

# 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

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

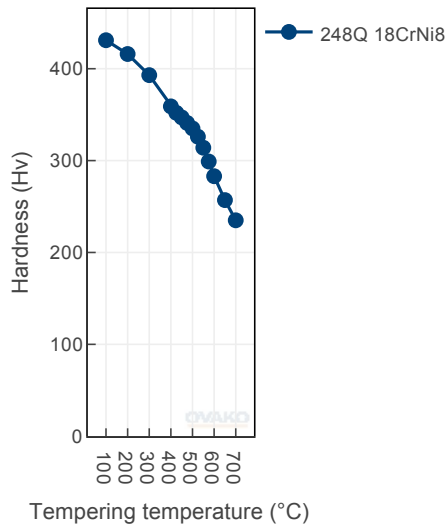
Transformation  
temperatures

	Temperature °C
MS	396
AC1	725
AC3	820

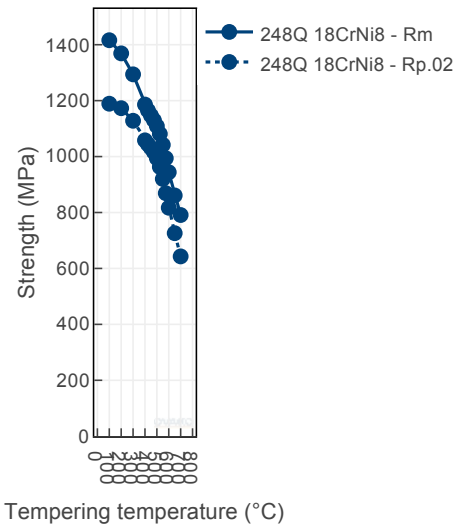
Heat Treatment Guide generated Graphs

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.

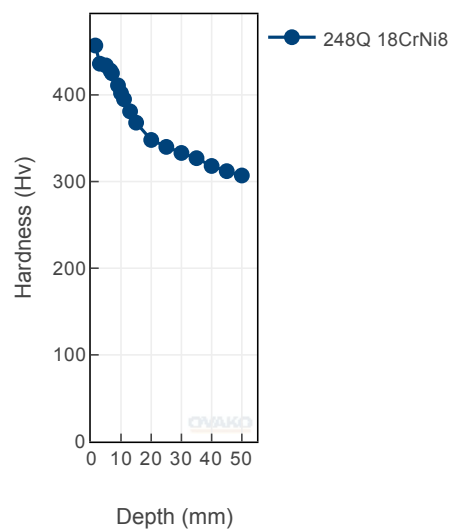
Tempering Diagram (hardness)



Tempering Diagram (strength)



Jominy

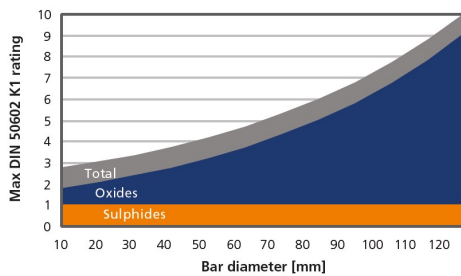


## Steel cleanliness

Micro inclusions - 248Q		Macro inclusions - 248Q	
Applied standard	DIN 50602 K1	Applied standard	10 MHz UST (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/dm <sup>3</sup> > 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](#).

In many international comparisons the crude steel Scope 1-2 emission is a key parameter, ie. the CO<sub>2</sub> 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 <sub>2</sub> e/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 (CO <sub>2</sub> e kg /1000 kg steel)	Climate compensated Net emission = Scope 3 (CO <sub>2</sub> e kg /1000 kg steel) Scope 1 - 2 = 0 (compensated)
248Q	Round bar	+AR	922	526
248Q	Round bar	+SA	929	528

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 <sup>3</sup> )
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

*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.*