

WKCS

Countersunk head construction screw with TX drive

Diameters: ⌀3 mm | ⌀3,5 mm | ⌀4 mm | ⌀4,5 mm | ⌀5 mm | ⌀6 mm | ⌀8 mm | ⌀10 mm
Length range: from 30 to 600 mm



Countersunk 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)

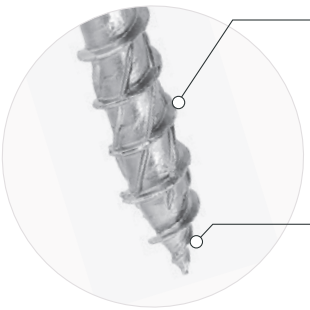
PRODUCT ADVANTAGES:

CUTTING RIBS - Allow optimal and smooth countersink with aesthetic finish result.

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

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

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:

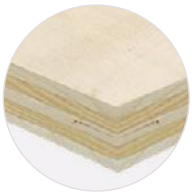




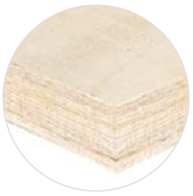

SUBSTRATES



Solid timber

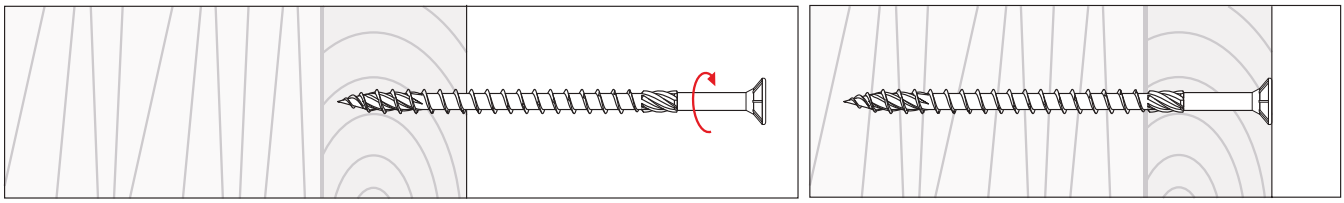


Glued laminated timber
CLT, KVH, BSH/GLT

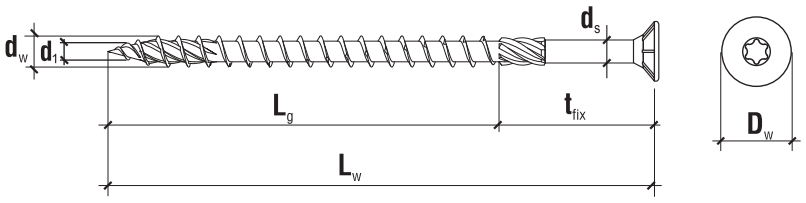


Laminated Veneer Lumber - LVL

INSTALLATION INSTRUCTIONS (screw requires no pre-drilling)



