MATERIAL DATA SHEET

STEEL GRADE

Last revised: Fri, 17 Jan 2025 10:44:45 GMT

OVAKO

25CrMnSiMo7-4-4* All

General Information

The steel grade 25CrMnSiMo7-4-4* is a high-strength steel grade suitable for water quenching. It is designed for demanding applications such as rock demolition tools.

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

Chemical composition

Variant	Cast	Di	Weldability		C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %
375J	IC		CEV 0.889_{max}	Min	0.23	0.80	1.00	-	-	1.65	0.20	0.15
			Pcm 0.466_{max}	Max	0.27	1.05	1.20	0.025	0.015	1.95	0.35	0.20
5910	CC	8.8	CEV 0.85_{max}	Min	0.23	0.80	1.00	-	-	1.65	0.20	0.15
			Pcm 0.44_{max}	Max	0.27	1.05	1.20	0.025	0.015	1.95	0.35	0.20

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) $strength_{min}$
5910	+AR	Round bar	30 < 140	-	-	-	-	< 340 HB	-
	+A	Round bar	30 < 140	-	-	-	-	< 248 HB	-
	+QT	Round bar	30 < 140	1200	1400-1600	10	30	420-470 HB	20 °C 30 J (long)

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

Transformation temperatures

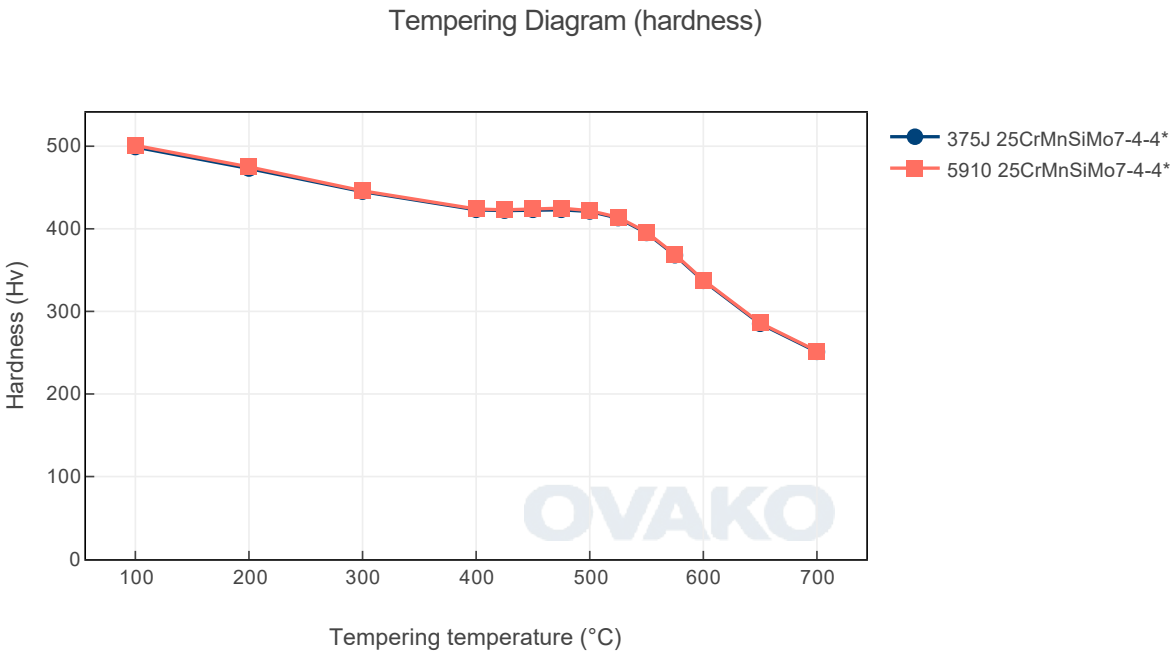
	Temperature °C
MS	365
AC1	765
AC3	840

Heat treatment recommendations

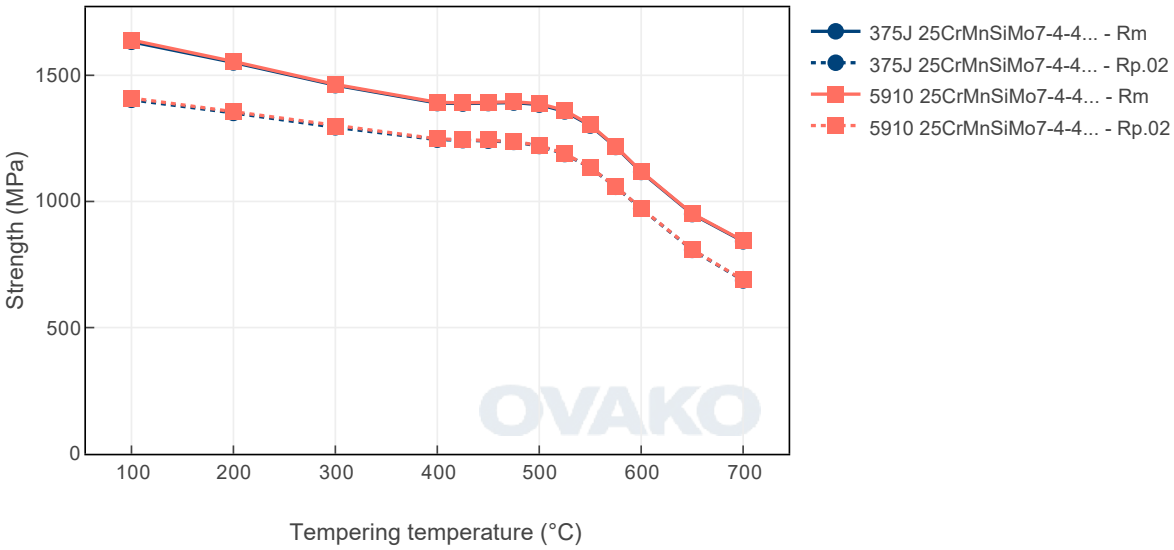
Treatment	Condition	Temperature cycle	Cooling/quenching
Hot forging	+AR	Soaking at 1000 - 1200ºC	In air
Normalizing	+N	Soaking at 880 - 920ºC	In air
Hardening	+QT	Soaking at 860 - 920ºC	In water or polymer
Tempering	+Q	Soaking at 180 - 300ºC 1h	In air

Heat Treatment Guide generated Graphs

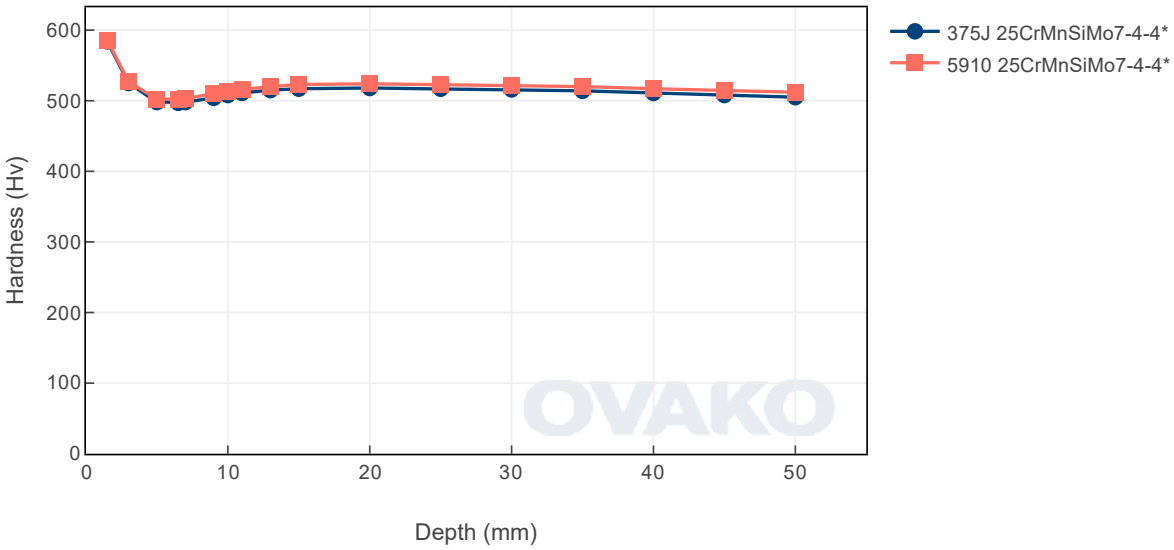
The following graphs are generated from a theoretical model. For further info see the Heat treatment guide module. Select a specific grade version for individual display.



