



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

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-09/0322 of 2015-01-05

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:

GH Various Angle Brackets

Product family to which the above construction product belongs:

Three-dimensional nailing plate (Angle brackets for timber-to-timber or timber-to-concrete or steel connections)

Manufacturer:

GH-Baubeschläge GmbH
Austraße 34
D-73235 Weilheim/Teck
Tel. +49 7023 743323 0
Fax +49 7023 743323 90
Internet www.holzverbinder.de

Manufacturing plant:

Werk 1, Werk 2

This European Technical Assessment contains:

68 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:

The previous ETA with the same number issued on 2010-01-05 and expiry on 2015-01-05

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

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

II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product and intended use

Technical description of the product

GH Baubeschläge GmbH various angle brackets covers the following bracket types:

Type AB Top 80, AB Top 120, AB Top 80 Vario, AB Top 120 Vario, AB 1867, AB 2197, AB 110/170S, AB 50/595, AB 80/598, AB 110/5911, type AB 994, AB 1293, AB 645, AB 543, AB 993, AB 653, AB 26910 (nails/dowels), AB16910, AB 3691025 and AB 3691015.

They are one-piece non-welded, face-fixed angle brackets to be used in timber to timber, timber to steel and timber to concrete connections. They are connected to the timber elements by a range of profiled nails or by GH connector screws.

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 % and are available with or without an embossed rib.

Additionally, all the angle brackets can be made from stainless steel 1.4301, 1.4401, 1.4541 or 1.4571 according to EN 10088-2:2005 with a minimum yield stress of 190 MPa. For all stainless steels a factor of 0.8 must be applied to the load-carrying capacity to accommodate for the difference in yield stress.

Dimensions, hole positions and typical installations are shown in Annex A.

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 timber structures, as a connection between a beam and a purlin, 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 A).

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/m³ to 420 kg/m³. 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/m³. For timber or wood based material with a lower characteristic density than 350 kg/m³ 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 the characteristic density of the timber in kg/m³.

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, 2 and 3 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, 2 and 3
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 GH Connector 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 Karlsruhe, 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 GH 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 GH Connector screws apply in areas where the abovementioned national German approval is accepted as basis for the design.

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

3.11.2 Corrosion protection in service class 3.

In accordance with Eurocode 5 the joist hangers are made from stainless steel 1.4301, 1.4401, 1.4541 or 1.4571 according to EN 10088-2:2005 and the nails and screws shall be produced from stainless steel.

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

GH angle brackets 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 GH 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 - 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.

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 Copenhagen on 2015-01-05 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
AB Top 80 and Vario	2,0	S 250 GD + Z 275	Z 275
AB Top 120 and Vario	2,0	S 250 GD + Z 275	Z 275
AB 1867	2,5	S 250 GD + Z 275	Z 275
AB 2197	3,0	S 250 GD + Z 275	Z 275
AB 110/170S	3,0	S 250 GD + Z 275	Z 275
AB 50/595	3,0	S 250 GD + Z 275	Z 275
AB 80/598	3,0	S 250 GD + Z 275	Z 275
AB 110/5911	3,0	S 250 GD + Z 275	Z 275
AB 994	3,0	S 250 GD + Z 275	Z 275
AB 1293	3,0	S 250 GD + Z 275	Z 275
AB 645	2,5	S 250 GD + Z 275	Z 275
AB 543	2,5	S 250 GD + Z 275	Z 275
AB 993	3,0	S 250 GD + Z 275	Z 275
AB 653	3,0	S 250 GD + Z 275	Z 275
AB 26910	2,5	S 250 GD + Z 275	Z 275
AB 16910	2,5	S 250 GD + Z 275	Z 275
AB 3691025	2,5	S 250 GD + Z 275	Z 275
AB 3691015	1,5	S 250 GD + Z 275	Z 275

Table A.2 Range of sizes

See details and tolerances in the following drawings

Table A.3 Fastener specification

Fastener type	Nail size (mm)		Finish
	Diameter	Length	
According to EN 14592			
Threaded nail	4,0	40	Electroplated zinc
Threaded nail	4,0	60	Electroplated zinc
GH Connector screw	5,0	40	Electroplated zinc
GH Connector screw	5,0	60	Electroplated zinc

* Additionally, the angle brackets can be made from pre-galvanized steel 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 % or from stainless steel 1.4301, 1.4401, 1.4541 or 1.4571 according to EN 10088-2:2005 with a minimum yield stress of 190 MPa. For all stainless steels a factor of 0.8 must be applied to the load-carrying capacity to accommodate for the difference in yield stress.

