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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-14/0314 of 18/08/2014

I 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:	Eurotec angle brackets type Simply LL 95, 135 and 285 with elongated holes and Simply RL 95, 135 and 285 without elongated holes
Product family to which the above construction product belongs:	Three-dimensional nailing plate (angle bracket for wood to wood connections, timber-to-steel and timber-to-concrete connections)
Manufacturer:	Eurotec GmbH Unter dem Hofe 5 D-58099 Hagen Tel. +49 2331 / 6245 - 0 Fax +49 2331 / 6245 - 200 Internet www.e-u-r-o-tec.de
Manufacturing plant:	Eurotec GmbH Manufacturing Plant II
This European Technical Assessment contains:	58 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:	Guideline for European Technical Approval (ETAG) No. 015 Three Dimensional Nailing Plates, April 2013, used as European Assessment Document (EAD).
This version replaces:	-

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II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product and intended use

Technical description of the product
The Eurotec angle brackets type Simply LL 95, 135 and 285 with elongated holes and Simply RL 95, 135 and 285 without elongated holes are one-piece, non-welded angle brackets that are connected to the timber members with screws or ringed shank nails and to the concrete and steel elements by bolts.

The angle brackets are made from pre-galvanized steel S 250 GD + Z275, S 235 JR + Z275 or DX 51 D + Z275 according to EN 10346:2009 with a minimum yield stress of 235 MPa, a minimum tensile strength R_m of 330 MPa and a minimum ultimate strain A_{80} of 22 %.

Dimensions and hole are shown in Annex A. The angle brackets are made from steel with tolerances according to EN 10143.

2 Specification of the intended use in accordance with the applicable EAD

The angle brackets are intended for use in making connections in load bearing structures, as a connection between a timber component and a concrete or steel component, where requirements for mechanical resistance and stability and safety in use in the sense of the Basic Works Requirements 1 and 4 of Regulation (EU) 305/2011 shall be fulfilled.

The connection may be with a single angle bracket or with an angle bracket on each side of the fastened timber member (see Annex B).

The static and kinematic behaviour of the timber members or the supports shall be as described in Annex B.

The wood members can be of solid timber, glued laminated timber and similar glued members, or wood-based structural members with a characteristic density from 290 kg/m^3 to 420 kg/m^3. This requirement to the material of the wood members can be fulfilled by using the following materials:

- Structural solid timber classified to C24-C40 according to EN 338 / EN 14081,
- Glulam classified to GL24-GL36 according to EN 1194 / EN 14080,
- LVL according to EN 14374,
- Parallam PSL,
- Intrallam LSL,
- Layered wood plates,
- Plywood according to EN 636

Annex B states the characteristic values of the load-carrying capacities of the angle bracket connections for a characteristic density of 350 kg/m^3. For timber or wood based material with a lower characteristic density than 350 kg/m^3 the load-carrying capacities shall be reduced by the k_{dens} factor:

$$k_{dens} = \left(\frac{\rho_k}{350} \right)^2$$

Where ρ_k is he characteristic density of the timber in kg/m^3.

The design of the connections shall be in accordance with Eurocode 5 or a similar national Timber Code. The wood members shall have a thickness which is larger than the penetration depth of the nails into the members.

The angle brackets are primarily for use in timber structures subject to the dry, internal conditions defined by service class 1 and 2 of Eurocode 5 and for connections subject to static or quasi-static loading.

The angle brackets may also be used for connections between a timber member and a member of concrete or steel.

The scope of the brackets regarding resistance to corrosion shall be defined according to national provisions that apply at the installation site considering environmental conditions.

The provisions made in this European Technical Assessment are based on an assumed intended working life of the connectors of 50 years.

The indications given on the working life cannot be interpreted as a guarantee given by the producer or Assessment Body, but are to be regarded only as a means for choosing the right products 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

Characteristic	Assessment of characteristic
3.1 Mechanical resistance and stability*) (BWR1)	
Characteristic load-carrying capacity	See Annex B
Stiffness	No performance determined
Ductility in cyclic testing	No performance determined
3.2 Safety in case of fire (BWR2)	
Reaction to fire	The angle brackets are made from steel classified as Euroclass A1 in accordance with EN 1350-1 and EC decision 96/603/EC, amended by EC Decision 2000/605/EC
3.3 Hygiene, health and the environment (BWR3)	
Influence on air quality	The product does not contain/release dangerous substances specified in TR 034, dated March 2012 0**)
3.7 Sustainable use of natural resources (BWR7)	No Performance Determined
3.8 General aspects related to the performance of the product	The angle brackets have been assessed as having satisfactory durability and serviceability when used in timber structures using the timber species described in Eurocode 5 and subject to the conditions defined by service class 1 and 2
Identification	See Annex A

*) See additional information in section 3.8 – 3.9.

**) In addition to the specific clauses relating to dangerous substances contained in this 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.

3.9 Methods of verification

The characteristic load-carrying capacities are based on the characteristic values of the connectors and the steel plates.

According to EN 1990 (Eurocode – Basis of design) paragraph 6.3.5 the design value of load-carrying capacity can be determined by reducing the characteristic values of the load-carrying capacity with different partial factors.

Therefore, to obtain design values according to the Eurocodes or appropriate national codes of practice, the capacities have to be multiplied with different partial factors for the material properties and – for the connectors mounted in wood – also the coefficient k_{mod} that takes into account the load duration class.

Thus, the characteristic values of the load–carrying capacity are determined also for timber failure $F_{Rk,H}$ (obtaining the embedment strength of connectors subjected to shear or the withdrawal capacity of the most loaded connector, respectively) as well as for steel plate failure $F_{Rk,S}$. The design value of the load–carrying capacity is the smaller value of both load–carrying capacities.

$$F_{Rd} = \min\left\{\frac{k_{mod} \cdot F_{Rk,H}}{\gamma_{M,H}}; \frac{F_{Rk,S}}{\gamma_{M,S}}\right\}$$

Therefore, for timber failure the load duration class and the service class are included. The different partial factors γ_M for steel or timber, respectively, are also correctly taken into account.

3.10 Mechanical resistance and stability

See annex B for the characteristic load-carrying capacity in the different directions F_1 to F_5.

The characteristic capacities of the angle brackets are determined by calculation assisted by testing as described in the EOTA Guideline 015 clause 5.1.2. They should be used for designs in accordance with Eurocode 5 or a similar national Timber Code.

Threaded nails (ringed shank nails) in accordance to EN 14592

In the formulas in Annex B the capacities for threaded nails and fully threaded screws calculated from the formulas of Eurocode 5 should be applied assuming a thick steel plate when calculating the lateral load-carrying capacity, $R_{l,k}$.

The characteristic withdrawal capacity of the nails has to be determined by calculation in accordance with EN 1995-1-1: 2004, paragraph 8.3.2 (head pull-through is not relevant):

$$F_{ax,Rk} = f_{ax,k} \times d \times t_{pen}$$

Where:

$f_{ax,k}$ Characteristic value of the withdrawal parameter in N/mm^2

d Nail diameter in mm

t_{pen} Penetration depth of the profiles shank in mm $t_{pen} \geq 31$ mm

Based on tests by Versuchsanstalt für Stahl, Holz und Steine, University of Kalrsruhe, the characteristic value of the withdrawal resistance for the threaded nails used can be calculated as:

$$f_{ax,k} = 50 \times 10^{-6} \times \sigma_k^{\,2}$$

Where:

σ_k Characteristic density of the timber in kg/m^3

The shape of the nail directly under the head shall be in the form of a truncated cone with a diameter under the nail head which exceeds the hole diameter.

Fully threaded screws in accordance with EN 14592

The capacity of the connector screws is in accordance with national German approval no. Z-9.1-375 issued by DIBt, and the load carrying capacities of joints with the connector screws apply in areas where the abovementioned national German approval is accepted as basis for the design.

Load bearing capacities for the connector screws 5,0x40A and 5,0x60 have been determined. If longer 4,0 mm Connector screws are used the capacities stated for the connector screw 5,0x60 are valid.

Additionally, the angle brackets can be fastened to the concrete structure or steel member by bolts with a diameter of 10 mm or 12 mm

No performance has been determined in relation to ductility of a joint under cyclic testing. The contribution to the performance of structures in seismic zones, therefore, has not been assessed.

No performance has been determined in relation to the joint's stiffness properties - to be used for the analysis of the serviceability limit state.

3.11 Aspects related to the performance of the product

3.11.1 Corrosion protection in service class 1 and 2.
In accordance with ETAG 015 shall the angle bracket have a zinc coating weight of Z275. The steel employed is S 250 GD + Z275, S 235 JR + Z275 or DX 51 D + Z275 according to EN 10346:2009.

3.12 General aspects related to the fitness for use of the product

Eurotec angle brackets type Simply LL and RL are manufactured in accordance with the provisions of this European Technical Assessment using the manufacturing processes as identified in the inspection of the plant by the notified inspection body and laid down in the technical documentation.

The nailing pattern used shall be either the maximum or the minimum pattern as defined in Annex A.

The following provisions concerning installation apply:

Angle brackets can be fastened to wood-based members by nails or screws. Angle brackets shall be connected to headers made of wood-based panels using the specified connector screws.

There shall be nails or screws in all holes or at least in holes as specified on technical drawings in accordance with this document.

All minimum spacing's and edge/end distances in accordance with Eurocode 5 or an appropriate national code shall be complied with.

The angle bracket connection shall be designed in accordance with Eurocode 5 or an appropriate national code.

The cross section of the connected wooden elements shall have a plane surface against the whole angle bracket.

Zinc-coated angle brackets shall not be fastened with fasteners of stainless steel.

Nails or screws to be used shall have a diameter which fits the holes of the angle brackets.

The structural members – the components 1 and 2 shown in the figure on page 13 - to which the brackets are fixed shall be:

- Restrained against rotation.
- Strength class C24 or better, see section 1 of this ETA
- Free from wane under the bracket.
- The actual end bearing capacity of the timber member to be used in conjunction with the bracket is checked by the designer of the structure to ensure it is not less than the bracket capacity and, if necessary, the bracket capacity reduced accordingly.
- The gap between the timber members does not exceed 3 mm.
- There are no specific requirements relating to preparation of the timber members.

The execution of the connection shall be in accordance with the approval holder's technical literature.

Wood to concrete or steel connections
The above mentioned rules for wood to wood connections are applicable also for the connection between the wooden element and the angle bracket.

The angle bracket shall be in close contact with the concrete or steel over the whole face. There shall be no intermediate layers in between.

When mounting a wooden element to concrete or steel, the gap between the end of the wooden element and the concrete or steel surface, where contact stresses can occur during loading, shall be limited to an absolute minimum. However, construction tolerances of up to a maximum of 3 mm on uneven surfaces can be accepted.

The bolt shall have a diameter not less than the minimum diameter in relation to the diameter of the bolt hole in accordance with Eurocode 5 or an appropriate national code.

There shall be bolts in all bolt holes or at least in holes as specified on technical drawings in accordance with this document. All minimum spacing's and edge/end distances in accordance with Eurocode 5 or an appropriate national code shall be complied with.

4 Attestation and verification of constancy of performance (AVCP)

4.1 AVCP system

According to the decision 97/638/EC of the European Commission1, as amended, 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

Issued in Charlottenlund on 2014-08-18 by

Thomas Bruun
Managing Director, ETA-Danmark

Annex A
Product details and definitions

Table A.1 materials specification

Bracket type	Thickness (mm)	Steel specifications*	Coating specification
Simply LL	3,0 4,0	S 250 GD + Z 275	Z275
Simply RL	3,0 4,0	S 250 GD + Z 275	Z275

Table A.2 Range of sizes

Bracket type	Height (mm)		Width (mm)	
	min	**max**	**min**	**max**
Simply LL and RL 95	94	96	64	66
Simply LL and RL 135	134	136	64	66
Simply LL and RL 285	284	286	64	66

Table A.3 Fastener specification

Fastener type	Nail size (mm)		Finish
According to EN 14592	Diameter	Length	
Threaded nail	4,0	40	Electroplated zinc
Threaded nail	4,0	60	Electroplated zinc
Eurotec Connector screw	5,0	40	Electroplated zinc
Eurotec Connector screw	5,0	60	Electroplated zinc
10 mm bolt	In accordance with relevant Eurocode for design of anchor connections		Bolt type See specification of the manufacturer
12 mm bolt			

* Additionally, the angle brackets can be made from pre-galvanized steel S 235 JR + Z275 or DX 51 D + Z275 according to EN 10327:2004 with a minimum yield stress of 235 MPa, a minimum tensile strength R_m of 330 MPa and a minimum ultimate strain A_{80} of 22 %.

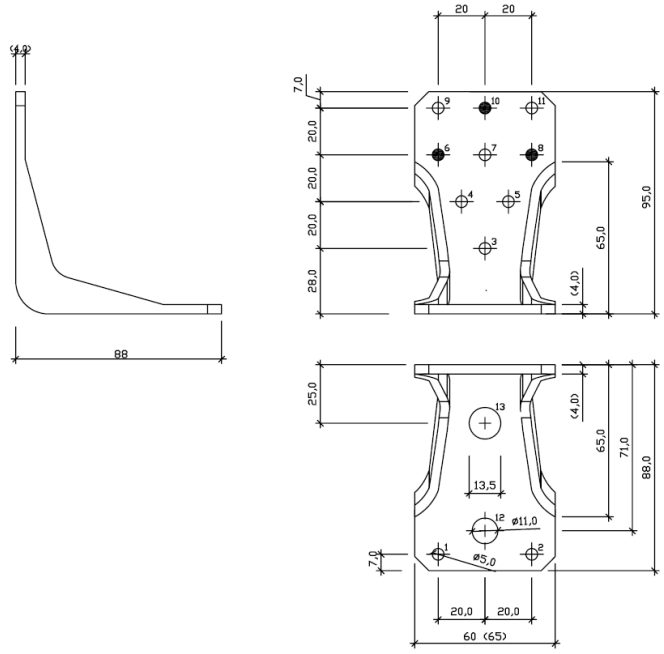


Figure A.1 Dimensions of Angle Bracket Simply LL 95
For use in timber to steel/concrete

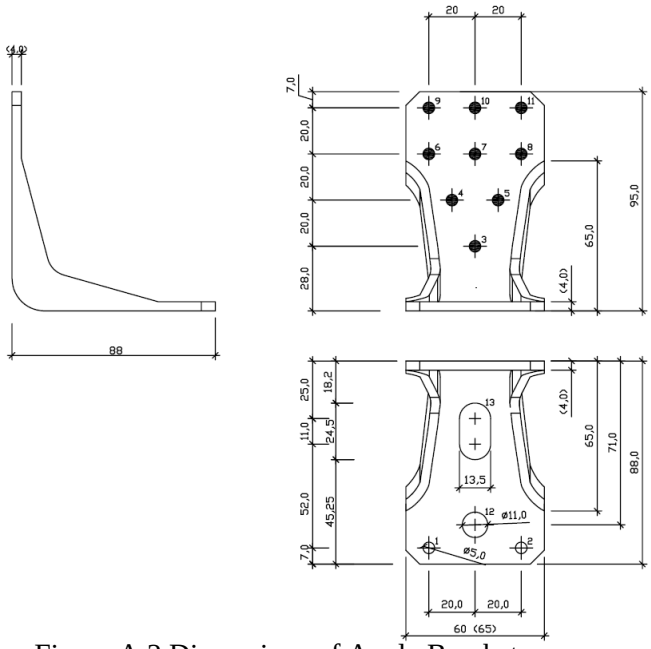


Figure A.2 Dimensions of Angle Bracket Simply RL 95
For use in timber to steel/concrete

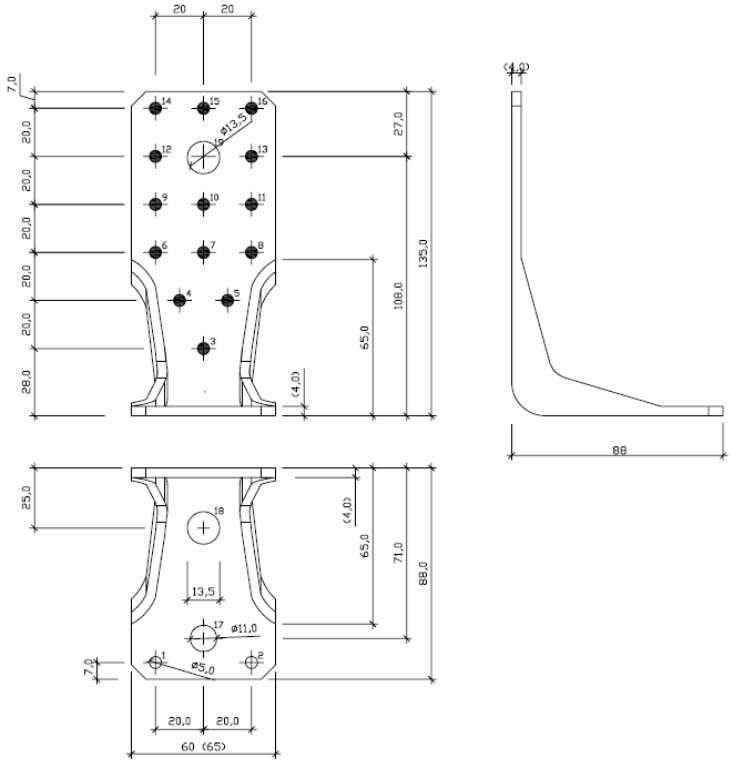


Figure A.3 Dimensions of Angle Bracket Simply LL135
For use in timber to steel/concrete

