

SBD

CE
EN 14592

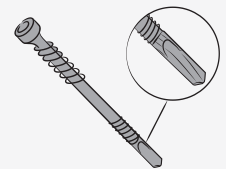
Self-perforating dowel for Alu hangers

Carbon steel with white galvanic zinc coating



SPECIAL TIP

The self-perforating tip with bleed shape is specially designed to obtain the fastest possible penetration of wood and aluminium



DOUBLE THREAD

The thread up against the tip facilitates screwing (L_{g1}); the increased length of the underhead thread makes for fast, accurate closure (L_{g2})



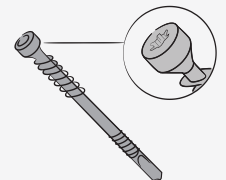
INCREASED DIAMETER

The diameter of 7.5 mm ensures a shear resistance of over 15 % and enables optimisation of the number of fasteners in the joint



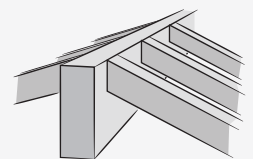
CONCEALED HEAD

The small-diameter concealed cylindrical head ensures an optimal appearance and meets fire-resistance requisites



FIELDS OF USE

Self-perforating system for wood-aluminium concealed joints.
Ideal for ALU bracket with screwdrivers with 1200 - 1700 rpm.
Service classes 1 and 2



APPLICATIONS



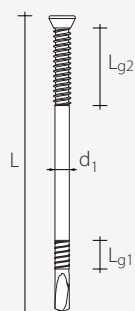
The connectors allow for the rapid and precise execution of retractable junctions on aluminium alloy brackets (AluMINI and AluMIDI brackets). The reduced dimensions allow for excellent fire protection



For applications on reinforced concrete or other uneven surfaces the self-drilling dowels allow a greater installation tolerance when fixing the timber element. Values are certified, tested and consolidated



CODES AND DIMENSIONS



d ₁ [mm]	code	L [mm]	L _{g2} [mm]	L _{g1} [mm]	pcs/conf
7,5 TX40	SBD7555	55	10	0	50
	SBD7575	75	10	8	
	SBD7595	95	10	15	
	SBD75115	115	40	15	
	SBD75135	135	40	15	
	SBD75155	155	40	15	
	SBD75175	175	40	15	
	SBD75195	195	40	15	



Bit included in each package

FIELDS OF USE - WOOD - METAL PLATE - WOOD SHEAR JOINT

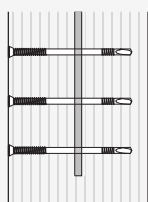
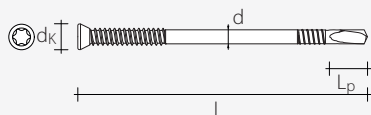


plate	thickness [mm]		application	CE - EN14592
AluMINI	6,00	■	use recommended	✓
AluMIDI	6,00	■	use recommended	✓
AluMAXI	10,00	■	application possible using a pressure of ≥60 kg	✓
Acciao S235	≤ 5,00	■	use not recommended	✓
Acciao S235	> 5,00	■	use not allowed	✓

GEOMETRY AND MECHANICAL PROPERTIES

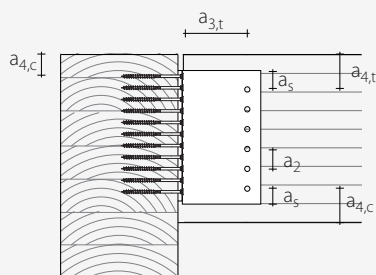


SBD FASTENER

Nominal diameter	d	[mm]	7,5
Head diameter	dk	[mm]	11,0
Tip length	Lp	[mm]	19,0
Effective length	L_{eff}	[mm]	L - 8,0
Characteristic moment of yield	My,k	[Nm]	42000

INSTALLATION

MINIMUM DISTANCES



SECONDARY BEAM - TIMBER				self-drilling dowel SBD Ø7,5
Dowel - Dowel	a₂	[mm]	≥ 3 d	≥ 23
Dowel - Beam extrados	a_{4,t}	[mm]	≥ 4 d	≥ 30
Dowel - Beam intrados	a_{4,c}	[mm]	≥ 3 d	≥ 23
Dowel - Beam end	a_{3,t}	[mm]	≥ {7 d; 80}	≥ 80
Dowel - Bracket edge	a₅	[mm]	≥ 1,2 d ₀ ⁽¹⁾	≥ 10