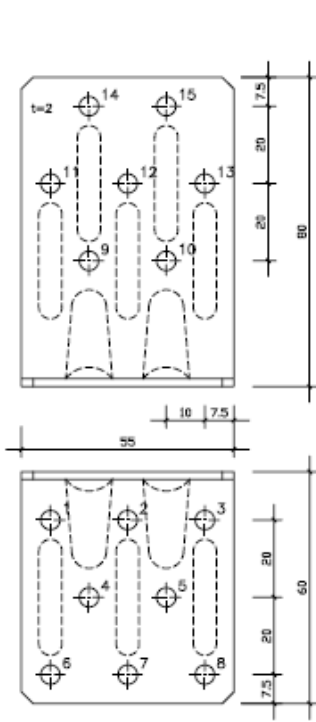


Figure A.1 Dimensions of Angle Bracket TOP 80

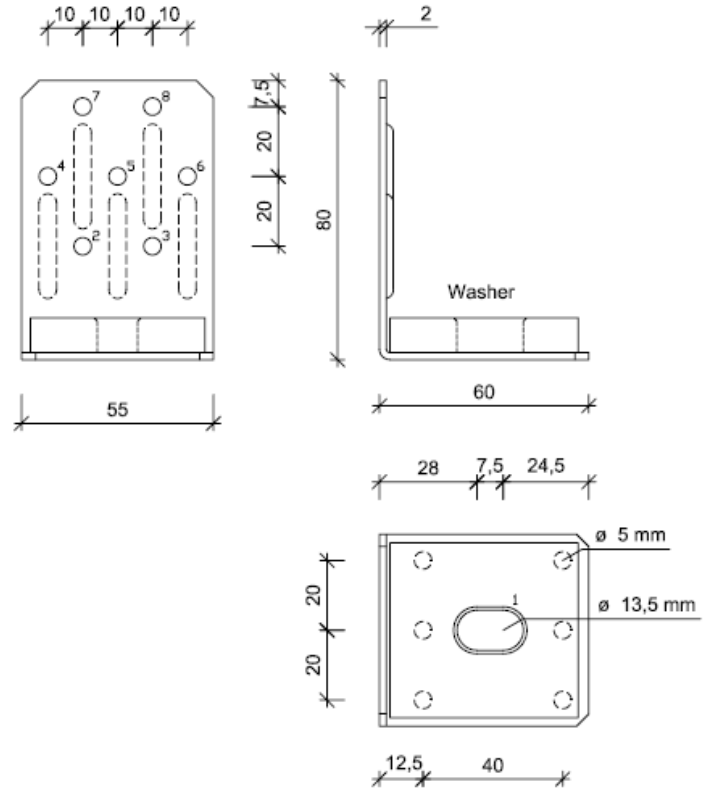


Figure A.2 Dimensions of Angle Bracket TOP 80 VARIO

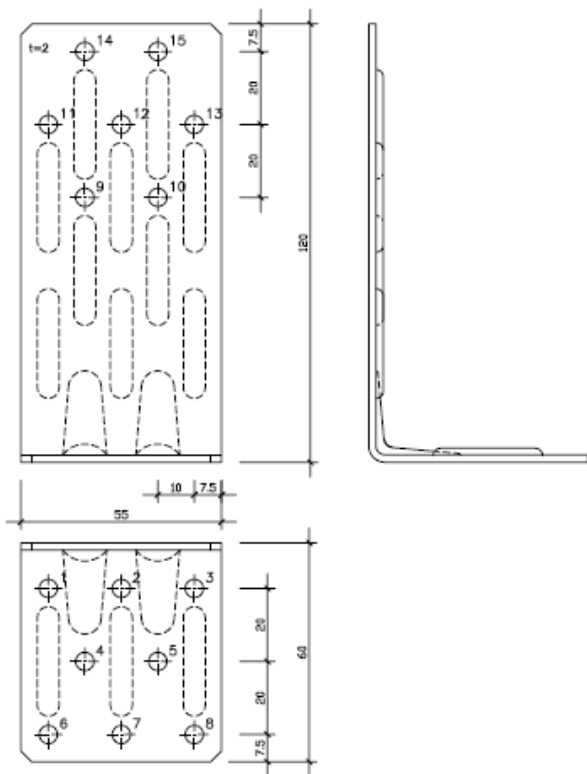


Figure A.3 Dimensions of Angle Bracket TOP 120

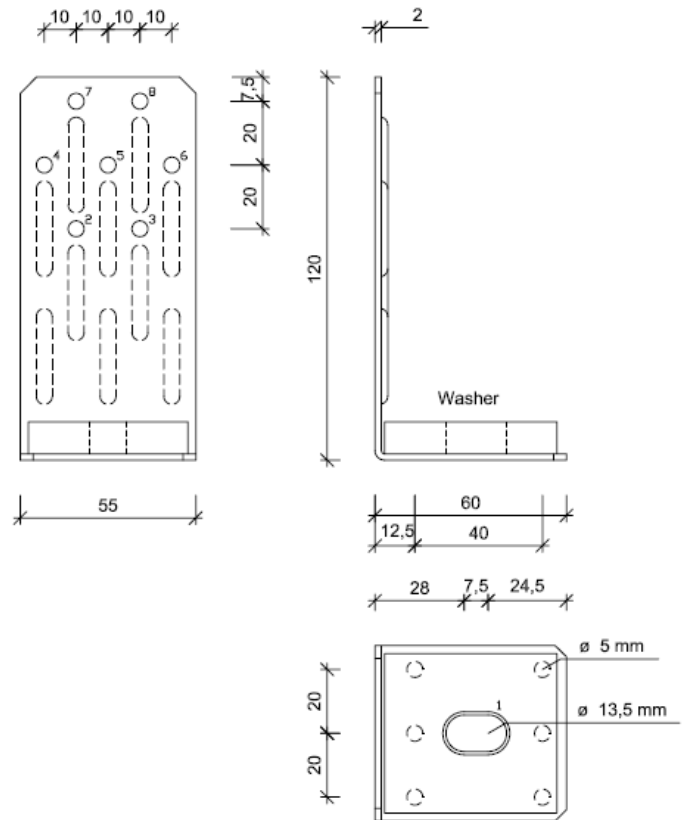


Figure A.4 Dimensions of Angle Bracket TOP 120 VARIO

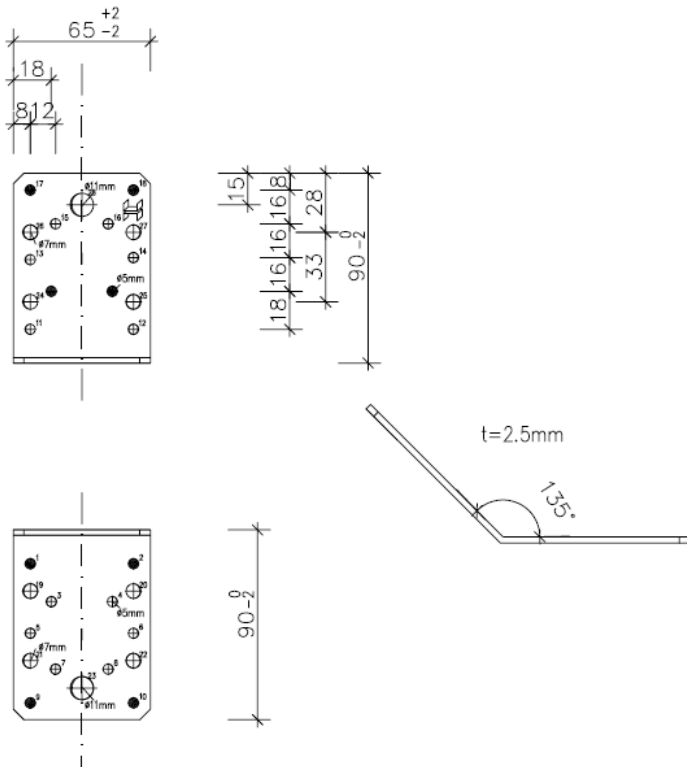


Figure A.5 Dimensions of Angle Bracket 1867

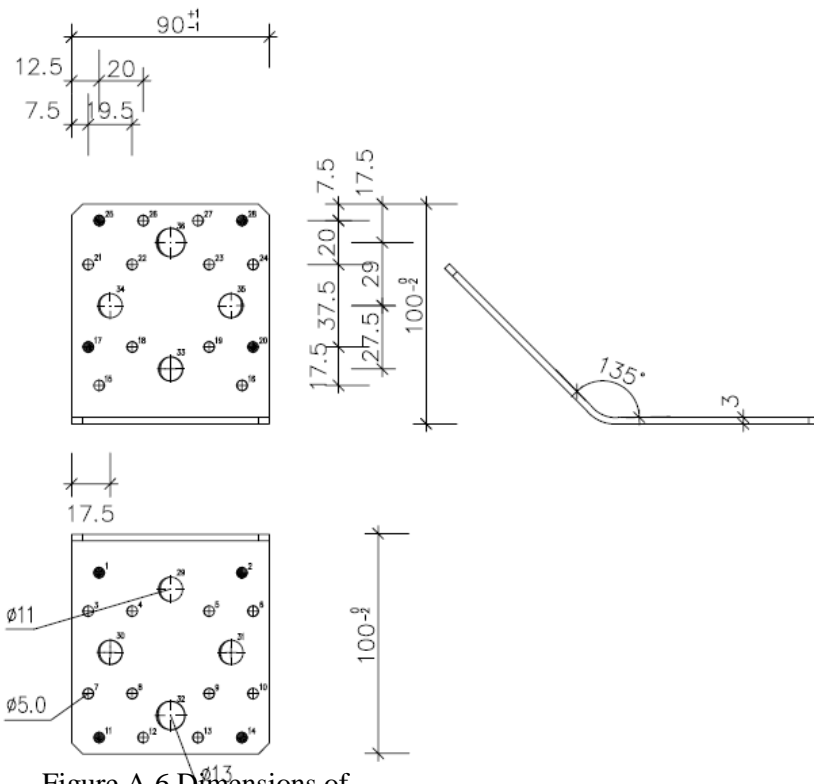


Figure A.6 Dimensions of Angle Bracket 2197

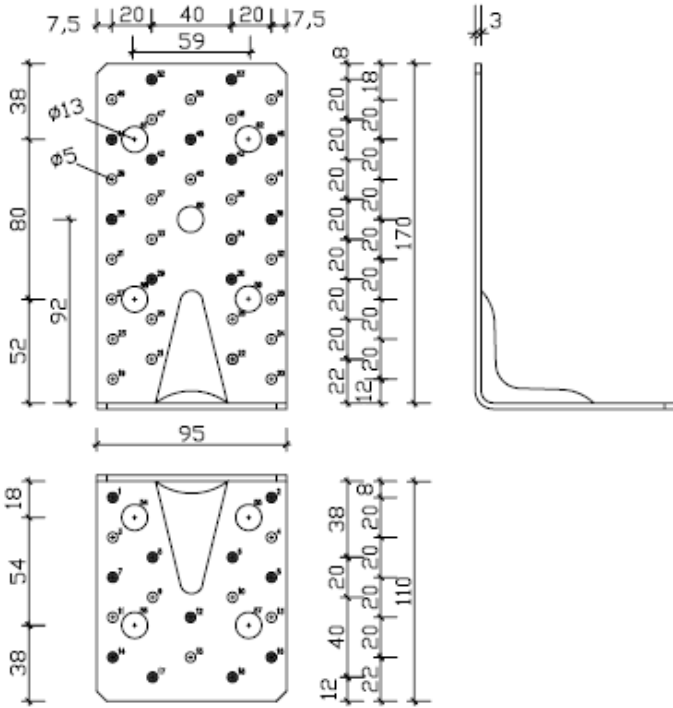


Figure A.7 Dimensions of Angle Bracket 110/170S

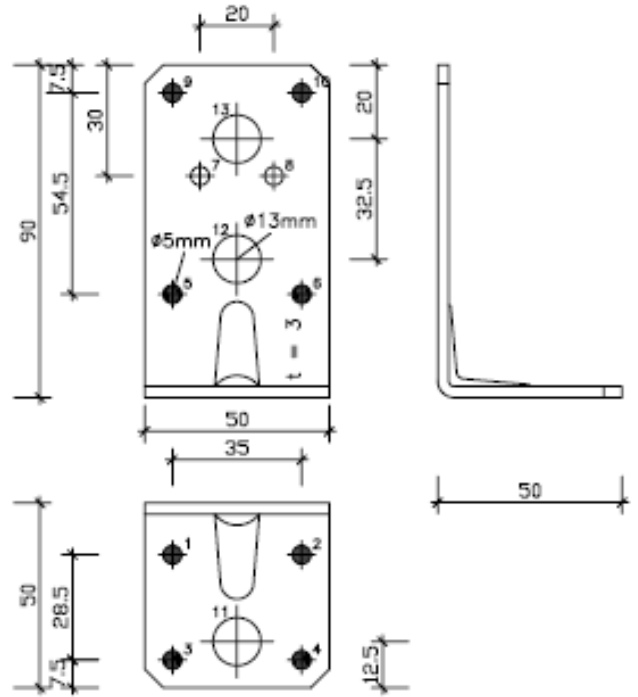


Figure A.8 Dimensions of Angle Bracket 50/59S

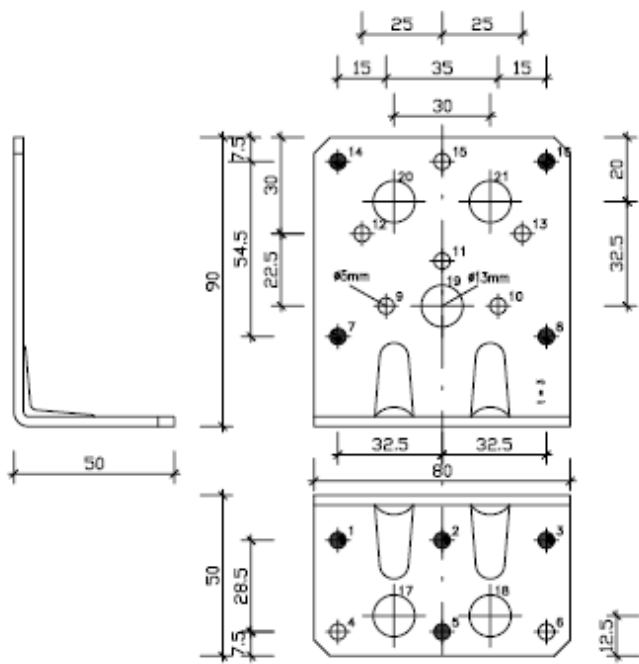


Figure A.9 Dimensions of Angle Bracket 80/598

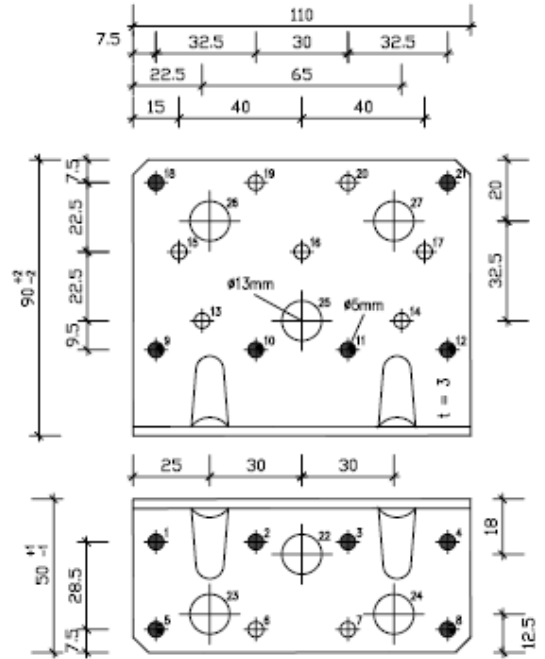


Figure A.10 Dimensions of Angle Bracket 110/5911

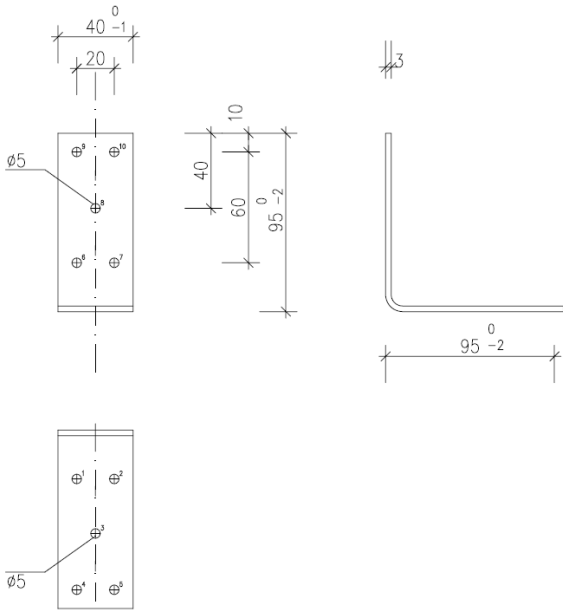


Figure A.11 Dimensions of Angle Bracket 994

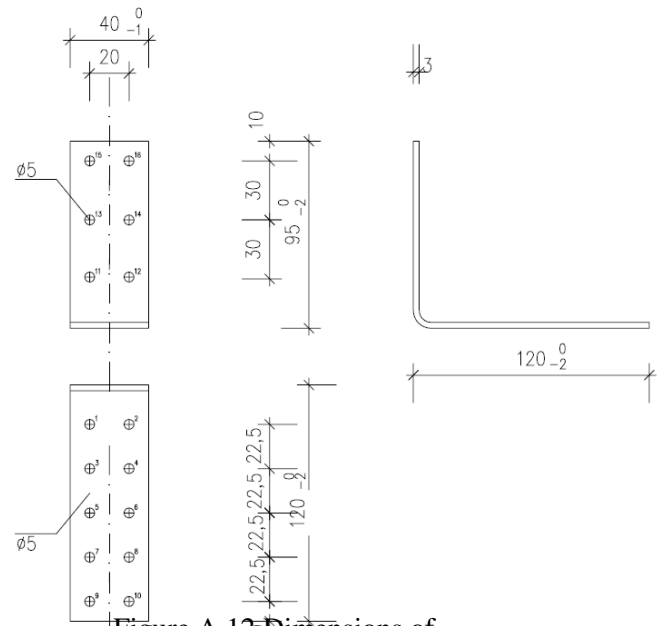


Figure A.12 Dimensions of Angle Bracket 1293

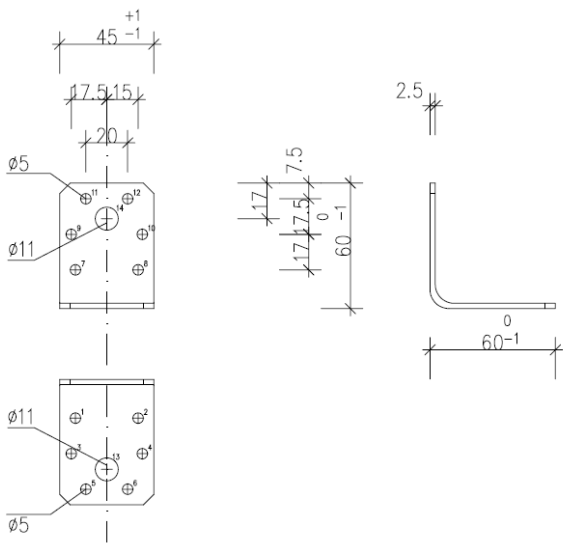


Figure A.13 Dimensions of Angle Bracket 645

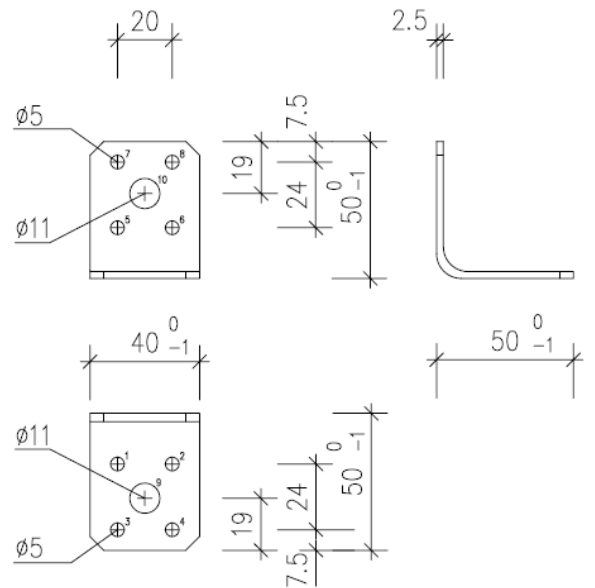


Figure A.14 Dimensions of Angle Bracket 543

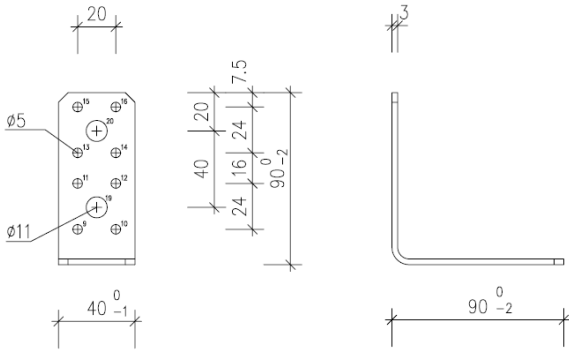


Figure A.15 Dimensions of Angle Bracket 993

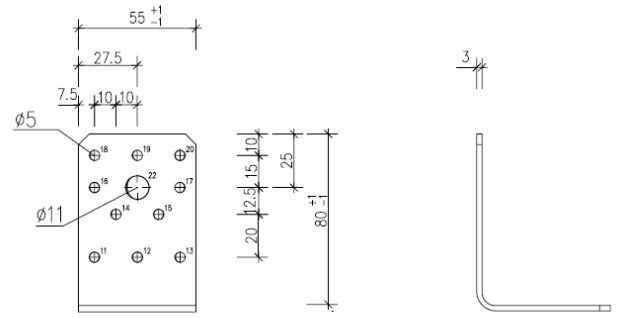


Figure A.16 Dimensions of Angle Bracket 653

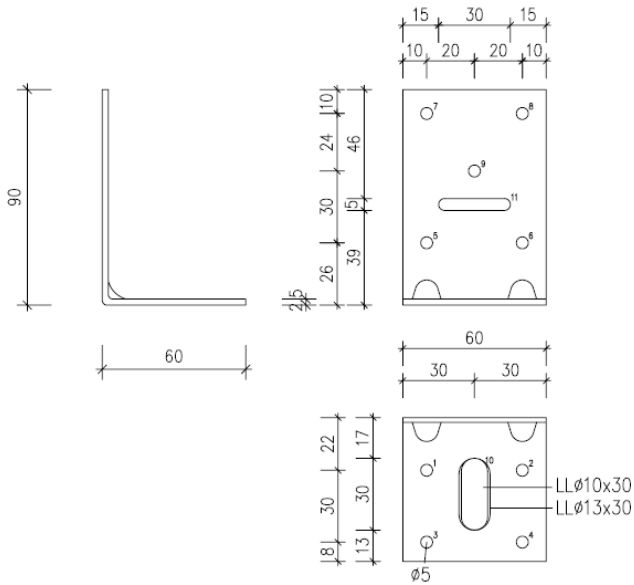


Figure A.17 Dimensions of Angle Bracket 26910

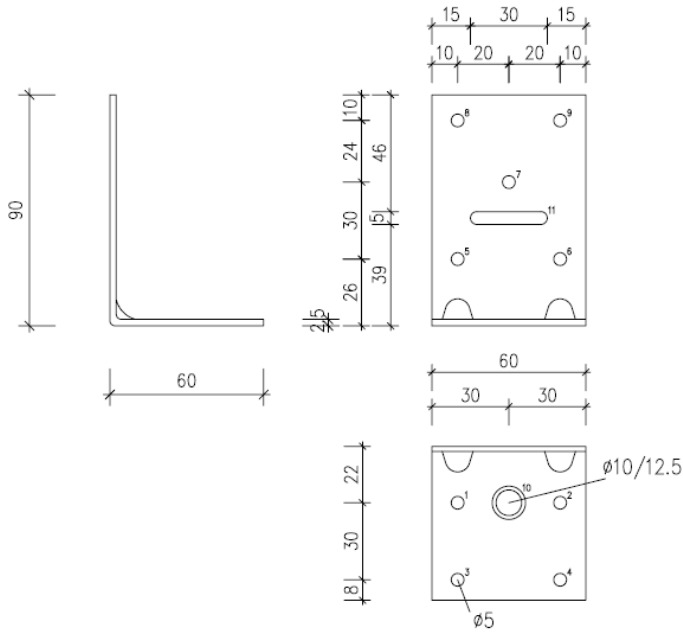


Figure A.18 Dimensions of Angle Bracket 16910

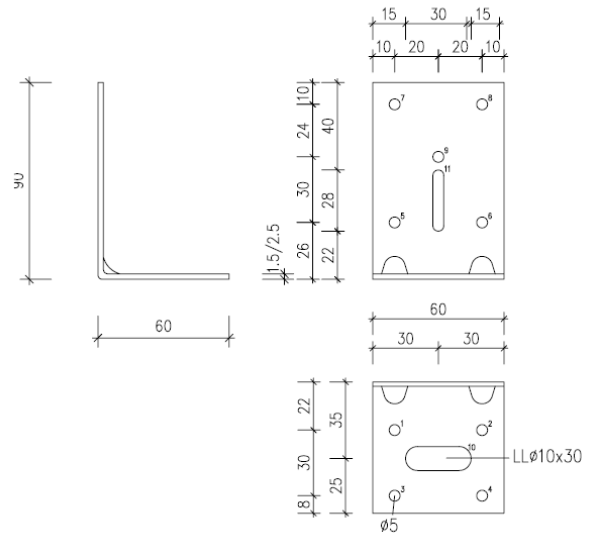


Figure A.19 Dimensions of Angle Bracket 3691015

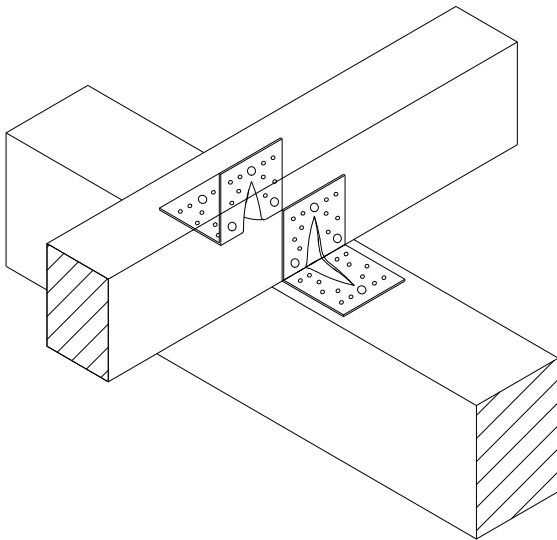
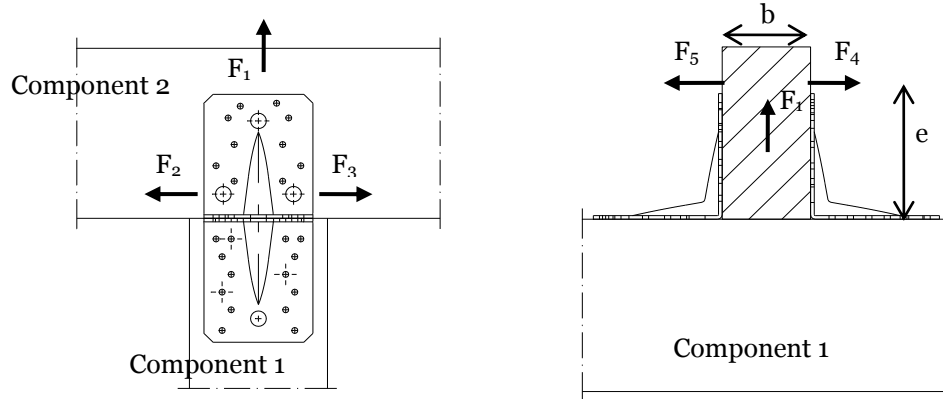


Figure A.20 Typical installation

Annex B Characteristic load-carrying capacities

Definitions of forces, their directions and eccentricity

Forces - Beam to beam connection



Fastener specification

Holes are marked with numbers referring to the nailing pattern in the following tables.
The holes which have to be nailed are given in the following tables for the different forces.

Double angle brackets per connection

The angle brackets must be placed at each side opposite each other, symmetric 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 component 2 and component 1 in the component 2 direction
- F_4 and F_5 Lateral force acting in the component 1 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 component 2 shall be prevented from rotation. If the component 2 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 component 2 and the component 1 in the component 2 direction. The component 2 shall be prevented from rotation. If the component 2 is prevented from rotation the load-carrying capacity will be half of a connection with double angle brackets.
- F_4 and F_5 Lateral force acting in the component 1 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:

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

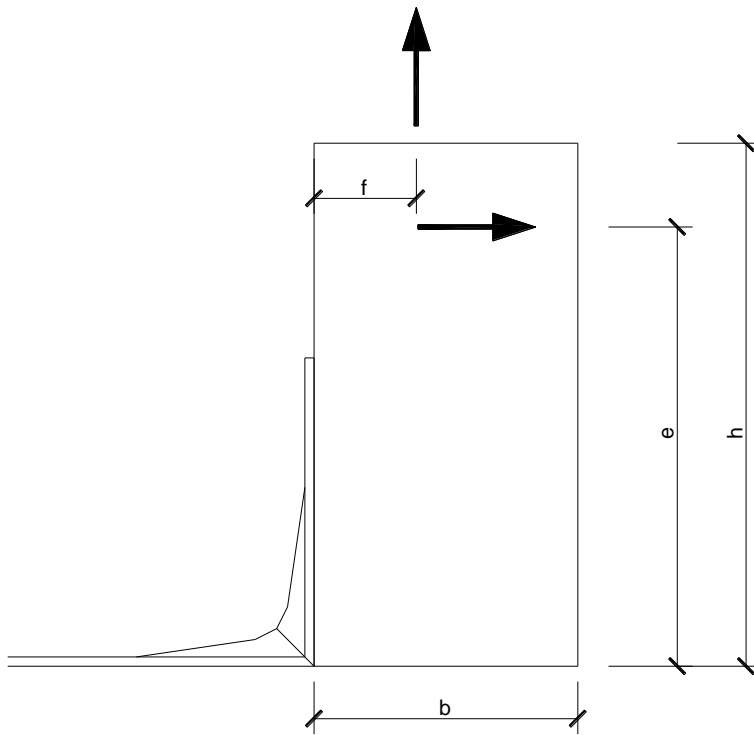
The forces F_2 and F_3 or F_4 and F_5 are forces with opposite direction. Therefore only one force F_2 or F_3 , respectively, and F_4 or F_5 , respectively, is able to act simultaneously with F_1 , while the other shall be set to zero.

The 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
1867	Maximum	1-2-3-4-5-6-7-8-9-10	13-14-15-16-19-20	✓		✓	✓
1867	Partial	1-4-11-12	13-14-19-21	✓		✓	✓
2197	Maximum	1-2-3-4-5-6-7-8-9-10-11-12-13-14	17-18-19-20-21-22-23-24-25-26-27-28	✓		✓	✓
2197	Partial	1-2-11-14	17-20-25-28	✓		✓	✓
595	Full	1-2-3-4	5-6-7-8-9-10		✓	✓	
595	Partial	1-2-3-4	5-6-9-10		✓	✓	
598	Maximum	1-2-3-4-5-6	7-8-11-12-13-14-15-16		✓	✓	
598	Partial	1-2-3-5	7-8-14-16		✓	✓	
5911	Maximum	1-2-3-4-5-6-7-8	9-10-11-12-15-16-17-18-19-20-21		✓	✓	
5911	Partial	1-2-3-4-5-8	9-10-11-12-18-21		✓	✓	
170L	Maximum	1-2-5-6-7-8-12-14-16-17-18	29-30-35-36-42-43-44-45-46-52-53	✓	✓	✓	✓
TOP 80	Full	1-2-3-4-5-6-7-8	9-10-11-12-13-14-15	✓	✓	✓	✓
TOP 120	Full	1-2-3-4-5-6-7-8	9-10-11-12-13-14-15	✓	✓	✓	✓
TOP 80 VARIO	Dowel		2-3-4-5-6-7-8	✓	✓	✓	✓
TOP 120 VARIO	Dowel		2-3-4-5-6-7-8	✓	✓	✓	✓

The characteristic capacities for connection with the angle brackets given in the following tables are based on calculations presuming brackets made from pre-galvanized steel S 2250 GD + Z275 with a minimum yield stress of 235 MPa. For all stainless steels a factor of 0.8 must be applied to the load-carrying capacity to accommodate for the difference in yield stress.

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



**Table B.1 Characteristic load-carrying capacities angle brackets type TOP 80
Fully fastened – two brackets pr. connection**

Connector	Dimension	F1	F2/3	F4/5
Nails	4.0x60	10200	8600	17500
Screws	5.0x50	18600	9100	23400

**Table B.2 Characteristic load-carrying capacities angle brackets type TOP 80 VARIO
Fully fastened – two brackets pr. connection**

Connector	Dimension	F1	F2/3	F4/5
Nails	4.0x60	10200	8600	17500
Screws	5.0x50	18600	9100	23400

**Table B.3 Characteristic load-carrying capacities angle brackets type TOP 120
Fully fastened – two brackets pr. connection**

Connector	Dimension	F1	F2/3	F4/5
Nails	4.0x60	7400	6500	13100
Screws	5.0x50	21400	7900	17500

**Table B.4 Characteristic load-carrying capacities angle brackets type TOP 120 VARIO
Fully fastened – two brackets pr. connection**

Connector	Dimension	F1	F2/3	F4/5
Nails	4.0x60	7400	6500	13100
Screws	5.0x50	21400	7900	17500


Table B.5 Characteristic load-carrying capacities angle brackets type 1867

Fastener: Nails 4,0x40 mm, fully nailed

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]	397	184	92	61	46	37	31	26	23	20	18	17	15

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

f [mm]	
F_1 [N]	795

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

Δs [mm]	30,5
$F_{2/3}$ [N]	5207

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

Δs [mm]	30,5
$F_{2/3}$ [N]	10414

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]	12648	368	184	123	81	55	42	34	28	24	21	19	17	16	14	13	12

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	96	96	96	96	96	96	96	96	96	96	96	96	96
20	213	213	213	213	213	213	213	213	213	213	213	213	213
40	285	1108	2174	2470	2470	2470	2470	2470	2470	2470	2470	2470	2470
60	190	738	1450	2246	2470	2470	2470	2470	2470	2470	2470	2470	2470
80	143	554	1087	1685	2320	2470	2470	2470	2470	2470	2470	2470	2470
100	114	443	870	1348	1856	2383	2470	2470	2470	2470	2470	2470	2470
120	95	369	725	1123	1547	1986	2436	2470	2470	2470	2470	2470	2470
140	81	316	621	963	1326	1702	2088	2470	2470	2470	2470	2470	2470
160	71	277	544	842	1160	1489	1827	2171	2470	2470	2470	2470	2470
180	63	246	483	749	1031	1324	1624	1930	2239	2470	2470	2470	2470
200	57	222	435	674	928	1192	1462	1737	2015	2296	2470	2470	2470
220	52	201	395	613	844	1083	1329	1579	1832	2087	2344	2470	2470
240	48	185	362	562	773	993	1218	1447	1679	1913	2149	2386	2470
260	44	170	335	518	714	917	1124	1336	1550	1766	1983	2202	2422
280	41	158	311	481	663	851	1044	1240	1439	1640	1842	2045	2249
300	38	148	290	449	619	794	975	1158	1343	1530	1719	1908	2099
320	36	138	272	421	580	745	914	1085	1259	1435	1611	1789	1968

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		12744	12744	12744	12744	12744	12744	12744	12744	12744	12744	12744	12744
20		397	795	1192	1589	1986	2384	2781	3178	3576	3973	4370	4768
40		199	397	596	795	993	1192	1391	1589	1788	1986	2185	2384
60		132	265	397	530	662	795	927	1059	1192	1324	1457	1589
80		99	199	298	397	497	596	695	795	894	993	1093	1192
100		79	159	238	318	397	477	556	636	715	795	874	954
120		66	132	199	265	331	397	464	530	596	662	728	795
140		57	114	170	227	284	341	397	454	511	568	624	681
160		50	99	149	199	248	298	348	397	447	497	546	596
180		44	88	132	177	221	265	309	353	397	441	486	530
200		40	79	119	159	199	238	278	318	358	397	437	477
220		36	72	108	144	181	217	253	289	325	361	397	433
240		33	66	99	132	166	199	232	265	298	331	364	397
260		31	61	92	122	153	183	214	244	275	306	336	367
280		28	57	85	114	142	170	199	227	255	284	312	341
300		26	53	79	106	132	159	185	212	238	265	291	318
320		25	50	74	99	124	149	174	199	223	248	273	298

Table B.6 Characteristic load-carrying capacities angle brackets type 1867
Fastener: Nails 4,0x60 mm, fully nailed

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]	403	194	127	95	76	61	51	44	38	34	31	28	26

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

f [mm]	
F_1 [N]	806

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

Δs [mm]	25,5
$F_{2/3}$ [N]	6633

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

Δs [mm]	25,5
$F_{2/3}$ [N]	13267

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]	20767	373	186	124	81	55	42	34	28	24	21	19	17	16	14	13	12

