F70

“T” SHAPED POST BASE

PARTIAL INTERLOCKING
Bending moment resistant for partial bracing of canopies and shelters. Strength and stiffness values tested.

INVISIBLE
The internal knife plate is used to create a totally concealed joint. Designed to accommodate columns of all dimensions. Hot-dip galvanisation and aluminium versions ensure durability in outdoor settings.

TWO VERSIONS
Without holes, to be used with self-drilling dowels; with holes, to be used with smooth dowels or bolts.

ALUMIDI
For compression and shear stress, the ALUMIDI aluminium bracket can be used as a post base with SBD self-drilling dowels.

USA, Canada and more design values available online.

VIDEO

DESIGN REGISTERED

ETA-10/0422

SERVICE CLASS SC1 SC2 SC3

MATERIAL

S235 HDGS5 — **F70** versions **80**, **100**, **140**: carbon steel S235 with hot-dip galvanising 55 µm

S355 HDGS5 — **F70** versions **180** and **220**: S355 carbon steel with hot-dip galvanising 55 µm

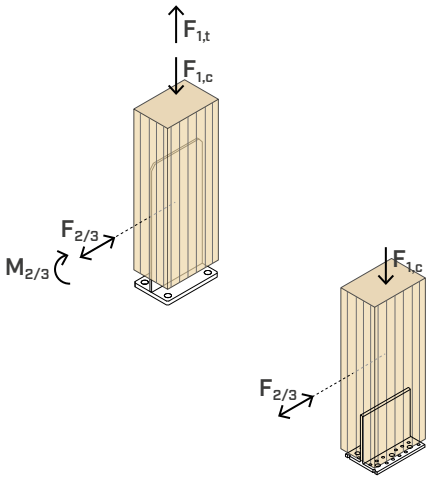
S235 HDG — **F70LIFT**: S235 hot dip bright zinc plated carbon steel

alu 6005A — **ALUMIDI**: EN AW-6005A° aluminium alloy

GROUND CLEARANCE

from 21 to 40 mm

EXTERNAL LOADS



VIDEO
Scan the QR Code and watch the video on our YouTube channel

FIELDS OF USE

Ground joints for moment-resistant columns in one direction.
Pergolas, carports, gazebos.

Suitable for columns in:
- solid timber softwood and hardwood
- Glulam, LVL

VERSATILE

It can be used not only as a post holder but also for the construction of cantilever beams (such as canopies, roofs, etc.).

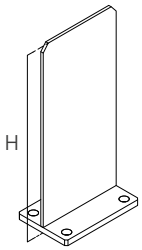
SPECIAL STRUCTURES

By means of a tension plate and a compression plate, it is possible to produce joints for large glulam columns.

CODES AND DIMENSIONS

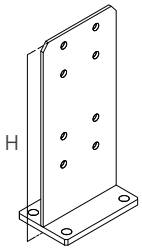
F70

CODE	H [mm] *[in]*	bottom plate [mm] *[in]*	base holes [n. x mm] *[n. x in]*	knife plate thickness [mm] *[in]*	pcs
F7080	156 *6 1/8*	80 x 80 x 6 *3 1/8 x 3 1/8 x 0.24*	4 x Ø9 *4 x Ø0.35*	4 *0.16*	1
F70100	206 *8 1/8*	100 x 100 x 6 *4 x 4 x 0.24*	4 x Ø9 *4 x Ø0.35*	6 *0.24*	1
F70140	308 *12 1/8*	140 x 140 x 8 *5 1/2 x 5 1/2 x 0.31*	4 x Ø11,5 *4 x Ø0.45*	8 *0.31*	1
F70180	400 *15 3/4*	180 x 120 x 12 *7 1/8 x 4 3/4 x 0.47*	4 x Ø18 *4 x Ø0.71*	6 *0.24*	1
F70220	400 *15 3/4*	220 x 140 x 15 *8 5/8 x 5 1/2 x 0.59*	4 x Ø18 *4 x Ø0.71*	6 *0.24*	1



