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European Technical Assessment

ETA-21/0745
of 10.05.2023

General part

Technical Assessment Body issuing the European Technical Assessment

Österreichisches Institut für Bautechnik (OIB)
Austrian Institute of Construction Engineering

Trade name of the construction product

HASSLACHER rib panel

Product family to which the construction product belongs

Prefabricated wood-based loadbearing stressed skin panels

Manufacturer

HASSLACHER Holding GmbH
Feistriz 1
9751 Sachsenburg
Austria

Manufacturing plants

Manufacturing plant 1 to 6

This European Technical Assessment contains

18 pages including 3 Annexes which form an integral part of this assessment.

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

European Assessment Document (EAD) 140022-00-0304 "Prefabricated wood-based loadbearing stressed skin panels".

Remarks

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

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Specific parts

1 Technical description of the product

1.1 General

This European Technical Assessment (ETA) applies to the open and closed box load bearing stressed skin panels

HASSLACHER rib panel

HASSLACHER rib panel is a factory made large-size floor and roof element in softwood. HASSLACHER rib panel is made of parallel skins of cross laminated timber and ribs of glued laminated timber, glued solid timber or structural finger jointed solid timber at regular distances.

Type according to EAD 140022-00-0304¹, Clause 1.1:

- Open or closed box type with skins rigidly bonded to the entire length of the ribs with an adhesive

HASSLACHER rib panel and the components for its manufacturing correspond to the specifications given in the Annexes 1 and 2. The material characteristics, dimensions and tolerances of HASSLACHER rib panel, not indicated in these Annexes, are given in the technical file² of the European Technical Assessment.

Cladding, covering, rain and snow protection and connection to the structure as well as application of wood preservatives and flame retardants are not subject to the European Technical Assessment.

1.2 Components

1.2.1 Timber

The skins are made of cross laminated timber "HASSLACHER CROSS LAMINATED TIMBER" according to ETA-12/0281 with rectangular cross section.

The ribs are made of glued laminated timber or glued solid timber according to EN 14080 or structural finger jointed solid timber according to EN 15497 with rectangular cross section.

1.2.2 Adhesive

The skins and ribs are bonded by means of an adhesive to open or closed boxes.

The adhesive for bonding the HASSLACHER rib panel conforms to EN 15425 or EN 301.

1.2.3 Screws

HASSLACHER rib panel can contain screws for positioning and realisation of the gluing pressure which do not have an influence on the composite effect.

¹ Reference documents are listed in Annex 3.

² The technical file of the European Technical Assessment is deposited at Österreichisches Institut für Bautechnik and, in so far as is relevant to the tasks of the notified product certification body involved in the assessment and verification of constancy of performance procedure, is handed over to the notified product certification body.

2 Specification of the intended use(s) in accordance with the applicable European Assessment Document (thereafter EAD)

2.1 Intended use

HASSLACHER rib panel is intended to be used as load bearing or non-load bearing element predominantly in floors, roofs and walls. They may be used in a load bearing function or for load transmission stressed perpendicular as well as in plane of the element.

The product shall be subjected to static and quasi-static actions only.

The product is intended to be used in service classes 1 and 2 according to EN 1995-1-1. Members which are directly exposed to the weather shall be provided with an effective protection for the product in service.

2.2 General assumptions

HASSLACHER rib panel are manufactured in accordance with the provisions of the European Technical Assessment using the manufacturing process as identified in the inspection of the manufacturing plant by Österreichisches Institut für Bautechnik and laid down in the technical file.

The manufacturer shall ensure that the requirements in accordance with the Clauses 1, 2 and 3 as well as with the Annexes of the European Technical Assessment are made known to those who are concerned with design and execution of the works.

Design

The European Technical Assessment only applies to the manufacture and use of Hasslacher rib panel. Verification of stability of the works including application of loads on the products is not subject to the European Technical Assessment.

The following conditions shall be observed:

- Design of HASSLACHER rib panel is carried out under the responsibility of an engineer experienced in such products.
- Design of the works shall account for the protection of HASSLACHER rib panel.
- In service, HASSLACHER rib panel is not exposed to detrimental moisture. The definitions of service classes 1 and 2 according to EN 1995-1-1 apply.
- HASSLACHER rib panel is installed correctly.

