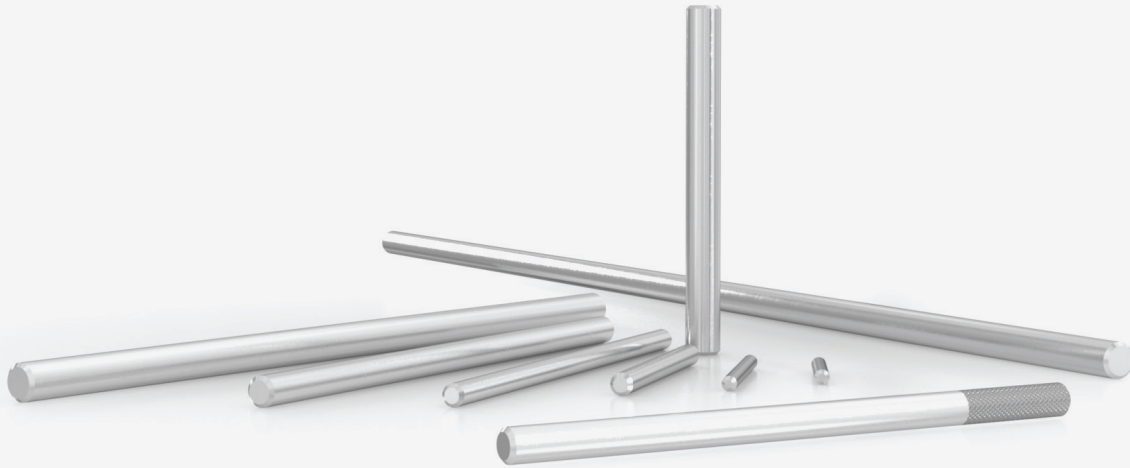


## Smooth dowel

Bright zinc plated carbon steel



### FIELD OF USE

Timber-to-timber and steel to timber shear connections

- solid timber
- glulam (Glued Laminated Timber)
- XLAM (Cross Laminated Timber)
- LVL (Laminated Veneer Lumber)
- wood-based panels

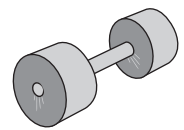
### CE MARKING

Cylindrical metal fastener with CE marking according to EN14592



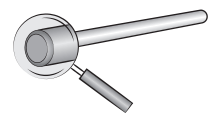
### STEEL

S355 steel grade to provide higher shear strength to the standard sizes used in structural design (Ø16 and Ø20)



### GEOMETRY

Tapered end for an easier insertion of the fastener into the predrilled timber element. Available in 1,0 m long version



### SPECIAL VERSION

Available upon request in high bond steel and geometry designed to avoid pull-out when used in seismic areas



## CALCULATION ACCURACY

CE marking guarantees usage suitability. The designer can always be certain to perform calculations based on the correct parameters, according to the reference Standards (Eurocode or others)