Tempering Diagram (strength)



Jominy


600
500
400
300
200
100
0
Hardness (Hv)
0
10
20
30
40
50
Depth (mm)
375J 25CrMnSiMo7-4-4*
5910 25CrMnSiMo7-4-4*
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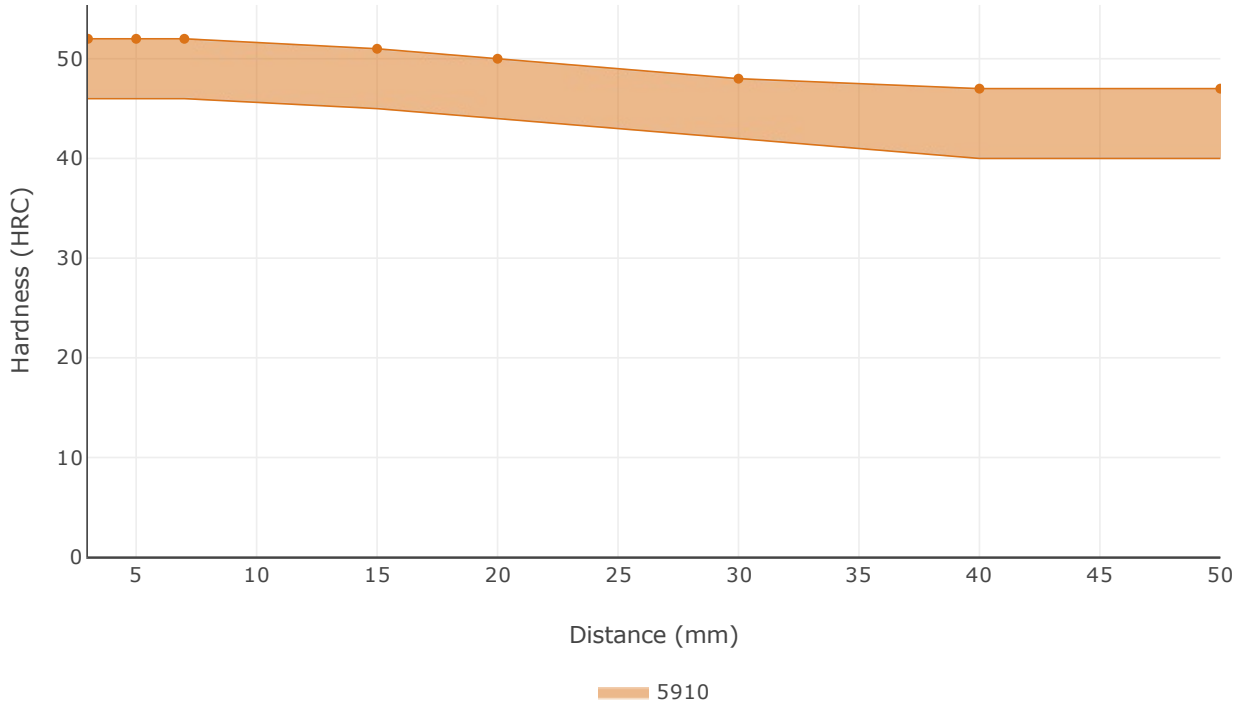
Hardenability



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.

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)
375J	Round bar	+AR	674	274
375J	Round bar	+A	678	277
5910	Round bar	+A	595	295

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/