Design of the products may be according to EN 1995-1-1 and EN 1995-1-2, taking into account of Annex 2 of the European Technical Assessment.

Standards and regulations in force at the place of use shall be considered.

Packaging, transport, storage, maintenance, replacement and repair

Concerning product packaging, transport, storage, maintenance, replacement and repair it is the responsibility of the manufacturer to undertake the appropriate measures and to advise his clients on the transport, storage, maintenance, replacement and repair of the product as he considers necessary.

Installation

It is assumed that the product will be installed according to the manufacturer's instructions or (in absence of such instructions) according to the usual practice of the building professionals.

Ducts and services shall as far as possible be arranged not to affect the performances of HASSLACHER rib panel. If there are ducts or services between the skins or passing through the product, their effect on the stability, the safety in case of fire and the building physics characteristics shall be taken into consideration. The same principles apply to holes cut for another purpose.

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

3.1 Essential characteristics of the product

Table 1: Essential characteristics of the product and assessment methods

No	Essential characteristic	Product performance
Basic requirement for construction works 1: Mechanical resistance and stability ¹⁾		
1	Bending strength and/or bending moment resistance perpendicular to the skin (flatwise bending of the product)	Annex 2
2	Compression strength and/or resistance parallel to the skin (parallel and perpendicular to the grain as applicable)	Annex 2
3	Compression strength and/or resistance perpendicular to the skin (support reaction)	Annex 2
4	Shear strength and/or resistance perpendicular to the skin (flatwise bending of the product)	Annex 2
5	Racking resistance	No performance assessed.
6	Resistance to concentrated loads	Annex 2
7	Density	Annex 2
8	Creep and duration of the load	Annex 2
9	Dimensional stability	Annex 2
Basic requirement for construction works 2: Safety in case of fire		
10	Reaction to fire	Annex 2
11	Resistance to fire	Annex 2
Basic requirement for construction works 3: Hygiene, health and the environment		
12	Content, emission and/or release of dangerous substances	3.1.1 and Annex 2
13	Water vapour permeability and moisture resistance	Annex 2
Basic requirement for construction works 4: Safety and accessibility in use		
14	Impact/shock resistance	Annex 2
Basic requirement for construction works 5: Protection against noise		
15	Airborne sound insulation	No performance assessed.
16	Impact sound insulation	No performance assessed.
17	Sound absorption	No performance assessed.
Basic requirement for construction works 6: Energy economy and heat retention		
18	Thermal resistance	Annex 2
19	Air permeability	No performance assessed.
20	Thermal inertia	Annex 2
Aspects of durability		
21	Natural Durability	Annex 2
¹⁾ These characteristics also relate to basic requirement for construction works 4.		

3.1.1 Hygiene, health and the environment

The release of dangerous substances is determined according to EAD 140022-00-0304 “Prefabricated wood-based loadbearing stressed skin panels”. No dangerous substances is the performance of HASSLACHER rib panel in this respect.

NOTE In addition to the specific clauses relating to dangerous substances contained in the European Technical Assessment, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Regulation, these requirements need also to be complied with, when and where they apply.

3.2 Assessment methods

3.2.1 General

The assessment of the essential characteristics in Clause 3.1 of HASSLACHER rib panel for the intended use, and in relation to the requirements for mechanical resistance and stability, for safety in case of fire, for hygiene, health and the environment, for safety and accessibility in use, for protection against noise and for energy economy and heat retention in use in the sense of the basic requirements for construction works № 1 to 6 of Regulation (EU) № 305/2011 has been made in accordance with the European Assessment Document EAD 140022-00-0304 “Prefabricated wood-based loadbearing stressed skin panels”.

3.2.2 Identification

The European Technical Assessment for HASSLACHER rib panel is issued on the basis of agreed data that identify the assessed product. Changes to materials, to composition, to characteristics of the product, or to the production process could result in these deposited data being incorrect. Österreichisches Institut für Bautechnik should be notified before the changes are implemented, as an amendment of the European Technical Assessment is possibly necessary.

