

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 ^①	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)

$Rp_{0.2}$ * ReH , ** ReL

Transformation temperatures

	Temperature °C
MS	365
AC1	765
AC3	840

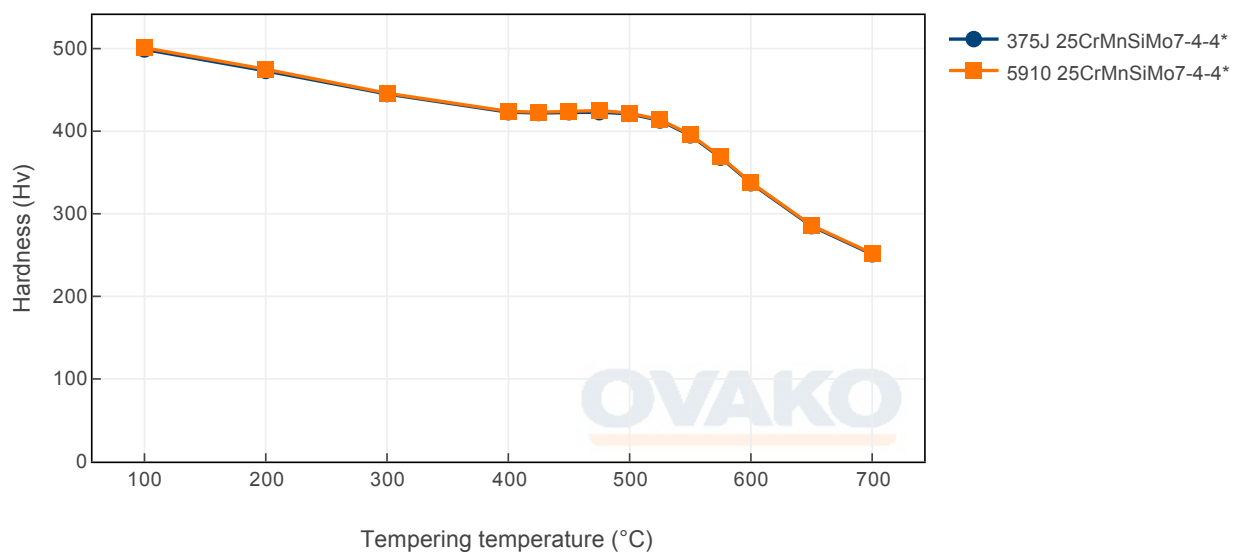
Heat treatment recommendations

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

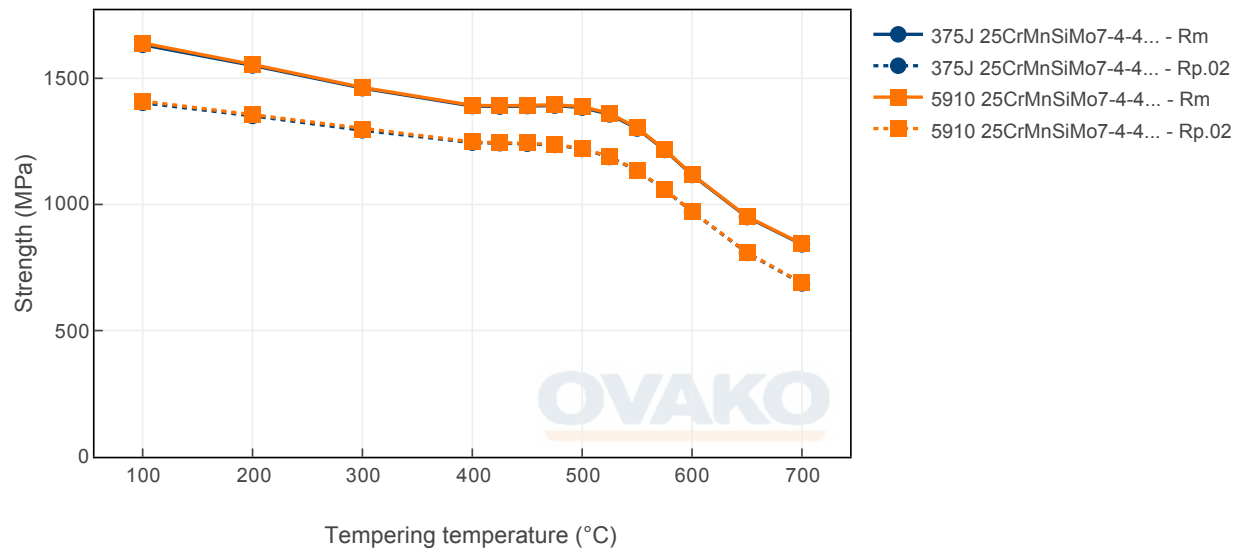
Heat Treatment Guide generated Graphs

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.

