

8CrMnMo15-4* All

General Information

8303, also known as, Imacro NIT has been designed for nitriding. After nitriding, it gives a similar hardness distribution as aluminium alloyed nitriding steels, and also has a much better machinability.

Similar designations

8CrMoV16-5

Chemical composition

| Variant | Cast | Di | Weldability | | C% | Si% | P% | S% | Cr% | Mo% | Cu% |
|---------|------|------|-------------------------|-----|------|------|-------|-------|------|------|------|
| 8303 | CC | 6.03 | CEV 1.15 _{max} | Min | 0.04 | 0.10 | - | 0.010 | 3.70 | 0.40 | - |
| | | | Pcm 0.38 _{max} | Max | 0.12 | 0.40 | 0.025 | 0.035 | 4.30 | 0.60 | 0.25 |

Mechanical Properties

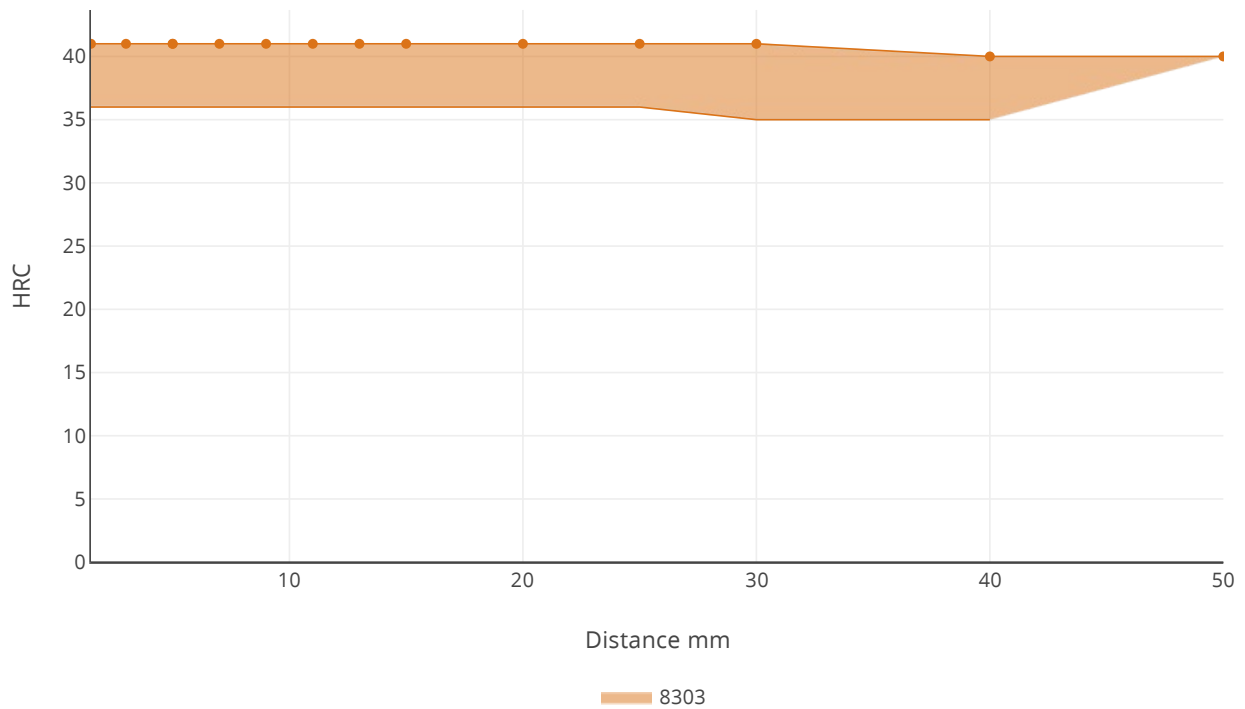
| Variant | <div><div></div><div>Condition</div></div> | Format | Dimension [mm] | Yield strength min [MPa] | Tensile strength [MPa] | Elongation A ₅ [%] | Reduction of area Z _{min} [%] | Hardness | Impact (ISO-V) strength _{min} |
|---------|--|-----------|----------------|--------------------------|------------------------|-------------------------------|--|----------|--|
| 8303 | +AR | Round bar | 25 < 140 | - | - | - | - | < 320 HB | - |
| | +A | Round bar | 25 < 140 | - | - | - | - | < 150 HB | - |
| | +QT | Round bar | 25 < 120 | 700 | 800-1000 | 14 | 55 | < 290 HB | -40 °C 35 J (long) |

*Rp_{0.2} * Re_h, ** Re_l*

Transformation temperatures

| | Temperature °C |
|-----|----------------|
| MS | 376 |
| AC1 | 769 |
| AC3 | 861 |

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](#).

In many international comparisons the crude steel Scope 1-2 emission is a key parameter, ie. the CO₂ emission from the steel works itself.

As of 1 January 2022 we carbon offset all our scope 1 and 2 volume shown below.

| Steel works | Hofors | Smedjebacken | Imatra |
|----------------------|--------|--------------|--------|
| CO ₂ e/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 (CO ₂ e kg /1000 kg steel) | Climate compensated Net emission = Scope 3 (CO ₂ e kg /1000 kg steel) Scope 1 - 2 = 0 (compensated) |
|------------------|-----------|-----------|---|---|
| Imacro NIT, 8303 | Round bar | +AR | 583 | 299 |
| Imacro NIT, 8303 | Round bar | +QT | 848 | 359 |

As of 1 January 2022 we use carbon offset for all our scope 1- 2 emissions, so in practice the climate compensated data is the same as the full Scope 3 level.

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 ³) |
|-------------------------------|--|--|--|
| 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/>

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