WKR DOUBLE

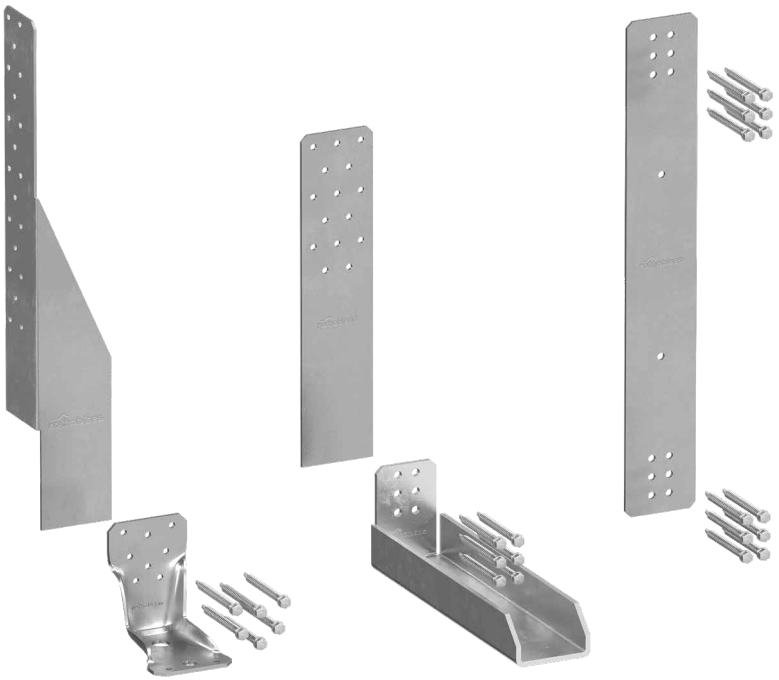
TENSILE ANGLE BRACKET FOR PREFABRICATED WALLS

PREFABRICATION
The wall plate allows for pre-assembly in the factory, with the possibility of finishes prefabrication. Fastening on site is carried out using the base angle bracket or inter-storey plate and self-drilling metal screws.

TOLERANCES
On-site management is quick and easy. The numerous models of the base angle bracket allow the wall to be installed on a bedding layer, on a base plate or on a reinforced concrete kerb.

PRE-INSTALLATION
The base angle brackets can be pre-installed on the reinforced concrete foundation. Slotted holes for installing the anchors allow management of installation tolerances.

USA, Canada and more design values available online.



VIDEO

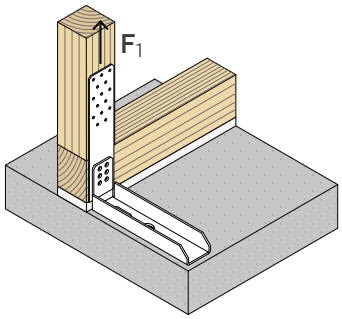
SERVICE CLASS SC1 SC2

MATERIAL

S355 Fe/Zn12c **BASE ANGLE-BRACKETS**: carbon steel S355 + Fe/Zn12c

S350 Z275 **OTHER COMPONENTS**: carbon steel S350GD+Z275

EXTERNAL LOADS



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

FIELDS OF USE

Tension joints for prefabricated walls.
Optimised for fastening frame walls.
Timber-to-timber and timber-to-concrete configurations.

Can be applied to:
- solid timber and glulam
- timber frame
- CLT and LVL panels

TIMBER-TO-CONCRETE TOLERANCE

Thanks to the slotted hole for installing the anchor, it is possible to pre-install the bottom plate and subsequently install the walls. The slot allows tolerance management.

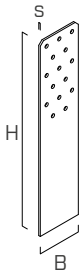
TIMBER-TO-TIMBER

The inter-storey plate allows to create the wall-to-wall connection between one storey and the next.

