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 posess a good weldability with max CEV =0.47 for all variants. The steel may be delivered with a controlled silicon content for good galvanazing 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	Di	Weldability		C %	Si %	Mn %	P %	S %	V %	Cu %
520 M (2721, 2723)	CC	0.9	CEV 0.47_{max}	Min	0.05	0.05	1.00	0.000	0.020	0.030	-
			Pcm 0.3_{max}	Max	0.20	0.50	1.50	0.025	0.040	0.100	0.55

Mechanical Properties

Variant	Condition	Format	Dimension [mm]	Yield strength min [MPa]	Tensile strength [MPa]	Elongation A_5 [%]	Hardness	Impact (ISO-V) $strength_{min}$
520 M (2721, 2723)	+AR		25 < 40	400*	520-630	22	< 200 HB	-20 °C 40 J (long)
		Round bar	40 < 63	390*	520-630	22	< 200 HB	-20 °C 40 J (long)
		Round bar	63 < 100	380*	520-630	21	< 200 HB	-20 °C 40 J (long)
		Round bar	100 < 200	350*	500-600	18	< 200 HB	-20 °C 27 J (long)
	+N	Round bar	25 < 40	345*	470-630	25	< 200 HB	-40 °C 40 J (long)
		Round bar	40 < 63	335*	470-630	24	< 200 HB	-40 °C 40 J (long)
		Round bar	63 < 80	325*	470-630	23	< 200 HB	-40 °C 40 J (long)
		Round bar	80 < 100	315*	470-630	23	< 200 HB	-40 °C 40 J (long)
		Round bar	100 < 150	295*	450-600	21	< 200 HB	-40 °C 40 J (long)
		Round bar	150 < 200	285*	450-600	20	< 200 HB	-40 °C 40 J (long)

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

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
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)
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/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:

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/