

2

02

CONCEALED CONNECTORS



CONCEALED CONNECTORS

(Invisible connectors)

TOP UV CONCEALED CONNECTORS

- Invisible dovetail connection
 - Safety catch
 - Optimised hole pattern
 - For loading in 4 load directions
 - Quick assembly of secondary beams
 - Conical dovetail guide pulls together
 - Milling radii
- up to 72 kN**



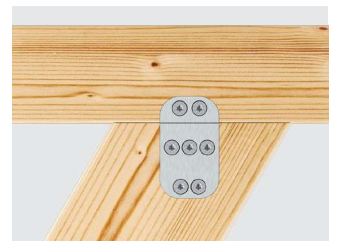
Basics of statics **from page 68** / Products & statics **from page 66**

CONCEALED CONNECTORS TOP OV

„Simple and ingenious“

More flexibility in connection technology

- **In the factory:** Simply mill out the connection form or attach and mount on the secondary beam with a maximum of 4 tensile and 2 pressure screws.
 - **On the building site:** Insert the secondary beam in the recess of the main beam or only place it down. Turn 2 pressure screws into the main beam/support.
- up to 27 kN**



Basics of statics **from page 84** / Products & statics **from page 82**

BEAM HANGER

- Connection to timber, concrete and masonry
 - Type alu combi without holes for rod dowels. By drilling through the secondary beam and connector, you receive a connection with a perfect fit.
 - Type alu SD 12 and SD 16 with assembly fix tab.
- up to 258 kN**



Basics of statics **from page 90** / Products & statics **from page 88**

INTEGRAL CONNECTORS

- GH integral connectors type M, 2- and 4-row with assembly fix tab for concealed connections with connections between the main/secondary beam and connections to the columns. For both versions, the secondary beam with pre-fitted rod dowel is suspended in the assembly fix tab.
 - 2-row integral connectors with embossed reinforcement studs. This gives you the necessary accuracy of fit and the same slot width as with a 4-row integral connector.
 - 4-row integral connections with even higher load-bearing capacities!
- up to 58 kN**



Basics of statics **from page 90** / Products & statics **from page 88**

CONCEALED CONNECTORS

2 ASSORTMENT

					Basics Statics & Diagrams from page	Products & Statics from page
TOP UV CONNECTORS TIMBER/TIMBER						65 66
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TOP OV CONNECTORS						65 / 84 82
BEAM HANGER TYPE ALU COMBI					 	65 / 90 88
BEAM HANGER TYPE ALU COMBI SD 12					 	65 / 90 88
BEAM HANGER TYPE ALU COMBI SD 16					 	65 / 90 88
INTEGRAL CONNECTOR 2-ROW TYPE M						65 / 90 88
INTEGRAL CONNECTOR 4-ROW TYPE M						65 / 90 88
INTEGRAL CONNECTOR ANGLED CONNECTION						102



CE symbol



Steel with indication of the steel quality and galvanisation



Aluminium



Timber/timber connection



Timber/concrete-connection

**Usage class 1**

Moisture content in the building materials that corresponds to a temperature of 20° C and a relative humidity of the ambient air that only exceeds a value of 65% for a few weeks per year, e.g. in the case of buildings that are closed on all sides and heated. Comment: In UC 1, the average moisture content of most softwoods does not exceed 12 %.

**Usage class 2**

Moisture content in the building materials that corresponds to a temperature of 20° C and a relative humidity of the ambient air that only exceeds a value of 85% for a few weeks per year, e.g. in the case of open buildings covered by a roof. Comment: In UC 2, the average moisture content of most softwoods does not exceed 20 %.

**Usage class 3**

Includes climatic conditions that lead to higher moisture contents than in UC 2, e.g. structures that are exposed to the weather without protection. Eurocode 5 / DIN EN 1995-1-1 section 2.3.1.3

INTEGRAL CONNECTORS/BEAM HANGERS

2 TECHNICAL FEATURES

Geometry

H	Height (mm)
D(T)	Depth (mm)
W(B)	Width (mm)
T(S)	Material thickness (mm)

Tables

HT	Main beam
H _{NT}	Minimum height of secondary beam
NT	Secondary beam
B _{NT}	Minimum width of secondary beam
n _{HT}	Number of holes in main beam
n _{NT}	Number of holes in secondary beam
n _a	Number of connecting elements
n _{o Ø}	Number of connecting elements with Ø
L _s	Length of self-drilling rod dowels

Timber connecting element

Ø [mm]	Diameter of connecting element
L [mm]	Length of connecting element
	Grain direction of component

Connecting element concrete/ steel

Bo	Dowel/bolt
----	------------

Force directions

F _{2,Rk} ↓	Force in insertion direction (main load)
F _{1,Rk} ↑	Force against insertion direction (lifting load)



Aluminium



Steel with indication of the steel quality and galvanisation



Timber/timber connection



Timber/concrete connection



Usage class 1

Moisture content in the building materials that corresponds to a temperature of 20° C and a relative humidity of the ambient air that only exceeds a value of 65% for a few weeks per year, e.g. in the case of buildings that are closed on all sides and heated. Comment: In UC 1, the average moisture content of most softwoods does not exceed 12 %.



