

# 42CrMo4-3 All

## General Information

### M-Steel®

The basis for the concept is that non-metallic inclusions are modified and controlled with calcium treatment in a way to minimize tool wear and to maximize chip control in machining operations. Our M-Steel treatment can be applied to any steel grade.

### Similar designations

709A40, 709H40, 709M40

### Chemical composition

Variant	Cast	Di		C %	Si %	Mn %	P %	S %	Cr %	Mo %
6107 (M)	Std	6.7	Min	0.36	0.10	0.70	-	-	0.90	0.25
			Max	0.44	0.35	1.00	0.035	0.040	1.20	0.35

## Mechanical Properties

Variant	Condition	Format	Dimension [mm]	Yield strength min [MPa]	Tensile strength [MPa]	Elongation A <sub>5</sub> [%]	Hardness	Impact (ISO-V) strength <sub>min</sub>
6107 (M)	+QT	All formats	< 160	570	775-925	15	223-277 HB	20 °C 50 J (long)
		Round bar	< 120	680	850-1000	13	248-302 HB	20 °C 50 J (long)
		Round bar	< 90	740	925-1075	12	269-331 HB	20 °C 42 J (long)

$RP_{0.2}$  \*  $R_{eh}$  \*\*  $R_{el}$

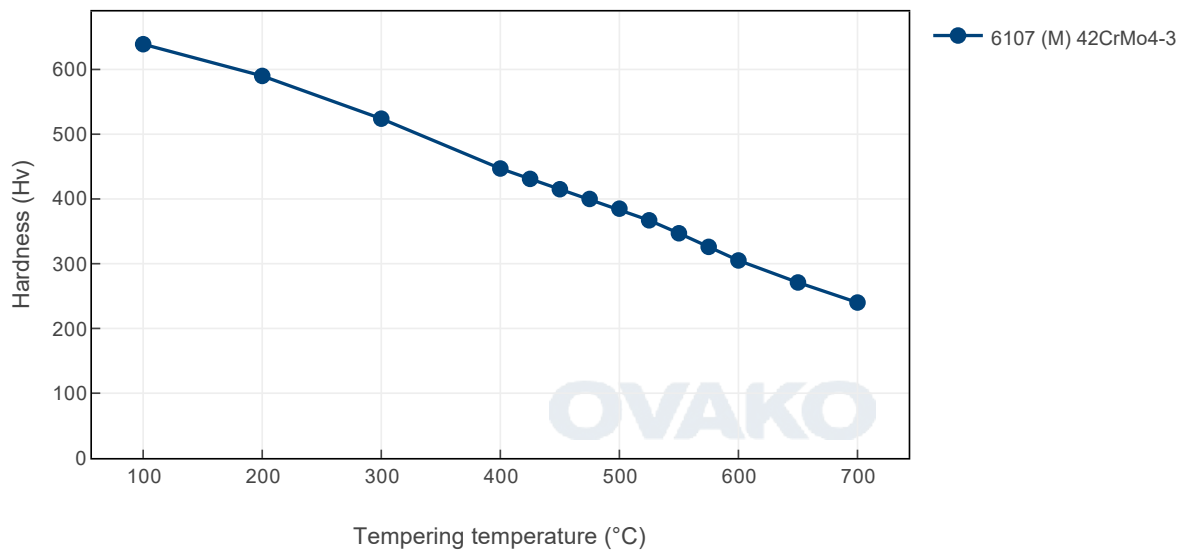
