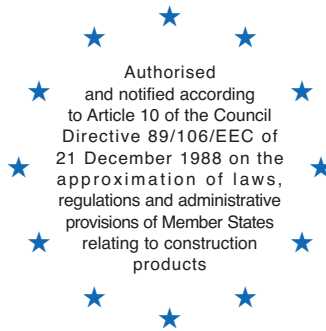


ÖSTERREICHISCHES INSTITUT FÜR BAUTECHNIK

A-1010 Vienna, Schenkenstrasse 4
Tel.: + 4 3 (0) 1 - 5 3 3 6 5 5 0
Fax: + 4 3 (0) 1 - 5 3 3 6 4 2 3
E-mail: mail@oib.or.at



Member of EOTA

European technical approval

ETA-12/0068

English translation, the original version is in German

Handelsbezeichnung

Trade name

Atlas Holzverbinder

Atlas timber connector

Zulassungsinhaber

Holder of approval

E.U.R.O. Tec GmbH

**Unter dem Hofe 5
58099 Hagen
Germany**

Zulassungsgegenstand und
Verwendungszweck

*Generic type and use of
construction product*

Einhängeverbinder für Holz-Holz Verbindungen

Beam hanger for timber-to-timber connections

Geltungsdauer vom

Validity from

bis zum

to

08.02.2012

20.10.2016

Herstellwerk

Manufacturing plant

Herstellwerk 1

Diese Europäische technische
Zulassung umfasst

*This European technical approval
contains*

22 Seiten einschließlich 4 Anhänge

22 Pages including 4 Annexes

I LEGAL BASIS AND GENERAL CONDITIONS

- 1 This European technical approval is issued by Österreichisches Institut für Bautechnik in accordance with:
1. Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products¹ – Construction Products Directive –, amended by the Council Directive 93/68/EEC of 22 July 1993²;
 2. *Oberösterreichisches Bautechnikgesetz, LGBl. Nr. 67/1994, in der Fassung LGBl. Nr. 5/1995, LGBl. Nr. 103/1998, LGBl. Nr. 102/1999, LGBl. Nr. 60/2001, LGBl. Nr. 114/2002, LGBl. Nr. 97/2006, LGBl. Nr. 34/2008, LGBl. Nr. 30/2010, LGBl. Nr. 34/2011 und LGBl. Nr. 68/2011;*
Upper Austrian Construction Technique Law, LGBl. № 67/1994, as amended by LGBl. № 5/1995, LGBl. № 103/1998, LGBl. № 102/1999, LGBl. № 60/2001, LGBl. № 114/2002, LGBl. № 97/2006, LGBl. № 34/2008, LGBl. № 30/2010, LGBl. № 34/2011 and LGBl. № 68/2011;
 3. Common Procedural Rules for Requesting, Preparing and the Granting of European technical approvals set out in the Annex of Commission Decision 94/23/EC³.
 4. Guideline for European technical approval of “Three-dimensional Nailing Plates”, ETAG 015, edition September 2002.
- 2 Österreichisches Institut für Bautechnik is authorised to check whether the provisions of this European technical approval are met. Checking may take place in the manufacturing plant. Nevertheless, the responsibility for the conformity of the products to the European technical approval and for their fitness for the intended use remains with the holder of the European technical approval.
- 3 This European technical approval is not to be transferred to manufacturers or agents of the manufacturer other than those indicated on Page 1, or manufacturing plants other than those indicated on Page 1 of this European technical approval.
- 4 This European technical approval may be withdrawn by Österreichisches Institut für Bautechnik, in particular pursuant to information from the Commission on the basis of Article 5 (1) of Council Directive 89/106/EEC.
- 5 Reproduction of this European technical approval including transmission by electronic means shall be in full. However, partial reproduction may be made with the written consent of Österreichisches Institut für Bautechnik. In this case partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European technical approval.
- 6 The European technical approval is issued by the Approval Body in its official language. This version corresponds to the version circulated within EOTA. Translations into other languages have to be designated as such.

¹ Official Journal of the European Communities № L 40, 11.02.1989, page 12

² Official Journal of the European Communities № L 220, 30.08.1993, page 1

³ Official Journal of the European Communities № L 17, 20.01.1994, page 34

II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

1 Definition of product and intended use

1.1 Definition of product

1.1.1 General

Atlas timber connector is a beam hanger to be used in load-bearing timber-to-timber connections. It consists of two parts which are identical in shape and are inserted into each other. A fixing screw is used to mount the two parts from the top. Installation of the two parts of the beam hanger into the timber is carried out with special screws.