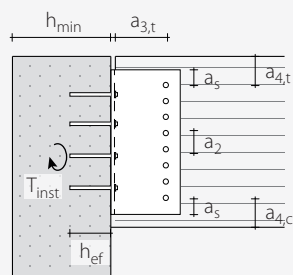
⁽¹⁾ hole diameter

AluMINI

MAIN BEAM - TIMBER				screw HBS+ evo Ø5
First fastener - Beam extrados	a_{4,c}	[mm]	≥ 5 d	≥ 25

AluMIDI

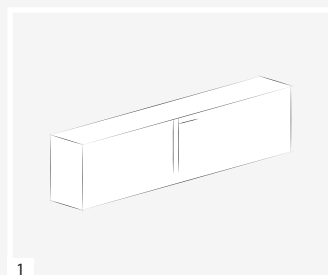
MAIN BEAM - TIMBER				anker nail LBA Ø4	screw LBS Ø5
First connector - Beam extrados	a_{4,c}	[mm]	≥ 5 d	≥ 20	≥ 25



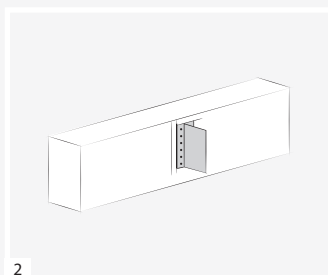
MAIN BEAM - CONCRETE				chemical anchor VINYLPRO Ø8	screw anchor SKR Ø10
Minimum support thickness	h_{min}	[mm]		$h_{ef} + 30 \text{ mm} \geq 100$	110
Concrete hole diameter	d₀	[mm]		10	8
Tightening torque	T_{inst}	[Nm]		10	25

h_{ef} = effective anchoring depth in concrete

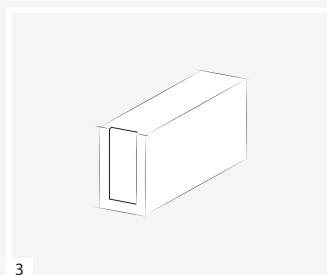
ASSEMBLY



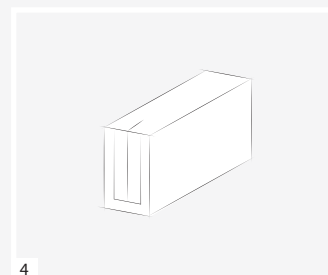
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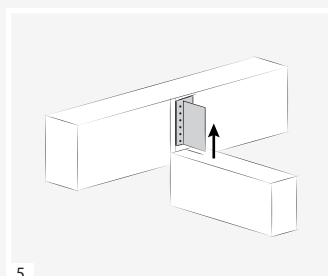
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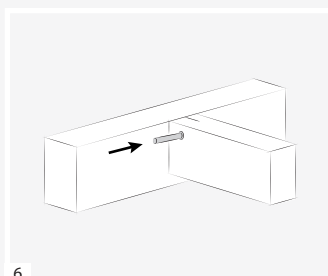
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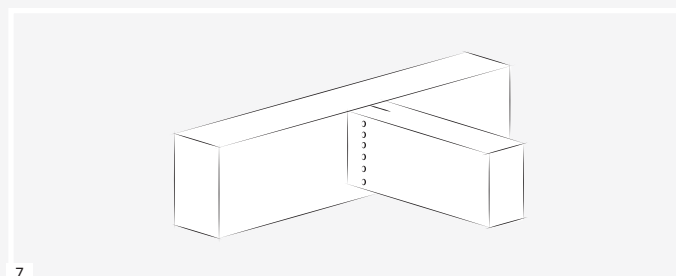
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5



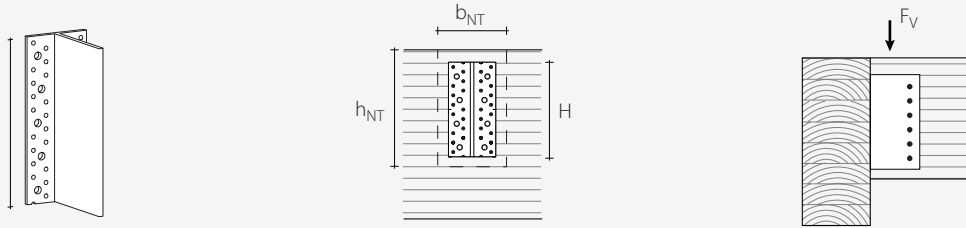
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7