CODES AND DIMENSIONS

WALL PLATE

1



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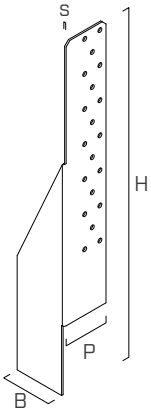

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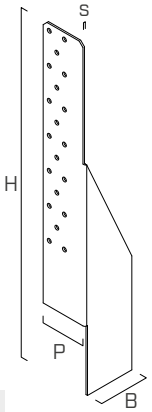


4

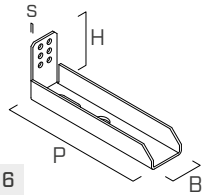
	CODE	B [mm]	P [mm]	H [mm]	s [mm]	*B [in]*	*P [in]*	*H [in]*	*s [in]*	n_V Ø5 *n_V Ø0.20* [pcs]			pcs
1	**WKRD40**	40	-	275	2	*1 9/16*	*-*	*10 7/8*	*0.08*	8	●	-	10
2	**WKRD60**	60	-	265	2,5	*2 3/8*	*-*	*10 7/16*	*0.10*	15	●	-	10
3	**WKRD60L**	62	55	403	2	*2 7/16*	*2 3/16*	*15 7/8*	*0.08*	20	●	-	10
4	**WKRD60R**	62	55	403	2	*2 7/16*	*2 3/16*	*15 7/8*	*0.08*	20	●	-	10

INTER-STOREY PLATE

5

	CODE	B [mm]	H [mm]	s [mm]	*B [in]*	*H [in]*	*s [in]*	n_V Ø6 *n_V Ø0.24* [pcs]	pcs
5	**WKRD60T**	60	410	2,5	*2 3/8*	*16 1/8*	*0.10*	12	10

BASE ANGLE BRACKET



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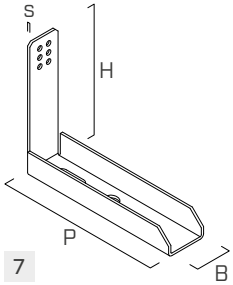
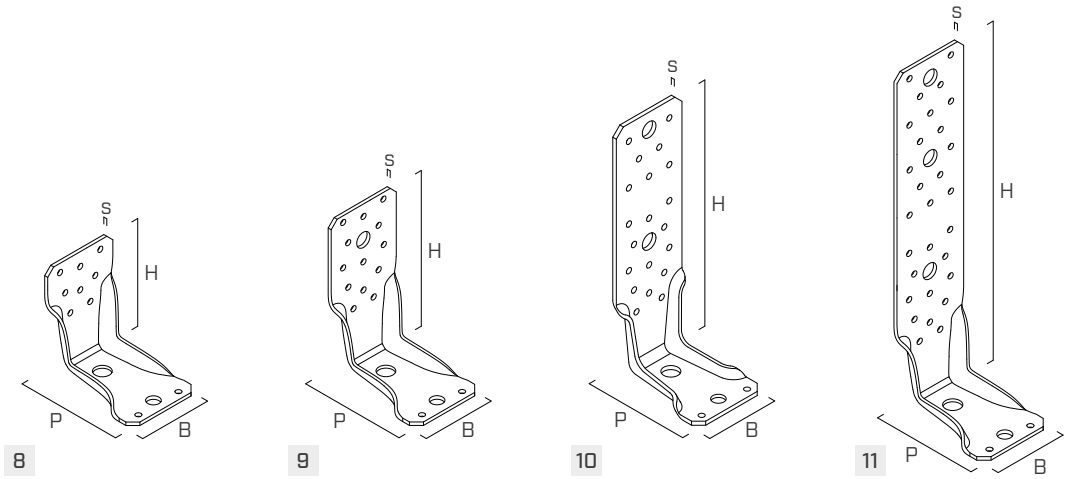