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	96	96	96	96	96	96	96	96	96	96	96	96	96
20	213	213	213	213	213	213	213	213	213	213	213	213	213
40	475	1846	3624	4116	4116	4116	4116	4116	4116	4116	4116	4116	4116
60	317	1231	2416	3744	4116	4116	4116	4116	4116	4116	4116	4116	4116
80	238	923	1812	2808	3580	4116	4116	4116	4116	4116	4116	4116	4116
100	190	738	1450	2246	2864	3461	4057	4116	4116	4116	4116	4116	4116
120	158	615	1208	1872	2387	2884	3381	3878	4116	4116	4116	4116	4116
140	136	527	1035	1604	2046	2472	2898	3324	3751	4116	4116	4116	4116
160	119	462	906	1404	1790	2163	2536	2909	3282	3655	4028	4116	4116
180	106	410	805	1248	1591	1923	2254	2586	2917	3249	3580	3912	4116
200	95	369	725	1123	1432	1730	2029	2327	2625	2924	3222	3520	3819
220	86	336	659	1021	1302	1573	1844	2116	2387	2658	2929	3200	3472
240	79	308	604	936	1193	1442	1691	1939	2188	2436	2685	2934	3182
260	73	284	558	864	1102	1331	1561	1790	2020	2249	2479	2708	2938
280	68	264	518	802	1023	1236	1449	1662	1875	2088	2301	2515	2728
300	63	246	483	749	955	1154	1352	1551	1750	1949	2148	2347	2546
320	59	231	453	702	895	1081	1268	1454	1641	1827	2014	2200	2387

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		20863	20863	20863	20863	20863	20863	20863	20863	20863	20863	20863	20863
20		403	806	1209	1613	2016	2419	2822	3225	3628	4032	4435	4838
40		202	403	605	806	1008	1209	1411	1613	1814	2016	2217	2419
60		134	269	403	538	672	806	941	1075	1209	1344	1478	1613
80		101	202	302	403	504	605	706	806	907	1008	1109	1209
100		81	161	242	323	403	484	564	645	726	806	887	968
120		67	134	202	269	336	403	470	538	605	672	739	806
140		58	115	173	230	288	346	403	461	518	576	634	691
160		50	101	151	202	252	302	353	403	454	504	554	605
180		45	90	134	179	224	269	314	358	403	448	493	538
200		40	81	121	161	202	242	282	323	363	403	443	484
220		37	73	110	147	183	220	257	293	330	367	403	440
240		34	67	101	134	168	202	235	269	302	336	370	403
260		31	62	93	124	155	186	217	248	279	310	341	372
280		29	58	86	115	144	173	202	230	259	288	317	346
300		27	54	81	108	134	161	188	215	242	269	296	323
320		25	50	76	101	126	151	176	202	227	252	277	302

Table B.7 Characteristic load-carrying capacities angle brackets type 1867

Fastener: Screws 5,0x40 mm, fully fastened

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]	403	194	127	95	76	63	54	47	42	38	34	31	29

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

f [mm]	
F_1 [N]	806

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

Δs [mm]	17,8
$F_{2/3}$ [N]	9220

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

Δs [mm]	17,8
$F_{2/3}$ [N]	18439

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]	26720	373	186	124	81	55	42	34	28	24	21	19	17	16	14	13	12

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	96	96	96	96	96	96	96	96	96	96	96	96	96
20	213	213	213	213	213	213	213	213	213	213	213	213	213
40	1061	2685	4177	5668	7160	8652	9193	9193	9193	9193	9193	9193	9193
60	708	1790	2785	3779	4773	5768	6762	7757	8751	9193	9193	9193	9193
80	531	1343	2088	2834	3580	4326	5072	5818	6563	7309	8055	8801	9193
100	425	1074	1671	2267	2864	3461	4057	4654	5251	5847	6444	7041	7638
120	354	895	1392	1889	2387	2884	3381	3878	4376	4873	5370	5867	6365
140	303	767	1193	1620	2046	2472	2898	3324	3751	4177	4603	5029	5455
160	265	671	1044	1417	1790	2163	2536	2909	3282	3655	4028	4401	4773
180	236	597	928	1260	1591	1923	2254	2586	2917	3249	3580	3912	4243
200	212	537	835	1134	1432	1730	2029	2327	2625	2924	3222	3520	3819
220	193	488	759	1031	1302	1573	1844	2116	2387	2658	2929	3200	3472
240	177	448	696	945	1193	1442	1691	1939	2188	2436	2685	2934	3182
260	163	413	643	872	1102	1331	1561	1790	2020	2249	2479	2708	2938
280	152	384	597	810	1023	1236	1449	1662	1875	2088	2301	2515	2728
300	142	358	557	756	955	1154	1352	1551	1750	1949	2148	2347	2546
320	133	336	522	709	895	1081	1268	1454	1641	1827	2014	2200	2387

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		26817	26817	26817	26817	26817	26817	26817	26817	26817	26817	26817	26817
20		403	806	1209	1613	2016	2419	2822	3225	3628	4032	4435	4838
40		202	403	605	806	1008	1209	1411	1613	1814	2016	2217	2419
60		134	269	403	538	672	806	941	1075	1209	1344	1478	1613
80		101	202	302	403	504	605	706	806	907	1008	1109	1209
100		81	161	242	323	403	484	564	645	726	806	887	968
120		67	134	202	269	336	403	470	538	605	672	739	806
140		58	115	173	230	288	346	403	461	518	576	634	691
160		50	101	151	202	252	302	353	403	454	504	554	605
180		45	90	134	179	224	269	314	358	403	448	493	538
200		40	81	121	161	202	242	282	323	363	403	443	484
220		37	73	110	147	183	220	257	293	330	367	403	440
240		34	67	101	134	168	202	235	269	302	336	370	403
260		31	62	93	124	155	186	217	248	279	310	341	372
280		29	58	86	115	144	173	202	230	259	288	317	346
300		27	54	81	108	134	161	188	215	242	269	296	323
320		25	50	76	101	126	151	176	202	227	252	277	302


Table B.8 Characteristic load-carrying capacities angle brackets type 1867

Fastener: Screws 5,0x60 mm, fully fastened

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]	403	194	127	95	76	63	54	47	42	38	34	31	29

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

f [mm]	
F_1 [N]	806

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

Δs [mm]	14
$F_{2/3}$ [N]	10396

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

Δs [mm]	14
$F_{2/3}$ [N]	20791

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]	28225	373	186	124	81	55	42	34	28	24	21	19	17	16	14	13	12

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	96	96	96	96	96	96	96	96	96	96	96	96	96
20	213	213	213	213	213	213	213	213	213	213	213	213	213
40	1193	2685	4177	5668	7160	8652	10144	11635	13127	14619	14851	14851	14851
60	796	1790	2785	3779	4773	5768	6762	7757	8751	9746	10740	11735	12729
80	597	1343	2088	2834	3580	4326	5072	5818	6563	7309	8055	8801	9547
100	477	1074	1671	2267	2864	3461	4057	4654	5251	5847	6444	7041	7638
120	398	895	1392	1889	2387	2884	3381	3878	4376	4873	5370	5867	6365
140	341	767	1193	1620	2046	2472	2898	3324	3751	4177	4603	5029	5455
160	298	671	1044	1417	1790	2163	2536	2909	3282	3655	4028	4401	4773
180	265	597	928	1260	1591	1923	2254	2586	2917	3249	3580	3912	4243
200	239	537	835	1134	1432	1730	2029	2327	2625	2924	3222	3520	3819
220	217	488	759	1031	1302	1573	1844	2116	2387	2658	2929	3200	3472
240	199	448	696	945	1193	1442	1691	1939	2188	2436	2685	2934	3182
260	184	413	643	872	1102	1331	1561	1790	2020	2249	2479	2708	2938
280	170	384	597	810	1023	1236	1449	1662	1875	2088	2301	2515	2728
300	159	358	557	756	955	1154	1352	1551	1750	1949	2148	2347	2546
320	149	336	522	709	895	1081	1268	1454	1641	1827	2014	2200	2387

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		28321	28321	28321	28321	28321	28321	28321	28321	28321	28321	28321	28321
20		403	806	1209	1613	2016	2419	2822	3225	3628	4032	4435	4838
40		202	403	605	806	1008	1209	1411	1613	1814	2016	2217	2419
60		134	269	403	538	672	806	941	1075	1209	1344	1478	1613
80		101	202	302	403	504	605	706	806	907	1008	1109	1209
100		81	161	242	323	403	484	564	645	726	806	887	968
120		67	134	202	269	336	403	470	538	605	672	739	806
140		58	115	173	230	288	346	403	461	518	576	634	691
160		50	101	151	202	252	302	353	403	454	504	554	605
180		45	90	134	179	224	269	314	358	403	448	493	538
200		40	81	121	161	202	242	282	323	363	403	443	484
220		37	73	110	147	183	220	257	293	330	367	403	440
240		34	67	101	134	168	202	235	269	302	336	370	403
260		31	62	93	124	155	186	217	248	279	310	341	372
280		29	58	86	115	144	173	202	230	259	288	317	346
300		27	54	81	108	134	161	188	215	242	269	296	323
320		25	50	76	101	126	151	176	202	227	252	277	302


Table B.9 Characteristic load-carrying capacities angle brackets type 1867

Fastener: Nails 4,0x40 mm, partially nailed

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]	199	95	63	47	37	31	27	23	21	19	17	15	14

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

f [mm]	
F_1 [N]	397

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

Δs [mm]	47,6
$F_{2/3}$ [N]	2779

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

Δs [mm]	47,6
$F_{2/3}$ [N]	5558

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]	3162	184	92	61	46	37	31	26	23	20	18	17	15	14	13	12	11

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	96	96	96	96	96	96	96	96	96	96	96	96	96
20	213	213	213	213	213	213	213	213	213	213	213	213	213
40	588	1323	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470
60	392	882	1372	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470
80	294	662	1029	1397	1470	1470	1470	1470	1470	1470	1470	1470	1470
100	235	529	823	1117	1411	1470	1470	1470	1470	1470	1470	1470	1470
120	196	441	686	931	1176	1421	1470	1470	1470	1470	1470	1470	1470
140	168	378	588	798	1008	1218	1428	1470	1470	1470	1470	1470	1470
160	147	331	515	698	882	1066	1250	1433	1470	1470	1470	1470	1470
180	131	294	457	621	784	947	1111	1274	1437	1470	1470	1470	1470
200	118	265	412	559	706	853	1000	1147	1294	1441	1470	1470	1470
220	107	241	374	508	641	775	909	1042	1176	1310	1443	1470	1470
240	98	221	343	466	588	711	833	956	1078	1201	1323	1446	1470
260	90	204	317	430	543	656	769	882	995	1108	1221	1334	1447
280	84	189	294	399	504	609	714	819	924	1029	1134	1239	1344
300	78	176	274	372	470	568	666	764	862	960	1058	1156	1254
320	74	165	257	349	441	533	625	717	809	900	992	1084	1176

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		3258	3258	3258	3258	3258	3258	3258	3258	3258	3258	3258	3258
20		199	397	596	795	993	1192	1391	1589	1788	1986	2185	2384
40		99	199	298	397	497	596	695	795	894	993	1093	1192
60		66	132	199	265	331	397	464	530	596	662	728	795
80		50	99	149	199	248	298	348	397	447	497	546	596
100		40	79	119	159	199	238	278	318	358	397	437	477
120		33	66	99	132	166	199	232	265	298	331	364	397
140		28	57	85	114	142	170	199	227	255	284	312	341
160		25	50	74	99	124	149	174	199	223	248	273	298
180		22	44	66	88	110	132	155	177	199	221	243	265
200		20	40	60	79	99	119	139	159	179	199	219	238
220		18	36	54	72	90	108	126	144	163	181	199	217
240		17	33	50	66	83	99	116	132	149	166	182	199
260		15	31	46	61	76	92	107	122	138	153	168	183
280		14	28	43	57	71	85	99	114	128	142	156	170
300		13	26	40	53	66	79	93	106	119	132	146	159
320		12	25	37	50	62	74	87	99	112	124	137	149


Table B.10 Characteristic load-carrying capacities angle brackets type 1867

Fastener: Nails 4,0x60 mm, partially nailed

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]	331	159	105	78	62	52	44	39	34	31	28	26	24

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

f [mm]	
F_1 [N]	662

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

Δs [mm]	45,6
$F_{2/3}$ [N]	3349

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

Δs [mm]	45,6
$F_{2/3}$ [N]	6698

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]	3717	306	153	102	77	55	42	34	28	24	21	19	17	16	14	13	12

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	96	96	96	96	96	96	96	96	96	96	96	96	96
20	213	213	213	213	213	213	213	213	213	213	213	213	213
40	980	2205	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
60	653	1470	2287	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
80	490	1103	1715	2328	2450	2450	2450	2450	2450	2450	2450	2450	2450
100	392	882	1372	1862	2352	2450	2450	2450	2450	2450	2450	2450	2450
120	327	735	1143	1552	1960	2368	2450	2450	2450	2450	2450	2450	2450
140	280	630	980	1330	1680	2030	2380	2450	2450	2450	2450	2450	2450
160	245	551	858	1164	1470	1776	2083	2389	2450	2450	2450	2450	2450
180	218	490	762	1034	1307	1579	1851	2123	2396	2450	2450	2450	2450
200	196	441	686	931	1176	1421	1666	1911	2156	2401	2450	2450	2450
220	178	401	624	846	1069	1292	1515	1737	1960	2183	2405	2450	2450
240	163	368	572	776	980	1184	1388	1593	1797	2001	2205	2409	2450
260	151	339	528	716	905	1093	1282	1470	1658	1847	2035	2224	2412
280	140	315	490	665	840	1015	1190	1365	1540	1715	1890	2065	2240
300	131	294	457	621	784	947	1111	1274	1437	1601	1764	1927	2091
320	123	276	429	582	735	888	1041	1194	1348	1501	1654	1807	1960

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		3813	3813	3813	3813	3813	3813	3813	3813	3813	3813	3813	3813
20		331	662	993	1324	1655	1986	2318	2649	2980	3311	3642	3723
40		166	331	497	662	828	993	1159	1324	1490	1655	1821	1986
60		110	221	331	441	552	662	773	883	993	1104	1214	1324
80		83	166	248	331	414	497	579	662	745	828	910	993
100		66	132	199	265	331	397	464	530	596	662	728	795
120		55	110	166	221	276	331	386	441	497	552	607	662
140		47	95	142	189	236	284	331	378	426	473	520	568
160		41	83	124	166	207	248	290	331	372	414	455	497
180		37	74	110	147	184	221	258	294	331	368	405	441
200		33	66	99	132	166	199	232	265	298	331	364	397
220		30	60	90	120	150	181	211	241	271	301	331	361
240		28	55	83	110	138	166	193	221	248	276	303	331
260		25	51	76	102	127	153	178	204	229	255	280	306
280		24	47	71	95	118	142	166	189	213	236	260	284
300		22	44	66	88	110	132	155	177	199	221	243	265
320		21	41	62	83	103	124	145	166	186	207	228	248

Table B.11 Characteristic load-carrying capacities angle brackets type 1867
Fastener: Screws 5,0x40 mm, partially fastened

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]	403	194	127	95	76	63	54	47	42	38	34	31	29

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

f [mm]	
F_1 [N]	806

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

Δs [mm]	42,9
$F_{2/3}$ [N]	4205

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

Δs [mm]	42,9
$F_{2/3}$ [N]	8411

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]	8291	373	186	124	81	55	42	34	28	24	21	19	17	16	14	13	12

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	96	96	96	96	96	96	96	96	96	96	96	96	96
20	213	213	213	213	213	213	213	213	213	213	213	213	213
40	1193	2685	4177	5472	5472	5472	5472	5472	5472	5472	5472	5472	5472
60	796	1790	2785	3779	4773	5472	5472	5472	5472	5472	5472	5472	5472
80	597	1343	2088	2834	3580	4326	5072	5472	5472	5472	5472	5472	5472
100	477	1074	1671	2267	2864	3461	4057	4654	5251	5472	5472	5472	5472
120	398	895	1392	1889	2387	2884	3381	3878	4376	4873	5370	5472	5472
140	341	767	1193	1620	2046	2472	2898	3324	3751	4177	4603	5029	5455
160	298	671	1044	1417	1790	2163	2536	2909	3282	3655	4028	4401	4773
180	265	597	928	1260	1591	1923	2254	2586	2917	3249	3580	3912	4243
200	239	537	835	1134	1432	1730	2029	2327	2625	2924	3222	3520	3819
220	217	488	759	1031	1302	1573	1844	2116	2387	2658	2929	3200	3472
240	199	448	696	945	1193	1442	1691	1939	2188	2436	2685	2934	3182
260	184	413	643	872	1102	1331	1561	1790	2020	2249	2479	2708	2938
280	170	384	597	810	1023	1236	1449	1662	1875	2088	2301	2515	2728
300	159	358	557	756	955	1154	1352	1551	1750	1949	2148	2347	2546
320	149	336	522	709	895	1081	1268	1454	1641	1827	2014	2200	2387

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		8388	8388	8388	8388	8388	8388	8388	8388	8388	8388	8388	8388
20		403	806	1209	1613	2016	2419	2822	3225	3628	4032	4435	4838
40		202	403	605	806	1008	1209	1411	1613	1814	2016	2217	2419
60		134	269	403	538	672	806	941	1075	1209	1344	1478	1613
80		101	202	302	403	504	605	706	806	907	1008	1109	1209
100		81	161	242	323	403	484	564	645	726	806	887	968
120		67	134	202	269	336	403	470	538	605	672	739	806
140		58	115	173	230	288	346	403	461	518	576	634	691
160		50	101	151	202	252	302	353	403	454	504	554	605
180		45	90	134	179	224	269	314	358	403	448	493	538
200		40	81	121	161	202	242	282	323	363	403	443	484
220		37	73	110	147	183	220	257	293	330	367	403	440
240		34	67	101	134	168	202	235	269	302	336	370	403
260		31	62	93	124	155	186	217	248	279	310	341	372
280		29	58	86	115	144	173	202	230	259	288	317	346
300		27	54	81	108	134	161	188	215	242	269	296	323
320		25	50	76	101	126	151	176	202	227	252	277	302

Table B.12 Characteristic load-carrying capacities angle brackets type 1867
Fastener: Screws 5,0x60 mm, partially fastened

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]	403	194	127	95	76	63	54	47	42	38	34	31	29

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

f [mm]	
F_1 [N]	806

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

Δs [mm]	41,8
$F_{2/3}$ [N]	4471

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

Δs [mm]	41,8
$F_{2/3}$ [N]	8941

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]	9176	373	186	124	81	55	42	34	28	24	21	19	17	16	14	13	12

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	96	96	96	96	96	96	96	96	96	96	96	96	96
20	213	213	213	213	213	213	213	213	213	213	213	213	213
40	1193	2685	4177	5668	7160	8652	8840	8840	8840	8840	8840	8840	8840
60	796	1790	2785	3779	4773	5768	6762	7757	8751	8840	8840	8840	8840
80	597	1343	2088	2834	3580	4326	5072	5818	6563	7309	8055	8801	8840
100	477	1074	1671	2267	2864	3461	4057	4654	5251	5847	6444	7041	7638
120	398	895	1392	1889	2387	2884	3381	3878	4376	4873	5370	5867	6365
140	341	767	1193	1620	2046	2472	2898	3324	3751	4177	4603	5029	5455
160	298	671	1044	1417	1790	2163	2536	2909	3282	3655	4028	4401	4773
180	265	597	928	1260	1591	1923	2254	2586	2917	3249	3580	3912	4243
200	239	537	835	1134	1432	1730	2029	2327	2625	2924	3222	3520	3819
220	217	488	759	1031	1302	1573	1844	2116	2387	2658	2929	3200	3472
240	199	448	696	945	1193	1442	1691	1939	2188	2436	2685	2934	3182
260	184	413	643	872	1102	1331	1561	1790	2020	2249	2479	2708	2938
280	170	384	597	810	1023	1236	1449	1662	1875	2088	2301	2515	2728
300	159	358	557	756	955	1154	1352	1551	1750	1949	2148	2347	2546
320	149	336	522	709	895	1081	1268	1454	1641	1827	2014	2200	2387

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		9272	9272	9272	9272	9272	9272	9272	9272	9272	9272	9272	9272
20		403	806	1209	1613	2016	2419	2822	3225	3628	4032	4435	4838
40		202	403	605	806	1008	1209	1411	1613	1814	2016	2217	2419
60		134	269	403	538	672	806	941	1075	1209	1344	1478	1613
80		101	202	302	403	504	605	706	806	907	1008	1109	1209
100		81	161	242	323	403	484	564	645	726	806	887	968
120		67	134	202	269	336	403	470	538	605	672	739	806
140		58	115	173	230	288	346	403	461	518	576	634	691
160		50	101	151	202	252	302	353	403	454	504	554	605
180		45	90	134	179	224	269	314	358	403	448	493	538
200		40	81	121	161	202	242	282	323	363	403	443	484
220		37	73	110	147	183	220	257	293	330	367	403	440
240		34	67	101	134	168	202	235	269	302	336	370	403
260		31	62	93	124	155	186	217	248	279	310	341	372
280		29	58	86	115	144	173	202	230	259	288	317	346
300		27	54	81	108	134	161	188	215	242	269	296	323
320		25	50	76	101	126	151	176	202	227	252	277	302

