

WKCP

Flange head construction screw with TX drive

Diameters: $\varnothing 5$ mm | $\varnothing 6$ mm | $\varnothing 8$ mm | $\varnothing 10$ mm

Length range: from 40 to 600 mm



Flange head construction screw with TX drive for structural connections of wooden members, including solid, bonded and wood-based panels.



TX DRIVE



Zn
WHITE



Zn
YELLOW



EUROPEAN TECHNICAL
ASSESSMENT
ETA-18/0817

SCREW MATERIAL - Carbon steel

ANTI-CORROSION PROTECTION - Galvanized steel (white or yellow)

PRODUCT ADVANTAGES:



FLANGE HEAD - Flange head increases the bearing area and provides tight connection as well as resistance to prevent head pull-through.



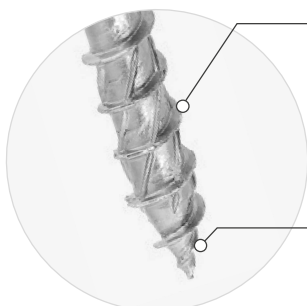
HIGH TORQUE - Allows screws to be installed without pre-drilling, even in hardwood substrates.



SHANK RIBS - Shank ribs reduces installation torque by reaming the hole.



WAX COATING - Wax coating applied during the production process significantly reduces the torque.



NEW CUTTING EDGE / SERRATED THREAD

New special design of cutting edge with added milling reduces screwing resistance by 20%. This helps to extend the life of batteries and power tools. Special cutting notches integrated on the thread cut wood fibres structure while screwing in.

DOUBLE THREAD

Additional recessed second thread improves remarkably the speed of timber penetration and reaction time of first grip into the wood.

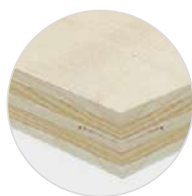
EXAMPLES OF APPLICATIONS:



SUBSTRATES



Solid timber

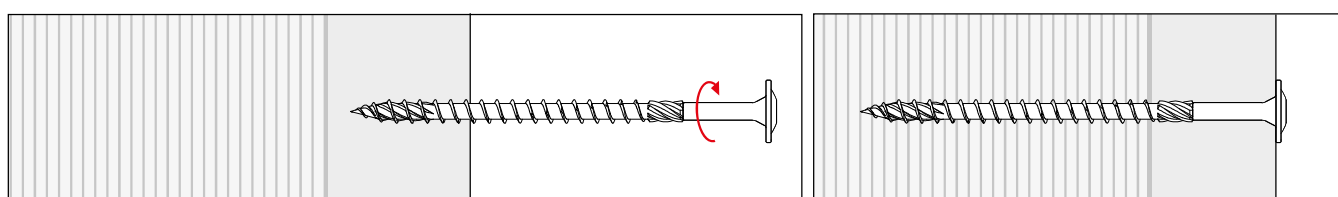


Glued laminated timber
CLT, KVH, BSH/GLT

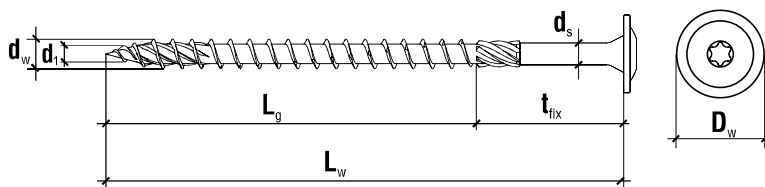


**Laminated Veneer
Lumber - LVL**

INSTALLATION INSTRUCTIONS (screw requires no pre-drilling)



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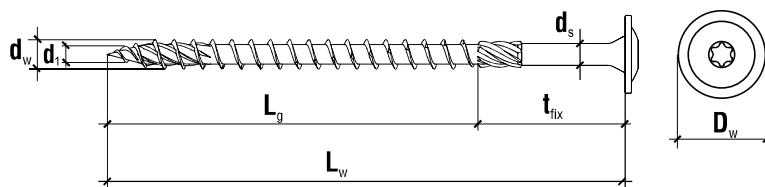
Codes and dimensions							
	Product code		Dimensions	Thread length	Max. usable length	Type of drive	Quantity
	Galvanized - white	Galvanized - yellow	$d_w \times L_w$ [mm]	L_g [mm]	t_{fix} [mm]	[-]	[pcs]
WKCP-5							
ø5	WKCP-05040-B	WKCP-05040	5x40	22	18	TX 25	500
	WKCP-05050-B	WKCP-05050	5x50	30	20	TX 25	300
	WKCP-05060-B	WKCP-05060	5x60	40	20	TX 25	200
	WKCP-05070-B	WKCP-05070	5x70	40	30	TX 25	200
	WKCP-05080-B	WKCP-05080	5x80	50	30	TX 25	200
	WKCP-05090-B	WKCP-05090	5x90	50	40	TX 25	200
	WKCP-05100-B	WKCP-05100	5x100	60	40	TX 25	200
	WKCP-05120-B	WKCP-05120	5x120	60	60	TX 25	200
WKCP-6							
ø6	WKCP-06050-B	WKCP-06050	6x50	30	20	TX 30	100
	WKCP-06060-B	WKCP-06060	6x60	30	30	TX 30	100
	WKCP-06070-B	WKCP-06070	6x70	40	30	TX 30	100
	WKCP-06080-B	WKCP-06080	6x80	50	30	TX 30	100
	WKCP-06090(100)-B	WKCP-06090(100)	6x90	50	40	TX 30	100
	WKCP-06100(100)-B	WKCP-06100(100)	6x100	60	40	TX 30	100
	WKCP-06120(100)-B	WKCP-06120(100)	6x120	75	45	TX 30	100
	WKCP-06140(100)-B	WKCP-06140(100)	6x140	75	65	TX 30	100
	WKCP-06160(100)-B	WKCP-06160(100)	6x160	75	85	TX 30	100
	WKCP-06180(100)-B	WKCP-06180(100)	6x180	75	105	TX 30	100
	WKCP-06200(100)-B	WKCP-06200(100)	6x200	75	125	TX 30	100
	WKCP-06220(100)-B	WKCP-06220(100)	6x220	75	145	TX 30	100
	WKCP-06240(100)-B	WKCP-06240(100)	6x240	75	165	TX 30	100
	WKCP-06260(100)-B	WKCP-06260(100)	6x260	75	185	TX 30	100
	WKCP-06280(100)-B	WKCP-06280(100)	6x280	75	205	TX 30	100
	WKCP-06300(100)-B	WKCP-06300(100)	6x300	75	225	TX 30	100

