Material data sheet
Steel grade

Last revised: Fri, 17 Jun 2022 12:39:05 GMT

18CrNiMnMo7-5-5* All

General Information

Ovako 250R is a quench and tempering steel that is used for large chains.

- Weldable using normal chain welding methods
- Available as bar in as rolled condition

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

Chemical composition

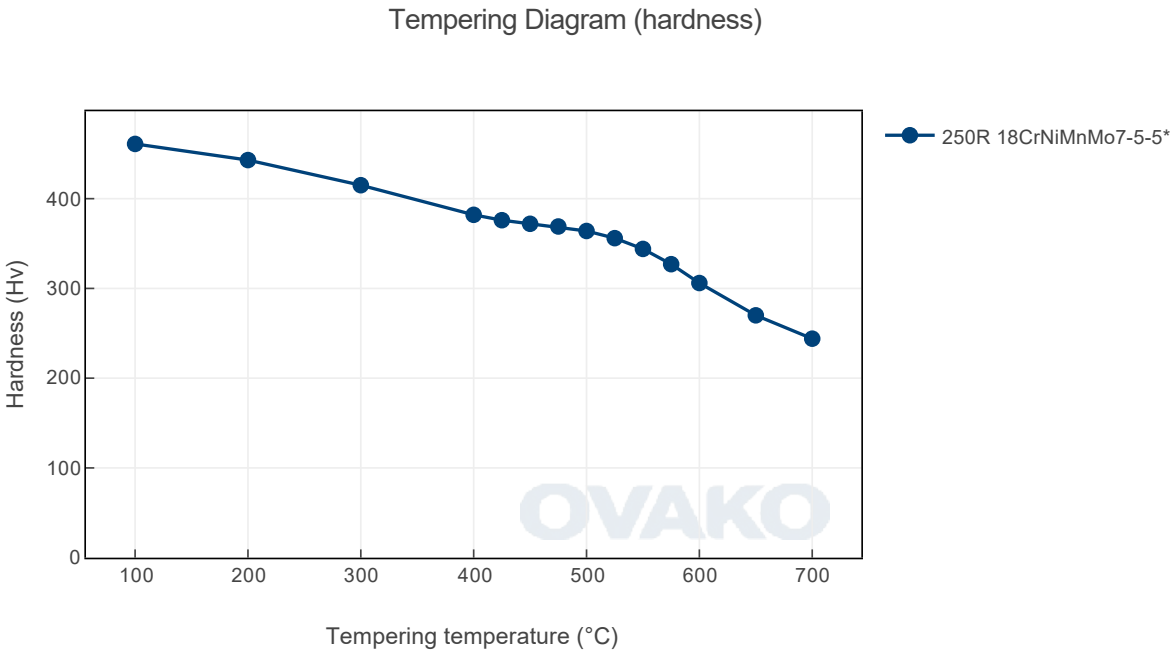
Variant	Cast	Weldability		C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	DI %
250R	IC	CEV 1.01_{max}	Min	0.17	0.20	1.15	-	-	1.70	1.15	0.42	0.00
		Pcm 0.44_{max}	Max	0.19	0.30	1.30	0.015	0.010	1.90	1.30	0.48	10.50