Table B.13 Characteristic load-carrying capacities angle brackets type 2197
Fastener: Nails 4,0x40 mm, fully nailed

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]	35	17	12	9	7	6	5	4	4	3	3	3	3

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

f [mm]	
F_1 [N]	70

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

Δs [mm]	52
$F_{2/3}$ [N]	7373

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

Δs [mm]	52
$F_{2/3}$ [N]	14746

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]	19824	35	17	12	9	7	6	5	4	4	3	3	3	3	2	2	2

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	34	34	34	34	34	34	34	34	34	34	34	34	34
20	73	73	73	73	73	73	73	73	73	73	73	73	73
40	717	1452	2187	2922	2940	2940	2940	2940	2940	2940	2940	2940	2940
60	478	968	1458	1948	2438	2928	2940	2940	2940	2940	2940	2940	2940
80	358	726	1093	1461	1828	2196	2563	2931	2940	2940	2940	2940	2940
100	287	581	875	1169	1463	1757	2051	2345	2639	2933	2940	2940	2940
120	239	484	729	974	1219	1464	1709	1954	2199	2444	2689	2934	2940
140	205	415	625	835	1045	1255	1465	1675	1885	2095	2305	2515	2725
160	179	363	547	730	914	1098	1282	1465	1649	1833	2017	2200	2384
180	159	323	486	649	813	976	1139	1303	1466	1629	1793	1956	2119
200	143	290	437	584	731	878	1025	1172	1319	1466	1613	1760	1907
220	130	264	398	531	665	798	932	1066	1199	1333	1467	1600	1734
240	119	242	364	487	609	732	854	977	1099	1222	1344	1467	1589
260	110	223	336	449	563	676	789	902	1015	1128	1241	1354	1467
280	102	207	312	417	522	627	732	837	942	1047	1152	1257	1362
300	96	194	292	390	488	586	684	782	880	978	1076	1174	1272
320	90	181	273	365	457	549	641	733	825	916	1008	1100	1192

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		19859	19859	19859	19859	19859	19859	19859	19859	19859	19859	19859	19859
20		35	70	104	139	174	209	244	278	313	348	383	418
40		17	35	52	70	87	104	122	139	157	174	191	209
60		12	23	35	46	58	70	81	93	104	116	128	139
80		9	17	26	35	44	52	61	70	78	87	96	104
100		7	14	21	28	35	42	49	56	63	70	77	84
120		6	12	17	23	29	35	41	46	52	58	64	70
140		5	10	15	20	25	30	35	40	45	50	55	60
160		4	9	13	17	22	26	30	35	39	44	48	52
180		4	8	12	15	19	23	27	31	35	39	43	46
200		3	7	10	14	17	21	24	28	31	35	38	42
220		3	6	9	13	16	19	22	25	28	32	35	38
240		3	6	9	12	15	17	20	23	26	29	32	35
260		3	5	8	11	13	16	19	21	24	27	29	32
280		2	5	7	10	12	15	17	20	22	25	27	30
300		2	5	7	9	12	14	16	19	21	23	26	28
320		2	4	7	9	11	13	15	17	20	22	24	26

Table B.14 Characteristic load-carrying capacities angle brackets type 2197
Fastener: Nails 4,0x60 mm, fully nailed

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]	61	31	20	15	12	10	9	8	7	6	6	5	5

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

f [mm]	
F_1 [N]	123

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

Δs [mm]	50,3
$F_{2/3}$ [N]	8935

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

Δs [mm]	50,3
$F_{2/3}$ [N]	17871

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]	22304	61	31	20	15	12	10	9	8	7	6	6	5	5	4	4	4

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	34	34	34	34	34	34	34	34	34	34	34	34	34
20	73	73	73	73	73	73	73	73	73	73	73	73	73
40	1194	2419	3644	4869	4900	4900	4900	4900	4900	4900	4900	4900	4900
60	796	1613	2430	3246	4063	4880	4900	4900	4900	4900	4900	4900	4900
80	597	1210	1822	2435	3047	3660	4272	4885	4900	4900	4900	4900	4900
100	478	968	1458	1948	2438	2928	3418	3908	4398	4888	4900	4900	4900
120	398	806	1215	1623	2031	2440	2848	3256	3665	4073	4481	4890	4900
140	341	691	1041	1391	1741	2091	2441	2791	3141	3491	3841	4191	4541
160	299	605	911	1217	1524	1830	2136	2442	2749	3055	3361	3667	3974
180	265	538	810	1082	1354	1627	1899	2171	2443	2715	2988	3260	3532
200	239	484	729	974	1219	1464	1709	1954	2199	2444	2689	2934	3179
220	217	440	663	885	1108	1331	1554	1776	1999	2222	2444	2667	2890
240	199	403	607	812	1016	1220	1424	1628	1832	2037	2241	2445	2649
260	184	372	561	749	938	1126	1315	1503	1691	1880	2068	2257	2445
280	171	346	521	696	871	1046	1221	1396	1571	1746	1921	2096	2271
300	159	323	486	649	813	976	1139	1303	1466	1629	1793	1956	2119
320	149	302	456	609	762	915	1068	1221	1374	1527	1681	1834	1987

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		22338	22338	22338	22338	22338	22338	22338	22338	22338	22338	22338	22338
20		61	123	184	245	306	368	429	490	551	613	674	735
40		31	61	92	123	153	184	214	245	276	306	337	368
60		20	41	61	82	102	123	143	163	184	204	225	245
80		15	31	46	61	77	92	107	123	138	153	168	184
100		12	25	37	49	61	74	86	98	110	123	135	147
120		10	20	31	41	51	61	71	82	92	102	112	123
140		9	18	26	35	44	53	61	70	79	88	96	105
160		8	15	23	31	38	46	54	61	69	77	84	92
180		7	14	20	27	34	41	48	54	61	68	75	82
200		6	12	18	25	31	37	43	49	55	61	67	74
220		6	11	17	22	28	33	39	45	50	56	61	67
240		5	10	15	20	26	31	36	41	46	51	56	61
260		5	9	14	19	24	28	33	38	42	47	52	57
280		4	9	13	18	22	26	31	35	39	44	48	53
300		4	8	12	16	20	25	29	33	37	41	45	49
320		4	8	11	15	19	23	27	31	34	38	42	46


Table B.15 Characteristic load-carrying capacities angle brackets type 2197

Fastener: Screws 5,0x40 mm, fully fastened

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]	122	61	41	31	24	20	17	15	14	12	11	10	9

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

f [mm]	
F_1 [N]	244

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

Δs [mm]	48,5
$F_{2/3}$ [N]	10975

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

Δs [mm]	48,5
$F_{2/3}$ [N]	21951

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]	28634	122	61	41	30	21	16	13	10	9	8	7	6	6	5	5	5

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	34	34	34	34	34	34	34	34	34	34	34	34	34
20	73	73	73	73	73	73	73	73	73	73	73	73	73
40	2379	4820	7260	9701	10776	10776	10776	10776	10776	10776	10776	10776	10776
60	1586	3213	4840	6467	8094	9721	10776	10776	10776	10776	10776	10776	10776
80	1190	2410	3630	4850	6070	7291	8511	9731	10776	10776	10776	10776	10776
100	952	1928	2904	3880	4856	5833	6809	7785	8761	9737	10713	10776	10776
120	793	1607	2420	3234	4047	4860	5674	6487	7301	8114	8928	9741	10555
140	680	1377	2074	2772	3469	4166	4863	5561	6258	6955	7652	8350	9047
160	595	1205	1815	2425	3035	3645	4255	4866	5476	6086	6696	7306	7916
180	529	1071	1613	2156	2698	3240	3783	4325	4867	5410	5952	6494	7036
200	476	964	1452	1940	2428	2916	3404	3892	4380	4869	5357	5845	6333
220	433	876	1320	1764	2207	2651	3095	3539	3982	4426	4870	5313	5757
240	397	803	1210	1617	2023	2430	2837	3244	3650	4057	4464	4871	5277
260	366	742	1117	1492	1868	2243	2619	2994	3370	3745	4120	4496	4871
280	340	689	1037	1386	1734	2083	2432	2780	3129	3478	3826	4175	4523
300	317	643	968	1293	1619	1944	2270	2595	2920	3246	3571	3896	4222
320	297	602	908	1213	1518	1823	2128	2433	2738	3043	3348	3653	3958

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		28669	28669	28669	28669	28669	28669	28669	28669	28669	28669	28669	28669
20		122	244	366	488	610	732	854	976	1098	1220	1342	1464
40		61	122	183	244	305	366	427	488	549	610	671	732
60		41	81	122	163	203	244	285	325	366	407	447	488
80		31	61	92	122	153	183	214	244	275	305	336	366
100		24	49	73	98	122	146	171	195	220	244	268	293
120		20	41	61	81	102	122	142	163	183	203	224	244
140		17	35	52	70	87	105	122	139	157	174	192	209
160		15	31	46	61	76	92	107	122	137	153	168	183
180		14	27	41	54	68	81	95	108	122	136	149	163
200		12	24	37	49	61	73	85	98	110	122	134	146
220		11	22	33	44	55	67	78	89	100	111	122	133
240		10	20	31	41	51	61	71	81	92	102	112	122
260		9	19	28	38	47	56	66	75	84	94	103	113
280		9	17	26	35	44	52	61	70	78	87	96	105
300		8	16	24	33	41	49	57	65	73	81	89	98
320		8	15	23	31	38	46	53	61	69	76	84	92


Table B.16 Characteristic load-carrying capacities angle brackets type 2197

Fastener: Screws 5,0x60 mm, fully fastened

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]	122	61	41	31	24	20	17	15	14	12	11	10	9

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

f [mm]	
F_1 [N]	244

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

Δs [mm]	48
$F_{2/3}$ [N]	11717

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

Δs [mm]	48
$F_{2/3}$ [N]	23434

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]	32285	122	61	41	30	21	16	13	10	9	8	7	6	6	5	5	5

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	34	34	34	34	34	34	34	34	34	34	34	34	34
20	73	73	73	73	73	73	73	73	73	73	73	73	73
40	2379	4820	7260	9701	12141	14581	17022	17511	17511	17511	17511	17511	17511
60	1586	3213	4840	6467	8094	9721	11348	12975	14602	16229	17511	17511	17511
80	1190	2410	3630	4850	6070	7291	8511	9731	10951	12171	13392	14612	15832
100	952	1928	2904	3880	4856	5833	6809	7785	8761	9737	10713	11689	12666
120	793	1607	2420	3234	4047	4860	5674	6487	7301	8114	8928	9741	10555
140	680	1377	2074	2772	3469	4166	4863	5561	6258	6955	7652	8350	9047
160	595	1205	1815	2425	3035	3645	4255	4866	5476	6086	6696	7306	7916
180	529	1071	1613	2156	2698	3240	3783	4325	4867	5410	5952	6494	7036
200	476	964	1452	1940	2428	2916	3404	3892	4380	4869	5357	5845	6333
220	433	876	1320	1764	2207	2651	3095	3539	3982	4426	4870	5313	5757
240	397	803	1210	1617	2023	2430	2837	3244	3650	4057	4464	4871	5277
260	366	742	1117	1492	1868	2243	2619	2994	3370	3745	4120	4496	4871
280	340	689	1037	1386	1734	2083	2432	2780	3129	3478	3826	4175	4523
300	317	643	968	1293	1619	1944	2270	2595	2920	3246	3571	3896	4222
320	297	602	908	1213	1518	1823	2128	2433	2738	3043	3348	3653	3958

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		32319	32319	32319	32319	32319	32319	32319	32319	32319	32319	32319	32319
20		122	244	366	488	610	732	854	976	1098	1220	1342	1464
40		61	122	183	244	305	366	427	488	549	610	671	732
60		41	81	122	163	203	244	285	325	366	407	447	488
80		31	61	92	122	153	183	214	244	275	305	336	366
100		24	49	73	98	122	146	171	195	220	244	268	293
120		20	41	61	81	102	122	142	163	183	203	224	244
140		17	35	52	70	87	105	122	139	157	174	192	209
160		15	31	46	61	76	92	107	122	137	153	168	183
180		14	27	41	54	68	81	95	108	122	136	149	163
200		12	24	37	49	61	73	85	98	110	122	134	146
220		11	22	33	44	55	67	78	89	100	111	122	133
240		10	20	31	41	51	61	71	81	92	102	112	122
260		9	19	28	38	47	56	66	75	84	94	103	113
280		9	17	26	35	44	52	61	70	78	87	96	105
300		8	16	24	33	41	49	57	65	73	81	89	98
320		8	15	23	31	38	46	53	61	69	76	84	92


Table B.17 Characteristic load-carrying capacities angle brackets type 2197

Fastener: Nails 4,0x40 mm, partially nailed

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]	122	61	41	31	24	20	17	15	14	12	11	10	9

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

f [mm]	
F_1 [N]	244

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

Δs [mm]	54,9
$F_{2/3}$ [N]	4583

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

Δs [mm]	54,9
$F_{2/3}$ [N]	9165

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]	6346	122	61	41	30	21	16	13	10	9	8	7	6	6	5	5	5

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	34	34	34	34	34	34	34	34	34	34	34	34	34
20	73	73	73	73	73	73	73	73	73	73	73	73	73
40	2379	4820	5388	5388	5388	5388	5388	5388	5388	5388	5388	5388	5388
60	1586	3213	4840	5388	5388	5388	5388	5388	5388	5388	5388	5388	5388
80	1190	2410	3630	4850	5388	5388	5388	5388	5388	5388	5388	5388	5388
100	952	1928	2904	3880	4856	5388	5388	5388	5388	5388	5388	5388	5388
120	793	1607	2420	3234	4047	4860	5388	5388	5388	5388	5388	5388	5388
140	680	1377	2074	2772	3469	4166	4863	5388	5388	5388	5388	5388	5388
160	595	1205	1815	2425	3035	3645	4255	4866	5388	5388	5388	5388	5388
180	529	1071	1613	2156	2698	3240	3783	4325	4867	5388	5388	5388	5388
200	476	964	1452	1940	2428	2916	3404	3892	4380	4869	5357	5388	5388
220	433	876	1320	1764	2207	2651	3095	3539	3982	4426	4870	5313	5388
240	397	803	1210	1617	2023	2430	2837	3244	3650	4057	4464	4871	5277
260	366	742	1117	1492	1868	2243	2619	2994	3370	3745	4120	4496	4871
280	340	689	1037	1386	1734	2083	2432	2780	3129	3478	3826	4175	4523
300	317	643	968	1293	1619	1944	2270	2595	2920	3246	3571	3896	4222
320	297	602	908	1213	1518	1823	2128	2433	2738	3043	3348	3653	3958

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		6380	6380	6380	6380	6380	6380	6380	6380	6380	6380	6380	6380
20		122	244	366	488	610	732	854	976	1098	1220	1342	1464
40		61	122	183	244	305	366	427	488	549	610	671	732
60		41	81	122	163	203	244	285	325	366	407	447	488
80		31	61	92	122	153	183	214	244	275	305	336	366
100		24	49	73	98	122	146	171	195	220	244	268	293
120		20	41	61	81	102	122	142	163	183	203	224	244
140		17	35	52	70	87	105	122	139	157	174	192	209
160		15	31	46	61	76	92	107	122	137	153	168	183
180		14	27	41	54	68	81	95	108	122	136	149	163
200		12	24	37	49	61	73	85	98	110	122	134	146
220		11	22	33	44	55	67	78	89	100	111	122	133
240		10	20	31	41	51	61	71	81	92	102	112	122
260		9	19	28	38	47	56	66	75	84	94	103	113
280		9	17	26	35	44	52	61	70	78	87	96	105
300		8	16	24	33	41	49	57	65	73	81	89	98
320		8	15	23	31	38	46	53	61	69	76	84	92


Table B.18 Characteristic load-carrying capacities angle brackets type 2197

Fastener: Nails 4,0x60 mm, partially nailed

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]	61	31	20	15	12	10	9	8	7	6	6	5	5

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

f [mm]	
F_1 [N]	123

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

Δs [mm]	56
$F_{2/3}$ [N]	3780

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

Δs [mm]	56
$F_{2/3}$ [N]	7559

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]	3717	61	31	20	15	12	10	9	8	7	6	6	5	5	4	4	4

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	33	33	33	33	33	33	33	33	33	33	33	33	33
20	70	70	70	70	70	70	70	70	70	70	70	70	70
40	1194	2419	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
60	796	1613	2430	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
80	597	1210	1822	2435	2450	2450	2450	2450	2450	2450	2450	2450	2450
100	478	968	1458	1948	2438	2450	2450	2450	2450	2450	2450	2450	2450
120	398	806	1215	1623	2031	2440	2450	2450	2450	2450	2450	2450	2450
140	341	691	1041	1391	1741	2091	2441	2450	2450	2450	2450	2450	2450
160	299	605	911	1217	1524	1830	2136	2442	2450	2450	2450	2450	2450
180	265	538	810	1082	1354	1627	1899	2171	2443	2450	2450	2450	2450
200	239	484	729	974	1219	1464	1709	1954	2199	2444	2450	2450	2450
220	217	440	663	885	1108	1331	1554	1776	1999	2222	2444	2450	2450
240	199	403	607	812	1016	1220	1424	1628	1832	2037	2241	2445	2450
260	184	372	561	749	938	1126	1315	1503	1691	1880	2068	2257	2445
280	171	346	521	696	871	1046	1221	1396	1571	1746	1921	2096	2271
300	159	323	486	649	813	976	1139	1303	1466	1629	1793	1956	2119
320	149	302	456	609	762	915	1068	1221	1374	1527	1681	1834	1987

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		3750	3750	3750	3750	3750	3750	3750	3750	3750	3750	3750	3750
20		61	123	184	245	306	368	429	490	551	613	674	735
40		31	61	92	123	153	184	214	245	276	306	337	368
60		20	41	61	82	102	123	143	163	184	204	225	245
80		15	31	46	61	77	92	107	123	138	153	168	184
100		12	25	37	49	61	74	86	98	110	123	135	147
120		10	20	31	41	51	61	71	82	92	102	112	123
140		9	18	26	35	44	53	61	70	79	88	96	105
160		8	15	23	31	38	46	54	61	69	77	84	92
180		7	14	20	27	34	41	48	54	61	68	75	82
200		6	12	18	25	31	37	43	49	55	61	67	74
220		6	11	17	22	28	33	39	45	50	56	61	67
240		5	10	15	20	26	31	36	41	46	51	56	61
260		5	9	14	19	24	28	33	38	42	47	52	57
280		4	9	13	18	22	26	31	35	39	44	48	53
300		4	8	12	16	20	25	29	33	37	41	45	49
320		4	8	11	15	19	23	27	31	34	38	42	46


Table B.19 Characteristic load-carrying capacities angle brackets type 2197

Fastener: Screws 5,0x40 mm, partially fastened

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]	122	61	41	31	24	20	17	15	14	12	11	10	9

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

f [mm]	
F_1 [N]	244

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

Δs [mm]	54,9
$F_{2/3}$ [N]	4583

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

Δs [mm]	54,9
$F_{2/3}$ [N]	9165

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]	6346	122	61	41	30	21	16	13	10	9	8	7	6	6	5	5	5

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	34	34	34	34	34	34	34	34	34	34	34	34	34
20	73	73	73	73	73	73	73	73	73	73	73	73	73
40	2379	4820	5388	5388	5388	5388	5388	5388	5388	5388	5388	5388	5388
60	1586	3213	4840	5388	5388	5388	5388	5388	5388	5388	5388	5388	5388
80	1190	2410	3630	4850	5388	5388	5388	5388	5388	5388	5388	5388	5388
100	952	1928	2904	3880	4856	5388	5388	5388	5388	5388	5388	5388	5388
120	793	1607	2420	3234	4047	4860	5388	5388	5388	5388	5388	5388	5388
140	680	1377	2074	2772	3469	4166	4863	5388	5388	5388	5388	5388	5388
160	595	1205	1815	2425	3035	3645	4255	4866	5388	5388	5388	5388	5388
180	529	1071	1613	2156	2698	3240	3783	4325	4867	5388	5388	5388	5388
200	476	964	1452	1940	2428	2916	3404	3892	4380	4869	5357	5388	5388
220	433	876	1320	1764	2207	2651	3095	3539	3982	4426	4870	5313	5388
240	397	803	1210	1617	2023	2430	2837	3244	3650	4057	4464	4871	5277
260	366	742	1117	1492	1868	2243	2619	2994	3370	3745	4120	4496	4871
280	340	689	1037	1386	1734	2083	2432	2780	3129	3478	3826	4175	4523
300	317	643	968	1293	1619	1944	2270	2595	2920	3246	3571	3896	4222
320	297	602	908	1213	1518	1823	2128	2433	2738	3043	3348	3653	3958