1.1.2 Beam hanger

Atlas timber connector is made of extruded aluminium according to EN 573-2⁴. Aluminium with the same or higher strength may be used. There are six different sizes of the beam hanger, Atlas 70, Atlas 100, Atlas 135, Atlas 170, Atlas 200 and Atlas 240. The six sizes together with their most important dimensions are shown in Annex A.3.

1.1.3 Screws

The screws for installation of the two parts of the beam hanger into the timber are described in Annex A.1. They are made of hardened carbon steel.

1.1.4 Fixing screws

The fixing screws used to mount the two parts of the beam hanger are described in Annex A.2. They are made of steel for quenching and tempering according to EN 10083.

1.2 Intended use

The beam hangers are intended to be used in load bearing connections of timber structures as end-grain to side-grain connections, e.g. between beams. The intended use includes connections where requirements for mechanical resistance and stability and safety in use in the sense of the Essential Requirements 1 and 4 of Council Directive 89/106/EEC shall be fulfilled.

A typical installation of the beam hangers is shown in Annex A.4.

The beam hangers shall be subjected to static and quasi static actions only.

The beam hangers are intended to be used in service classes 1 and 2 according to EN 1995-1-1.

1.3 Assumed working life

The provisions made in the European technical approval are based on an assumed intended working life of beam hangers of 50 years. The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer or the Approval Body, but are regarded only as a means for selecting the appropriate product in relation to the expected, economically reasonable working life of the construction works.

⁴ Reference documents are listed in Annex D.

2 Characteristics of product and methods of verification

Table 1: Characteristics of the product and methods of verification and assessment

No	Product characteristic	Method of verification and assessment	Expression of performance
(1)	(2)	(3)	(4)
Essential Requirement 1: Mechanical resistance and stability			
1	Characteristic load bearing capacity	2.1.1	Annex C
2	Stiffness	2.1.2	No performance determined
3	Ductility in cyclic testing	2.1.3	No performance determined
Essential Requirement 2: Safety in case of fire			
4	Reaction to fire	2.2.1	2.2.1 Euroclass A1
Essential Requirement 3: Hygiene, health and the environment			
5	Content and/or release of dangerous substances	2.3.1	2.3.1
Essential Requirement 4: Safety in use			
6	Same as ER 1		
Essential Requirement 5: Protection against noise			
—	Not relevant	—	—
Essential Requirement 6: Energy economy and heat retention			
—	Not relevant	—	—
General aspects relating to fitness for use ¹⁾			
7	Aspects of durability	2.4	2.4.1 Service classes 1 and 2
¹⁾ Aspects of durability and economy of the works which are not dealt with under Essential Requirements 1 to 6. Such aspects are also referred to as "serviceability".			

2.1 Mechanical resistance and stability

2.1.1 Characteristic load bearing capacity

The characteristic load bearing capacities of the beam hangers are determined by testing. The beam hangers are installed with a defined number of screws with respective nominal diameter as specified in Annex A.1 and mounted with fixing screws (see Annex A.2). Kinematic boundary conditions are defined in Annex B.

The values of the characteristic load bearing capacities for the loading directions F_1 to F_4 as defined in Annex B are given in Annex C.

2.1.2 Stiffness

No performance has been determined in relation to stiffness of the connection.

2.1.3 Ductility in cyclic testing

No performance has been determined in relation to ductility of the connections under cyclic testing. Therefore the contribution to the performance of structures subject to cyclic loading under seismic actions has not been assessed.

2.2 Safety in case of fire

2.2.1 Reaction to fire

The beam hangers are made of aluminium classified as Euroclass A1 in accordance with Commission Decision 96/603/EC as amended.

2.3 Hygiene, health and the environment

2.3.1 Release of dangerous substances

The release of dangerous substances is determined according to ETAG 015, clause 5.3.1. The product conforms to the provisions of Guidance Paper H⁵ about dangerous substances.

A declaration of conformity in this respect was made by the manufacturer.

In addition to the specific clauses relating to dangerous substances contained in this European technical approval, 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 EU Construction Products Directive, these requirements need also to be met, when and where they apply.

2.4 Aspects of durability and serviceability

2.4.1 General

The product is intended to be used in service classes 1 and 2 according to EN 1995-1-1. The product and each member of the connection should at least be suitable for service classes 1 and 2 but not for service class 1 only.

