



ETA-Danmark A/S  
Göteborg Plads 1  
DK-2150 Nordhavn  
Tel. +45 72 24 59 00  
Fax +45 72 24 59 04  
Internet [www.etadanmark.dk](http://www.etadanmark.dk)

Authorised and notified according  
to Article 29 of the Regulation (EU)  
No 305/2011 of the European  
Parliament and of the Council of 9  
March 2011

MEMBER OF EOTA



## European Technical Assessment ETA-18/1063 of 2019/01/07

### General Part

#### Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

Trade name of the  
construction product:

Isomur plus  
Isomur light

Product family to which the  
above construction product  
belongs:

Insulating building element for masonry walls

Manufacturer:

Stahlton-Bauteile AG  
Hauptstrasse 131  
CH – 5070 Frick  
Tel.: +41 62 865 75 00  
Fax: +41 62 865 75 59  
Internet: [www.stahlton-bauteile.ch](http://www.stahlton-bauteile.ch)

Manufacturing plant:

Stahlton-Bauteile AG  
Hauptstrasse 131  
CH – 5070 Frick

This European Technical  
Assessment contains:

16 pages including 2 annexes which form an integral  
part of the document

This European Technical  
Assessment is issued in  
accordance with Regulation  
(EU) No 305/2011, on the  
basis of:

European Assessment Document (EAD) no EAD  
170011-00-0305 Insulating building element for  
masonry walls

This version replaces:

-

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full (excepted the confidential Annex(es) referred to above). However, partial reproduction may be made, with the written consent of the issuing Technical Assessment Body. Any partial reproduction has to be identified as such

## II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

### 1 Technical description of product and intended use

#### Technical description of the product

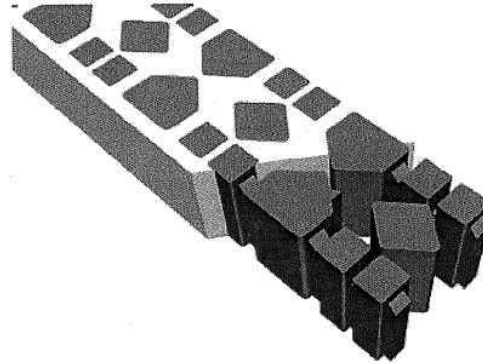
Isomur plus and Isomur light are construction products consisting of a structure made of lightweight concrete with high compressive strength and insulation made of expanded polystyrene.

Loadbearing structure:

- Lightweight concrete complying with density classification D1,6 according to EN 206-1 and exposure class XF1

Insulation creating the rectangular dimension:

- expanded polystyrene, Neopor F2 according to EN 13163 with density of 25 kg/m<sup>3</sup>
- Isomur plus and Isomur light are of identical geometry and differ only in the strength class of the lightweight concrete



Construction principle of Isomur plus and Isomur light

The geometry of the products is rectangular and the dimensions in height and width correspond to the masonry bricks in the walls they are to be used in.

Isomur Plus and Isomur light are building products that differ in their loadbearing capacity. All other product characteristics are identical.

Drawings and specification of sizes of the product are given in annex A of this ETA

#### Specification of the intended use in accordance with the applicable European Assessment Document

Isomur plus and Isomur light are building products with a loadbearing and insulating capacity for the use in masonry walls. See also annex B.

The insulating building products Isomur plus and Isomur light are intended to reduce the thermal bridge at the base of masonry walls, situated over not-heated underground level.

The building products Isomur plus and Isomur light are always protected from corrosion and weathering attack, since it is always installed behind the weather screen (see Fig a – d annex B)

The insulating building elements are placed on the concrete slab as the first layer or at the top of a wall as the last layer under the slab. By its insulating capacity it reduces the thermal bridge at this point (see Fig a – d annex B).

The building products Isomur plus and Isomur light are intended to be used in masonry wall structures made from the following:

- Sand lime masonry with structural surface of at least 85% according EN 771-2 or brick masonry with structural surface of at least 50% according EN 771-1
- normal mortar M10 or M15 or thin bed mortar according EN 998-2

The verification and assessment methods on which this European Technical Assessment is based and a correct use lead to the assumption of a working life of at least 50 years for the building products Isomur light and Isomur plus.

