

INDUSTRIELAAN 4 B-8501 KORTRIJK-HEULE Belgium

DECLARATION OF PERFORMANCE¹ N°

EN 1090-1 DoP ENG. 03 EN10210-2

1 Unique identification code of the product-type:

Component(s)² according to EN 1090-2 following customer's specification and produced out of hot finished structural hollow sections of non-alloy and fine grain steels, made according to EN 10210-1+2 ; with types and grades:

- S235JRH - 1.0039
 - S275JOH – 1.0149
 - S275J2H – 1.0138
 - S355JOH – 1.0547
 - S355J2H – 1.0576
 - S355K2H – 1.0512
 - S275NH – 1.0493
 - S275NLH – 1.0497
 - S355NH – 1.0539
 - S355NLH – 1.0549
 - S420NH – 1.8750
 - S420NLH – 1.08751
 - S460NH – 1.8953
 - S460NLH – 1.8956
- Applied processes: activities of manufacturing (3.6), execution (3.7), preparation (3.12) according to EN 1090-2+A1:2013.
 - Applicable processes: decoiling and cutting to length of sheets, sawing, shearing and nibbling, thermal cutting, laser cutting, drilling of holes, shot blasting, painting, batch galvanizing, electrolytic zinc coating, coating

2 Intended use/es:

For structural use in all types of construction works according to EN 1090-1.

3 Manufacturer:

SAEY nv/sa – SAEY sarl, Industrielaan 4, B-8501 Heule

4 Authorised representative:: **not of application**

5 System of AVCP:

System 2+, Declaration of the performance of the essential characteristics of the construction product by the manufacturer

¹ As reproduced from COMMISSION DELEGATED REGULATION (EU) No 574/2014 of 21 February 2014 amending Annex III to Regulation (EU) No 305/2011 of the European Parliament and of the Council on the model to be used for drawing up a declaration of performance on construction products. The CPR* takes precedence over the (annexes ZA of the harmonised) standards that must still be reviewed. [* Including its article 61 "The power to adopt delegated acts referred to in Article 60 shall be conferred on the Commission for a period of 5 years from 24 April 2011."]

² According to article 3.11 of EN 1090-2:2008+A1:2011 (E)

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6 Harmonised standard, Notified body:

EN 1090-1:2009+A1:2011, OCAB-OCBS CE1148 performed initial inspection of the manufacturing plant and of factory production control and performs continuous surveillance, assessment and evaluation of factory production control under system **2+** and issued the certificate of conformity of the factory production control **2014-07-11**.

7 Declared performance(s)

NBN EN 1090-1+A1 : 2012		
Essential characteristics	Performance	Harmonised technical specification EN 1090-1
Tolerances on dimensions and shape	Tolerances according to the class for fundamental tolerances in EN1090-2 and according to article 6.10 of EN10210-1	4.2 ; 5.3
Weldability	According to article 6.7.1 and annex A and B of EN10210-1	4.3 ; 5.4
Fracture toughness, Impact resistance	According to article 6.6 .2-4 of EN10210-1 and table A.2-3 and B.2-3	4.3 ; 5.4 ; 4.8 ; 5.10
Load bearing capacity	According to article 6.6 .1 of EN10210-1 and table A.2-3 and B.2-3	4.5.1 ; 4.5.2 ; 5.6.2
Deformation in Service limit state	According to article 6.6 .1 of EN10210-1 and table A.2-3 and B.2-3	4.5.5
Fatigue strength	NPD	4.5.1 ; 4.5.3 ; 5.6.2
Resistance to fire	NPD	4.5.1 ; 4.5.4 ; 5.7
Reaction to fire	Class A1 for products without coating	4.6 ; 5.8
Release of cadmium and its compounds	NPD	4.7 ; 5.9
Emission of radioactivity	NPD	4.7 ; 5.9
Durability	According to article 6.7.2 of EN10210-1. Suitability for hot dip galvanising according to EN ISO 1461 and EN ISO 14713-2	4.9 ; 5.11

8 Appropriate Technical Documentation and/or Specific Technical Documentation:

- See included annexes (EN 10210-1 : Annex A (Table A.1, A.2, A.3) and B (Table B.1, B.2, B.3) and CE-marking of the delivered components.

The performance of the product identified above is in conformity with the set of declared performance/s. This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by:

Bernard Saey
Managing Director

Heule, August 13th, 2018.



INCLUDED ANNEXES : EN 10210-1 : Annex A (Table A.1, A.2, A.3) and B (Table B.1, B.2, B.3)

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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						
Steel name	Steel number		C		Si	Mn	P	S	N ^{b,c}
			Specified thickness (mm)						
			≤ 40	$>40 \leq 120$					
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 = Rimmed 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	> 65
			≤ 40	≤ 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.

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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	>120 ≤150	>150 ≤180	>180 ≤210	>210 ≤240	>240 ≤270	>270 ≤300	>300 ≤350	>350 ≤400	>400 ≤450	>450 ≤500	>500 ≤550	>550 ≤600	>600 ≤650	>650 ≤700	>700 ≤750	>750 ≤800	>800 ≤850	>850 ≤900	>900 ≤950	>950 ≤1000	0° C	-20° C	20° C				
S235JRH ^e	1.0039	235	225	215	215	215	195	360-510	360-510	350-500	26	25	24	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
S275J0H ^e	1.0149	275	265	255	245	235	225	430-580	430-580	400-540	23	22	21	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
S275J2H	1.0138																																				
S355J0H ^e	1.0547																																				
S355J2H	1.0576	355	345	335	325	315	295	510-680	510-680	470-630	22	21	20	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
S355J2H	1.0512																																				

^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	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					1,40		0,025									
S355NH	1.0539	GF	QS	0,20	0,50	0,90	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					1,65		0,025									
S420NH	1.8750	GF	SS	0,22	0,60	1,00	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					1,70		0,025									
S460NH	1.8953	GF	SS	0,22	0,60	1,00	0,035	0,030	0,050	0,20	0,020	0,03	0,30	0,80	0,10	0,70	0,025
S460NLH	1.8958					1,70		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.

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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		

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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 at specified thickness ≤ 65 mm	Minimum elongation A % at specified thickness ≤ 65 mm		Minimum impact energy KV_a J	
		Specified thickness mm				Longitudinal	Transverse	At test temperature of	
Steel name	Steel number	≤ 16	> 16 ≤ 40	> 40 ≤ 65			-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).