2.4.2 Corrosion protection in service classes 1 and 2

In accordance with ETAG 015 and EN 1995-1-1 the beam hangers are made of extruded aluminium according to EN 573-2. The screws for installation and the fixing screws are made of hardened carbon steel and steel for quenching and tempering, respectively. Installation screws, as well as, fixing screws are zinc coated.

2.5 Identification

The European technical approval for **Atlas timber connector** is issued on the basis of agreed data, deposited with Österreichisches Institut für Bautechnik, which identifies **Atlas timber connector** that has been assessed and judged. Changes of materials, of characteristics, or to the manufacturing process, which could result in this deposited data being incorrect, should be immediately notified to Österreichisches Institut für Bautechnik before the changes are introduced. Österreichisches Institut für Bautechnik will decide whether or not such changes affect the European technical approval and consequently the validity of the CE marking, and, if so, whether further assessment or alterations to the European technical approval are considered necessary.

⁵ Guidance Paper H: A harmonized approach relating to Dangerous substances under the construction products directive, Rev. September 2003

electronic copy
electronic copy
electronic copy
electronic copy
electronic copy

2.6 Methods of verification

The assessment of the fitness of **Atlas timber connector** for the intended use in relation to the requirements for mechanical resistance and stability, for safety in case of fire, for hygiene, health and the environment, for safety in use, as well as for durability in the sense of the Essential Requirements 1, 2, 3 and 4 of Council Directive 89/106/EEC has been made according to the Guideline for European technical approvals of "Three-dimensional Nailing Plates", ETAG 015, edition September 2002.

3 Evaluation of conformity and CE marking

3.1 System of conformity attestation

The system of conformity attestation applied to this product shall be that laid down in the Council Directive 89/106/EEC of 21 December 1988, Annex III 2. (ii), first possibility, referred to as System 2+. This system provides for.

Declaration of conformity of the product by the manufacturer on the basis of

(a) Tasks for the manufacturer

- (1) Initial type testing of the product
- (2) Factory production control
- (3) Further testing of samples taken at the factory by the manufacturer in accordance with a prescribed test plan⁶

(b) Tasks for the approved body

- (4) Certification of factory production control on the basis of
 - Initial inspection of factory and of factory production control
 - Continuous surveillance, assessment, and approval of factory production control

3.2 Responsibilities

3.2.1 Tasks for the manufacturer

3.2.1.1 Initial type testing of the product

For initial type testing, the results of the tests performed as part of the assessment for the European technical approval may be used unless there are changes in the manufacturing process or manufacturing plant. In the case of changes, the necessary initial type testing shall be agreed between Österreichisches Institut für Bautechnik and the manufacturer.

3.2.1.2 Factory production control

At the manufacturing plant the manufacturer has implemented and continuously maintains a factory production control system. All the elements, requirements and provisions adopted by the manufacturer are documented in a systematic manner in the form of written policies and procedures. The factory production control system ensures that the product is in conformity with the European technical approval.

The manufacturer shall only use raw materials supplied with the relevant inspection documents as laid down in the prescribed test plan. The incoming raw materials shall be subject

⁶ The prescribed test plan has been deposited with Österreichisches Institut für Bautechnik and is handed over only to the approved body involved in the attestation of conformity procedure. The prescribed test plan is also referred to as control plan.

to controls and tests by the manufacturer before acceptance. Checking of incoming materials shall include control of inspection documents (comparison with nominal values) presented by the manufacturer of the raw materials by verifying the dimensions and determining the material properties.

The frequencies of controls and tests conducted during manufacturing are defined by taking account of the manufacturing process of the beam hangers and are laid down in the prescribed test plan.

The results of factory production control are recorded and evaluated. The records include at least.

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

The records shall be kept at least for five years time and shall be presented to the approved body involved in continuous surveillance. On request they shall be presented to Österreichisches Institut für Bautechnik.

3.2.2 Tasks for the approved body

3.2.2.1 Initial inspection of factory and of factory production control

The approved body shall ascertain that, in accordance with the prescribed test plan, the factory, in particular personnel and equipment, and the factory production control are suitable to ensure a continuous and orderly manufacturing of beam hangers according to the specifications mentioned in Section II as well as in the Annexes of the European technical approval.

3.2.2.2 Continuous surveillance, assessment, and approval of factory production control

The approved body shall visit the factory at least once a year for surveillance. It shall be verified that the system of factory production control and the specified manufacturing process are maintained, taking account of the prescribed test plan. On demand the results of continuous surveillance shall be made available by the approved body to Österreichisches Institut für Bautechnik. When the provisions of the European technical approval and the prescribed test plan are no longer fulfilled, the certificate of conformity shall be withdrawn.