The indications given on the working life of the product cannot be interpreted as a guarantee given by the manufacturer or the assessment body, but are to be regarded only as a means for choosing the right product in relation to the expected economically reasonable working life of the works.

### 3 Performance of the product and references to the methods used for its assessment

#### Mechanical resistance and stability (BWR 1)

##### 3.1 Characteristic compression strength of Isomur plus und Isomur light

The compression strength of the products and light weight concrete are given in table 1.

Table 1 – Compression strength

Product	Mean Value of the product N/mm <sup>2</sup>	Single value of the product N/mm <sup>2</sup>	Mean value of the Lightweight concrete N/mm <sup>2</sup>	Single value of the Lightweight concrete N/mm <sup>2</sup>
Isomur plus	≥ 25.0	≥ 20	≥ 55	≥ 50
Isomur light	≥ 12.5	≥ 10.0	≥ 25	≥ 20

##### 3.2 Density of the structural material (light weight concrete)

Dry densities of the lightweight concrete are given in table 2:

Table 2 – Dry Density

Lightweight concrete	Mean Value kg/m <sup>3</sup>	Single value Tolerances
Isomur plus	1450	+ 2% / - 5%
Isomur light	1400	+ 2% / - 5%

##### 3.3 Dimensions and weight

The dimensions and tolerances of dimensions for each type of the products Isomur plus and Isomur light are defined in table 3.

Table 3 – Dimensions and weight

Type	Length <sup>1)</sup> mm	Width <sup>1)</sup> mm	Height <sup>1)</sup> EPS mm	Height Structure <sup>1)</sup> mm	Weight Isomur plus g	Weight Isomur light g
11.5 – 11.3	600	115	113	113	7500	7000
15.0 – 11.3	600	150	113	113	9500	8850
17.5 – 11.3	600	175	113	113	11000	10200
20.0 – 11.3	600	200	113	113	13000	12100
24.0 – 11.3	600	240	113	113	15500	14400
30.0 – 11.3	600	300	113	113	19000	17700
11.5 – 9.0	600	115	90	90	5600	5200
15.0 – 9.0	600	150	90	90	7300	6800
17.5 – 9.0	600	175	90	90	8400	7850
20.0 – 9.0	600	200	90	90	9600	8950
24.0 – 9.0	600	240	90	90	11800	10950
30.0 – 9.0	600	300	90	90	14600	13600

admissible Tolerances	SV ± 6 MV ± 4	SV ± 3 MV ± 2	SV ± 1.0	SV -3/+1	SV [%] -5.0/+2.0	SV [%] -5.0/+2.0
-----------------------	------------------	------------------	----------	-------------	---------------------	---------------------

<sup>1)</sup> Isomur plus and Isomur light

SV = Single Value; MV = Mean Value

### 3.4 Characteristic resistance to vertical load

The loadbearing capacity of walls with integrated building product Isomur plus or Isomur light is given in table 4 by the parameter  $f_k$  according EN 1996-1: 2013-02-Eurocode 6: Design of masonry structures - Part 1-1: General rules for reinforced and unreinforced masonry structures.

Table 4:  $f_k$  – values for masonry walls with integrated building product Isomur plus or Isomur light

building product	Brick classification	Sand lime masonry <sup>1)</sup> with normal mortar M10	Sand lime masonry <sup>1)</sup> with normal mortar M15	Sand lime masonry <sup>1)</sup> with thin-bed mortar	Brick masonry <sup>2)</sup> with normal mortar M10	Brick masonry <sup>2)</sup> with normal mortar M15	Brick masonry <sup>2)</sup> with thin-bed mortar
	N/mm <sup>2</sup>	N/mm <sup>2</sup>	N/mm <sup>2</sup>	N/mm <sup>2</sup>	N/mm <sup>2</sup>	N/mm <sup>2</sup>	N/mm <sup>2</sup>
Isomur plus	4	-	-	-	2.4	2.4	-
	6	-	-	-	3.1	3.1	3.1
	8	-	-	-	3.7	3.7	3.7
	10	-	-	-	4.2	4.2	4.2
	12	4.3	4.3	4.5	5.0	5.0	4.6
	16	5.2	5.2	5.7	5.9	5.9	5.4
	≥ 20	5.9	5.9	6.8	6.1	6.1	5.6
Isomur light	4	-	-	-	2.4	2.4	-
	6	-	-	-	2.9	2.9	2.9
	8	-	-	-	2.9	2.9	2.9
	10	2.9	2.9	3.1	2.9	2.9	2.9
	≥ 12	2.9	2.9	3.1	2.9	2.9	2.9

