

# 18CrNi8 All

## General Information

Ovako 248Q is a high cleanliness case hardening steel suitable for demanding powertrain applications. The variant Ovako 248Q is produced in the highest cleanliness level, isotropic quality (IQ), to ensure a minimum of oxidic and sulphidic inclusions. Ovako 248Q is used in diesel injection nozzles.

### IQ-Steel®

IQ-Steel® is an isotropic quality ultra clean steel optimized for high fatigue strength under multi axial loading.

## Similar designations

17CrNi7-7

## Chemical composition

| Variant | Cast | Weldability             |     | C %  | Si % | Mn % | P %   | S %   | Cr % | Ni % | Mo % | V %   |
|---------|------|-------------------------|-----|------|------|------|-------|-------|------|------|------|-------|
| 248Q    | IC   | CEV 0.92 <sub>max</sub> | Min | 0.15 | 0.15 | 0.40 | -     | -     | 1.80 | 1.80 | -    | -     |
|         |      | Pcm 0.42 <sub>max</sub> | Max | 0.20 | 0.40 | 0.60 | 0.025 | 0.002 | 2.10 | 2.10 | 0.10 | 0.100 |

## Mechanical Properties

| Variant | Condition | Format    | Dimension [mm] | Hardness       |
|---------|-----------|-----------|----------------|----------------|
| 248Q    | +A        | Round bar | < 55           | 180 HB typical |

$Rp_{0.2}$  \*  $R_{eh}$  \*\*  $R_{el}$

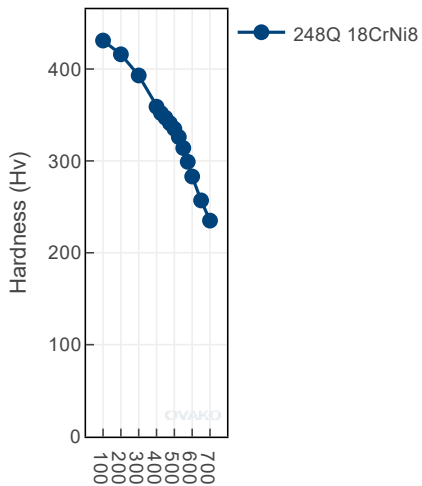
## Transformation temperatures

|     | Temperature °C |
|-----|----------------|
| MS  | 396            |
| AC1 | 725            |
| AC3 | 820            |

## Heat Treatment Guide generated Graphs

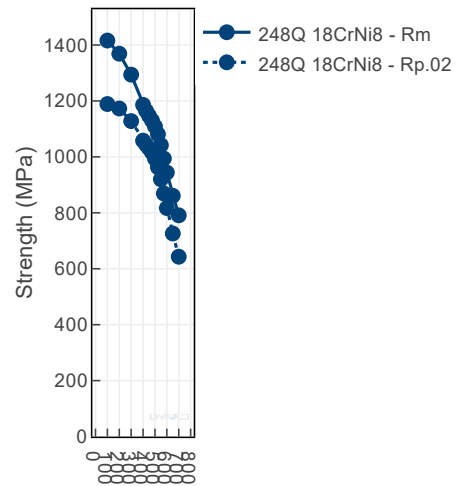
The following graphs are generated from a theoretical model. For further info see the Heat treatment guide module. Select a specific grade version for individual display.

Tempering Diagram (hardness)



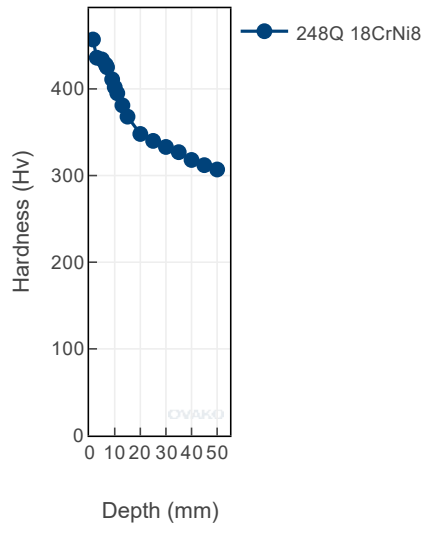
Tempering temperature (°C)

Tempering Diagram (strength)



Tempering temperature (°C)

# Jominy



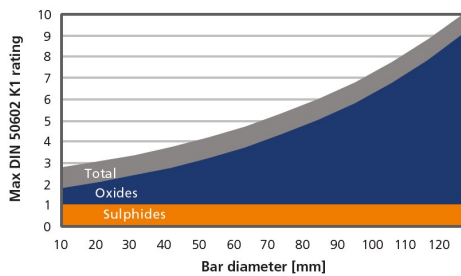


## Steel cleanliness

| Micro inclusions - 248Q |  | Macro inclusions - 248Q |  |
|-------------------------|--|-------------------------|--|
| Applied standard        | DIN 50602 K1   | Applied standard        | 10 M Hz UST<br>(Ovako internal standard) |
| Sampling                | Six random samples from final product dimension  | Sampling                | Statistical testing on billets           |
| Limits                  | The limit is dimension dependent. The average rating of six samples should not exceed the limits given in the graph. | Limits                  | < 10 defects/dm3<br>> 0,2 mm FBH         |

## IQ

### Inclusion limits IQ-processed steel



## 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 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 (CO2e kg /1000 kg steel) | Climate compensated Net emission = Scope 3 (CO2e kg /1000 kg steel) Scope 1 - 2 = 0 (compensated) |
|-------------|-----------|-----------|------------------------------------|---|
| 248Q        | Round bar | +AR       | 928                                | 529   |
| 248Q        | Round bar | +SA       | 935                                | 534   |

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](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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