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		6380	6380	6380	6380	6380	6380	6380	6380	6380	6380	6380	6380
20		122	244	366	488	610	732	854	976	1098	1220	1342	1464
40		61	122	183	244	305	366	427	488	549	610	671	732
60		41	81	122	163	203	244	285	325	366	407	447	488
80		31	61	92	122	153	183	214	244	275	305	336	366
100		24	49	73	98	122	146	171	195	220	244	268	293
120		20	41	61	81	102	122	142	163	183	203	224	244
140		17	35	52	70	87	105	122	139	157	174	192	209
160		15	31	46	61	76	92	107	122	137	153	168	183
180		14	27	41	54	68	81	95	108	122	136	149	163
200		12	24	37	49	61	73	85	98	110	122	134	146
220		11	22	33	44	55	67	78	89	100	111	122	133
240		10	20	31	41	51	61	71	81	92	102	112	122
260		9	19	28	38	47	56	66	75	84	94	103	113
280		9	17	26	35	44	52	61	70	78	87	96	105
300		8	16	24	33	41	49	57	65	73	81	89	98
320		8	15	23	31	38	46	53	61	69	76	84	92

Table B.20 Characteristic load-carrying capacities angle brackets type 2197
Fastener: Screws 5,0x60 mm, partially fastened

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]	122	61	41	31	24	20	17	15	14	12	11	10	9

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

f [mm]	
F_1 [N]	244

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

Δs [mm]	54,6
$F_{2/3}$ [N]	4874

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

Δs [mm]	54,6
$F_{2/3}$ [N]	9748


















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]	8651	122	61	41	30	21	16	13	10	9	8	7	6	6	5	5	5

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	34	34	34	34	34	34	34	34	34	34	34	34	34
20	73	73	73	73	73	73	73	73	73	73	73	73	73
40	2379	4820	7260	8651	8651	8651	8651	8651	8651	8651	8651	8651	8651
60	1586	3213	4840	6467	8094	8651	8651	8651	8651	8651	8651	8651	8651
80	1190	2410	3630	4850	6070	7291	8511	8651	8651	8651	8651	8651	8651
100	952	1928	2904	3880	4856	5833	6809	7785	8651	8651	8651	8651	8651
120	793	1607	2420	3234	4047	4860	5674	6487	7301	8114	8651	8651	8651
140	680	1377	2074	2772	3469	4166	4863	5561	6258	6955	7652	8350	8651
160	595	1205	1815	2425	3035	3645	4255	4866	5476	6086	6696	7306	7916
180	529	1071	1613	2156	2698	3240	3783	4325	4867	5410	5952	6494	7036
200	476	964	1452	1940	2428	2916	3404	3892	4380	4869	5357	5845	6333
220	433	876	1320	1764	2207	2651	3095	3539	3982	4426	4870	5313	5757
240	397	803	1210	1617	2023	2430	2837	3244	3650	4057	4464	4871	5277
260	366	742	1117	1492	1868	2243	2619	2994	3370	3745	4120	4496	4871
280	340	689	1037	1386	1734	2083	2432	2780	3129	3478	3826	4175	4523
300	317	643	968	1293	1619	1944	2270	2595	2920	3246	3571	3896	4222
320	297	602	908	1213	1518	1823	2128	2433	2738	3043	3348	3653	3958

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		8685	8685	8685	8685	8685	8685	8685	8685	8685	8685	8685	8685
20		122	244	366	488	610	732	854	976	1098	1220	1342	1464
40		61	122	183	244	305	366	427	488	549	610	671	732
60		41	81	122	163	203	244	285	325	366	407	447	488
80		31	61	92	122	153	183	214	244	275	305	336	366
100		24	49	73	98	122	146	171	195	220	244	268	293
120		20	41	61	81	102	122	142	163	183	203	224	244
140		17	35	52	70	87	105	122	139	157	174	192	209
160		15	31	46	61	76	92	107	122	137	153	168	183
180		14	27	41	54	68	81	95	108	122	136	149	163
200		12	24	37	49	61	73	85	98	110	122	134	146
220		11	22	33	44	55	67	78	89	100	111	122	133
240		10	20	31	41	51	61	71	81	92	102	112	122
260		9	19	28	38	47	56	66	75	84	94	103	113
280		9	17	26	35	44	52	61	70	78	87	96	105
300		8	16	24	33	41	49	57	65	73	81	89	98
320		8	15	23	31	38	46	53	61	69	76	84	92

**Table B.21 Characteristic load-carrying capacities angle brackets type 110/170S
Fastener: Nails 4,0x40 mm, fully nailed**

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]	1943	138	69	46	34	28	23	20	17	15	14	13	11

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

f [mm]	
F_1 [N]	3885

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

Δs [mm]	82
$F_{2/3}$ [N]	5028

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

Δs [mm]	82
$F_{2/3}$ [N]	10056


















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]	12553	6265	3132	2088	178	78	50	37	29	24	20	18	16	14	13	12	11

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	43	43	43	43	43	43	43	43	43	43	43	43	43
20	62	62	62	62	62	62	62	62	62	62	62	62	62
40	113	113	113	113	113	113	113	113	113	113	113	113	113
60	613	613	613	613	613	613	613	613	613	613	613	613	613
80	1139	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470
100	911	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470
120	760	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470
140	651	1355	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470
160	570	1185	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470
180	506	1054	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470
200	456	948	1347	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470
220	414	862	1225	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470
240	380	790	1123	1468	1470	1470	1470	1470	1470	1470	1470	1470	1470
260	351	729	1036	1355	1470	1470	1470	1470	1470	1470	1470	1470	1470
280	326	677	962	1259	1470	1470	1470	1470	1470	1470	1470	1470	1470
300	304	632	898	1175	1457	1470	1470	1470	1470	1470	1470	1470	1470
320	285	593	842	1101	1366	1470	1470	1470	1470	1470	1470	1470	1470

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		12595	12595	12595	12595	12595	12595	12595	12595	12595	12595	12595	12595
20		1943	3885	5828	7770	9713	11655	12556	12561	12565	12568	12570	12572
40		971	1943	2914	3885	4856	5828	6799	7770	8742	9713	10684	11655
60		648	1295	1943	2590	3238	3885	4533	5180	5828	6475	7123	7770
80		486	971	1457	1943	2428	2914	3400	3885	4371	4856	5342	5828
100		389	777	1166	1554	1943	2331	2720	3108	3497	3885	4274	4662
120		324	648	971	1295	1619	1943	2266	2590	2914	3238	3561	3885
140		278	555	833	1110	1388	1665	1943	2220	2498	2775	3053	3330
160		243	486	728	971	1214	1457	1700	1943	2185	2428	2671	2914
180		216	432	648	863	1079	1295	1511	1727	1943	2158	2374	2590
200		194	389	583	777	971	1166	1360	1554	1748	1943	2137	2331
220		177	353	530	706	883	1060	1236	1413	1589	1766	1943	2119
240		162	324	486	648	809	971	1133	1295	1457	1619	1781	1943
260		149	299	448	598	747	897	1046	1195	1345	1494	1644	1793
280		139	278	416	555	694	833	971	1110	1249	1388	1526	1665
300		130	259	389	518	648	777	907	1036	1166	1295	1425	1554
320		121	243	364	486	607	728	850	971	1093	1214	1336	1457

**Table B.22 Characteristic load-carrying capacities angle brackets type 110/170S
Fastener: Nails 4,0x60 mm, fully nailed**

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]	3238	230	115	77	57	46	38	33	29	26	23	21	19

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

f [mm]	
F_1 [N]	6475

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

Δs [mm]	75,4
$F_{2/3}$ [N]	6325

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

Δs [mm]	75,4
$F_{2/3}$ [N]	12650

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]	14878	10441	5221	3480	296	129	83	61	48	40	34	30	26	23	21	20	18

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	71	71	71	71	71	71	71	71	71	71	71	71	71
20	103	103	103	103	103	103	103	103	103	103	103	103	103
40	188	188	188	188	188	188	188	188	188	188	188	188	188
60	1021	1021	1021	1021	1021	1021	1021	1021	1021	1021	1021	1021	1021
80	1899	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
100	1519	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
120	1266	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
140	1085	2258	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
160	949	1975	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
180	844	1756	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
200	760	1580	2246	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
220	690	1437	2041	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
240	633	1317	1871	2447	2450	2450	2450	2450	2450	2450	2450	2450	2450
260	584	1216	1727	2259	2450	2450	2450	2450	2450	2450	2450	2450	2450
280	543	1129	1604	2098	2450	2450	2450	2450	2450	2450	2450	2450	2450
300	506	1054	1497	1958	2428	2450	2450	2450	2450	2450	2450	2450	2450
320	475	988	1404	1836	2276	2450	2450	2450	2450	2450	2450	2450	2450

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		14949	14949	14949	14949	14949	14949	14949	14949	14949	14949	14949	14949
20		3238	6475	9713	12950	14884	14895	14903	14908	14913	14917	14920	14922
40		1619	3238	4856	6475	8094	9713	11332	12950	14569	14884	14890	14895
60		1079	2158	3238	4317	5396	6475	7554	8634	9713	10792	11871	12950
80		809	1619	2428	3238	4047	4856	5666	6475	7285	8094	8903	9713
100		648	1295	1943	2590	3238	3885	4533	5180	5828	6475	7123	7770
120		540	1079	1619	2158	2698	3238	3777	4317	4856	5396	5936	6475
140		463	925	1388	1850	2313	2775	3238	3700	4163	4625	5088	5550
160		405	809	1214	1619	2024	2428	2833	3238	3642	4047	4452	4856
180		360	719	1079	1439	1799	2158	2518	2878	3238	3597	3957	4317
200		324	648	971	1295	1619	1943	2266	2590	2914	3238	3561	3885
220		294	589	883	1177	1472	1766	2060	2355	2649	2943	3238	3532
240		270	540	809	1079	1349	1619	1889	2158	2428	2698	2968	3238
260		249	498	747	996	1245	1494	1743	1992	2241	2490	2740	2989
280		231	463	694	925	1156	1388	1619	1850	2081	2313	2544	2775
300		216	432	648	863	1079	1295	1511	1727	1943	2158	2374	2590
320		202	405	607	809	1012	1214	1416	1619	1821	2024	2226	2428


Table B.23 Characteristic load-carrying capacities angle brackets type 110/170S

Fastener: Screws 5,0x40 mm, fully fastened

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]	6632	505	253	168	126	101	84	72	63	56	51	46	42

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

f [mm]	
F_1 [N]	13264

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

Δs [mm]	65,3
$F_{2/3}$ [N]	8369

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

Δs [mm]	65,3
$F_{2/3}$ [N]	16738

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]	19800	16059	8030	5353	652	285	182	134	106	87	75	65	58	52	47	43	40

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	157	157	157	157	157	157	157	157	157	157	157	157	157
20	227	227	227	227	227	227	227	227	227	227	227	227	227
40	412	412	412	412	412	412	412	412	412	412	412	412	412
60	2245	2245	2245	2245	2245	2245	2245	2245	2245	2245	2245	2245	2245
80	4015	5388	5388	5388	5388	5388	5388	5388	5388	5388	5388	5388	5388
100	3212	4950	5388	5388	5388	5388	5388	5388	5388	5388	5388	5388	5388
120	2677	4125	5388	5388	5388	5388	5388	5388	5388	5388	5388	5388	5388
140	2294	3536	4888	5388	5388	5388	5388	5388	5388	5388	5388	5388	5388
160	2007	3094	4277	5388	5388	5388	5388	5388	5388	5388	5388	5388	5388
180	1784	2750	3802	4888	5388	5388	5388	5388	5388	5388	5388	5388	5388
200	1606	2475	3421	4399	5388	5388	5388	5388	5388	5388	5388	5388	5388
220	1460	2250	3110	3999	4902	5388	5388	5388	5388	5388	5388	5388	5388
240	1338	2062	2851	3666	4494	5329	5388	5388	5388	5388	5388	5388	5388
260	1235	1904	2632	3384	4148	4919	5388	5388	5388	5388	5388	5388	5388
280	1147	1768	2444	3142	3852	4568	5288	5388	5388	5388	5388	5388	5388
300	1071	1650	2281	2933	3595	4263	4935	5388	5388	5388	5388	5388	5388
320	1004	1547	2138	2749	3370	3997	4627	5259	5388	5388	5388	5388	5388

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		19956	19956	19956	19956	19956	19956	19956	19956	19956	19956	19956	19956
20		6632	13264	19801	19839	19863	19878	19889	19898	19904	19909	19914	19917
40		3316	6632	9948	13264	16580	19801	19823	19839	19852	19863	19871	19878
60		2211	4421	6632	8842	11053	13264	15474	17685	19801	19816	19829	19839
80		1658	3316	4974	6632	8290	9948	11606	13264	14922	16580	18238	19801
100		1326	2653	3979	5305	6632	7958	9285	10611	11937	13264	14590	15916
120		1105	2211	3316	4421	5527	6632	7737	8842	9948	11053	12158	13264
140		947	1895	2842	3790	4737	5684	6632	7579	8527	9474	10421	11369
160		829	1658	2487	3316	4145	4974	5803	6632	7461	8290	9119	9948
180		737	1474	2211	2947	3684	4421	5158	5895	6632	7369	8106	8842
200		663	1326	1990	2653	3316	3979	4642	5305	5969	6632	7295	7958
220		603	1206	1809	2412	3014	3617	4220	4823	5426	6029	6632	7235
240		553	1105	1658	2211	2763	3316	3869	4421	4974	5527	6079	6632
260		510	1020	1530	2041	2551	3061	3571	4081	4591	5101	5612	6122
280		474	947	1421	1895	2369	2842	3316	3790	4263	4737	5211	5684
300		442	884	1326	1768	2211	2653	3095	3537	3979	4421	4863	5305
320		414	829	1243	1658	2072	2487	2901	3316	3730	4145	4559	4974

Table B.24 Characteristic load-carrying capacities angle brackets type 110/170S
Fastener: Screws 5,0x60 mm, fully fastened

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]	6632	821	410	274	205	164	137	117	103	91	82	75	68

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

f [mm]	
F_1 [N]	13264

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

Δs [mm]	60,6
$F_{2/3}$ [N]	9322

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

Δs [mm]	60,6
$F_{2/3}$ [N]	18645


















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]	24444	16059	8030	5353	836	365	233	172	136	112	96	83	74	66	60	55	51

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	201	201	201	201	201	201	201	201	201	201	201	201	201
20	291	291	291	291	291	291	291	291	291	291	291	291	291
40	529	529	529	529	529	529	529	529	529	529	529	529	529
60	2878	2878	2878	2878	2878	2878	2878	2878	2878	2878	2878	2878	2878
80	4015	6187	8553	8755	8755	8755	8755	8755	8755	8755	8755	8755	8755
100	3212	4950	6843	8755	8755	8755	8755	8755	8755	8755	8755	8755	8755
120	2677	4125	5702	7332	8755	8755	8755	8755	8755	8755	8755	8755	8755
140	2294	3536	4888	6284	7704	8755	8755	8755	8755	8755	8755	8755	8755
160	2007	3094	4277	5499	6741	7994	8755	8755	8755	8755	8755	8755	8755
180	1784	2750	3802	4888	5992	7106	8226	8755	8755	8755	8755	8755	8755
200	1606	2475	3421	4399	5393	6395	7403	8415	8755	8755	8755	8755	8755
220	1460	2250	3110	3999	4902	5814	6730	7650	8572	8755	8755	8755	8755
240	1338	2062	2851	3666	4494	5329	6169	7012	7858	8705	8755	8755	8755
260	1235	1904	2632	3384	4148	4919	5695	6473	7253	8035	8755	8755	8755
280	1147	1768	2444	3142	3852	4568	5288	6011	6735	7461	8188	8755	8755
300	1071	1650	2281	2933	3595	4263	4935	5610	6286	6964	7642	8322	8755
320	1004	1547	2138	2749	3370	3997	4627	5259	5893	6529	7165	7802	8439

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		24644	24644	24644	24644	24644	24644	24644	24644	24644	24644	24644	24644
20		6632	13264	19896	24459	24496	24521	24538	24551	24562	24570	24577	24582
40		3316	6632	9948	13264	16580	19896	23211	24459	24480	24496	24509	24521
60		2211	4421	6632	8842	11053	13264	15474	17685	19896	22106	24317	24459
80		1658	3316	4974	6632	8290	9948	11606	13264	14922	16580	18238	19896
100		1326	2653	3979	5305	6632	7958	9285	10611	11937	13264	14590	15916
120		1105	2211	3316	4421	5527	6632	7737	8842	9948	11053	12158	13264
140		947	1895	2842	3790	4737	5684	6632	7579	8527	9474	10421	11369
160		829	1658	2487	3316	4145	4974	5803	6632	7461	8290	9119	9948
180		737	1474	2211	2947	3684	4421	5158	5895	6632	7369	8106	8842
200		663	1326	1990	2653	3316	3979	4642	5305	5969	6632	7295	7958
220		603	1206	1809	2412	3014	3617	4220	4823	5426	6029	6632	7235
240		553	1105	1658	2211	2763	3316	3869	4421	4974	5527	6079	6632
260		510	1020	1530	2041	2551	3061	3571	4081	4591	5101	5612	6122
280		474	947	1421	1895	2369	2842	3316	3790	4263	4737	5211	5684
300		442	884	1326	1768	2211	2653	3095	3537	3979	4421	4863	5305
320		414	829	1243	1658	2072	2487	2901	3316	3730	4145	4559	4974

**Table B.25 Characteristic load-carrying capacities angle brackets type 50/595
Fastener: Nails 4,0x40 mm, fully nailed**

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

Δs [mm]	51,1
$F_{2/3}$ [N]	2910

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

Δs [mm]	51,1
$F_{2/3}$ [N]	5819

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]	3136	1213	369	119	71	50	39	32	27	23	21	18	17	15	14	13	12

**Table B.26 Characteristic load-carrying capacities angle brackets type 50/595
Fastener: Nails 4,0x60 mm, fully nailed**

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

Δs [mm]	50
$F_{2/3}$ [N]	3503

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

Δs [mm]	50
$F_{2/3}$ [N]	7005

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]	3717	1962	369	119	71	50	39	32	27	23	21	18	17	15	14	13	12

**Table B.27 Characteristic load-carrying capacities angle brackets type 50/595
Fastener: Screws 5,0x40 mm, fully fastened**

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

Δs [mm]	48,5
$F_{2/3}$ [N]	4291

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

Δs [mm]	48,5
$F_{2/3}$ [N]	8583

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]	8265	1962	369	119	71	50	39	32	27	23	21	18	17	15	14	13	12

**Table B.28 Characteristic load-carrying capacities angle brackets type 50/595
Fastener: Screws 5,0x60 mm, fully fastened**

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

Δs [mm]	47,8
$F_{2/3}$ [N]	4597

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

Δs [mm]	47,8
$F_{2/3}$ [N]	9194

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]	9205	1962	369	119	71	50	39	32	27	23	21	18	17	15	14	13	12

**Table B.29 Characteristic load-carrying capacities angle brackets type 50/595
Fastener: Nails 4,0x40 mm, partially nailed**

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

Δs [mm]	46,1
$F_{2/3}$ [N]	2694

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

Δs [mm]	46,1
$F_{2/3}$ [N]	5388

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]	3136	1213	369	119	71	50	39	32	27	23	21	18	17	15	14	13	12

**Table B.30 Characteristic load-carrying capacities angle brackets type 50/595
Fastener: Nails 4,0x60 mm, partially nailed**

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

Δs [mm]	43,9
$F_{2/3}$ [N]	3286

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

Δs [mm]	43,9
$F_{2/3}$ [N]	6572

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]	3717	1962	369	119	71	50	39	32	27	23	21	18	17	15	14	13	12

**Table B.31 Characteristic load-carrying capacities angle brackets type 50/595
Fastener: Screws 5,0x40 mm, partially fastened**

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

Δs [mm]	40,4
$F_{2/3}$ [N]	4132

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

Δs [mm]	40,4
$F_{2/3}$ [N]	8264

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]	8265	1962	369	119	71	50	39	32	27	23	21	18	17	15	14	13	12

**Table B.32 Characteristic load-carrying capacities angle brackets type 50/595
Fastener: Screws 5,0x60 mm, partially fastened**

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

Δs [mm]	38,6
$F_{2/3}$ [N]	4493

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

Δs [mm]	38,6
$F_{2/3}$ [N]	8987

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]	9205	1962	369	119	71	50	39	32	27	23	21	18	17	15	14	13	12

**Table B.33 Characteristic load-carrying capacities angle brackets type 80/598
Fastener: Nails 4,0x40 mm, fully nailed**

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

Δs [mm]	47,4
$F_{2/3}$ [N]	4693

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

Δs [mm]	47,4
$F_{2/3}$ [N]	9385

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]	4704	1819	387	125	74	53	41	34	28	25	22	19	18	16	15	14	13

**Table B.34 Characteristic load-carrying capacities angle brackets type 80/598
Fastener: Nails 4,0x60 mm, fully nailed**

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

Δs [mm]	45,1
$F_{2/3}$ [N]	5751

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

Δs [mm]	45,1
$F_{2/3}$ [N]	11502

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]	5576	3032	630	203	121	86	67	55	46	40	35	32	29	26	24	22	21

**Table B.35 Characteristic load-carrying capacities angle brackets type 80/598
Fastener: Screws 5,0x40 mm, fully fastened**

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

Δs [mm]	41,8
$F_{2/3}$ [N]	7248

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

Δs [mm]	41,8
$F_{2/3}$ [N]	14496

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]	12073	3352	630	203	121	86	67	55	46	40	35	32	29	26	24	22	21