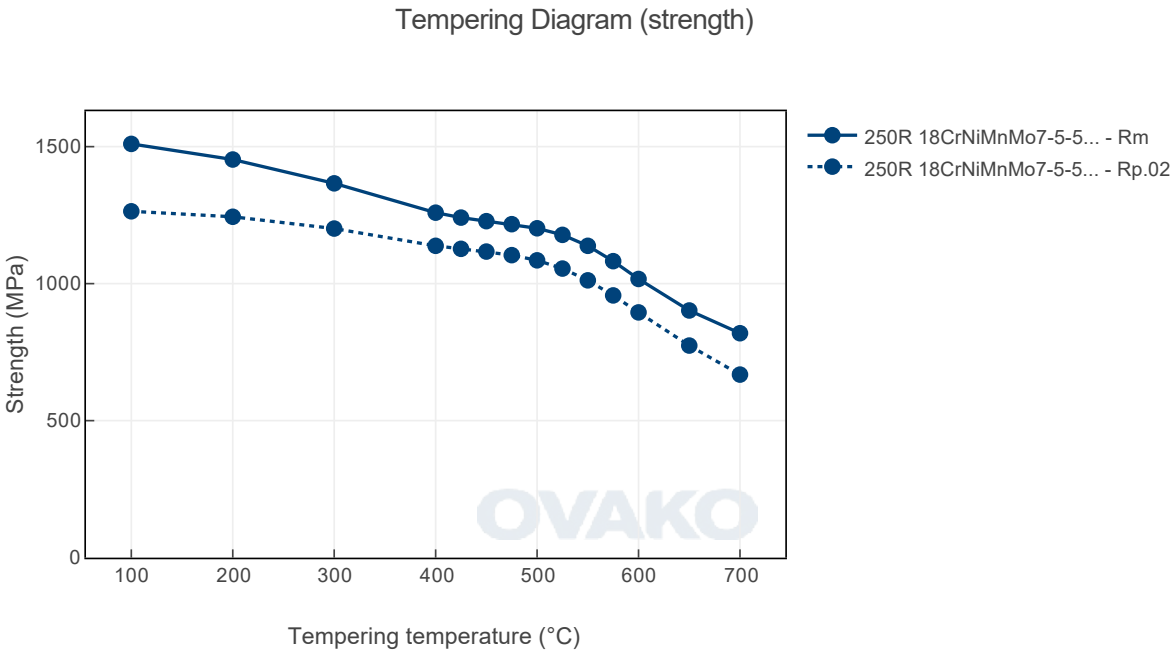
Transformation temperatures

	Temperature °C
AC1	726
AC3	817

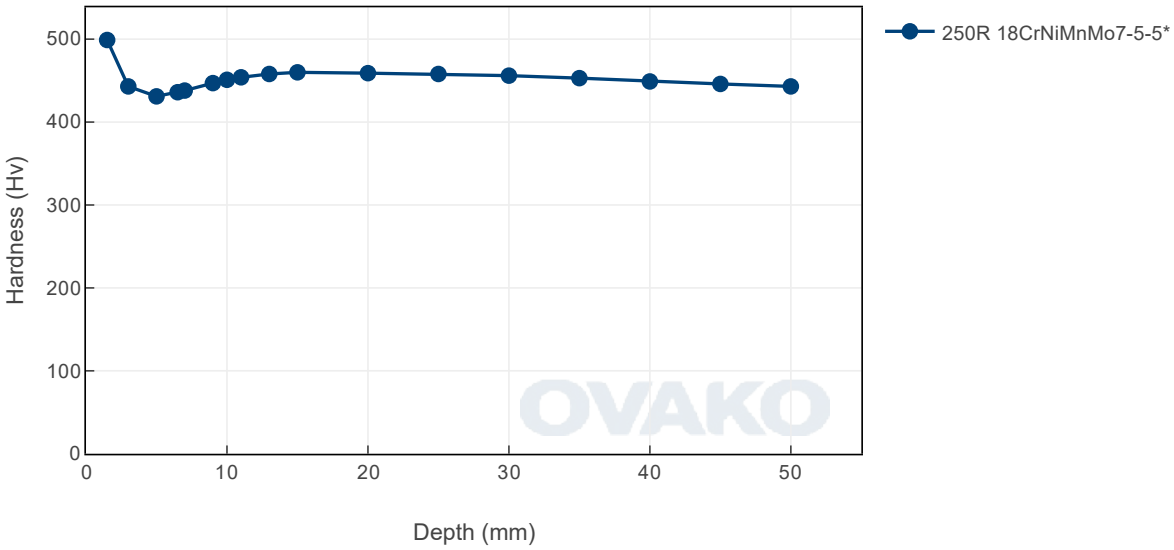
Heat Treatment Guide generated Graphs

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.