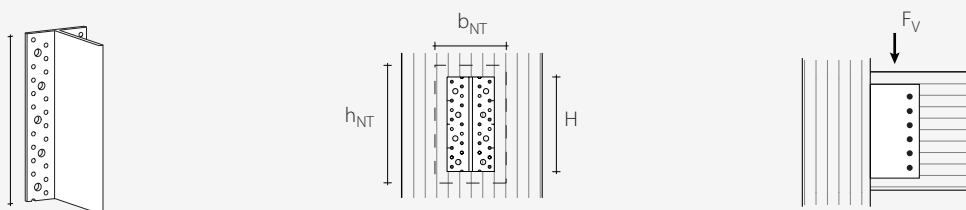
STATIC VALUES - TIMBER TO TIMBER JOINT

AluMIDI without holes - TOTAL NAILING



AluMIDI		SECONDARY BEAM			FIXING THROUGH NAILS		FIXING THROUGH SCREWS	
code	H [mm]	b _{NT} [mm]	h _{NT} [mm]	dowels SBD Ø7,5 [pcs - Ø x L]	MAIN BEAM	CHARACTERISTIC VALUES	MAIN BEAM	CHARACTERISTIC VALUES
					nails LBA Ø4 x 60 [pcs]	EN 1995:2008 R _{V,k} [kN]	screws LBS Ø5 x 60 [pcs]	EN 1995:2008 R _{V,k} [kN]
ALUMIDI80	80	80	120	2 - Ø7,5 x 75	14	8,23	14	10,12
		120	120	3 - Ø7,5 x 115		10,01		12,35
ALUMIDI120	120	80	160	3 - Ø7,5 x 75	22	15,04	22	18,84
		120	160	4 - Ø7,5 x 115		18,38		22,92
ALUMIDI160	160	100	200	4 - Ø7,5 x 95	30	24,81	30	29,40
		120	200	5 - Ø7,5 x 115		27,44		34,78
ALUMIDI200	200	100	240	5 - Ø7,5 x 95	38	34,78	38	38,28
		120	240	6 - Ø7,5 x 115		38,27		46,24
ALUMIDI240	240	120	280	7 - Ø7,5 x 115	46	49,79	46	58,48
		140	280	8 - Ø7,5 x 135		54,61		64,98
ALUMIDI2200	280 *	140	320	8 - Ø7,5 x 135	54	64,92	54	73,63
		160	320	9 - Ø7,5 x 155		69,38		84,96
ALUMIDI2200	320 *	160	360	9 - Ø7,5 x 155	62	79,94	62	90,80
		180	360	10 - Ø7,5 x 175		84,86		102,44
ALUMIDI2200	360 *	160	400	10 - Ø7,5 x 155	70	94,22	70	101,68
		180	400	11 - Ø7,5 x 175		98,80		116,93
ALUMIDI2200	400 *	160	440	11 - Ø7,5 x 155	78	105,23	78	112,82
		180	440	12 - Ø7,5 x 175		114,12		134,19