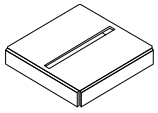
F70 L

CODE	H [mm] *[in]*	bottom plate [mm] *[in]*	base holes [n. x mm] *[n. x in]*	knife plate thickness [mm] *[in]*	knife plate hole [n. x mm] *[n. x in]*	pcs
F70100L	206 *8 1/8*	100 x 100 x 6 *4 x 4 x 0.24*	4 x Ø9 *4 x Ø0.35*	6 *0.24*	6 x Ø13 *6 x Ø0.51*	1
F70140L	308 *12 1/8*	140 x 140 x 8 *5 1/2 x 5 1/2 x 0.31*	4 x Ø11,5 *4 x Ø0.45*	8 *0.31*	8 x Ø13 *8 x Ø0.51*	1
F70180L	400 *15 3/4*	180 x 120 x 12 *7 1/8 x 4 3/4 x 0.47*	4 x Ø18 *4 x Ø0.71*	6 *0.24*	12 x Ø13 *12 x Ø0.51*	1
F70220L	400 *15 3/4*	220 x 140 x 15 *8 5/8 x 5 1/2 x 0.59*	4 x Ø18 *4 x Ø0.71*	6 *0.24*	16 x Ø13 *16 x Ø0.51*	1



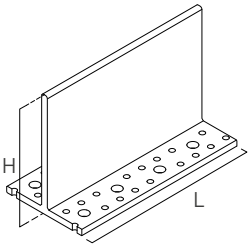
F70 LIFT

CODE	H [mm] *[in]*	plate [mm] *[in]*	thickness [mm] *[in]*	suitable for	pcs
F70100LIFT	20 *13/16*	120 x 120 *4 3/4 x 4 3/4*	2 *0.08*	F70100-F7100L	1
F70140LIFT	22 *7/8*	160 x 160 *6 1/4 x 6 1/4*	2 *0.08*	F70140-F70140L	1



ALUMIDI

CODE	H [mm]	*[in]*	type	L [mm]	*[in]*	pcs
ALUMIDI80	109,4	*4 5/16*	without holes	80	*3 1/8*	25
ALUMIDI120	109,4	*4 5/16*	without holes	120	*4 3/4*	25
ALUMIDI160	109,4	*4 5/16*	without holes	160	*6 1/4*	25
ALUMIDI200	109,4	*4 5/16*	without holes	200	*8*	15
ALUMIDI240	109,4	*4 5/16*	without holes	240	*9 1/2*	15

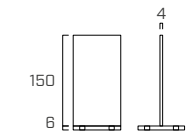


FASTENERS

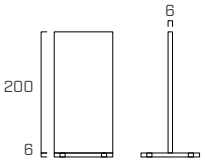
type	description	d [mm]	support	page
SBD	self-drilling dowel	7,5		154
STA	smooth dowel	12		162
KOS/KOT	hexagonal/round head bolt	M12		168
SKR/SKR EVO	screw-in anchor	7,5 - 8 - 10 - 16		528
AB1	CE1 expansion anchor	M10 - M16		536
ABE A4	CE1 expansion anchor	M8 - M10		534
VIN-FIX	vinyl ester chemical anchor	M8 - M10 - M16		545
HYB-FIX	hybrid chemical anchor	M8 - M10 - M16		552
EPO-FIX	epoxy chemical anchor	M8 - M10 - M16		557

GEOMETRY

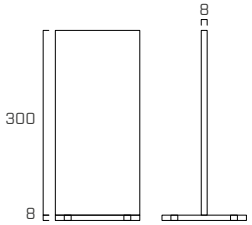
F7080



F70100



F70140



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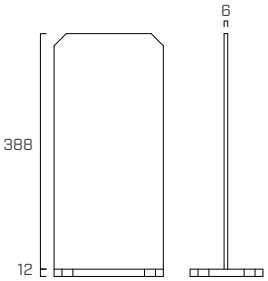

