SAEY N.V. Industrielaan 4 B-8501 Kortrijk – Heule Belgium

Declaration of conformity

This declaration of conformity attests that all provisions concerning the application of a production control in the factory about the activities of procurement, identification, transportation, handling, storage and delivering to the customer as required in EN 1090-2(3) standards are applied for constituent products described hereinafter:

Constituent products:

Steel grades up to S 450 according to EN 10025-2,
Steel grades up to S 690 according to EN 10025-6,
Steel grades up to S 420 according to EN 10210-1,
Steel grades up to S 460 according to EN 10219-1,
Steel grade S 195 T according to EN 10255.

This production control in the factory is the result of a 1090 voluntary certification by OCAB-OCBS ruled in documents ARG 1090, BRP 1090 and TRA 1090 and certified in document

OCAB-OCBS-20140711

The above-mentioned certificate is granted to:

SAEY NV/SA - SAEY SARL

Industrielaan 4

B-8501 KORTRIJK-HEULE

In its plants of

KORTRIJK-KUURNE-ZWIJNAARDE

Signed by
Bernard Saey, Managing Director
Heule, January 1st 2019.

Annexes: models of performances declared for the above-mentioned products

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MODEL OF PERFORMANCES : EN 10025-2 : tables 2, 6, 7, 9

Table 2 - Chemical composition of the ladle analysis for flat and long products of steel grades and qualities with values for the impact strength [a]

Designation		Method of deoxi-dation [b]	C in % max. for nominal product thickness in mm			Si % max.	Mn % max.	P % max. [d]	S % max. [d, e]	N % max. [f]	Cu % max. [g]	Other % max. [h]
According EN 10027-1 and CR 10260	According EN 10027-2		≤ 16	> 16 ≤ 40	> 40[c]							
S235JR	1.0038	FN	0,17	0,17	0,20	-	1,40	0,035	0,035	0,012	0,55	-
S235J0	1.0114	FN	0,17	0,17	0,17	-	1,40	0,030	0,030	0,012	0,55	-
S235J2	1.0117	FF	0,17	0,17	0,17	-	1,40	0,025	0,025	-	0,55	-
S275JR	1.0044	FN	0,21	0,21	0,22	-	1,50	0,035	0,035	0,012	0,55	-
S275J0	1.0143	FN	0,18	0,18	0,18[j]	-	1,50	0,030	0,030	0,012	0,55	-
S275J2	1.0145	FF	0,18	0,18	0,18[j]	-	1,50	0,025	0,025	-	0,55	-
S355JR	1.0045	FN	0,24	0,24	0,24	0,55	1,60	0,035	0,035	0,012	0,55	-
S355J0	1.0553	FN	0,20[j]	0,20[k]	0,22	0,55	1,60	0,030	0,030	0,012	0,55	-
S355J2	1.0577	FF	0,20[j]	0,20[k]	0,22	0,55	1,60	0,025	0,025	-	0,55	-
S355K2	1.0596	FF	0,20[j]	0,20[k]	0,22	0,55	1,60	0,025	0,025	-	0,55	-
S450J0[l]	1.0590	FF	0,20	0,20[k]	0,22	0,55	1,70	0,030	0,030	0,025	0,55	[m]

[a] See 7.2.

[b] FN = rimming steels not permitted; FF = fully killed steel (see 6.2.2).

[c] For sections with nominal thickness > 100 mm the C content by agreement.

See option 26.

[d] For long products the P and S content can be 0,005 % higher.

[e] 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.

See option 27.

[f] The max. value for nitrogen does not apply if the chemical composition shows a minimum total Al content of 0,020 % or alternatively min. 0,015 % 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.

[g] Cu content above 0,40 % may cause hot shortness during hot forming.

[h] If other elements are added, they shall be mentioned on the inspection document.

[i] For nominal thickness > 150 mm: C = 0,20 % max..

[j] For grades suitable for cold roll forming (see 7.4.2.2.3): C = 0,22 % max..