4 Assessment and verification of constancy of performance (thereafter AVCP) system applied, with reference to its legal base

4.1 System of assessment and verification of constancy of performance

According to Commission Decision 2000/447/EC the system of assessment and verification of constancy of performance to be applied to HASSLACHER rib panel is System 1. System 1 is detailed in Commission Delegated Regulation (EU) № 568/2014 of 18 February 2014, Annex, 1.2., and provides for the following items

- (a) The manufacturer shall carry out
 - (i) factory production control;
 - (ii) further testing of samples taken at the manufacturing plant by the manufacturer in accordance with a prescribed test plan⁴;
- (b) The notified product certification body shall decide on the issuing, restriction, suspension or withdrawal of the certificate of constancy of performance of the construction product on the basis of the outcome of the following assessments and verifications carried out by that body:
 - (i) an assessment of the performance of the construction product carried out on the basis of testing (including sampling), calculation, tabulated values or descriptive documentation of the product;
 - (ii) initial inspection of the manufacturing plant and of factory production control;
 - (iii) continuous surveillance, assessment and evaluation of factory production control.

⁴ The prescribed test plan has been deposited with Österreichisches Institut für Bautechnik and is handed over only to the notified product certification body involved in the procedure for the assessment and verification of constancy of performance. The prescribed test plan is also referred to as control plan.

4.2 AVCP for construction products for which a European Technical Assessment has been issued

Notified bodies undertaking tasks under System 1 shall consider the European Technical Assessment issued for the construction product in question as the assessment of the performance of that product. Notified bodies shall therefore not undertake the tasks referred to in point 4.1 (b)(i).

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable European Assessment Document

5.1 Tasks for the manufacturer

5.1.1 Factory production control

In the manufacturing plant the manufacturer shall establish and continuously maintain a factory production control. All procedures and specification adopted by the manufacturer shall be documented in a systematic manner. The factory production control shall ensure the constancy of performances of HASSLACHER rib panel with regard to the essential characteristics.

The manufacturer shall only use raw materials supplied with the relevant inspection documents as laid down in the control plan. The incoming raw materials shall be subject to controls by the manufacturer before acceptance. Check of incoming materials shall include control of inspection documents presented by the manufacturer of the raw materials.

The frequencies of controls conducted during manufacturing and on the assembled product are defined by taking account of the manufacturing process of the product and are laid down in the control plan.

The results of factory production control are recorded and evaluated. The records include at least the following data:

- Designation of the product, basic materials and components
- Type of control or test
- Date of manufacture of the product and date of testing of the product or basic materials or components
- Results of controls and tests and, if appropriate, comparison with requirements
- Name and signature of person responsible for factory production control

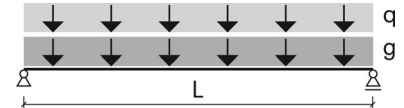
The records shall be kept at least for ten years time after the construction product has been placed on the market and shall be presented to the notified product certification body involved in continuous surveillance. On request they shall be presented to Österreichisches Institut für Bautechnik.

5.1.2 Declaration of performance

The manufacturer is responsible for preparing the declaration of performance. When all the criteria of the assessment and verification of constancy of performance are met, including the certificate of conformity issued by the notified product certification body, the manufacturer shall draw up a declaration of performance.

Table 4: Span table for HASSLACHER rib panel for floors (with calculation of vibrations)

Used Materials: ribs: HASSLACHER glued laminated timber GL24h acc. to EN 14080
skin: HASSLACHER CLT120 3s (40-40-40) CL26E11.8 acc. to ETA-12/0281