AluMIDI without holes - PARTIAL NAILING ⁽¹⁾

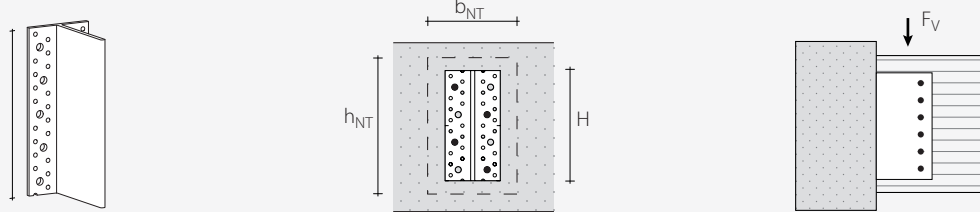


AluMIDI		SECONDARY BEAM			FIXING THROUGH NAILS		FISSAGGIO CON VITI	
code	H [mm]	b _{NT} [mm]	h _{NT} [mm]	dowels SBD Ø7,5 [pcs - Ø x L]	MAIN BEAM	CHARACTERISTIC VALUES	MAIN BEAM	CHARACTERISTIC VALUES
					nails LBA Ø4 x 60 [pcs]	EN 1995:2008 R _{V,k} [kN]	screws LBS Ø5 x 60 [pcs]	EN 1995:2008 R _{V,k} [kN]
ALUMIDI80	80	120	120	3 - Ø7,5 x 115	10	8,3	10	10,3
ALUMIDI120	120	120	160	4 - Ø7,5 x 115	14	15,0	14	17,2
ALUMIDI160	160	120	200	5 - Ø7,5 x 115	18	22,8	18	25,1
ALUMIDI200	200	120	240	6 - Ø7,5 x 115	22	28,7	22	35,2
ALUMIDI240	240	140	280	7 - Ø7,5 x 135	26	38,0	26	45,2
ALUMIDI2200	280 *	160	320	8 - Ø7,5 x 155	30	49,0	30	54,8
ALUMIDI2200	320 *	180	360	9 - Ø7,5 x 175	34	56,6	34	64,8
ALUMIDI2200	360 *	180	400	10 - Ø7,5 x 175	38	64,2	38	75,2
ALUMIDI2200	400 *	180	440	11 - Ø7,5 x 175	42	74,9	42	84,4

*dimension obtainable from ALUMIDI2200

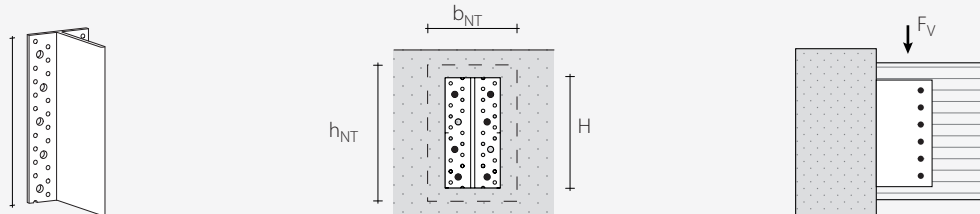
STATIC VALUES - TIMBER TO CONCRETE JOINT

AluMIDI without holes - SCREW ANCHOR ⁽²⁾



AluMIDI		SECONDARY BEAM			MAIN BEAM	CHARACTERISTIC VALUES
code	H [mm]	b _{NT} [mm]	h _{NT} [mm]	dowels SBD Ø7,5 [pcs - Ø x L]	anchor SKR Ø10 x 80 ⁽³⁾ [pcs]	EN 1995:2008 R _{V,k} [kN]
ALUMIDI80	80	120	120	2 - Ø7,5 x 115	2	6,9
ALUMIDI120	120	120	160	3 - Ø7,5 x 115	3	11,4
ALUMIDI160	160	120	200	4 - Ø7,5 x 115	4	16,0
ALUMIDI200	200	120	240	5 - Ø7,5 x 115	5	20,6
ALUMIDI240	240	120	280	6 - Ø7,5 x 115	6	25,2
ALUMIDI2200	280 *	140	320	7 - Ø7,5 x 135	7	29,7
ALUMIDI2200	320 *	140	360	8 - Ø7,5 x 135	8	34,3
ALUMIDI2200	360 *	160	400	9 - Ø7,5 x 155	9	38,9
ALUMIDI2200	400 *	160	440	10 - Ø7,5 x 155	10	43,2

AluMIDI without holes - CHEMICAL ANCHOR ⁽²⁾

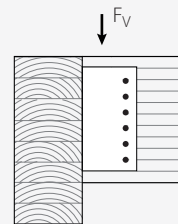
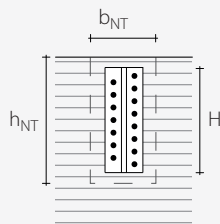
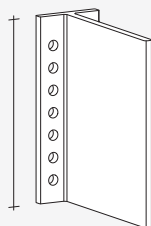


