

Solid-Drive™ Self-Drilling Dowels for Fastening of Glulam and CLT

SIMPSON
Strong-Tie®

The CE marked SDD self-drilling dowel offers an efficient fastening method for glulam and CLT in combination with aluminium connectors.

The double threaded dowel has a cylinder head with an T-40 6-lobe drive and the unique point design reduces the splitting of the timber. The groove on the lower thread allows the wood chips to be removed during installation.

Benefits:

- CE marked
- No pre-drilling required
- T-40 6-lobe drive
- Small cylinder head for hidden connections
- Groove for chip-removing

Applications:

- Glulam beams
- CLT wall to CLT floor

Material:

- Electro galvanised carbon steel

Suitable for:

- Concealed aluminium connectors



Electro Galvanised
C1 acc. to EN ISO 12944-2
SC2 – 50 years acc. to EC5

NEW



Innovative arrow-drill point for efficient driving in wood and aluminium



Chip-removing groove increases the drive-in efficiency



Cylinder head sinks into the wood allowing for hidden assemblies

Heavy-duty thread and shank provides strength and stability

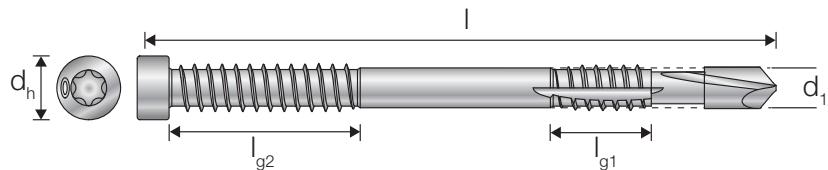


Deep T-40 6-lobe drive provides improved control and greater bit life

Significant time savings

Compared to traditional fastening of glulam beams to concealed beam hangers made with standard dowels, the SDD offers a significant improvement of efficiency, as no pre-drilling is required for this method.

SDD Self-Drilling Dowels for Fastening of Glulam and CLT



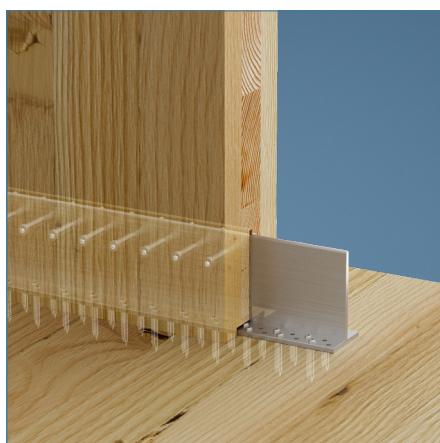
Dimensions

References	Item code	Dimensions [mm]						Bit	Load	RPM	Qty per box
		Thread diameter [d]	Length [L]	Head diameter [d_h]	Upper shank diameter [d_1]	Upper thread length [L_g1]	Lower thread length [L_g2]				
SDD7.5X93	78119	7.5	93	12.0	6.9	8.5	27	T-40	min. 30 kg	800-1000 rpm	50
SDD7.5X113	78120	7.5	113	12.0	6.9	12.5	36	T-40			50
SDD7.5X133	78121	7.5	133	12.0	6.9	12.5	36	T-40			50
SDD7.5X153	78122	7.5	153	12.0	6.9	12.5	36	T-40			50
SDD7.5X173	78123	7.5	173	12.0	6.9	12.5	36	T-40			50



Glulam beam connections

Large glulam beams can be installed with a concealed aluminium beam hanger and SDD self-drilling dowels. The advantage of using self-drilling dowels is that you neither need to pre-drill the timber nor the hanger. This will give you a significant time-saving compared to using regular dowels.



Inclined beam connections

Connections with inclined glulam beams can also be made with the combination of an aluminium hanger and SDD self-drilling dowels.

CLT wall to CLT floor connections

Aluminium connectors can also be used for installing CLT walls on CLT floors. The advantage of this application is that you will get a concealed installation and by using the SDD self-drilling dowels you will speed up the installation as well.