- 1) Sand lime masonry with structural surface of at least 85% according EN 771-2 or brick masonry with structural surface of at least 50% according EN 771-1  
 2) Normal mortar M10 or M15 or thin bed mortar according EN 998-2

The values given in table 4 apply under the following conditions:

- Effective height  $h_{ef}$  of the wall = clear story height of the wall

### 3.5 Characteristic shear strength

The shear strength of walls with integrated building product Isomur plus is given in table 5 by the parameter  $f_{vk}$  according EN 1996-1: 2013-02-Eurocode 6: Design of masonry structures - Part 1-1: General rules for reinforced and unreinforced masonry structures

Table 5:  $f_{vk}$  – values for masonry walls with integrated building product Isomur plus

building product	Brick classification	Sand lime masonry <sup>1)</sup> with normal mortar <sup>2)</sup>	Sand lime masonry <sup>1)</sup> with thinbed mortar <sup>2)</sup>	Brick masonry <sup>1)</sup> with normal mortar <sup>2)</sup>	Brick masonry <sup>1)</sup> with thinbed mortar <sup>2)</sup>
	N/mm <sup>2</sup>	N/mm <sup>2</sup>	N/mm <sup>2</sup>	N/mm <sup>2</sup>	N/mm <sup>2</sup>
Isomur plus	12	0.7	0.7	0.7	0.7
	16	0.9	0.9	0.9	0.9
	≥ 20	0.9	0.9	0.9	0.9

- 1) Sand lime masonry with structural surface of at least 85% according EN 771-2 or brick masonry with structural surface of at least 50% according EN 771-1  
 2) Normal mortar M10 or M15 or thin bed mortar according EN 998-2

No performance is assessed for Isomur light.

### 3.6 Durability of insulating building element

The specification of the building product Isomur plus and Isomur light confirms the durability in accordance with section II.1 of this ETA

#### Safety in case of fire (BWR 2)

### 3.7 Reaction to fire

No performance assessed for the building product Isomur plus and Isomur light.

The lightweight concrete is classified as A1 in accordance with EC Delegated Regulation 2016/364/EU and EN 13501-1

The EPS insulation is classified as XX in accordance with EN 13163 and EC Delegated Regulation 2016/364/EU and EN 13501-1

Behaviour of a masonry wall with integrated insulating product Isomur plus or Isomur light in case of fire see 3.11

#### Hygiene, health and the environment (BWR 3)

### 3.8 Water absorption

The water absorption according to EN 772-11 is given in table 6.

Table 6 – Water absorption

Building product	Water absorption after 1 minute (% w/w)	Water absorption after 48 hours (% w/w)
Isomur light	0,12	0,81
Isomur plus	0,14	0,77

#### Protection against noise (BWR 5)

### 3.9 Sound insulation

The sound insulation of the masonry wall is not affected adversely by the integration of Isomur plus or Isomur light according fig a) in annex B.

#### Energy economy and heat retention (BWR 6)

### 3.10 Thermal resistance

#### $\lambda$ -values for the components of the product

The thermal conductivity  $\lambda$  of the components light weight concrete ( $\lambda_{\text{concrete}}$ ) as well as the insulation ( $\lambda_{\text{EPS}}$ ) is taken from the value of the base material and determined according to EN 12667 or EN 12 664 and are defined in table 7.

Table 7:  $\lambda$ -values of the components

Isomur plus and Isomur light	$\lambda_d$ W/mK
light weight concrete	0.56
expanded Polystyrene	0.032

## $\lambda$ -values of Isomur plus and Isomur light

For thermal calculations of a construction detail with a two-dimensional computer program, the values of the building product are defined in table 8.

Table 8:  $\lambda$ -values of Isomur plus and Isomur light

Isomur plus and Isomur light	$\lambda_{\text{d}}$ W/mK
$\lambda_{\text{eq,horizontal}}$	0.14
$\lambda_{\text{eq,vertikal}}$	0.33

### 3.11 General aspects

#### 3.11.1 Limitation of use

Isomur plus and Isomur light is only intended to be used in unreinforced masonry

#### 3.11.2 Design of walls with integrated Isomur plus or Isomur light

For shear resistance (e.g. seismic actions) only walls with integrated Isomur plus may be taken into account, since for walls with integrated Isomur light the assessment for shear are not covered by this ETA.