WKCP - Flange head construction screw with TX drive

Codes and dimensions							
	Product code		Dimensions	Thread length	Max. usable length	Type of drive	Quantity
	Galvanized - white	Galvanized - yellow	d _w x L _w [mm]	L _g [mm]	t _{fix} [mm]	[-]	[pcs]
WKCP-8							
ø8	WKCP-08040-B	WKCP-08040	8x40	35	5	TX 40	50
	WKCP-08050-B	WKCP-08050	8x50	45	5	TX 40	50
	WKCP-08060-B	WKCP-08060	8x60	50	10	TX 40	50
	WKCP-08080-B	WKCP-08080	8x80	50	30	TX 40	50
	WKCP-08100-B	WKCP-08100	8x100	50	50	TX 40	50
	WKCP-08120-B	WKCP-08120	8x120	80	40	TX 40	50
	WKCP-08140(25)-B	WKCP-08140(25)	8x140	100	40	TX 40	25
	WKCP-08160(25)-B	WKCP-08160(25)	8x160	100	60	TX 40	25
	WKCP-08180-B	WKCP-08180	8x180	100	80	TX 40	50
	WKCP-08200-B	WKCP-08200	8x200	100	100	TX 40	50
	WKCP-08220-B	WKCP-08220	8x220	100	120	TX 40	50
	WKCP-08240-B	WKCP-08240	8x240	100	140	TX 40	50
	WKCP-08260-B	WKCP-08260	8x260	100	160	TX 40	50
	WKCP-08280-B	WKCP-08280	8x280	100	180	TX 40	50
	WKCP-08300-B	WKCP-08300	8x300	100	200	TX 40	50
	WKCP-08320-B	WKCP-08320	8x320	100	220	TX 40	50
	WKCP-08340-B	WKCP-08340	8x340	100	240	TX 40	50
	WKCP-08360-B	WKCP-08360	8x360	100	260	TX 40	50
	WKCP-08380-B	WKCP-08380	8x380	100	280	TX 40	50
	WKCP-08400-B	WKCP-08400	8x400	100	300	TX 40	50
	WKCP-08440-B*	WKCP-08440*	8x440	100	340	TX 40	50
	WKCP-08480-B*	WKCP-08480*	8x480	100	380	TX 40	50
	WKCP-08520-B*	WKCP-08520*	8x520	100	420	TX 40	50
	WKCP-08560-B*	WKCP-08560*	8x560	100	460	TX 40	50
	WKCP-08600-B*	WKCP-08600*	8x600	100	500	TX 40	50
WKCP-10							
ø10	WKCP-10120(25)-B	WKCP-10120(25)	10x120	80	40	TX 40	25
	WKCP-10140(25)-B	WKCP-10140(25)	10x140	80	60	TX 40	25
	WKCP-10160(25)-B	WKCP-10160(25)	10x160	100	60	TX 40	25
	WKCP-10180(25)-B	WKCP-10180(25)	10x180	100	80	TX 40	25
	WKCP-10200(25)-B	WKCP-10200(25)	10x200	100	100	TX 40	25
	WKCP-10220-B	WKCP-10220	10x220	100	120	TX 40	25
	WKCP-10240-B	WKCP-10240	10x240	100	140	TX 40	25
	WKCP-10260-B	WKCP-10260	10x260	100	160	TX 40	25
	WKCP-10280-B	WKCP-10280	10x280	100	180	TX 40	25
	WKCP-10300-B	WKCP-10300	10x300	100	200	TX 40	25
	WKCP-10320-B	WKCP-10320	10x320	100	220	TX 40	25
	WKCP-10340-B	WKCP-10340	10x340	100	240	TX 40	25
	WKCP-10360-B	WKCP-10360	10x360	100	260	TX 40	25
	WKCP-10380-B	WKCP-10380	10x380	100	280	TX 40	25
	WKCP-10400-B	WKCP-10400	10x400	100	300	TX 40	25
	WKCP-10440-B*	WKCP-10440*	10x440	100	340	TX 40	25
	WKCP-10480-B*	WKCP-10480*	10x480	100	380	TX 40	25
	WKCP-10520-B*	WKCP-10520*	10x520	100	420	TX 40	25
	WKCP-10560-B*	WKCP-10560*	10x560	100	460	TX 40	25
	WKCP-10600-B*	WKCP-10600*	10x600	100	500	TX 40	25

* Product on order

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Geometry

Product	Outer thread diameter	Inner thread diameter	Unthreaded part diameter	Head diameter	Length range
	d_w [mm]	d_1 [mm]	d_s [mm]	D_w [mm]	L_w [mm]
WKCP ø5	5	3,15	3,50	12	40-120
WKCP ø6	6	3,80	4,30	14	50-300
WKCP ø8	8	5,50	5,78	21	40-600
WKCP ø10	10	6,30	7,00	25	120-600

Mechanical characteristics

Product	Characteristic yield moment	Characteristic withdrawal resistance parameter - softwood	Characteristic withdrawal resistance parameter - LVL	Characteristic head-pull-through resistance parameter - softwood	Characteristic head-pull-through resistance parameter - LVL	Characteristic tensile strength	Characteristic torsional strength
	$M_{y,k}$ [N*m]	$f_{ak,k}$ [N/mm²]	$f_{ak,k}$ [N/mm²]	$f_{head,k}$ [N/mm²]	$f_{head,k}$ [N/mm²]	$f_{tens,k}$ [kN]	$f_{tor,k}$ [N*m]
WKCP ø5	6	12	15	15,9	15,9	9	6
WKCP ø6	10	12	13	14,7	14,7	13	10
WKCP ø8	25	12	13	12	12	25	27
WKCP ø10	43	11	13	11	11	36	45

1. Characteristic withdrawal and head-pull-through resistance based on reference density of timber $\rho_a = 350 \text{ kg/m}^3$

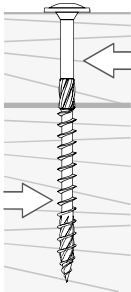
2. Characteristic withdrawal and head-pull-through resistance based on reference density of LVL $\rho_a = 480 \text{ kg/m}^3$



