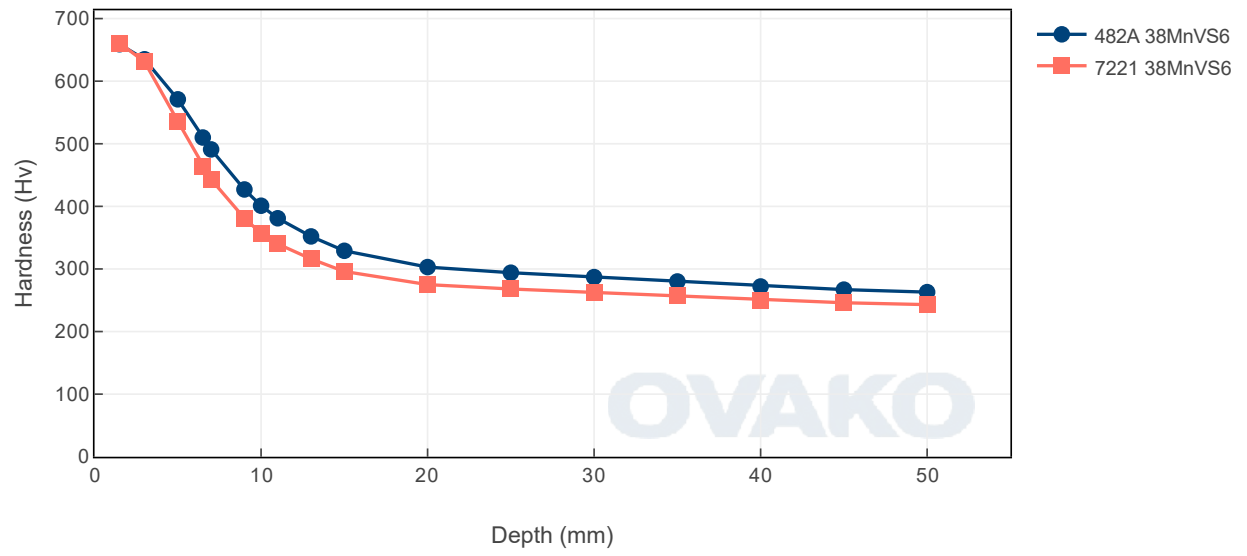
Tempering Diagram (hardness)



Tempering Diagram (strength)



Jominy



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) |
|-------------|-----------|-----------|------------------------------------|
| 482A | Round bar | +AR | 596 |
| 482A | Round bar | +N | 601 |
| 482A | Tube,wall | +AR | 617 |
| 482A | Tube,wall | +N | 620 |
| SB9857 | Round bar | +AR | 407 |
| 7221 | Round bar | +AR | 490 |
| 7221 | Round bar | +QT | 737 |

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/>

Disclaimer

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