#### 3.11.3 Behaviour of a wall with integrated Isomur plus or Isomur light in case of fire

The fire classification of a brick wall does not change in case of integration of Isomur plus or Isomur light for the construction details according fig a) and c) Annex B. In case the construction detail differs from fig a) or c), a lateral protection of the building product with 1.5 cm of mortar is needed.

#### 3.11.4. Detailing

Walls with integrated Isomur plus and Isomur light are supported over the complete thickness of the slab (see fig a – d in Annex B)

## **4 Assessment and verification of constancy of performance (AVCP)**

### **4.1 AVCP system**

According to the decision 97/740/EC of the European Commission, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) is 2+.

## **5 Technical details necessary for the implementation of the AVCP system, as foreseen in the applicable EAD**

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark prior to CE marking.

Issued in Copenhagen on 2019-01-07 by



Thomas Bruun  
Managing Director, ETA-Danmark



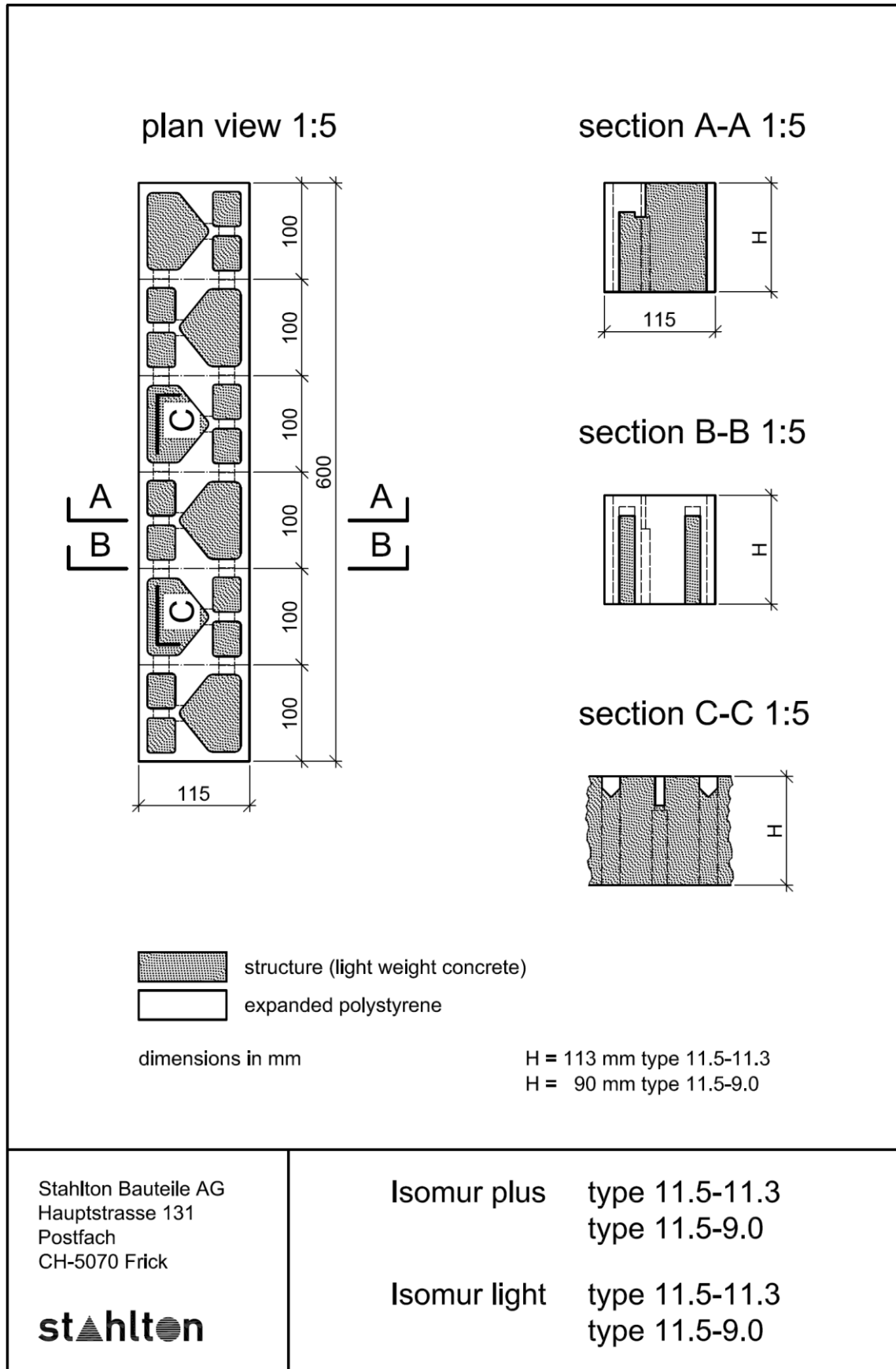
**Annex A**  
**Product description**

Annex A1

Types of Isomur plus and Isomur light

Type	Length	Width	Height
W/H	mm	mm	mm
11.5 – 11.3 11.5 – 9.0	600	115	113 90
15.0 – 11.3 15.0 – 9.0	600	150	113 90
17.5 – 11.3 17.5 – 9.0	600	175	113 90
20.0 – 11.3 20.0 – 9.0	600	200	113 90
24.0 – 11.3 24.0 - 9.0	600	240	113 90
30.0 – 11.3 30.0 – 9.0	600	300	113 90

Isomur plus and Isomur light Type 11.5-11.3 and 11.5-9.0



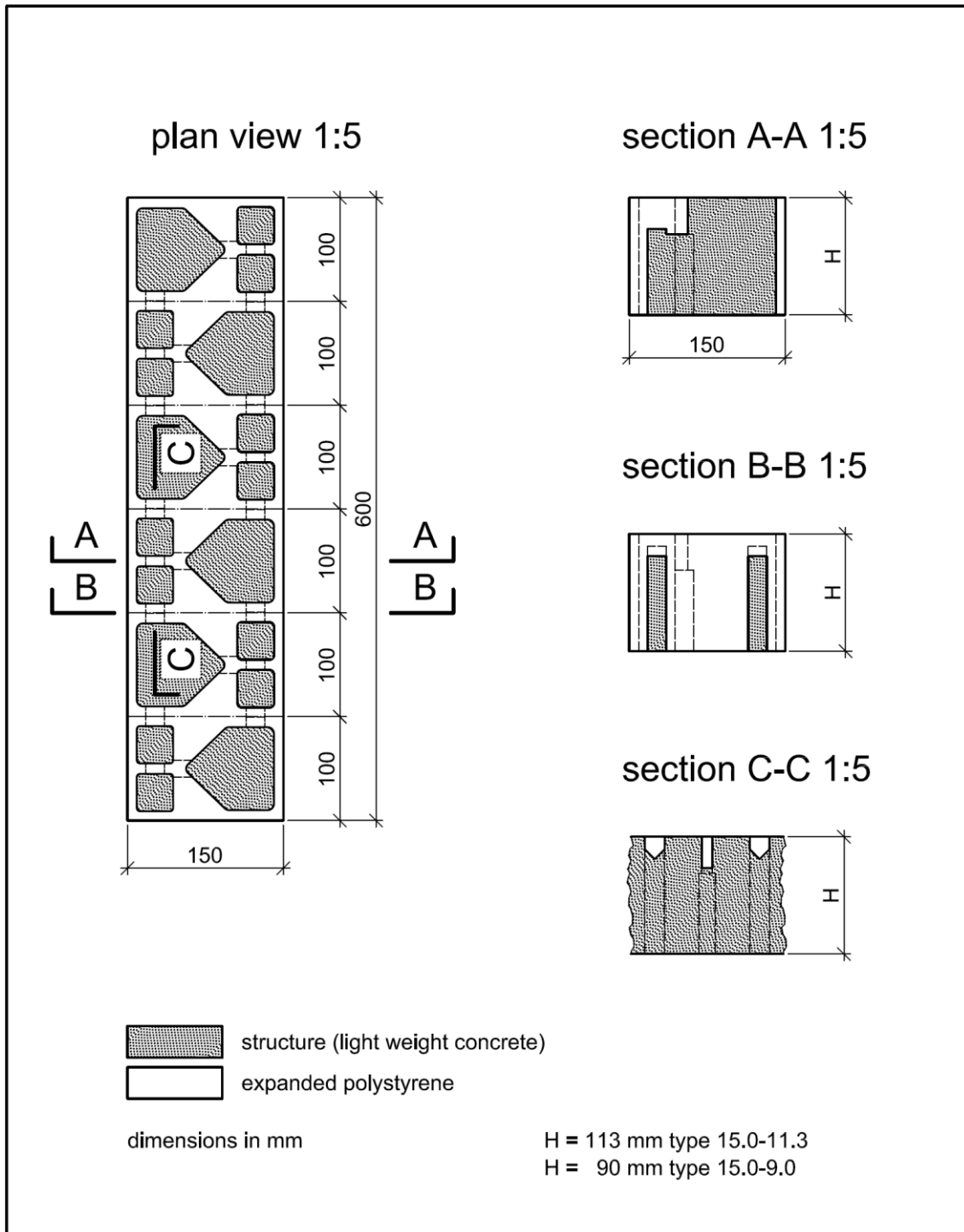
Stahlton Bauteile AG  
Hauptstrasse 131  
Postfach  
CH-5070 Frick