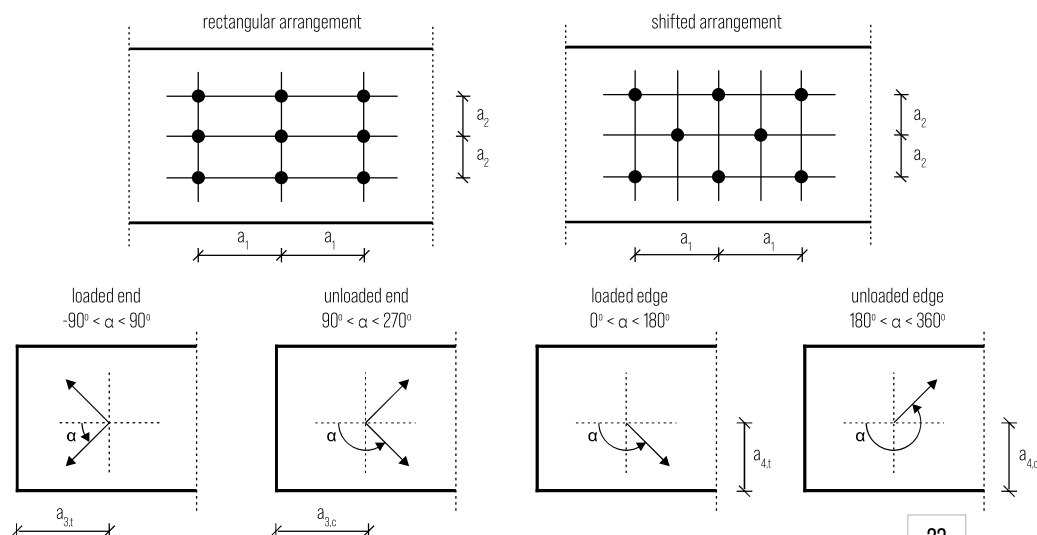
WKCP - Flange head construction screw with TX drive

TIMBER

Minimum distances for laterally loaded screws - timber

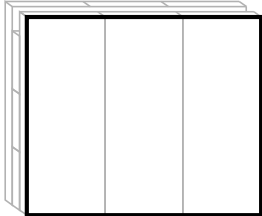
Angle between force and fiber direction $\alpha = 0^\circ$					Angle between force and fiber direction $\alpha = 90^\circ$				
									
WITHOUT PRE-DRILLED HOLE					WITHOUT PRE-DRILLED HOLE				
d_w [mm]	Ø 5	Ø 6	Ø 8	Ø 10	d_w [mm]	Ø 5	Ø 6	Ø 8	Ø 10
a_1 [mm]	60	72	96	120	a_1 [mm]	25	30	40	50
a_2 [mm]	25	30	40	50	a_2 [mm]	25	30	40	50
$a_{3,t}$ [mm]	75	90	120	150	$a_{3,t}$ [mm]	50	60	80	100
$a_{3,c}$ [mm]	50	60	80	100	$a_{3,c}$ [mm]	50	60	80	100
$a_{4,t}$ [mm]	25	30	40	50	$a_{4,t}$ [mm]	50	60	80	100
$a_{4,c}$ [mm]	25	30	40	50	$a_{4,c}$ [mm]	25	30	40	50
WITH PRE-DRILLED HOLE					WITH PRE-DRILLED HOLE				
d_w [mm]	Ø 5	Ø 6	Ø 8	Ø 10	d_w [mm]	Ø 5	Ø 6	Ø 8	Ø 10
d_0 [mm]	3	4	5	6	d_0 [mm]	3	4	5	6
a_1 [mm]	25	30	40	50	a_1 [mm]	20	24	32	40
a_2 [mm]	15	18	24	30	a_2 [mm]	20	24	32	40
$a_{3,t}$ [mm]	60	72	96	120	$a_{3,t}$ [mm]	35	42	56	70
$a_{3,c}$ [mm]	35	42	56	70	$a_{3,c}$ [mm]	35	42	56	70
$a_{4,t}$ [mm]	15	18	24	30	$a_{4,t}$ [mm]	35	42	56	70
$a_{4,c}$ [mm]	15	18	24	30	$a_{4,c}$ [mm]	15	18	24	30

1. Minimum distances in accordance with EN 1995 and ETA-18/0817
2. Minimum distances is valid for timber characteristic density of $\rho_k \leq 420 \text{ kg/m}^3$
3. In case of connection panel-timber minimum distances (a_1, a_2) should be multiplied by a factor of 0,85
4. In case of connection steel-timber minimum distances (a_1, a_2) should be multiplied by a factor of 0,7
5. Hole diameter d_0 is valid for softwood



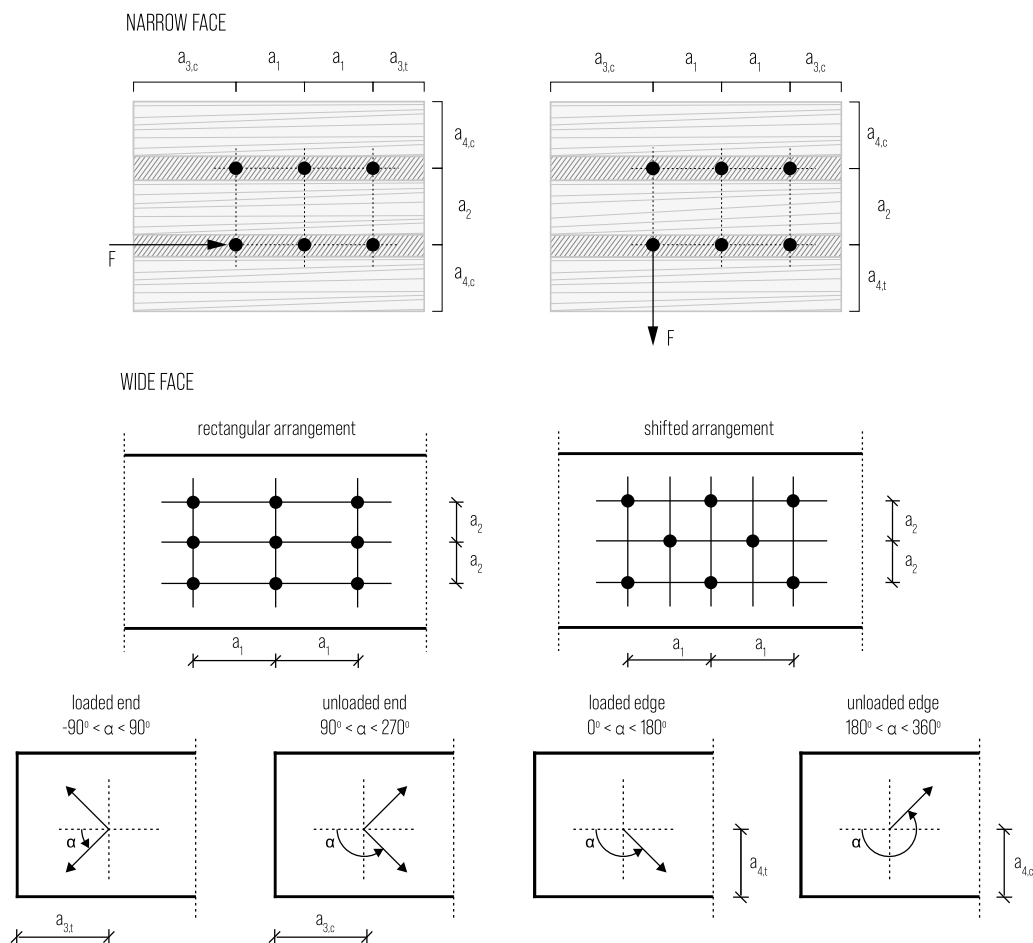
WKCP - Flange head construction screw with TX drive
CLT