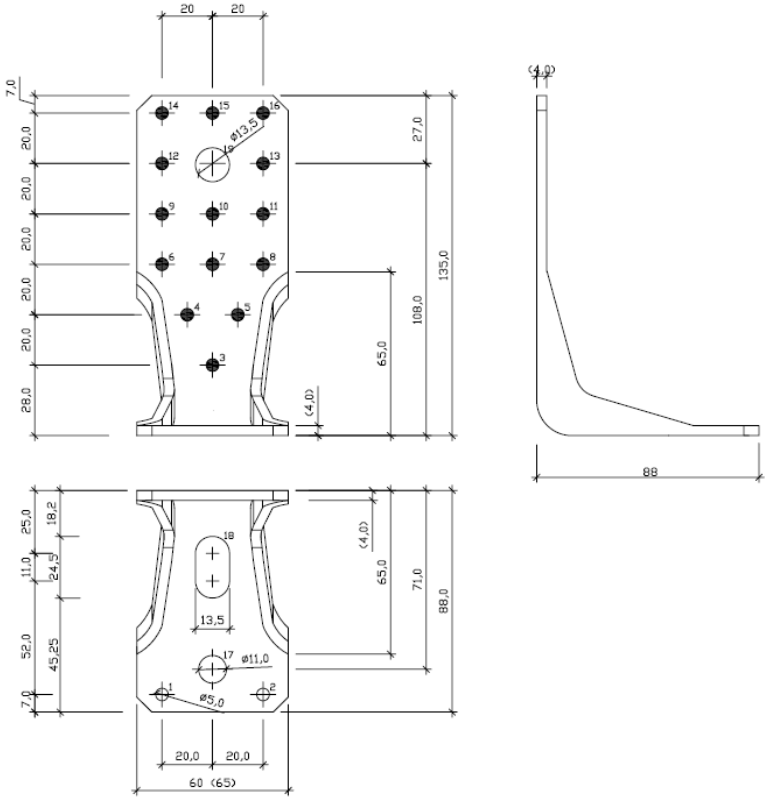
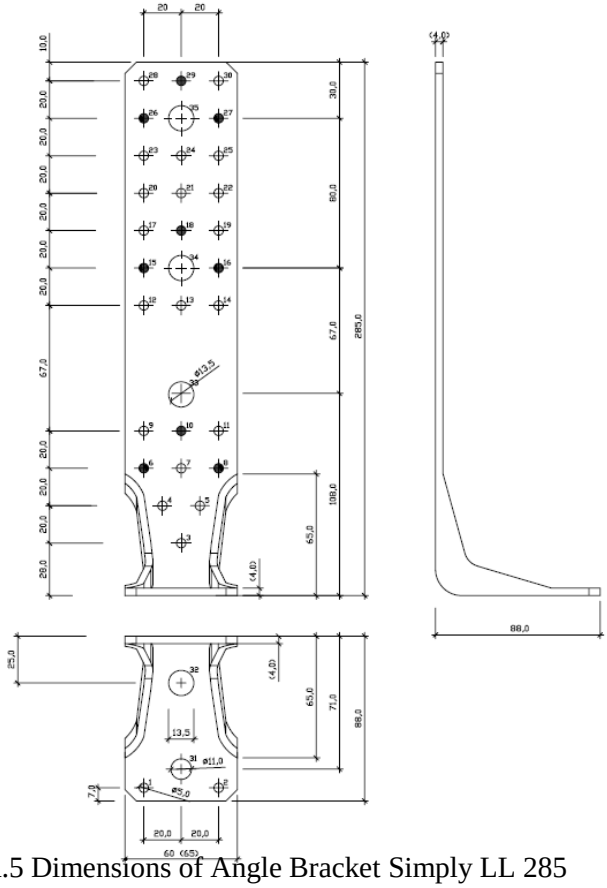


Figure A.4 Dimensions of Angle Bracket Simply RL 135.
For use in timber to steel/concrete



A.5 Dimensions of Angle Bracket Simply LL 285
For use in timber to steel/concrete

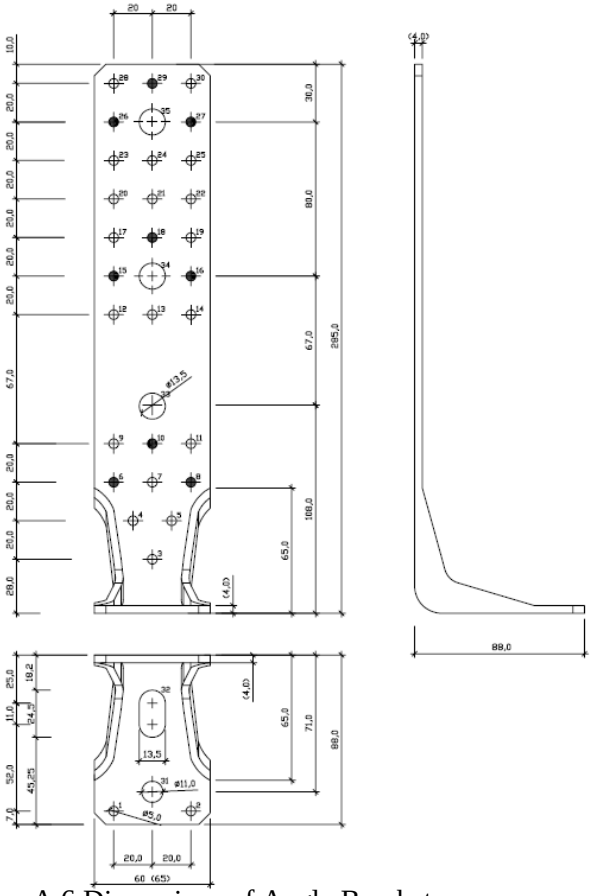


Figure A.6 Dimensions of Angle Bracket Simply RL 285
For use in timber to steel/concrete

Annex B
Characteristic load-carrying capacities

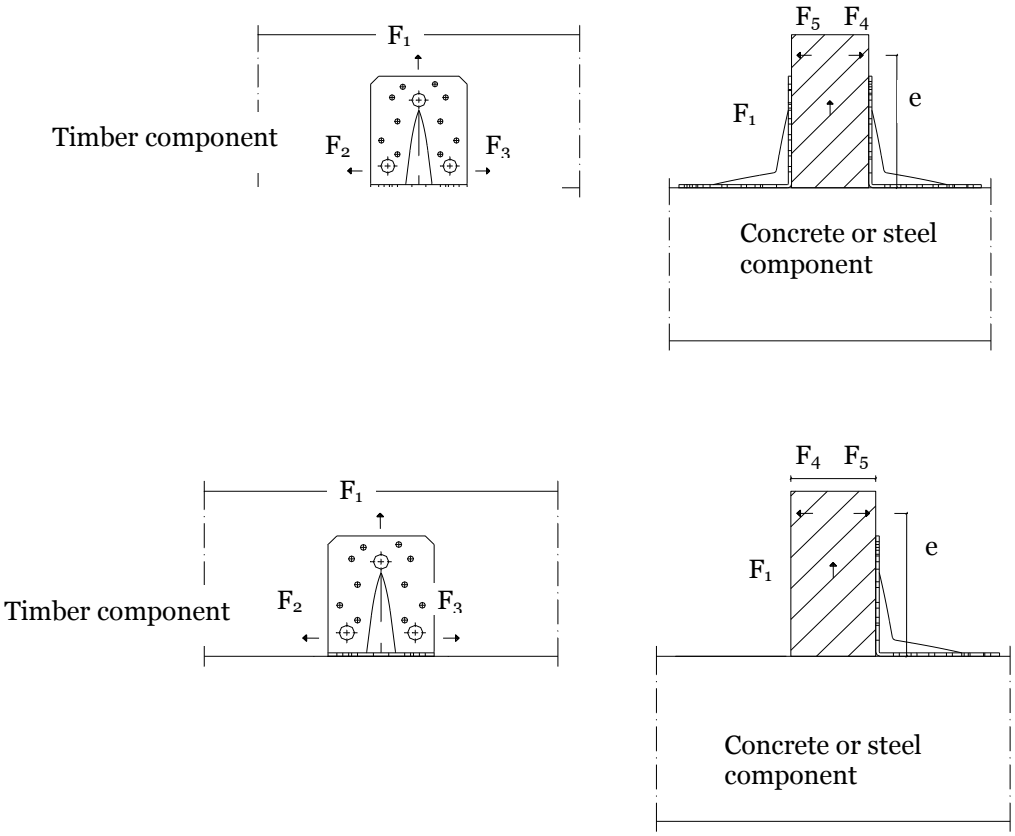


Figure B.1 Definitions of forces, their directions and eccentricity for timber to concrete and timber to steel connections

Fastener specification
Holes are marked with numbers referring to the nailing pattern in Annex A.

Double angle brackets per connection
The angle brackets must be placed symmetrically to the component axis.

Acting forces

F_1	Lifting force acting along the central axis of the joint.
F_2 and F_3	Lateral force acting in the joint between the concrete or steel component and the timber component in the timber component direction
F_4 and F_5	Lateral force acting in the concrete or steel component direction along the central axis of the joint. If the load is applied with an eccentricity e, a design for combined loading is required. The calculations applied for this ETA already contain the necessary input for eccentric loading,

Single angle bracket per connection
Acting forces

F_1	Lifting force acting in the central axis of the angle bracket. The timber component shall be prevented from rotation. If the timber component is prevented from rotation the load-carrying capacity will be half of a connection with double angle brackets.
F_2 and F_3	Lateral force acting in the joint between the concrete or steel component and the timber component in the timber component direction
F_4 and F_5	Lateral force acting in the concrete or steel component direction. in the height of the top edge of component 2. F_4 is the lateral force towards the angle bracket; F_5 is the lateral force away from the angle bracket.

Wane
Wane is not allowed, the timber has to be sharp-edged in the area of the angle brackets.

Timber splitting
For the lifting force F_1 it must be checked in accordance with Eurocode 5 or a similar national Timber Code that splitting will not occur.

Combined forces

If the forces F_1 and F_2/F_3 or F_4/F_5 act at the same time, the following inequality shall be fulfilled:

$$\left(\frac{F_{1,d}}{F_{Rd,1}}\right)^2+\left(\frac{F_{2,d}}{F_{Rd,2}}\right)^2+\left(\frac{F_{3,d}}{F_{Rd,3}}\right)^2+\left(\frac{F_{4,d}}{F_{Rd,4}}\right)^2+\left(\frac{F_{5,d}}{F_{Rd,5}}\right)^2 \le 1$$

The forces F_2 and F_3 or F_4 and F_5 are forces with opposite direction. Therefore only one force F_2 or F_3, respectively, and F_4 or F_5, respectively, is able to act simultaneously with F_1, while the other shall be set to zero.

The forces F_2 and F_3 or F_4 and F_5 are forces with opposite direction. Therefore only one force F_2 or F_3, respectively, and F_4 or F_5, respectively, is able to act simultaneously with F_1, F_6 or F_7, while the other shall be set to zero.

The forces for these types of angle brackets which are indicated in the following tables are presumed to act as described in the below figures

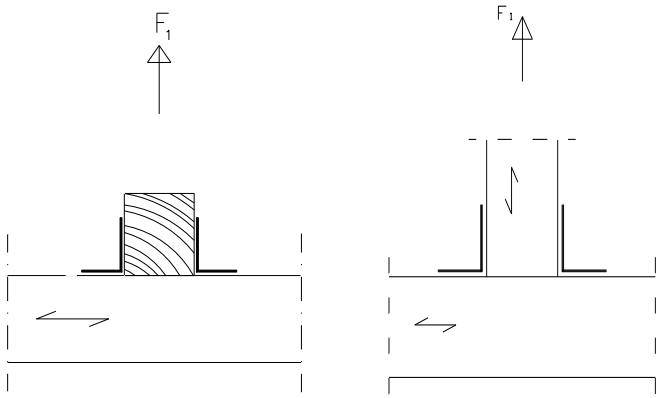


Figure B.2 Load F_1, purlin (left) and column (right)

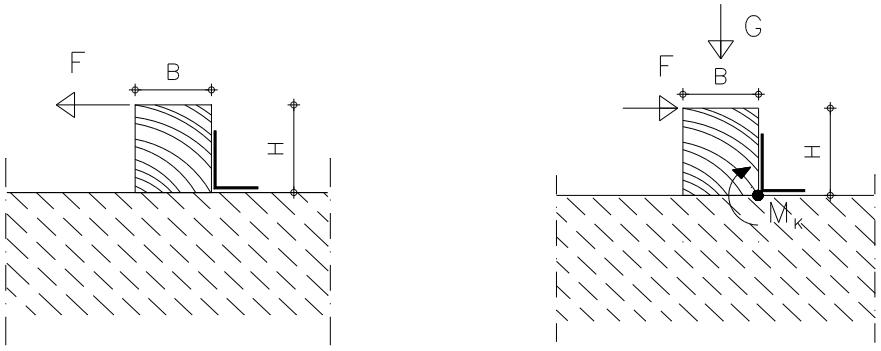


Figure B.3 Load F_2 (left) and Load F_3 (right)

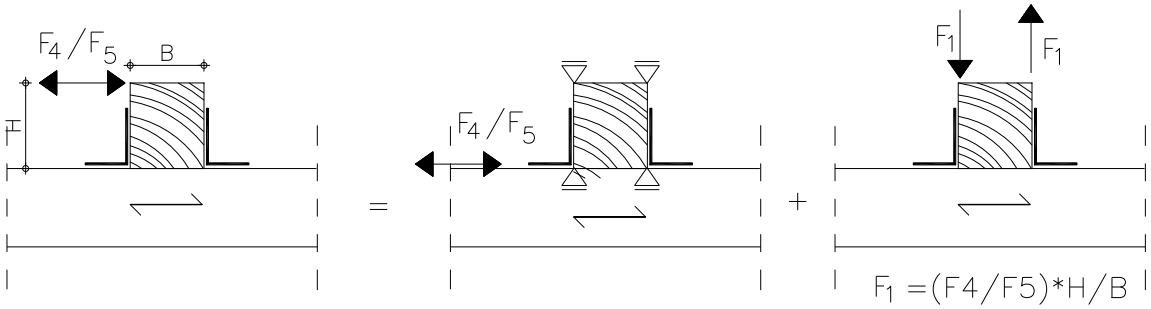


Figure B.4 Load Case F_4/F_5 reduced to two basic load cases

The below table indicates the nailing patterns in the horizontal and vertical leg of the brackets for full and partial nailing. The numbers refer to the hole numbers indicated in the drawings in annex A.

Name	Connectors / Application	Horizontal bracket	Vertical bracket	F1	F2/3	F4	F5
RL95	Column F1		6-8-10	✓			
RL95	Purlin		3-4-5-6-7-8-9-10-11	✓	✓	✓	✓
RL95-3	Column F1		6-8-10	✓			
RL95-3	Purlin		3-4-5-6-7-8-9-10-11	✓	✓	✓	✓
LL95	Column F1		6-8-10	✓			
LL95	Purlin		3-4-5-6-7-8-9-10-11	✓	✓	✓	✓
LL95-3	Column F1		6-8-10	✓			
LL95-3	Purlin		3-4-5-6-7-8-9-10-11	✓	✓	✓	✓
RL135	Column F1		6-7-8-12-13-15	✓			
RL135	Purlin		3-4-5-6-7-8-9-10-11-12-13-14-15-16	✓	✓	✓	✓
RL135-3	Column F1		6-7-8-12-13-15	✓			
RL135-3	Purlin		3-4-5-6-7-8-9-10-11-12-13-14-15-16	✓	✓	✓	✓
LL135	Column F1		6-7-8-12-13-15	✓			
LL135	Purlin		3-4-5-6-7-8-9-10-11-12-13-14-15-16	✓	✓	✓	✓
LL135-3	Column F1		6-7-8-12-13-15	✓			
LL135-3	Purlin		3-4-5-6-7-8-9-10-11-12-13-14-15-16	✓	✓	✓	✓
RL285	Column F1		6-8-10-15-16-18-26-27-29	✓			
RL285-3	Column F1		6-8-10-15-16-18-26-27-29	✓			
LL285	Column F1		6-8-10-15-16-18-26-27-29	✓			
LL285-3	Column F1		6-8-10-15-16-18-26-27-29	✓			

The below figure describes the geometric factors used in the following tables for the load-carrying capacities.

