

STEEL GRADE

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24NiSiMnMo7-6-6*

All

General Information

Ovako 275 is a high strength, quench and tempering steel with good toughness and still maintaining high hardness and high strength. It has a low sulfur range to obtain good transverse properties. Typical applications for Ovako275 are found in the mining industry generally used for bits.

For additional Heat Treatment Data, please visit the Heat Treatment Guide.

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

Similar designations

ASTM A579 (31), AMS 6418

Chemical composition

Variant	Cast	Weldability		C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %
275A	IC	CEV 0.86 _{max}	Min	0.23	1.40	1.30	-	-	0.25	1.65	0.39
		Pcm 0.51 _{max}	Max	0.28	1.70	1.50	0.025	0.010	0.40	2.00	0.45

Mechanical Properties

Variant	Condition ^①	Format	Dimension [mm]	Yield strength min [MPa]	Tensile strength [MPa]	Elongation A ₅ [%]	Reduction of area Z _{min} [%]	Hardness
275A	+A	Round bar	25 < 100	520	730 typical	20	50	225 HB typical
	+QT	Round bar	25 < 100	1240	1310 typical	5	30	-

*RP_{0.2} * R_{eh}, ** R_{el}*

Transformation temperatures

	Temperature °C
MS	349
AC1	727
AC3	829

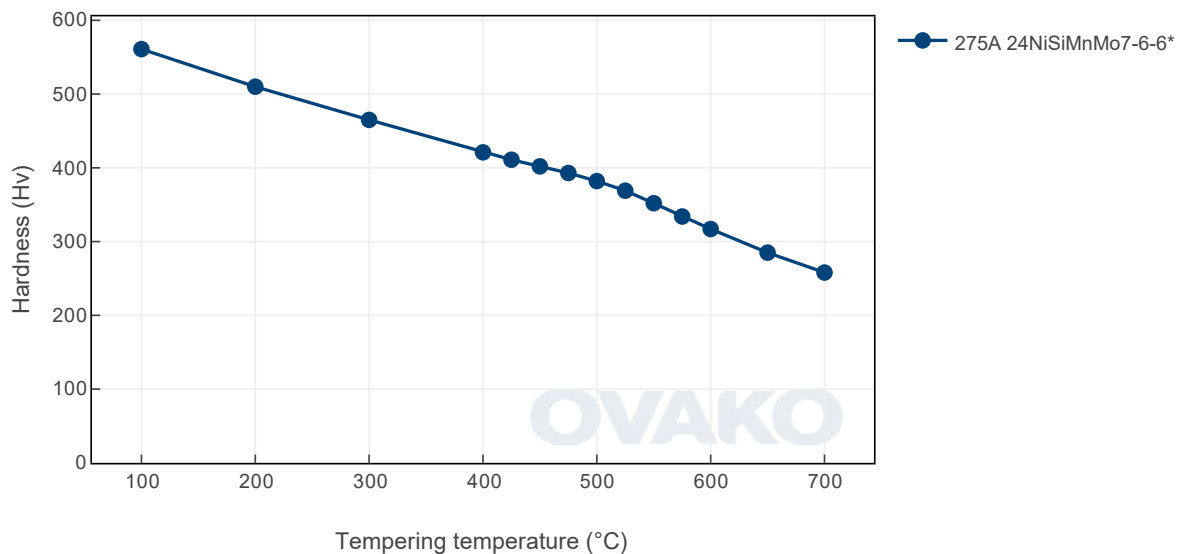
Heat treatment recommendations

Treatment	Condition ^①	Temperature cycle	Cooling/quenching
Hot forging	+AR	Soaking 950 - 1200°C	In air
Normalizing	+AR	Soaking at 900 - 950°C	In air
Soft annealing	+AR	Annealing soaking 650 - 730°C	In air
Hardening	+AR	Hardening at 860 - 890°C	Quenching in oil
Tempering	+QO	Tempering 200 - 600°C	In air

