



**GH - Angle bracket, extra strong**

ETA-13/0900



**Properties**

Steel grade S 250 GD / DX 51 D  
Surface Z 275

**For angle bracket basic principles, see download document**

**Fasteners**

**Fixing in timber with fasteners to ETA-13/0523**

GH connector nails (threaded nails) 4.0 x 35 / 40 / 50 / 60 / 75 / 100 mm  
GH screw 5.0 x 25 / 35 / 40 / 50 / 60 / 70 mm

The joint can also be made with an interlayer (e.g. OSB).

**Nail pattern**

Full nailing / partial nailing, see technical drawing or ETA

**Calculation of the design value of the load-carrying capacities to ETA-13/0900**

The tables contain characteristic load-carrying capacities (resistances) and design values of the load-carrying capacity (resistance) "short-term" in kN

b = Purlin / joist width  
e = Distance of the load application point from the bottom of the angle bracket

**Remarks:**

Timber strength class 350 kg/m<sup>3</sup> char. density.

**The fastener minimum edge distances to EC 5 shall be satisfied.**

All calculations and values are exclusively for GH products and their fasteners.

The load-bearing capacities were determined on the basis of ETA 13/0523. It is not possible to transfer the values to third party makes.

**Disclaimer:**

Despite careful calculations and checking, no liability is accepted for the technical data.

Subject to change without notice

**For technical drawing, see website [www.holzverbinder.de](http://www.holzverbinder.de)**



**Angle brackets, extra strong Art. No. 12116181 160 x 80 x 100 x 4 mm**

Characteristic load-carrying capacity (resistance) and design value of the load-carrying capacity (resistance) ("short-term") in kN,

**Load direction  $F_1$  for one or two angle brackets**

	Number of nail holes $n_V$	Number of nail holes $n_H$	LDC	1x angle bracket		2x angle brackets	
				Fasteners		Fasteners	
				4x40	4x60	4x40	4x60
Column-purlin	1, 2, 3, 4, 5, 6, 7, 8, 9	13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23	char.	3,12	5,20	6,24	10,4
			short-term	2,16	3,60	4,32	7,20
Purlin-Purlin	1, 2, 3, 4, 5, 6, 7, 8, 9	13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23	char.	3,12	5,20	6,24	10,4
			short-term	2,16	3,60	4,32	7,20

**Load direction  $F_{2/3}$  for one or two angle brackets**

	Number of nail holes $n_V$	Number of nail holes $n_H$	LDC	1x angle brackets		2x angle brackets	
				Fasteners		Fasteners	
				4x40	4x60	4x40	4x60
Timber-to-timber	1, 2, 3, 4, 5, 6, 7, 8, 9	13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23	char.	5,94	7,58	11,9	15,2
			short-term	4,11	5,25	8,23	10,5

**Load direction  $F_4$  for one angle bracket**

	Number of nail holes $n_V$	Number of nail holes $n_H$	LDC	1x angle brackets		2x angle brackets	
				Fasteners		Fasteners	
				4x40	4x60	4x40	4x60
Timber-to-timber	1, 2, 3, 4, 5, 6, 7, 8, 9	13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23	char.	7,45	9,01		
			short-term	5,16	6,24		



**Load direction  $F_5$  for one angle bracket**

				1x angle brackets		2x angle brackets	
	Number of nail holes $n_V$	Number of nail holes $n_H$	LDC	Fasteners		Fasteners	
				4x40	4x60	4x40	4x60
Timber-to-timber	1, 2, 3, 4, 5, 6, 7, 8, 9	13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23	char.	1,98	2,75		
			short-term	1,37	1,90		

**Load direction  $F_{4/5}$  for two angle brackets**

				1x angle brackets		2x angle brackets	
	Number of nail holes $n_V$	Number of nail holes $n_H$	LDC	Fasteners		Fasteners	
				4x40	4x60	4x40	4x60
Timber-to-timber	1, 2, 3, 4, 5, 6, 7, 8, 9	13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23	char.			7,45	9,01
			short-term			5,16	6,24