7

	CODE	B [mm]	P [mm]	H [mm]	s [mm]	*B [in]*	*P [in]*	*H [in]*	*s [in]*	n_V Ø6 *n_V Ø0.24* [pcs]	n_H Ø23 *n_H Ø0.91* [pcs]	n_H - $Ø_H$ [pcs]			pcs
6	**WKRD80C**	62	255	80	4	*2 7/16*	*10 1/16*	*3 1/8*	*0.16*	6	1	1 - Ø18 x 30 *1 - Ø0.71 x 1.18*	-	●	10
7	**WKRD180C**	62	255	180	4	*2 7/16*	*10 1/16*	*7 1/8*	*0.16*	6	1	1 - Ø18 x 30 *1 - Ø0.71 x 1.18*	-	●	10

BASE ANGLE BRACKET

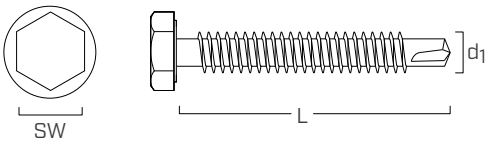


8 9 10 11

	CODE	B [mm]	P [mm]	H [mm]	s [mm]	*B [in]*	*P [in]*	*H [in]*	*s [in]*	n_V Ø5 *n_V Ø0.20* [pcs]	n_H Ø14 *n_H Ø0.56* [pcs]			pcs
8	**WKR9530**	65	85	95	3	*2 9/16*	*3 3/8*	*3 3/4*	*3*	8	1	-	●	25
9	**WKR13535**	65	85	135	3,5	*2 9/16*	*3 3/8*	*5 5/16*	*3.5*	13	1	-	●	25
10	**WKR21535**	65	85	215	3,5	*2 9/16*	*3 3/8*	*8 7/16*	*3.5*	20	1	-	●	25
11	**WKR28535**	65	85	287	3,5	*2 9/16*	*3 3/8*	*11 5/16*	*3.5*	29	1	-	●	25

SELF-DRILLING SCREW FOR STEEL

CODE	d_1 [mm]	SW [mm]	L [mm]	*d_1 [in]*	*L [in]*	pcs
WKRDSCREW	6,3	SW 10	50	*0.25*	*1 15/16*	100



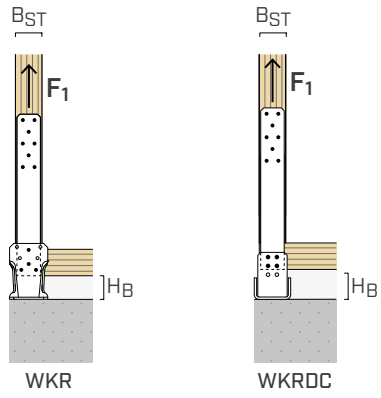
FASTENERS

type	description		d [mm]	support	page
LBA	high bond nail		4		570
LBS	round head screw		5		571
AB1	CE1 expansion anchor		12-16		536
SKR	screw-in anchor		M12-M16		528
VIN-FIX	vinyl ester chemical anchor		M12-M16-M20		545
HYB-FIX	epoxy chemical anchor		M12-M16-M20		552
EPO-FIX	hybrid chemical anchor		M12-M16-M20		557

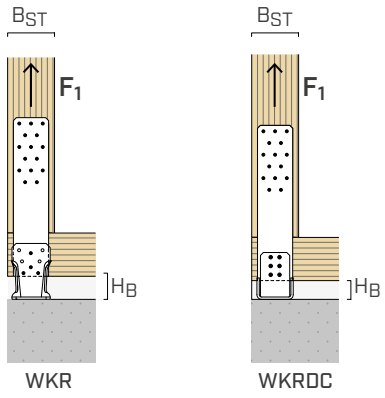
FASTENING PATTERNS AND STRUCTURAL VALUES F_1