WKCS - Countersunk head construction screw with TX drive



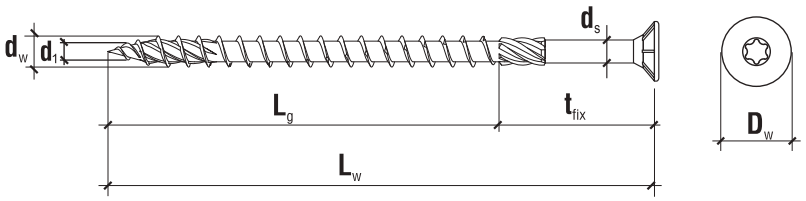
Codes and dimensions							
	Product code		Dimensions	Thread length	Max. usable length	Type of drive	Quantity
	Galvanized - white	Galvanized - yellow	d_w x L_w [mm]	L_g [mm]	t_{fix} [mm]	[-]	[pcs]
WKCS-3							
ø3	WKCS-30030-B	WKCS-30030	3x30	17	13	TX 10	500
	WKCS-30035-B	WKCS-30035	3x35	17	18	TX 10	500
	WKCS-30040-B	WKCS-30040	3x40	22	18	TX 10	500
WKCS-3.5							
ø3,5	WKCS-35030-B	WKCS-35030	3,5x30	17	13	TX 15	500
	WKCS-35035-B	WKCS-35035	3,5x35	17	18	TX 15	500
	WKCS-35040-B	WKCS-35040	3,5x40	22	18	TX 15	500
	WKCS-35050-B	WKCS-35050	3,5x50	30	20	TX 15	400
WKCS-4							
ø4	WKCS-40030-B	WKCS-40030	4x30	17	13	TX 20	500
	WKCS-40035-B	WKCS-40035	4x35	17	18	TX 20	500
	WKCS-40040(400)-B	WKCS-40040(400)	4x40	22	18	TX 20	400
	WKCS-40045-B	WKCS-40045	4x45	30	15	TX 20	300
	WKCS-40050-B	WKCS-40050	4x50	30	20	TX 20	300
	WKCS-40060-B	WKCS-40060	4x60	40	20	TX 20	250
	WKCS-40070(200)-B	WKCS-40070(200)	4x70	40	30	TX 20	200
WKCS-4.5							
ø4,5	WKCS-45040-B	WKCS-45040	4,5x40	22	18	TX 20	250
	WKCS-45050-B	WKCS-45050	4,5x50	30	20	TX 20	250
	WKCS-45060-B	WKCS-45060	4,5x60	40	20	TX 20	250
	WKCS-45070-B	WKCS-45070	4,5x70	40	30	TX 20	250
	WKCS-45080-B	WKCS-45080	4,5x80	50	30	TX 20	250

WKCS - Countersunk 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]
WKCS-5							
ø5	WKCS-50040-B	WKCS-50040	5x40	22	18	TX 25	500
	WKCS-50050-B	WKCS-50050	5x50	30	20	TX 25	300
	WKCS-50060-B	WKCS-50060	5x60	40	20	TX 25	200
	WKCS-50070-B	WKCS-50070	5x70	40	30	TX 25	200
	WKCS-50080-B	WKCS-50080	5x80	50	30	TX 25	200
	WKCS-50090-B	WKCS-50090	5x90	50	40	TX 25	200
	WKCS-50100-B	WKCS-50100	5x100	60	40	TX 25	200
	WKCS-50120-B	WKCS-50120	5x120	60	60	TX 25	200
WKCS-6							
ø6	WKCS-60050-D	WKCS-60050	6x50	30	20	TX 30	200
	WKCS-60060(100)-D	WKCS-60060(100)	6x60	30	30	TX 30	100
	WKCS-60070(100)-D	WKCS-60070(100)	6x70	40	30	TX 30	100
	WKCS-60080(100)-D	WKCS-60080(100)	6x80	50	30	TX 30	100
	WKCS-60090-D	WKCS-60090	6x90	50	40	TX 30	100
	WKCS-60100-D	WKCS-60100	6x100	60	40	TX 30	100
	WKCS-60120-D	WKCS-60120	6x120	75	45	TX 30	100
	WKCS-60140-D	WKCS-60140	6x140	75	65	TX 30	100
	WKCS-60160-D	WKCS-60160	6x160	75	85	TX 30	100
	WKCS-60180-D	WKCS-60180	6x180	75	105	TX 30	100
	WKCS-60200-D	WKCS-60200	6x200	75	125	TX 30	100
	WKCS-06220-D	WKCS-60220	6x220	75	145	TX 30	100
	WKCS-06240-D	WKCS-60240	6x240	75	165	TX 30	100
	WKCS-06260-D	WKCS-60260	6x260	75	185	TX 30	100
	WKCS-06280-D	WKCS-60280	6x280	75	205	TX 30	100
	WKCS-06300-D	WKCS-60300	6x300	75	225	TX 30	100