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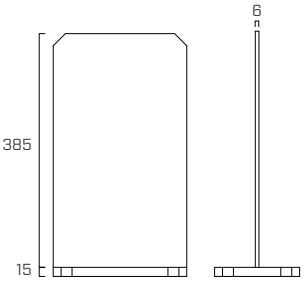

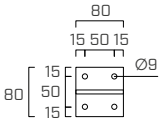

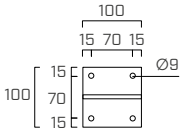

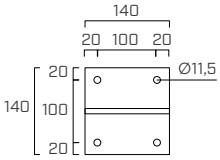

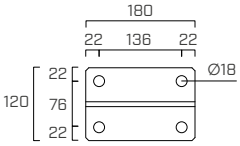

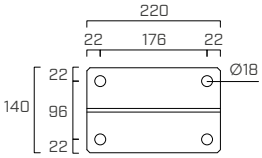

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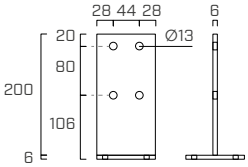

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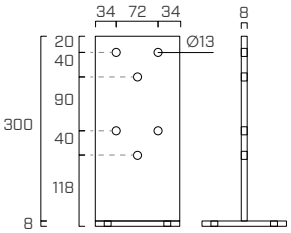

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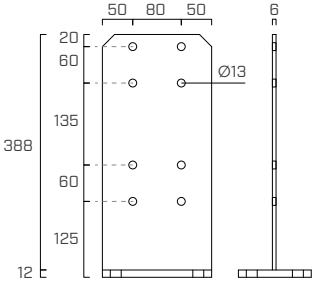

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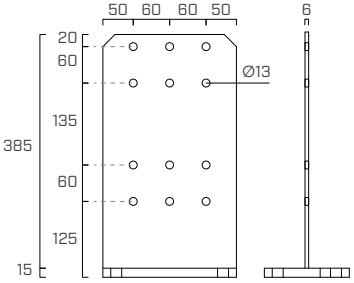
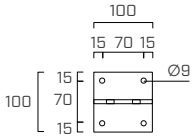
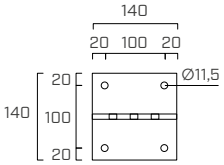
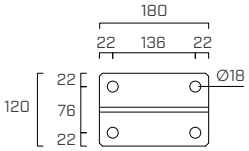
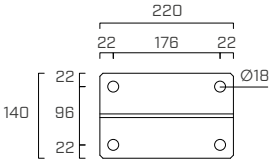


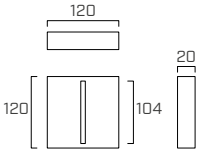




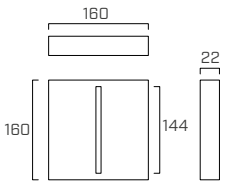




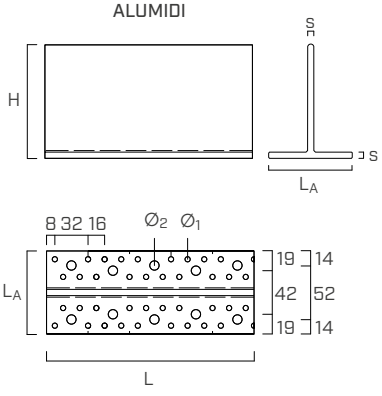
F70100LIFT



F70140LIFT



ALUMIDI

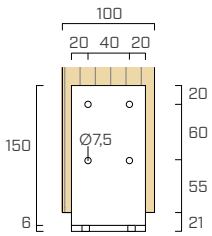


ALUMIDI			
thickness	**s**	[mm]	6
flange width	**L_A**	[mm]	80
height	**H**	[mm]	109,4
small flange-holes	**$Ø_1$**	[mm]	5,0
large flange-holes	**$Ø_2$**	[mm]	9,0

