

# MATERIAL DATA SHEET

## STEEL GRADE

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OVAKO

## S355J2

All

### General Information

S355J2 is a micro alloyed structural steel suitable for e.g. mechanical engineering applications. The steel possess a good weldability with max CEV =0.47 for all variants. The steel may be delivered with a controlled silicon content for good galvanizing properties. Below, a number of closely related variants with various impact strength are presented.

Variant SB9813 is delivered with a closely controlled C-content for predictable properties and with a CEV value of max 0.41.

Variant S355J2(M) is a M-treated variant

Variant S355K2 and S355L4 both show good Impact toughness

Variant 285K is a variant of 520M

Variant 520M is a M-steel variant of S355J2

Variant 550M is a drawn or peeled version of S355J2

### 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

ASt 52, A52 FP, Q420q-D, 1501 Gr.224-460, A52 RBII, 1.0577, St52-3, SB9837 Grade32-36, SB9833

### Chemical composition

Variant	Cast	Weldability		C %	Si %	Mn %	P %	S %	V %
S355J2(M)	CC	CEV 0.5 <sub>max</sub>	Min	-	-	-	-	0.020	-
		Pcm 0.3 <sub>max</sub>	Max	0.20	0.55	1.60	0.035	0.040	0.150

Mechanical Properties

Variant	<div><div></div>Condition</div>	Format	Dimension [mm]	Yield strength min [MPa]	Tensile strength [MPa]	Elongation A <sub>5</sub> [%]	Hardness	Impact (ISO- V) strength <sub>min</sub>
S355J2(M)	+AR	All formats	< 16	355**	490-630	22	150-190 HB	-20 °C 27 J (long)
		All formats	17 < 40	345**	490-630	22	150-190 HB	-20 °C 27 J (long)
		All formats	41 < 63	335**	490-630	21	150-190 HB	-20 °C 27 J (long)
			64 < 80	325**	490-630	30	150-190 HB	-20 °C 27 J (long)

*R<sub>p0.2</sub>* \* *R<sub>eh</sub>*, \*\* *R<sub>el</sub>*

Transformation  
temperatures

	Temperature °C
MS	400
AC1	720
AC3	815

## 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 <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)
SB9813	Flat bar	+AR	404	167
550 M (2723)	Round bar	+AR	526	222
520 M (2721, 2723)	Round bar	+AR	525	221

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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Via telephone: +46 8 622 1300

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

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