SAEY
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INDUSTRIELAAN 4 B-8501 KORTRIJK-HEULE Belgium

DECLARATION OF PERFORMANCE[1] N°

EN 1090-1 DoP ENG. 03.2 EN10219-2

1 Unique identification code of the product-type:

Component(s)[2] according to EN 1090-2 following customer's specification and produced out of cold formed welded structural hollow sections of non-alloy and fine grain steels, made according to EN 10219-1+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**
- **S460NH – 1.8953**
- **S460NLH – 1.8956**

- Applied processes: activities of manufacturing (3.6), execution (3.7), preparation (3.12), batch galvanizing (EN1461 / EN10240) according to EN 1090-2+A1.
- 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 6.11 of EN10219-1	4.2 ; 5.3
Weldability	According to article 6.8.1 and annex A and B of EN10219-1	4.3 ; 5.4
Fracture toughness, Impact resistance	According to article 6.7 .2-4 of EN10219-1 and table A.2-3, B.3-5	4.3 ; 5.4 ; 4.8 ; 5.10
Load bearing capacity	According to article 6.7.1 of EN10219-1 and table A.2-3, B.3-5	4.5.1 ; 4.5.2 ; 5.6.2
Deformation in Service limit state	According to article 6.7.1 of EN10219-1 and table A.2-3, B.3-5	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	Hot dip galvanised according to EN ISO 1461.	4.9 ; 5.11

8 Appropriate Technical Documentation and/or Specific Technical Documentation:

- See included annexes (EN 10219-1: annex A (Table A.1, A.2, A.3) and B (Table B.1, B.2, B.3, B.4, B.5) 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, June 18th , 2021.

INCLUDED ANNEXES : EN 10219-1 : annex A (Table A.1, A.2, A.3) and B (Table B.1, B.2, B.3, B.4, B.5)

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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 ≤ 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.

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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).

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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.

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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).