FASTENING CONFIGURATIONS

F70 WITH SBD SELF-DRILLING DOWELS

F7080



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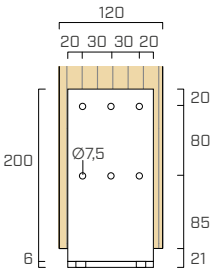

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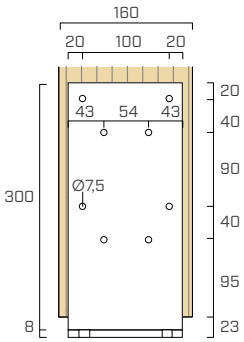

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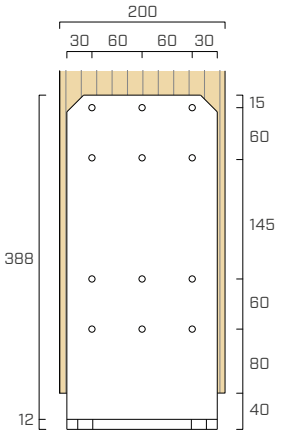
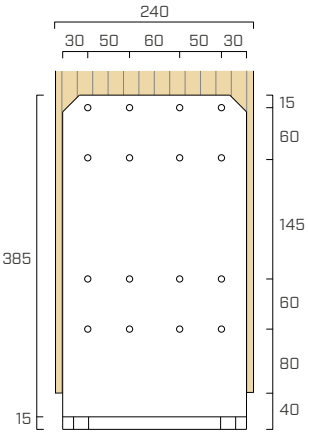
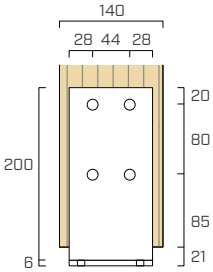


F70220



F70 WITH STA SMOOTH DOWELS OR BOLTS

F70100L



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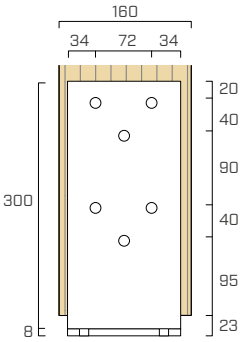

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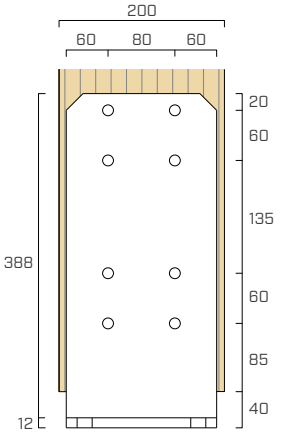

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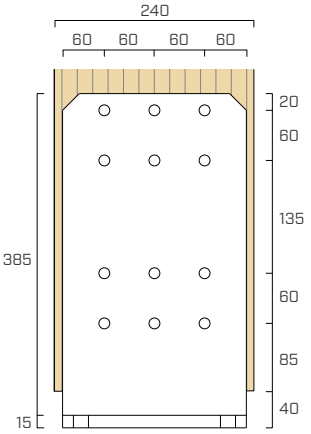
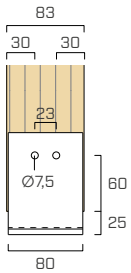
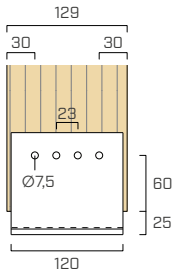


ALUMIDI WITH SBD SELF-DRILLING DOWELS

ALUMIDI80



ALUMIDI120



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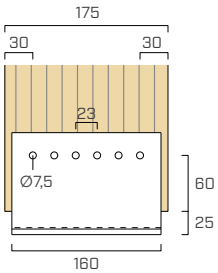