[k] For nominal thickness > 30 mm: C = 0,22 % max..

[l] Applicable for long products only.

[m] The steel may show a Nb content of max. 0,05 %, a V content of max. 0,13 % and a Ti content of max. 0,05 %.

Table 6 - Maximum CEV based on the ladle analysis [a]

Designation		Method of deoxidation [b]	Maximum CEV in % for nominal product thickness in mm				
According EN 10027-1 and CR 10260	According EN10027-2		≤ 30	> 30 ≤ 40	> 40 ≤ 150	> 150 ≤ 250	> 250 ≤ 400
S235JR	1.0038	FN	0,35	0,35	0,38	0,40	-
S235J0	1.0114	FN	0,35	0,35	0,38	0,40	-
S235J2	1.0117	FF	0,35	0,35	0,38	0,40	0,40
S275JR	1.0044	FN	0,40	0,40	0,42	0,44	-
S275J0	1.0143	FN	0,40	0,40	0,42	0,44	-
S275J2	1.0145	FF	0,40	0,40	0,42	0,44	0,44
S355JR	1.0045	FN	0,45	0,47	0,47	0,49[c]	-
S355J0	1.0553	FN	0,45	0,47	0,47	0,49[c]	-
S355J2	1.0577	FF	0,45	0,47	0,47	0,49[c]	0,49
S355K2	1.0596	FF	0,45	0,47	0,47	0,49[c]	0,49
S450J0[d]	1.0590	FF	0,47	0,49	0,49	-	-

[a] For the optional increase of elements which influence the CEV see 7.2.4 and 7.2.5.

[b] FN = rimming steels not permitted; FF = fully killed steel (see 6.2.2).

[c] For long products a maximum CEV of 0,54 applies.

[d] Applicable for long products only.

Table 7 - Mechanical properties at ambient temperature for flat and long products of steel grades and qualities with values for the impact strength

Designation		Minimum yield strength R_{eH} [a] MPa[b] Nominal thickness mm									Tensile strength R_m [a] MPa[b] Nominal thickness mm				
According EN 10027-1 and CR 10260	According EN 10027-2	≤ 16	> 16 ≤ 40	> 40 ≤ 63	> 63 ≤ 80	> 80 ≤ 100	> 100 ≤ 150	> 150 ≤ 200	> 200 ≤ 250	> 250 ≤ 400[c]	< 3	≥ 3 ≤ 100	> 100 ≤ 150	> 150 ≤ 250	> 250 ≤ 400[c]
S235JR	1.0038	235	225	215	215	215	195	185	175	-	360 to 510	360 to 510	350 to 500	340 to 490	-
S235J0	1.0114	235	225	215	215	215	195	185	175	-	360 to 510	360 to 510	350 to 500	340 to 490	-
S235J2	1.0117	235	225	215	215	215	195	185	175	165	360 to 510	360 to 510	350 to 500	340 to 490	330 to 480
S275JR	1.0044	275	265	255	245	235	225	215	205	-	430 to 580	410 to 560	400 to 540	380 to 540	-
S275J0	1.0143	275	265	255	245	235	225	215	205	-	430 to 580	410 to 560	400 to 540	380 to 540	-
S275J2	1.0145	275	265	255	245	235	225	215	205	195	430 to 580	410 to 560	400 to 540	380 to 540	380 to 540
S355JR	1.0045	355	345	335	325	315	295	285	275	-	510 to 680	470 to 630	450 to 600	450 to 600	-
S355J0	1.0553	355	345	335	325	315	295	285	275	-	510 to 680	470 to 630	450 to 600	450 to 600	-
S355J2	1.0577	355	345	335	325	315	295	285	275	265	510 to 680	470 to 630	450 to 600	450 to 600	450 to 600
S355K2	1.0596	355	345	335	325	315	295	285	275	265	510 to 680	470 to 630	450 to 600	450 to 600	450 to 600
S450J0[d]	1.0590	450	430	410	390	380	380	-	-	-	-	550 to 720	530 to 700	-	-

[a] For plate, strip and wide flats with widths ≥ 600 mm the direction transverse (t) to the rolling direction applies. For all other products the values apply for the direction parallel (l) to the rolling direction.