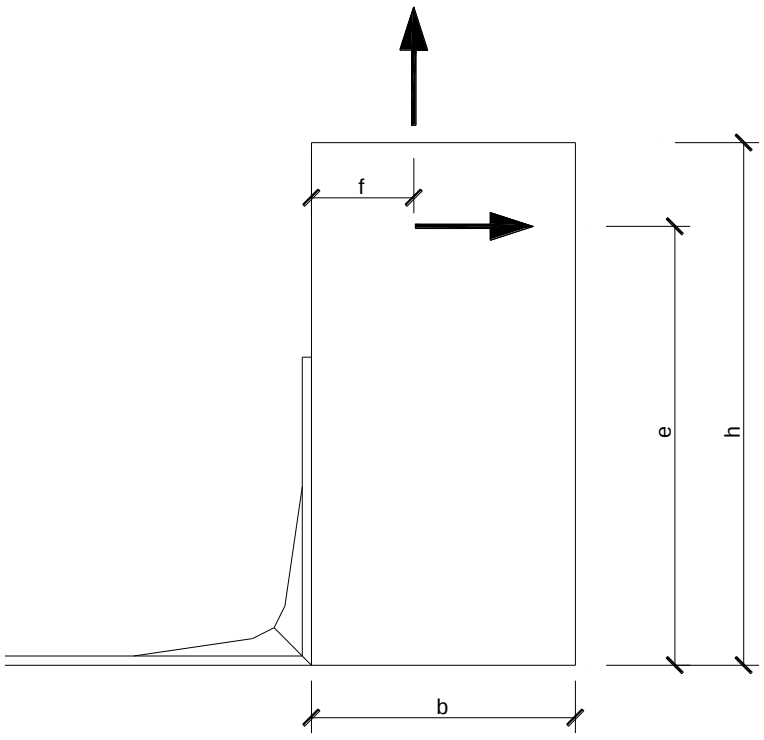


Table B.1 Characteristic load-carrying capacities brackets type Simply RL95 3 mm thick
Timber to steel/concrete - Column

Fastener 4,0x40 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	3136	92	46	31	23	18	15	13	11	10	9	8	8

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	6273

Fastener 4,0x60mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	3717	153	77	51	38	31	26	22	19	17	15	14	13

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	7435

Fastener 5,0x40mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	4458	337	168	112	84	67	56	48	42	37	34	31	28

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	8915

Fastener 5,0x60 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	4727	547	274	182	137	109	91	78	68	61	55	50	46

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	9454

Table B.2 Characteristic load-carrying capacities brackets type Simply RL95 3 mm thick
Timber to steel/concrete - Purlin – Fastener 4,0x40 mm nail

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7571	2718	1359	906	679	544	453	388	340	302	272	247	226

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	15141

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	7307

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	14615

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		13507	6754	4502	3377	1842	1098	782	607	496	420	364	321	287	259	237	218

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	771	771	771	771	771	771	771	771	771	771	771	771	771
20	1076	1076	1076	1076	1076	1076	1076	1076	1076	1076	1076	1076	1076
40	1782	1782	1782	1782	1782	1782	1782	1782	1782	1782	1782	1782	1782
60	1852	5176	5176	5176	5176	5176	5176	5176	5176	5176	5176	5176	5176
80	2603	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
100	2082	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
120	1735	3128	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
140	1487	2681	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
160	1301	2346	3390	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
180	1157	2085	3013	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
200	1041	1877	2712	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
220	946	1706	2466	3225	3545	3545	3545	3545	3545	3545	3545	3545	3545
240	868	1564	2260	2956	3545	3545	3545	3545	3545	3545	3545	3545	3545
260	801	1444	2086	2729	3372	3545	3545	3545	3545	3545	3545	3545	3545
280	744	1340	1937	2534	3131	3545	3545	3545	3545	3545	3545	3545	3545
300	694	1251	1808	2365	2922	3479	3545	3545	3545	3545	3545	3545	3545
320	651	1173	1695	2217	2739	3262	3545	3545	3545	3545	3545	3545	3545

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		7571	15141	22712	30282	37853	45423	52994	60564	68135	75705	83276	90847
40		3785	7571	11356	15141	18926	22712	26497	30282	34067	37853	41638	45423
60		2524	5047	7571	10094	12618	15141	17665	20188	22712	25235	27759	30282
80		1893	3785	5678	7571	9463	11356	13248	15141	17034	18926	20819	22712
100		1514	3028	4542	6056	7571	9085	10599	12113	13627	15141	16655	18169
120		1262	2524	3785	5047	6309	7571	8832	10094	11356	12618	13879	15141
140		1082	2163	3245	4326	5408	6489	7571	8652	9734	10815	11897	12978
160		946	1893	2839	3785	4732	5678	6624	7571	8517	9463	10409	11356
180		841	1682	2524	3365	4206	5047	5888	6729	7571	8412	9253	10094
200		757	1514	2271	3028	3785	4542	5299	6056	6813	7571	8328	9085
220		688	1376	2065	2753	3441	4129	4818	5506	6194	6882	7571	8259
240		631	1262	1893	2524	3154	3785	4416	5047	5678	6309	6940	7571
260		582	1165	1747	2329	2912	3494	4076	4659	5241	5823	6406	6988
280		541	1082	1622	2163	2704	3245	3785	4326	4867	5408	5948	6489
300		505	1009	1514	2019	2524	3028	3533	4038	4542	5047	5552	6056
320		473	946	1419	1893	2366	2839	3312	3785	4258	4732	5205	5678

Table B.3 Characteristic load-carrying capacities brackets type Simply RL95 3 mm thick
Timber to steel/concrete - Purlin – Fastener 4,0x60 mm nail

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7571	4529	2265	1510	1132	906	755	647	566	503	453	412	377

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	15141

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	11362

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	22723

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		13507	6754	4502	3377	2701	1830	1303	1012	827	700	606	534	478	432	395	363

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	1285	1285	1285	1285	1285	1285	1285	1285	1285	1285	1285	1285	1285
20	1794	1794	1794	1794	1794	1794	1794	1794	1794	1794	1794	1794	1794
40	2970	2970	2970	2970	2970	2970	2970	2970	2970	2970	2970	2970	2970
60	3086	7661	8627	8627	8627	8627	8627	8627	8627	8627	8627	8627	8627
80	3377	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
100	2701	4863	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
120	2251	4052	5853	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
140	1930	3473	5017	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
160	1688	3039	4390	5741	5909	5909	5909	5909	5909	5909	5909	5909	5909
180	1501	2701	3902	5103	5909	5909	5909	5909	5909	5909	5909	5909	5909
200	1351	2431	3512	4592	5673	5909	5909	5909	5909	5909	5909	5909	5909
220	1228	2210	3193	4175	5157	5909	5909	5909	5909	5909	5909	5909	5909
240	1126	2026	2927	3827	4728	5628	5909	5909	5909	5909	5909	5909	5909
260	1039	1870	2701	3533	4364	5195	5909	5909	5909	5909	5909	5909	5909
280	965	1737	2508	3280	4052	4824	5596	5909	5909	5909	5909	5909	5909
300	900	1621	2341	3062	3782	4502	5223	5909	5909	5909	5909	5909	5909
320	844	1520	2195	2870	3546	4221	4896	5572	5909	5909	5909	5909	5909

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		7571	15141	22712	30282	37853	45423	52994	60564	68135	75705	83276	90847
40		3785	7571	11356	15141	18926	22712	26497	30282	34067	37853	41638	45423
60		2524	5047	7571	10094	12618	15141	17665	20188	22712	25235	27759	30282
80		1893	3785	5678	7571	9463	11356	13248	15141	17034	18926	20819	22712
100		1514	3028	4542	6056	7571	9085	10599	12113	13627	15141	16655	18169
120		1262	2524	3785	5047	6309	7571	8832	10094	11356	12618	13879	15141
140		1082	2163	3245	4326	5408	6489	7571	8652	9734	10815	11897	12978
160		946	1893	2839	3785	4732	5678	6624	7571	8517	9463	10409	11356
180		841	1682	2524	3365	4206	5047	5888	6729	7571	8412	9253	10094
200		757	1514	2271	3028	3785	4542	5299	6056	6813	7571	8328	9085
220		688	1376	2065	2753	3441	4129	4818	5506	6194	6882	7571	8259
240		631	1262	1893	2524	3154	3785	4416	5047	5678	6309	6940	7571
260		582	1165	1747	2329	2912	3494	4076	4659	5241	5823	6406	6988
280		541	1082	1622	2163	2704	3245	3785	4326	4867	5408	5948	6489
300		505	1009	1514	2019	2524	3028	3533	4038	4542	5047	5552	6056
320		473	946	1419	1893	2366	2839	3312	3785	4258	4732	5205	5678

Table B.4 Characteristic load-carrying capacities brackets type Simply RL95 3 mm thick
Timber to steel/concrete - Purlin – Fastener 5,0x40 mm screw

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7571	6108	4980	3320	2490	1992	1660	1423	1245	1107	996	906	830

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	15141

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	19629

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	39257

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		13507	6754	4502	3377	2701	2251	1902	1477	1207	1021	884	780	697	631	576	530

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875
20	2617	2617	2617	2617	2617	2617	2617	2617	2617	2617	2617	2617	2617
40	4333	4333	4333	4333	4333	4333	4333	4333	4333	4333	4333	4333	4333
60	4502	8104	11706	12586	12586	12586	12586	12586	12586	12586	12586	12586	12586
80	3377	6078	8780	11481	12995	12995	12995	12995	12995	12995	12995	12995	12995
100	2701	4863	7024	9185	11346	12995	12995	12995	12995	12995	12995	12995	12995
120	2251	4052	5853	7654	9455	11256	12995	12995	12995	12995	12995	12995	12995
140	1930	3473	5017	6561	8104	9648	11192	12735	12995	12995	12995	12995	12995
160	1688	3039	4390	5741	7091	8442	9793	11144	12494	12995	12995	12995	12995
180	1501	2701	3902	5103	6303	7504	8705	9905	11106	12307	12995	12995	12995
200	1351	2431	3512	4592	5673	6754	7834	8915	9995	11076	12157	12995	12995
220	1228	2210	3193	4175	5157	6140	7122	8104	9087	10069	11051	12034	12995
240	1126	2026	2927	3827	4728	5628	6529	7429	8329	9230	10130	11031	11931
260	1039	1870	2701	3533	4364	5195	6026	6858	7689	8520	9351	10182	11014
280	965	1737	2508	3280	4052	4824	5596	6368	7140	7911	8683	9455	10227
300	900	1621	2341	3062	3782	4502	5223	5943	6664	7384	8104	8825	9545
320	844	1520	2195	2870	3546	4221	4896	5572	6247	6922	7598	8273	8949

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		7571	15141	22712	30282	37853	45423	52994	60564	68135	75705	83276	90847
40		3785	7571	11356	15141	18926	22712	26497	30282	34067	37853	41638	45423
60		2524	5047	7571	10094	12618	15141	17665	20188	22712	25235	27759	30282
80		1893	3785	5678	7571	9463	11356	13248	15141	17034	18926	20819	22712
100		1514	3028	4542	6056	7571	9085	10599	12113	13627	15141	16655	18169
120		1262	2524	3785	5047	6309	7571	8832	10094	11356	12618	13879	15141
140		1082	2163	3245	4326	5408	6489	7571	8652	9734	10815	11897	12978
160		946	1893	2839	3785	4732	5678	6624	7571	8517	9463	10409	11356
180		841	1682	2524	3365	4206	5047	5888	6729	7571	8412	9253	10094
200		757	1514	2271	3028	3785	4542	5299	6056	6813	7571	8328	9085
220		688	1376	2065	2753	3441	4129	4818	5506	6194	6882	7571	8259
240		631	1262	1893	2524	3154	3785	4416	5047	5678	6309	6940	7571
260		582	1165	1747	2329	2912	3494	4076	4659	5241	5823	6406	6988
280		541	1082	1622	2163	2704	3245	3785	4326	4867	5408	5948	6489
300		505	1009	1514	2019	2524	3028	3533	4038	4542	5047	5552	6056
320		473	946	1419	1893	2366	2839	3312	3785	4258	4732	5205	5678

Table B.5 Characteristic load-carrying capacities brackets type Simply RL95 3 mm thick
Timber to steel/concrete - Purlin – Fastener 5,0x60 mm screw

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7571	6108	5119	4405	3377	2701	2251	1930	1688	1501	1351	1228	1126

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	15141

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	24217

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	48434

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		13507	6754	4502	3377	2701	2251	1902	1477	1207	1021	884	780	697	631	576	530

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875
20	2617	2617	2617	2617	2617	2617	2617	2617	2617	2617	2617	2617	2617
40	4333	4333	4333	4333	4333	4333	4333	4333	4333	4333	4333	4333	4333
60	4502	8104	11706	12586	12586	12586	12586	12586	12586	12586	12586	12586	12586
80	3377	6078	8780	11481	14183	16884	19586	21116	21116	21116	21116	21116	21116
100	2701	4863	7024	9185	11346	13507	15668	17830	19991	21116	21116	21116	21116
120	2251	4052	5853	7654	9455	11256	13057	14858	16659	18460	20261	21116	21116
140	1930	3473	5017	6561	8104	9648	11192	12735	14279	15823	17366	18910	20454
160	1688	3039	4390	5741	7091	8442	9793	11144	12494	13845	15196	16546	17897
180	1501	2701	3902	5103	6303	7504	8705	9905	11106	12307	13507	14708	15909
200	1351	2431	3512	4592	5673	6754	7834	8915	9995	11076	12157	13237	14318
220	1228	2210	3193	4175	5157	6140	7122	8104	9087	10069	11051	12034	13016
240	1126	2026	2927	3827	4728	5628	6529	7429	8329	9230	10130	11031	11931
260	1039	1870	2701	3533	4364	5195	6026	6858	7689	8520	9351	10182	11014
280	965	1737	2508	3280	4052	4824	5596	6368	7140	7911	8683	9455	10227
300	900	1621	2341	3062	3782	4502	5223	5943	6664	7384	8104	8825	9545
320	844	1520	2195	2870	3546	4221	4896	5572	6247	6922	7598	8273	8949

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		7571	15141	22712	30282	37853	45423	52994	60564	68135	75705	83276	90847
40		3785	7571	11356	15141	18926	22712	26497	30282	34067	37853	41638	45423
60		2524	5047	7571	10094	12618	15141	17665	20188	22712	25235	27759	30282
80		1893	3785	5678	7571	9463	11356	13248	15141	17034	18926	20819	22712
100		1514	3028	4542	6056	7571	9085	10599	12113	13627	15141	16655	18169
120		1262	2524	3785	5047	6309	7571	8832	10094	11356	12618	13879	15141
140		1082	2163	3245	4326	5408	6489	7571	8652	9734	10815	11897	12978
160		946	1893	2839	3785	4732	5678	6624	7571	8517	9463	10409	11356
180		841	1682	2524	3365	4206	5047	5888	6729	7571	8412	9253	10094
200		757	1514	2271	3028	3785	4542	5299	6056	6813	7571	8328	9085
220		688	1376	2065	2753	3441	4129	4818	5506	6194	6882	7571	8259
240		631	1262	1893	2524	3154	3785	4416	5047	5678	6309	6940	7571
260		582	1165	1747	2329	2912	3494	4076	4659	5241	5823	6406	6988
280		541	1082	1622	2163	2704	3245	3785	4326	4867	5408	5948	6489
300		505	1009	1514	2019	2524	3028	3533	4038	4542	5047	5552	6056
320		473	946	1419	1893	2366	2839	3312	3785	4258	4732	5205	5678

Table B.6 Characteristic load-carrying capacities brackets type Simply RL95 4 mm thick
Timber to steel/concrete - Column

Fastener 4,0x40 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	3085	92	46	31	23	18	15	13	11	10	9	8	8

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	6170

Fastener 4,0x60 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	3717	153	77	51	38	31	26	22	19	17	15	14	13

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	7435

Fastener 5,0x40 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	4353	326	163	109	82	65	54	47	41	36	33	30	27

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	8706

Fastener 5,0x60 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	4727	537	268	179	134	107	89	77	67	60	54	49	45

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	9454

Table B.7 Characteristic load-carrying capacities brackets type Simply RL95 4 mm thick
Timber to steel/concrete - Purlin – Fastener 4,0x40 mm nail

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	9777	2718	1359	906	679	544	453	388	340	302	272	247	226

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	19553

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	7288,9

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	14578

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		17444	8722	5815	4361	1842	1098	782	607	496	420	364	321	287	259	237	218

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	771	771	771	771	771	771	771	771	771	771	771	771	771
20	1076	1076	1076	1076	1076	1076	1076	1076	1076	1076	1076	1076	1076
40	1782	1782	1782	1782	1782	1782	1782	1782	1782	1782	1782	1782	1782
60	1852	5176	5176	5176	5176	5176	5176	5176	5176	5176	5176	5176	5176
80	2603	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
100	2082	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
120	1735	3105	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
140	1487	2661	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
160	1301	2329	3356	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
180	1157	2070	2983	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
200	1041	1863	2685	3507	3545	3545	3545	3545	3545	3545	3545	3545	3545
220	946	1694	2441	3188	3545	3545	3545	3545	3545	3545	3545	3545	3545
240	868	1553	2237	2922	3545	3545	3545	3545	3545	3545	3545	3545	3545
260	801	1433	2065	2698	3330	3545	3545	3545	3545	3545	3545	3545	3545
280	744	1331	1918	2505	3092	3545	3545	3545	3545	3545	3545	3545	3545
300	694	1242	1790	2338	2886	3434	3545	3545	3545	3545	3545	3545	3545
320	651	1164	1678	2192	2705	3219	3545	3545	3545	3545	3545	3545	3545

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		9777	19553	29330	39107	48884	58660	68437	78214	87991	97767	107544	117321
40		4888	9777	14665	19553	24442	29330	34219	39107	43995	48884	53772	58660
60		3259	6518	9777	13036	16295	19553	22812	26071	29330	32589	35848	39107
80		2444	4888	7333	9777	12221	14665	17109	19553	21998	24442	26886	29330
100		1955	3911	5866	7821	9777	11732	13687	15643	17598	19553	21509	23464
120		1629	3259	4888	6518	8147	9777	11406	13036	14665	16295	17924	19553
140		1397	2793	4190	5587	6983	8380	9777	11173	12570	13967	15363	16760
160		1222	2444	3666	4888	6110	7333	8555	9777	10999	12221	13443	14665
180		1086	2173	3259	4345	5432	6518	7604	8690	9777	10863	11949	13036
200		978	1955	2933	3911	4888	5866	6844	7821	8799	9777	10754	11732
220		889	1778	2666	3555	4444	5333	6222	7110	7999	8888	9777	10666
240		815	1629	2444	3259	4074	4888	5703	6518	7333	8147	8962	9777
260		752	1504	2256	3008	3760	4512	5264	6016	6769	7521	8273	9025
280		698	1397	2095	2793	3492	4190	4888	5587	6285	6983	7682	8380
300		652	1304	1955	2607	3259	3911	4562	5214	5866	6518	7170	7821
320		611	1222	1833	2444	3055	3666	4277	4888	5499	6110	6722	7333

Table B.8 Characteristic load-carrying capacities brackets type Simply RL95 4 mm thick
Timber to steel/concrete - Purlin – Fastener 4,0x60 mm nail

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	9777	4529	2265	1510	1132	906	755	647	566	503	453	412	377

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	19553

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	11362

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	22723

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		17444	8722	5815	4361	3071	1830	1303	1012	827	700	606	534	478	432	395	363

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	1285	1285	1285	1285	1285	1285	1285	1285	1285	1285	1285	1285	1285
20	1794	1794	1794	1794	1794	1794	1794	1794	1794	1794	1794	1794	1794
40	2970	2970	2970	2970	2970	2970	2970	2970	2970	2970	2970	2970	2970
60	3086	7661	8627	8627	8627	8627	8627	8627	8627	8627	8627	8627	8627
80	4338	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
100	3470	5451	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
120	2892	4542	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
140	2479	3894	5308	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
160	2169	3407	4645	5883	5909	5909	5909	5909	5909	5909	5909	5909	5909
180	1928	3028	4129	5229	5909	5909	5909	5909	5909	5909	5909	5909	5909
200	1735	2725	3716	4706	5696	5909	5909	5909	5909	5909	5909	5909	5909
220	1577	2478	3378	4278	5178	5909	5909	5909	5909	5909	5909	5909	5909
240	1446	2271	3096	3922	4747	5572	5909	5909	5909	5909	5909	5909	5909
260	1335	2097	2858	3620	4382	5144	5905	5909	5909	5909	5909	5909	5909
280	1239	1947	2654	3361	4069	4776	5483	5909	5909	5909	5909	5909	5909
300	1157	1817	2477	3137	3798	4458	5118	5778	5909	5909	5909	5909	5909
320	1084	1703	2322	2941	3560	4179	4798	5417	5909	5909	5909	5909	5909