Loads			Required rib cross-section b_w/h_w [mm] for single-span L					
$g_{1,k}$ [kN/m ²]	Category	q_k [kN/m ²]	6,00 m	7,00 m	8,00 m	9,00 m	10,00 m	11,00 m
1,00	A	2,00	120/160	140/200	140/280	140/360	160/440	160/520
		2,80	120/160	140/200	140/280	140/360	160/440	160/520
	B	3,00	120/160	140/200	140/280	140/360	160/440	160/520
		3,50	120/160	140/200	140/280	140/360	160/440	160/520
	C	4,00	120/160	140/200	140/280	140/360	160/440	160/520
		5,00	120/200	140/200	140/280	140/360	160/440	160/520
1,50	A	2,00	120/200	140/240	140/320	140/400	160/480	160/560
		2,80	120/200	140/240	140/320	140/400	160/480	160/560
	B	3,00	120/200	140/240	140/320	140/400	160/480	160/560
		3,50	120/200	140/240	140/320	140/400	160/480	160/560
	C	4,00	120/200	140/240	140/320	140/400	160/480	160/560
		5,00	120/200	140/240	140/320	140/400	160/480	160/560
2,00	A	2,00	120/200	140/280	140/360	140/440	160/520	160/600
		2,80	120/200	140/280	140/360	140/440	160/520	160/600
	B	3,00	120/200	140/280	140/360	140/440	160/520	160/600
		3,50	120/200	140/280	140/360	140/440	160/520	160/600
	C	4,00	120/200	140/280	140/360	140/440	160/520	160/600
		5,00	120/200	140/280	140/360	140/440	160/520	160/600
2,50	A	2,00	120/240	140/320	140/400	140/480	160/560	200/600
		2,80	120/240	140/320	140/400	140/480	160/560	200/600
	B	3,00	120/240	140/320	140/400	140/480	160/560	200/600
		3,50	120/240	140/320	140/400	140/480	160/560	200/600
	C	4,00	120/240	140/320	140/400	140/480	160/560	200/600
		5,00	120/240	140/320	140/400	140/480	160/560	200/600
3,00	A	2,00	120/240	140/320	140/400	140/520	160/600	200/640
		2,80	120/240	140/320	140/400	140/520	160/600	200/640
	B	3,00	120/240	140/320	140/400	140/520	160/600	200/640
		3,50	120/240	140/320	140/400	140/520	160/600	200/640
	C	4,00	120/240	140/320	140/400	140/520	160/600	200/640
		5,00	120/240	140/320	140/400	140/520	160/600	200/640

HASSLACHER rib panel

Characteristic data of HASSLACHER rib panel

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- SC Service class 1 acc. to EN 1995-1-1
- $g_{0,k}$ Self-weight of HASSLACHER rib panel considered in calculation
- $g_{1,k}$ Permanent loads
- q_k Imposed loads, load categories A, B or C
- s Snow load (altitude < 1000 m)
- $\gamma = 1$ Partial safety coefficient for serviceability
- $\gamma_m = 1,25$ Partial safety coefficient for material (not relevant for the suggested cross sections)

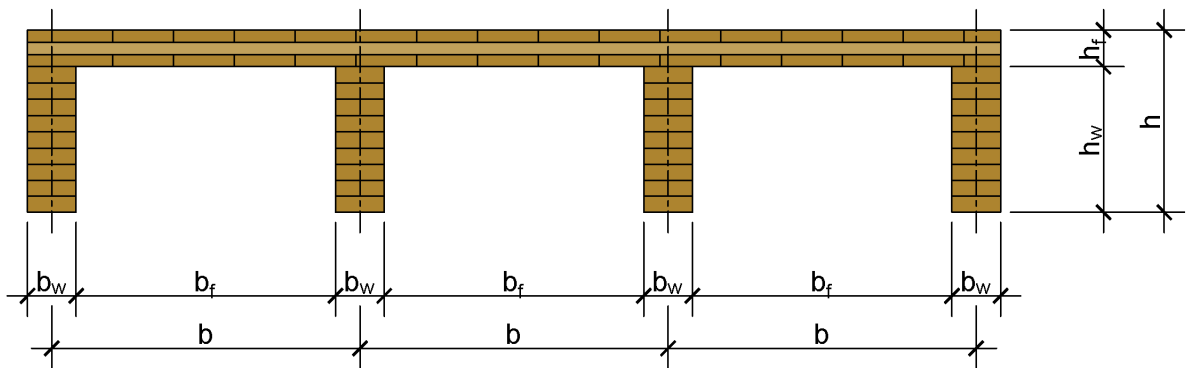
Vibration verification

- w_{perm} Deflections from quasi-permanent combinations at $t = 0 < 6$ mm, acc. to DIN 1052
- f_1 First natural frequency > 8 Hz
- w_{1kN} Stiffness criteria: deflection at fictitious load of 1kN < 2 mm
- v Vibration velocity acc. to EN 1995-1-1

