Material data sheet
Steel grade

SB1312
IM2191
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OVAKO

S235JR All

General Information

Soft structural steel easy to weld and bend.

Variants suitability for hot dip zinc coating according the classification in Table 1 EN 10025-2:2004: Class 1: Si max 0,030% and Si + 2,5 P max 0,090%. Class 2: Si max 0,035%. Class 3 Si 0,14...0,25% and P max 0,035%.

Similar designations

SS 1312, S235JR, 1.0038, Fe 360 BFN, RSt37-2, 40 B

Chemical composition

Variant	Cast	Weldability		C %	Mn %	P %	S %	Cu %	N %
S235JR EN10025-2 (ref)	Std	CEV 0.35_{max}	Min	-	-	-	-	-	-
		Pcm 0.25_{max}	Max	0.17	1.40	0.035	0.035	0.55	0.0120

S235JR: C max 0,20 % for sizes over 40 mm. Only CEV required in standard

SS 1312: Not binding recommendation for Mn (0,4 - 0,7) % in standard

Mechanical Properties

Variant	Condition	Format	Dimension [mm]	Yield strength min [MPa]	Tensile strength [MPa]	Elongation A_5 [%]	Impact (ISO-V) $strength_{min}$
S235JR EN10025-2 (ref)	+AR	All formats	< 16	235*	360-510	26	20 °C 27 J (long)
		All formats	16.1 < 40	225*	360-510	26	20 °C 27 J (long)
		All formats	40.1 < 63	215*	360-510	25	20 °C 27 J (long)
		All formats	63.1 < 100	215*	360-510	24	20 °C 27 J (long)
		All formats	100.1 < 150	195*	350-500	22	20 °C 27 J (long)
		All formats	150.1 < 200	185*	340-490	21	20 °C 27 J (long)

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

Transformation temperatures

	Temperature °C
MS	485
AC1	725
AC3	863

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

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