Minimum distances for laterally and/or axially loaded screws - CLT

WIDE FACE				NARROW FACE			
							
WITHOUT PRE-DRILLED HOLE				WITHOUT PRE-DRILLED HOLE			
d_w [mm]	Ø 6	Ø 8	Ø 10	d_w [mm]	Ø 6	Ø 8	Ø 10
a_1 [mm]	24	32	40	a_1 [mm]	60	80	100
a_2 [mm]	15	20	25	a_2 [mm]	24	32	40
$a_{3,t}$ [mm]	36	48	60	$a_{3,t}$ [mm]	72	96	120
$a_{3,c}$ [mm]	36	48	60	$a_{3,c}$ [mm]	42	56	70
$a_{4,t}$ [mm]	36	48	60	$a_{4,t}$ [mm]	36	48	60
$a_{4,c}$ [mm]	15	20	25	$a_{4,c}$ [mm]	18	24	30

1. Minimum distances in accordance with ETA-18/0817

 2. Minimum CLT thickness $t_{\min} = 10d_w$

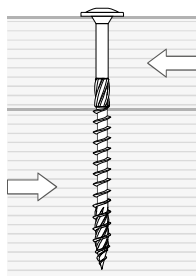
 3. Minimum penetration depth in CLT narrow face $l_{ef} = 10d_w$


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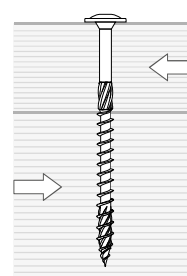
LVL

Minimum distances for laterally loaded screws - LVL

Angle between force and fiber direction $\alpha = 0^\circ$



Angle between force and fiber direction $\alpha = 90^\circ$



WITHOUT PRE-DRILLED HOLE

d_w [mm]	Ø 5	Ø 6	Ø 8	Ø 10
a_1 [mm]	75	90	120	150
a_2 [mm]	35	42	56	70
$a_{3,t}$ [mm]	100	120	160	200
$a_{3,c}$ [mm]	75	90	120	150
$a_{4,t}$ [mm]	35	42	56	70
$a_{4,c}$ [mm]	35	42	56	70

WITHOUT PRE-DRILLED HOLE

d_w [mm]	Ø 5	Ø 6	Ø 8	Ø 10
a_1 [mm]	35	42	56	70
a_2 [mm]	35	42	56	70
$a_{3,t}$ [mm]	75	90	120	150
$a_{3,c}$ [mm]	75	90	120	150
$a_{4,t}$ [mm]	60	72	96	120
$a_{4,c}$ [mm]	35	42	56	70

WITH PRE-DRILLED HOLE

d_w [mm]	Ø 5	Ø 6	Ø 8	Ø 10
d_0 [mm]	3	4	5	6
a_1 [mm]	25	30	40	50
a_2 [mm]	15	18	24	30
$a_{3,t}$ [mm]	60	72	96	120
$a_{3,c}$ [mm]	35	42	56	70
$a_{4,t}$ [mm]	15	18	24	30
$a_{4,c}$ [mm]	15	18	24	30

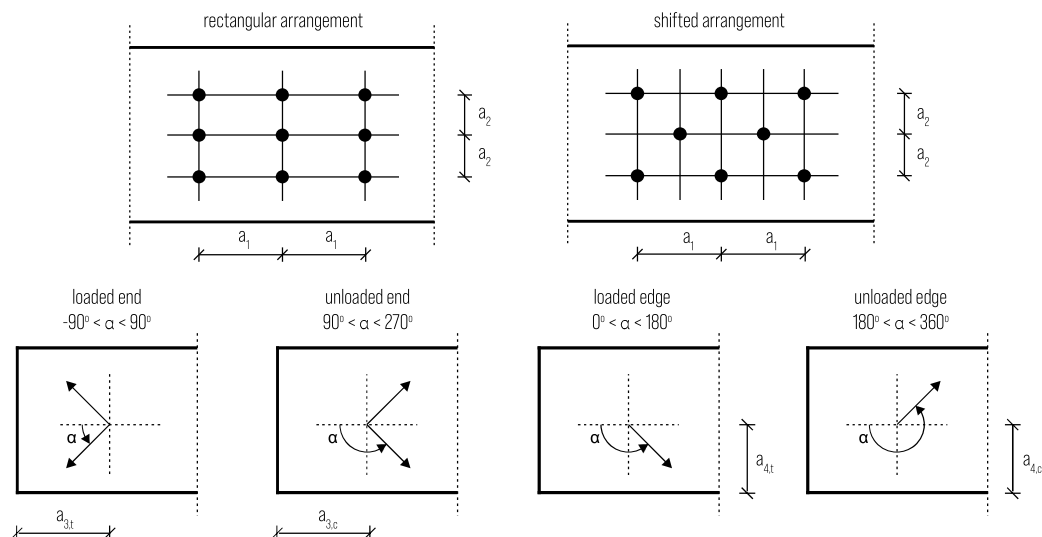
WITH PRE-DRILLED HOLE

d_w [mm]	Ø 5	Ø 6	Ø 8	Ø 10
d_0 [mm]	3	4	5	6
a_1 [mm]	20	24	32	40
a_2 [mm]	20	24	32	40
$a_{3,t}$ [mm]	35	42	56	70
$a_{3,c}$ [mm]	35	42	56	70
$a_{4,t}$ [mm]	35	42	56	70
$a_{4,c}$ [mm]	15	18	24	30

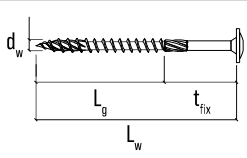
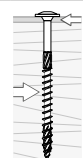
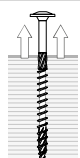
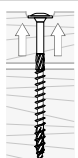
1. Minimum distances in accordance with EN 1995 and ETA-18/0817