WALL-ANGLE BRACKET BASE PLATE COUPLING

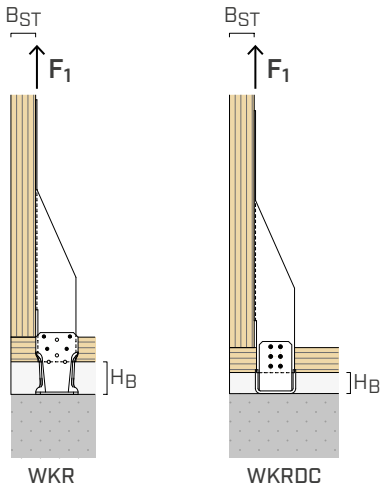
WKRD40



WKRD60



WKRD60L/R



wall plate	basic angle bracket	fasteners		H_B		$B_{ST,\,min}$	$R_{1,k,max}$ (*)
		steel-to-timber LBA Ø4-LBS Ø5 [pcs]	steel-to-steel WKRDSCREW Ø6,3 [pcs]	min [mm]	max [mm]	[mm]	[kN]
WKRD40	WKR9530	8	4	0	40	45	20,0
	WKR21535	8	4	40	114		
	WKR28535	8	4	112	210		
	WKRD80C	8	4	0	47		
	WKRD180C	8	4	0	147		
WKRD60	WKR9530	15	4	0	40	80	26,0
	WKR13535	15	4	0	74		
	WKR21535	15	4	70	170		
	WKR28535	15	4	142	230		
	WKRD80C	15	6	0	32		40,0
	WKRD180C	15	6	30	132		
WKRD60L WKRD60R	WKR9530	20	4	0	40	38	26,0
	WKR13535	20	4	0	74		
	WKR21535	20	4	70	150		
	WKR28535	20	4	120	210		
	WKRD80C	20	6	0	32		
	WKRD180C	20	6	20	132		

(*) $R_{1,k,max}$ is a preliminary strength value. See www.rothoblaas.com for the complete technical data sheet.

GENERAL PRINCIPLES

- Characteristic values according to EN 1995:2014.
- Design values can be obtained from characteristic values as follows:

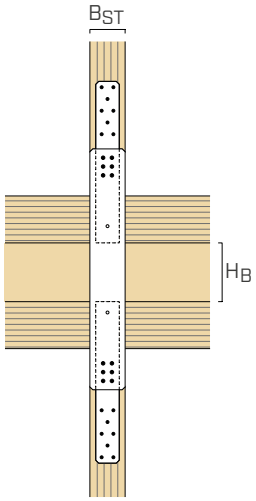
$$R_d = \frac{R_{k\ timber} \cdot k_{mod}}{\gamma_M}$$

The coefficients k_{mod}, yM should be taken according to the current regulations used for the calculation.

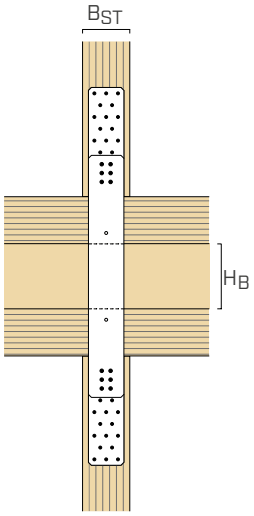
- A timber density of ρ_k = 350 kg/m^3 was considered for the calculation process.
- Dimensioning and verification of the timber elements must be carried out separately.

PLATE COUPLING FOR INTER-STOREY WALL-PLATE

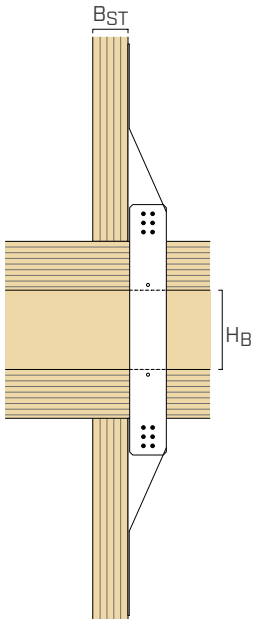
WKRD40 - WKRD60T



WKRD60 - WKRD60T



WKRD60L/R - WKRD60T



wall plate	inter-storey plate	fasteners		H_B		$B_{ST,\,min}$	$R_{1,k,max}$ (*)
		steel-to-timber LBA Ø4-LBS Ø5	steel-to-steel WKRDSCREW Ø6,3	min	max		
		[pcs]	[pcs]	[mm]	[mm]	[mm]	[kN]
WKRD40	**WKRD60T**	8+8	4+4	50	320	45	**20,0**
WKRD60	**WKRD60T**	15+15	6+6	110	300	80	**40,0**
WKRD60L WKRD60R	**WKRD60T**	20+20	6+6	120	300	38	**26,0**