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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 x L_w [mm]	L_g [mm]	t_{fix} [mm]	[-]	[pcs]
WKCS-8							
⌀8	**WKCS-08080-B**	**WKCS-08080(50)**	8x80	50	30	TX 40	50
	WKCS-08100-B	**WKCS-08100(50)**	8x100	50	50	TX 40	50
	WKCS-08120-B	**WKCS-08120(50)**	8x120	80	40	TX 40	50
	WKCS-08140-B	**WKCS-08140(50)**	8x140	100	40	TX 40	50
	WKCS-08160-B	**WKCS-08160(50)**	8x160	100	60	TX 40	50
	WKCS-08180-B	**WKCS-08180(50)**	8x180	100	80	TX 40	50
	WKCS-08200-B	**WKCS-08200(50)**	8x200	100	100	TX 40	50
	WKCS-08220-B	**WKCS-08220(50)**	8x220	100	120	TX 40	50
	WKCS-08240-B	**WKCS-08240(50)**	8x240	100	140	TX 40	50
	WKCS-08260-B	**WKCS-08260(50)**	8x260	100	160	TX 40	50
	WKCS-08280-B	**WKCS-08280(50)**	8x280	100	180	TX 40	50
	WKCS-08300-B	**WKCS-08300(50)**	8x300	100	200	TX 40	50
	WKCS-08320-B	**WKCS-08320(50)**	8x320	100	220	TX 40	50
	WKCS-08340-B	**WKCS-08340(50)**	8x340	100	240	TX 40	50
	WKCS-08360-B	**WKCS-08360(50)**	8x360	100	260	TX 40	50
	WKCS-08380-B	**WKCS-08380(50)**	8x380	100	280	TX 40	50
	WKCS-08400-B	**WKCS-08400(50)**	8x400	100	300	TX 40	50
	WKCS-08440-B*	**WKCS-08440(50)***	8x440	100	340	TX 40	50
	WKCS-08480-B*	**WKCS-08480(50)***	8x480	100	380	TX 40	50
	WKCS-08520-B*	**WKCS-08520(50)***	8x520	100	420	TX 40	50
	WKCS-08560-B*	**WKCS-08560(50)***	8x560	100	460	TX 40	50
	WKCS-08600-B*	**WKCS-08600(50)***	8x600	100	500	TX 40	50

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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 x L_w [mm]	L_g [mm]	t_{fix} [mm]	[-]	[pcs]
WKCS-10							
⌀10	**WKCS-10120-B**	**WKCS-10120**	10x120	80	40	TX 40	50
	WKCS-10140-B	**WKCS-10140**	10x140	80	60	TX 40	50
	WKCS-10160(25)-B	**WKCS-10160(25)**	10x160	100	60	TX 40	25
	WKCS-10180(25)-B	**WKCS-10180(25)**	10x180	100	80	TX 40	25
	WKCS-10200(25)-B	**WKCS-10200(25)**	10x200	100	100	TX 40	25
	WKCS-10220-B	**WKCS-10220**	10x220	100	120	TX 40	25
	WKCS-10240-B	**WKCS-10240**	10x240	100	140	TX 40	25
	WKCS-10260-B	**WKCS-10260**	10x260	100	160	TX 40	25
	WKCS-10280-B	**WKCS-10280**	10x280	100	180	TX 40	25
	WKCS-10300-B	**WKCS-10300**	10x300	100	200	TX 40	25
	WKCS-10320-B	**WKCS-10320**	10x320	100	220	TX 40	25
	WKCS-10340-B	**WKCS-10340**	10x340	100	240	TX 40	25
	WKCS-10360-B	**WKCS-10360**	10x360	100	260	TX 40	25
	WKCS-10380-B	**WKCS-10380**	10x380	100	280	TX 40	25
	WKCS-10400-B	**WKCS-10400**	10x400	100	300	TX 40	25
	WKCS-10440-B*	**WKCS-10440***	10x440	100	340	TX 40	25
	WKCS-10480-B*	**WKCS-10480***	10x480	100	380	TX 40	25
	WKCS-10520-B*	**WKCS-10520***	10x520	100	420	TX 40	25
	WKCS-10560-B*	**WKCS-10560***	10x560	100	460	TX 40	25
	WKCS-10600-B*	**WKCS-10600***	10x600	100	500	TX 40	25