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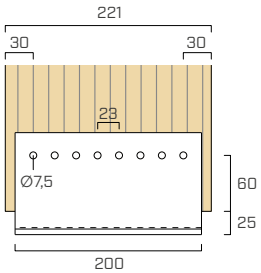

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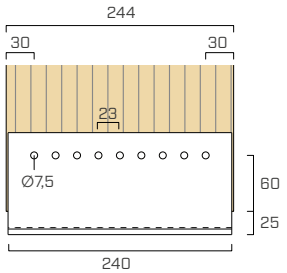
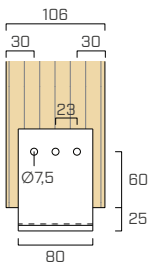
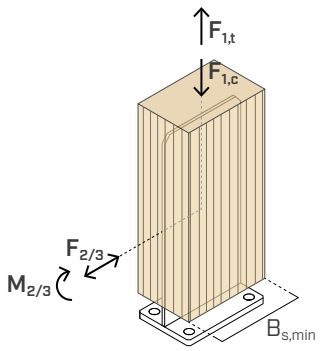
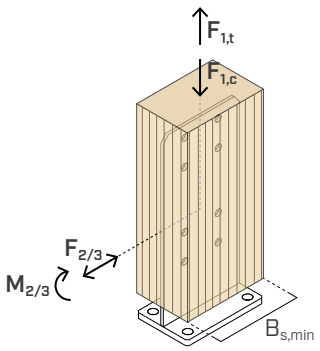




STRUCTURAL VALUES | F70





F70

CODE	fasteners for timber SBD Ø7,5(1)	column $B_{s,min}$	COMPRESSION			TENSION			SHEAR		MOMENT		
			$R_{1,c\ k\ timber}$	$R_{1,c\ k\ steel}$		$R_{1,t\ k\ timber}$	$R_{1,t\ k\ steel}$		$R_{2/3,t\ k\ steel}$		$M_{2/3\ k\ timber}$	$M_{2/3\ k\ steel}$	
	pcs - Ø x L [mm]	[mm]	[kN]	[kN]	γ_{steel}	[kN]	[kN]	γ_{steel}	[kN]	γ_{steel}	[kNm]	[kNm]	γ_{steel}
F7080	4-Ø7,5x75	100x100	**29,6**	**32,7**	γ_{M1}	**17,9**	**18,3**	γ_{M0}	**3,4**	γ_{M0}	**1,1**	**0,5**	γ_{M0}
F70100	6-Ø7,5x95	120x120	**59,7**	**67,8**		**59,7**	**15,7**		**3,8**		**2,0**	**2,0**	
F70140	8-Ø7,5x115	160x160	**94,8**	**103,0**		**94,8**	**25,7**		**6,5**		**4,2**	**3,5**	
F70180	12-Ø7,5x155	160x200	**130,0**	**246,0**		**130,0**	**172,0**		**25,9**		**11,3**	**6,5**	
F70220	16-Ø7,5x175	200x240	**190,0**	**307,0**		**190,0**	**237,0**		**45,1**		**17,2**	**11,4**	