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		9777	19553	29330	39107	48884	58660	68437	78214	87991	97767	107544	117321
40		4888	9777	14665	19553	24442	29330	34219	39107	43995	48884	53772	58660
60		3259	6518	9777	13036	16295	19553	22812	26071	29330	32589	35848	39107
80		2444	4888	7333	9777	12221	14665	17109	19553	21998	24442	26886	29330
100		1955	3911	5866	7821	9777	11732	13687	15643	17598	19553	21509	23464
120		1629	3259	4888	6518	8147	9777	11406	13036	14665	16295	17924	19553
140		1397	2793	4190	5587	6983	8380	9777	11173	12570	13967	15363	16760
160		1222	2444	3666	4888	6110	7333	8555	9777	10999	12221	13443	14665
180		1086	2173	3259	4345	5432	6518	7604	8690	9777	10863	11949	13036
200		978	1955	2933	3911	4888	5866	6844	7821	8799	9777	10754	11732
220		889	1778	2666	3555	4444	5333	6222	7110	7999	8888	9777	10666
240		815	1629	2444	3259	4074	4888	5703	6518	7333	8147	8962	9777
260		752	1504	2256	3008	3760	4512	5264	6016	6769	7521	8273	9025
280		698	1397	2095	2793	3492	4190	4888	5587	6285	6983	7682	8380
300		652	1304	1955	2607	3259	3911	4562	5214	5866	6518	7170	7821
320		611	1222	1833	2444	3055	3666	4277	4888	5499	6110	6722	7333

Table B.9 Characteristic load-carrying capacities brackets type Simply RL95 4 mm thick
Timber to steel/concrete - Purlin – Fastener 5,0x40 mm screw

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	9777	7888	4825	3216	2412	1930	1608	1378	1206	1072	965	877	804

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	19553

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	19097

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	38195

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		17444	8722	5815	4361	3489	2907	2456	1907	1559	1318	1142	1007	901	815	744	684

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	2421	2421	2421	2421	2421	2421	2421	2421	2421	2421	2421	2421	2421
20	3380	3380	3380	3380	3380	3380	3380	3380	3380	3380	3380	3380	3380
40	5596	5596	5596	5596	5596	5596	5596	5596	5596	5596	5596	5596	5596
60	5815	10466	15118	16254	16254	16254	16254	16254	16254	16254	16254	16254	16254
80	4361	7850	11338	12588	12588	12588	12588	12588	12588	12588	12588	12588	12588
100	3489	6280	9071	11862	12588	12588	12588	12588	12588	12588	12588	12588	12588
120	2907	5233	7559	9885	12210	12588	12588	12588	12588	12588	12588	12588	12588
140	2492	4485	6479	8473	10466	12460	12588	12588	12588	12588	12588	12588	12588
160	2180	3925	5669	7414	9158	10902	12588	12588	12588	12588	12588	12588	12588
180	1938	3489	5039	6590	8140	9691	11241	12588	12588	12588	12588	12588	12588
200	1744	3140	4535	5931	7326	8722	10117	11513	12588	12588	12588	12588	12588
220	1586	2854	4123	5392	6660	7929	9198	10466	11735	12588	12588	12588	12588
240	1454	2617	3779	4942	6105	7268	8431	9594	10757	11920	12588	12588	12588
260	1342	2415	3489	4562	5636	6709	7783	8856	9929	11003	12076	12588	12588
280	1246	2243	3240	4236	5233	6230	7227	8223	9220	10217	11214	12210	12588
300	1163	2093	3024	3954	4884	5815	6745	7675	8605	9536	10466	11396	12327
320	1090	1962	2835	3707	4579	5451	6323	7195	8068	8940	9812	10684	11556

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		9777	19553	29330	39107	48884	58660	68437	78214	87991	97767	107544	117321
40		4888	9777	14665	19553	24442	29330	34219	39107	43995	48884	53772	58660
60		3259	6518	9777	13036	16295	19553	22812	26071	29330	32589	35848	39107
80		2444	4888	7333	9777	12221	14665	17109	19553	21998	24442	26886	29330
100		1955	3911	5866	7821	9777	11732	13687	15643	17598	19553	21509	23464
120		1629	3259	4888	6518	8147	9777	11406	13036	14665	16295	17924	19553
140		1397	2793	4190	5587	6983	8380	9777	11173	12570	13967	15363	16760
160		1222	2444	3666	4888	6110	7333	8555	9777	10999	12221	13443	14665
180		1086	2173	3259	4345	5432	6518	7604	8690	9777	10863	11949	13036
200		978	1955	2933	3911	4888	5866	6844	7821	8799	9777	10754	11732
220		889	1778	2666	3555	4444	5333	6222	7110	7999	8888	9777	10666
240		815	1629	2444	3259	4074	4888	5703	6518	7333	8147	8962	9777
260		752	1504	2256	3008	3760	4512	5264	6016	6769	7521	8273	9025
280		698	1397	2095	2793	3492	4190	4888	5587	6285	6983	7682	8380
300		652	1304	1955	2607	3259	3911	4562	5214	5866	6518	7170	7821
320		611	1222	1833	2444	3055	3666	4277	4888	5499	6110	6722	7333

Table B.10 Characteristic load-carrying capacities brackets type Simply RL95 4 mm thick
Timber to steel/concrete - Purlin – Fastener 5,0x60 mm screw

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	9777	7888	6610	5292	3969	3175	2646	2268	1984	1764	1587	1443	1323

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	19553

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	24092

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	48185

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		17444	8722	5815	4361	3489	2907	2456	1907	1559	1318	1142	1007	901	815	744	684

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	2421	2421	2421	2421	2421	2421	2421	2421	2421	2421	2421	2421	2421
20	3380	3380	3380	3380	3380	3380	3380	3380	3380	3380	3380	3380	3380
40	5596	5596	5596	5596	5596	5596	5596	5596	5596	5596	5596	5596	5596
60	5815	10466	15118	16254	16254	16254	16254	16254	16254	16254	16254	16254	16254
80	4361	7850	11338	14827	18316	20710	20710	20710	20710	20710	20710	20710	20710
100	3489	6280	9071	11862	14653	17444	20235	20710	20710	20710	20710	20710	20710
120	2907	5233	7559	9885	12210	14536	16862	19188	20710	20710	20710	20710	20710
140	2492	4485	6479	8473	10466	12460	14453	16447	18440	20434	20710	20710	20710
160	2180	3925	5669	7414	9158	10902	12647	14391	16135	17880	19624	20710	20710
180	1938	3489	5039	6590	8140	9691	11241	12792	14342	15893	17444	18994	20545
200	1744	3140	4535	5931	7326	8722	10117	11513	12908	14304	15699	17095	18490
220	1586	2854	4123	5392	6660	7929	9198	10466	11735	13003	14272	15541	16809
240	1454	2617	3779	4942	6105	7268	8431	9594	10757	11920	13083	14246	15408
260	1342	2415	3489	4562	5636	6709	7783	8856	9929	11003	12076	13150	14223
280	1246	2243	3240	4236	5233	6230	7227	8223	9220	10217	11214	12210	13207
300	1163	2093	3024	3954	4884	5815	6745	7675	8605	9536	10466	11396	12327
320	1090	1962	2835	3707	4579	5451	6323	7195	8068	8940	9812	10684	11556

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		9777	19553	29330	39107	48884	58660	68437	78214	87991	97767	107544	117321
40		4888	9777	14665	19553	24442	29330	34219	39107	43995	48884	53772	58660
60		3259	6518	9777	13036	16295	19553	22812	26071	29330	32589	35848	39107
80		2444	4888	7333	9777	12221	14665	17109	19553	21998	24442	26886	29330
100		1955	3911	5866	7821	9777	11732	13687	15643	17598	19553	21509	23464
120		1629	3259	4888	6518	8147	9777	11406	13036	14665	16295	17924	19553
140		1397	2793	4190	5587	6983	8380	9777	11173	12570	13967	15363	16760
160		1222	2444	3666	4888	6110	7333	8555	9777	10999	12221	13443	14665
180		1086	2173	3259	4345	5432	6518	7604	8690	9777	10863	11949	13036
200		978	1955	2933	3911	4888	5866	6844	7821	8799	9777	10754	11732
220		889	1778	2666	3555	4444	5333	6222	7110	7999	8888	9777	10666
240		815	1629	2444	3259	4074	4888	5703	6518	7333	8147	8962	9777
260		752	1504	2256	3008	3760	4512	5264	6016	6769	7521	8273	9025
280		698	1397	2095	2793	3492	4190	4888	5587	6285	6983	7682	8380
300		652	1304	1955	2607	3259	3911	4562	5214	5866	6518	7170	7821
320		611	1222	1833	2444	3055	3666	4277	4888	5499	6110	6722	7333

Table B.11 Characteristic load-carrying capacities brackets type Simply LL95 3 mm thick Timber to steel/concrete - Column

Fastener 4,0x40 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	3136	92	46	31	23	18	15	13	11	10	9	8	8

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	6273

Fastener 4,0x60 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	3717	153	77	51	38	31	26	22	19	17	15	14	13

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	7435

Fastener 5,0x40 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	4458	337	168	112	84	67	56	48	42	37	34	31	28

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	8915

Fastener 5,0x60 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	4727	547	274	182	137	109	91	78	68	61	55	50	46

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	9454

Table B.12 Characteristic load-carrying capacities brackets type Simply LL95 3 mm thick Timber to steel/concrete - Purlin – Fastener 4,0x40 mm nail

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	5622	2718	1359	906	679	544	453	388	340	302	272	247	226

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	11244

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	6146

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	12291

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		13507	6754	4502	3377	1842	1098	782	607	496	420	364	321	287	259	237	218

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	770,9	770,9	770,9	770,9	770,9	770,9	770,9	770,9	770,9	770,9	770,9	770,9	770,9
20	1076	1076	1076	1076	1076	1076	1076	1076	1076	1076	1076	1076	1076
40	1782	1782	1782	1782	1782	1782	1782	1782	1782	1782	1782	1782	1782
60	1852	5176	5176	5176	5176	5176	5176	5176	5176	5176	5176	5176	5176
80	2603	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
100	2082	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
120	1735	3128	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
140	1487	2681	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
160	1301	2346	3390	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
180	1157	2085	3013	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
200	1041	1877	2712	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
220	946,5	1706	2466	3225	3545	3545	3545	3545	3545	3545	3545	3545	3545
240	867,6	1564	2260	2956	3545	3545	3545	3545	3545	3545	3545	3545	3545
260	800,9	1444	2086	2729	3372	3545	3545	3545	3545	3545	3545	3545	3545
280	743,6	1340	1937	2534	3131	3545	3545	3545	3545	3545	3545	3545	3545
300	694,1	1251	1808	2365	2922	3479	3545	3545	3545	3545	3545	3545	3545
320	650,7	1173	1695	2217	2739	3262	3545	3545	3545	3545	3545	3545	3545

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		5622	11244	16866	22488	28110	33732	39354	44976	50598	56220	61841	67463
40		2811	5622	8433	11244	14055	16866	19677	22488	25299	28110	30921	33732
60		1874	3748	5622	7496	9370	11244	13118	14992	16866	18740	20614	22488
80		1405	2811	4216	5622	7027	8433	9838	11244	12649	14055	15460	16866
100		1124	2249	3373	4498	5622	6746	7871	8995	10120	11244	12368	13493
120		937	1874	2811	3748	4685	5622	6559	7496	8433	9370	10307	11244
140		803	1606	2409	3213	4016	4819	5622	6425	7228	8031	8834	9638
160		703	1405	2108	2811	3514	4216	4919	5622	6325	7027	7730	8433
180		625	1249	1874	2499	3123	3748	4373	4997	5622	6247	6871	7496
200		562	1124	1687	2249	2811	3373	3935	4498	5060	5622	6184	6746
220		511	1022	1533	2044	2555	3067	3578	4089	4600	5111	5622	6133
240		468	937	1405	1874	2342	2811	3279	3748	4216	4685	5153	5622
260		432	865	1297	1730	2162	2595	3027	3460	3892	4325	4757	5189
280		402	803	1205	1606	2008	2409	2811	3213	3614	4016	4417	4819
300		375	750	1124	1499	1874	2249	2624	2998	3373	3748	4123	4498
320		351	703	1054	1405	1757	2108	2460	2811	3162	3514	3865	4216

Table B.13 Characteristic load-carrying capacities brackets type Simply LL95 3 mm thick Timber to steel/concrete - Purlin – Fastener 4,0x60 mm nail

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	5622	4529	2265	1510	1132	906	755	647	566	503	453	412	377

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	11244

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	9742

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	19484

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		13507	6754	4502	3377	2701	1830	1303	1012	827	700	606	534	478	432	395	363

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	1285	1285	1285	1285	1285	1285	1285	1285	1285	1285	1285	1285	1285
20	1794	1794	1794	1794	1794	1794	1794	1794	1794	1794	1794	1794	1794
40	2970	2970	2970	2970	2970	2970	2970	2970	2970	2970	2970	2970	2970
60	3086	7455	8627	8627	8627	8627	8627	8627	8627	8627	8627	8627	8627
80	3377	5591	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
100	2701	4473	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
120	2251	3727	5204	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
140	1930	3195	4460	5726	5909	5909	5909	5909	5909	5909	5909	5909	5909
160	1688	2796	3903	5010	5909	5909	5909	5909	5909	5909	5909	5909	5909
180	1501	2485	3469	4453	5437	5909	5909	5909	5909	5909	5909	5909	5909
200	1351	2236	3122	4008	4894	5779	5909	5909	5909	5909	5909	5909	5909
220	1228	2033	2838	3644	4449	5254	5909	5909	5909	5909	5909	5909	5909
240	1126	1864	2602	3340	4078	4816	5554	5909	5909	5909	5909	5909	5909
260	1039	1720	2402	3083	3764	4446	5127	5808	5909	5909	5909	5909	5909
280	964,8	1597	2230	2863	3495	4128	4761	5393	5909	5909	5909	5909	5909
300	900,5	1491	2081	2672	3262	3853	4443	5034	5624	5909	5909	5909	5909
320	844,2	1398	1951	2505	3059	3612	4166	4719	5273	5826	5909	5909	5909

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		5622	11244	16866	22488	28110	33732	39354	44976	50598	56220	61841	67463
40		2811	5622	8433	11244	14055	16866	19677	22488	25299	28110	30921	33732
60		1874	3748	5622	7496	9370	11244	13118	14992	16866	18740	20614	22488
80		1405	2811	4216	5622	7027	8433	9838	11244	12649	14055	15460	16866
100		1124	2249	3373	4498	5622	6746	7871	8995	10120	11244	12368	13493
120		937	1874	2811	3748	4685	5622	6559	7496	8433	9370	10307	11244
140		803	1606	2409	3213	4016	4819	5622	6425	7228	8031	8834	9638
160		703	1405	2108	2811	3514	4216	4919	5622	6325	7027	7730	8433
180		625	1249	1874	2499	3123	3748	4373	4997	5622	6247	6871	7496
200		562	1124	1687	2249	2811	3373	3935	4498	5060	5622	6184	6746
220		511	1022	1533	2044	2555	3067	3578	4089	4600	5111	5622	6133
240		468	937	1405	1874	2342	2811	3279	3748	4216	4685	5153	5622
260		432	865	1297	1730	2162	2595	3027	3460	3892	4325	4757	5189
280		402	803	1205	1606	2008	2409	2811	3213	3614	4016	4417	4819
300		375	750	1124	1499	1874	2249	2624	2998	3373	3748	4123	4498
320		351	703	1054	1405	1757	2108	2460	2811	3162	3514	3865	4216

Table B.14 Characteristic load-carrying capacities brackets type Simply LL95 3 mm thick Timber to steel/concrete - Purlin – Fastener 5,0x40 mm screw

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	5622	4536	3801	3271	2490	1992	1660	1423	1245	1107	996	906	830

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	11244

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	17754

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	35509

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		13507	6754	4502	3377	2701	2251	1902	1477	1207	1021	884	780	697	631	576	530

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875
20	2617	2617	2617	2617	2617	2617	2617	2617	2617	2617	2617	2617	2617
40	4333	4333	4333	4333	4333	4333	4333	4333	4333	4333	4333	4333	4333
60	4502	7455	10407	12586	12586	12586	12586	12586	12586	12586	12586	12586	12586
80	3377	5591	7805	10020	12234	12995	12995	12995	12995	12995	12995	12995	12995
100	2701	4473	6244	8016	9787	11559	12995	12995	12995	12995	12995	12995	12995
120	2251	3727	5204	6680	8156	9632	11108	12585	12995	12995	12995	12995	12995
140	1930	3195	4460	5726	6991	8256	9522	10787	12052	12995	12995	12995	12995
160	1688	2796	3903	5010	6117	7224	8331	9438	10546	11653	12760	12995	12995
180	1501	2485	3469	4453	5437	6421	7406	8390	9374	10358	11342	12326	12995
200	1351	2236	3122	4008	4894	5779	6665	7551	8437	9322	10208	11094	11979
220	1228	2033	2838	3644	4449	5254	6059	6864	7670	8475	9280	10085	10890
240	1126	1864	2602	3340	4078	4816	5554	6292	7030	7769	8507	9245	9983
260	1039	1720	2402	3083	3764	4446	5127	5808	6490	7171	7852	8534	9215
280	964,8	1597	2230	2863	3495	4128	4761	5393	6026	6659	7291	7924	8557
300	900,5	1491	2081	2672	3262	3853	4443	5034	5624	6215	6805	7396	7986
320	844,2	1398	1951	2505	3059	3612	4166	4719	5273	5826	6380	6934	7487

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		5622	11244	16866	22488	28110	33732	39354	44976	50598	56220	61841	67463
40		2811	5622	8433	11244	14055	16866	19677	22488	25299	28110	30921	33732
60		1874	3748	5622	7496	9370	11244	13118	14992	16866	18740	20614	22488
80		1405	2811	4216	5622	7027	8433	9838	11244	12649	14055	15460	16866
100		1124	2249	3373	4498	5622	6746	7871	8995	10120	11244	12368	13493
120		937	1874	2811	3748	4685	5622	6559	7496	8433	9370	10307	11244
140		803	1606	2409	3213	4016	4819	5622	6425	7228	8031	8834	9638
160		703	1405	2108	2811	3514	4216	4919	5622	6325	7027	7730	8433
180		625	1249	1874	2499	3123	3748	4373	4997	5622	6247	6871	7496
200		562	1124	1687	2249	2811	3373	3935	4498	5060	5622	6184	6746
220		511	1022	1533	2044	2555	3067	3578	4089	4600	5111	5622	6133
240		468	937	1405	1874	2342	2811	3279	3748	4216	4685	5153	5622
260		432	865	1297	1730	2162	2595	3027	3460	3892	4325	4757	5189
280		402	803	1205	1606	2008	2409	2811	3213	3614	4016	4417	4819
300		375	750	1124	1499	1874	2249	2624	2998	3373	3748	4123	4498
320		351	703	1054	1405	1757	2108	2460	2811	3162	3514	3865	4216