[b] 1 MPa = 1 N/mm^2.

[c] The values apply to flat products.

[d] Applicable for long products only.

(*To be continued*)

Table 9 - Mechanical properties - impact strength KV longitudinal for flat and long products [a]

Designation		Tempe-rature	Minimum energy (J) Nominal thickness in mm		
According EN 10027-1 and CR 10260	According EN 10027-2	°C	≤ 150 [a b]	> 150 ≤ 250 [b]	> 250 ≤ 400 [c]
S235JR	1.0038	20	27	27	-
S235J0	1.0114	0	27	27	-
S235J2	1.0117	- 20	27	27	27
S275JR	1.0044	20	27	27	-
S275J0	1.0143	0	27	27	-
S275J2	1.0145	- 20	27	27	27
S355JR	1.0045	20	27	27	-
S355J0	1.0553	0	27	27	-
S355J2	1.0577	- 20	27	27	27
S355K2	1.0596	- 20	40[d]	33	33
S450J0[e]	1.0590	0	27	-	-

[a] For nominal thicknesses ≤ 12 mm see 7.3.2.1 of EN 10025-1:2004.

[b] For sections with a nominal thickness > 100 mm the values shall be agreed.

See option 28.

[c] The values apply to flat products.

[d] This value corresponds with 27J at - 30 °C (see Eurocode 3).

[e] Applicable for long products only.

MODEL OF PERFORMANCES : EN 10210-1 : Annex A (Table A.1, A.2, A.3) and B (Table B.1, B.2, B.3)

Annex A
(normative)

Structural hollow sections of non-alloy quality steels — Chemical composition and mechanical properties

Table A.1 — Chemical composition — Cast analysis for product thickness ≤ 120 mm

Steel grade		Type of deoxidation[a]	% by mass, maximum						
			C Specified thickness (mm)		Si	Mn	P	S	N[b c]
Steel name	Steel number		≤ 40	>40 ≤ 120					
S235JRH	1.0039	FN	0,17	0,20	—	1,40	0,040	0,040	0,009
S275J0H	1.0149	FN	0,20	0,22	—	1,50	0,035	0,035	0,009
S275J2H	1.0138	FF	0,20	0,22	—	1,50	0,030	0,030	—
S355J0H	1.0547	FN	0,22	0,22	0,55	1,60	0,035	0,035	0,009
S355J2H	1.0576	FF	0,22	0,22	0,55	1,60	0,030	0,030	—
S355K2H	1.0512	FF	0,22	0,22	0,55	1,60	0,030	0,030	—

[a] The deoxidation methods are designated as follows:

FN = Rimming steel not permitted

FF = Fully killed steel containing nitrogen binding elements in amounts sufficient to bind available nitrogen (e.g. min. 0,020 % total Al, or 0,015 % soluble Al).

[b] It is permissible to exceed the specified values provided that for each increase of 0,001 % N the P max. content is also reduced by 0,005 %. The N content of the cast analysis, however, shall not be more than 0,012 %.

[c] The maximum value for nitrogen does not apply if the chemical composition shows a minimum total Al content of 0,020 % with a minimum Al/N ratio of 2:1, or if sufficient other N-binding elements are present. The N-binding elements shall be recorded in the Inspection Document.