**Table B.36 Characteristic load-carrying capacities angle brackets type 80/598
Fastener: Screws 5,0x60 mm, fully fastened**

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

Δs [mm]	40,4
$F_{2/3}$ [N]	7855

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

Δs [mm]	40,4
$F_{2/3}$ [N]	15710

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]	13692	3352	630	203	121	86	67	55	46	40	35	32	29	26	24	22	21

**Table B.37 Characteristic load-carrying capacities angle brackets type 80/598
Fastener: Nails 4,0x40 mm, partially nailed**

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

Δs [mm]	44,3
$F_{2/3}$ [N]	3385

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

Δs [mm]	44,3
$F_{2/3}$ [N]	6771

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]	1568	1568	387	125	74	53	41	34	28	25	22	19	18	16	15	14	13

**Table B.38 Characteristic load-carrying capacities angle brackets type 80/598
Fastener: Nails 4,0x60 mm, partially nailed**

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

Δs [mm]	41,7
$F_{2/3}$ [N]	4137

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

Δs [mm]	41,7
$F_{2/3}$ [N]	8273

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]	1859	1859	630	203	121	86	67	55	46	40	35	32	29	26	24	22	21

**Table B.39 Characteristic load-carrying capacities angle brackets type 80/598
Fastener: Screws 5,0x40 mm, partially fastened**

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

Δs [mm]	37,1
$F_{2/3}$ [N]	5245

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

Δs [mm]	37,1
$F_{2/3}$ [N]	10490

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]	7616	3352	630	203	121	86	67	55	46	40	35	32	29	26	24	22	21

**Table B.40 Characteristic load-carrying capacities angle brackets type 80/598
Fastener: Screws 5,0x60 mm, partially fastened**

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

Δs [mm]	34,7
$F_{2/3}$ [N]	5731

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

Δs [mm]	34,7
$F_{2/3}$ [N]	11463

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]	8966	3352	630	203	121	86	67	55	46	40	35	32	29	26	24	22	21

**Table B.41 Characteristic load-carrying capacities angle brackets type 110/5911
Fastener: Nails 4,0x40 mm, fully nailed**

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

Δs [mm]	48,9
$F_{2/3}$ [N]	7857

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

Δs [mm]	48,9
$F_{2/3}$ [N]	15714

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]	6273	2426	774	249	148	106	82	67	57	49	43	39	35	32	29	27	25

**Table B.42 Characteristic load-carrying capacities angle brackets type 110/5911
Fastener: Nails 4,0x60 mm, fully nailed**

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

Δs [mm]	48,6
$F_{2/3}$ [N]	9350

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

Δs [mm]	48,6
$F_{2/3}$ [N]	18699

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]	7435	4043	790	254	152	108	84	69	58	50	44	40	36	33	30	28	26

**Table B.43 Characteristic load-carrying capacities angle brackets type 110/5911
Fastener: Screws 5,0x40 mm, fully fastened**

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

Δs [mm]	48,3
$F_{2/3}$ [N]	11256

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

Δs [mm]	48,3
$F_{2/3}$ [N]	22513

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]	16320	4201	790	254	152	108	84	69	58	50	44	40	36	33	30	28	26

**Table B.44 Characteristic load-carrying capacities angle brackets type 110/5911
Fastener: Screws 5,0x60 mm, fully fastened**

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

Δs [mm]	48,3
$F_{2/3}$ [N]	11936

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

Δs [mm]	48,3
$F_{2/3}$ [N]	23872

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]	18335	4201	790	254	152	108	84	69	58	50	44	40	36	33	30	28	26

**Table B.45 Characteristic load-carrying capacities angle brackets type 110/5911
Fastener: Nails 4,0x40 mm, partially nailed**

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

Δs [mm]	33,5
$F_{2/3}$ [N]	6458

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

Δs [mm]	33,5
$F_{2/3}$ [N]	12917

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]	3136	2426	774	249	148	106	82	67	57	49	43	39	35	32	29	27	25

**Table B.46 Characteristic load-carrying capacities angle brackets type 110/5911
Fastener: Nails 4,0x60 mm, partially nailed**

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

Δs [mm]	31
$F_{2/3}$ [N]	7888

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

Δs [mm]	31
$F_{2/3}$ [N]	15776

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]	3717	3717	790	254	152	108	84	69	58	50	44	40	36	33	30	28	26

**Table B.47 Characteristic load-carrying capacities angle brackets type 110/5911
Fastener: Screws 5,0x40 mm, partially fastened**

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

Δs [mm]	27,3
$F_{2/3}$ [N]	9893

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

Δs [mm]	27,3
$F_{2/3}$ [N]	19785

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]	11862	4201	790	254	152	108	84	69	58	50	44	40	36	33	30	28	26

**Table B.48 Characteristic load-carrying capacities angle brackets type 110/5911
Fastener: Screws 5,0x60 mm, partially fastened**

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

Δs [mm]	25,5
$F_{2/3}$ [N]	10722

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

Δs [mm]	25,5
$F_{2/3}$ [N]	21444

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]	13608	4201	790	254	152	108	84	69	58	50	44	40	36	33	30	28	26

**Table B 49 Characteristic load-carrying capacities angle brackets type 994
Fastener: Screws 4,0x40 mm, fully fastened**

Load capacity $F_{2/3,k}$ - one angle bracket																		$F_{2/3,k}$ - two angle brackets			
Δs [mm]	39,9													Δs [mm]	39,9						
$F_{2/3}$ [N]	1646													$F_{2/3}$ [N]	3291						
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]	4704	735	368	245	163	113	86	70	59	51	45	40	36	33	30	28	26				

**Table B 50 Characteristic load-carrying capacities angle brackets type 994
Fastener: Screws 4,0x60 mm, fully fastened**

Load capacity $F_{2/3,k}$ - one angle bracket																		$F_{2/3,k}$ - two angle brackets			
Δs [mm]	36,2													Δs [mm]	36,2						
$F_{2/3}$ [N]	2077													$F_{2/3}$ [N]	4154						
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]	8264	846	423	282	212	169	141	117	98	84	74	66	60	54	50	46	43				

**Table B 51 Characteristic load-carrying capacities angle brackets type 994
Fastener: Screws 5,0x40 mm, fully fastened**

Load capacity $F_{2/3,k}$ - one angle bracket																		$F_{2/3,k}$ - two angle brackets			
Δs [mm]	29,3													Δs [mm]	29,3						
$F_{2/3}$ [N]	2834													$F_{2/3}$ [N]	5667						
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]	10919	846	423	282	212	169	141	121	106	94	85	77	71	65	60	56	53				

**Table B 52 Characteristic load-carrying capacities angle brackets type 994
Fastener: Screws 5,0x60 mm, fully fastened**

Load capacity $F_{2/3,k}$ - one angle bracket																		$F_{2/3,k}$ - two angle brackets			
Δs [mm]	25,3													Δs [mm]	25,3						
$F_{2/3}$ [N]	3264													$F_{2/3}$ [N]	6529						
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]	11728	846	423	282	212	169	141	121	106	94	85	77	71	65	60	56	53				

Table B 53 Characteristic load-carrying capacities angle brackets type 1293
Fastener: Screws 4,0x40 mm, fully fastened

Load capacity $F_{2/3,k}$ - one angle bracket																			$F_{2/3,k}$ - two angle brackets	
Δs [mm]	34,8												Δs [mm]	34,8						
$F_{2/3}$ [N]	1852												$F_{2/3}$ [N]	3703						
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]	7841	1103	551	294	163	113	86	70	59	51	45	40	36	33	30	28	26			

Table B 54 Characteristic load-carrying capacities angle brackets type 1293
Fastener: Screws 4,0x60 mm, fully fastened

Load capacity $F_{2/3,k}$ - one angle bracket																			$F_{2/3,k}$ - two angle brackets	
Δs [mm]	30												Δs [mm]	30						
$F_{2/3}$ [N]	2398												$F_{2/3}$ [N]	4795						
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]	11170	1586	793	490	272	188	144	117	98	84	74	66	60	54	50	46	43			

Table B 55 Characteristic load-carrying capacities angle brackets type 1293
Fastener: Screws 5,0x40 mm, fully fastened

Load capacity $F_{2/3,k}$ - one angle bracket																			$F_{2/3,k}$ - two angle brackets	
Δs [mm]	21,3												Δs [mm]	21,3						
$F_{2/3}$ [N]	3452												$F_{2/3}$ [N]	6904						
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]	15244	1586	793	529	376	260	199	161	135	117	103	91	83	75	69	64	59			

Table B 56 Characteristic load-carrying capacities angle brackets type 1293
Fastener: Screws 5,0x60 mm, fully fastened

Load capacity $F_{2/3,k}$ - one angle bracket																			$F_{2/3,k}$ - two angle brackets	
Δs [mm]	16,1												Δs [mm]	16,1						
$F_{2/3}$ [N]	4157												$F_{2/3}$ [N]	8314						
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]	16404	1586	793	529	376	260	199	161	135	117	103	91	83	75	69	64	59			

Table B 57 Characteristic load-carrying capacities angle brackets type 645

Fastener: Screws 4,0x40 mm, fully fastened



















Load capacity $F_{1,k}$ - one angle bracket														F _{1,k} - two angle brackets				
f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	f [mm]				
F ₁ [N]	179	91	61	46	37	30	26	23	20	18	17	15	14	F ₁ [N]	359			
Load capacity $F_{2/3,k}$ - one angle bracket														F _{2/3,k} - two angle brackets				
Δs [mm]	25,9													Δs [mm]	25,9			
F _{2/3} [N]	2252													F _{2/3} [N]	4505			
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]	3162	184	92	61	46	37	29	23	19	17	15	13	12	11	10	9	8	
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	63	63	63	63	63	63	63	63	63	63	63	63	63					
20	135	135	135	135	135	135	135	135	135	135	135	135	135					
40	611	1343	1391	1391	1391	1391	1391	1391	1391	1391	1391	1391	1391					
60	407	896	1385	1391	1391	1391	1391	1391	1391	1391	1391	1391	1391					
80	305	672	1039	1391	1391	1391	1391	1391	1391	1391	1391	1391	1391					
100	244	537	831	1125	1391	1391	1391	1391	1391	1391	1391	1391	1391					
120	204	448	693	937	1182	1391	1391	1391	1391	1391	1391	1391	1391					
140	174	384	594	804	1013	1223	1391	1391	1391	1391	1391	1391	1391					
160	153	336	519	703	887	1071	1254	1391	1391	1391	1391	1391	1391					
180	136	299	462	625	788	952	1115	1278	1391	1391	1391	1391	1391					
200	122	269	416	562	709	856	1003	1150	1297	1391	1391	1391	1391					
220	111	244	378	511	645	779	912	1046	1179	1313	1391	1391	1391					
240	102	224	346	469	591	714	836	959	1081	1204	1326	1391	1391					
260	94	207	320	433	546	659	772	885	998	1111	1224	1337	1391					
280	87	192	297	402	507	612	717	822	927	1032	1137	1242	1347					
300	81	179	277	375	473	571	669	767	865	963	1061	1159	1257					
320	76	168	260	352	443	535	627	719	811	903	995	1086	1178					
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		3225	3225	3225	3225	3225	3225	3225	3225	3225	3225	3225	3225					
20		179	359	538	717	896	1076	1255	1434	1613	1793	1972	2151					
40		90	179	269	359	448	538	627	717	807	896	986	1076					
60		60	120	179	239	299	359	418	478	538	598	657	717					
80		45	90	134	179	224	269	314	359	403	448	493	538					
100		36	72	108	143	179	215	251	287	323	359	394	430					
120		30	60	90	120	149	179	209	239	269	299	329	359					
140		26	51	77	102	128	154	179	205	230	256	282	307					
160		22	45	67	90	112	134	157	179	202	224	246	269					
180		20	40	60	80	100	120	139	159	179	199	219	239					
200		18	36	54	72	90	108	125	143	161	179	197	215					
220		16	33	49	65	81	98	114	130	147	163	179	196					
240		15	30	45	60	75	90	105	120	134	149	164	179					
260		14	28	41	55	69	83	97	110	124	138	152	165					
280		13	26	38	51	64	77	90	102	115	128	141	154					
300		12	24	36	48	60	72	84	96	108	120	131	143					
320		11	22	34	45	56	67	78	90	101	112	123	134					

Table B 58 Characteristic load-carrying capacities angle brackets type 645

Fastener: Screws 4,0x60 mm, fully fastened



















Load capacity $F_{1,k}$ - one angle bracket														F _{1,k} - two angle brackets				
f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	f [mm]				
F ₁ [N]	224	113	76	57	46	38	33	29	25	23	21	19	18	F ₁ [N]	448			
Load capacity $F_{2/3,k}$ - one angle bracket														F _{2/3,k} - two angle brackets				
Δs [mm]	24,7													Δs [mm]	24,7			
F _{2/3} [N]	2732													F _{2/3} [N]	5463			
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]	6179	229	115	76	56	38	29	23	19	17	15	13	12	11	10	9	8	
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	63	63	63	63	63	63	63	63	63	63	63	63	63					
20	135	135	135	135	135	135	135	135	135	135	135	135	135					
40	826	1744	2318	2318	2318	2318	2318	2318	2318	2318	2318	2318	2318					
60	551	1163	1775	2318	2318	2318	2318	2318	2318	2318	2318	2318	2318					
80	413	872	1331	1790	2249	2318	2318	2318	2318	2318	2318	2318	2318					
100	330	698	1065	1432	1799	2166	2318	2318	2318	2318	2318	2318	2318					
120	275	581	887	1193	1499	1805	2111	2318	2318	2318	2318	2318	2318					
140	236	498	761	1023	1285	1547	1810	2072	2318	2318	2318	2318	2318					
160	207	436	666	895	1125	1354	1583	1813	2042	2272	2318	2318	2318					
180	184	388	592	796	1000	1204	1408	1612	1816	2020	2224	2318	2318					
200	165	349	532	716	900	1083	1267	1450	1634	1818	2001	2185	2318					
220	150	317	484	651	818	985	1152	1319	1485	1652	1819	1986	2153					
240	138	291	444	597	750	903	1056	1209	1362	1515	1668	1821	1974					
260	127	268	410	551	692	833	974	1116	1257	1398	1539	1681	1822					
280	118	249	380	511	643	774	905	1036	1167	1298	1429	1561	1692					
300	110	233	355	477	600	722	845	967	1089	1212	1334	1457	1579					
320	103	218	333	448	562	677	792	906	1021	1136	1251	1365	1480					
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		6242	6242	6242	6242	6242	6242	6242	6242	6242	6242	6242	6242					
20		224	448	672	896	1119	1343	1567	1791	2015	2239	2463	2687					
40		112	224	336	448	560	672	784	896	1008	1119	1231	1343					
60		75	149	224	299	373	448	522	597	672	746	821	896					
80		56	112	168	224	280	336	392	448	504	560	616	672					
100		45	90	134	179	224	269	313	358	403	448	493	537					
120		37	75	112	149	187	224	261	299	336	373	410	448					
140		32	64	96	128	160	192	224	256	288	320	352	384					
160		28	56	84	112	140	168	196	224	252	280	308	336					
180		25	50	75	100	124	149	174	199	224	249	274	299					
200		22	45	67	90	112	134	157	179	202	224	246	269					
220		20	41	61	81	102	122	142	163	183	204	224	244					
240		19	37	56	75	93	112	131	149	168	187	205	224					
260		17	34	52	69	86	103	121	138	155	172	189	207					
280		16	32	48	64	80	96	112	128	144	160	176	192					
300		15	30	45	60	75	90	104	119	134	149	164	179					
320		14	28	42	56	70	84	98	112	126	140	154	168					

Table B 59 Characteristic load-carrying capacities angle brackets type 645
Fastener: Screws 5,0x40 mm, fully fastened

Load capacity $F_{1,k}$ - one angle bracket														F _{1,k} - two angle brackets			
f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	f [mm]			
F ₁ [N]	224	113	76	57	46	38	33	29	25	23	21	19	18	F ₁ [N]	448		
Load capacity $F_{2/3,k}$ - one angle bracket														F _{2/3,k} - two angle brackets			
Δs [mm]	23,5													Δs [mm]	23,5		
F _{2/3} [N]	3421													F _{2/3} [N]	6843		
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]	8759	229	115	76	56	38	29	23	19	17	15	13	12	11	10	9	8
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	63	63	63	63	63	63	63	63	63	63	63	63	63				
20	135	135	135	135	135	135	135	135	135	135	135	135	135				
40	826	1744	2662	3580	4498	5176	5176	5176	5176	5176	5176	5176	5176				
60	551	1163	1775	2387	2999	3611	4223	4835	5176	5176	5176	5176	5176				
80	413	872	1331	1790	2249	2708	3167	3626	4085	4544	5003	5176	5176				
100	330	698	1065	1432	1799	2166	2534	2901	3268	3635	4002	4370	4737				
120	275	581	887	1193	1499	1805	2111	2417	2723	3029	3335	3641	3947				
140	236	498	761	1023	1285	1547	1810	2072	2334	2597	2859	3121	3383				
160	207	436	666	895	1125	1354	1583	1813	2042	2272	2501	2731	2960				
180	184	388	592	796	1000	1204	1408	1612	1816	2020	2224	2428	2632				
200	165	349	532	716	900	1083	1267	1450	1634	1818	2001	2185	2368				
220	150	317	484	651	818	985	1152	1319	1485	1652	1819	1986	2153				
240	138	291	444	597	750	903	1056	1209	1362	1515	1668	1821	1974				
260	127	268	410	551	692	833	974	1116	1257	1398	1539	1681	1822				
280	118	249	380	511	643	774	905	1036	1167	1298	1429	1561	1692				
300	110	233	355	477	600	722	845	967	1089	1212	1334	1457	1579				
320	103	218	333	448	562	677	792	906	1021	1136	1251	1365	1480				
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		8822	8822	8822	8822	8822	8822	8822	8822	8822	8822	8822	8822				
20		224	448	672	896	1119	1343	1567	1791	2015	2239	2463	2687				
40		112	224	336	448	560	672	784	896	1008	1119	1231	1343				
60		75	149	224	299	373	448	522	597	672	746	821	896				
80		56	112	168	224	280	336	392	448	504	560	616	672				
100		45	90	134	179	224	269	313	358	403	448	493	537				
120		37	75	112	149	187	224	261	299	336	373	410	448				
140		32	64	96	128	160	192	224	256	288	320	352	384				
160		28	56	84	112	140	168	196	224	252	280	308	336				
180		25	50	75	100	124	149	174	199	224	249	274	299				
200		22	45	67	90	112	134	157	179	202	224	246	269				
220		20	41	61	81	102	122	142	163	183	204	224	244				
240		19	37	56	75	93	112	131	149	168	187	205	224				
260		17	34	52	69	86	103	121	138	155	172	189	207				
280		16	32	48	64	80	96	112	128	144	160	176	192				
300		15	30	45	60	75	90	104	119	134	149	164	179				
320		14	28	42	56	70	84	98	112	126	140	154	168				

Table B 60 Characteristic load-carrying capacities angle brackets type 645
Fastener: Screws 5,0x60 mm, fully fastened

Load capacity $F_{1,k}$ - one angle bracket														Load capacity $F_{1,k}$ - two angle brackets				
f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	f [mm]				
F_1 [N]	224	113	76	57	46	38	33	29	25	23	21	19	18	F_1 [N]	448			
Load capacity $F_{2/3,k}$ - one angle bracket														Load capacity $F_{2/3,k}$ - two angle brackets				
Δs [mm]	23,2													Δs [mm]	23,2			
$F_{2/3}$ [N]	3615													$F_{2/3}$ [N]	7229			
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]	9351	229	115	76	56	38	29	23	19	17	15	13	12	11	10	9	8	
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	63	63	63	63	63	63	63	63	63	63	63	63	63					
20	135	135	135	135	135	135	135	135	135	135	135	135	135					
40	826	1744	2662	3580	4498	5416	6334	7252	8170	8362	8362	8362	8362					
60	551	1163	1775	2387	2999	3611	4223	4835	5447	6059	6671	7283	7895					
80	413	872	1331	1790	2249	2708	3167	3626	4085	4544	5003	5462	5921					
100	330	698	1065	1432	1799	2166	2534	2901	3268	3635	4002	4370	4737					
120	275	581	887	1193	1499	1805	2111	2417	2723	3029	3335	3641	3947					
140	236	498	761	1023	1285	1547	1810	2072	2334	2597	2859	3121	3383					
160	207	436	666	895	1125	1354	1583	1813	2042	2272	2501	2731	2960					
180	184	388	592	796	1000	1204	1408	1612	1816	2020	2224	2428	2632					
200	165	349	532	716	900	1083	1267	1450	1634	1818	2001	2185	2368					
220	150	317	484	651	818	985	1152	1319	1485	1652	1819	1986	2153					
240	138	291	444	597	750	903	1056	1209	1362	1515	1668	1821	1974					
260	127	268	410	551	692	833	974	1116	1257	1398	1539	1681	1822					
280	118	249	380	511	643	774	905	1036	1167	1298	1429	1561	1692					
300	110	233	355	477	600	722	845	967	1089	1212	1334	1457	1579					
320	103	218	333	448	562	677	792	906	1021	1136	1251	1365	1480					
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		9413	9413	9413	9413	9413	9413	9413	9413	9413	9413	9413	9413					
20		224	448	672	896	1119	1343	1567	1791	2015	2239	2463	2687					
40		112	224	336	448	560	672	784	896	1008	1119	1231	1343					
60		75	149	224	299	373	448	522	597	672	746	821	896					
80		56	112	168	224	280	336	392	448	504	560	616	672					
100		45	90	134	179	224	269	313	358	403	448	493	537					
120		37	75	112	149	187	224	261	299	336	373	410	448					
140		32	64	96	128	160	192	224	256	288	320	352	384					
160		28	56	84	112	140	168	196	224	252	280	308	336					
180		25	50	75	100	124	149	174	199	224	249	274	299					
200		22	45	67	90	112	134	157	179	202	224	246	269					
220		20	41	61	81	102	122	142	163	183	204	224	244					
240		19	37	56	75	93	112	131	149	168	187	205	224					
260		17	34	52	69	86	103	121	138	155	172	189	207					
280		16	32	48	64	80	96	112	128	144	160	176	192					
300		15	30	45	60	75	90	104	119	134	149	164	179					
320		14	28	42	56	70	84	98	112	126	140	154	168					