Table B.15 Characteristic load-carrying capacities brackets type Simply LL95 3 mm thick
Timber to steel/concrete - Purlin – Fastener 5,0x60 mm screw

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	5622	4536	3801	3271	2871	2558	2251	1930	1688	1501	1351	1228	1126

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	11244

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	22800

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	45601

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		13507	6754	4502	3377	2701	2251	1902	1477	1207	1021	884	780	697	631	576	530

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875
20	2617	2617	2617	2617	2617	2617	2617	2617	2617	2617	2617	2617	2617
40	4333	4333	4333	4333	4333	4333	4333	4333	4333	4333	4333	4333	4333
60	4502	7455	10407	12586	12586	12586	12586	12586	12586	12586	12586	12586	12586
80	3377	5591	7805	10020	12234	14448	16663	18877	21091	21116	21116	21116	21116
100	2701	4473	6244	8016	9787	11559	13330	15102	16873	18644	20416	21116	21116
120	2251	3727	5204	6680	8156	9632	11108	12585	14061	15537	17013	18489	19966
140	1930	3195	4460	5726	6991	8256	9522	10787	12052	13317	14583	15848	17113
160	1688	2796	3903	5010	6117	7224	8331	9438	10546	11653	12760	13867	14974
180	1501	2485	3469	4453	5437	6421	7406	8390	9374	10358	11342	12326	13310
200	1351	2236	3122	4008	4894	5779	6665	7551	8437	9322	10208	11094	11979
220	1228	2033	2838	3644	4449	5254	6059	6864	7670	8475	9280	10085	10890
240	1126	1864	2602	3340	4078	4816	5554	6292	7030	7769	8507	9245	9983
260	1039	1720	2402	3083	3764	4446	5127	5808	6490	7171	7852	8534	9215
280	964,8	1597	2230	2863	3495	4128	4761	5393	6026	6659	7291	7924	8557
300	900,5	1491	2081	2672	3262	3853	4443	5034	5624	6215	6805	7396	7986
320	844,2	1398	1951	2505	3059	3612	4166	4719	5273	5826	6380	6934	7487

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		5622	11244	16866	22488	28110	33732	39354	44976	50598	56220	61841	67463
40		2811	5622	8433	11244	14055	16866	19677	22488	25299	28110	30921	33732
60		1874	3748	5622	7496	9370	11244	13118	14992	16866	18740	20614	22488
80		1405	2811	4216	5622	7027	8433	9838	11244	12649	14055	15460	16866
100		1124	2249	3373	4498	5622	6746	7871	8995	10120	11244	12368	13493
120		937	1874	2811	3748	4685	5622	6559	7496	8433	9370	10307	11244
140		803	1606	2409	3213	4016	4819	5622	6425	7228	8031	8834	9638
160		703	1405	2108	2811	3514	4216	4919	5622	6325	7027	7730	8433
180		625	1249	1874	2499	3123	3748	4373	4997	5622	6247	6871	7496
200		562	1124	1687	2249	2811	3373	3935	4498	5060	5622	6184	6746
220		511	1022	1533	2044	2555	3067	3578	4089	4600	5111	5622	6133
240		468	937	1405	1874	2342	2811	3279	3748	4216	4685	5153	5622
260		432	865	1297	1730	2162	2595	3027	3460	3892	4325	4757	5189
280		402	803	1205	1606	2008	2409	2811	3213	3614	4016	4417	4819
300		375	750	1124	1499	1874	2249	2624	2998	3373	3748	4123	4498
320		351	703	1054	1405	1757	2108	2460	2811	3162	3514	3865	4216

Table B.16 Characteristic load-carrying capacities brackets type Simply LL95 4 mm thick
Timber to steel/concrete - Column

Fastener 4,0x40 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	3085	92	46	31	23	18	15	13	11	10	9	8	8

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	6170

Fastener 4,0x50 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	3717	153	77	51	38	31	26	22	19	17	15	14	13

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	7435

Fastener 5,0x40 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	4353	326	163	109	82	65	54	47	41	36	33	30	27

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	8706

Fastener 5,0x60 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	4727	537	268	179	134	107	89	77	67	60	54	49	45

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	9454

Table B.17 Characteristic load-carrying capacities brackets type Simply LL95 4 mm thick Timber to steel/concrete - Purlin – Fastener 4,0x40 mm nail

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7260	2718	1359	906	679	544	453	388	340	302	272	247	226

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	14521

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	6134

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	12269

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		17444	8722	5815	4361	1842	1098	782	607	496	420	364	321	287	259	237	218

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	770,9	770,9	770,9	770,9	770,9	770,9	770,9	770,9	770,9	770,9	770,9	770,9	770,9
20	1076	1076	1076	1076	1076	1076	1076	1076	1076	1076	1076	1076	1076
40	1782	1782	1782	1782	1782	1782	1782	1782	1782	1782	1782	1782	1782
60	1852	5176	5176	5176	5176	5176	5176	5176	5176	5176	5176	5176	5176
80	2603	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
100	2082	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
120	1735	3105	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
140	1487	2661	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
160	1301	2329	3356	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
180	1157	2070	2983	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
200	1041	1863	2685	3507	3545	3545	3545	3545	3545	3545	3545	3545	3545
220	946,5	1694	2441	3188	3545	3545	3545	3545	3545	3545	3545	3545	3545
240	867,6	1553	2237	2922	3545	3545	3545	3545	3545	3545	3545	3545	3545
260	800,9	1433	2065	2698	3330	3545	3545	3545	3545	3545	3545	3545	3545
280	743,6	1331	1918	2505	3092	3545	3545	3545	3545	3545	3545	3545	3545
300	694,1	1242	1790	2338	2886	3434	3545	3545	3545	3545	3545	3545	3545
320	650,7	1164	1678	2192	2705	3219	3545	3545	3545	3545	3545	3545	3545

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		7260	14521	21781	29041	36301	43562	50822	58082	65343	72603	79863	87124
40		3630	7260	10890	14521	18151	21781	25411	29041	32671	36301	39932	43562
60		2420	4840	7260	9680	12100	14521	16941	19361	21781	24201	26621	29041
80		1815	3630	5445	7260	9075	10890	12706	14521	16336	18151	19966	21781
100		1452	2904	4356	5808	7260	8712	10164	11616	13069	14521	15973	17425
120		1210	2420	3630	4840	6050	7260	8470	9680	10890	12100	13311	14521
140		1037	2074	3112	4149	5186	6223	7260	8297	9335	10372	11409	12446
160		907,5	1815	2723	3630	4538	5445	6353	7260	8168	9075	9983	10890
180		806,7	1613	2420	3227	4033	4840	5647	6454	7260	8067	8874	9680
200		726	1452	2178	2904	3630	4356	5082	5808	6534	7260	7986	8712
220		660	1320	1980	2640	3300	3960	4620	5280	5940	6600	7260	7920
240		605	1210	1815	2420	3025	3630	4235	4840	5445	6050	6655	7260
260		558,5	1117	1675	2234	2792	3351	3909	4468	5026	5585	6143	6702
280		518,6	1037	1556	2074	2593	3112	3630	4149	4667	5186	5705	6223
300		484	968	1452	1936	2420	2904	3388	3872	4356	4840	5324	5808
320		453,8	907,5	1361	1815	2269	2723	3176	3630	4084	4538	4991	5445

Table B.18 Characteristic load-carrying capacities brackets type Simply LL95 4 mm thick Timber to steel/concrete - Purlin – Fastener 4,0x60 mm nail

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7260	4529	2265	1510	1132	906	755	647	566	503	453	412	377

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	14521

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	9742

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	19484

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		17444	8722	5815	4361	3071	1830	1303	1012	827	700	606	534	478	432	395	363

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	1285	1285	1285	1285	1285	1285	1285	1285	1285	1285	1285	1285	1285
20	1794	1794	1794	1794	1794	1794	1794	1794	1794	1794	1794	1794	1794
40	2970	2970	2970	2970	2970	2970	2970	2970	2970	2970	2970	2970	2970
60	3086	7661	8627	8627	8627	8627	8627	8627	8627	8627	8627	8627	8627
80	4338	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
100	3470	5451	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
120	2892	4542	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
140	2479	3894	5308	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
160	2169	3407	4645	5883	5909	5909	5909	5909	5909	5909	5909	5909	5909
180	1928	3028	4129	5229	5909	5909	5909	5909	5909	5909	5909	5909	5909
200	1735	2725	3716	4706	5696	5909	5909	5909	5909	5909	5909	5909	5909
220	1577	2478	3378	4278	5178	5909	5909	5909	5909	5909	5909	5909	5909
240	1446	2271	3096	3922	4747	5572	5909	5909	5909	5909	5909	5909	5909
260	1335	2097	2858	3620	4382	5144	5905	5909	5909	5909	5909	5909	5909
280	1239	1947	2654	3361	4069	4776	5483	5909	5909	5909	5909	5909	5909
300	1157	1817	2477	3137	3798	4458	5118	5778	5909	5909	5909	5909	5909
320	1084	1703	2322	2941	3560	4179	4798	5417	5909	5909	5909	5909	5909

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		7260	14521	21781	29041	36301	43562	50822	58082	65343	72603	79863	87124
40		3630	7260	10890	14521	18151	21781	25411	29041	32671	36301	39932	43562
60		2420	4840	7260	9680	12100	14521	16941	19361	21781	24201	26621	29041
80		1815	3630	5445	7260	9075	10890	12706	14521	16336	18151	19966	21781
100		1452	2904	4356	5808	7260	8712	10164	11616	13069	14521	15973	17425
120		1210	2420	3630	4840	6050	7260	8470	9680	10890	12100	13311	14521
140		1037	2074	3112	4149	5186	6223	7260	8297	9335	10372	11409	12446
160		908	1815	2723	3630	4538	5445	6353	7260	8168	9075	9983	10890
180		807	1613	2420	3227	4033	4840	5647	6454	7260	8067	8874	9680
200		726	1452	2178	2904	3630	4356	5082	5808	6534	7260	7986	8712
220		660	1320	1980	2640	3300	3960	4620	5280	5940	6600	7260	7920
240		605	1210	1815	2420	3025	3630	4235	4840	5445	6050	6655	7260
260		558	1117	1675	2234	2792	3351	3909	4468	5026	5585	6143	6702
280		519	1037	1556	2074	2593	3112	3630	4149	4667	5186	5705	6223
300		484	968	1452	1936	2420	2904	3388	3872	4356	4840	5324	5808
320		454	908	1361	1815	2269	2723	3176	3630	4084	4538	4991	5445

Table B.19 Characteristic load-carrying capacities brackets type Simply LL95 4 mm thick
Timber to steel/concrete - Purlin – Fastener 5,0x40 mm screw

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7260	5857	4825	3216	2412	1930	1608	1378	1206	1072	965	877	804

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	14521

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	17260

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	34520

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		17444	8722	5815	4361	3489	2907	2456	1907	1559	1318	1142	1007	901	815	744	684

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	2421	2421	2421	2421	2421	2421	2421	2421	2421	2421	2421	2421	2421
20	3380	3380	3380	3380	3380	3380	3380	3380	3380	3380	3380	3380	3380
40	5596	5596	5596	5596	5596	5596	5596	5596	5596	5596	5596	5596	5596
60	5815	9627	13440	16254	16254	16254	16254	16254	16254	16254	16254	16254	16254
80	4361	7220	10080	12588	12588	12588	12588	12588	12588	12588	12588	12588	12588
100	3489	5776	8064	10352	12588	12588	12588	12588	12588	12588	12588	12588	12588
120	2907	4814	6720	8626	10533	12439	12588	12588	12588	12588	12588	12588	12588
140	2492	4126	5760	7394	9028	10662	12296	12588	12588	12588	12588	12588	12588
160	2180	3610	5040	6470	7900	9329	10759	12189	12588	12588	12588	12588	12588
180	1938	3209	4480	5751	7022	8293	9564	10835	12106	12588	12588	12588	12588
200	1744	2888	4032	5176	6320	7464	8607	9751	10895	12039	12588	12588	12588
220	1586	2626	3665	4705	5745	6785	7825	8865	9905	10944	11984	12588	12588
240	1454	2407	3360	4313	5266	6220	7173	8126	9079	10032	10986	11939	12588
260	1342	2222	3102	3981	4861	5741	6621	7501	8381	9261	10141	11020	11900
280	1246	2063	2880	3697	4514	5331	6148	6965	7782	8599	9416	10233	11050
300	1163	1925	2688	3451	4213	4976	5738	6501	7263	8026	8788	9551	10314
320	1090	1805	2520	3235	3950	4665	5380	6095	6809	7524	8239	8954	9669

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		7260	14521	21781	29041	36301	43562	50822	58082	65343	72603	79863	87124
40		3630	7260	10890	14521	18151	21781	25411	29041	32671	36301	39932	43562
60		2420	4840	7260	9680	12100	14521	16941	19361	21781	24201	26621	29041
80		1815	3630	5445	7260	9075	10890	12706	14521	16336	18151	19966	21781
100		1452	2904	4356	5808	7260	8712	10164	11616	13069	14521	15973	17425
120		1210	2420	3630	4840	6050	7260	8470	9680	10890	12100	13311	14521
140		1037	2074	3112	4149	5186	6223	7260	8297	9335	10372	11409	12446
160		908	1815	2723	3630	4538	5445	6353	7260	8168	9075	9983	10890
180		807	1613	2420	3227	4033	4840	5647	6454	7260	8067	8874	9680
200		726	1452	2178	2904	3630	4356	5082	5808	6534	7260	7986	8712
220		660	1320	1980	2640	3300	3960	4620	5280	5940	6600	7260	7920
240		605	1210	1815	2420	3025	3630	4235	4840	5445	6050	6655	7260
260		558	1117	1675	2234	2792	3351	3909	4468	5026	5585	6143	6702
280		519	1037	1556	2074	2593	3112	3630	4149	4667	5186	5705	6223
300		484	968	1452	1936	2420	2904	3388	3872	4356	4840	5324	5808
320		454	908	1361	1815	2269	2723	3176	3630	4084	4538	4991	5445

Table B.20 Characteristic load-carrying capacities brackets type Simply LL95 4 mm thick Timber to steel/concrete - Purlin – Fastener 5,0x60 mm screw

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7260	5857	4909	4225	3708	3175	2646	2268	1984	1764	1587	1443	1323

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	14521

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	22646

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	45292

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		17444	8722	5815	4361	3489	2907	2456	1907	1559	1318	1142	1007	901	815	744	684

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	2421	2421	2421	2421	2421	2421	2421	2421	2421	2421	2421	2421	2421
20	3380	3380	3380	3380	3380	3380	3380	3380	3380	3380	3380	3380	3380
40	5596	5596	5596	5596	5596	5596	5596	5596	5596	5596	5596	5596	5596
60	5815	9627	13440	16254	16254	16254	16254	16254	16254	16254	16254	16254	16254
80	4361	7220	10080	12940	15799	18659	20710	20710	20710	20710	20710	20710	20710
100	3489	5776	8064	10352	12639	14927	17215	19502	20710	20710	20710	20710	20710
120	2907	4814	6720	8626	10533	12439	14346	16252	18158	20065	20710	20710	20710
140	2492	4126	5760	7394	9028	10662	12296	13930	15564	17198	18832	20467	20710
160	2180	3610	5040	6470	7900	9329	10759	12189	13619	15049	16478	17908	19338
180	1938	3209	4480	5751	7022	8293	9564	10835	12106	13377	14647	15918	17189
200	1744	2888	4032	5176	6320	7464	8607	9751	10895	12039	13183	14327	15470
220	1586	2626	3665	4705	5745	6785	7825	8865	9905	10944	11984	13024	14064
240	1454	2407	3360	4313	5266	6220	7173	8126	9079	10032	10986	11939	12892
260	1342	2222	3102	3981	4861	5741	6621	7501	8381	9261	10141	11020	11900
280	1246	2063	2880	3697	4514	5331	6148	6965	7782	8599	9416	10233	11050
300	1163	1925	2688	3451	4213	4976	5738	6501	7263	8026	8788	9551	10314
320	1090	1805	2520	3235	3950	4665	5380	6095	6809	7524	8239	8954	9669

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		7260	14521	21781	29041	36301	43562	50822	58082	65343	72603	79863	87124
40		3630	7260	10890	14521	18151	21781	25411	29041	32671	36301	39932	43562
60		2420	4840	7260	9680	12100	14521	16941	19361	21781	24201	26621	29041
80		1815	3630	5445	7260	9075	10890	12706	14521	16336	18151	19966	21781
100		1452	2904	4356	5808	7260	8712	10164	11616	13069	14521	15973	17425
120		1210	2420	3630	4840	6050	7260	8470	9680	10890	12100	13311	14521
140		1037	2074	3112	4149	5186	6223	7260	8297	9335	10372	11409	12446
160		908	1815	2723	3630	4538	5445	6353	7260	8168	9075	9983	10890
180		807	1613	2420	3227	4033	4840	5647	6454	7260	8067	8874	9680
200		726	1452	2178	2904	3630	4356	5082	5808	6534	7260	7986	8712
220		660	1320	1980	2640	3300	3960	4620	5280	5940	6600	7260	7920
240		605	1210	1815	2420	3025	3630	4235	4840	5445	6050	6655	7260
260		558	1117	1675	2234	2792	3351	3909	4468	5026	5585	6143	6702
280		519	1037	1556	2074	2593	3112	3630	4149	4667	5186	5705	6223
300		484	968	1452	1936	2420	2904	3388	3872	4356	4840	5324	5808
320		454	908	1361	1815	2269	2723	3176	3630	4084	4538	4991	5445