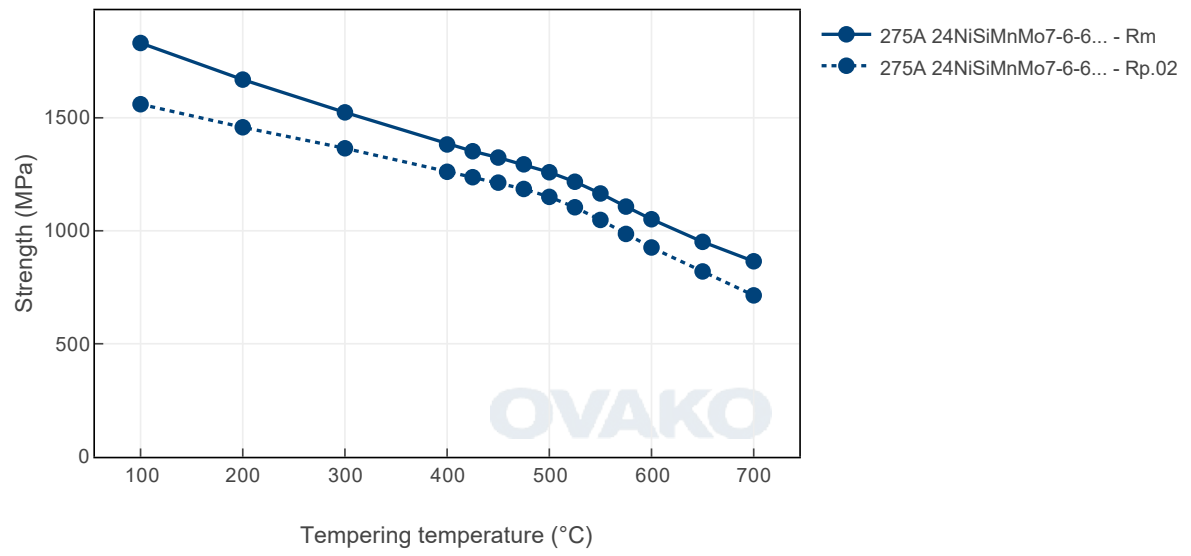
Heat Treatment Guide generated Graphs

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.

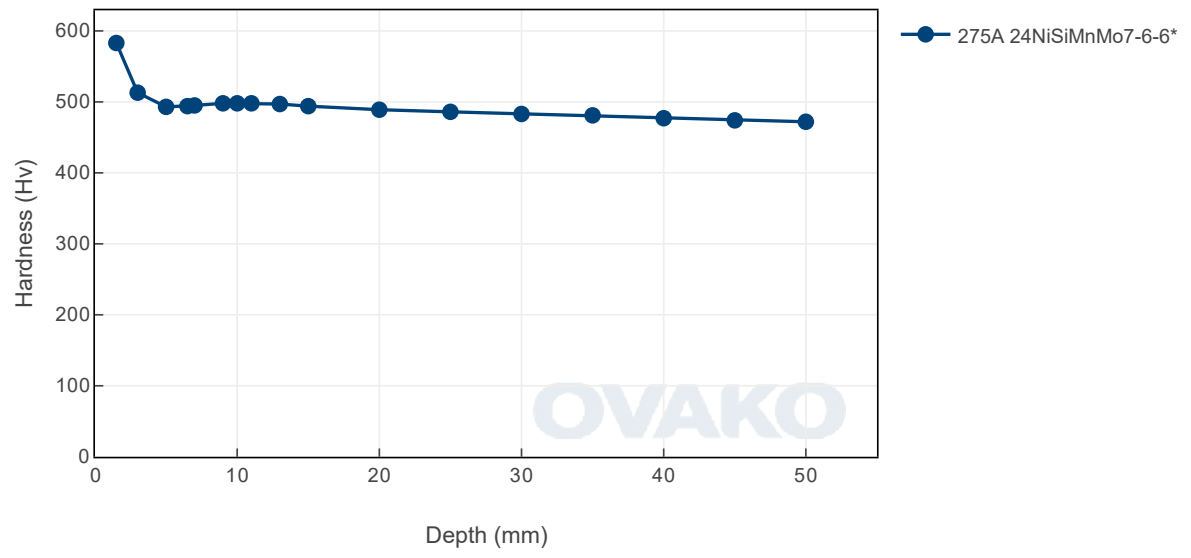
Tempering Diagram (hardness)



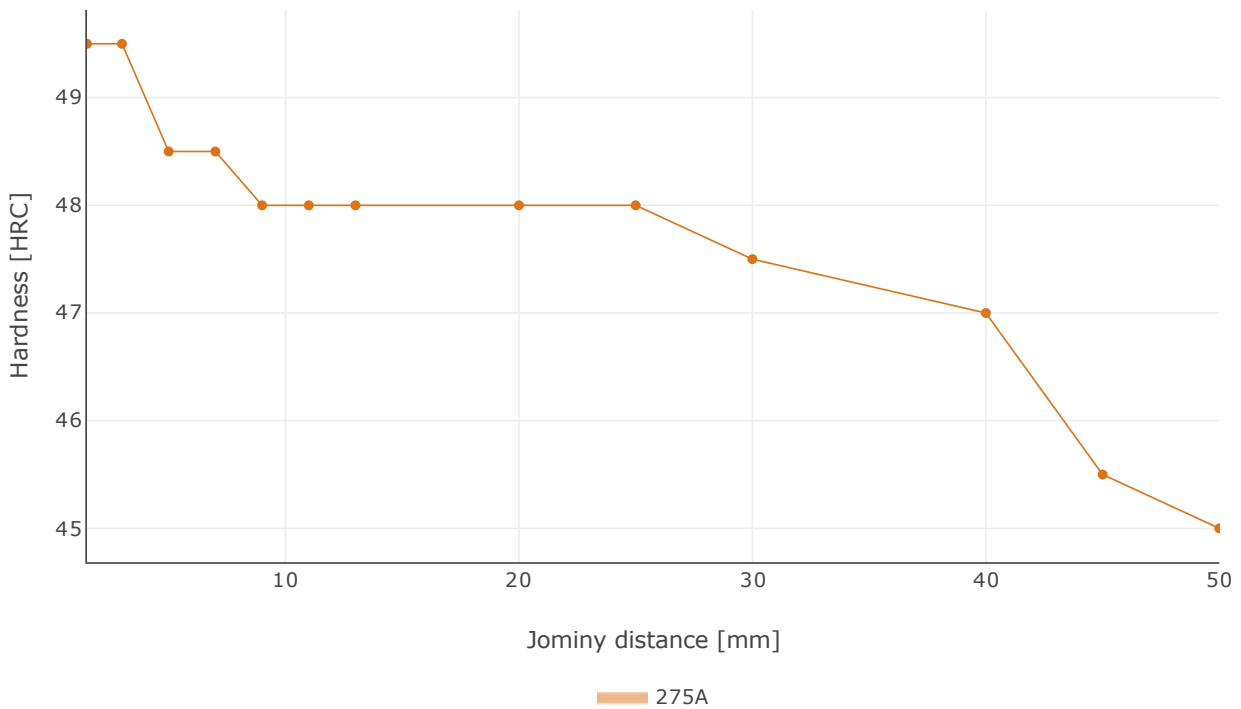
Tempering Diagram (strength)



Jominy



Hardenability



Typical values Jominy at 1.5 mm/49HRC; 15 mm/48HRC; 30 mm/47.5HRC; 50 mm/45HRC

Steel cleanliness

Micro inclusions									Macro inclusions	
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	< 2,5 mm/dm ²
	Th	He	Th	He	Th	He	Th	He		
	1,5	1,0	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](#).

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)
275A	Round bar	+AR	919	520
275A	Round bar	+A	925	524
275A	Tube,wall	+AR	969	571
275A	Tube,wall	+A	971	573

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

Via telephone: +46 8 622 1300

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

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