2. Minimum distances is valid for LVL characteristic density in range of $420 \text{ kg/m}^3 < p_k \leq 500 \text{ kg/m}^3$

3. Hole diameter d_0 is valid for softwood LVL

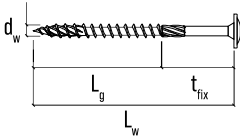


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TIMBER

Characteristic resistances for laterally and axially loaded screws - timber												
DIMENSIONS				SHEAR				TENSION				
Diameter	Length	Thread length	Usable length	timber-timber	OSB-timber	steel-timber (thin plate)	steel-timber (thick plate)	Withdrawal	Head pull-through			
												
d _w [mm]	L _w [mm]	L _g [mm]	t _{fix} [mm]	R _{V,k} [kN]	R _{V,k} [kN]	R _{V,k} [kN]	R _{V,k} [kN]	R _{ax,k} [kN]	R _{head,k} [kN]			
WKCP 5												
ø5	40	22	18	1,07	t = 15 mm	1,20	t = 2,5mm	1,33	t = 5 mm	1,85	1,32	2,29
	50	30	20	1,35		1,30		1,64		2,13	1,80	2,29
	60	40	20	1,47		1,30		1,79		2,28	2,40	2,29
	70	40	30	1,70		1,30		1,79		2,28	2,40	2,29
	80	50	30	1,70		1,30		1,94		2,43	3,00	2,29
	90	50	40	1,76		1,30		1,94		2,43	3,00	2,29
	100	60	40	1,76		1,30		2,09		2,58	3,60	2,29
	120	60	60	1,76		1,30		2,09		2,58	3,60	2,29
WKCP 6												
ø6	50	30	20	1,62	t = 15 mm	1,66	t = 3 mm	1,89	t = 6 mm	2,69	2,16	2,88
	60	30	30	1,79		1,66		2,17		2,85	2,16	2,88
	70	40	30	2,10		1,66		2,35		3,03	2,88	2,88
	80	50	30	2,10		1,66		2,53		3,21	3,60	2,88
	90	50	40	2,35		1,66		2,53		3,21	3,60	2,88
	100	60	40	2,35		1,66		2,71		3,39	4,32	2,88
	120	75	45	2,35		1,66		2,98		3,66	5,40	2,88
	140	75	65	2,35		1,66		2,98		3,66	5,40	2,88
	160	75	85	2,35		1,66		2,98		3,66	5,40	2,88
	180	75	105	2,35		1,66		2,98		3,66	5,40	2,88
	200	75	125	2,35		1,66		2,98		3,66	5,40	2,88
	220	75	145	2,35		1,66		2,98		3,66	5,40	2,88
	240	75	165	2,35		1,66		2,98		3,66	5,40	2,88
	260	75	185	2,35		1,66		2,98		3,66	5,40	2,88
	280	75	205	2,35		1,66		2,98		3,66	5,40	2,88
	300	75	225	2,35		1,66		2,98		3,66	5,40	2,88
WKCP 8												
ø8	40	35	5	0,62	t = 10 mm	1,69	t = 4 mm	1,77	t = 8 mm	3,41	3,36	5,29
	50	45	5	0,62		2,24		2,26		3,95	4,32	5,29
	60	50	10	1,23		2,78		2,76		4,51	4,80	5,29
	80	50	30	3,25		2,92		3,74		5,23	4,80	5,29
	100	50	50	3,75		2,92		4,05		5,23	4,80	5,29
	120	80	40	3,65		2,92		4,77		5,95	7,68	5,29
	140	100	40	3,65		2,92		5,25		6,43	9,60	5,29
	160	100	60	4,18		2,92		5,25		6,43	9,60	5,29
	180	100	80	4,18		2,92		5,25		6,43	9,60	5,29
	200	100	100	4,18		2,92		5,25		6,43	9,60	5,29

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TIMBER

Characteristic resistances for laterally and axially loaded screws - timber												
DIMENSIONS				SHEAR				TENSION				
Diameter	Length	Thread length	Usable length	timber-timber	OSB-timber	steel-timber (thin plate)	steel-timber (thick plate)	Withdrawal	Head pull-through			
												
d _w [mm]	L _w [mm]	L _g [mm]	t _{fix} [mm]	R _{Vk} [kN]	R _{Vk} [kN]	R _{Vk} [kN]	R _{Vk} [kN]	R _{ax,k} [kN]	R _{head,k} [kN]			
WKCP 8												
ø8	220	100	120	4,18	t = 18 mm	2,92	t = 4 mm	5,25	t = 8 mm	6,43	9,60	5,29
	240	100	140	4,18		2,92		5,25		6,43	9,60	5,29
	260	100	160	4,18		2,92		5,25		6,43	9,60	5,29
	280	100	180	4,18		2,92		5,25		6,43	9,60	5,29
	300	100	200	4,18		2,92		5,25		6,43	9,60	5,29
	320	100	220	4,18		2,92		5,25		6,43	9,60	5,29
	340	100	240	4,18		2,92		5,25		6,43	9,60	5,29
	360	100	260	4,18		2,92		5,25		6,43	9,60	5,29
	380	100	280	4,18		2,92		5,25		6,43	9,60	5,29
	400	100	300	4,18		2,92		5,25		6,43	9,60	5,29
	440	100	340	4,18		2,92		5,25		6,43	9,60	5,29
	480	100	380	4,18		2,92		5,25		6,43	9,60	5,29
	520	100	420	4,18		2,92		5,25		6,43	9,60	5,29
	560	100	460	4,18		2,92		5,25		6,43	9,60	5,29
600	100	500	4,18	2,92	5,25	6,43	9,60	5,29				
WKCP 10												
ø10	120	80	40	4,74	t = 22 mm	3,89	t = 5 mm	6,24	t = 10 mm	7,92	8,80	6,88
	140	80	60	5,45		3,89		6,24		7,92	8,80	6,88
	160	100	60	5,45		3,89		6,79		8,47	11,00	6,88
	180	100	80	5,76		3,89		6,79		8,47	11,00	6,88
	200	100	100	5,76		3,89		6,79		8,47	11,00	6,88
	220	100	120	5,76		3,89		6,79		8,47	11,00	6,88
	240	100	140	5,76		3,89		6,79		8,47	11,00	6,88
	260	100	160	5,76		3,89		6,79		8,47	11,00	6,88
	280	100	180	5,76		3,89		6,79		8,47	11,00	6,88
	300	100	200	5,76		3,89		6,79		8,47	11,00	6,88
	320	100	220	5,76		3,89		6,79		8,47	11,00	6,88
	340	100	240	5,76		3,89		6,79		8,47	11,00	6,88
	360	100	260	5,76		3,89		6,79		8,47	11,00	6,88
	380	100	280	5,76		3,89		6,79		8,47	11,00	6,88
	400	100	300	5,76		3,89		6,79		8,47	11,00	6,88
	440	100	340	5,76		3,89		6,79		8,47	11,00	6,88
	480	100	380	5,76		3,89		6,79		8,47	11,00	6,88
	520	100	420	5,76		3,89		6,79		8,47	11,00	6,88
	560	100	460	5,76		3,89		6,79		8,47	11,00	6,88
	600	100	500	5,76		3,89		6,79		8,47	11,00	6,88

NOTES:

1. Characteristic resistances in accordance with EN 1995 and ETA-18/0817

2. In order to obtain a design resistance, use the following formula :

$$R_d = \frac{R_k * k_{mod}}{\gamma_M}$$

Factors γ_M and k_{mod} should be taken in accordance with EN 1995

3. Characteristic resistances were calculated for a characteristic density of timber $\rho_k = 350 \text{ kg/m}^3$

4. Characteristic resistances were calculated considering that the threaded part of the screw is fully inserted into timber element

5. Characteristic shear resistances were calculated for connections without pre-drilled holes

6. Characteristic shear resistances for OSB-timber connections were calculated for OSB board with thickness t [mm] in accordance with EN 300

7. Characteristic shear resistances for steel-timber connections were calculated for thin steel plate with thickness $t \leq 0,5d_w$

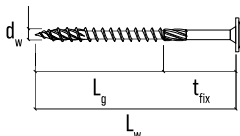
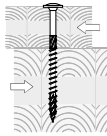
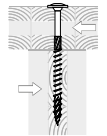
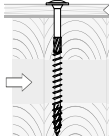
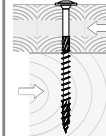
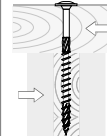
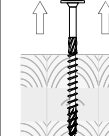
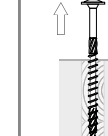
8. Characteristic shear resistances for steel-timber connections were calculated for thick steel plate with thickness $t \geq d_w$

9. Characteristic withdrawal resistances were calculated assuming an angle of 90° between screw and grain direction and for penetration length equal L_g

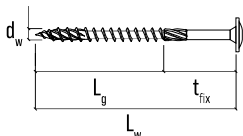
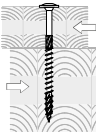
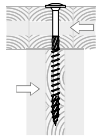
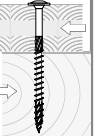
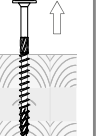
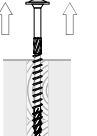
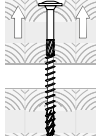
10. Characteristic head pull-through resistances were calculated for timber element

WKCP - Flange head construction screw with TX drive
CLT

Characteristic resistances for laterally and axially loaded screws - CLT

DIMENSIONS				SHEAR					TENSION			
Diameter	Length	Thread length	Usable length	CLT-CLT (wide face-wide face)	CLT-CLT (wide face-narrow face)	OSB-CLT (wide face)	CLT-timber (wide face)	timber-CLT (narrow face)	Withdrawal (wide face)	Withdrawal (narrow face)	Head pull-through	
												
d _w [mm]	L _w [mm]	L _g [mm]	t _{fix} [mm]	R _{V,k} [kN]	R _{V,k} [kN]	R _{V,k} [kN]	R _{V,k} [kN]	R _{V,k} [kN]	R _{ax,k} [kN]	R _{ax,k} [kN]	R _{head,k} [kN]	
WKCP 6												
ø6	50	30	20	1,62	-	t = 15 mm	1,66	1,62	-	2,16	-	2,88
	60	30	30	1,79	-		1,66	1,79	-	2,16	-	2,88
	70	40	30	2,10	-		1,66	2,10	-	2,88	-	2,88
	80	50	30	2,10	-		1,66	2,10	-	3,60	-	2,88
	90	50	40	2,35	-		1,66	2,35	-	3,60	-	2,88
	100	60	40	2,35	-		1,66	2,35	-	4,32	-	2,88
	120	75	45	2,35	-		1,66	2,35	-	5,40	-	2,88
	140	75	65	2,35	-		1,66	2,35	-	5,40	-	2,88
	160	75	85	2,35	-		1,66	2,35	-	5,40	-	2,88
	180	75	105	2,35	-		1,66	2,35	-	5,40	-	2,88
	200	75	125	2,35	-		1,66	2,35	-	5,40	-	2,88
	220	75	145	2,35	-		1,66	2,35	-	5,40	-	2,88
	240	75	165	2,35	-		1,66	2,35	-	5,40	-	2,88
	260	75	185	2,35	-		1,66	2,35	-	5,40	-	2,88
280	75	205	2,35	-	1,66	2,35	-	5,40	-	2,88		
300	75	225	2,35	-	1,66	2,35	-	5,40	-	2,88		
WKCP 8												
ø8	40	35	5	0,62	-	t = 18 mm	-	0,62	-	3,36	-	5,29
	50	45	5	0,62	-		2,24	0,62	-	4,32	-	5,29
	60	50	10	1,23	-		2,78	1,23	-	4,80	-	5,29
	80	50	30	3,25	-		2,92	3,25	-	4,80	-	5,29
	100	50	50	3,75	-		2,92	3,75	-	4,80	-	5,29
	120	80	40	3,65	3,25		2,92	3,65	3,25	7,68	5,45	5,29
	140	100	40	3,65	3,27		2,92	3,65	3,27	9,60	6,66	5,29
	160	100	60	4,18	3,59		2,92	4,18	3,59	9,60	6,66	5,29
	180	100	80	4,18	3,59		2,92	4,18	3,59	9,60	6,66	5,29
	200	100	100	4,18	3,59		2,92	4,18	3,59	9,60	6,66	5,29

WKCP - Flange head construction screw with TX drive
CLT
Characteristic resistances for laterally and axially loaded screws - CLT

DIMENSIONS				SHEAR					TENSION			
Diameter	Length	Thread length	Usable length	CLT-CLT (wide face-wide face)	CLT-CLT (wide face-narrow face)	OSB-CLT (wide face)	CLT-timber (wide face)	timber-CLT (narrow face)	Withdrawal (wide face)	Withdrawal (narrow face)	Head pull-through	
												
d _w [mm]	L _w [mm]	L _g [mm]	t _{fix} [mm]	R _{v,k} [kN]	R _{v,k} [kN]	R _{v,k} [kN]	R _{v,k} [kN]	R _{v,k} [kN]	R _{ax,k} [kN]	R _{ax,k} [kN]	R _{head,k} [kN]	
WKCP 8												
ø8	220	100	120	4,18	3,59	t = 18 mm	2,92	4,18	3,59	9,60	6,66	5,29
	240	100	140	4,18	3,59		2,92	4,18	3,59	9,60	6,66	5,29
	260	100	160	4,18	3,59		2,92	4,18	3,59	9,60	6,66	5,29
	280	100	180	4,18	3,59		2,92	4,18	3,59	9,60	6,66	5,29
	300	100	200	4,18	3,59		2,92	4,18	3,59	9,60	6,66	5,29
	320	100	220	4,18	3,59		2,92	4,18	3,59	9,60	6,66	5,29
	340	100	240	4,18	3,59		2,92	4,18	3,59	9,60	6,66	5,29
	360	100	260	4,18	3,59		2,92	4,18	3,59	9,60	6,66	5,29
	380	100	280	4,18	3,59		2,92	4,18	3,59	9,60	6,66	5,29
	400	100	300	4,18	3,59		2,92	4,18	3,59	9,60	6,66	5,29
	440	100	340	4,18	3,59		2,92	4,18	3,59	9,60	6,66	5,29
	480	100	380	4,18	3,59		2,92	4,18	3,59	9,60	6,66	5,29
	520	100	420	4,18	3,59		2,92	4,18	3,59	9,60	6,66	5,29
	560	100	460	4,18	3,59		2,92	4,18	3,59	9,60	6,66	5,29
600	100	500	4,18	3,59	2,92	4,18	3,59	9,60	6,66	5,29		
WKCP 10												
ø10	120	80	40	4,74	-	t = 22 mm	3,89	4,74	-	8,80	-	6,88
	140	80	60	5,45	-		3,89	5,45	-	8,80	-	6,88
	160	100	60	5,45	4,69		3,89	5,45	4,69	11,00	7,96	6,88
	180	100	80	5,76	4,69		3,89	5,76	4,69	11,00	7,96	6,88
	200	100	100	5,76	4,69		3,89	5,76	4,69	11,00	7,96	6,88
	220	100	120	5,76	4,69		3,89	5,76	4,69	11,00	7,96	6,88
	240	100	140	5,76	4,69		3,89	5,76	4,69	11,00	7,96	6,88
	260	100	160	5,76	4,69		3,89	5,76	4,69	11,00	7,96	6,88
	280	100	180	5,76	4,69		3,89	5,76	4,69	11,00	7,96	6,88
	300	100	200	5,76	4,69		3,89	5,76	4,69	11,00	7,96	6,88
	320	100	220	5,76	4,69		3,89	5,76	4,69	11,00	7,96	6,88
	340	100	240	5,76	4,69		3,89	5,76	4,69	11,00	7,96	6,88
	360	100	260	5,76	4,69		3,89	5,76	4,69	11,00	7,96	6,88
	380	100	280	5,76	4,69		3,89	5,76	4,69	11,00	7,96	6,88
	400	100	300	5,76	4,69		3,89	5,76	4,69	11,00	7,96	6,88
	440	100	340	5,76	4,69		3,89	5,76	4,69	11,00	7,96	6,88
	480	100	380	5,76	4,69		3,89	5,76	4,69	11,00	7,96	6,88
	520	100	420	5,76	4,69		3,89	5,76	4,69	11,00	7,96	6,88
	560	100	460	5,76	4,69		3,89	5,76	4,69	11,00	7,96	6,88
	600	100	500	5,76	4,69		3,89	5,76	4,69	11,00	7,96	6,88

NOTES:

- Characteristic resistances in accordance with EN 1995 and ETA-18/0817
- In order to obtain a design resistance, use the following formula :

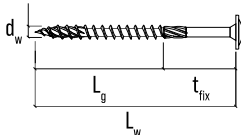
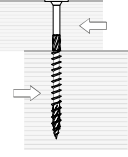
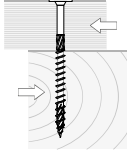
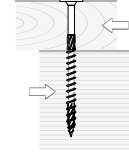
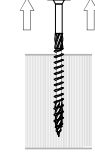
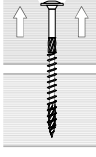
$$R_d = \frac{R_k * k_{mod}}{\gamma_M}$$

 Factors γ_M and k_{mod} should be taken in accordance with EN 1995

- Characteristic resistances were calculated for a characteristic density of timber and CLT $\rho_k = 350 \text{ kg/m}^3$
- Characteristic resistances were calculated considering that the threaded part of the screw is fully inserted into timber element
- Characteristic shear resistances were calculated for connections without pre-drilled holes
- Characteristic shear resistances for OSB-timber connections were calculated for OSB board with thickness t [mm] in accordance with EN 300
- Characteristic withdrawal resistances of CLT wide face were calculated assuming an angle of 90° between screw and grain direction and for minimum penetration length equal L_g
- Characteristic withdrawal resistances of CLT narrow face were calculated for minimum thickness $t_{min} = 10d_w$ and for minimum penetration length equal $L_g = 10d_w$
- Characteristic head pull-through resistances were calculated for CLT

WKCP - Flange head construction screw with TX drive
LVL

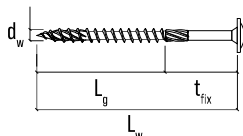
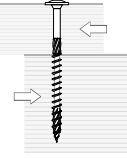
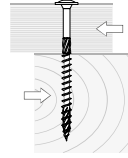
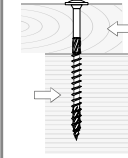
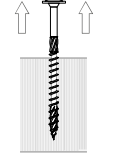
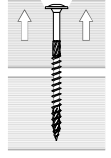
Characteristic resistances for laterally and axially loaded screws - LVL