Table B.21 Characteristic load-carrying capacities brackets type Simply RL135 3 mm thick
Timber to steel/concrete - Column

Fastener 4,0x40 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7571	173	86	58	43	35	29	25	22	19	17	16	14

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	15141

Fastener 4,0x50 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7571	288	144	96	72	58	48	41	36	32	29	26	24

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	15141

Fastener 5,0x40 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7571	633	316	211	158	127	105	90	79	70	63	58	53

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	15141

Fastener 5,0x60 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7090	1642	821	547	410	328	274	235	205	182	164	149	137

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	14180

Table B.22 Characteristic load-carrying capacities brackets type Simply RL135 3 mm thick Timber to steel/concrete - Purlin – Fastener 4,0x40 mm nail

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7571	3079	1540	1026	770	616	513	440	385	342	308	280	257

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	15141

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	14099

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	28199

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		13507	6754	4502	3377	2088	1244	886	688	562	476	412	363	325	294	268	247

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	874	874	874	874	874	874	874	874	874	874	874	874	874
20	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219
40	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019
60	2864	5865	5865	5865	5865	5865	5865	5865	5865	5865	5865	5865	5865
80	2603	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
100	2082	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
120	1735	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
140	1487	3473	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
160	1301	3039	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
180	1157	2701	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
200	1041	2431	3512	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
220	946	2210	3193	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
240	868	2026	2927	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
260	801	1870	2701	3533	3545	3545	3545	3545	3545	3545	3545	3545	3545
280	744	1737	2508	3280	3545	3545	3545	3545	3545	3545	3545	3545	3545
300	694	1621	2341	3062	3545	3545	3545	3545	3545	3545	3545	3545	3545
320	651	1520	2195	2870	3545	3545	3545	3545	3545	3545	3545	3545	3545

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		7571	15141	22712	30282	37853	45423	52994	60564	68135	75705	83276	90847
40		3785	7571	11356	15141	18926	22712	26497	30282	34067	37853	41638	45423
60		2524	5047	7571	10094	12618	15141	17665	20188	22712	25235	27759	30282
80		1893	3785	5678	7571	9463	11356	13248	15141	17034	18926	20819	22712
100		1514	3028	4542	6056	7571	9085	10599	12113	13627	15141	16655	18169
120		1262	2524	3785	5047	6309	7571	8832	10094	11356	12618	13879	15141
140		1082	2163	3245	4326	5408	6489	7571	8652	9734	10815	11897	12978
160		946	1893	2839	3785	4732	5678	6624	7571	8517	9463	10409	11356
180		841	1682	2524	3365	4206	5047	5888	6729	7571	8412	9253	10094
200		757	1514	2271	3028	3785	4542	5299	6056	6813	7571	8328	9085
220		688	1376	2065	2753	3441	4129	4818	5506	6194	6882	7571	8259
240		631	1262	1893	2524	3154	3785	4416	5047	5678	6309	6940	7571
260		582	1165	1747	2329	2912	3494	4076	4659	5241	5823	6406	6988
280		541	1082	1622	2163	2704	3245	3785	4326	4867	5408	5948	6489
300		505	1009	1514	2019	2524	3028	3533	4038	4542	5047	5552	6056
320		473	946	1419	1893	2366	2839	3312	3785	4258	4732	5205	5678

Table B.23 Characteristic load-carrying capacities brackets type Simply RL135 3 mm thick Timber to steel/concrete - Purlin – Fastener 4,0x60 mm nail

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7571	5132	2566	1711	1283	1026	855	733	641	570	513	467	428

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	15141

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	20475

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	40950

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		13507	6754	4502	3377	2701	1956	1393	1082	884	748	648	571	511	462	422	388

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373
20	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917
40	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174
60	4502	8104	9220	9220	9220	9220	9220	9220	9220	9220	9220	9220	9220
80	3377	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
100	2701	4863	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
120	2251	4052	5853	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
140	1930	3473	5017	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
160	1688	3039	4390	5741	5909	5909	5909	5909	5909	5909	5909	5909	5909
180	1501	2701	3902	5103	5909	5909	5909	5909	5909	5909	5909	5909	5909
200	1351	2431	3512	4592	5673	5909	5909	5909	5909	5909	5909	5909	5909
220	1228	2210	3193	4175	5157	5909	5909	5909	5909	5909	5909	5909	5909
240	1126	2026	2927	3827	4728	5628	5909	5909	5909	5909	5909	5909	5909
260	1039	1870	2701	3533	4364	5195	5909	5909	5909	5909	5909	5909	5909
280	965	1737	2508	3280	4052	4824	5596	5909	5909	5909	5909	5909	5909
300	900	1621	2341	3062	3782	4502	5223	5909	5909	5909	5909	5909	5909
320	844	1520	2195	2870	3546	4221	4896	5572	5909	5909	5909	5909	5909

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		7571	15141	22712	30282	37853	45423	52994	60564	68135	75705	83276	90847
40		3785	7571	11356	15141	18926	22712	26497	30282	34067	37853	41638	45423
60		2524	5047	7571	10094	12618	15141	17665	20188	22712	25235	27759	30282
80		1893	3785	5678	7571	9463	11356	13248	15141	17034	18926	20819	22712
100		1514	3028	4542	6056	7571	9085	10599	12113	13627	15141	16655	18169
120		1262	2524	3785	5047	6309	7571	8832	10094	11356	12618	13879	15141
140		1082	2163	3245	4326	5408	6489	7571	8652	9734	10815	11897	12978
160		946	1893	2839	3785	4732	5678	6624	7571	8517	9463	10409	11356
180		841	1682	2524	3365	4206	5047	5888	6729	7571	8412	9253	10094
200		757	1514	2271	3028	3785	4542	5299	6056	6813	7571	8328	9085
220		688	1376	2065	2753	3441	4129	4818	5506	6194	6882	7571	8259
240		631	1262	1893	2524	3154	3785	4416	5047	5678	6309	6940	7571
260		582	1165	1747	2329	2912	3494	4076	4659	5241	5823	6406	6988
280		541	1082	1622	2163	2704	3245	3785	4326	4867	5408	5948	6489
300		505	1009	1514	2019	2524	3028	3533	4038	4542	5047	5552	6056
320		473	946	1419	1893	2366	2839	3312	3785	4258	4732	5205	5678

Table B.24 Characteristic load-carrying capacities brackets type Simply RL135 3 mm thick
Timber to steel/concrete - Purlin – Fastener 5,0x40 mm screw

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7571	6108	5119	3762	2821	2257	1881	1612	1411	1254	1129	1026	940

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	15141

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	35910

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	71820

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		13507	6754	4502	3377	2701	1956	1393	1082	884	748	648	571	511	462	422	388

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373
20	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917
40	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174
60	4502	8104	9220	9220	9220	9220	9220	9220	9220	9220	9220	9220	9220
80	3377	6078	8780	11481	12995	12995	12995	12995	12995	12995	12995	12995	12995
100	2701	4863	7024	9185	11346	12995	12995	12995	12995	12995	12995	12995	12995
120	2251	4052	5853	7654	9455	11256	12995	12995	12995	12995	12995	12995	12995
140	1930	3473	5017	6561	8104	9648	11192	12735	12995	12995	12995	12995	12995
160	1688	3039	4390	5741	7091	8442	9793	11144	12494	12995	12995	12995	12995
180	1501	2701	3902	5103	6303	7504	8705	9905	11106	12307	12995	12995	12995
200	1351	2431	3512	4592	5673	6754	7834	8915	9995	11076	12157	12995	12995
220	1228	2210	3193	4175	5157	6140	7122	8104	9087	10069	11051	12034	12995
240	1126	2026	2927	3827	4728	5628	6529	7429	8329	9230	10130	11031	11931
260	1039	1870	2701	3533	4364	5195	6026	6858	7689	8520	9351	10182	11014
280	965	1737	2508	3280	4052	4824	5596	6368	7140	7911	8683	9455	10227
300	900	1621	2341	3062	3782	4502	5223	5943	6664	7384	8104	8825	9545
320	844	1520	2195	2870	3546	4221	4896	5572	6247	6922	7598	8273	8949

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		7571	15141	22712	30282	37853	45423	52994	60564	68135	75705	83276	90847
40		3785	7571	11356	15141	18926	22712	26497	30282	34067	37853	41638	45423
60		2524	5047	7571	10094	12618	15141	17665	20188	22712	25235	27759	30282
80		1893	3785	5678	7571	9463	11356	13248	15141	17034	18926	20819	22712
100		1514	3028	4542	6056	7571	9085	10599	12113	13627	15141	16655	18169
120		1262	2524	3785	5047	6309	7571	8832	10094	11356	12618	13879	15141
140		1082	2163	3245	4326	5408	6489	7571	8652	9734	10815	11897	12978
160		946	1893	2839	3785	4732	5678	6624	7571	8517	9463	10409	11356
180		841	1682	2524	3365	4206	5047	5888	6729	7571	8412	9253	10094
200		757	1514	2271	3028	3785	4542	5299	6056	6813	7571	8328	9085
220		688	1376	2065	2753	3441	4129	4818	5506	6194	6882	7571	8259
240		631	1262	1893	2524	3154	3785	4416	5047	5678	6309	6940	7571
260		582	1165	1747	2329	2912	3494	4076	4659	5241	5823	6406	6988
280		541	1082	1622	2163	2704	3245	3785	4326	4867	5408	5948	6489
300		505	1009	1514	2019	2524	3028	3533	4038	4542	5047	5552	6056
320		473	946	1419	1893	2366	2839	3312	3785	4258	4732	5205	5678

Table B.25 Characteristic load-carrying capacities brackets type Simply RL135 3 mm thick
Timber to steel/concrete - Purlin – Fastener 5,0x60 mm screw

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7571	6108	5119	4405	3377	2701	2251	1930	1688	1501	1351	1228	1126

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	15141

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	44775

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	89549

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		13507	6754	4502	3377	2701	1956	1393	1082	884	748	648	571	511	462	422	388

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373
20	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917
40	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174
60	4502	8104	9220	9220	9220	9220	9220	9220	9220	9220	9220	9220	9220
80	3377	6078	8780	11481	14183	16884	19586	21116	21116	21116	21116	21116	21116
100	2701	4863	7024	9185	11346	13507	15668	17830	19991	21116	21116	21116	21116
120	2251	4052	5853	7654	9455	11256	13057	14858	16659	18460	20261	21116	21116
140	1930	3473	5017	6561	8104	9648	11192	12735	14279	15823	17366	18910	20454
160	1688	3039	4390	5741	7091	8442	9793	11144	12494	13845	15196	16546	17897
180	1501	2701	3902	5103	6303	7504	8705	9905	11106	12307	13507	14708	15909
200	1351	2431	3512	4592	5673	6754	7834	8915	9995	11076	12157	13237	14318
220	1228	2210	3193	4175	5157	6140	7122	8104	9087	10069	11051	12034	13016
240	1126	2026	2927	3827	4728	5628	6529	7429	8329	9230	10130	11031	11931
260	1039	1870	2701	3533	4364	5195	6026	6858	7689	8520	9351	10182	11014
280	965	1737	2508	3280	4052	4824	5596	6368	7140	7911	8683	9455	10227
300	900	1621	2341	3062	3782	4502	5223	5943	6664	7384	8104	8825	9545
320	844	1520	2195	2870	3546	4221	4896	5572	6247	6922	7598	8273	8949

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		7571	15141	22712	30282	37853	45423	52994	60564	68135	75705	83276	90847
40		3785	7571	11356	15141	18926	22712	26497	30282	34067	37853	41638	45423
60		2524	5047	7571	10094	12618	15141	17665	20188	22712	25235	27759	30282
80		1893	3785	5678	7571	9463	11356	13248	15141	17034	18926	20819	22712
100		1514	3028	4542	6056	7571	9085	10599	12113	13627	15141	16655	18169
120		1262	2524	3785	5047	6309	7571	8832	10094	11356	12618	13879	15141
140		1082	2163	3245	4326	5408	6489	7571	8652	9734	10815	11897	12978
160		946	1893	2839	3785	4732	5678	6624	7571	8517	9463	10409	11356
180		841	1682	2524	3365	4206	5047	5888	6729	7571	8412	9253	10094
200		757	1514	2271	3028	3785	4542	5299	6056	6813	7571	8328	9085
220		688	1376	2065	2753	3441	4129	4818	5506	6194	6882	7571	8259
240		631	1262	1893	2524	3154	3785	4416	5047	5678	6309	6940	7571
260		582	1165	1747	2329	2912	3494	4076	4659	5241	5823	6406	6988
280		541	1082	1622	2163	2704	3245	3785	4326	4867	5408	5948	6489
300		505	1009	1514	2019	2524	3028	3533	4038	4542	5047	5552	6056
320		473	946	1419	1893	2366	2839	3312	3785	4258	4732	5205	5678

Table B.26 Characteristic load-carrying capacities brackets type Simply RL135 4 mm thick
Timber to steel/concrete - Column

Fastener 4,0x40 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	8236	173	86	58	43	35	29	25	22	19	17	16	14

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	16472

Fastener 4,0x60 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	9777	288	144	96	72	58	48	41	36	32	29	26	24

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	19553

Fastener 5,0x40 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	9777	613	306	204	153	123	102	88	77	68	61	56	51

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	19553

Fastener 5,0x60 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	9777	1008	504	336	252	202	168	144	126	112	101	92	84

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	19553

Table B.27 Characteristic load-carrying capacities brackets type Simply RL135 4 mm thick Timber to steel/concrete - Purlin – Fastener 4,0x40 mm nail

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	9777	3079	1540	1026	770	616	513	440	385	342	308	280	257

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	19553

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	13870

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	27740

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		17444	8722	5815	4361	2088	1244	886	688	562	476	412	363	325	294	268	247

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	874	874	874	874	874	874	874	874	874	874	874	874	874
20	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219
40	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019
60	2864	5865	5865	5865	5865	5865	5865	5865	5865	5865	5865	5865	5865
80	2603	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
100	2082	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
120	1735	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
140	1487	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
160	1301	3293	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
180	1157	2927	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
200	1041	2634	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
220	946	2395	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
240	868	2195	3523	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
260	801	2026	3252	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
280	744	1882	3020	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
300	694	1756	2818	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
320	651	1646	2642	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		9777	19553	29330	39107	48884	58660	68437	78214	87991	97767	107544	117321
40		4888	9777	14665	19553	24442	29330	34219	39107	43995	48884	53772	58660
60		3259	6518	9777	13036	16295	19553	22812	26071	29330	32589	35848	39107
80		2444	4888	7333	9777	12221	14665	17109	19553	21998	24442	26886	29330
100		1955	3911	5866	7821	9777	11732	13687	15643	17598	19553	21509	23464
120		1629	3259	4888	6518	8147	9777	11406	13036	14665	16295	17924	19553
140		1397	2793	4190	5587	6983	8380	9777	11173	12570	13967	15363	16760
160		1222	2444	3666	4888	6110	7333	8555	9777	10999	12221	13443	14665
180		1086	2173	3259	4345	5432	6518	7604	8690	9777	10863	11949	13036
200		978	1955	2933	3911	4888	5866	6844	7821	8799	9777	10754	11732
220		889	1778	2666	3555	4444	5333	6222	7110	7999	8888	9777	10666
240		815	1629	2444	3259	4074	4888	5703	6518	7333	8147	8962	9777
260		752	1504	2256	3008	3760	4512	5264	6016	6769	7521	8273	9025
280		698	1397	2095	2793	3492	4190	4888	5587	6285	6983	7682	8380
300		652	1304	1955	2607	3259	3911	4562	5214	5866	6518	7170	7821
320		611	1222	1833	2444	3055	3666	4277	4888	5499	6110	6722	7333

Table B.28 Characteristic load-carrying capacities brackets type Simply RL135 4 mm thick Timber to steel/concrete - Purlin – Fastener 4,0x60 mm nail

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	9777	5132	2566	1711	1283	1026	855	733	641	570	513	467	428

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	19553

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	20475

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	40950

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		17444	8722	5815	4361	3479	2073	1477	1147	937	793	687	606	542	490	447	411

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	1456	1456	1456	1456	1456	1456	1456	1456	1456	1456	1456	1456	1456
20	2032	2032	2032	2032	2032	2032	2032	2032	2032	2032	2032	2032	2032
40	3365	3365	3365	3365	3365	3365	3365	3365	3365	3365	3365	3365	3365
60	4773	9775	9775	9775	9775	9775	9775	9775	9775	9775	9775	9775	9775
80	4338	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
100	3470	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
120	2892	5233	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
140	2479	4485	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
160	2169	3925	5669	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
180	1928	3489	5039	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
200	1735	3140	4535	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
220	1577	2854	4123	5392	5909	5909	5909	5909	5909	5909	5909	5909	5909
240	1446	2617	3779	4942	5909	5909	5909	5909	5909	5909	5909	5909	5909
260	1335	2415	3489	4562	5636	5909	5909	5909	5909	5909	5909	5909	5909
280	1239	2243	3240	4236	5233	5909	5909	5909	5909	5909	5909	5909	5909
300	1157	2093	3024	3954	4884	5815	5909	5909	5909	5909	5909	5909	5909
320	1084	1962	2835	3707	4579	5451	5909	5909	5909	5909	5909	5909	5909

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		9777	19553	29330	39107	48884	58660	68437	78214	87991	97767	107544	117321
40		4888	9777	14665	19553	24442	29330	34219	39107	43995	48884	53772	58660
60		3259	6518	9777	13036	16295	19553	22812	26071	29330	32589	35848	39107
80		2444	4888	7333	9777	12221	14665	17109	19553	21998	24442	26886	29330
100		1955	3911	5866	7821	9777	11732	13687	15643	17598	19553	21509	23464
120		1629	3259	4888	6518	8147	9777	11406	13036	14665	16295	17924	19553
140		1397	2793	4190	5587	6983	8380	9777	11173	12570	13967	15363	16760
160		1222	2444	3666	4888	6110	7333	8555	9777	10999	12221	13443	14665
180		1086	2173	3259	4345	5432	6518	7604	8690	9777	10863	11949	13036
200		978	1955	2933	3911	4888	5866	6844	7821	8799	9777	10754	11732
220		889	1778	2666	3555	4444	5333	6222	7110	7999	8888	9777	10666
240		815	1629	2444	3259	4074	4888	5703	6518	7333	8147	8962	9777
260		752	1504	2256	3008	3760	4512	5264	6016	6769	7521	8273	9025
280		698	1397	2095	2793	3492	4190	4888	5587	6285	6983	7682	8380
300		652	1304	1955	2607	3259	3911	4562	5214	5866	6518	7170	7821
320		611	1222	1833	2444	3055	3666	4277	4888	5499	6110	6722	7333

