

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 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.

For further reading about our M-steel concept see our home page.

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

Similar designations

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

Chemical composition

Variant	Cast	Di	Weldability		C%	Si%	Mn%	P%	S%	Cr%	Ni%	Mo%	V%	Cu%	Al%
SB9813	CC		CEV 0.41 _{max}	Min	0.13	0.15	1.00	-	-	-	-	-	0.030	-	0.025
			Pcm 0.25 _{max}	Max	0.18	0.25	1.30	0.025	0.025	0.15	0.25	0.07	0.120	0.30	-
S355J2(M)	CC		CEV 0.5 _{max}	Min	-	-	-	-	0.020	-	-	-	-	-	-
			Pcm 0.3 _{max}	Max	0.20	0.55	1.60	0.035	0.040	-	-	-	0.150	-	-
S355K2	CC		CEV 0.45 _{max}	Min	-	-	-	-	-	-	-	-	-	-	-
			Pcm 0.3 _{max}	Max	0.20	0.55	1.60	0.030	0.030	-	-	-	-	0.55	-
S355L4	CC		CEV 0.43 _{max}	Min	-	-	-	-	-	-	-	-	-	-	-
			Pcm 0.26 _{max}	Max	0.16	0.55	1.60	0.030	0.030	-	-	-	-	0.40	-
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	-
550 M (2723)	CC	0.9	CEV 0.47 _{max}	Min	0.05	0.05	1.00	0.000	0.020	-	-	-	0.030	0.00	-
			Pcm 0.3 _{max}	Max	0.20	0.50	1.50	0.025	0.040	-	-	-	0.100	0.55	-
S355J2 EN10025-2:2019	Std		CEV 0.47 _{max}	Min	-	-	-	-	-	-	-	-	-	-	-
			Pcm 0.35 _{max}	Max	0.20	0.55	1.60	0.030	0.030	-	-	-	-	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}	
SB9813	+AR		< 16	355**	520-600	25	160-180 HB	-20 °C 40 J (long)	
			16 < 40	345**	520-600	25	160-180 HB	-20 °C 40 J (long)	
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)	
S355K2	+AR		< 16	355**	470-630	22	140-190 HB	-20 °C 40 J (long)	
			16 < 40	345**	470-630	22	140-190 HB	-20 °C 40 J (long)	
			40 < 63	335**	470-630	21	140-190 HB	-20 °C 40 J (long)	
S355L4	+AR		< 16	355**	470-630	22	140-190 HB	-40 °C 60 J (long)	
			16 < 40	345**	470-630	22	140-190 HB	-40 °C 60 J (long)	
			40 < 63	335**	470-630	21	140-190 HB	-40 °C 60 J (long)	
			63 < 80	325**	470-630	20	140-190 HB	-40 °C 60 J (long)	
			80 < 100	315**	470-630	20	140-190 HB	-40 °C 60 J (long)	
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)	
	550 M (2723)	+C	Round bar	22 < 55	500*	550-750	12	< 220 HB	20 °C 27 J (long)
		+SH	Round bar	55 < 70	380*	490-630	22	< 200 HB	-20 °C 27 J (long)
Round bar			70 < 120	350	490-630	20	< 200 HB	-20 °C 27 J (long)	
S355J2 EN10025-2:2019	+AR		< 16	355**	470-630	22	140-190 HB	-20 °C 27 J (long)	
			16 < 40	345**	470-630	22	140-190 HB	-20 °C 27 J (long)	
			40 < 63	335**	470-630	21	140-190 HB	-20 °C 27 J (long)	
			63 < 80	325**	470-630	20	140-190 HB	-20 °C 27 J (long)	
			80 < 100	315**	470-630	20	140-190 HB	-20 °C 27 J (long)	

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

Transformation temperatures

	Temperature °C
MS	400
AC1	720
AC3	815

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 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:

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/>

Disclaimer

The information in this document is for illustrative purposes only. The data and examples are only general recommendations and not a warranty or a guarantee. The suitability of a product for a specific application can be confirmed only by Ovako once given the actual conditions. The purchaser of an Ovako product has the responsibility to ascertain and control the applicability of the products before using them. Continuous development may necessitate changes in technical data without notice. This document is only valid for Ovako material. Other material, covering the same international specifications, does not necessarily comply with the properties presented in this document.