AluMIDI		SECONDARY BEAM			MAIN BEAM	CHARACTERISTIC VALUES
code	H [mm]	b _{NT} [mm]	h _{NT} [mm]	dowels SBD Ø7,5 [pcs - Ø x L]	anchor VINYLPRO Ø8 x 110 ⁽⁴⁾ [pcs]	EN 1995:2008 R _{V,k} [kN]
ALUMIDI80	80	120	120	3 - Ø7,5 x 115	4	11,9
ALUMIDI120	120	120	160	4 - Ø7,5 x 115	4	19,0
ALUMIDI160	160	120	200	5 - Ø7,5 x 115	6	30,3
ALUMIDI200	200	120	240	6 - Ø7,5 x 115	7	37,8
ALUMIDI240	240	120	280	8 - Ø7,5 x 115	8	46,8
ALUMIDI2200	280 *	140	320	9 - Ø7,5 x 135	9	54,6
ALUMIDI2200	320 *	140	360	10 - Ø7,5 x 135	11	58,5
ALUMIDI2200	360 *	160	400	11 - Ø7,5 x 155	12	68,1
ALUMIDI2200	400 *	160	440	12 - Ø7,5 x 155	14	78,1

* dimension obtainable from ALUMIDI2200

STATIC VALUES - TIMBER TO TIMBER JOINT

AluMINI



AluMINI		SECONDARY BEAM			MAIN BEAM	CHARACTERISTIC VALUES
code	H [mm]	b _{NT} [mm]	h _{NT} [mm]	dowels SBD ⁽⁵⁾ Ø7,5 [pcs - Ø x L]	screws HBS+ evo Ø5 x 60 [pcs]	EN 1995:2008 R _{V,k} [kN]
ALUMINI65	65	60	90	2 - Ø7,5 x 55	7	2,3
ALUMINI95	95	60	120	3 - Ø7,5 x 55	11	5,7
ALUMINI125	125	60	150	4 - Ø7,5 x 55	15	10,4
ALUMINI155	155	60	180	5 - Ø7,5 x 55	19	16,3
ALUMINI185	185	60	210	6 - Ø7,5 x 55	23	23,2

GENERAL PRINCIPLES

- The characteristic values comply with the EN 1995:2008 standard in accordance with ETA-09/0361 and for the AluMIDI bracket are assessed using the Rothoblaas experimental method.
- For wood-wood joints, design values are obtained from the following characteristic values:

$$R_d = \frac{R_k \cdot k_{mod}}{\gamma_m}$$

Coefficients γ_m and k_{mod} must be taken according to the current Standard adopted for the design.

- For wood-cement joints, design values are obtained from the following characteristic values:

$$R_d = \frac{R_{V,k}}{\gamma_{mc}}$$

Coefficient γ_{mc} shall be taken as 1.50.

- For the calculation process a timber density $\rho_k = 385 \text{ kg/m}^3$ and a concrete grade C25/30 have been considered.
- Resistance values for the fastening system are valid for the calculation examples shown in the table.
- Sizing and verification of wood and/or concrete elements must be done separately. In some cases the connection shear strength $R_{V,k}$ is notably large and may be higher than the secondary joist strength. Particular attention should be paid to the shear check of the reduced timber crosssection in correspondence with the bracket location.

NOTES

- ⁽¹⁾ Partial nailing should be realized alternating the holes. Partial nailing is necessary for joist-column connections in order to observe minimum fastener spacings; it can be applied also for joist-joist connections.
- ⁽²⁾ The anchor disposition on concrete is obtained by placing the fasteners alternately according to the reference picture, depending on the type of anchor selected
- ⁽³⁾ Screw anchor SKR according to testing by Politecnico di Milano (Test Certification n. 2006/5205/1).

- ⁽⁴⁾ Chemical anchor VINYLPRO with steel threaded rods (type INA) of minimum strength grade equal to 5.8 with $h_{ef} = 90 \text{ mm}$.
- ⁽⁵⁾ Use of SBD dowels longer than those in the table is allowed, without affecting the overall resistance of the connection (failure on main-beam side). In this case, the minimum dimensions of the wood elements must be reassessed.

ADDITIONAL PRODUCTS - FIXINGS

type	description		d [mm]	support
HBS+evo	screw for timber for AluMINI		5	
LBA	anker nail for AluMIDI		4	
LBS	screw for plates for AluMIDI		5	
SKR	screw anchor		10	
VINYLPRO	chemical anchor		M8	

NOTE: For more information about additional products, consult the „SCREWS FOR WOOD“ and „PLATES AND CONNECTORS FOR WOOD“ catalogues.