Table B.29 Characteristic load-carrying capacities brackets type Simply RL135 4 mm thick
Timber to steel/concrete - Purlin – Fastener 5,0x40 mm screw

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	9777	7888	5467	3644	2733	2187	1822	1562	1367	1215	1093	994	911

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	19553

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	34931

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	69861

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		17444	8722	5815	4361	3489	2526	1799	1397	1142	965	836	738	660	597	545	501

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773
20	2476	2476	2476	2476	2476	2476	2476	2476	2476	2476	2476	2476	2476
40	4099	4099	4099	4099	4099	4099	4099	4099	4099	4099	4099	4099	4099
60	5815	10466	11907	11907	11907	11907	11907	11907	11907	11907	11907	11907	11907
80	4361	7850	11338	12588	12588	12588	12588	12588	12588	12588	12588	12588	12588
100	3489	6280	9071	11862	12588	12588	12588	12588	12588	12588	12588	12588	12588
120	2907	5233	7559	9885	12210	12588	12588	12588	12588	12588	12588	12588	12588
140	2492	4485	6479	8473	10466	12460	12588	12588	12588	12588	12588	12588	12588
160	2180	3925	5669	7414	9158	10902	12588	12588	12588	12588	12588	12588	12588
180	1938	3489	5039	6590	8140	9691	11241	12588	12588	12588	12588	12588	12588
200	1744	3140	4535	5931	7326	8722	10117	11513	12588	12588	12588	12588	12588
220	1586	2854	4123	5392	6660	7929	9198	10466	11735	12588	12588	12588	12588
240	1454	2617	3779	4942	6105	7268	8431	9594	10757	11920	12588	12588	12588
260	1342	2415	3489	4562	5636	6709	7783	8856	9929	11003	12076	12588	12588
280	1246	2243	3240	4236	5233	6230	7227	8223	9220	10217	11214	12210	12588
300	1163	2093	3024	3954	4884	5815	6745	7675	8605	9536	10466	11396	12327
320	1090	1962	2835	3707	4579	5451	6323	7195	8068	8940	9812	10684	11556

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		9777	19553	29330	39107	48884	58660	68437	78214	87991	97767	107544	117321
40		4888	9777	14665	19553	24442	29330	34219	39107	43995	48884	53772	58660
60		3259	6518	9777	13036	16295	19553	22812	26071	29330	32589	35848	39107
80		2444	4888	7333	9777	12221	14665	17109	19553	21998	24442	26886	29330
100		1955	3911	5866	7821	9777	11732	13687	15643	17598	19553	21509	23464
120		1629	3259	4888	6518	8147	9777	11406	13036	14665	16295	17924	19553
140		1397	2793	4190	5587	6983	8380	9777	11173	12570	13967	15363	16760
160		1222	2444	3666	4888	6110	7333	8555	9777	10999	12221	13443	14665
180		1086	2173	3259	4345	5432	6518	7604	8690	9777	10863	11949	13036
200		978	1955	2933	3911	4888	5866	6844	7821	8799	9777	10754	11732
220		889	1778	2666	3555	4444	5333	6222	7110	7999	8888	9777	10666
240		815	1629	2444	3259	4074	4888	5703	6518	7333	8147	8962	9777
260		752	1504	2256	3008	3760	4512	5264	6016	6769	7521	8273	9025
280		698	1397	2095	2793	3492	4190	4888	5587	6285	6983	7682	8380
300		652	1304	1955	2607	3259	3911	4562	5214	5866	6518	7170	7821
320		611	1222	1833	2444	3055	3666	4277	4888	5499	6110	6722	7333

Table B.30 Characteristic load-carrying capacities brackets type Simply RL135 4 mm thick
Timber to steel/concrete - Purlin – Fastener 5,0x60 mm screw

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	9777	7888	6610	5689	4361	3489	2907	2492	2180	1938	1744	1586	1454

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	19553

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	44525

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	89050

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		17444	8722	5815	4361	3489	2526	1799	1397	1142	965	836	738	660	597	545	501

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773
20	2476	2476	2476	2476	2476	2476	2476	2476	2476	2476	2476	2476	2476
40	4099	4099	4099	4099	4099	4099	4099	4099	4099	4099	4099	4099	4099
60	5815	10466	11907	11907	11907	11907	11907	11907	11907	11907	11907	11907	11907
80	4361	7850	11338	14827	18316	20710	20710	20710	20710	20710	20710	20710	20710
100	3489	6280	9071	11862	14653	17444	20235	20710	20710	20710	20710	20710	20710
120	2907	5233	7559	9885	12210	14536	16862	19188	20710	20710	20710	20710	20710
140	2492	4485	6479	8473	10466	12460	14453	16447	18440	20434	20710	20710	20710
160	2180	3925	5669	7414	9158	10902	12647	14391	16135	17880	19624	20710	20710
180	1938	3489	5039	6590	8140	9691	11241	12792	14342	15893	17444	18994	20545
200	1744	3140	4535	5931	7326	8722	10117	11513	12908	14304	15699	17095	18490
220	1586	2854	4123	5392	6660	7929	9198	10466	11735	13003	14272	15541	16809
240	1454	2617	3779	4942	6105	7268	8431	9594	10757	11920	13083	14246	15408
260	1342	2415	3489	4562	5636	6709	7783	8856	9929	11003	12076	13150	14223
280	1246	2243	3240	4236	5233	6230	7227	8223	9220	10217	11214	12210	13207
300	1163	2093	3024	3954	4884	5815	6745	7675	8605	9536	10466	11396	12327
320	1090	1962	2835	3707	4579	5451	6323	7195	8068	8940	9812	10684	11556

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		9777	19553	29330	39107	48884	58660	68437	78214	87991	97767	107544	117321
40		4888	9777	14665	19553	24442	29330	34219	39107	43995	48884	53772	58660
60		3259	6518	9777	13036	16295	19553	22812	26071	29330	32589	35848	39107
80		2444	4888	7333	9777	12221	14665	17109	19553	21998	24442	26886	29330
100		1955	3911	5866	7821	9777	11732	13687	15643	17598	19553	21509	23464
120		1629	3259	4888	6518	8147	9777	11406	13036	14665	16295	17924	19553
140		1397	2793	4190	5587	6983	8380	9777	11173	12570	13967	15363	16760
160		1222	2444	3666	4888	6110	7333	8555	9777	10999	12221	13443	14665
180		1086	2173	3259	4345	5432	6518	7604	8690	9777	10863	11949	13036
200		978	1955	2933	3911	4888	5866	6844	7821	8799	9777	10754	11732
220		889	1778	2666	3555	4444	5333	6222	7110	7999	8888	9777	10666
240		815	1629	2444	3259	4074	4888	5703	6518	7333	8147	8962	9777
260		752	1504	2256	3008	3760	4512	5264	6016	6769	7521	8273	9025
280		698	1397	2095	2793	3492	4190	4888	5587	6285	6983	7682	8380
300		652	1304	1955	2607	3259	3911	4562	5214	5866	6518	7170	7821
320		611	1222	1833	2444	3055	3666	4277	4888	5499	6110	6722	7333

Table B.31 Characteristic load-carrying capacities brackets type Simply LL135 3 mm thick Timber to steel/concrete - Column

Fastener 4,0x40 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	5622	173	86	58	43	35	29	25	22	19	17	16	14

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	11244

Fastener 4,0x60 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	5622	288	144	96	72	58	48	41	36	32	29	26	24

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	11244

Fastener 5,0x40 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	5622	633	316	211	158	127	105	90	79	70	63	58	53

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	11244

Fastener 5,0x60 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	5622	1028	514	343	257	206	171	147	128	114	103	93	86

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	11244

Table B.32 Characteristic load-carrying capacities brackets type Simply LL135 3 mm thick Timber to steel/concrete - Purlin – Fastener 4,0x40 mm nail

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	5622	3079	1540	1026	770	616	513	440	385	342	308	280	257

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	11244

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	14099

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	28199

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		13507	6754	4502	3377	2088	1244	886	688	562	476	412	363	325	294	268	247

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	874	874	874	874	874	874	874	874	874	874	874	874	874
20	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219
40	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019
60	2864	5865	5865	5865	5865	5865	5865	5865	5865	5865	5865	5865	5865
80	2603	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
100	2082	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
120	1735	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
140	1487	3195	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
160	1301	2796	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
180	1157	2485	3469	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
200	1041	2236	3122	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
220	946	2033	2838	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
240	868	1864	2602	3340	3545	3545	3545	3545	3545	3545	3545	3545	3545
260	801	1720	2402	3083	3545	3545	3545	3545	3545	3545	3545	3545	3545
280	744	1597	2230	2863	3495	3545	3545	3545	3545	3545	3545	3545	3545
300	694	1491	2081	2672	3262	3545	3545	3545	3545	3545	3545	3545	3545
320	651	1398	1951	2505	3059	3545	3545	3545	3545	3545	3545	3545	3545

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		5622	11244	16866	22488	28110	33732	39354	44976	50598	56220	61841	67463
40		2811	5622	8433	11244	14055	16866	19677	22488	25299	28110	30921	33732
60		1874	3748	5622	7496	9370	11244	13118	14992	16866	18740	20614	22488
80		1405	2811	4216	5622	7027	8433	9838	11244	12649	14055	15460	16866
100		1124	2249	3373	4498	5622	6746	7871	8995	10120	11244	12368	13493
120		937	1874	2811	3748	4685	5622	6559	7496	8433	9370	10307	11244
140		803	1606	2409	3213	4016	4819	5622	6425	7228	8031	8834	9638
160		703	1405	2108	2811	3514	4216	4919	5622	6325	7027	7730	8433
180		625	1249	1874	2499	3123	3748	4373	4997	5622	6247	6871	7496
200		562	1124	1687	2249	2811	3373	3935	4498	5060	5622	6184	6746
220		511	1022	1533	2044	2555	3067	3578	4089	4600	5111	5622	6133
240		468	937	1405	1874	2342	2811	3279	3748	4216	4685	5153	5622
260		432	865	1297	1730	2162	2595	3027	3460	3892	4325	4757	5189
280		402	803	1205	1606	2008	2409	2811	3213	3614	4016	4417	4819
300		375	750	1124	1499	1874	2249	2624	2998	3373	3748	4123	4498
320		351	703	1054	1405	1757	2108	2460	2811	3162	3514	3865	4216

Table B.33 Characteristic load-carrying capacities brackets type Simply LL135 3 mm thick Timber to steel/concrete - Purlin – Fastener 4,0x60 mm nail

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	5622	4536	2566	1711	1283	1026	855	733	641	570	513	467	428

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	11244

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	17492

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	34984

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		13507	6754	4502	3377	2701	1956	1393	1082	884	748	648	571	511	462	422	388

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373
20	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917
40	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174
60	4502	7455	9220	9220	9220	9220	9220	9220	9220	9220	9220	9220	9220
80	3377	5591	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
100	2701	4473	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
120	2251	3727	5204	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
140	1930	3195	4460	5726	5909	5909	5909	5909	5909	5909	5909	5909	5909
160	1688	2796	3903	5010	5909	5909	5909	5909	5909	5909	5909	5909	5909
180	1501	2485	3469	4453	5437	5909	5909	5909	5909	5909	5909	5909	5909
200	1351	2236	3122	4008	4894	5779	5909	5909	5909	5909	5909	5909	5909
220	1228	2033	2838	3644	4449	5254	5909	5909	5909	5909	5909	5909	5909
240	1126	1864	2602	3340	4078	4816	5554	5909	5909	5909	5909	5909	5909
260	1039	1720	2402	3083	3764	4446	5127	5808	5909	5909	5909	5909	5909
280	965	1597	2230	2863	3495	4128	4761	5393	5909	5909	5909	5909	5909
300	900	1491	2081	2672	3262	3853	4443	5034	5624	5909	5909	5909	5909
320	844	1398	1951	2505	3059	3612	4166	4719	5273	5826	5909	5909	5909

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		5622	11244	16866	22488	28110	33732	39354	44976	50598	56220	61841	67463
40		2811	5622	8433	11244	14055	16866	19677	22488	25299	28110	30921	33732
60		1874	3748	5622	7496	9370	11244	13118	14992	16866	18740	20614	22488
80		1405	2811	4216	5622	7027	8433	9838	11244	12649	14055	15460	16866
100		1124	2249	3373	4498	5622	6746	7871	8995	10120	11244	12368	13493
120		937	1874	2811	3748	4685	5622	6559	7496	8433	9370	10307	11244
140		803	1606	2409	3213	4016	4819	5622	6425	7228	8031	8834	9638
160		703	1405	2108	2811	3514	4216	4919	5622	6325	7027	7730	8433
180		625	1249	1874	2499	3123	3748	4373	4997	5622	6247	6871	7496
200		562	1124	1687	2249	2811	3373	3935	4498	5060	5622	6184	6746
220		511	1022	1533	2044	2555	3067	3578	4089	4600	5111	5622	6133
240		468	937	1405	1874	2342	2811	3279	3748	4216	4685	5153	5622
260		432	865	1297	1730	2162	2595	3027	3460	3892	4325	4757	5189
280		402	803	1205	1606	2008	2409	2811	3213	3614	4016	4417	4819
300		375	750	1124	1499	1874	2249	2624	2998	3373	3748	4123	4498
320		351	703	1054	1405	1757	2108	2460	2811	3162	3514	3865	4216

Table B.34 Characteristic load-carrying capacities brackets type Simply LL135 3 mm thick Timber to steel/concrete - Purlin – Fastener 5,0x40 mm screw

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	5622	4536	3801	3271	2821	2257	1881	1612	1411	1254	1129	1026	940

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	11244

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	32308

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	64616

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		13507	6754	4502	3377	2701	1956	1393	1082	884	748	648	571	511	462	422	388

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373
20	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917
40	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174
60	4502	7455	9220	9220	9220	9220	9220	9220	9220	9220	9220	9220	9220
80	3377	5591	7805	10020	12234	12995	12995	12995	12995	12995	12995	12995	12995
100	2701	4473	6244	8016	9787	11559	12995	12995	12995	12995	12995	12995	12995
120	2251	3727	5204	6680	8156	9632	11108	12585	12995	12995	12995	12995	12995
140	1930	3195	4460	5726	6991	8256	9522	10787	12052	12995	12995	12995	12995
160	1688	2796	3903	5010	6117	7224	8331	9438	10546	11653	12760	12995	12995
180	1501	2485	3469	4453	5437	6421	7406	8390	9374	10358	11342	12326	12995
200	1351	2236	3122	4008	4894	5779	6665	7551	8437	9322	10208	11094	11979
220	1228	2033	2838	3644	4449	5254	6059	6864	7670	8475	9280	10085	10890
240	1126	1864	2602	3340	4078	4816	5554	6292	7030	7769	8507	9245	9983
260	1039	1720	2402	3083	3764	4446	5127	5808	6490	7171	7852	8534	9215
280	965	1597	2230	2863	3495	4128	4761	5393	6026	6659	7291	7924	8557
300	900	1491	2081	2672	3262	3853	4443	5034	5624	6215	6805	7396	7986
320	844	1398	1951	2505	3059	3612	4166	4719	5273	5826	6380	6934	7487

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		5622	11244	16866	22488	28110	33732	39354	44976	50598	56220	61841	67463
40		2811	5622	8433	11244	14055	16866	19677	22488	25299	28110	30921	33732
60		1874	3748	5622	7496	9370	11244	13118	14992	16866	18740	20614	22488
80		1405	2811	4216	5622	7027	8433	9838	11244	12649	14055	15460	16866
100		1124	2249	3373	4498	5622	6746	7871	8995	10120	11244	12368	13493
120		937	1874	2811	3748	4685	5622	6559	7496	8433	9370	10307	11244
140		803	1606	2409	3213	4016	4819	5622	6425	7228	8031	8834	9638
160		703	1405	2108	2811	3514	4216	4919	5622	6325	7027	7730	8433
180		625	1249	1874	2499	3123	3748	4373	4997	5622	6247	6871	7496
200		562	1124	1687	2249	2811	3373	3935	4498	5060	5622	6184	6746
220		511	1022	1533	2044	2555	3067	3578	4089	4600	5111	5622	6133
240		468	937	1405	1874	2342	2811	3279	3748	4216	4685	5153	5622
260		432	865	1297	1730	2162	2595	3027	3460	3892	4325	4757	5189
280		402	803	1205	1606	2008	2409	2811	3213	3614	4016	4417	4819
300		375	750	1124	1499	1874	2249	2624	2998	3373	3748	4123	4498
320		351	703	1054	1405	1757	2108	2460	2811	3162	3514	3865	4216

Table B.35 Characteristic load-carrying capacities brackets type Simply LL135 3 mm thick
Timber to steel/concrete - Purlin – Fastener 5,0x60 mm screw

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	5622	4536	3801	3271	2871	2558	2251	1930	1688	1501	1351	1228	1126

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	11244

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	41961

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	83923

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		13507	6754	4502	3377	2701	1956	1393	1082	884	748	648	571	511	462	422	388

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373
20	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917
40	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174	3174
60	4502	7455	9220	9220	9220	9220	9220	9220	9220	9220	9220	9220	9220
80	3377	5591	7805	10020	12234	14448	16663	18877	21091	21116	21116	21116	21116
100	2701	4473	6244	8016	9787	11559	13330	15102	16873	18644	20416	21116	21116
120	2251	3727	5204	6680	8156	9632	11108	12585	14061	15537	17013	18489	19966
140	1930	3195	4460	5726	6991	8256	9522	10787	12052	13317	14583	15848	17113
160	1688	2796	3903	5010	6117	7224	8331	9438	10546	11653	12760	13867	14974
180	1501	2485	3469	4453	5437	6421	7406	8390	9374	10358	11342	12326	13310
200	1351	2236	3122	4008	4894	5779	6665	7551	8437	9322	10208	11094	11979
220	1228	2033	2838	3644	4449	5254	6059	6864	7670	8475	9280	10085	10890
240	1126	1864	2602	3340	4078	4816	5554	6292	7030	7769	8507	9245	9983
260	1039	1720	2402	3083	3764	4446	5127	5808	6490	7171	7852	8534	9215
280	965	1597	2230	2863	3495	4128	4761	5393	6026	6659	7291	7924	8557
300	900	1491	2081	2672	3262	3853	4443	5034	5624	6215	6805	7396	7986
320	844	1398	1951	2505	3059	3612	4166	4719	5273	5826	6380	6934	7487