Table A.2 — Maximum carbon equivalent value (CEV) based on cast analysis [a]

Steel grade		Maximum CEV in % for specified thicknesses in mm			
Steel name	Steel number	≤ 16	> 16 ≤ 40	> 40 ≤ 65	> 65 ≤ 120
S235JRH	1.0039	0,37	0,39	0,41	0,44
S275J0H	1.0149	0,41	0,43	0,45	0,48
S275J2H	1.0138	0,41	0,43	0,45	0,48
S355J0H	1.0547	0,45	0,47	0,50	0,53
S355J2H	1.0576	0,45	0,47	0,50	0,53
S355K2H	1.0512	0,45	0,47	0,50	0,53

[a] See 6.5.2, Option 1.2.

Table A.3 — Mechanical properties of non-alloy structural steel hollow section

Steel grade		Minimum yield strength R_{eH} MPa						Tensile strength R_m MPa			Minimum elongation A [a b] %				Minimum impact energy KV [d] J		
		Specified thickness mm						Specified thickness mm			Specified thickness mm				At test temperature of		
Steel name	Steel number	≤16	> 16 ≤ 40	> 40 ≤63	> 63 ≤ 80	> 80 ≤ 100	> 100 ≤ 120	≤ 3	> 3 ≤ 100	> 100 ≤120	≤40	> 40 ≤63	> 63 ≤ 100	> 100 ≤ 120	-20 °C	0 °C	20 °C
S235JRH [c]	1.0039	235	225	215	215	215	195	360-510	360-510	350-500	26	25	24	22	-	-	27
S275J0H [c]	1.0149	275	265	255	245	235	225	430-580	410-560	400-540	23	22	21	19	-	27	-
S275J2H	1.0138														27	-	-
S355J0H [c]	1.0547	355	345	335	325	315	295	510-680	470-630	450-600	22	21	20	18	-	27	-
S355J2H	1.0576														27	-	-
S355K2H	1.0512														40 [e]	-	-

[a] Longitudinal values. Transverse values are 2 % lower.

[b] For thicknesses < 3 mm, see 9.2.2.

[c] The impact properties are verified only when Option 1.3 is specified.

[d] For impact properties for reduced section test pieces see 6.6.2.

[e] This value corresponds to 27J at –30 °C (see EN 1993-1-1).

Annex B
(normative)

Structural hollow sections of fine grain steels — Chemical composition and mechanical properties

Table B.1 — Chemical composition — Cast analyses for product thickness ≤ 65 mm

Steel grade		Type of deoxidation[a]	Sub group[b]	% by mass													
Steel name	Steel number			C max.	Si max.	Mn	P max.	S max.	Nb max.	V max.	Al total[c] min.	Ti max.	Cr max.	Ni max.	Mo max.	Cu[d] max.	N max.
S275NH	1.0493	GF	QS	0,20	0,40	0,50 1,40	0,035	0,030	0,050	0,08	0,020	0,03	0,30	0,30	0,10	0,35	0,015
S275NLH	1.0497						0,030	0,025									
S355NH	1.0539	GF	QS	0,20	0,50	0,90 1,65	0,035	0,030	0,050	0,12	0,020	0,03	0,30	0,50	0,10	0,35	0,020
S355NLH	1.0549			0,18			0,030	0,025									
S420NH	1.8750	GF	SS	0,22	0,60	1,00 1,70	0,035	0,030	0,050	0,20	0,020	0,03	0,30	0,80	0,10	0,70	0,025
S420NLH	1.8751						0,030	0,025									
S460NH	1.8953	GF	SS	0,22	0,60	1,00 1,70	0,035	0,030	0,050	0,20	0,020	0,03	0,30	0,80	0,10	0,70	0,025
S460NLH	1.8956						0,030	0,025									

[a] The deoxidation method is designated as follows:
GF = fully killed steel containing nitrogen binding elements in amounts sufficient to bind the available nitrogen and having a fine grain structure.
[b] QS = quality steel. SS = special steel.
[c] If sufficient N-binding elements are present, the minimum total Al content does not apply.
[d] If the copper content is greater than 0,30 % then the nickel content shall be at least half of the copper content.