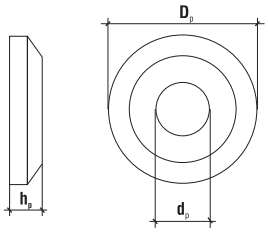
* Product on order



PWKCS-B - Washer for countersunk head timber screw

Zn WHITE





Example of use WKCS-B + PWKCS-B



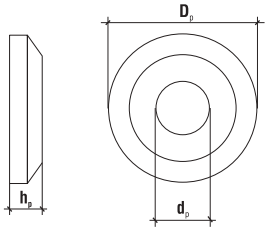
Product code	Dimensions	Inner diameter	Quantity
Galvanized - white	D_p x h_p [mm]	d_p [mm]	[pcs]
PWKCS-6-B*	20 x 4	7,5	50
PWKCS-8-B*	25 x 5	8,5	50
PWKCS-10-B*	32 x 6	11	50

* Product on order

PWKCS - Washer for countersunk head timber screw

Zn YELLOW





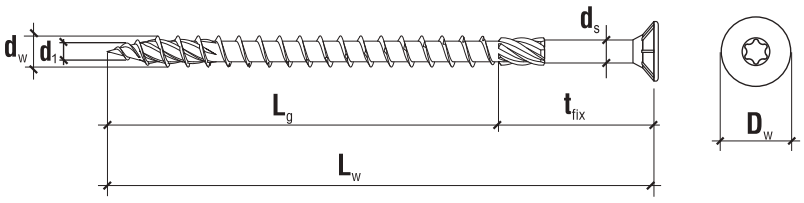
Example of use WKCS + PWKCS



Product code	Dimensions	Inner diameter	Quantity
Galvanized - yellow	D_p x h_p [mm]	d_p [mm]	[pcs]
PWKCS-6	20 x 4	7,5	50
PWKCS-8	25 x 5	8,5	50
PWKCS-10	32 x 6	11	50



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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]
WKCS ⌀3	3	2,00	2,20	6	30-40
WKCS ⌀3,5	3,5	2,25	2,50	7	30-50
WKCS ⌀4	4	2,55	2,87	8	30-70
WKCS ⌀4,5	4,5	2,95	3,10	9	40-80
WKCS ⌀5	5	3,15	3,50	10	40-120
WKCS ⌀6	6	3,80	4,30	12	50-300
WKCS ⌀8	8	5,50	5,78	14	80-600
WKCS ⌀10	10	6,30	7,00	18	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]	$f_{ax,k}$ [N/mm^2]	$f_{ax,k}$ [N/mm^2]	$f_{head,k}$ [N/mm^2]	$f_{head,k}$ [N/mm^2]	$f_{tens,k}$ [kN]	$f_{tor,k}$ [N*m]
WKCS ⌀3	1,5	13	15	22,5	22,5	3,5	1,5
WKCS ⌀3,5	2	13	15	20,8	20,8	4	2
WKCS ⌀4	3,5	13	15	19,4	19,4	6	3,5
WKCS ⌀4,5	5	13	15	18,3	18,3	8	4,5
WKCS ⌀5	6	12	15	17,4	17,4	9	6
WKCS ⌀6	10	12	13	15,9	15,9	13	10
WKCS ⌀8	25	12	13	14,7	14,7	25	27
WKCS ⌀10	43	11	13	13,0	13,0	36	45

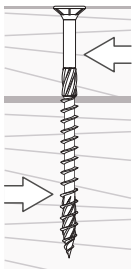
1. Characteristic withdrawal and head-pull-through resistance based on reference density of timber p_a = 350 kg/m^3
2. Characteristic withdrawal and head-pull-through resistance based on reference density of LVL p_a = 480 kg/m^3