F70 L

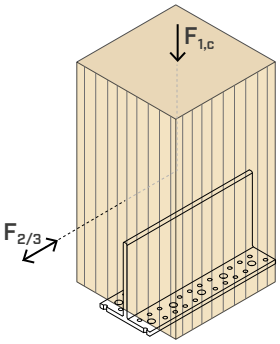
CODE	fasteners for timber STA Ø12(2)	column $B_{s,min}$	COMPRESSION			TENSION			SHEAR		MOMENT		
			$R_{1,c\ k\ timber}$	$R_{1,c\ k\ steel}$		$R_{1,t\ k\ timber}$	$R_{1,t\ k\ steel}$		$R_{2/3,t\ k\ steel}$		$M_{2/3\ k\ timber}$	$M_{2/3\ k\ steel}$	
	pcs - Ø x L [mm]	[mm]	[kN]	[kN]	γ_{steel}	[kN]	[kN]	γ_{steel}	[kN]	γ_{steel}	[kNm]	[kNm]	γ_{steel}
F70100L	4-Ø12x120	140x140	**55,7**	**67,8**	γ_{M1}	**55,7**	**15,7**	γ_{M0}	**3,8**	γ_{M0}	**2,5**	**2,0**	γ_{M0}
F70140L	6-Ø12x140	160x160	**104,0**	**103,0**		**104,0**	**25,7**		**6,2**		**4,9**	**3,5**	
F70180L	8-Ø12x160	160x200	**115,0**	**246,0**		**115,0**	**172,0**		**25,9**		**10,6**	**6,5**	
F70220L	12-Ø12x180	200x240	**173,0**	**307,0**		**173,0**	**237,0**		**45,1**		**18,0**	**11,4**	

STIFFNESS

CODE	fasteners for timber	configuration	$K_{2/3,ser}$
		pcs - Ø [mm]	[kNm/rad]
F70100	SBD	6 - Ø7,5	60
F70140		8 - Ø7,5	190
F70180		12 - Ø7,5	640
F70220		16 - Ø7,5	900
F70100L	STA	4 - Ø12	50
F70140L		6 - Ø12	190
F70180L		8 - Ø12	580
F70220L		12 - Ø12	700

NOTES and **GENERAL PRINCIPLES** see page 474.

STRUCTURAL VALUES | ALUMIDI



				COMPRESSION
CODE	L	fasteners for timber SBD Ø7,5[1]	column $B_{s,min}$	$R_{1,c\,k}$
	[mm]	pcs - Ø x L [mm]	[mm]	[kN]
ALUMIDI80	80	2-Ø7,5x75	83	**16,4**
ALUMIDI80	80	3-Ø7,5x95	106	**27,5**
ALUMIDI120	120	4-Ø7,5x115	129	**43,9**
ALUMIDI160	160	6-Ø7,5x155	175	**72,1**
ALUMIDI200	200	8-Ø7,5x195	221	**110,9**
ALUMIDI240	240	9-Ø7,5x235	244	**160,0**

				SHEAR
CODE	L	fasteners for timber SBD Ø7,5[1]	column $B_{s,min}$	$R_{2/3\,k}$
	[mm]	pcs - Ø x L [mm]	[mm]	[kN]
ALUMIDI80	80	2-Ø7,5x75	83	**11,6**
ALUMIDI80	80	3-Ø7,5x95	106	**21,1**
ALUMIDI120	120	4-Ø7,5x115	129	**33,1**
ALUMIDI160	160	5-Ø7,5x155	175	**46,3**
ALUMIDI200	200	7-Ø7,5x195	221	**74,4**
ALUMIDI240	240	8-Ø7,5x235	244	**96,2**

NOTES

[1] SBD self-drilling dowels Ø7,5:
- L = 75 mm: M_{yk} = 42000 Nmm;
- L ≥ 95mm: M_{yk} = 75000 Nmm.

[2] STA smooth dowels Ø12, M_{yk} = 69100 Nmm. The strength values are also valid in case of alternative fastening using M12 bolts according to ETA-10/0422.