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		5622	11244	16866	22488	28110	33732	39354	44976	50598	56220	61841	67463
40		2811	5622	8433	11244	14055	16866	19677	22488	25299	28110	30921	33732
60		1874	3748	5622	7496	9370	11244	13118	14992	16866	18740	20614	22488
80		1405	2811	4216	5622	7027	8433	9838	11244	12649	14055	15460	16866
100		1124	2249	3373	4498	5622	6746	7871	8995	10120	11244	12368	13493
120		937	1874	2811	3748	4685	5622	6559	7496	8433	9370	10307	11244
140		803	1606	2409	3213	4016	4819	5622	6425	7228	8031	8834	9638
160		703	1405	2108	2811	3514	4216	4919	5622	6325	7027	7730	8433
180		625	1249	1874	2499	3123	3748	4373	4997	5622	6247	6871	7496
200		562	1124	1687	2249	2811	3373	3935	4498	5060	5622	6184	6746
220		511	1022	1533	2044	2555	3067	3578	4089	4600	5111	5622	6133
240		468	937	1405	1874	2342	2811	3279	3748	4216	4685	5153	5622
260		432	865	1297	1730	2162	2595	3027	3460	3892	4325	4757	5189
280		402	803	1205	1606	2008	2409	2811	3213	3614	4016	4417	4819
300		375	750	1124	1499	1874	2249	2624	2998	3373	3748	4123	4498
320		351	703	1054	1405	1757	2108	2460	2811	3162	3514	3865	4216

Table B.36 Characteristic load-carrying capacities brackets type Simply LL135 4 mm thick Timber to steel/concrete - Column

Fastener 4,0x40 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7260	173	86	58	43	35	29	25	22	19	17	16	14

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	14521

Fastener 4,0x60 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7260	288	144	96	72	58	48	41	36	32	29	26	24

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	14521

Fastener 5,0x40 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7260	613	306	204	153	123	102	88	77	68	61	56	51

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	14521

Fastener 5,0x60 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7260	1008	504	336	252	202	168	144	126	112	101	92	84

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	14521

Table B.37 Characteristic load-carrying capacities brackets type Simply LL135 4 mm thick Timber to steel/concrete - Purlin – Fastener 4,0x40 mm nail

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7260	3079	1540	1026	770	616	513	440	385	342	308	280	257

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	14521

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	13870

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	27740

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		17444	8722	5815	4361	2088	1244	886	688	562	476	412	363	325	294	268	247

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	873,5	873,5	873,5	873,5	873,5	873,5	873,5	873,5	873,5	873,5	873,5	873,5	873,5
20	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219
40	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019
60	2864	5865	5865	5865	5865	5865	5865	5865	5865	5865	5865	5865	5865
80	2603	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
100	2082	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
120	1735	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
140	1487	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
160	1301	3293	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
180	1157	2927	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
200	1041	2634	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
220	946,5	2395	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
240	867,6	2195	3360	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
260	800,9	2026	3102	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
280	743,6	1882	2880	3545	3545	3545	3545	3545	3545	3545	3545	3545	3545
300	694,1	1756	2688	3451	3545	3545	3545	3545	3545	3545	3545	3545	3545
320	650,7	1646	2520	3235	3545	3545	3545	3545	3545	3545	3545	3545	3545

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		7260	14521	21781	29041	36301	43562	50822	58082	65343	72603	79863	87124
40		3630	7260	10890	14521	18151	21781	25411	29041	32671	36301	39932	43562
60		2420	4840	7260	9680	12100	14521	16941	19361	21781	24201	26621	29041
80		1815	3630	5445	7260	9075	10890	12706	14521	16336	18151	19966	21781
100		1452	2904	4356	5808	7260	8712	10164	11616	13069	14521	15973	17425
120		1210	2420	3630	4840	6050	7260	8470	9680	10890	12100	13311	14521
140		1037	2074	3112	4149	5186	6223	7260	8297	9335	10372	11409	12446
160		908	1815	2723	3630	4538	5445	6353	7260	8168	9075	9983	10890
180		807	1613	2420	3227	4033	4840	5647	6454	7260	8067	8874	9680
200		726	1452	2178	2904	3630	4356	5082	5808	6534	7260	7986	8712
220		660	1320	1980	2640	3300	3960	4620	5280	5940	6600	7260	7920
240		605	1210	1815	2420	3025	3630	4235	4840	5445	6050	6655	7260
260		558	1117	1675	2234	2792	3351	3909	4468	5026	5585	6143	6702
280		519	1037	1556	2074	2593	3112	3630	4149	4667	5186	5705	6223
300		484	968	1452	1936	2420	2904	3388	3872	4356	4840	5324	5808
320		454	908	1361	1815	2269	2723	3176	3630	4084	4538	4991	5445

Table B.38 Characteristic load-carrying capacities brackets type Simply LL135 4 mm thick Timber to steel/concrete - Purlin – Fastener 4,0x60 mm nail

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7260	5132	2566	1711	1283	1026	855	733	641	570	513	467	428

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	14521

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	17492

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	34984

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		17444	8722	5815	4361	3479	2073	1477	1147	937	793	687	606	542	490	447	411

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	1456	1456	1456	1456	1456	1456	1456	1456	1456	1456	1456	1456	1456
20	2032	2032	2032	2032	2032	2032	2032	2032	2032	2032	2032	2032	2032
40	3365	3365	3365	3365	3365	3365	3365	3365	3365	3365	3365	3365	3365
60	4773	9627	9775	9775	9775	9775	9775	9775	9775	9775	9775	9775	9775
80	4338	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
100	3470	5776	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
120	2892	4814	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
140	2479	4126	5760	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
160	2169	3610	5040	5909	5909	5909	5909	5909	5909	5909	5909	5909	5909
180	1928	3209	4480	5751	5909	5909	5909	5909	5909	5909	5909	5909	5909
200	1735	2888	4032	5176	5909	5909	5909	5909	5909	5909	5909	5909	5909
220	1577	2626	3665	4705	5745	5909	5909	5909	5909	5909	5909	5909	5909
240	1446	2407	3360	4313	5266	5909	5909	5909	5909	5909	5909	5909	5909
260	1335	2222	3102	3981	4861	5741	5909	5909	5909	5909	5909	5909	5909
280	1239	2063	2880	3697	4514	5331	5909	5909	5909	5909	5909	5909	5909
300	1157	1925	2688	3451	4213	4976	5738	5909	5909	5909	5909	5909	5909
320	1084	1805	2520	3235	3950	4665	5380	5909	5909	5909	5909	5909	5909

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		7260	14521	21781	29041	36301	43562	50822	58082	65343	72603	79863	87124
40		3630	7260	10890	14521	18151	21781	25411	29041	32671	36301	39932	43562
60		2420	4840	7260	9680	12100	14521	16941	19361	21781	24201	26621	29041
80		1815	3630	5445	7260	9075	10890	12706	14521	16336	18151	19966	21781
100		1452	2904	4356	5808	7260	8712	10164	11616	13069	14521	15973	17425
120		1210	2420	3630	4840	6050	7260	8470	9680	10890	12100	13311	14521
140		1037	2074	3112	4149	5186	6223	7260	8297	9335	10372	11409	12446
160		908	1815	2723	3630	4538	5445	6353	7260	8168	9075	9983	10890
180		807	1613	2420	3227	4033	4840	5647	6454	7260	8067	8874	9680
200		726	1452	2178	2904	3630	4356	5082	5808	6534	7260	7986	8712
220		660	1320	1980	2640	3300	3960	4620	5280	5940	6600	7260	7920
240		605	1210	1815	2420	3025	3630	4235	4840	5445	6050	6655	7260
260		558	1117	1675	2234	2792	3351	3909	4468	5026	5585	6143	6702
280		519	1037	1556	2074	2593	3112	3630	4149	4667	5186	5705	6223
300		484	968	1452	1936	2420	2904	3388	3872	4356	4840	5324	5808
320		454	908	1361	1815	2269	2723	3176	3630	4084	4538	4991	5445

Table B.39 Characteristic load-carrying capacities brackets type Simply LL135 4 mm thick
Timber to steel/concrete - Purlin – Fastener 5,0x40 mm screw

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7260	5857	4909	3644	2733	2187	1822	1562	1367	1215	1093	994	911

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	14521

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	31402

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	62805

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		17444	8722	5815	4361	3489	2526	1799	1397	1142	965	836	738	660	597	545	501

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773
20	2476	2476	2476	2476	2476	2476	2476	2476	2476	2476	2476	2476	2476
40	4099	4099	4099	4099	4099	4099	4099	4099	4099	4099	4099	4099	4099
60	5815	9627	11907	11907	11907	11907	11907	11907	11907	11907	11907	11907	11907
80	4361	7220	10080	12588	12588	12588	12588	12588	12588	12588	12588	12588	12588
100	3489	5776	8064	10352	12588	12588	12588	12588	12588	12588	12588	12588	12588
120	2907	4814	6720	8626	10533	12439	12588	12588	12588	12588	12588	12588	12588
140	2492	4126	5760	7394	9028	10662	12296	12588	12588	12588	12588	12588	12588
160	2180	3610	5040	6470	7900	9329	10759	12189	12588	12588	12588	12588	12588
180	1938	3209	4480	5751	7022	8293	9564	10835	12106	12588	12588	12588	12588
200	1744	2888	4032	5176	6320	7464	8607	9751	10895	12039	12588	12588	12588
220	1586	2626	3665	4705	5745	6785	7825	8865	9905	10944	11984	12588	12588
240	1454	2407	3360	4313	5266	6220	7173	8126	9079	10032	10986	11939	12588
260	1342	2222	3102	3981	4861	5741	6621	7501	8381	9261	10141	11020	11900
280	1246	2063	2880	3697	4514	5331	6148	6965	7782	8599	9416	10233	11050
300	1163	1925	2688	3451	4213	4976	5738	6501	7263	8026	8788	9551	10314
320	1090	1805	2520	3235	3950	4665	5380	6095	6809	7524	8239	8954	9669

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		7260	14521	21781	29041	36301	43562	50822	58082	65343	72603	79863	87124
40		3630	7260	10890	14521	18151	21781	25411	29041	32671	36301	39932	43562
60		2420	4840	7260	9680	12100	14521	16941	19361	21781	24201	26621	29041
80		1815	3630	5445	7260	9075	10890	12706	14521	16336	18151	19966	21781
100		1452	2904	4356	5808	7260	8712	10164	11616	13069	14521	15973	17425
120		1210	2420	3630	4840	6050	7260	8470	9680	10890	12100	13311	14521
140		1037	2074	3112	4149	5186	6223	7260	8297	9335	10372	11409	12446
160		908	1815	2723	3630	4538	5445	6353	7260	8168	9075	9983	10890
180		807	1613	2420	3227	4033	4840	5647	6454	7260	8067	8874	9680
200		726	1452	2178	2904	3630	4356	5082	5808	6534	7260	7986	8712
220		660	1320	1980	2640	3300	3960	4620	5280	5940	6600	7260	7920
240		605	1210	1815	2420	3025	3630	4235	4840	5445	6050	6655	7260
260		558	1117	1675	2234	2792	3351	3909	4468	5026	5585	6143	6702
280		519	1037	1556	2074	2593	3112	3630	4149	4667	5186	5705	6223
300		484	968	1452	1936	2420	2904	3388	3872	4356	4840	5324	5808
320		454	908	1361	1815	2269	2723	3176	3630	4084	4538	4991	5445

Table B.40 Characteristic load-carrying capacities brackets type Simply LL135 4 mm thick
Timber to steel/concrete - Purlin – Fastener 5,0x60 mm screw

Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7260	5857	4909	4225	3708	3304	2907	2492	2180	1938	1744	1586	1454

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	14521

Load capacity $F_{2/3,k}$ - one angle bracket

Δs [mm]	0
$F_{2/3}$ [N]	41656

$F_{2/3,k}$ - two angle brackets

Δs [mm]	0
$F_{2/3}$ [N]	83313

Load capacity $F_{4,k}$ - one angle bracket

e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
F_4 [N]		17444	8722	5815	4361	3489	2526	1799	1397	1142	965	836	738	660	597	545	501

Load capacity $F_{5,k}$ [N] - one angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773	1773
20	2476	2476	2476	2476	2476	2476	2476	2476	2476	2476	2476	2476	2476
40	4099	4099	4099	4099	4099	4099	4099	4099	4099	4099	4099	4099	4099
60	5815	9627	11907	11907	11907	11907	11907	11907	11907	11907	11907	11907	11907
80	4361	7220	10080	12940	15799	18659	20710	20710	20710	20710	20710	20710	20710
100	3489	5776	8064	10352	12639	14927	17215	19502	20710	20710	20710	20710	20710
120	2907	4814	6720	8626	10533	12439	14346	16252	18158	20065	20710	20710	20710
140	2492	4126	5760	7394	9028	10662	12296	13930	15564	17198	18832	20467	20710
160	2180	3610	5040	6470	7900	9329	10759	12189	13619	15049	16478	17908	19338
180	1938	3209	4480	5751	7022	8293	9564	10835	12106	13377	14647	15918	17189
200	1744	2888	4032	5176	6320	7464	8607	9751	10895	12039	13183	14327	15470
220	1586	2626	3665	4705	5745	6785	7825	8865	9905	10944	11984	13024	14064
240	1454	2407	3360	4313	5266	6220	7173	8126	9079	10032	10986	11939	12892
260	1342	2222	3102	3981	4861	5741	6621	7501	8381	9261	10141	11020	11900
280	1246	2063	2880	3697	4514	5331	6148	6965	7782	8599	9416	10233	11050
300	1163	1925	2688	3451	4213	4976	5738	6501	7263	8026	8788	9551	10314
320	1090	1805	2520	3235	3950	4665	5380	6095	6809	7524	8239	8954	9669

Load capacity $F_{4+5,k}$ [N] - two angle bracket

beam height [mm]	beam width [mm]												
	0	20	40	60	80	100	120	140	160	180	200	220	240
0													
20		7260	14521	21781	29041	36301	43562	50822	58082	65343	72603	79863	87124
40		3630	7260	10890	14521	18151	21781	25411	29041	32671	36301	39932	43562
60		2420	4840	7260	9680	12100	14521	16941	19361	21781	24201	26621	29041
80		1815	3630	5445	7260	9075	10890	12706	14521	16336	18151	19966	21781
100		1452	2904	4356	5808	7260	8712	10164	11616	13069	14521	15973	17425
120		1210	2420	3630	4840	6050	7260	8470	9680	10890	12100	13311	14521
140		1037	2074	3112	4149	5186	6223	7260	8297	9335	10372	11409	12446
160		908	1815	2723	3630	4538	5445	6353	7260	8168	9075	9983	10890
180		807	1613	2420	3227	4033	4840	5647	6454	7260	8067	8874	9680
200		726	1452	2178	2904	3630	4356	5082	5808	6534	7260	7986	8712
220		660	1320	1980	2640	3300	3960	4620	5280	5940	6600	7260	7920
240		605	1210	1815	2420	3025	3630	4235	4840	5445	6050	6655	7260
260		558	1117	1675	2234	2792	3351	3909	4468	5026	5585	6143	6702
280		519	1037	1556	2074	2593	3112	3630	4149	4667	5186	5705	6223
300		484	968	1452	1936	2420	2904	3388	3872	4356	4840	5324	5808
320		454	908	1361	1815	2269	2723	3176	3630	4084	4538	4991	5445

Table B.41 Characteristic load-carrying capacities brackets type Simply RL285 3 mm thick
Timber to steel/concrete - Column

Fastener 4,0x40 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7571	155	78	52	39	31	26	22	19	17	16	14	13

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	15141

Fastener 4,0x60 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7571	259	129	86	65	52	43	37	32	29	26	24	22

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	15141

Fastener 5,0x40 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7571	569	284	190	142	114	95	81	71	63	57	52	47

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	15141

Fastener 5,0x60 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7571	924	462	308	231	185	154	132	116	103	92	84	77

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	15141

Table B.42 Characteristic load-carrying capacities brackets type Simply RL285 4 mm thick
Timber to steel/concrete - Column

Fastener 4,0x40 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	9777	155	78	52	39	31	26	22	19	17	16	14	13

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	19553

Fastener 4,0x60 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	9777	259	129	86	65	52	43	37	32	29	26	24	22

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	19553

Fastener 5,0x40 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	9777	551	275	184	138	110	92	79	69	61	55	50	46

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	19553

Fastener 5,0x60 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	9777	906	453	302	227	181	151	129	113	101	91	82	76

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	19553

Table B.43 Characteristic load-carrying capacities brackets type Simply LL285 3 mm thick Timber to steel/concrete - Column

Fastener 4,0x40 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	5622	155	78	52	39	31	26	22	19	17	16	14	13

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	11244

Fastener 4,0x60 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	5622	259	129	86	65	52	43	37	32	29	26	24	22

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	11244

Fastener 5,0x40 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	5622	569	284	190	142	114	95	81	71	63	57	52	47

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	11244

Fastener 5,0x60 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	5622	1094	547	365	274	219	182	156	137	122	109	99	91

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	11244

Table B.44 Characteristic load-carrying capacities brackets type Simply LL285 4 mm thick Timber to steel/concrete - Column

Fastener 4,0x40 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7260	184	92	61	46	37	31	26	23	20	18	17	15

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	14521

Fastener 4,0x60 mm nail - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7260	306	153	102	77	61	51	44	38	34	31	28	26

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	14521

Fastener 5,0x40 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7260	652	326	217	163	130	109	93	82	72	65	59	54

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	14521

Fastener 5,0x60 mm screw - Load capacity $F_{1,k}$ - one angle bracket

f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240
F_1 [N]	7260	1073	537	358	268	215	179	153	134	119	107	98	89

$F_{1,k}$ - two angle brackets

f [mm]	
F_1 [N]	14521