3.3 CE marking

The CE marking shall be affixed on the accompanying commercial documents. The initials “CE” shall be followed by the identification number of the certification body and shall be accompanied by the additional information.

- Name or identifying mark and address of manufacturer
- Last two digits of the year in which the CE marking was affixed
- Number of the European technical approval
- Number of the certificate of conformity
- Designation and size of the product

4 Assumptions under which the fitness of the product for the intended use was favourably assessed

4.1 Manufacturing

Atlas timber connector is manufactured in accordance with the provisions of the European technical approval using the manufacturing process as identified in the inspection of the manufacturing plant by Österreichisches Institut für Bautechnik and laid down in the technical documentation⁷.

4.2 Installation

4.2.1 Design of connections with beam hangers

The European technical approval only applies to the manufacture and use of the beam hangers. Verification of stability of the works including application of loads on beam hangers is not subject of the European technical approval.

Fitness for the intended use of the beam hangers is given under the following conditions.

- Design of connections with beam hangers is carried out under the responsibility of an engineer experienced in timber structures.
- Design of the works shall account for the protection of the connections to maintain service class 1 or 2 according to EN 1995-1-1.
- The beam hangers are installed correctly.
- For the forces F_1 to F_4 according to Annex B it shall be checked in accordance with EN 1995-1-1 that splitting will not occur.

Design of connections with beam hangers may be according to EN 1995-1-1 taking into account the Annexes of the European technical approval. Standards and regulations in force at the place of use shall be considered.

4.2.2 Installation of the beam hangers

The manufacturer shall prepare installation instructions in which the product-specific characteristics and the most important measures to be taken into consideration for installation are described. The installation instructions shall be available at every construction site and shall be deposited at Österreichisches Institut für Bautechnik.

Installation shall be carried out by appropriately qualified personnel under the supervision of the person responsible for technical matters on site.

The beam hangers shall be screwed as specified in the Annexes A.1 and A.4 and mounted with fixing-screws.

The structural members which are connected with the beam hangers shall be

- Restrained against rotation; see Annex B
- Strength class C24 or better;
- Free from wane under the beam hanger;
- The timber members shall have plane surfaces against the beam hangers;
- Minimum spacing and edge distances are in accordance with EN 1995-1-1.

⁷ The technical documentation of the European technical approval is deposited at Österreichisches Institut für Bautechnik, and, in so far as is relevant to the tasks of the approved body involved in the attestation of conformity procedure, is handed over to the approved body.

5 Recommendations for the manufacturer

5.1 General

It is the responsibility of the ETA holder to ensure that all necessary information on design and installation is submitted to those responsible for design and execution of the works constructed with **Atlas timber connector**.

5.2 Recommendations on packaging, transport and storage

Atlas timber connector shall be protected during transport and storage against any damage and detrimental moisture effects.

5.3 Recommendations for use, maintenance and repair of the works

The assessment of the fitness for use is based on the assumption that maintenance is not required during the assumed intended working life. In case of a severe damage of a connection with the beam hangers, actions regarding the mechanical resistance and stability of the works shall be initiated. Repair is in general done by replacement.

On behalf of Österreichisches Institut für Bautechnik

The original document is signed by:

Rainer Mikulits
Managing Director

electronic copy

electronic copy

electronic copy

electronic copy

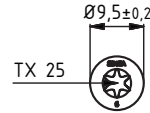
electronic copy

ANNEX A

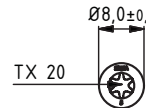
A.1 Screw specification

Beam hanger	Number of Atlas system-screws Atlas FK	Nominal diameter of screw	Nominal length of screw	Tensile strength of screw
—	—	mm	mm	N/mm ²
Atlas 240	15	6,0	100	≥ 600
Atlas 200	12			
Atlas 170	14	5,0	80	
Atlas 135	11			
Atlas 100	8			
Atlas 70	6	4,0	60	