GENERAL PRINCIPLES

- Characteristic values are consistent with EN 1995-1-1:2014, in accordance with ETA-10/0422 (F70) and ETA-09/0361 (ALUMIDI).
- Design values can be obtained from characteristic values as follows:

$$R_{d,F70} = min\begin{cases}\frac{R_{i,k\ timber} \cdot k_{mod}}{\gamma_{MC}} \\ \frac{R_{i,k\ steel}}{\gamma_{Mi}}\end{cases} \qquad R_{i,d\ ALUMIDI} = \frac{R_{i,k} \cdot k_{mod}}{\gamma_{MC}}$$

  The coefficients k_{mod}, γ_M and γ_{Mi} should be taken according to the current regulations used for the calculation.
- The strength values indicated in the table are valid in compliance with the fasteners positioning and the timber column according to the configurations indicated.
- Resistance values for the fastening system are valid for the calculation examples shown in the table. In ALUMIDI, the distance value $a_{3,c}$ = 60 mm is valid if the following stress condition is met: $F_{2/3} \leq F_{1,c}$.
- In ALUMIDI, install the anchors 2 by 2 starting from the top. Consider a minimum number of 4 anchors.
- In the ALUMIDI, the values provided are calculated with a 8 mm thick routing in the timber, while in the F70s, a routing of s + 2 mm was considered (where s refers to the thickness of the blade of the post base).
- The moment and shear strength values are calculated individually not taking into account the stabilizing contributions, if any, deriving from the compressive stress that influence the overall strength of the connection. In case of combined loading the verification must be carried out separately. Refer to ETA-10/0422 (F70) and ETA-09/0361 (ALUMIDI).
- For the calculation process a timber characteristic density ρ_k = 350 kg/m^3 has been considered.
- Dimensioning and verification of timber and concrete elements must be carried out separately.

INTELLECTUAL PROPERTY

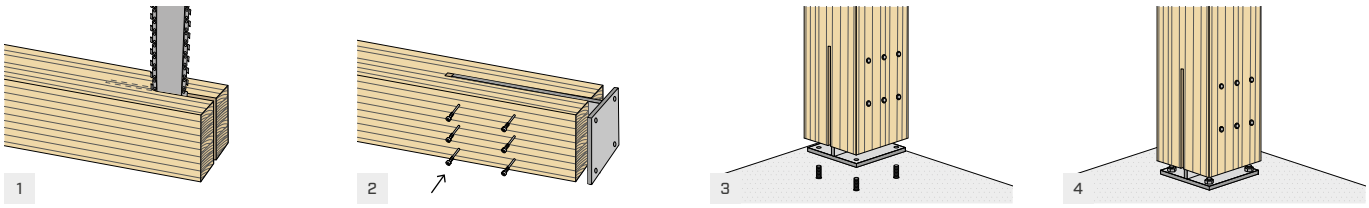
- Some models of F70 post bases are protected by the following Registered Community Designs:
  - RCD 015032190-0014;
  - RCD 015032190-0015.

UK CONSTRUCTION PRODUCT EVALUATION

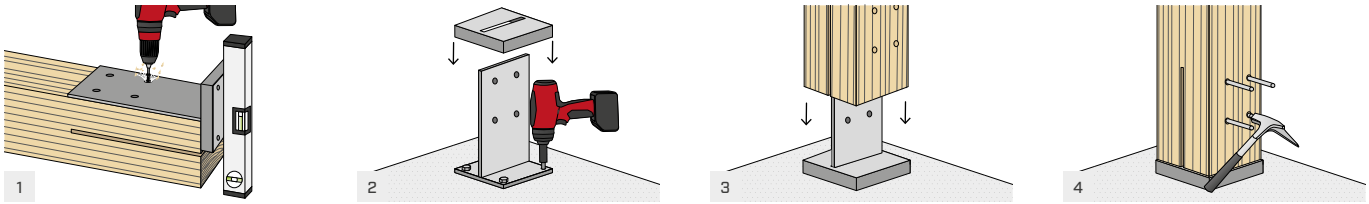
- UKTA-0836-22/6374.

MOUNTING

F70 or ALUMIDI with SBD self-drilling dowels



F70 L with STA dowels



ASSEMBLY WITH POSSIBILITY OF ADJUSTMENT

As an alternative to classic positioning, it is possible to assemble the product by levelling it as follows: