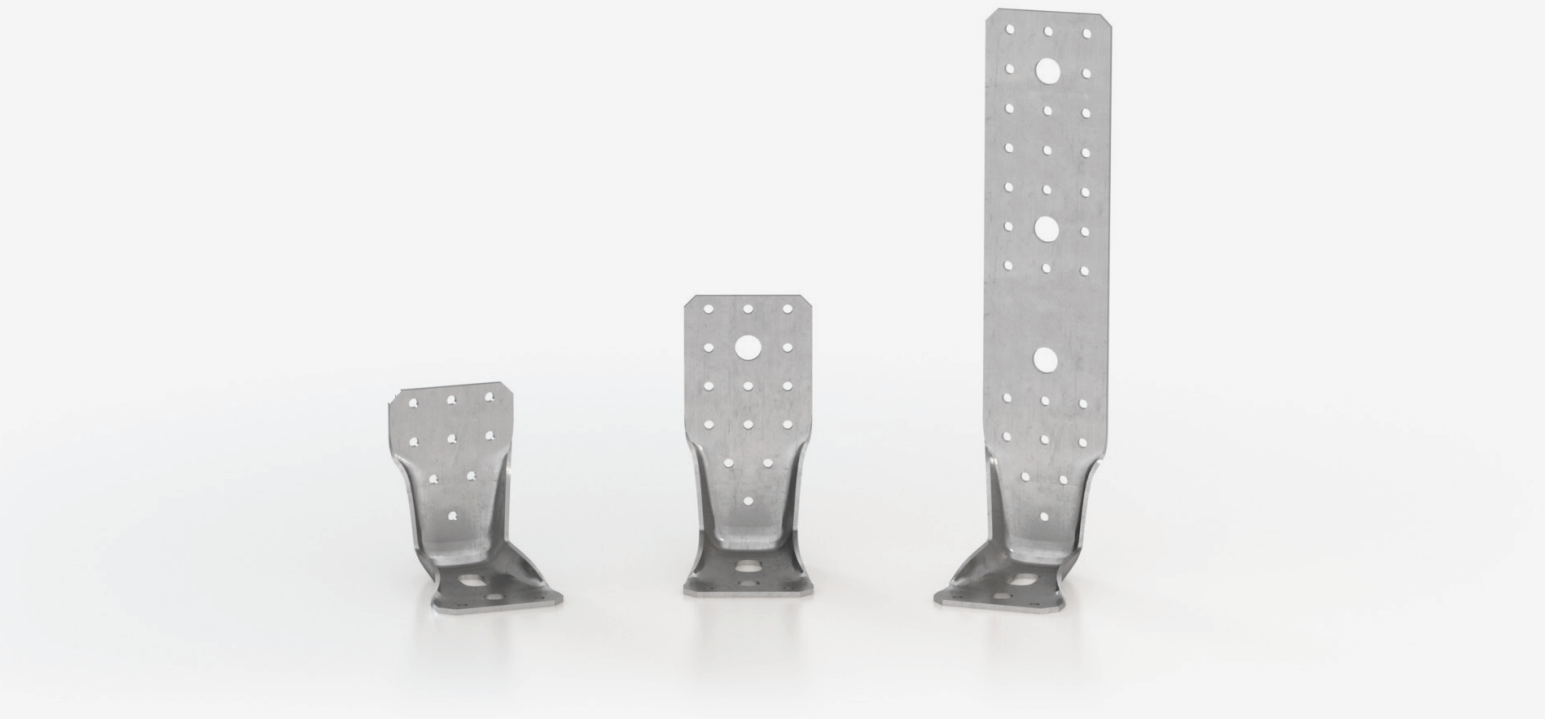
WKR

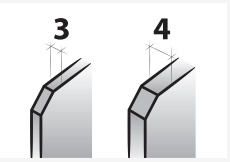
Reinforced angle brackets for buildings

Bright zinc plated carbon steel three-dimensional perforated plate



TWO THICKNESSES

Available in 3 different sizes, respectively of 4 mm and 3 mm thicknesses, to cope with any possible need

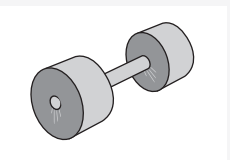


CERTIFIED STRENGTH

Simple and effective system, ideal for structural joints requiring tensile strength or rocking capacity

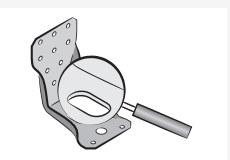
GEOMETRY

Thick and with a reinforced base to provide high tensile strength and rocking capacity



SLOTTED HOLE

Fastening to the ground through screws or anchors. The slotted hole on the base allows to select different fixing solutions.



FIELD OF USE

Timber-to-timber
and timber-to-concrete joints

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

REINFORCEMENT

The particular shape of the "bracket foot" ensures improved tensile strength and rocking capacity. The angle bracket has also a supporting function as it contributes to maintain the wall in the vertical position

THICKNESS

The reduced size of the 3 mm thick version optimizes weight and price of the angle bracket, providing good strength values

TENSILE LOADS

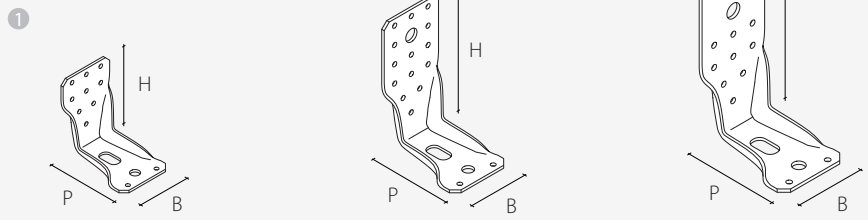
Ideal for the most common joints and for all applications that require "normal" values of tensile strength

CODES AND DIMENSIONS

WKR 4 mm

4 mm thickness

S250 GALV

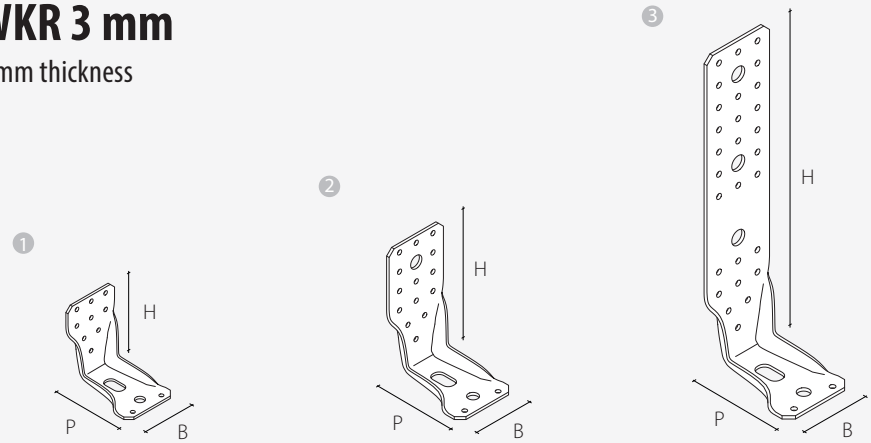


code		type	B [mm]	P [mm]	H [mm]	s [mm]	n Ø5 [pcs]	n Ø11 [pcs]	n Ø13,5 [pcs]	n Ø13,5 x 24,5 [pcs]			pcs/box
1	PF101180	WKR095	65	88	95	4,0	11	1	-	1	•	•	25
2	PF101185	WKR135	65	88	135	4,0	16	1	1	1	•	•	25
3	PF101190	WKR285	65	88	285	4,0	30	1	3	1	•	•	25