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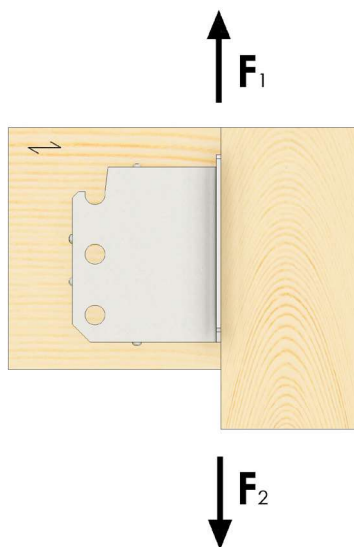


Usage class 3

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INTEGRAL CONNECTORS/BEAM HANGERS

2 LOAD DIRECTIONS

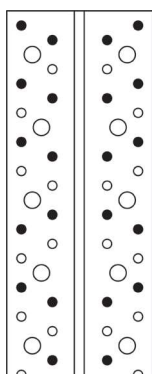


Timber/timber connection

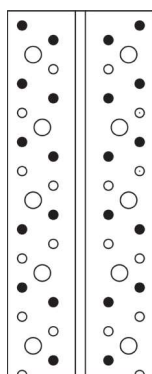
Partial and full nail fitting or partial and full screw fitting

Nail patterns

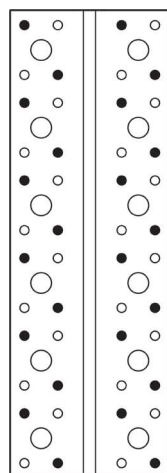
Beam hanger
Alu Combi



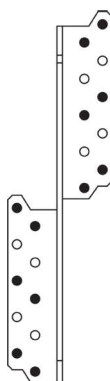
Beam hanger
Alu Combi SD



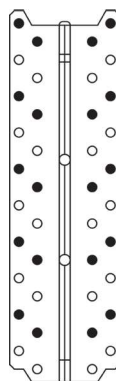
Beam hanger
Alu Combi Maxi SD



Integral connectors
2-row



Integral connectors
4-row



Connection over intermediate layers

The characteristic load capacities for the connection indicated in the tables also apply to an intermediate layer.

The following conditions must be met:

The intermediate layer must be connected to the timber component without being able to be moved.

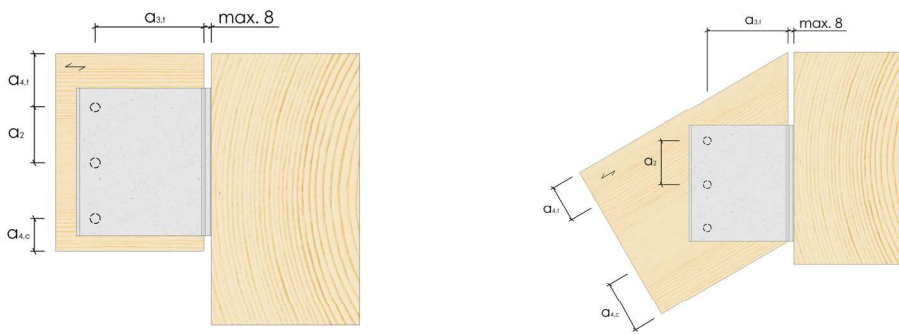
The integration depth of the connecting element in the timber component must be the same or greater.

For this, a correspondingly long connecting element must be used.

The characteristic perforation strength $f_{h,k}$ of the connecting element in the intermediate layer must be the same or greater.

INTEGRAL CONNECTORS/BEAM HANGERS

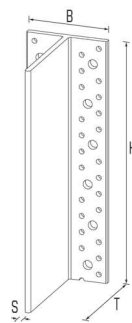
MINIMUM AND EDGE SPACING 2



			Rod dowels Ø 12 mm
a_2	Right angle to the grain direction	$3d$	36 mm
$a_{3,t}$	End grain with stress	$\max (7d; 80 \text{ mm})$	84 mm
$a_{4,t}$	Loaded edge	$\max [(2+2\sin\alpha) d; 3d]$	48 mm
$a_{4,c}$	Unloaded edge	$3d$	36 mm

Connection to masonry, concrete or steel

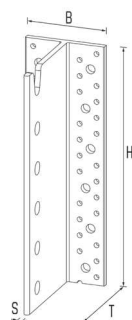
Proof of the dowel's load-bearing capacity must be provided separately in accordance with the manufacturer's specifications.