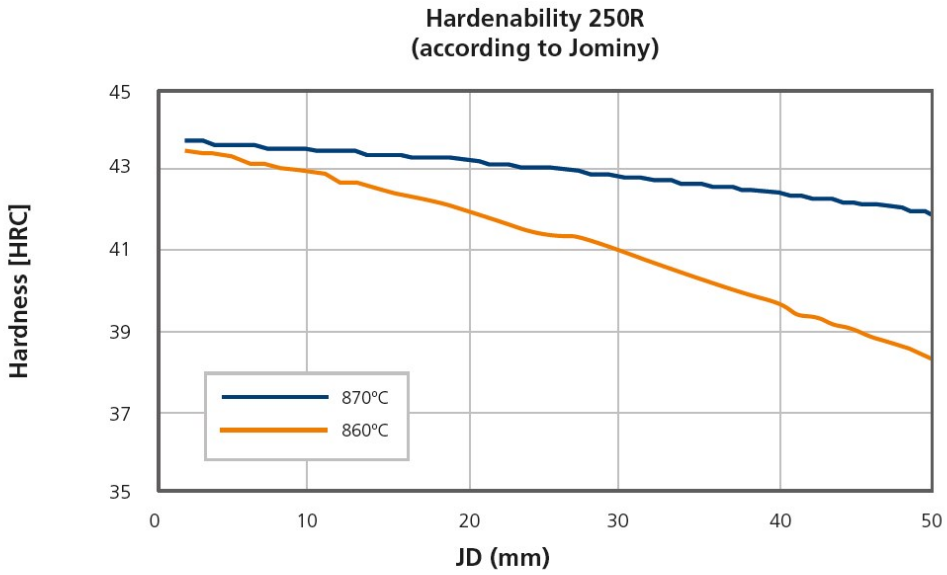




Jominy

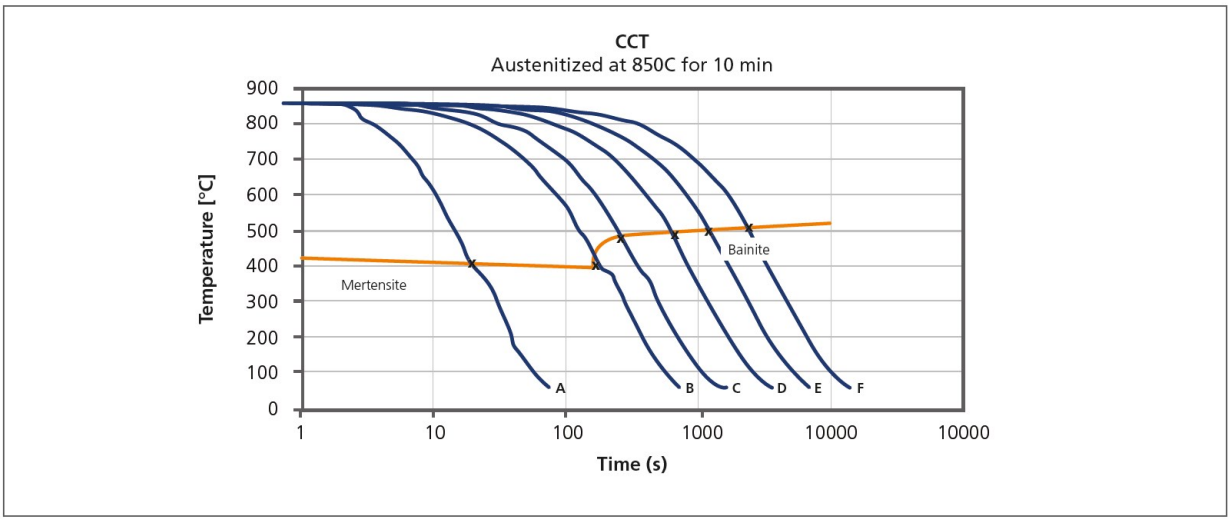

Hardness (Hv)
500
400
300
200
100
0
0
10
20
30
40
50
Depth (mm)
250R 18CrNiMnMo7-5-5*
OVAKO

Ovako 250R



Hardenability of Ovako 250R calculated from CCT measurements and two-dimensional quenching of a bar.

CCT - Ovako 250R



	A	B	C	D	E	F&
t_{8-5} [s]	10	100	200	500	1000	2000
Hv_{30}	450	424	422	393	377	345

Steel cleanliness

Micro inclusions - steel grade 250R									Macro inclusions - 250R	
Applied standard	ASTM E45								Applied standard	ISO 3763 (Blue fracture)
Sampling	ASTM A295								Sampling	Statistical testing on billets
Maximum average limits	A		B		C		D		Limits	< 5 mm/dm^2
	Th	He	Th	He	Th	He	Th	He		
	2.5	1.5	1.0	0.5	0	0	0.5	0.5		

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_2 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
CO2e/kg	120	62	76

To get the full picture of our products environmental impact we have to look at all of our CO_2 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)
250R	Round bar	+AR	844	447

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