WKR 3 mm

3 mm thickness

S250 GALV

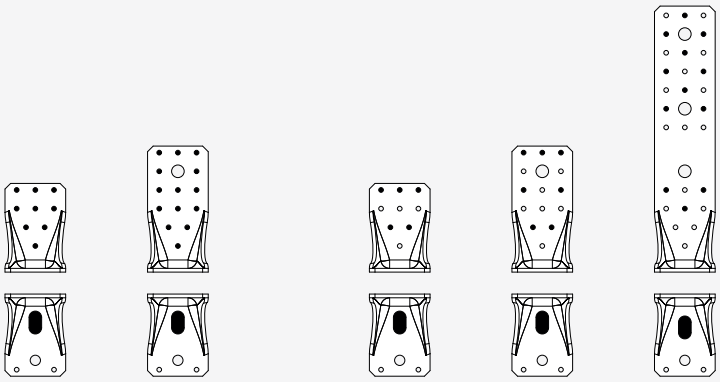


code		type	B [mm]	P [mm]	H [mm]	s [mm]	n Ø5 [pcs]	n Ø11 [pcs]	n Ø13,5 [pcs]	n Ø13,5 x 24,5 [pcs]			pcs/box
1	WKR09530	WKR09530	65	88	95	3,0	11	1	-	1	•	•	25
2	WKR13530	WKR13530	65	88	135	3,0	16	1	1	1	•	•	25
3	WKR28530	WKR28530	65	88	285	3,0	30	1	3	1	•	•	25

ADDITIONAL PRODUCTS - FASTENERS

type	description	d_1 [mm]	support	p.
LBA	anker nail	4		364
LBS	screw for plates	5		364
VGS	full threaded screw	11		369
SKR	screwed anchor	10		328
EPOPLUS	chemical anchor	M10 - M12		354

STATIC VALUES - TIMBER-TO-CONCRETE JOINT



fixing on JOIST

fixing on COLUMN

MATERIAL AND DURABILITY

Z275 bright zinc plated S250 GD carbon steel.
To be used in Service class 1 and 2
(EN 1995:2008).

WKR 4 mm

				CHARACTERISTIC VALUES						ADMISSIBLE VALUES	
				BEAM CONNECTION			COLUMN CONNECTION			BEAM CONNECTION	COLUMN CONNECTION
CODE	TYPE WKR	hole fixing Ø5			TENSION			TENSION		TENSION	TENSION
		type	Ø x L [mm]	n_v [pcs]	$R_{1,k}$ [kN]	Bolt$_1$ [1] $k_{t//}$	n_v [pcs]	$R_{1,k}$ [kN]	Bolt$_1$ [1] $k_{t//}$	N_{adm} [kg]	N_{adm} [kg]
PF101180	WKR095	nails LBA	Ø4,0 x 60	9	14,3	1,00	5	8,5	1,00	450	210
PF101185	WKR135	nails LBA	Ø4,0 x 60	14	20,6	1,00	7	16,9	1,00	710	430
PF101190	WKR285	nails LBA	Ø4,0 x 60	-	-	-	12	23,2	1,00	-	640

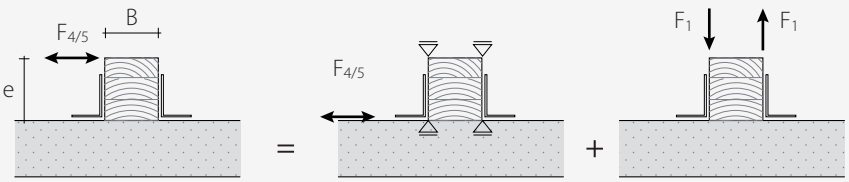
WKR 3 mm

				CHARACTERISTIC VALUES						ADMISSIBLE VALUES	
				BEAM CONNECTION			COLUMN CONNECTION			BEAM CONNECTION	COLUMN CONNECTION
CODE	TYPE WKR	hole fixing Ø5			TENSION			TENSION		TENSION	TENSION
		type	Ø x L [mm]	n_v [pcs]	$R_{1,k}$ [kN]	Bolt$_1$ [1] $k_{t//}$	n_v [pcs]	$R_{1,k}$ [kN]	Bolt$_1$ [1] $k_{t//}$	N_{adm} [kg]	N_{adm} [kg]
WKR09530	WKR09530	nails LBA	Ø4,0 x 60	9	11,1	1,00	5	8,5	1,00	348	210
WKR13530	WKR13530	nails LBA	Ø4,0 x 60	14	15,9	1,00	7	13,1	1,00	550	333
WKR28530	WKR28530	nails LBA	Ø4,0 x 60	-	-	-	12	17,9	1,00	-	496

STRENGTH $R_{4/5}$ - 2 ANGLE BRACKETS PER JOINT

The case with load direction $F_{4/5}$ can be treated as the combination of two different loading conditions as shown in the following sketch:

$$R_{4/5,k} = \frac{R_{1,k} \cdot e}{B}$$



The verification of the fixing to the concrete must be carried out separately and satisfy both the tensile and shear loading conditions.

For notes and general principles please see p. 216.