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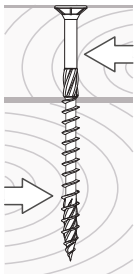
TIMBER

Minimum distances for laterally loaded screws - timber

Angle between force and fiber direction α = 0°



Angle between force and fiber direction α = 90°



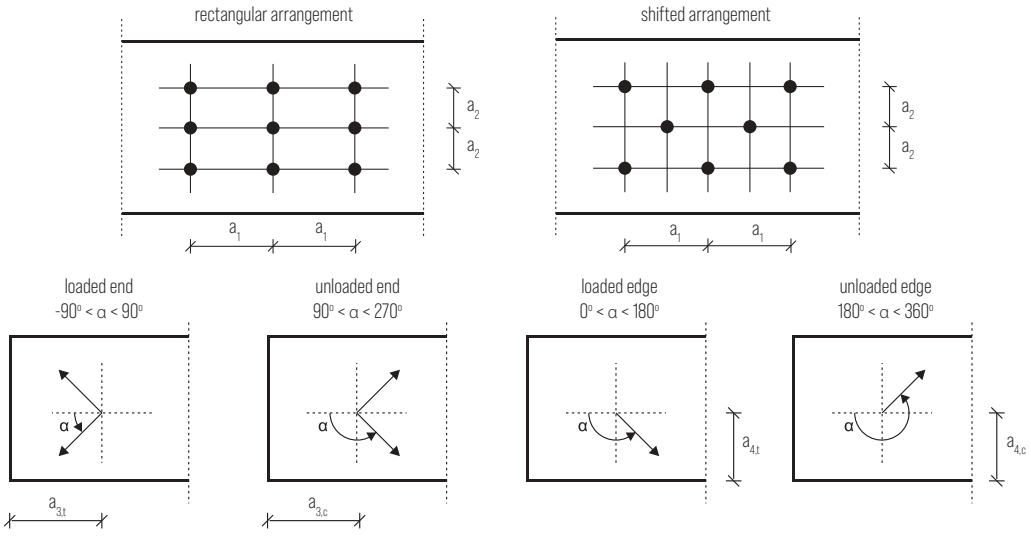
WITHOUT PRE-DRILLED HOLE								
d_w [mm]	Ø 3	Ø 3.5	Ø 4	Ø 4.5	Ø 5	Ø 6	Ø 8	Ø 10
a_1 [mm]	30	35	40	45	60	72	96	120
a_2 [mm]	15	18	20	23	25	30	40	50
$a_{3,t}$ [mm]	45	53	60	68	75	90	120	150
$a_{3,c}$ [mm]	30	35	40	45	50	60	80	100
$a_{4,t}$ [mm]	15	18	20	23	25	30	40	50
$a_{4,c}$ [mm]	15	18	20	23	25	30	40	50

WITHOUT PRE-DRILLED HOLE								
d_w [mm]	Ø 3	Ø 3.5	Ø 4	Ø 4.5	Ø 5	Ø 6	Ø 8	Ø 10
a_1 [mm]	15	18	20	23	25	30	40	50
a_2 [mm]	15	18	20	23	25	30	40	50
$a_{3,t}$ [mm]	30	35	40	45	50	60	80	100
$a_{3,c}$ [mm]	30	35	40	45	50	60	80	100
$a_{4,t}$ [mm]	21	25	28	32	50	60	80	100
$a_{4,c}$ [mm]	15	18	20	23	25	30	40	50

WITH PRE-DRILLED HOLE								
d_w [mm]	Ø 3	Ø 3.5	Ø 4	Ø 4.5	Ø 5	Ø 6	Ø 8	Ø 10
d_0 [mm]	2	2	2,5	2,5	3	4	5	6
a_1 [mm]	15	18	20	23	25	30	40	50
a_2 [mm]	9	11	12	14	15	18	24	30
$a_{3,t}$ [mm]	36	42	48	54	60	72	96	120
$a_{3,c}$ [mm]	21	25	28	32	35	42	56	70
$a_{4,t}$ [mm]	9	11	12	14	15	18	24	30
$a_{4,c}$ [mm]	9	11	12	14	15	18	24	30