## Transformation temperatures

	Temperature °C
MS	310
AC1	734
AC3	782

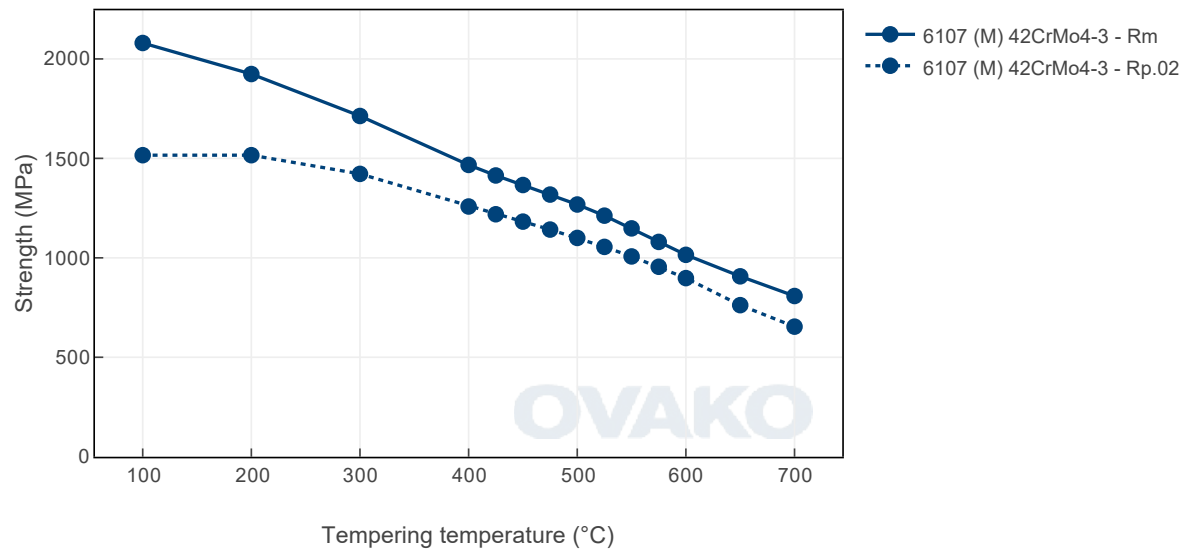
## Heat Treatment Guide generated Graphs

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.

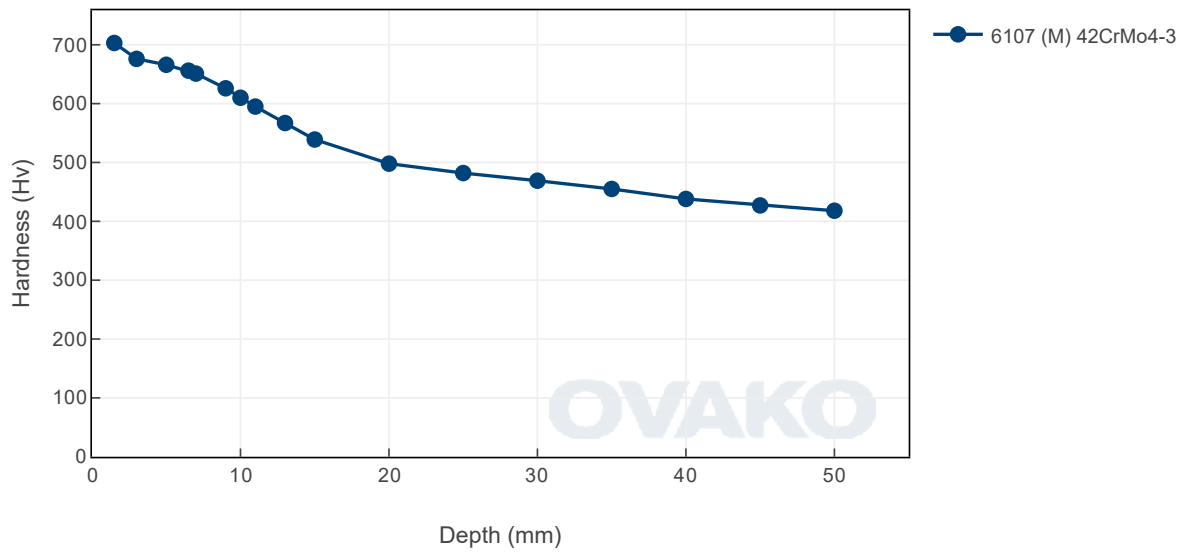
Tempering Diagram (hardness)



Tempering Diagram (strength)



# Jominy





## 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<sub>2</sub> 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 <sub>2</sub> e/kg	120	62	76

To get the full picture of our products environmental impact we have to look at all of our CO<sub>2</sub> 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 <sub>2</sub> e kg /1000 kg steel)	Climate compensated Net emission = Scope 3 (CO <sub>2</sub> e kg /1000 kg steel) Scope 1 - 2 = 0 (compensated)
6107 (M)	Round bar	+AR	531	250
6107 (M)	Round bar	+QT	786	299

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/m <sup>3</sup> )
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/>

### Disclaimer

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