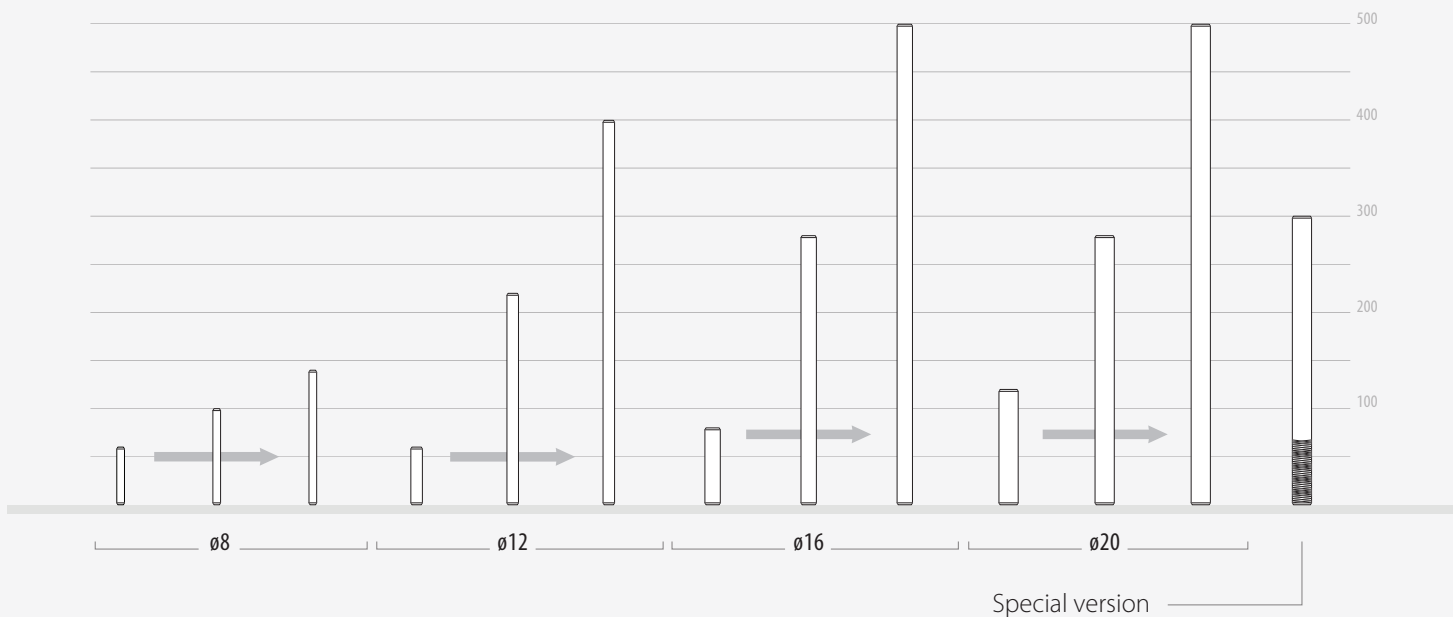
## STEEL-TO-TIMBER

Ideal for being used with ALU brackets in realizing hidden joints. When used with wood taps it meets the fire safety requirements and provides a rewarding aesthetic appearance.



## PRODUCT RANGE

8,0mm and 12,0mm diameters are available with S235 steel grade. 16,0mm e 20,0mm diameters are available with S355 steel grade. Available in 1,0m long pieces to be cut onsite according to the worksite needs. Available upon request in high bond steel and geometry designed to avoid pull-out when used in seismic areas.



# CODES AND DIMENSIONS

STA



d [mm]	code	L [mm]	steel grade	pcs/box
8	STA860B	60	S235	200
	STA870B	70	S235	200
	STA880B	80	S235	200
	STA890B	90	S235	200
	STA8100B	100	S235	200
	STA8110B	110	S235	200
	STA8120B	120	S235	200
	STA8140B	140	S235	200
12	STA1260B	60	S235	100
	STA1270B	70	S235	100
	STA1280B	80	S235	100
	STA1290B	90	S235	100
	STA12100B	100	S235	100
	STA12110B	110	S235	100
	STA12120B	120	S235	100
	STA12130B	130	S235	100
	STA12140B	140	S235	100
	STA12150B	150	S235	100
	STA12160B	160	S235	100
	STA12170B	170	S235	100
	STA12180B	180	S235	100
	STA12200B	200	S235	100
	STA12220B	220	S235	100
	STA12240B	240	S235	100
	STA12260B	260	S235	100
	STA12280B	280	S235	100
	STA12320B	320	S235	100
	STA12340B	340	S235	100
STA12360B	360	S235	100	
STA12400B	400	S235	100	
12	STA121000B	1000	S235	1
16	STA1680B	80	S355	50
	STA16100B	100	S355	50
	STA16110B	110	S355	50
	STA16120B	120	S355	50
	STA16130B	130	S355	50
	STA16140B	140	S355	50
	STA16150B	150	S355	50
	STA16160B	160	S355	50
	STA16170B	170	S355	50
	STA16180B	180	S355	50
	STA16190B	190	S355	50
	STA16200B	200	S355	50
	STA16220B	220	S355	50