Table B.2 — Maximum carbon equivalent value based on cast analysis

Steel grade		Maximum CEV for specified thicknesses mm	
Steel name	Steel number	≤ 16	> 16 ≤ 65
S275NH	1.0493	0,40	0,40
S275NLH	1.0497		
S355NH	1.0539	0,43	0,45
S335NLH	1.0549		
S420NH	1.8750	0,50	0,52
S420NLH	1.8751		
S460NH	1.8953	0,53	0,55
S460NLH	1.8956		

Table B.3 — Mechanical properties of fine grain structural steel hollow sections

Steel grade		Minimum yield strength R_{eH} MPa			Tensile strength R_m MPa	Minimum elongation A %		Minimum impact energy KV[a] J	
Steel name	Steel number	Specified thickness mm			at specified thickness ≤ 65 mm	at specified thickness ≤ 65 mm		At test temperature of	
		≤ 16	> 16 ≤ 40	> 40 ≤ 65		Longitudinal	Transverse	-50 °C	-20 °C
S275NH	1.0493	275	265	255	370–510	24	22	-	40[b]
S275NLH	1.0497							27	-
S355NH	1.0539	355	345	335	470–630	22	20	-	40[b]
S355NLH	1.0549							27	-
S420NH	1.8750	420	400	390	520-680	19	17	-	40[b]
S420NLH	1.8751							27	-
S460NH	1.8953	460	440	430	540–720	17	15	-	40[b]
S460NLH	1.8956							27	-

[a] For impact properties for reduced section test pieces, see 6.6.2.

[b] This value corresponds to 27J at -30 °C (see EN 1993-1-1).

Annex A
(normative)

Structural hollow sections of non-alloy quality steels — Chemical composition and mechanical properties

Table A.1 — Chemical composition — Cast analysis for product thickness ≤ 40 mm

Steel grade		Type of de-oxidation [a]	% by mass, maximum					
Steel name	Steel number		C	Si	Mn	P	S	N [b]
S235JRH	1.0039	FF	0,17	—	1,40	0,040	0,040	0,009
S275J0H	1.0149	FF	0,20	—	1,50	0,035	0,035	0,009
S275J2H	1.0138	FF	0,20	—	1,50	0,030	0,030	—
S355J0H	1.0547	FF	0,22	0,55	1,60	0,035	0,035	0,009
S355J2H	1.0576	FF	0,22	0,55	1,60	0,030	0,030	—
S355K2H	1.0512	FF	0,22	0,55	1,60	0,030	0,030	—

a The deoxidation method is designated as follows:

FF: Fully killed steel containing nitrogen binding elements in amounts sufficient to bind available nitrogen (e.g. min. 0,020 % total Al or 0,015 % soluble Al).

b The maximum value for nitrogen does not apply if the chemical composition shows a minimum total Al content of 0,020 % with a minimum Al/N ratio of 2:1, or if sufficient other N-binding elements are present. The N-binding elements shall be recorded in the Inspection Document.

Table A.2 — Maximum carbon equivalent value (CEV) based on cast analysis [a]

Steel grade		Maximum CEV for nominal thicknesses ≤ 40 mm
Steel name	Steel number	%
S235JRH	1.0039	0,35
S275J0H	1.0149	0,40
S275J2H	1.0138	0,40
S355J0H	1.0547	0,45
S355J2H	1.0576	0,45
S355K2H	1.0512	0,45

a See 6.6.2, Option 1.2.

Table A.3 — Mechanical properties of non-alloy steel hollow sections in thicknesses ≤ 40 mm

Steel grade		Minimum yield strength R_{eH} MPa		Tensile strength R_m MPa		Minimum elongation A [d] %	Minimum impact energy KV [e] J		
Steel name	Steel number	Specified thickness mm		Specified thickness mm		Specified thickness mm	at test temperature of		
		≤ 16	> 16 ≤ 40	< 3	≥ 3 ≤ 40	≤ 40	-20°C	0 °C	20 °C
S235JRH [a]	1.0039	235	225	360-510	360-510	24 [b]	-	-	27
S275J0H [a]	1.0149	275	265	430-580	410-560	20 [c]	-	27	-
S275J2H	1.0138						27	-	-
S355J0H [a]	1.0547	355	345	510-680	470-630	20 [c]	-	27	-
S355J2H	1.0576						27	-	-
S355K2H	1.0512						40 [f]	-	-

[a] The impact properties are verified only when Option 1.3 is specified.