HASSLACHER rib panel used in the span table

Ribs: HASSLACHER glued laminated timber GL24h (b_w/h_w) acc. to EN 14080

Skin: HASSLACHER CLT 120 3s (40-40-40) CL26E11.8 acc. to ETA-12/0281



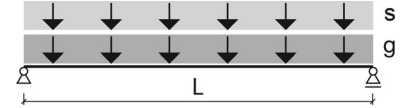
- h = $h_w + h_f$, total height of the HASSLACHER rib panel
- h_w Height of the GLT rib
- h_f Thickness of the CLT panel
- b = $b_w + b_f$ (= 625 mm in the span table), axial dimension from rib to rib
- b_w Width of the GLT rib
- b_f distance between the GLT ribs

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Characteristic data of HASSLACHER rib panel	of European Technical Assessment ETA-21/0745 of 10.05.2023

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Table 5: Span table for HASSLACHER rib panel for roofs (without calculation of vibrations)

Used Materials: ribs: HASSLACHER glued laminated timber GL24h acc. to EN 14080
 skin: HASSLACHER CLT 100 3s (30-40-30) CL26E11.8 acc. to ETA-12/0281



Loads		Required rib cross-section b_w/h_w [mm] for single-span L							
$g_{1,k}$	$s = \mu \cdot s_k$	7,00 m	8,00 m	9,00 m	10,00 m	11,00 m	12,00 m	13,00 m	14,00 m
[kN/m ²]	[kN/m ²]								
0,50	1,00	100/120	100/160	100/200	100/240	120/240	120/280	140/320	140/360
	2,00	100/160	100/200	100/240	120/280	140/280	140/320	140/360	160/400
	3,00	100/200	100/240	120/240	140/280	140/280	140/400	140/440	160/440
	4,00	120/200	120/240	120/280	160/280	160/320	160/360	160/440	160/480
1,00	1,00	100/160	100/200	120/240	120/280	140/280	140/320	140/360	140/400
	2,00	120/200	120/240	120/280	140/280	140/320	140/360	160/400	160/440
	3,00	120/200	120/240	120/280	140/320	160/320	160/360	160/400	160/440
	4,00	120/240	120/240	120/280	140/320	160/360	160/400	160/440	160/480
1,50	1,00	100/200	120/200	120/240	120/280	140/320	140/320	160/320	160/360
	2,00	100/200	120/240	120/280	120/320	140/360	140/360	160/400	160/440
	3,00	120/200	120/240	120/280	120/360	140/360	140/400	160/440	160/480
	4,00	120/240	120/280	120/320	120/360	140/400	140/440	160/480	160/520
2,00	1,00	120/200	120/240	120/280	140/280	140/360	140/400	160/400	160/440
	2,00	120/200	120/240	120/280	140/320	140/360	140/400	160/440	160/480
	3,00	120/240	120/280	120/320	140/360	140/400	140/440	160/480	160/520
	4,00	120/240	120/280	120/320	140/360	140/400	140/480	160/480	160/560
2,50	1,00	120/200	120/240	140/280	140/320	140/360	140/400	160/440	160/480
	2,00	120/240	120/280	140/320	140/360	140/400	140/440	160/480	160/520
	3,00	120/240	120/280	140/320	140/360	140/400	140/440	160/480	200/520
	4,00	120/240	120/280	140/320	140/400	140/440	140/480	160/520	200/520

