

### Chemical composition of the product analysis

Designation		Method of deoxidation b	C in % max. for nominal product thickness in mm			Si % max.	Mn % max.	P % max.	S % max.	N % max.	Cu % max.	Other % max.
According to EN 10027-1 and CR 10260	According to En 10027-2		≤ 16	> 16 ≤ 40	> 40 <sup>c</sup>							
S235JR	1.0038	FN	0.19	0.19	0.23	-	1.50	0.045	0.05	0.014	0.60	-
S235JO	1.0114	FN	0.19	0.19	0.19	-	1.50	0.040	0.04	0.014	0.60	-
S235J2	1.0117	FN	0.19	0.19	0.19	-	1.50	0.035	0.04	-	0.60	-
S275JR	1.0044	FN	0.24	0.24	0.25	-	1.60	0.045	0.045	0.014	0.60	-
S275JO	1.0143	FN	0.21	0.21	0,21 <sup>i</sup>	-	1.60	0.040	0.040	0.014	0.60	-
S275J2	1.0145	FN	0.21	0.21	0,21 <sup>i</sup>	-	1.60	0.035	0.035	-	0.60	-
S355JR	1.0045	FN	0.27	0.27	0.27	0.60	1.70	0.045	0.05	0.014	0.60	-
S355JO	1.0553	FN	0,23 <sup>j</sup>	0,23 <sup>k</sup>	0.24	0.60	1.70	0.040	0.040	0.014	0.60	-
S355J2	1.0577	FN	0,23 <sup>j</sup>	0,23 <sup>k</sup>	0.24	0.60	1.70	0.035	0.04	-	0.60	-
S355K2	1.0596	FN	0,23 <sup>j</sup>	0,23 <sup>k</sup>	0.24	0.60	1.70	0.035	0.04	-	0.60	-
S450JO <sup>l</sup>	1.0590	FF	0.23	0,23 <sup>k</sup>	0.24	0.60	1.80	0.04	0.04	0.027	0.6	<sup>m</sup>

<sup>b</sup> FN = rimming steel not permitted; FF = fully killed steel

<sup>c</sup> For sections with nominal thickness > 100 mm the C content by agreement.

<sup>d</sup> For long products the P and S content can be 0,005 % higher

<sup>e</sup> For long products the max. S content can be increased for improved machinability by 0,015 % by agreement if the steel is treated to modify the sulphide morphology and the chemical composition shows min. 0,0020 % Ca.

<sup>f</sup> The max. value for nitrogen does not apply if the chemical composition shows a minimum total. Al content of 0.015% or alternatively min. 0.013 % acid soluble Al or if sufficient other N binding elements are present. In this case the N binding elements shall be mentioned in the inspection document.

<sup>g</sup> Cu content above 0.45 % may cause hot shortness during hot forming.

<sup>h</sup> If other elements are added, they shall be mentioned on the inspection document.

<sup>j</sup> For grades suitable thickness > 30 mm : C = 0.24 % max.

<sup>l</sup> Applicable for long products only.

<sup>m</sup> The steel may show a Nb content of max. 0.06 %, a V content of max. 0.15 % and a Ti content of max. 0.06%.