[b] For thicknesses > 3 mm and section sizes D/T < 15 (round) and (B+H)/2T < 12,5 (square and rectangular) the minimum elongation is reduced by 2. For thicknesses ≤ 3 mm the minimum value for elongation is 17 %.

[c] For section sizes D/T < 15 (circular) and (B+H)/2T < 12,5 (square and rectangular) the minimum elongation is reduced by 2.

[d] For thicknesses < 3 mm see 9.2.2.

[e] For impact properties for reduced section test pieces see 6.7.2.

[f] This value corresponds to 27J at –30 °C (see EN 1993-1-1).

Annex B
(normative)

Structural hollow sections of fine grain steels — Chemical composition and mechanical properties

Table B.1 — Chemical composition — Cast analyses for product thicknesses ≤ 40 mm, feedstock condition N [a]

Steel grade		Type of deoxidation [b]	Classification [c]	% by mass														
Steel name	Steel number			C max.	Si max.	Mn	P max.	S max.	Nb max.	V max.	Al total [d] min.	Ti max.	Cr max.	Ni max.	Mo max.	Cu [e] max.	N max.
S275NH	1.0493	GF	QS	0,20	0,40	0,50-1,40	0,035	0,030	0,050	0,05	0,020	0,03	0,30	0,30	0,10	0,35	0,015
S275NLH	1.0497						0,030	0,025									
S355NH	1.0539	GF	QS	0,20	0,50	0,90-1,65	0,035	0,030	0,050	0,12	0,020	0,03	0,30	0,50	0,10	0,35	0,015
S355NLH	1.0549			0,18			0,030	0,025									
S460NH	1.8953	GF	SS	0,20	0,60	1,00-1,70	0,035	0,030	0,050	0,20	0,020	0,03	0,30	0,80	0,10	0,70	0,025
S460NLH	1.8956						0,030	0,025									

a See 6.3.

b The deoxidation method is designated as follows:
GF = Fully killed steel containing nitrogen binding elements in amounts sufficient to bind the available nitrogen and having a fine grained structure.

c QS = quality steel; SS = special steel.

d If sufficient N-binding elements are present, the minimum total Al content does not apply.

e If the copper content is greater than 0,30 % then the nickel content shall be at least half of the copper content.

Table B.2 — Chemical composition - Cast analysis for product thicknesses ≤ 40 mm, feedstock condition M [a]

Steel grade		Type of deoxidation [b]	Classification [c]	% by mass											
Steel name	Steel number			C max.	Si max.	Mn max.	P max.	S max.	Nb max.	V max.	Al total [d] min.	Ti max.	Ni max.	Mo [e] max.	N max.
S275MH	1.8843	GF	SS	0,13	0,50	1,50	0,035	0,030	0,050	0,08	0,020	0,050	0,30	0,20	0,020
S275MLH	1.8844						0,030	0,025							
S355MH	1.8845	GF	SS	0,14	0,50	1,50	0,035	0,030	0,050	0,10	0,020	0,050	0,30	0,20	0,020
S355MLH	1.8846						0,030	0,025							
S420MH	1.8847	GF	SS	0,16	0,50	1,70	0,035	0,030	0,050	0,12	0,020	0,050	0,30	0,20	0,020
S420MLH	1.8848						0,030	0,025							
S460MH	1.8849	GF	SS	0,16	0,60	1,70	0,035	0,030	0,050	0,12	0,020	0,050	0,30	0,20	0,025
S460MLH	1.8850						0,030	0,025							

a See 6.3.

b The deoxidation method is designated as follows:
GF = Fully killed steel containing nitrogen binding elements in amounts sufficient to bind the available nitrogen and having a fine grained structure.

c SS = special steel.

d If sufficient N-binding elements are present, the minimum total Al content does not apply.

e The total sum of Cr, Cu and Mo shall not be higher than 0,60 %.