**Angle brackets, extra strong Art. No. 12116188 160 x 80 x 80 x 4 mm**

Characteristic load-carrying capacity (resistance) and design value of the load-carrying capacity (resistance) ("short-term") in kN,

**Load direction  $F_1$  for one or two angle brackets**

	Number of nail holes $n_V$	Number of nail holes $n_H$	LDC	1x angle brackets		2x angle brackets	
				Fasteners		Fasteners	
				4x40	4x60	4x40	4x60
Column-purlin	1, 2, 3, 4, 5, 6, 7, 8	12, 13, 14, 15, 16, 17, 18, 19, 20	char.	3,12	5,20	6,24	10,4
			short-term	2,16	3,60	4,32	7,20
Purlin-Purlin	1, 2, 3, 4, 5, 6, 7, 8	12, 13, 14, 15, 16, 17, 18, 19, 20	char.	3,12	5,20	6,24	10,4
			short-term	2,16	3,60	4,32	7,20

**Load direction  $F_{2/3}$  for one or two angle brackets**

	Number of nail holes $n_V$	Number of nail holes $n_H$	LDC	1x angle brackets		2x angle brackets	
				Fasteners		Fasteners	
				4x40	4x60	4x40	4x60
Timber-to-timber	1, 2, 3, 4, 5, 6, 7, 8	12, 13, 14, 15, 16, 17, 18, 19, 20	char.	4,80	6,08	9,60	12,2
			short-term	3,32	4,21	6,65	8,43

**Load direction  $F_4$  for one angle bracket**

	Number of nail holes $n_V$	Number of nail holes $n_H$	LDC	1x angle brackets		2x angle brackets	
				Fasteners		Fasteners	
				4x40	4x60	4x40	4x60
Timber-to-timber	1, 2, 3, 4, 5, 6, 7, 8	12, 13, 14, 15, 16, 17, 18, 19, 20	char.	5,91	7,21		
			short-term	4,09	4,99		





„Innovationen im Holzbau“

**Load direction  $F_5$  for one angle bracket**

				1x angle brackets		2x angle brackets	
	Number of nail holes $n_V$	Number of nail holes $n_H$	LDC	Fasteners		Fasteners	
				4x40	4x60	4x40	4x60
Timber-to-timber	1, 2, 3, 4, 5, 6, 7, 8	12, 13, 14, 15, 16, 17, 18, 19, 20	char.	1,61	2,26		
			short-term	1,11	1,56		

**Load direction  $F_{4/5}$  for two angle brackets**

				1x angle brackets		2x angle brackets	
	Number of nail holes $n_V$	Number of nail holes $n_H$	LDC	Fasteners		Fasteners	
				4x40	4x60	4x40	4x60
Timber-to-timber	1, 2, 3, 4, 5, 6, 7, 8	12, 13, 14, 15, 16, 17, 18, 19, 20	char.			5,91	7,21
			short-term			4,09	4,99



**Angle brackets, extra strong Art. No. 12116186 160 x 80 x 60 x 4 mm**

Characteristic load-carrying capacity (resistance) and design value of the load-carrying capacity (resistance) ("short-term") in kN,

Load direction  $F_1$  for one or two angle brackets

				1x angle brackets		2x angle brackets	
	Number of nail holes $n_V$	Number of nail holes $n_H$	LDC	Fasteners		Fasteners	
				4x40	4x60	4x40	4x60
Column-purlin	1, 2, 3, 4, 5, 6	9, 10, 11, 12, 13, 14	char.	3,90	6,50	7,80	13,0
			short-term	2,70	4,50	5,40	9,00
Purlin-Purlin	1, 2, 3, 4, 5, 6	9, 10, 11, 12, 13, 14	char.	3,90	6,50	7,80	13,0
			short-term	2,70	4,50	5,40	9,00

Load direction  $F_{2/3}$  for one or two angle brackets

				1x angle brackets		2x angle brackets	
	Number of nail holes $n_V$	Number of nail holes $n_H$	LDC	Fasteners		Fasteners	
				4x40	4x60	4x40	4x60
Timber-to-timber	1, 2, 3, 4, 5, 6	9, 10, 11, 12, 13, 14	char.	8,21	10,5	16,4	20,9
			short-term	5,68	7,25	11,4	14,5