BEAM HANGERS

TYPE ALU COMBI

Art. No.	Dimensions [mm]							nH		EAN	Weight kg	Pallet	PU		
	H	x	W(B)	x	D(T)	x	T(S)	Ø 5	Ø 9						
30400	80	x	80	x	109,4	x	6,0	14	4	105207	0.232	750	25	■	■
30401	120	x	80	x	109,4	x	6,0	22	6	105214	0.337	750	25	■	■
30402	160	x	80	x	109,4	x	6,0	30	8	105221	0.454	750	25	■	■
30403	200	x	80	x	109,4	x	6,0	38	10	105238	0.562	450	15	■	■
30404	240	x	80	x	109,4	x	6,0	46	12	105245	0.674	450	15	■	■
30422	2200	x	80	x	109,4	x	6,0	362	110	105252	6.178	48	1	■	■



BEAM HANGERS

TYPE ALU COMBI SD Ø12

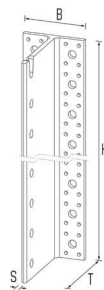
Art. No.	Dimensions [mm]							nH		nBo	EAN	Weight kg	Pallet	PU		
	H	x	W(B)	x	D(T)	x	T(S)	Ø 5	Ø 9							
30601	120	x	80	x	109,4	x	6,0	22	6	3	104309	0.350	600	25	■	■
30602	160	x	80	x	109,4	x	6,0	30	8	4	104316	0.460	600	25	■	■
30603	200	x	80	x	109,4	x	6,0	38	10	5	104323	0.570	360	15	■	■
30604	240	x	80	x	109,4	x	6,0	46	12	6	104330	0.690	360	15	■	■
30605	280	x	80	x	109,4	x	6,0	54	14	7	104347	0.770	360	15	■	■
30606	320	x	80	x	109,4	x	6,0	62	16	8	104354	0.850	192	8	■	■
30607	360	x	80	x	109,4	x	6,0	70	18	9	104361	0.920	192	8	■	■

TYPE ALU COMBI 2

Timber / Timber											
Art. No.	Dimensions [mm]				Secondary beam				Main beam		
	H	W(B)	D(T)	T(S)	H _{NT}	B _{NT}	n _{a,Ø7}	L _s	n _a	4.0x60	F _{2,rk}
30400	80	80	109,4	6,0	120	120	3	113	14	Full	9,10
									10	Partial	7,40
30401	120	80	109,4	6,0	160	120	4	113	22	Full	16,60
									14	Partial	14,60
30402	160	80	109,4	6,0	200	120	5	113	30	Full	25,70
									18	Partial	20,60
30403	200	80	109,4	6,0	240	120	7	113	38	Full	36,70
									22	Partial	27,20
30404	240	80	109,4	6,0	280	120	9	113	46	Full	50,00
									26	Partial	34,40

TYPE ALU COMBI SD Ø12

Timber / Timber										
Art. No.	Dimensions [mm]				Secondary beam			Main beam		F _{2,rk}
	H	W(B)	D(T)	T(S)	H _{NT}	B _{NT}	n _{a,Ø12}	n _a	4.0x60	
30601	120	80	109,4	6,0	160	120	3	22	Full	23,10
								14	Partial	18,10
30602	160	80	109,4	6,0	200	120	4	30	Full	34,60
								18	Partial	26,20
30603	200	80	109,4	6,0	240	120	5	38	Full	46,60
								22	Partial	34,60
30604	240	80	109,4	6,0	280	120	6	46	Full	59,80
								26	Partial	43,70
30605	280	80	109,4	6,0	320	140	7	54	Full	77,20
								30	Partial	53,50
30606	320	80	109,4	6,0	360	140	8	62	Full	93,20
								34	Partial	63,70
30607	360	80	109,4	6,0	400	160	9	70	Full	112,00
								38	Partial	79,40



BEAM HANGERS



2

TYPE ALU COMBI MAXI SD Ø16

Art. No.	Dimensions [mm]							nH		nN	EAN	Weight	Pallet	PU		
	H	x	W(B)	x	D(T)	x	T(S)	Ø 7,5	Ø 17	Ø 17	4019346	kg				
30800	384	x	130	x	172	x	10,0	48	12	6	104378	3.160	96	1	■	■
30801	512	x	130	x	172	x	10,0	64	16	8	104385	4.200	80	1	■	■
30802	640	x	130	x	172	x	10,0	80	20	10	104392	5.220	64	1	■	■
30803	768	x	130	x	172	x	10,0	96	24	12	104408	6.280	48	1	■	■
30822	2176	x	130	x	172	x	10,0	272	68	34	104415	17.400		1	■	■



TYPE ALU COMBI MAXI SD Ø16

2

Timber / Timber										
Art. No.	Dimensions [mm]				Secondary beam			Main beam		
	H	W(B)	D(T)	T(S)	H _{NT}	B _{NT}	n _{ø,Ø16}	n _a	6.0x100	F _{2,rk}
30800	384	130	172	10,0	432	160	6	48	Full	117,30
								24	Partial	58,60
30801	512	130	172	10,0	560	160	8	64	Full	172,10
								32	Partial	95,90
30802	640	130	172	10,0	688	160	10	80	Full	212,20
								40	Partial	136,70
30803	768	130	172	10,0	816	160	12	96	Full	258,20
								48	Partial	179,30