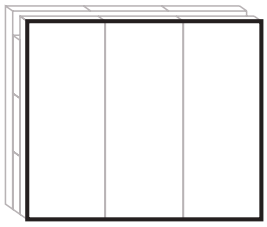
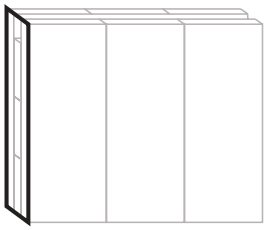
WITH PRE-DRILLED HOLE								
d_w [mm]	Ø 3	Ø 3.5	Ø 4	Ø 4.5	Ø 5	Ø 6	Ø 8	Ø 10
d_0 [mm]	2	2	2,5	2,5	3	4	5	6
a_1 [mm]	12	14	16	18	20	24	32	40
a_2 [mm]	12	14	16	18	20	24	32	40
$a_{3,t}$ [mm]	21	25	28	32	35	42	56	70
$a_{3,c}$ [mm]	21	25	28	32	35	42	56	70
$a_{4,t}$ [mm]	15	18	20	23	35	42	56	70
$a_{4,c}$ [mm]	9	11	12	14	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 $\rho_k \leq 420$ 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



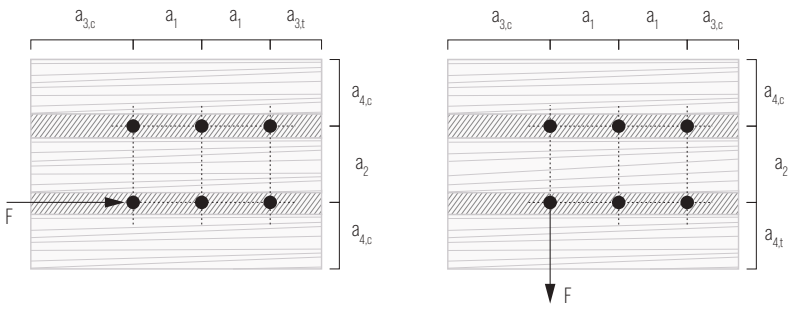
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CLT

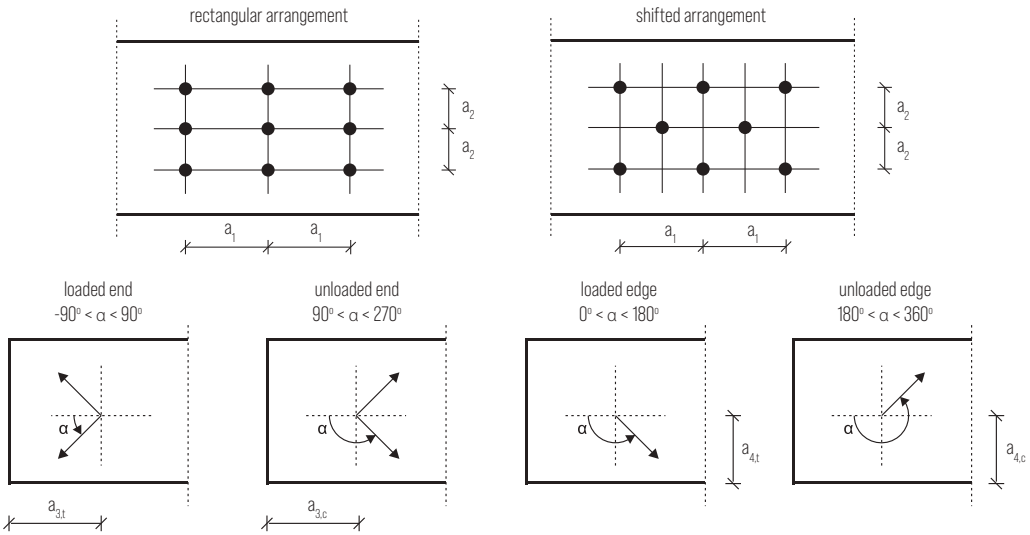
Minimum distances for laterally and/or axially loaded screws - CLT							
WIDE FACE				NARROW FACE			
							