**stahlton**

**Isomur plus** type 11.5-11.3  
type 11.5-9.0

**Isomur light** type 11.5-11.3  
type 11.5-9.0

Isomur plus and Isomur light Type 15.0-11.3 and 15.0-9.0



Stahlton Bauteile AG  
Hauptstrasse 131  
Postfach  
CH-5070 Frick

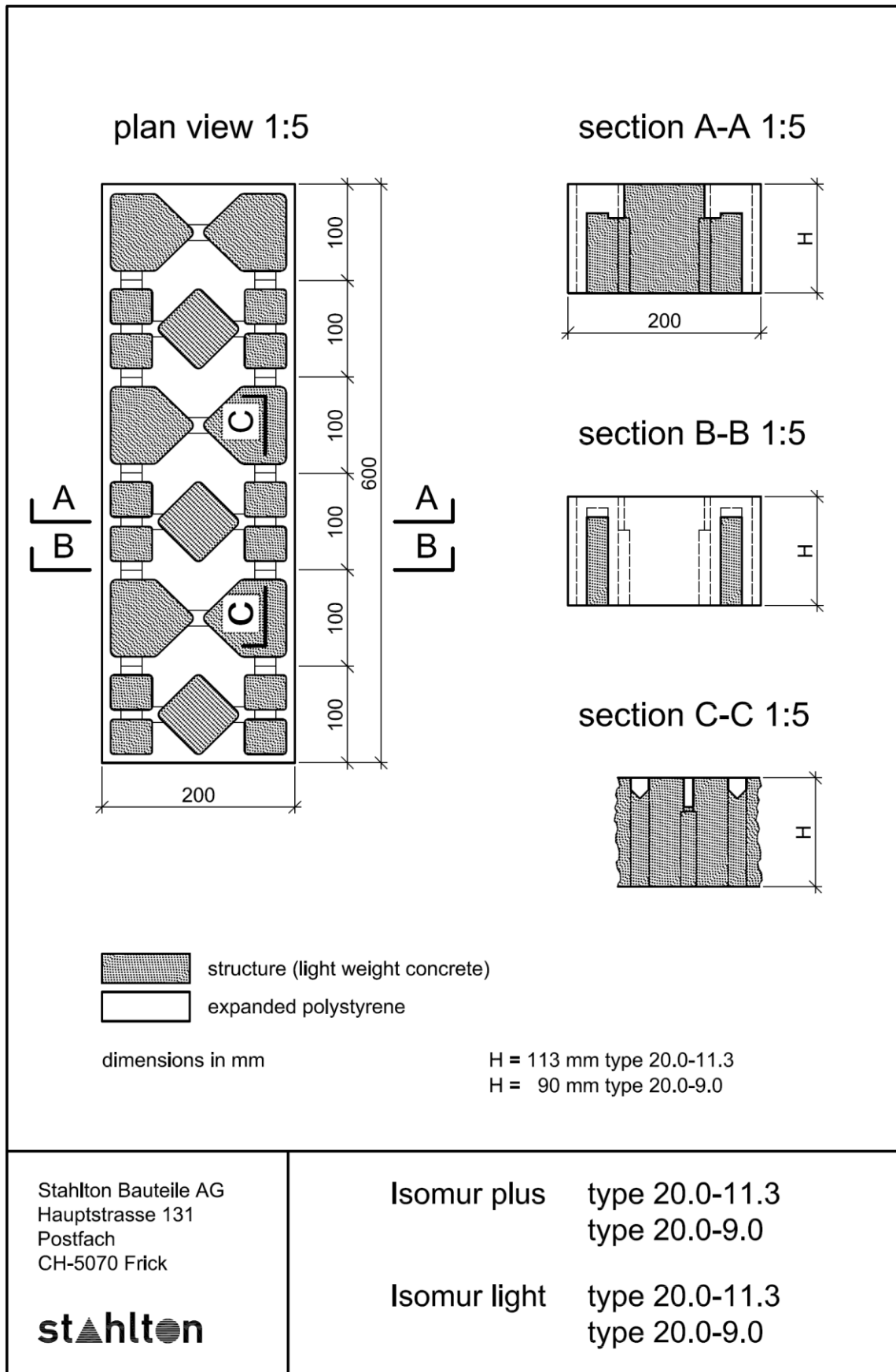
**stahlton**

Isomur plus type 15.0-11.3  
type 15.0-9.0

Isomur light type 15.0-11.3  
type 15.0-9.0

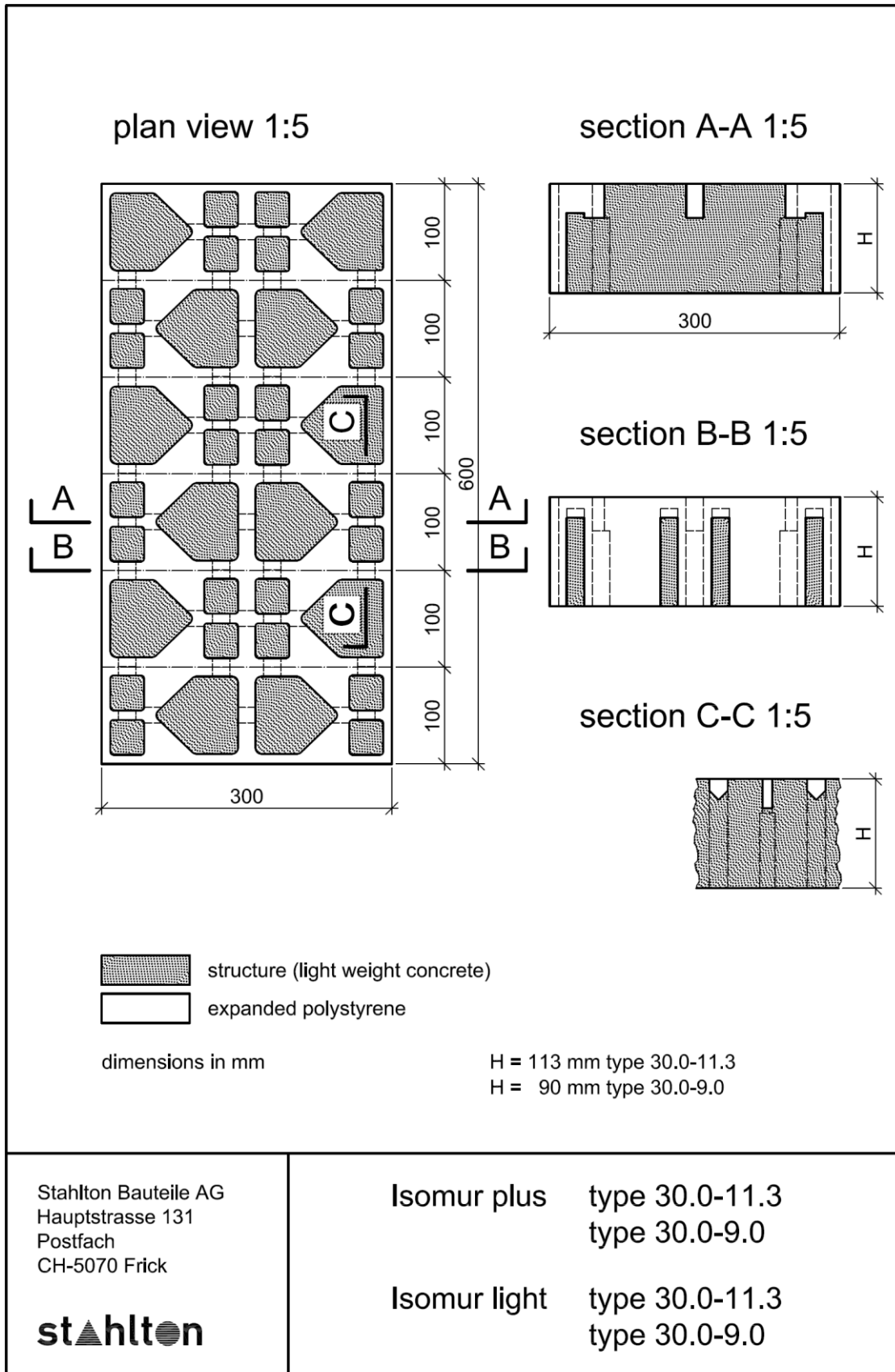


Isomur plus and Isomur light Type 20.0-11.3 and 20.0-9.0





Isomur plus and Isomur light Type 30.0-11.3 and 30.0-9.0