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Characteristic loads - Beam-to-beam - Full nailing

References	Beam dimensions [mm]		Qty fasteners				Characteristic loads [kN]										
	Min. height (no slope)		Primary beam		Secondary beam		R _{1,k} = R _{2,k}					R _{3,k}					R _{4,k}
	Primary beam	Secondary beam	Qty	Type	Qty	Type	93	113	133	153	173	93	113	133	153	173	
BTALU1200/120	190	125	22	CNA4.0x50	3	SDD7.5	14.4	15.5	15.5	15.5	15.5	2.9	3.5	4.2	4.8	5.6	8.8
BTALU1200/160	230	165	30	CNA4.0x50	4	SDD7.5	23.0	24.6	26.4	26.4	26.4	3.6	4.4	5.3	6.2	7.0	12.7
BTALU1200/200	270	205	38	CNA4.0x50	5	SDD7.5	32.2	34.3	37.0	39.7	39.7	4.4	5.4	6.4	7.4	8.4	16.7
BTALU1200/240	310	245	46	CNA4.0x50	6	SDD7.5	40.4	44.1	47.5	51.4	51.4	5.3	6.4	7.4	8.6	9.8	20.6
BTALU1200/280	35	285	54	CNA4.0x50	7	SDD7.5	49.4	53.1	58.2	62.8	65.4	6.1	7.3	8.5	9.9	11.3	24.5
BTALU1200/320	390	325	62	CNA4.0x50	8	SDD7.5	57.4	62.5	68.0	74.0	77.7	6.8	8.3	9.7	11.1	12.9	28.4
BTALU1200/360	430	365	70	CNA4.0x50	9	SDD7.5	64.6	71.1	78.1	85.0	89.8	7.6	9.2	10.9	12.4	14.4	32.3
BTALU1200/400	470	405	78	CNA4.0x50	10	SDD7.5	71.7	79.0	87.5	96.0	101.9	8.3	10.1	12.1	13.8	15.8	36.3
BTALU1200/440	510	445	86	CNA4.0x50	11	SDD7.5	78.9	86.9	96.2	106.2	113.9	9.1	11.0	13.2	15.2	17.2	40.2
BTALU1200/480	550	485	94	CNA4.0x50	12	SDD7.5	86.1	87.8	105.0	115.9	125.1	9.8	11.9	14.3	16.6	18.7	44.1
BTALU1200/520	590	525	104	CNA4.0x50	12	SDD7.5	86.1	87.8	105.0	115.9	125.1	10.6	12.8	15.4	17.8	20.1	48.0
BTALU1200/560	630	565	112	CNA4.0x50	12	SDD7.5	86.1	87.8	105.0	115.9	125.1	11.3	13.8	16.5	19.1	21.5	51.9
BTALU1200/600	670	605	120	CNA4.0x50	12	SDD7.5	86.1	87.8	105.0	115.9	125.1	12.1	14.7	17.6	20.4	23.0	55.9

The beam has to be wider than the length of the dowel. See ETA to optimise the qty of dowels per beam.

Characteristic loads - Beam-to-post / CLT to CLT - Partial nailing

References	Beam dimensions [mm]		Qty fasteners				Characteristic loads [kN]										
	Min. height (no slope)		Primary beam		Secondary beam		R _{1,k} = R _{2,k}					R _{3,k}					R _{4,k}
	Primary beam	Secondary beam	Qty	Type	Qty	Type	93	113	133	153	173	93	113	133	153	173	
BTALU1200/120	190	125	12	CNA4.0x50	3	SDD7.5	12.2	13.2	13.5	14.1	14.1	2.9	3.5	4.2	4.8	5.6	8.8
BTALU1200/160	230	165	16	CNA4.0x50	4	SDD7.5	18.7	19.7	21.3	21.3	21.3	3.6	4.4	5.3	6.2	7.0	12.7
BTALU1200/200	270	205	20	CNA4.0x50	5	SDD7.5	25.9	27.7	29.8	29.8	29.8	4.4	5.4	6.4	7.4	8.4	16.7
BTALU1200/240	310	245	24	CNA4.0x50	6	SDD7.5	33.6	36.2	38.9	38.9	38.9	5.3	6.4	7.4	8.6	9.8	20.6
BTALU1200/280	35	285	28	CNA4.0x50	7	SDD7.5	41.5	44.9	48.2	48.2	48.2	5.6	6.7	7.7	8.9	10.1	24.5
BTALU1200/320	390	325	32	CNA4.0x50	8	SDD7.5	49.4	53.6	53.6	53.6	53.6	6.4	7.7	8.8	10.2	11.5	28.4
BTALU1200/360	430	365	36	CNA4.0x50	9	SDD7.5	57.5	62.4	62.4	62.4	62.4	7.2	8.6	9.9	11.5	12.9	32.3
BTALU1200/400	470	405	40	CNA4.0x50	10	SDD7.5	65.5	71.2	76.4	76.4	76.4	8.0	9.6	11.0	12.7	14.4	36.3
BTALU1200/440	510	445	44	CNA4.0x50	11	SDD7.5	73.6	79.3	85.8	91.4	92.5	8.8	10.5	12.1	14.0	15.8	40.2
BTALU1200/480	550	485	48	CNA4.0x50	12	SDD7.5	81.4	57.9	94.5	100.2	101.7	9.5	11.5	13.2	15.3	17.2	44.1
BTALU1200/520	590	525	52	CNA4.0x50	12	SDD7.5	83.6	90.2	97.5	104.1	106.4	10.3	12.4	14.3	16.6	18.7	48.0
BTALU1200/560	630	565	56	CNA4.0x50	12	SDD7.5	85.9	92.5	100.5	107.9	111.2	11.1	13.4	15.4	17.8	20.1	51.9
BTALU1200/600	670	605	60	CNA4.0x50	12	SDD7.5	85.9	94.8	103.5	111.7	115.9	11.9	14.4	16.5	19.1	21.5	55.9