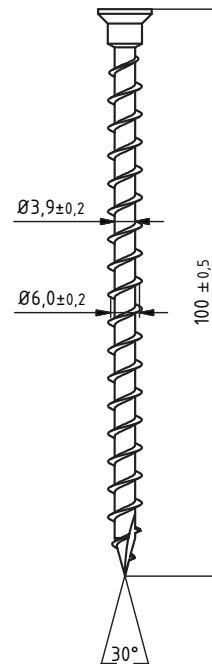
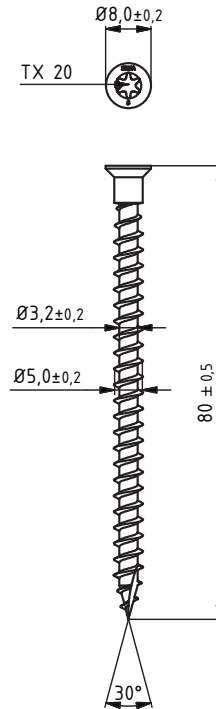
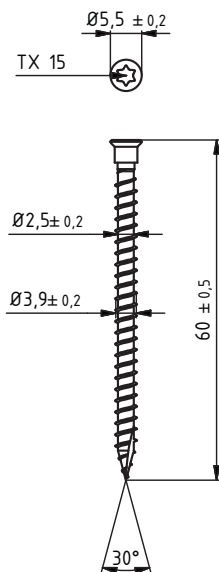
Atlas system screw
 Atlas FK Ø6,0 x 100mm
 Atlas 200, 240



Atlas system screw
 Atlas FK Ø5,0 x 80mm
 Atlas 100, 135, 170



Atlas system screw
 Atlas FK Ø4,0 x 60mm
 Atlas 70



Dimensions in mm

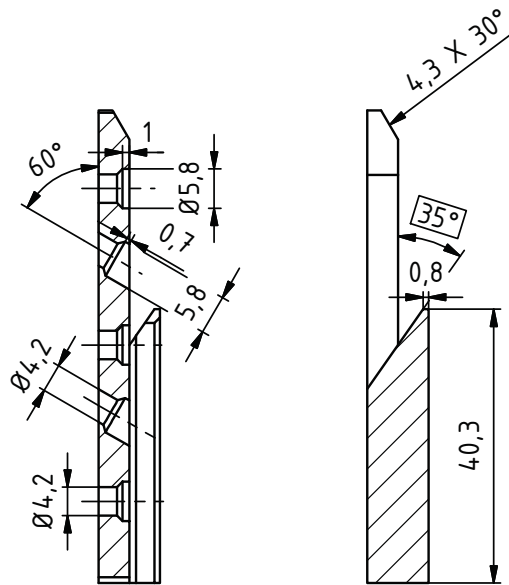
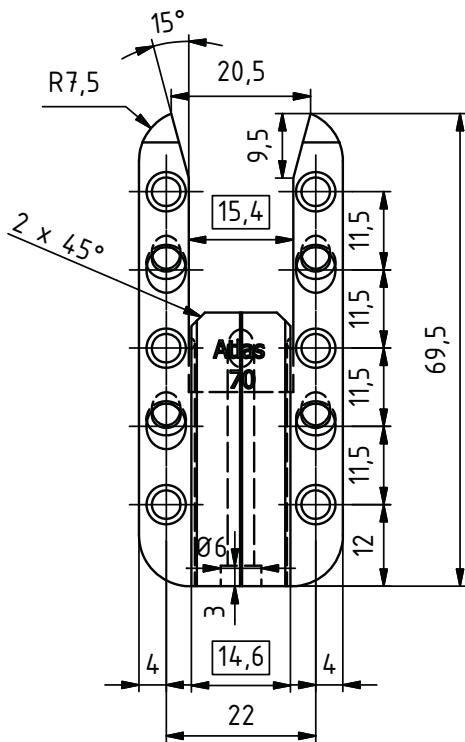
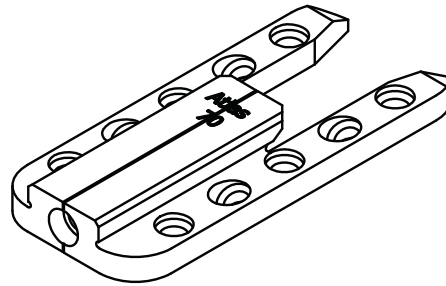
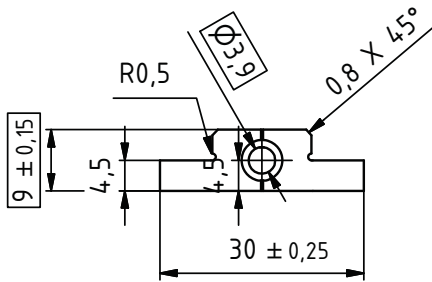
A.2 Fixing screw specification