Table B 62 Characteristic load-carrying capacities angle brackets type 543

Fastener: Screws 4,0x40 mm, fully fastened



















Load capacity $F_{1,k}$ - one angle bracket																		$F_{1,k}$ - two angle brackets	
f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	f [mm]					
F_1 [N]	172	88	46	31	23	18	15	13	11	10	9	8	8	F_1 [N]	345				
Load capacity $F_{2/3,k}$ - one angle bracket																		$F_{2/3,k}$ - two angle brackets	
Δs [mm]	13,8													Δs [mm]	13,8				
$F_{2/3}$ [N]	1855													$F_{2/3}$ [N]	3711				
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]	3719	181	90	60	45	31	23	18	15	13	11	10	9	8	7	7	6		
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	38	38	38	38	38	38	38	38	38	38	38	38	38						
20	69	69	69	69	69	69	69	69	69	69	69	69	69						
40	346	346	346	346	346	346	346	346	346	346	346	346	346						
60	430	919	1409	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470						
80	323	690	1057	1424	1470	1470	1470	1470	1470	1470	1470	1470	1470						
100	258	552	845	1139	1433	1470	1470	1470	1470	1470	1470	1470	1470						
120	215	460	705	950	1194	1439	1470	1470	1470	1470	1470	1470	1470						
140	184	394	604	814	1024	1234	1444	1470	1470	1470	1470	1470	1470						
160	161	345	528	712	896	1080	1263	1447	1470	1470	1470	1470	1470						
180	143	306	470	633	796	960	1123	1286	1450	1470	1470	1470	1470						
200	129	276	423	570	717	864	1011	1158	1305	1452	1470	1470	1470						
220	117	251	384	518	652	785	919	1052	1186	1320	1453	1470	1470						
240	108	230	352	475	597	720	842	965	1087	1210	1332	1455	1470						
260	99	212	325	438	551	664	777	891	1004	1117	1230	1343	1456						
280	92	197	302	407	512	617	722	827	932	1037	1142	1247	1352						
300	86	184	282	380	478	576	674	772	870	968	1066	1164	1262						
320	81	172	264	356	448	540	632	724	815	907	999	1091	1183						
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		3757	3757	3757	3757	3757	3757	3757	3757	3757	3757	3757	3757						
20		172	345	517	689	861	1034	1206	1378	1550	1723	1895	2067						
40		86	172	258	345	431	517	603	689	775	861	947	1034						
60		57	115	172	230	287	345	402	459	517	574	632	689						
80		43	86	129	172	215	258	301	345	388	431	474	517						
100		34	69	103	138	172	207	241	276	310	345	379	413						
120		29	57	86	115	144	172	201	230	258	287	316	345						
140		25	49	74	98	123	148	172	197	221	246	271	295						
160		22	43	65	86	108	129	151	172	194	215	237	258						
180		19	38	57	77	96	115	134	153	172	191	211	230						
200		17	34	52	69	86	103	121	138	155	172	189	207						
220		16	31	47	63	78	94	110	125	141	157	172	188						
240		14	29	43	57	72	86	100	115	129	144	158	172						
260		13	27	40	53	66	80	93	106	119	133	146	159						
280		12	25	37	49	62	74	86	98	111	123	135	148						
300		11	23	34	46	57	69	80	92	103	115	126	138						
320		11	22	32	43	54	65	75	86	97	108	118	129						

Table B 66 Characteristic load-carrying capacities angle brackets type 993

Fastener: Screws 4,0x40 mm, fully fastened



















Load capacity $F_{1,k}$ - one angle bracket														F _{1,k} - two angle brackets				
f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	f [mm]				
F ₁ [N]	175	90	60	45	36	30	26	23	20	18	17	15	14	F ₁ [N]	350			
Load capacity $F_{2/3,k}$ - one angle bracket														F _{2/3,k} - two angle brackets				
Δs [mm]	46,9													Δs [mm]	46,9			
F _{2/3} [N]	2073													F _{2/3} [N]	4147			
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]	6273	184	92	61	46	37	31	26	22	18	16	14	13	12	11	10	9	
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	55	55	55	55	55	55	55	55	55	55	55	55	55					
20	100	100	100	100	100	100	100	100	100	100	100	100	100					
40	498	498	498	498	498	498	498	498	498	498	498	498	498					
60	453	943	1433	1470	1470	1470	1470	1470	1470	1470	1470	1470	1470					
80	340	707	1075	1442	1470	1470	1470	1470	1470	1470	1470	1470	1470					
100	272	566	860	1154	1448	1470	1470	1470	1470	1470	1470	1470	1470					
120	227	472	717	962	1207	1452	1470	1470	1470	1470	1470	1470	1470					
140	194	404	614	824	1034	1244	1454	1470	1470	1470	1470	1470	1470					
160	170	354	537	721	905	1089	1272	1456	1470	1470	1470	1470	1470					
180	151	314	478	641	804	968	1131	1294	1458	1470	1470	1470	1470					
200	136	283	430	577	724	871	1018	1165	1312	1459	1470	1470	1470					
220	124	257	391	525	658	792	925	1059	1193	1326	1460	1470	1470					
240	113	236	358	481	603	726	848	971	1093	1216	1338	1461	1470					
260	105	218	331	444	557	670	783	896	1009	1122	1235	1348	1462					
280	97	202	307	412	517	622	727	832	937	1042	1147	1252	1357					
300	91	189	287	385	483	581	679	777	875	973	1071	1169	1267					
320	85	177	269	361	452	544	636	728	820	912	1004	1096	1187					
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		6328	6328	6328	6328	6328	6328	6328	6328	6328	6328	6328	6328					
20		175	350	525	700	875	1050	1225	1400	1575	1750	1925	2100					
40		88	175	263	350	438	525	613	700	788	875	963	1050					
60		58	117	175	233	292	350	408	467	525	583	642	700					
80		44	88	131	175	219	263	306	350	394	438	481	525					
100		35	70	105	140	175	210	245	280	315	350	385	420					
120		29	58	88	117	146	175	204	233	263	292	321	350					
140		25	50	75	100	125	150	175	200	225	250	275	300					
160		22	44	66	88	109	131	153	175	197	219	241	263					
180		19	39	58	78	97	117	136	156	175	194	214	233					
200		18	35	53	70	88	105	123	140	158	175	193	210					
220		16	32	48	64	80	95	111	127	143	159	175	191					
240		15	29	44	58	73	88	102	117	131	146	160	175					
260		13	27	40	54	67	81	94	108	121	135	148	162					
280		13	25	38	50	63	75	88	100	113	125	138	150					
300		12	23	35	47	58	70	82	93	105	117	128	140					
320		11	22	33	44	55	66	77	88	98	109	120	131					

Table B 67 Characteristic load-carrying capacities angle brackets type 993

Fastener: Screws 4,0x60 mm, fully fastened

Load capacity $F_{1,k}$ - one angle bracket																		$F_{1,k}$ - two angle brackets			
f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	f [mm]							
F_1 [N]	272	139	94	71	57	47	41	36	32	28	26	24	22	F_1 [N]	544						
Load capacity $F_{2/3,k}$ - one angle bracket														Load capacity $F_{2/3,k}$ - two angle brackets							
Δs [mm]	43													Δs [mm]	43						
$F_{2/3}$ [N]	2606													$F_{2/3}$ [N]	5212						
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]	8770	286	143	95	71	45	33	26	22	18	16	14	13	12	11	10	9				
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	55	55	55	55	55	55	55	55	55	55	55	55	55								
20	100	100	100	100	100	100	100	100	100	100	100	100	100								
40	498	498	498	498	498	498	498	498	498	498	498	498	498								
60	705	1467	2229	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450								
80	529	1100	1672	2244	2450	2450	2450	2450	2450	2450	2450	2450	2450								
100	423	880	1338	1795	2252	2450	2450	2450	2450	2450	2450	2450	2450								
120	353	734	1115	1496	1877	2258	2450	2450	2450	2450	2450	2450	2450								
140	302	629	955	1282	1609	1935	2262	2450	2450	2450	2450	2450	2450								
160	264	550	836	1122	1408	1693	1979	2265	2450	2450	2450	2450	2450								
180	235	489	743	997	1251	1505	1759	2013	2267	2450	2450	2450	2450								
200	212	440	669	897	1126	1355	1583	1812	2041	2269	2450	2450	2450								
220	192	400	608	816	1024	1232	1439	1647	1855	2063	2271	2450	2450								
240	176	367	557	748	938	1129	1319	1510	1701	1891	2082	2272	2450								
260	163	339	514	690	866	1042	1218	1394	1570	1746	1922	2097	2273								
280	151	314	478	641	804	968	1131	1294	1458	1621	1784	1948	2111								
300	141	293	446	598	751	903	1056	1208	1360	1513	1665	1818	1970								
320	132	275	418	561	704	847	990	1133	1275	1418	1561	1704	1847								
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		8825	8825	8825	8825	8825	8825	8825	8825	8825	8825	8825	8825								
20		272	544	817	1089	1361	1633	1905	2178	2450	2722	2994	3266								
40		136	272	408	544	681	817	953	1089	1225	1361	1497	1633								
60		91	181	272	363	454	544	635	726	817	907	998	1089								
80		68	136	204	272	340	408	476	544	612	681	749	817								
100		54	109	163	218	272	327	381	436	490	544	599	653								
120		45	91	136	181	227	272	318	363	408	454	499	544								
140		39	78	117	156	194	233	272	311	350	389	428	467								
160		34	68	102	136	170	204	238	272	306	340	374	408								
180		30	60	91	121	151	181	212	242	272	302	333	363								
200		27	54	82	109	136	163	191	218	245	272	299	327								
220		25	49	74	99	124	148	173	198	223	247	272	297								
240		23	45	68	91	113	136	159	181	204	227	250	272								
260		21	42	63	84	105	126	147	168	188	209	230	251								
280		19	39	58	78	97	117	136	156	175	194	214	233								
300		18	36	54	73	91	109	127	145	163	181	200	218								
320		17	34	51	68	85	102	119	136	153	170	187	204								

Table B 68 Characteristic load-carrying capacities angle brackets type 993

Fastener: Screws 5,0x40 mm, fully fastened



















Load capacity $F_{1,k}$ - one angle bracket														F _{1,k} - two angle brackets				
f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	f [mm]				
F ₁ [N]	272	139	94	71	57	47	41	36	32	28	26	24	22	F ₁ [N]	544			
Load capacity $F_{2/3,k}$ - one angle bracket														F _{2/3,k} - two angle brackets				
Δs [mm]	35,7													Δs [mm]	35,7			
F _{2/3} [N]	3523													F _{2/3} [N]	7046			
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]	12952	286	143	95	71	45	33	26	22	18	16	14	13	12	11	10	9	
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	55	55	55	55	55	55	55	55	55	55	55	55	55					
20	100	100	100	100	100	100	100	100	100	100	100	100	100					
40	498	498	498	498	498	498	498	498	498	498	498	498	498					
60	705	1467	2229	2991	3754	4516	5278	5388	5388	5388	5388	5388	5388					
80	529	1100	1672	2244	2815	3387	3958	4530	5102	5388	5388	5388	5388					
100	423	880	1338	1795	2252	2709	3167	3624	4081	4539	4996	5388	5388					
120	353	734	1115	1496	1877	2258	2639	3020	3401	3782	4163	4544	4925					
140	302	629	955	1282	1609	1935	2262	2589	2915	3242	3569	3895	4222					
160	264	550	836	1122	1408	1693	1979	2265	2551	2837	3122	3408	3694					
180	235	489	743	997	1251	1505	1759	2013	2267	2521	2776	3030	3284					
200	212	440	669	897	1126	1355	1583	1812	2041	2269	2498	2727	2955					
220	192	400	608	816	1024	1232	1439	1647	1855	2063	2271	2479	2687					
240	176	367	557	748	938	1129	1319	1510	1701	1891	2082	2272	2463					
260	163	339	514	690	866	1042	1218	1394	1570	1746	1922	2097	2273					
280	151	314	478	641	804	968	1131	1294	1458	1621	1784	1948	2111					
300	141	293	446	598	751	903	1056	1208	1360	1513	1665	1818	1970					
320	132	275	418	561	704	847	990	1133	1275	1418	1561	1704	1847					
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		13007	13007	13007	13007	13007	13007	13007	13007	13007	13007	13007	13007					
20		272	544	817	1089	1361	1633	1905	2178	2450	2722	2994	3266					
40		136	272	408	544	681	817	953	1089	1225	1361	1497	1633					
60		91	181	272	363	454	544	635	726	817	907	998	1089					
80		68	136	204	272	340	408	476	544	612	681	749	817					
100		54	109	163	218	272	327	381	436	490	544	599	653					
120		45	91	136	181	227	272	318	363	408	454	499	544					
140		39	78	117	156	194	233	272	311	350	389	428	467					
160		34	68	102	136	170	204	238	272	306	340	374	408					
180		30	60	91	121	151	181	212	242	272	302	333	363					
200		27	54	82	109	136	163	191	218	245	272	299	327					
220		25	49	74	99	124	148	173	198	223	247	272	297					
240		23	45	68	91	113	136	159	181	204	227	250	272					
260		21	42	63	84	105	126	147	168	188	209	230	251					
280		19	39	58	78	97	117	136	156	175	194	214	233					
300		18	36	54	73	91	109	127	145	163	181	200	218					
320		17	34	51	68	85	102	119	136	153	170	187	204					

Table B 69 Characteristic load-carrying capacities angle brackets type 993

Fastener: Screws 5,0x60 mm, fully fastened



















Load capacity $F_{1,k}$ - one angle bracket														F _{1,k} - two angle brackets				
f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	f [mm]				
F ₁ [N]	272	139	94	71	57	47	41	36	32	28	26	24	22	F ₁ [N]	544			
Load capacity $F_{2/3,k}$ - one angle bracket														F _{2/3,k} - two angle brackets				
Δs [mm]	31,3													Δs [mm]	31,3			
F _{2/3} [N]	4045													F _{2/3} [N]	8089			
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]	14016	286	143	95	71	45	33	26	22	18	16	14	13	12	11	10	9	
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	55	55	55	55	55	55	55	55	55	55	55	55	55					
20	100	100	100	100	100	100	100	100	100	100	100	100	100					
40	498	498	498	498	498	498	498	498	498	498	498	498	498					
60	705	1467	2229	2991	3754	4516	5278	6040	6802	7564	8327	8755	8755					
80	529	1100	1672	2244	2815	3387	3958	4530	5102	5673	6245	6817	7388					
100	423	880	1338	1795	2252	2709	3167	3624	4081	4539	4996	5453	5911					
120	353	734	1115	1496	1877	2258	2639	3020	3401	3782	4163	4544	4925					
140	302	629	955	1282	1609	1935	2262	2589	2915	3242	3569	3895	4222					
160	264	550	836	1122	1408	1693	1979	2265	2551	2837	3122	3408	3694					
180	235	489	743	997	1251	1505	1759	2013	2267	2521	2776	3030	3284					
200	212	440	669	897	1126	1355	1583	1812	2041	2269	2498	2727	2955					
220	192	400	608	816	1024	1232	1439	1647	1855	2063	2271	2479	2687					
240	176	367	557	748	938	1129	1319	1510	1701	1891	2082	2272	2463					
260	163	339	514	690	866	1042	1218	1394	1570	1746	1922	2097	2273					
280	151	314	478	641	804	968	1131	1294	1458	1621	1784	1948	2111					
300	141	293	446	598	751	903	1056	1208	1360	1513	1665	1818	1970					
320	132	275	418	561	704	847	990	1133	1275	1418	1561	1704	1847					
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		14072	14072	14072	14072	14072	14072	14072	14072	14072	14072	14072	14072					
20		272	544	817	1089	1361	1633	1905	2178	2450	2722	2994	3266					
40		136	272	408	544	681	817	953	1089	1225	1361	1497	1633					
60		91	181	272	363	454	544	635	726	817	907	998	1089					
80		68	136	204	272	340	408	476	544	612	681	749	817					
100		54	109	163	218	272	327	381	436	490	544	599	653					
120		45	91	136	181	227	272	318	363	408	454	499	544					
140		39	78	117	156	194	233	272	311	350	389	428	467					
160		34	68	102	136	170	204	238	272	306	340	374	408					
180		30	60	91	121	151	181	212	242	272	302	333	363					
200		27	54	82	109	136	163	191	218	245	272	299	327					
220		25	49	74	99	124	148	173	198	223	247	272	297					
240		23	45	68	91	113	136	159	181	204	227	250	272					
260		21	42	63	84	105	126	147	168	188	209	230	251					
280		19	39	58	78	97	117	136	156	175	194	214	233					
300		18	36	54	73	91	109	127	145	163	181	200	218					
320		17	34	51	68	85	102	119	136	153	170	187	204					

Table B 70 Characteristic load-carrying capacities angle brackets type 653

Fastener: Screws 4,0x40 mm, fully fastened



















Load capacity $F_{1,k}$ - one angle bracket																		F _{1,k} - two angle brackets	
f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	f [mm]					
F ₁ [N]	368	158	100	74	58	48	41	36	32	28	26	23	22	F ₁ [N]	735				
Load capacity $F_{2/3,k}$ - one angle bracket																		F _{2/3,k} - two angle brackets	
Δs [mm]	41,2													Δs [mm]	41,2				
F _{2/3} [N]	4557													F _{2/3} [N]	9114				
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]	4704	276	138	92	69	55	46	39	34	31	28	25	23	21	20	18	17		
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	221	221	221	221	221	221	221	221	221	221	221	221	221						
20	565	1103	1103	1103	1103	1103	1103	1103	1103	1103	1103	1103	1103						
40	282	1153	1648	1648	1648	1648	1648	1648	1648	1648	1648	1648	1648						
60	188	769	1437	1648	1648	1648	1648	1648	1648	1648	1648	1648	1648						
80	141	576	1078	1601	1648	1648	1648	1648	1648	1648	1648	1648	1648						
100	113	461	862	1281	1648	1648	1648	1648	1648	1648	1648	1648	1648						
120	94	384	718	1067	1423	1648	1648	1648	1648	1648	1648	1648	1648						
140	81	329	616	915	1220	1527	1648	1648	1648	1648	1648	1648	1648						
160	71	288	539	800	1067	1337	1608	1648	1648	1648	1648	1648	1648						
180	63	256	479	711	949	1188	1429	1648	1648	1648	1648	1648	1648						
200	56	231	431	640	854	1069	1286	1504	1648	1648	1648	1648	1648						
220	51	210	392	582	776	972	1169	1367	1566	1648	1648	1648	1648						
240	47	192	359	534	711	891	1072	1253	1435	1617	1648	1648	1648						
260	43	177	332	493	657	822	989	1157	1325	1493	1648	1648	1648						
280	40	165	308	457	610	764	919	1074	1230	1386	1543	1648	1648						
300	38	154	287	427	569	713	857	1003	1148	1294	1440	1586	1648						
320	35	144	269	400	534	668	804	940	1076	1213	1350	1487	1624						
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		4925	4925	4925	4925	4925	4925	4925	4925	4925	4925	4925	4925						
20		368	735	1103	1470	1838	2205	2573	2940	3308	3675	4043	4410						
40		184	368	551	735	919	1103	1286	1470	1654	1838	2021	2205						
60		123	245	368	490	613	735	858	980	1103	1225	1348	1470						
80		92	184	276	368	459	551	643	735	827	919	1011	1103						
100		74	147	221	294	368	441	515	588	662	735	809	882						
120		61	123	184	245	306	368	429	490	551	613	674	735						
140		53	105	158	210	263	315	368	420	473	525	578	630						
160		46	92	138	184	230	276	322	368	413	459	505	551						
180		41	82	123	163	204	245	286	327	368	408	449	490						
200		37	74	110	147	184	221	257	294	331	368	404	441						
220		33	67	100	134	167	200	234	267	301	334	368	401						
240		31	61	92	123	153	184	214	245	276	306	337	368						
260		28	57	85	113	141	170	198	226	254	283	311	339						
280		26	53	79	105	131	158	184	210	236	263	289	315						
300		25	49	74	98	123	147	172	196	221	245	270	294						
320		23	46	69	92	115	138	161	184	207	230	253	276						

