

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



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

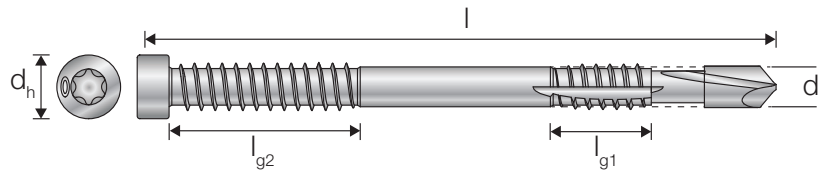
Heavy-duty thread and shank provides strength and stability



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.



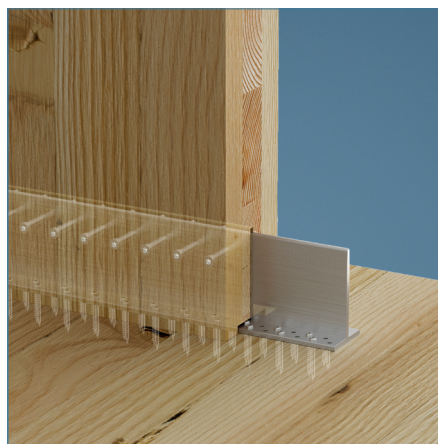
Dimensions

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	27	8.5	T-40	min. 30 kg	800-1000 rpm	50
SDD7.5X113	78120	7.5	113	12.0	6.9	36	12.5	T-40			50
SDD7.5X133	78121	7.5	133	12.0	6.9	36	12.5	T-40			50
SDD7.5X153	78122	7.5	153	12.0	6.9	36	12.5	T-40			50
SDD7.5X173	78123	7.5	173	12.0	6.9	36	12.5	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.

SDD Self-Drilling Dowels for Fastening of Glulam and CLT

Chracteristic Values - Beam to Beam Full nailing

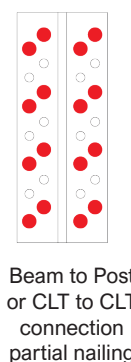
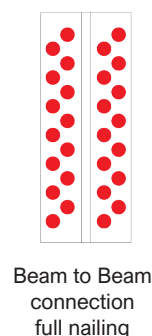
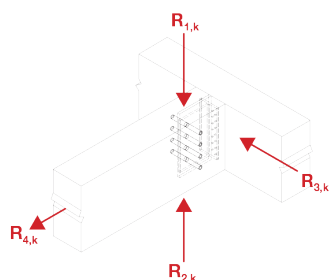
References	Dimensions beam [mm]		Fasteners				Characteristic values [kN]										
	Minimum height (without slope)		Header		Joist		$R_{1,k} = R_{2,k}$					$R_{3,k}$					$R_{4,k}$
			Dowels length SDD [mm]		Dowels length SDD [mm]												
	Header	Joist	Qty.	Type	Qty.	Type	93	113	133	153	173	93	113	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	
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	350	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 must be wider than the dowel length. See ETA to optimise the number of dowels in the connection.

Chracteristic Values - CLT to CLT Partial nailing

References	Dimensions beam [mm]		Fasteners				Characteristic values [kN]										
	Minimum height (without slope)		Header		Joist		$R_{1,k} = R_{2,k}$					$R_{3,k}$					$R_{4,k}$
			Dowels length SDD [mm]		Dowels length SDD [mm]												
	Header	Joist	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	
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	350	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	87.9	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 must be wider than the dowel length. To optimise the number of dowels in the connection or for other load directions, refer to the ETA.

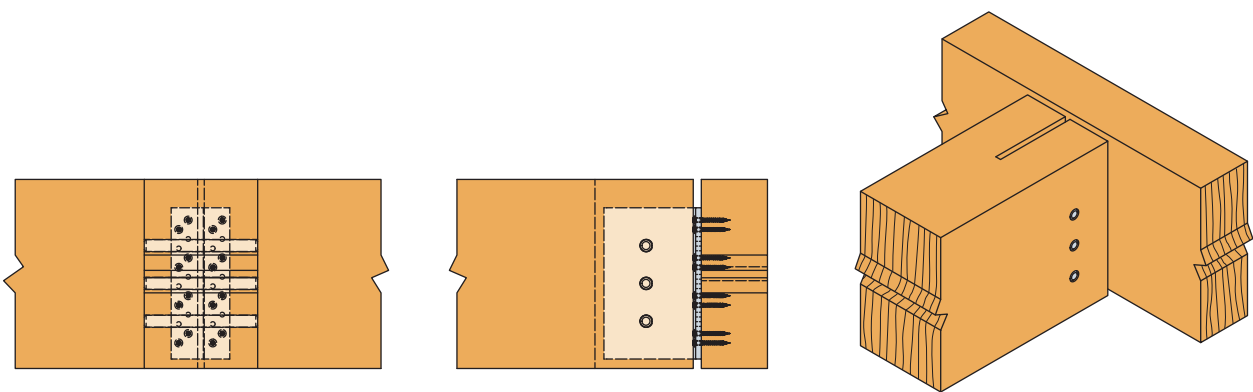


Installation:

BTALU is sold in 1198 mm lengths and must be cut by the user, with a maximum usable length of 600 mm. The SDD pins are installed equally spaced with a minimum internal distance of 40 mm.

BTALU is supplied without pre-drilling.

1. Cut the BTALU to the desired height (load values are given for a maximum height of 600 mm),
2. Fix the BTALU using CNA4.0X50 mm nails or CSA5.0X40 screws,
3. Cut a 7-8 mm wide and 115 mm deep slot in the secondary beam,
4. Insert the secondary beam into the notched slot and adjust its final position,
5. Use a slow-speed screwdriver (600-1000 rpm) to fix the SDD self-drilling dowel in the wood and the beam hanger.

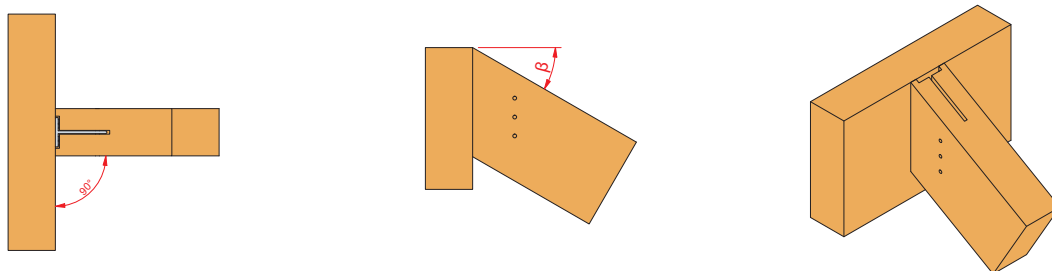


Reduction factor for slope angle:

For beams with a slope, multiply the values by the following factor

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

This applies only to connections with fewer than 7 dowels in a connection. The effective dowel length is equal to the total dowel length of -13 mm. This type of connection may not be used outdoors



Angled beam connection.

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