Beam hanger	Nominal diameter of screw	Nominal length of screw	Tensile strength of screw
—	mm	mm	N/mm ²
Atlas 240	6,3	180	≥ 600
Atlas 200			
Atlas 170	4,8	120	
Atlas 135			
Atlas 100		80	
Atlas 70	4,2	50	

electronic copy
electronic copy
electronic copy
electronic copy
electronic copy

A.3 Product details and definitions

Atlas timber connector – Type Atlas 70 – Nominal dimensions



Dimensions in mm

OIB-240-006/11-009

electronic copy

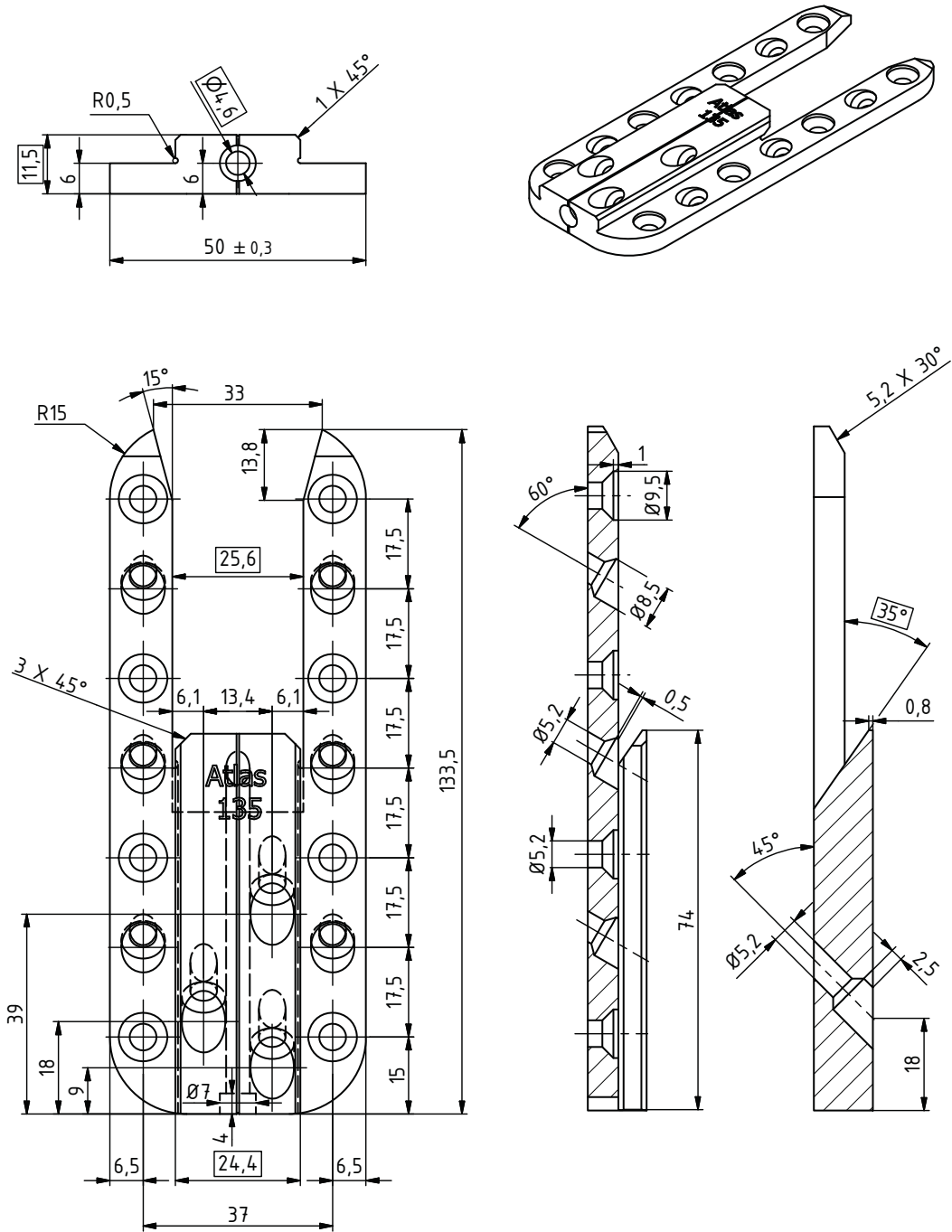
electronic copy

electronic copy

electronic copy

electronic copy

Atlas timber connector – Type Atlas 135 – Nominal dimensions



Dimensions in mm

electronic copy

electronic copy

electronic copy

electronic copy

electronic copy

electronic copy

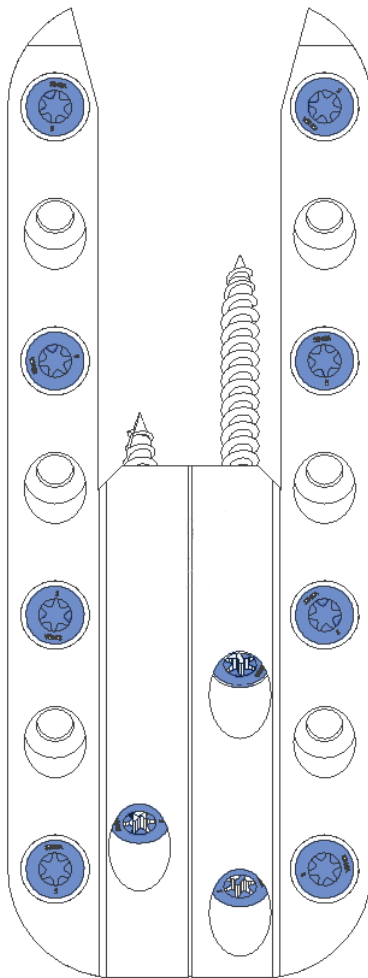
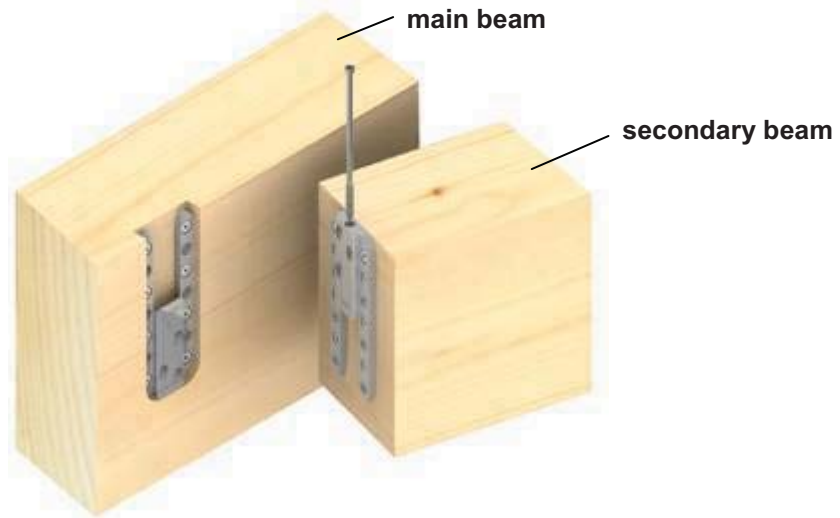
electronic copy