## Annex B Specification of intended use

Isomur plus and Isomur light are construction products with a loadbearing and insulating capacity for the use in masonry walls.

They are intended to reduce the thermal bridge at the base of masonry walls, situated over not-heated underground level.

In the intended use, the products are always protected from corrosion and weathering attack, since it is always installed behind the weather screen, (see Fig. a-d)

Isomur plus and Isomur light differ only in their loadbearing capacity.

The figures a to d show examples of construction details with integrated Isomur plus or Isomur light

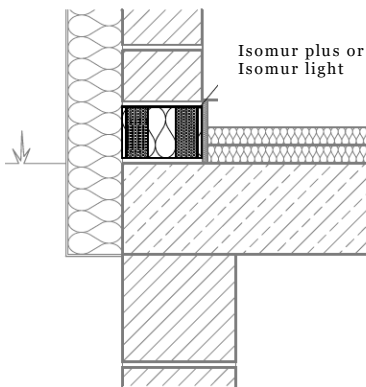


fig.a) Isomur plus / Isomur light at the foot of a masonry wall (Masonry with external insulation, vertical cross section)

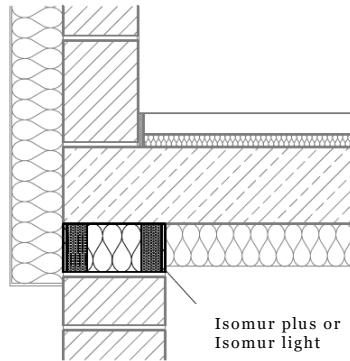


fig.b) Isomur plus / Isomur light at the top of a masonry wall (Masonry with external insulation, vertical cross section)

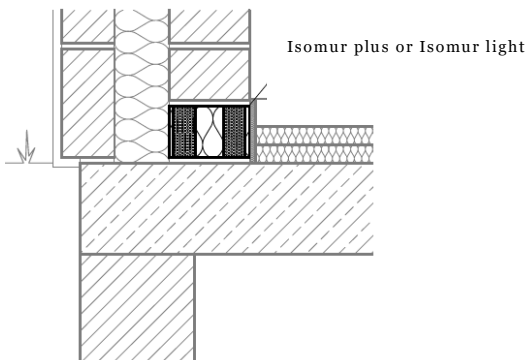


fig. c) Isomur plus / Isomur light at the foot of a masonry wall (double skin masonry; vertical cross section)

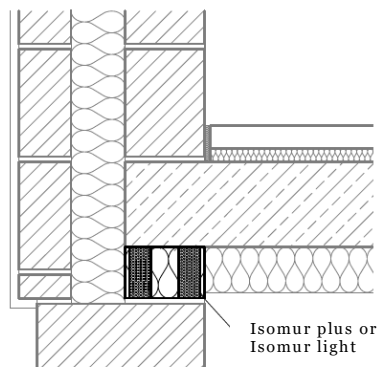


fig. d) Isomur plus / Isomur light at the top of a masonry wall (double skin masonry; vertical cross section)