(*) $R_{1,k,max}$ is a preliminary strength value. See www.rothoblaas.com for the complete technical data sheet.

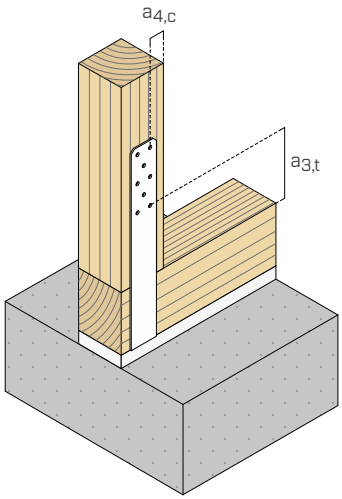
INSTALLATION

MINIMUM DISTANCES

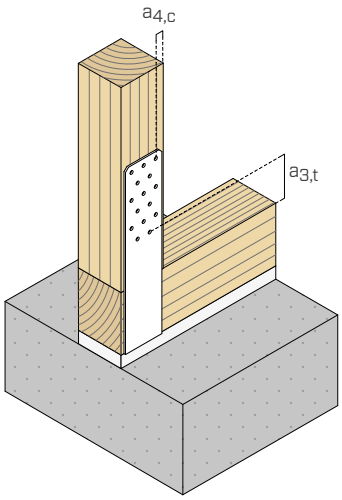
TIMBER			nails LBA Ø4	screws LBS Ø5
C/GL	$a_{4,c}$	[mm]	≥ 12	≥ 25
	$a_{3,t}$	[mm]	≥ 60	≥ 75

C/GL: minimum distances for solid timber or glulam consistent with EN 1995:2014 according to ETA considering a timber density $\rho_k \leq 420$ kg/m^3.