Load direction  $F_4$  for one angle bracket

				1x angle brackets		2x angle brackets	
	Number of nail holes $n_V$	Number of nail holes $n_H$	LDC	Fasteners		Fasteners	
				4x40	4x60	4x40	4x60
Timber-to-timber	1, 2, 3, 4, 5, 6	9, 10, 11, 12, 13, 14	char.	9,30	11,3		
			short-term	6,44	7,83		



„Innovationen im Holzbau“

**Load direction  $F_5$  for one angle bracket**

				1x angle brackets		2x angle brackets	
	Number of nail holes $n_V$	Number of nail holes $n_H$	LDC	Fasteners		Fasteners	
				4x40	4x60	4x40	4x60
Timber-to-timber	1, 2, 3, 4, 5, 6	9, 10, 11, 12, 13, 14	char.	2,43	3,43		
			short-term	1,68	2,37		

**Load direction  $F_{4/5}$  for two angle brackets**

				1x angle brackets		2x angle brackets	
	Number of nail holes $n_V$	Number of nail holes $n_H$	LDC	Fasteners		Fasteners	
				4x40	4x60	4x40	4x60
Timber-to-timber	1, 2, 3, 4, 5, 6	9, 10, 11, 12, 13, 14	char.			9,30	11,3
			short-term			6,44	7,83



**Angle brackets, extra strong      Art. No. 1884      130 x 70 x 80 x 4 mm**

Characteristic load-carrying capacity (resistance) and design value of the load-carrying capacity (resistance) ("short-term") in kN,

**Load direction  $F_1$  for one or two angle brackets**

	Number of nail holes $n_V$	Number of nail holes $n_H$	LDC	1x angle brackets		2x angle brackets	
				Fasteners		Fasteners	
				4x40	4x60	4x40	4x60
Column-purlin	1, 2, 3, 4, 5, 6	12, 13, 14, 15, 16, 17, 18, 19, 20	char.	2,82	4,71	5,65	9,42
			short-term	1,95	3,26	3,91	6,52
Purlin-Purlin	1, 2, 3, 4, 5, 6	12, 13, 14, 15, 16, 17, 18, 19, 20	char.	2,82	4,71	5,65	9,42
			short-term	1,95	3,26	3,91	6,52

**Load direction  $F_{2/3}$  for one or two angle brackets**

	Number of nail holes $n_V$	Number of nail holes $n_H$	LDC	1x angle brackets		2x angle brackets	
				Fasteners		Fasteners	
				4x40	4x60	4x40	4x60
Timber-to-timber	1, 2, 3, 4, 5, 6	12, 13, 14, 15, 16, 17, 18, 19, 20	char.	6,63	8,43	13,3	16,9
			short-term	4,59	5,84	9,18	11,7

**Load direction  $F_4$  for one angle bracket**

	Number of nail holes $n_V$	Number of nail holes $n_H$	LDC	1x angle brackets		2x angle brackets	
				Fasteners		Fasteners	
				4x40	4x60	4x40	4x60
Timber-to-timber	1, 2, 3, 4, 5, 6	12, 13, 14, 15, 16, 17, 18, 19, 20	char.	9,15	11,7		
			short-term	6,33	8,11		





**Load direction  $F_5$  for one angle bracket**

	Number of nail holes $n_V$	Number of nail holes $n_H$	LDC	1x angle brackets		2x angle brackets	
				Fasteners		Fasteners	
				4x40	4x60	4x40	4x60
Timber-to-timber	1, 2, 3, 4, 5, 6	12, 13, 14, 15, 16, 17, 18, 19, 20	char.	2,59	3,67		
			short-term	1,79	2,54		

**Load direction  $F_{4/5}$  for two angle brackets**

	Number of nail holes $n_V$	Number of nail holes $n_H$	LDC	1x angle brackets		2x angle brackets	
				Fasteners		Fasteners	
				4x40	4x60	4x40	4x60
Timber-to-timber	1, 2, 3, 4, 5, 6	12, 13, 14, 15, 16, 17, 18, 19, 20	char.			9,15	11,7
			short-term			6,33	8,11