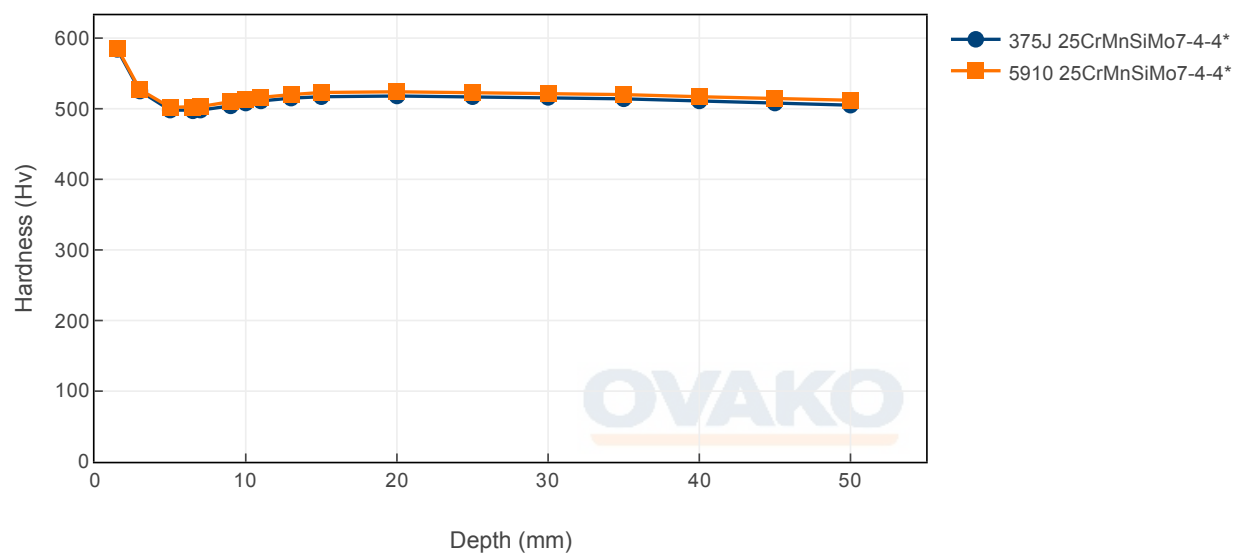
Tempering Diagram (hardness)



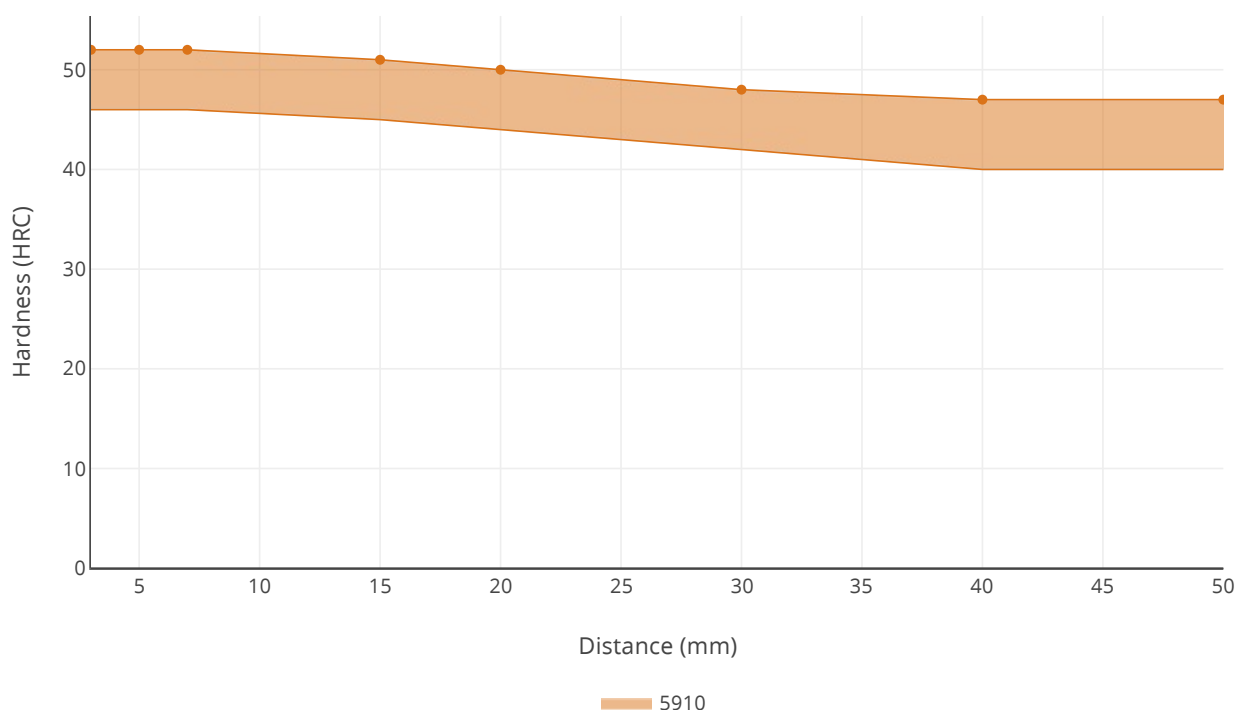
Tempering Diagram (strength)



Jominy



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)
375J	Round bar	+AR	671	275
375J	Round bar	+A	682	276
5910	Round bar	+A	596	294

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

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