

30CrNiMo8 All

General Information

Quenching and tempering steel with a very high hardenability.

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

Similar designations

1.6580, 823M30

Chemical composition

Variant	Cast	Di		C%	Si%	Mn%	P%	S%	Cr%	Ni%	Mo%	Cu%
30CrNiMo8 (6507)	CC	12.1	Min	0.26	-	0.50	-	-	1.80	1.80	0.30	-
			Max	0.34	0.40	0.80	0.025	0.035	2.20	2.20	0.50	0.40
30CrNiMo8 ISO 683-2:2016	Std	12.1	Min	0.26	0.10	0.50	-	-	1.80	1.80	0.30	-
			Max	0.34	0.40	0.80	0.025	0.035	2.20	2.20	0.50	0.40

Mechanical Properties

Variant	Condition ⁱ	Format	Dimension [mm]	Yield strength min [MPa]	Tensile strength [MPa]	Elongation A ₅ [%]	Reduction of area Z _{min} [%]	Hardness	Impact (ISO-V) strength _{min}
30CrNiMo8 (6507)	+AR	Round bar	25 < 150	-	-	-	-	< 410 HB	-
	+A	Round bar	25 < 150	-	-	-	-	< 248 HB	-
	+QT	Round bar	25 < 40	1050	1250-1450	9	40	-	20 °C 30 J (long)
		Round bar	40 < 100	900*	1100-1300	10	45	-	-40 °C 27 J (long)
		Round bar	100 < 150	800*	1000-1200	11	50	-	-40 °C 27 J (long)
30CrNiMo8 ISO 683-2:2016	+AR	Round bar	25 < 150	-	-	-	-	< 410 HB	-
	+A	Round bar	25 < 150	-	-	-	-	< 248 HB	-
	+QT	Round bar	25 < 40	850	1030-1230	12	40	-	20 °C 30 J (long)
		Round bar	40.1 < 100	800*	980-1180	12	45	-	20 °C 35 J (long)
		Round bar	100.1 < 150	800*	980-1180	12	50	-	20 °C 45 J (long)

$R_{p0.2}$ * R_{eh} , ** R_{el}

Transformation temperatures

	Temperature °C
MS	309
AC1	731
AC3	788

Heat treatment recommendations

Treatment	Condition ⁱ	Temperature cycle	Cooling/quenching
Quenching	+QT	830...860	In oil or water
Tempering	+QT	540...660	In air
Annealing	+A	650...700	Slowly (15 °C/h) until 600 °C
Stress relieve annealing	+SRA	450...650	In air
Hot forging		880...1 050	In air

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)
6507	Round bar	+AR	797	512
6507	Round bar	+QT	1105	616

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 ³)
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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