DIMENSIONS				SHEAR			TENSION		
Diameter	Length	Thread length	Usable length	LVL-LVL	LVL-timber	timber-LVL	Withdrawal (wide face)	Withdrawal (edge face)	Head pull-through
									
d_w [mm]	L_w [mm]	L_g [mm]	t_{fix} [mm]	$R_{V,k}$ [kN]	$R_{V,k}$ [kN]	$R_{V,k}$ [kN]	$R_{ax,k}$ [kN]	$R_{ax,k}$ [kN]	$R_{head,k}$ [kN]
WKCP 5									
ø5	40	22	18	-	-	-	1,65	1,10	2,29
	50	30	20	-	-	-	2,25	1,50	2,29
	60	40	20	-	-	-	3,00	2,00	2,29
	70	40	30	1,96	1,85	1,76	3,00	2,00	2,29
	80	50	30	1,96	1,85	1,76	3,75	2,50	2,29
	90	50	40	1,96	1,85	1,85	3,75	2,50	2,29
	100	60	40	1,96	1,85	1,85	4,50	3,00	2,29
	120	60	60	1,96	1,85	1,85	4,50	3,00	2,29
WKCP 6									
ø6	50	30	20	-	-	-	2,34	1,56	2,88
	60	30	30	2,30	2,00	2,04	2,34	1,56	2,88
	70	40	30	2,50	2,39	2,18	3,12	2,08	2,88
	80	50	30	2,50	2,39	2,18	3,90	2,60	2,88
	90	50	40	2,63	2,47	2,47	3,90	2,60	2,88
	100	60	40	2,63	2,47	2,47	4,68	3,12	2,88
	120	75	45	2,63	2,47	2,47	5,85	3,90	2,88
	140	75	65	2,63	2,47	2,47	5,85	3,90	2,88
	160	75	85	2,63	2,47	2,47	5,85	3,90	2,88
	180	75	105	2,63	2,47	2,47	5,85	3,90	2,88
	200	75	125	2,63	2,47	2,47	5,85	3,90	2,88
	220	75	145	2,63	2,47	2,47	5,85	3,90	2,88
	240	75	165	2,63	2,47	2,47	5,85	3,90	2,88
	260	75	185	2,63	2,47	2,47	5,85	3,90	2,88
	280	75	205	2,63	2,47	2,47	5,85	3,90	2,88
	300	75	225	2,63	2,47	2,47	5,85	3,90	2,88
WKCP 8									
ø8	40	35	5	-	-	-	3,64	2,43	5,29
	50	45	5	-	-	-	4,68	3,12	5,29
	60	50	10	-	-	-	5,20	3,47	5,29
	80	50	30	3,86	3,58	3,48	5,20	3,47	5,29
	100	50	50	4,64	3,99	4,09	5,20	3,47	5,29
	120	80	40	4,30	4,12	3,78	8,32	5,55	5,29
	140	100	40	4,30	4,12	3,78	10,40	6,93	5,29
	160	100	60	4,66	4,39	4,39	10,40	6,93	5,29
	180	100	80	4,66	4,39	4,39	10,40	6,93	5,29
	200	100	100	4,66	4,39	4,39	10,40	6,93	5,29

WKCP - Flange head construction screw with TX drive

LVL

Characteristic resistances for laterally and axially loaded screws - LVL

DIMENSIONS				SHEAR			TENSION		
Diameter	Length	Thread length	Usable length	LVL-LVL	LVL-timber	timber-LVL	Withdrawal (wide face)	Withdrawal (edge face)	Head pull-through
									
d _w [mm]	L _w [mm]	L _g [mm]	t _{fix} [mm]	R _{v,k} [kN]	R _{v,k} [kN]	R _{v,k} [kN]	R _{ax,k} [kN]	R _{ax,k} [kN]	R _{head,k} [kN]
WKCP 8									
ø8	220	100	120	4,66	4,39	4,39	10,40	6,93	5,29
	240	100	140	4,66	4,39	4,39	10,40	6,93	5,29
	260	100	160	4,66	4,39	4,39	10,40	6,93	5,29
	280	100	180	4,66	4,39	4,39	10,40	6,93	5,29
	300	100	200	4,66	4,39	4,39	10,40	6,93	5,29
	320	100	220	4,66	4,39	4,39	10,40	6,93	5,29
	340	100	240	4,66	4,39	4,39	10,40	6,93	5,29
	360	100	260	4,66	4,39	4,39	10,40	6,93	5,29
	380	100	280	4,66	4,39	4,39	10,40	6,93	5,29
	400	100	300	4,66	4,39	4,39	10,40	6,93	5,29
	440	100	340	4,66	4,39	4,39	10,40	6,93	5,29
	480	100	380	4,66	4,39	4,39	10,40	6,93	5,29
520	100	420	4,66	4,39	4,39	10,40	6,93	5,29	
560	100	460	4,66	4,39	4,39	10,40	6,93	5,29	
600	100	500	4,66	4,39	4,39	10,40	6,93	5,29	
WKCP 10									
ø10	120	80	40	5,51	5,27	4,92	10,40	6,93	6,88
	140	80	60	6,46	6,07	5,65	10,40	6,93	6,88
	160	100	60	6,46	6,07	5,65	13,00	8,67	6,88
	180	100	80	6,46	6,07	6,07	13,00	8,67	6,88
	200	100	100	6,46	6,07	6,07	13,00	8,67	6,88
	220	100	120	6,46	6,07	6,07	13,00	8,67	6,88
	240	100	140	6,46	6,07	6,07	13,00	8,67	6,88
	260	100	160	6,46	6,07	6,07	13,00	8,67	6,88
	280	100	180	6,46	6,07	6,07	13,00	8,67	6,88
	300	100	200	6,46	6,07	6,07	13,00	8,67	6,88
	320	100	220	6,46	6,07	6,07	13,00	8,67	6,88
	340	100	240	6,46	6,07	6,07	13,00	8,67	6,88
	360	100	260	6,46	6,07	6,07	13,00	8,67	6,88
	380	100	280	6,46	6,07	6,07	13,00	8,67	6,88
	400	100	300	6,46	6,07	6,07	13,00	8,67	6,88
	440	100	340	6,46	6,07	6,07	13,00	8,67	6,88
	480	100	380	6,46	6,07	6,07	13,00	8,67	6,88
	520	100	420	6,46	6,07	6,07	13,00	8,67	6,88
	560	100	460	6,46	6,07	6,07	13,00	8,67	6,88
600	100	500	6,46	6,07	6,07	13,00	8,67	6,88	

NOTES:

1. Characteristic resistances in accordance with EN 1995 and ETA-18/0817

2. In order to obtain a design resistance, use the following formula :

$$R_d = \frac{R_k * k_{mod}}{\gamma_M}$$

Factors γ_M and k_{mod} should be taken in accordance with EN 1995

3. Characteristic resistances were calculated for a characteristic density of timber $\rho_k = 350 \text{ kg/m}^3$ and LVL $\rho_k = 480 \text{ kg/m}^3$

4. Characteristic resistances were calculated considering that the threaded part of the screw is fully inserted into timber element

5. Characteristic shear resistances were calculated for connections without pre-drilled holes

6. Characteristic withdrawal resistances were calculated assuming an angle of 90° between screw and grain direction and for penetration length equal L_g

7. Characteristic head pull-through resistances were calculated for LVL