HASSLACHER rib panel

Annex 2

Characteristic data of HASSLACHER rib panel

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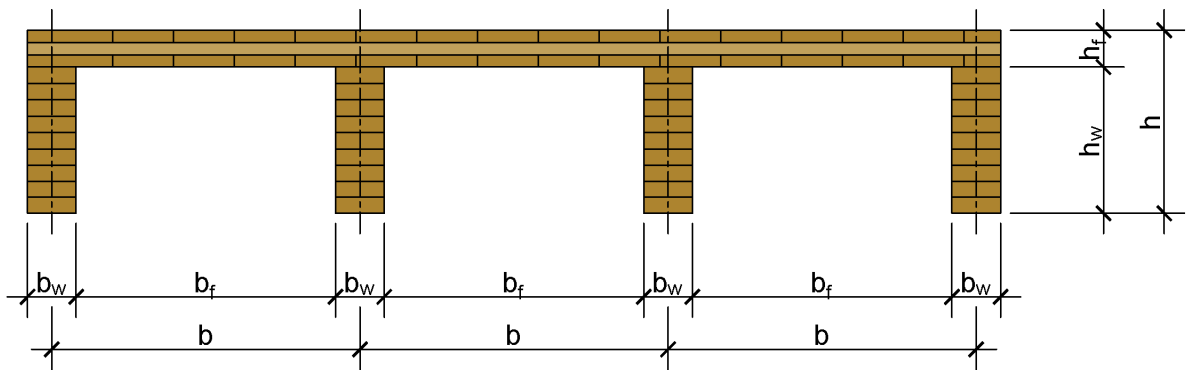
- SC Service class 1 acc. to EN 1995-1-1
- $g_{0,k}$ Self-weight of Hasslacher rib panel considered in calculation
- s Snow load (altitude < 1000 m)
- $\gamma = 1$ Partial safety coefficient for serviceability
- $\gamma_m = 1,25$ Partial safety coefficient for material (not relevant for the suggested cross sections)

Limit values for deformation according to EN 1995-1-1

- $w_{inst} t = 0$ Instantaneous deformation < L/300
- $w_{net,fin} t = \infty$ Final deformation < L/250
- $w_{fin} t = \infty$ Final deformation < L/150

HASSLACHER rib panel used in the span table

- Ribs: HASSLACHER glued laminated timber GL24h (b_w/h_w) acc. to EN 14080
- Skin: HASSLACHER CLT 100 mm 3s (30-40-30) CL26E11.8 acc. to ETA-12/0281



- h = $h_w + h_f$, total height of the HASSLACHER rib panel
- h_w Height of the GLT rib
- h_f Thickness of the CLT panel
- b = $b_w + b_f$ (= 625 mm in the span table), axial dimension from rib to rib
- b_w Width of the GLT rib
- b_f distance between the GLT ribs

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Characteristic data of HASSLACHER rib panel	

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BWR	Essential characteristic	Assessment method	Level / Class / Description
2	Safety in case of fire		
	<u>Reaction to fire</u>		
	Cross laminated timber	according to ETA-12/0281	
	Glued laminated timber products and structural finger jointed solid timber products	Commission Decision 2005/610/EC	Mean density $\geq 380 \text{ kg/m}^3$ Euroclass D-s2, d0
	<u>Resistance to fire</u> Charring rates β_0 and β_n of the components for calculation of fire resistance		
- Cross laminated timber	EN 1995-1-2	according to ETA-12/0281	
- Glued laminated timber	EN 1995-1-2	according to EN 1995-1-2	
- Glued solid timber			
- Struc. finger jointed solid timber			
The adhesive bonding between the skins/ribs does not contribute to the mechanical resistance of the element in the case of fire.			
3	Hygiene, health and environment		
	Water vapour permeability μ of skins/ribs	According to the specification of the product	
	Content, emission and/or release of dangerous substances – Formaldehyde	EAD 140022-00-0304, Clause 2.2.13.2	Class E1
4	Safety and accessibility in use		
	Impact resistance	EAD 140022-00-0304, Clause 2.2.15	Satisfactory for stressed skin panels with suitable rib spacing (e.g. at max. 60 cm) for normal use in residential housing, office buildings, etc.
6	Energy economy and heat retention		
	<u>Thermal conductivity</u> Input parameters for calculation of thermal resistance acc. to EN ISO 6946 and EN ISO 10211		
	- Thermal conductivity of skins/ribs	According to the specification of the product	
HASSLACHER rib panel		Annex 2	
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