Table B.3 — Maximum carbon equivalent value based on cast analysis

Steel grade		Maximum CEV for nominal thicknesses ≤ 40 mm %
Steel name	Steel number	
S275NH S275NLH	1.0493 1.0497	0,40
S275MH S275MLH	1.8843 1.8844	0,34
S355NH S355NLH	1.0539 1.0549	0,43
S355MH S355MLH	1.8845 1.8846	0,39
S420MH S420MLH	1.8847 1.8848	0,43
S460NH S460NLH	1.8953 1.8956	0,53
S460MH S460MLH	1.8849 1.8850	0,46

Table B.4 — Mechanical properties of hollow sections in thicknesses ≤ 40 mm — Feedstock material condition N

Steel grade		Minimum yield strength R_{eH} MPa		Tensile strength R_m MPa	Minimum elongation A [a b] %	Minimum impact energy KV [c] J	
Steel name	Steel number	Specified thickness mm		Specified thickness mm	Specified thickness mm	at test temperature of	
		≤ 16	> 16 ≤ 40	≤ 40	≤ 40	-50 °C	-20 °C
S275NH	1.0493	275	265	370-510	24	-	40 [d]
S275NLH	1.0497					27	-
S355NH	1.0539	355	345	470-630	22	-	40 [d]
S355NLH	1.0549					27	-
S460NH	1.8953	460	440	540-720	17	-	40 [d]
S460NLH	1.8956					27	-

[a] For section sizes D/T < 15 (circular) and (B+H)/2T < 12,5 (square and rectangular) the minimum elongation is reduced by 2.

[b] For thicknesses < 3 mm see 9.2.2.

[c] For impact properties for reduced section test pieces see 6.7.2.

[d] This value corresponds to 27J at −30 °C (see EN 1993-1-1).

Table B.5 — Mechanical properties of hollow sections in thicknesses ≤ 40 mm — Feedstock material condition M

Steel grade		Minimum yield strength R_{eH} MPa		Tensile strength R_m MPa	Minimum elongation A [a b] %	Minimum impact energy KV [c] J	
Steel name	Steel number	Specified thickness mm		Specified thickness mm	Specified thickness mm	at test temperature of	
		≤ 16	> 16 ≤ 40	≤ 40	≤ 40	-50 °C	-20 °C
S275MH	1.8843	275	265	360-510	24	-	40 [d]
S275MLH	1.8844					27	-
S355MH	1.8845	355	345	450-610	22	-	40 [d]
S355MLH	1.8846					27	-
S420MH	1.8847	420	400	500-660	19	-	40 [d]
S420MLH	1.8848					27	-
S460MH	1.8849	460	440	530-720	17	-	40 [d]
S460MLH	1.8850					27	-

[a] For section sizes D/T < 15 (circular) and (B+H)/2T < 12,5 (square and rectangular) the minimum elongation is reduced by 2.

[b] For thicknesses < 3 mm see 9.2.2.

[c] For impact properties for reduced section test pieces see 6.7.2.

[d] This value corresponds to 27J at –30 °C (see EN 1993-1-1).

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MODEL OF PERFORMANCES : EN 10255 : table 1.

Table 1 — Chemical composition (cast analysis) and mechanical properties

Steel Grade		Chemical composition %				Mechanical Properties		
						Upper Yield strength	Tensile strength	Elongation
Steel Name	Steel Number	C max	Mn max	P max	S max	R_{eH} min. (MPa)	R_m (MPa)	A min. %
S 195T	1.0026	0,20	1,40	0,035	0,030	195	320 to 520	20

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