The beam has to be wider than the length of the dowel. See ETA to optimise the qty of dowels per beam.

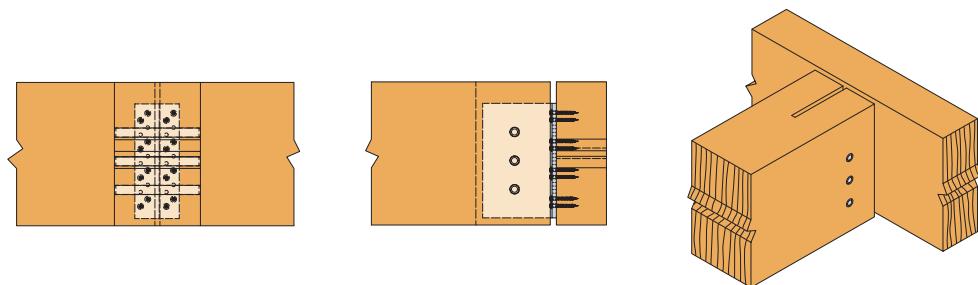


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Installation:

BTALU is sold uncut in long pieces of 1198 mm and must be cut in the desired length by the user. The maximum usable length is 600 mm. The hanger can be used to install inclined beams with an angle between -45° and +45°. BTALU is delivered without pre-drilled holes for the dowels. The Ø7.5 SDD dowels must be installed at regular intervals of at least 40 mm.

1. Cut the BTALU to the desired height (load values are given for a maximum height of 600 mm),
2. Secure the BTALU to the substrate with CNA4.0X50 mm nails or CSA5.0X40 screws,
3. Make a vertical cut 8 mm thick and 115 mm deep along the axis of the supported beam to the bracket,
4. Place the beam on the bracket in its final position,
5. Use a low-speed screwdriver (600-1000 rpm) to guide the SDD self-drilling dowel through the wood and hanger. Insert the SDD self-drilling dowel through the wood and the bracket core, taking into account the drilling recommendations on the BTALU core. The installation speed is directly related to the applied pressure and the correct perpendicularity,
6. Adjust the position of the dowels by slowly screwing them in and out.



Fixing situation with a slope :

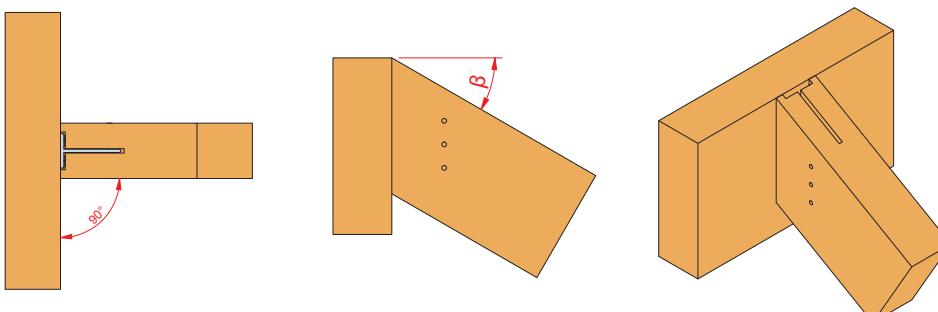
For beams with a slope, the values must be multiplied by the following coefficient:

β	0°	15°	30°	45°
Coefficient	1.0	0.95	0.9	0.85

This only applies to assemblies with less than 7 dowels in the beam.

The effective length of the dowels is equal to the total length of the dowels -13 mm.

This type of assembly must not be used outdoors (in this case stainless dowels are recommended).



Inclined beam connections

The inclination of the secondary beam, relative to the horizontal, is indicated by the angle β