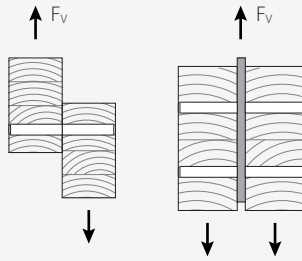
d [mm]	code	L [mm]	steel grade	pcs/box
16	STA16240B	240	S355	50
	STA16260B	260	S355	50
	STA16280B	280	S355	50
	STA16300B	300	S355	50
	STA16320B	320	S355	50
	STA16340B	340	S355	50
	STA16360B	360	S355	50
	STA16380B	380	S355	50
	STA16400B	400	S355	50
	STA16420B	420	S355	50
	STA16440B	440	S355	50
	STA16460B	460	S355	50
	STA16480B	480	S355	50
	STA16500B	500	S355	50
16	STA161000B	1000	S355	1
20	STA20120B	120	S355	25
	STA20140B	140	S355	25
	STA20150B	150	S355	25
	STA20160B	160	S355	25
	STA20180B	180	S355	25
	STA20190B	190	S355	25
	STA20200B	200	S355	25
	STA20220B	220	S355	25
	STA20240B	240	S355	25
	STA20260B	260	S355	25
	STA20280B	280	S355	25
	STA20300B	300	S355	25
	STA20320B	320	S355	25
	STA20340B	340	S355	25
	STA20360B	360	S355	25
	STA20380B	380	S355	25
STA20400B	400	S355	25	
STA20420B	420	S355	25	
STA20440B	440	S355	25	
STA20460B	460	S355	25	
STA20480B	480	S355	25	
STA20500B	500	S355	25	
20	STA201000B	1000	S355	1

STAS



Available upon request: high bond steel and shaped to avoid pull-out when used in seismic areas (es. STAS16200).

## EXTERNAL LOADS



## MATERIAL AND DURABILITY

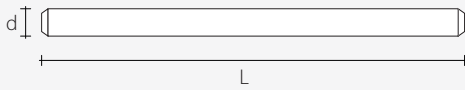
STA Ø8 - Ø12: S235 bright zinc plated carbon steel.  
 STA Ø16 - Ø20: S355 bright zinc plated carbon steel.  
 To be used in Service class 1 and 2 (EN 1995:2008).

## USAGE FIELD

Timber to timber joints  
 Timber-steel-timber joints



## GEOMETRY AND MECHANICAL PROPERTIES



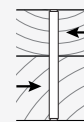
Nominal diameter	d	[mm]	8	12	16	20
Length	L	[mm]	60 ÷ 140	60 ÷ 400	80 ÷ 500	120 ÷ 500
	<b>steel grade</b>		<b>S235</b>	<b>S235</b>	<b>S355</b>	<b>S355</b>
Material	$f_{u,k,MIN}$	[N/mm <sup>2</sup> ]	360	360	460	460
	$f_{y,k,MIN}$	[N/mm <sup>2</sup> ]	235	235	355	355
Characteristic value for the yield moment	$M_{y,k}$	[Nmm]	24100	69100	191000	340000

Mechanical parameters according to CE mark and in accordance with EN 14592

## INSTALLATION - MINIMUM DISTANCES FOR DOWELS LOADED IN SHEAR

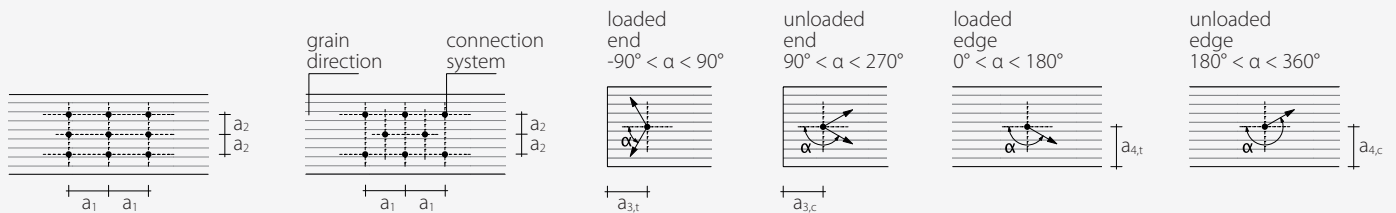


Load angle to the grain  $\alpha = 0^\circ$



Load angle to the grain  $\alpha = 90^\circ$

	8	12	16	20	8	12	16	20
$a_1$ [mm]	40	60	80	100	24	36	48	60
$a_2$ [mm]	24	36	48	60	24	36	48	60
$a_{3,t}$ [mm]	80	84	112	140	80	84	112	140
$a_{3,c}$ [mm]	40	42	56	70	80	84	112	140
$a_{4,t}$ [mm]	24	36	48	60	32	48	64	80
$a_{4,c}$ [mm]	24	36	48	60	24	36	48	60



## NOTES

- Minimum distances according to EN 1995:2014
- Minimum distances valid both for timber-to-timber and for steel-to-timber joints