MATERIAL DATA SHEET

STEEL GRADE

Last revised: Fri, 17 Jan 2025 10:19:41 GMT

OVAKO

20MoCrS4 All

General Information

Ovako 124D is a Chrome-Molybdenum alloyed steel used mainly as a carburizing grade, but may also be used in Q&T condition of its own from the 0.2% Carbon level. By also being alloyed with Sulphur the machinability is improved in low speed cutting as eg Broaching. This makes Ovako 124D very suitable for gears, but also other components with heavy machining by drilling or milling like Gear wheels in Hydraulic pumps. From being Ingot cast the cleanliness is following the base cleanliness from the Ovako Ingot process rouite.

Similar designations

20MoCr4

Chemical composition

Variant	Cast	Weldability		C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	V %
124D	IC	CEV 0.62_{max}	Min	0.18	0.15	0.70	-	0.020	0.40	-	0.40	-
		Pcm 0.37_{max}	Max	0.22	0.35	0.90	0.035	0.035	0.50	0.20	0.50	0.100
20MoCrS4 EN 10084:2008	Std	CEV_{max}	Min	0.17	-	0.70	-	0.020	0.30	-	0.40	-
		Pcm_{max}	Max	0.23	0.40	1.00	0.025	0.040	0.60	-	0.50	-

Mechanical Properties

Variant	Condition	Format	Dimension [mm]	Hardness
124D	+AR	Tube,wall	22 typical	190 HB typical

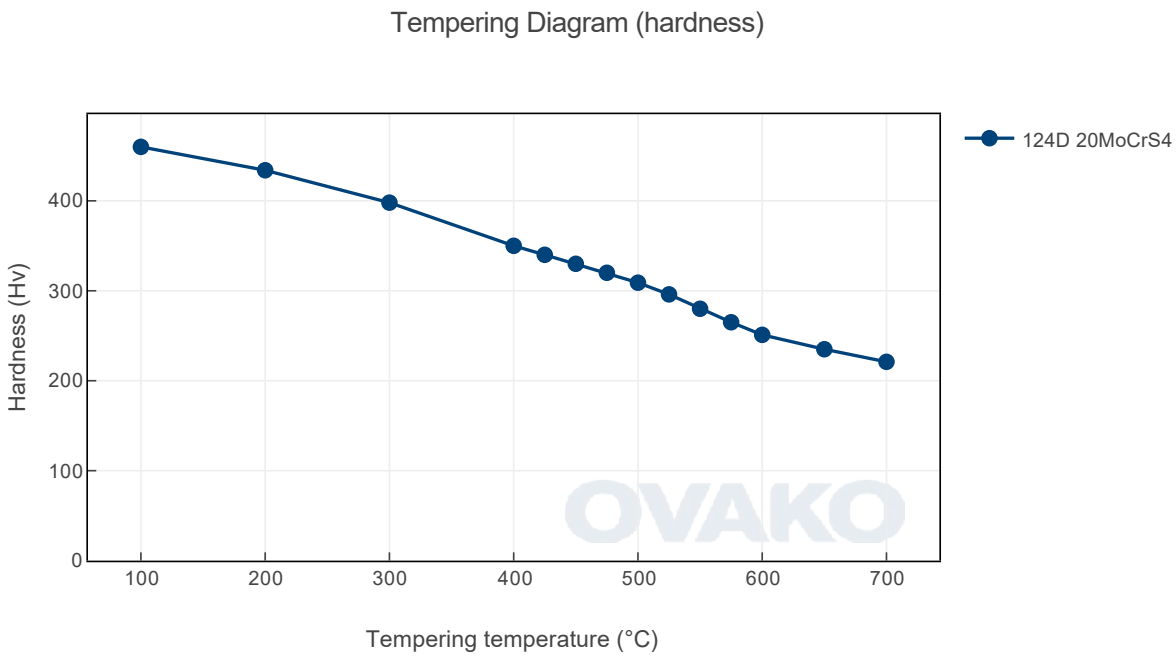
$Rp_{0.2}$ * R_{eh}, ** R_{el}

Transformation temperatures

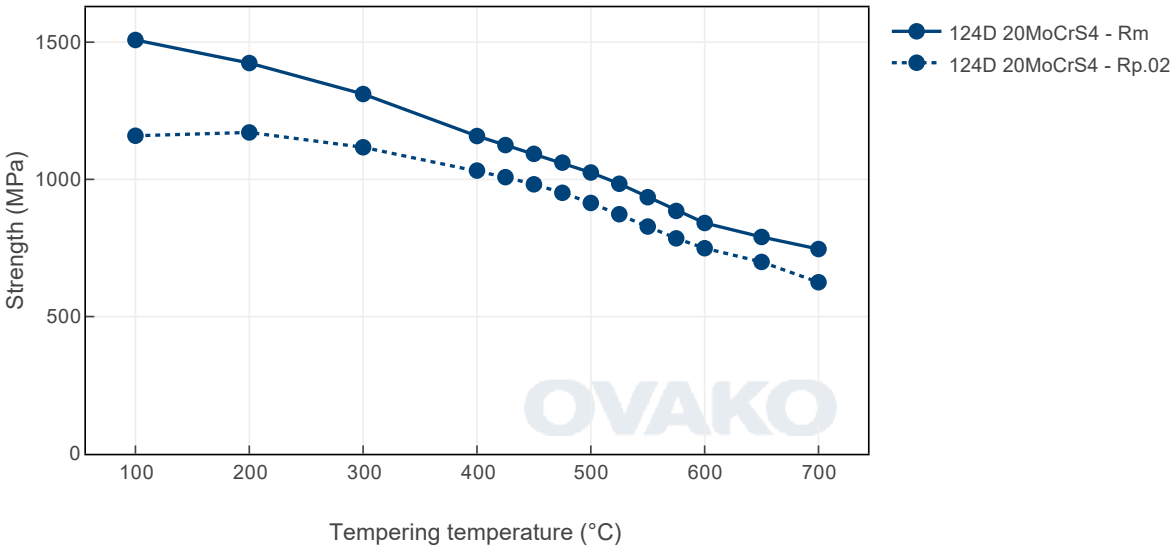
	Temperature °C
MS	440
AC1	735
AC3	860

Heat Treatment Guide generated Graphs

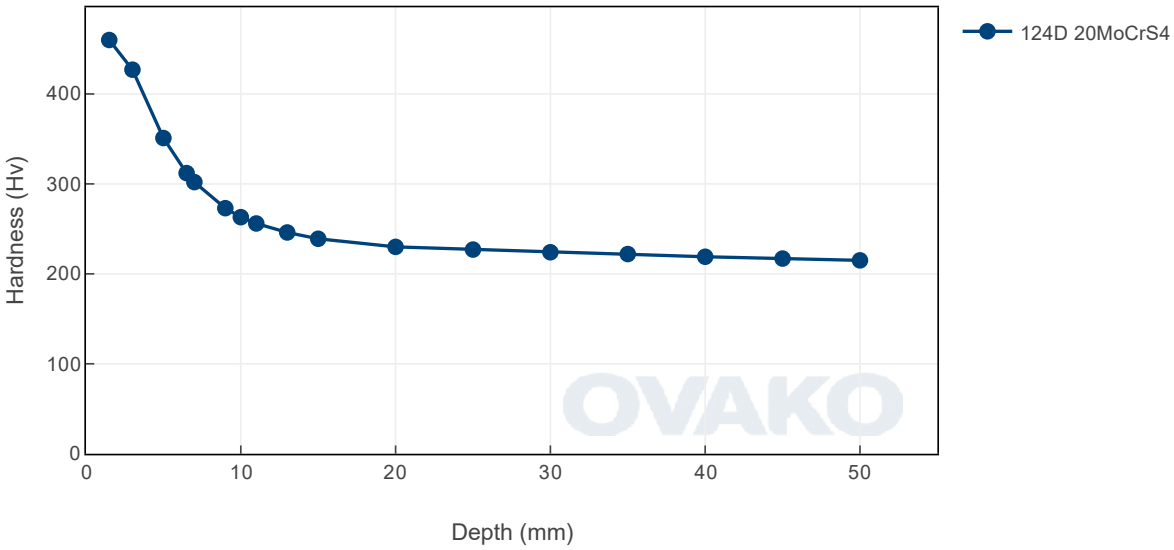
The following graphs are generated from a theoretical model. For further info see the Heat treatment guide module. Select a specific grade version for individual display.



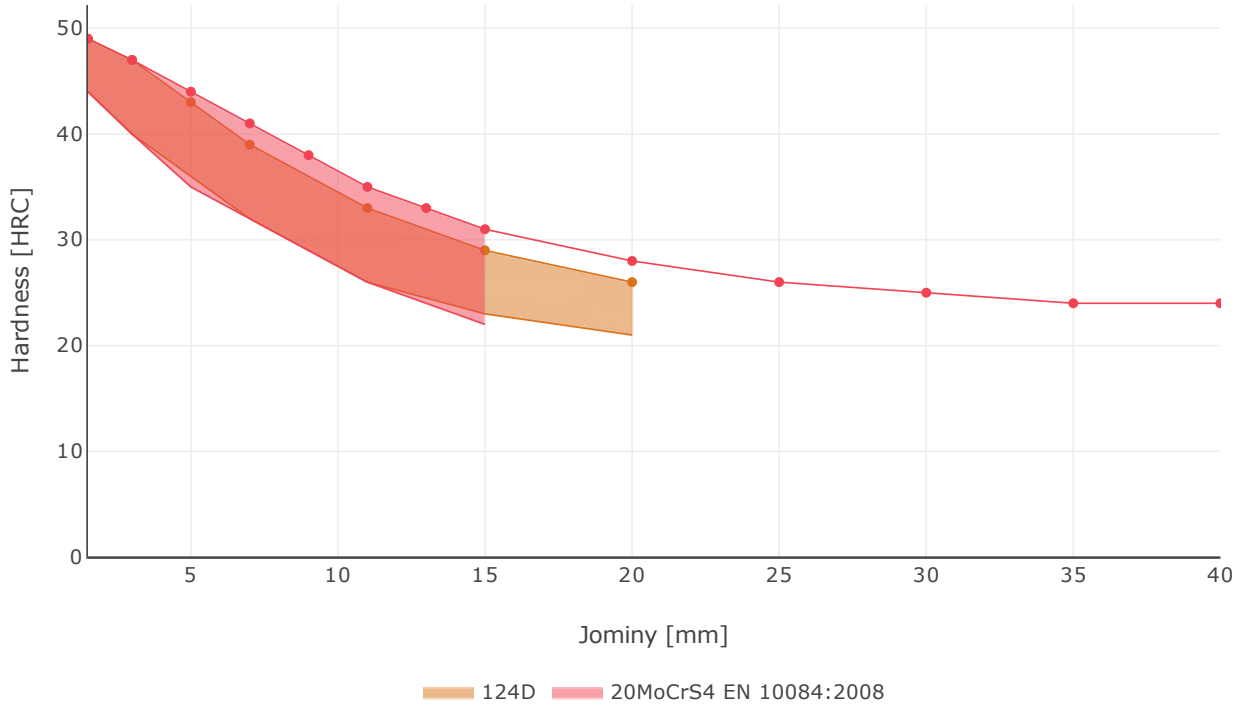
Tempering Diagram (strength)



Jominy


Hardness (Hv)
400
300
200
100
0
0
10
20
30
40
50
Depth (mm)
124D 20MoCrS4
OVAKO

Hardenability



Jominy temperature: 900°C for Ovako 124D. 910°C for 20MoCrS4 EN 10084:2008.

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)
124D	Round bar	+AR	808	297
124D	Round bar	+FP	814	301
124D	Tube,wall	+AR	652	254
124D	Tube,wall	+FP	654	257

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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/