electronic copy

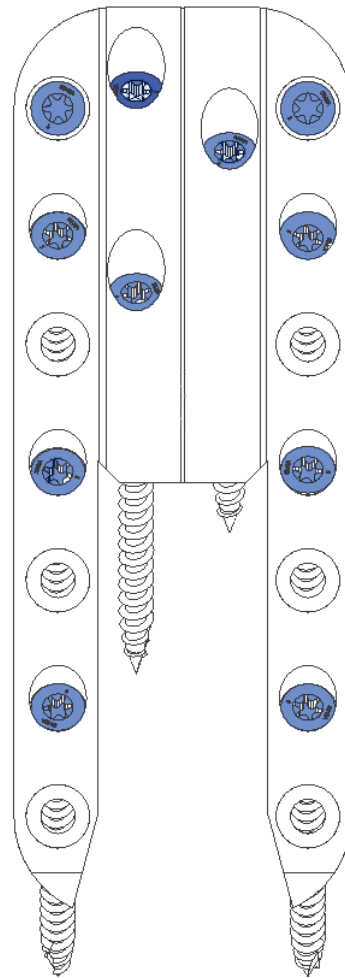
electronic copy

electronic copy

A.4 Typical installation of the beam hanger



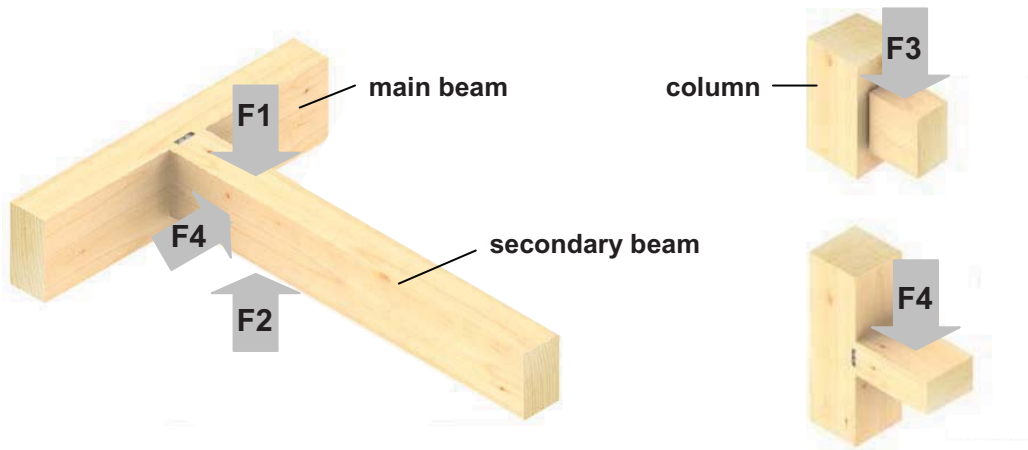
Screw pattern for main beam



Screw pattern for secondary beam

ANNEX B

Definition of forces and their directions



Wooden structural components

Beam, solid wood, strength class C24 according to EN 338.

Forces and their directions

- | | |
|-------|--|
| F_1 | Force acting in direction of insertion. Connection of main beam and secondary beam. The members shall be prevented from rotation. |
| F_2 | Force acting against direction of insertion. Connection of main beam and secondary beam. The members shall be prevented from rotation. |
| F_3 | Force acting in direction of insertion. Connection of column and secondary beam. The members shall be prevented from rotation. |
| F_4 | Force acting perpendicular to direction of insertion. Connection of main beam and secondary beam or column and secondary beam. The members shall be prevented from rotation. |

ANNEX C

Characteristic load bearing capacities

Product	Characteristic load bearing capacity		
	$F_{1,k}, F_{3,k}$ ¹⁾	$F_{2,k}$ ¹⁾	$F_{4,k}$
	N	N	N
Atlas 240	48 300	19 150	23 800 ²⁾
Atlas 200	43 000		22 700 ²⁾
Atlas 170	33 400	8 560	16 000 ²⁾
Atlas 135	26 700		15 000 ²⁾
Atlas 100	17 400		10 600 ²⁾
Atlas 70	6 800	2 000	4 400 ³⁾

For calculation of the characteristic strength of spruce wood regarding transverse tensile load according to EN 1995-1-1:

- ¹⁾ splitting takes place in between the second rows of outer and inner screws
- ²⁾ splitting takes place in the middle of the beam hanger
- ³⁾ splitting takes place in the top row of screws

h_e is the distance from splitting-height to the loaded side of the wooden beam.

The characteristic load bearing capacities of the beam hanger connections are given for a characteristic density of 350 kg/m^3 . For timber with a lower characteristic density than 350 kg/m^3 the characteristic load bearing capacities shall be reduced by the factor k_{dens}

$$k_{\text{dens}} = \left(\frac{\rho_k}{350} \right)^{0,5}$$

Where

k_{dens} ... Factor to consider deviating densities

ρ_k Characteristic density of timber in kg/m^3

ANNEX D

Reference documents

ETAG 015 (09.2002), Guideline for European technical approvals of three-dimensional nailing plates

EN 338 (10.2009), Structural timber – Strength classes

EN 573-2 (08.1994), Aluminium and aluminium alloys - Chemical composition and form of wrought products - Part 2: Chemical symbol based designation system

EN 1995-1-1 (11.2004) + AC (06.2006) + A1 (06.2008), Eurocode 5 – Design of timber structures – Part 1-1: General – Common rules and rules for buildings

EN 10083 (08.2006), Steels for quenching and tempering - Part 1 to Part 3

Commission Decision 96/603/EC of 4 October 1996 establishing the list of products belonging to Classes A 'No contribution to fire' provided for in Decision 94/611/EC implementing Article 20 of Council Directive 89/106/EEC on construction products, Official Journal L 267 from 19.10.1996, page 23, amended by Commission Decision 2000/605/EC of 26 September 2000, Official Journal L 258 from 12.10.2000 and Commission Decision 2003/424/EC of 6 June 2003, Official Journal L 144 from 12.6.2003