Table B 71 Characteristic load-carrying capacities angle brackets type 653

Fastener: Screws 4,0x60 mm, fully fastened



















Load capacity $F_{1,k}$ - one angle bracket														F _{1,k} - two angle brackets				
f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	f [mm]				
F ₁ [N]	613	263	167	123	97	80	68	59	53	47	43	39	36	F ₁ [N]	1225			
Load capacity $F_{2/3,k}$ - one angle bracket														F _{2/3,k} - two angle brackets				
Δs [mm]	40,6													Δs [mm]	40,6			
F _{2/3} [N]	5455													F _{2/3} [N]	10910			
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]	5576	459	230	153	115	86	68	56	48	42	37	33	30	28	25	24	22	
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	259	259	259	259	259	259	259	259	259	259	259	259	259					
20	1293	1293	1293	1293	1293	1293	1293	1293	1293	1293	1293	1293	1293					
40	1148	2986	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675					
60	766	1991	3216	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675					
80	574	1493	2412	3330	3675	3675	3675	3675	3675	3675	3675	3675	3675					
100	459	1194	1929	2664	3399	3675	3675	3675	3675	3675	3675	3675	3675					
120	383	995	1608	2220	2833	3445	3675	3675	3675	3675	3675	3675	3675					
140	328	853	1378	1903	2428	2953	3478	3675	3675	3675	3675	3675	3675					
160	287	746	1206	1665	2125	2584	3043	3503	3675	3675	3675	3675	3675					
180	255	664	1072	1480	1889	2297	2705	3114	3522	3675	3675	3675	3675					
200	230	597	965	1332	1700	2067	2435	2802	3170	3537	3675	3675	3675					
220	209	543	877	1211	1545	1879	2213	2547	2882	3216	3550	3675	3675					
240	191	498	804	1110	1416	1723	2029	2335	2641	2948	3254	3560	3675					
260	177	459	742	1025	1307	1590	1873	2156	2438	2721	3004	3286	3569					
280	164	427	689	952	1214	1477	1739	2002	2264	2527	2789	3052	3314					
300	153	398	643	888	1133	1378	1623	1868	2113	2358	2603	2848	3093					
320	144	373	603	833	1062	1292	1522	1751	1981	2211	2440	2670	2900					
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		5834	5834	5834	5834	5834	5834	5834	5834	5834	5834	5834	5834					
20		613	1225	1838	2450	3063	3675	4288	4900	5513	5598	5619	5636					
40		306	613	919	1225	1531	1838	2144	2450	2756	3063	3369	3675					
60		204	408	613	817	1021	1225	1429	1633	1838	2042	2246	2450					
80		153	306	459	613	766	919	1072	1225	1378	1531	1684	1838					
100		123	245	368	490	613	735	858	980	1103	1225	1348	1470					
120		102	204	306	408	510	613	715	817	919	1021	1123	1225					
140		88	175	263	350	438	525	613	700	788	875	963	1050					
160		77	153	230	306	383	459	536	613	689	766	842	919					
180		68	136	204	272	340	408	476	544	613	681	749	817					
200		61	123	184	245	306	368	429	490	551	613	674	735					
220		56	111	167	223	278	334	390	445	501	557	613	668					
240		51	102	153	204	255	306	357	408	459	510	561	613					
260		47	94	141	188	236	283	330	377	424	471	518	565					
280		44	88	131	175	219	263	306	350	394	438	481	525					
300		41	82	123	163	204	245	286	327	368	408	449	490					
320		38	77	115	153	191	230	268	306	345	383	421	459					

Table B 72 Characteristic load-carrying capacities angle brackets type 653

Fastener: Screws 5,0x40 mm, fully fastened



















Load capacity $F_{1,k}$ - one angle bracket														F _{1,k} - two angle brackets				
f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	f [mm]				
F ₁ [N]	776	332	212	155	122	101	86	75	66	60	54	50	46	F ₁ [N]	1551			
Load capacity $F_{2/3,k}$ - one angle bracket														F _{2/3,k} - two angle brackets				
Δs [mm]	39,7													Δs [mm]	39,7			
F _{2/3} [N]	6641													F _{2/3} [N]	13281			
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]	12154	582	291	185	118	86	68	56	48	42	37	33	30	28	25	24	22	
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	259	259	259	259	259	259	259	259	259	259	259	259	259					
20	1293	1293	1293	1293	1293	1293	1293	1293	1293	1293	1293	1293	1293					
40	1454	3781	6107	8082	8082	8082	8082	8082	8082	8082	8082	8082	8082					
60	969	2520	4071	5622	7173	8082	8082	8082	8082	8082	8082	8082	8082					
80	727	1890	3054	4217	5380	6543	7707	8082	8082	8082	8082	8082	8082					
100	582	1512	2443	3373	4304	5235	6165	7096	8026	8082	8082	8082	8082					
120	485	1260	2036	2811	3587	4362	5138	5913	6689	7464	8082	8082	8082					
140	415	1080	1745	2410	3074	3739	4404	5068	5733	6398	7063	7727	8082					
160	364	945	1527	2108	2690	3272	3853	4435	5017	5598	6180	6761	7343					
180	323	840	1357	1874	2391	2908	3425	3942	4459	4976	5493	6010	6527					
200	291	756	1221	1687	2152	2617	3083	3548	4013	4479	4944	5409	5874					
220	264	687	1110	1533	1956	2379	2802	3225	3648	4071	4494	4917	5340					
240	242	630	1018	1406	1793	2181	2569	2957	3344	3732	4120	4508	4895					
260	224	582	940	1297	1655	2013	2371	2729	3087	3445	3803	4161	4519					
280	208	540	872	1205	1537	1870	2202	2534	2867	3199	3531	3864	4196					
300	194	504	814	1124	1435	1745	2055	2365	2675	2986	3296	3606	3916					
320	182	473	763	1054	1345	1636	1927	2217	2508	2799	3090	3381	3672					
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		12412	12412	12412	12412	12412	12412	12412	12412	12412	12412	12412	12412					
20		776	1551	2327	3102	3878	4653	5429	6204	6980	7755	8531	9306					
40		388	776	1163	1551	1939	2327	2714	3102	3490	3878	4265	4653					
60		259	517	776	1034	1293	1551	1810	2068	2327	2585	2844	3102					
80		194	388	582	776	969	1163	1357	1551	1745	1939	2133	2327					
100		155	310	465	620	776	931	1086	1241	1396	1551	1706	1861					
120		129	259	388	517	646	776	905	1034	1163	1293	1422	1551					
140		111	222	332	443	554	665	776	886	997	1108	1219	1329					
160		97	194	291	388	485	582	679	776	872	969	1066	1163					
180		86	172	259	345	431	517	603	689	776	862	948	1034					
200		78	155	233	310	388	465	543	620	698	776	853	931					
220		71	141	212	282	353	423	494	564	635	705	776	846					
240		65	129	194	259	323	388	452	517	582	646	711	776					
260		60	119	179	239	298	358	418	477	537	597	656	716					
280		55	111	166	222	277	332	388	443	499	554	609	665					
300		52	103	155	207	259	310	362	414	465	517	569	620					
320		48	97	145	194	242	291	339	388	436	485	533	582					

Table B 73 Characteristic load-carrying capacities angle brackets type 653

Fastener: Screws 5,0x60 mm, fully fastened



















Load capacity $F_{1,k}$ - one angle bracket														F _{1,k} - two angle brackets						
f [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	f [mm]						
F ₁ [N]	776	332	212	155	122	101	86	75	66	60	54	50	46	F ₁ [N]	1551					
Load capacity $F_{2/3,k}$ - one angle bracket														F _{2/3,k} - two angle brackets						
Δs [mm]	39,4													Δs [mm]	39,4					
F _{2/3} [N]	7077													F _{2/3} [N]	14154					
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]	13720	582	291	185	118	86	68	56	48	42	37	33	30	28	25	24	22			
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	259	259	259	259	259	259	259	259	259	259	259	259	259							
20	1293	1293	1293	1293	1293	1293	1293	1293	1293	1293	1293	1293	1293							
40	1454	3781	6107	8434	10760	13087	13133	13133	13133	13133	13133	13133	13133							
60	969	2520	4071	5622	7173	8724	10275	11826	13133	13133	13133	13133	13133							
80	727	1890	3054	4217	5380	6543	7707	8870	10033	11196	12360	13133	13133							
100	582	1512	2443	3373	4304	5235	6165	7096	8026	8957	9888	10818	11749							
120	485	1260	2036	2811	3587	4362	5138	5913	6689	7464	8240	9015	9791							
140	415	1080	1745	2410	3074	3739	4404	5068	5733	6398	7063	7727	8392							
160	364	945	1527	2108	2690	3272	3853	4435	5017	5598	6180	6761	7343							
180	323	840	1357	1874	2391	2908	3425	3942	4459	4976	5493	6010	6527							
200	291	756	1221	1687	2152	2617	3083	3548	4013	4479	4944	5409	5874							
220	264	687	1110	1533	1956	2379	2802	3225	3648	4071	4494	4917	5340							
240	242	630	1018	1406	1793	2181	2569	2957	3344	3732	4120	4508	4895							
260	224	582	940	1297	1655	2013	2371	2729	3087	3445	3803	4161	4519							
280	208	540	872	1205	1537	1870	2202	2534	2867	3199	3531	3864	4196							
300	194	504	814	1124	1435	1745	2055	2365	2675	2986	3296	3606	3916							
320	182	473	763	1054	1345	1636	1927	2217	2508	2799	3090	3381	3672							
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		13979	13979	13979	13979	13979	13979	13979	13979	13979	13979	13979	13979							
20		776	1551	2327	3102	3878	4653	5429	6204	6980	7755	8531	9306							
40		388	776	1163	1551	1939	2327	2714	3102	3490	3878	4265	4653							
60		259	517	776	1034	1293	1551	1810	2068	2327	2585	2844	3102							
80		194	388	582	776	969	1163	1357	1551	1745	1939	2133	2327							
100		155	310	465	620	776	931	1086	1241	1396	1551	1706	1861							
120		129	259	388	517	646	776	905	1034	1163	1293	1422	1551							
140		111	222	332	443	554	665	776	886	997	1108	1219	1329							
160		97	194	291	388	485	582	679	776	872	969	1066	1163							
180		86	172	259	345	431	517	603	689	776	862	948	1034							
200		78	155	233	310	388	465	543	620	698	776	853	931							
220		71	141	212	282	353	423	494	564	635	705	776	846							
240		65	129	194	259	323	388	452	517	582	646	711	776							
260		60	119	179	239	298	358	418	477	537	597	656	716							
280		55	111	166	222	277	332	388	443	499	554	609	665							
300		52	103	155	207	259	310	362	414	465	517	569	620							
320		48	97	145	194	242	291	339	388	436	485	533	582							

Table B 74 Characteristic load-carrying capacities angle brackets type 26910
Fastener: Ringed shank nail 4,0x40 mm, fully fastened with nails in both legs

Load capacity $F_{2/3,k}$ - one angle bracket														Load capacity $F_{4,k}$ - one angle bracket				F _{2/3,k} - two angle brackets			
Δs [mm]	51,3													Δs [mm]	51,3						
$F_{2/3}$ [N]	2818													$F_{2/3}$ [N]	5637						
e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320				
F_4 [N]	5059	647	303	111	68	49	38	31	26	23	20	18	16	15	14	13	12				

Table B 75 Characteristic load-carrying capacities angle brackets type 26910
Fastener: Ringed shank nail 4,0x60 mm, fully fastened with nails in both legs

Load capacity $F_{2/3,k}$ - one angle bracket														Load capacity $F_{4,k}$ - one angle bracket				F _{2/3,k} - two angle brackets			
Δs [mm]	51,1													Δs [mm]	51,1						
$F_{2/3}$ [N]	3322													$F_{2/3}$ [N]	6644						
e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320				
F_4 [N]	5948	1078	505	184	113	81	63	52	44	38	34	30	27	25	23	21	20				

Table B 76 Characteristic load-carrying capacities angle brackets type 26910
Fastener: Screws 5,0x40 mm, fully fastened with screws in both legs

Load capacity $F_{2/3,k}$ - one angle bracket														Load capacity $F_{4,k}$ - one angle bracket				F _{2/3,k} - two angle brackets			
Δs [mm]	50,9													Δs [mm]	50,9						
$F_{2/3}$ [N]	4042													$F_{2/3}$ [N]	8083						
e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320				
F_4 [N]	8308	1624	543	198	121	87	68	56	48	41	36	33	30	27	25	23	21				

Table B 77 Characteristic load-carrying capacities angle brackets type 26910
Fastener: Screws 5,0x60 mm, fully fastened with screws in both legs

Load capacity $F_{2/3,k}$ - one angle bracket														Load capacity $F_{4,k}$ - one angle bracket				F _{2/3,k} - two angle brackets			
Δs [mm]	50,9													Δs [mm]	50,9						
$F_{2/3}$ [N]	4236													$F_{2/3}$ [N]	8471						
e [mm]	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320				
F_4 [N]	9182	1624	543	198	121	87	68	56	48	41	36	33	30	27	25	23	21				

Table B 78 Characteristic load-carrying capacities angle brackets type 26910
Fastener: Ringed shank nail 4,0x40 mm, fully fastened with nails in one leg and dowel in the other leg

Load capacity $F_{2/3,k}$ - one angle bracket																		$F_{2/3,k}$ - two angle brackets			
Δs [mm]	0													Δs [mm]	0						
$F_{2/3}$ [N]	6023													$F_{2/3}$ [N]	12046						
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]		102	51	34	25	20	17	15	13	11	10	9	8	8	7	7	6				

Table B 79 Characteristic load-carrying capacities angle brackets type 26910
Fastener: Ringed shank nails 4,0x60 mm, fully fastened with nails in one leg and dowel in the other leg

Load capacity $F_{2/3,k}$ - one angle bracket																		$F_{2/3,k}$ - two angle brackets			
Δs [mm]	0													Δs [mm]	0						
$F_{2/3}$ [N]	7081													$F_{2/3}$ [N]	14162						
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]		102	51	34	25	20	17	15	13	11	10	9	8	8	7	7	6				

Table B 80 Characteristic load-carrying capacities angle brackets type 26910
Fastener: Screws 5,0x40 mm, fully fastened with screws in one leg and dowel in the other leg

Load capacity $F_{2/3,k}$ - one angle bracket																		$F_{2/3,k}$ - two angle brackets			
Δs [mm]	0													Δs [mm]	0						
$F_{2/3}$ [N]	9995													$F_{2/3}$ [N]	19991						
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]		102	51	34	25	20	17	15	13	11	10	9	8	8	7	7	6				

Table B 81 Characteristic load-carrying capacities angle brackets type 26910
Fastener: Screws 5,0x60 mm, fully fastened with screws in one leg and dowel in the other leg

Load capacity $F_{2/3,k}$ - one angle bracket																		$F_{2/3,k}$ - two angle brackets			
Δs [mm]	0													Δs [mm]	0						
$F_{2/3}$ [N]	12050													$F_{2/3}$ [N]	24100						
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]		102	51	34	25	20	17	15	13	11	10	9	8	8	7	7	6				

Table B 82 Characteristic load-carrying capacities angle brackets type 16910
Fastener: Ringed shank nail 4,0x40 mm, fully fastened with nails in one leg and dowel in the other leg

Load capacity $F_{2/3,k}$ - one angle bracket													$F_{2/3,k}$ - two angle brackets					
Δs [mm]	0												Δs [mm]	0				
$F_{2/3}$ [N]	6023												$F_{2/3}$ [N]	12046				
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]		369	185	117	71	51	40	33	28	24	21	19	17	16	15	14	13	

Table B 83 Characteristic load-carrying capacities angle brackets type 16910
Fastener: Ringed shank nail 4,0x60 mm, fully fastened with nails in one leg and dowel in the other leg

Load capacity $F_{2/3,k}$ - one angle bracket													$F_{2/3,k}$ - two angle brackets					
Δs [mm]	0												Δs [mm]	0				
$F_{2/3}$ [N]	7357												$F_{2/3}$ [N]	14714				
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]		369	185	123	92	74	62	53	46	40	36	32	29	26	24	23	21	

Table B 84 Characteristic load-carrying capacities angle brackets type 16910
Fastener: Screws 5,0x40 mm, fully fastened with screws in one leg and dowel in the other leg

Load capacity $F_{2/3,k}$ - one angle bracket													$F_{2/3,k}$ - two angle brackets					
Δs [mm]	0												Δs [mm]	0				
$F_{2/3}$ [N]	11335												$F_{2/3}$ [N]	22671				
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]		369	185	123	92	74	62	53	46	41	36	33	30	27	25	23	21	

Table B 85 Characteristic load-carrying capacities angle brackets type 16910
Fastener: Screws 5,0x60 mm, fully fastened with screws in one leg and dowel in the other leg

Load capacity $F_{2/3,k}$ - one angle bracket													$F_{2/3,k}$ - two angle brackets					
Δs [mm]	0												Δs [mm]	0				
$F_{2/3}$ [N]	12873												$F_{2/3}$ [N]	25747				
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]		369	185	123	92	74	62	53	46	41	36	33	30	27	25	23	21	

Table B 86 Characteristic load-carrying capacities angle brackets type 3691015
Fastener: Ringed shank nail 4,0x40 mm, partially fastened

Load capacity $F_{2/3,k}$ - one angle bracket										$F_{2/3,k}$ - two angle brackets								
Δs [mm]	0									Δs [mm]	0							
$F_{2/3}$ [N]	6122									$F_{2/3}$ [N]	12244							
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]		136	68	45	34	27	23	19	17	15	14	12	11	10	10	9	9	

Table B 87 Characteristic load-carrying capacities angle brackets type 3691015
Fastener: Ringed shank nail 4,0x60 mm, partially fastened

Load capacity $F_{2/3,k}$ - one angle bracket										$F_{2/3,k}$ - two angle brackets								
Δs [mm]	0									Δs [mm]	0							
$F_{2/3}$ [N]	7081									$F_{2/3}$ [N]	14162							
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]		136	68	45	34	27	23	19	17	15	14	12	11	10	10	9	9	

Table B 88 Characteristic load-carrying capacities angle brackets type 3691015
Fastener: Screws 5,0x40 mm, partially fastened

Load capacity $F_{2/3,k}$ - one angle bracket										$F_{2/3,k}$ - two angle brackets								
Δs [mm]	0									Δs [mm]	0							
$F_{2/3}$ [N]	9800									$F_{2/3}$ [N]	19600							
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]		136	68	45	34	27	23	19	17	15	14	12	11	10	10	9	9	

Table B 89 Characteristic load-carrying capacities angle brackets type 3691015
Fastener: Screws 5,0x60 mm, partially fastened

Load capacity $F_{2/3,k}$ - one angle bracket										$F_{2/3,k}$ - two angle brackets								
Δs [mm]	0									Δs [mm]	0							
$F_{2/3}$ [N]	11840									$F_{2/3}$ [N]	23680							
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]		136	68	45	34	27	23	19	17	15	14	12	11	10	10	9	9	

Table B 90 Characteristic load-carrying capacities angle brackets type 3691025

Fastener: Ringed shank nail 4,0x40 mm, partially fastened

Load capacity $F_{2/3,k}$ - one angle bracket														$F_{2/3,k}$ - two angle brackets			
Δs [mm]	0													Δs [mm]	0		
$F_{2/3}$ [N]	6023													$F_{2/3}$ [N]	12046		
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]		232	116	77	58	46	39	33	28	24	21	19	17	16	15	14	13

Table B 91 Characteristic load-carrying capacities angle brackets type 3691025

Fastener: Ringed shank nail 4,0x60 mm, partially fastened

Load capacity $F_{2/3,k}$ - one angle bracket														$F_{2/3,k}$ - two angle brackets			
Δs [mm]	0													Δs [mm]	0		
$F_{2/3}$ [N]	7081													$F_{2/3}$ [N]	14162		
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]		232	116	77	58	46	39	33	29	26	23	21	19	18	17	15	15

Table B 92 Characteristic load-carrying capacities angle brackets type 3691025

Fastener: Screws 5,0x40 mm, partially fastened

Load capacity $F_{2/3,k}$ - one angle bracket														$F_{2/3,k}$ - two angle brackets			
Δs [mm]	0													Δs [mm]	0		
$F_{2/3}$ [N]	9606													$F_{2/3}$ [N]	19212		
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]		232	116	77	58	46	39	33	29	26	23	21	19	18	17	15	15

Table B 93 Characteristic load-carrying capacities angle brackets type 3691025

Fastener: Screws 5,0x60 mm, partially fastened

Load capacity $F_{2/3,k}$ - one angle bracket														$F_{2/3,k}$ - two angle brackets			
Δs [mm]	0													Δs [mm]	0		
$F_{2/3}$ [N]	11781													$F_{2/3}$ [N]	23562		
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]		232	116	77	58	46	39	33	29	26	23	21	19	18	17	15	15