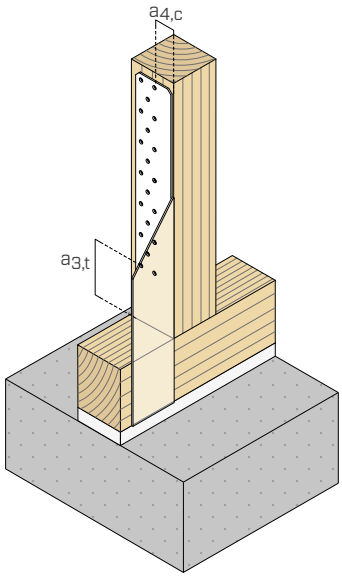
WKRD40



WKRD60



WKRD60L/R



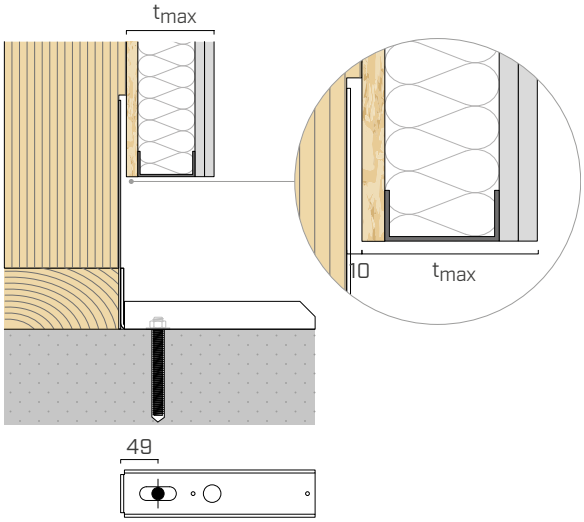
INSTALLATION

INSTALLATION OF WKRD80C AND WKRD180C BASE ANGLE BRACKETS

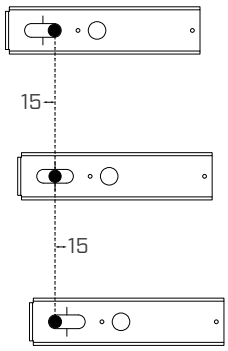
Frame walls can be supplied with different levels of prefabrication. Depending on the presence and thickness of the interior finish, different installation methods are possible for the WKRD80C and WKRD180C base angle brackets, which provide slotted holes at the floor connection.

INSTALLATION OF BASE ANGLE BRACKETS PRIOR TO WALL INSTALLATION

The angle brackets can be pre-installed on the foundation in order to speed up the installation and fastening of the walls. In this configuration, it is advisable to install the anchor in the slotted hole, which then allows any installation tolerances to be compensated for.



Example: pre-installed M16 anchor in central position for wall with prefabricated internal finish (without thickness limitation).

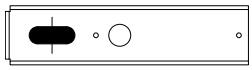


The presence of the slotted hole makes it possible to compensate for an installation tolerance of ± 15 mm after wall installation. After installation, simply apply the tightening torque required to fully anchor the connection to the ground.

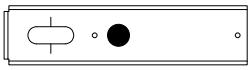
INSTALLATION OF BASE ANGLE BRACKETS AFTER WALL INSTALLATION

The angle brackets can be installed after the walls have been installed. In this case, there are two possible ways of fastening them to the ground:

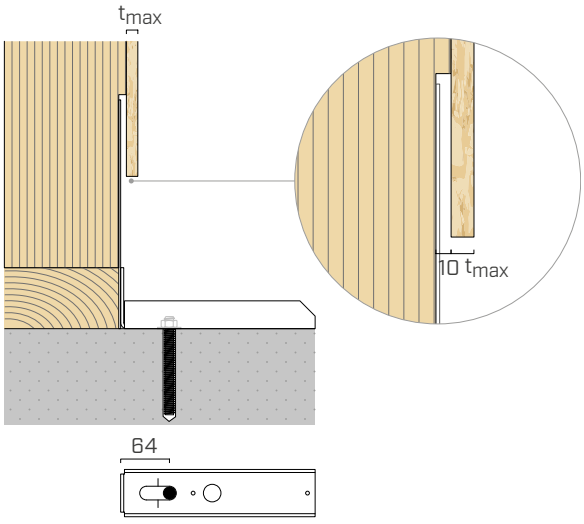
anchor choice		
t_{max} [mm]	IN	OUT
20	M12-M16	M20
80	-	M20



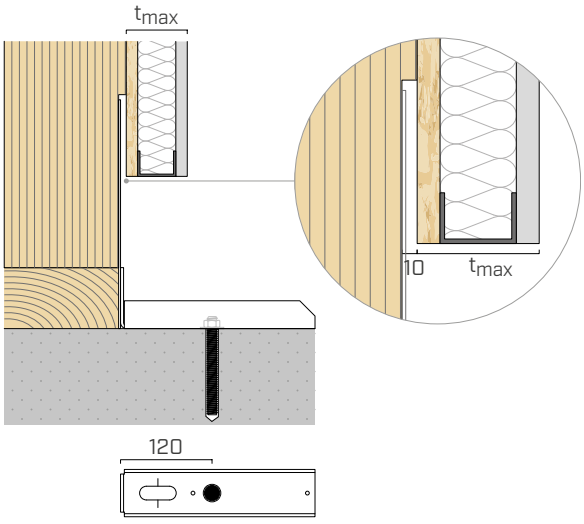
anchor positioned in the internal hole **(IN)**



anchor positioned in the outer hole **(OUT)**



Example: post-installed M16 anchor for prefabricated wall with single OSB panel.



Example: post-installed M20 anchor for prefabricated wall with internal counter wall.