WITHOUT PRE-DRILLED HOLE				WITHOUT PRE-DRILLED HOLE			
d_w [mm]	Ø 6	Ø 8	Ø 10	d_w [mm]	Ø 6	Ø 8	Ø 10
a_1 [mm]	24	32	40	a_1 [mm]	60	80	100
a_2 [mm]	15	20	25	a_2 [mm]	24	32	40
$a_{3,t}$ [mm]	36	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 $l_{ef} = 10d_w$

NARROW FACE

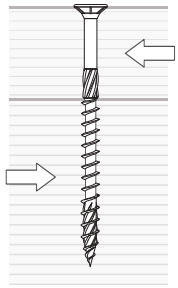
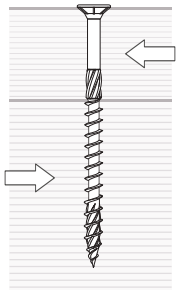


WIDE FACE

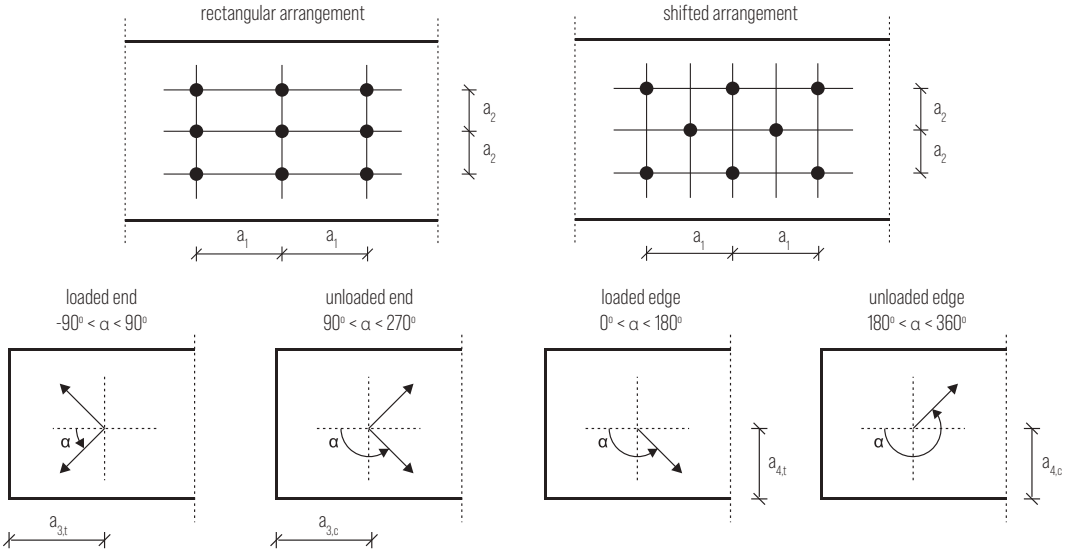


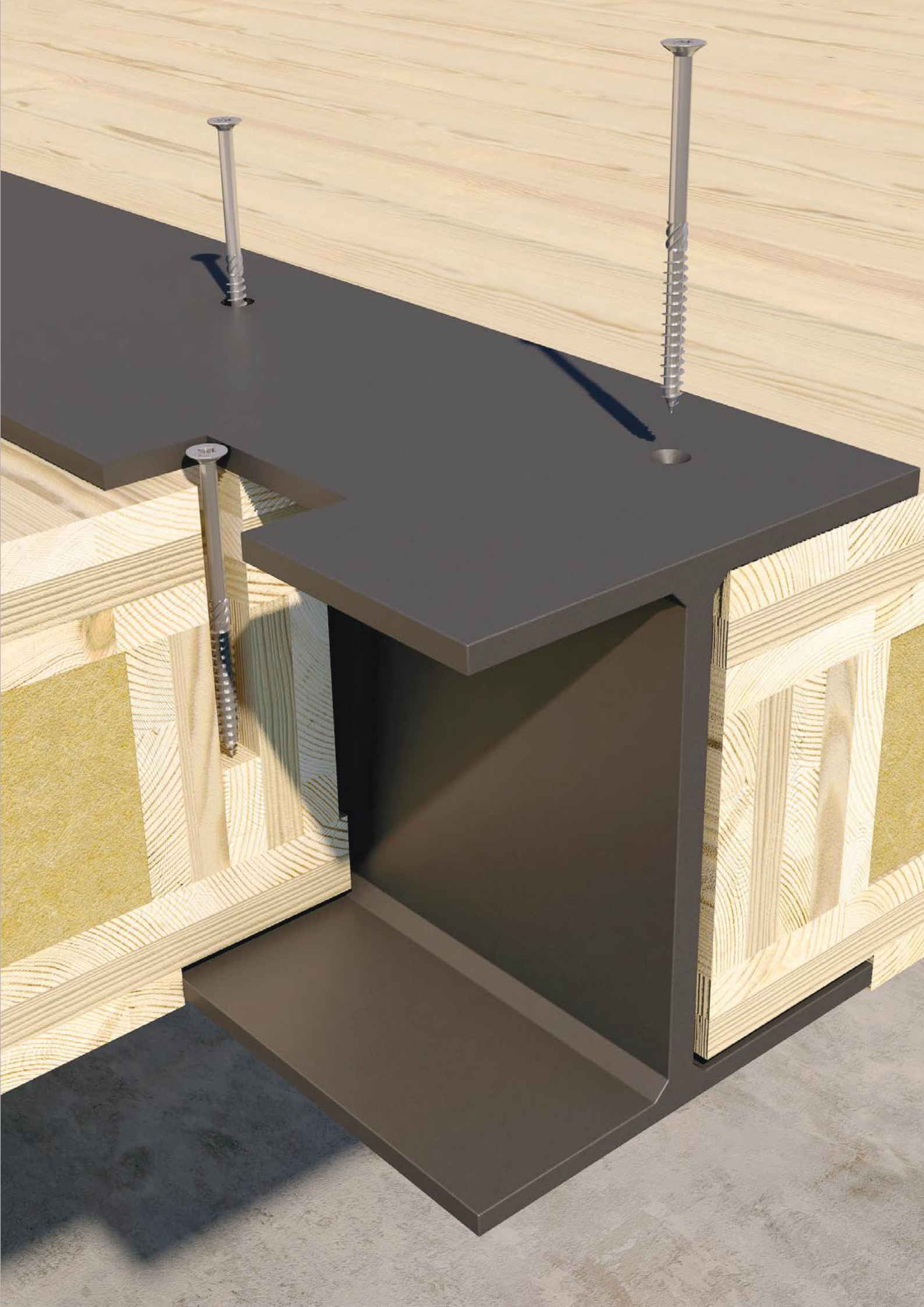
WKCS - Countersunk head construction screw with TX drive

LVL

Minimum distances for laterally loaded screws - LVL									
Angle between force and fiber direction α = 0 °					Angle between force and fiber direction α = 90 °				
									
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]	75	90	120	150	**a_1 [mm]**	35	42	56	70
a_2 [mm]	35	42	56	70	**a_2 [mm]**	35	42	56	70
$a_{3,t}$ [mm]	100	120	160	200	**$a_{3,t}$ [mm]**	75	90	120	150
$a_{3,c}$ [mm]	75	90	120	150	**$a_{3,c}$ [mm]**	75	90	120	150
$a_{4,t}$ [mm]	35	42	56	70	**$a_{4,t}$ [mm]**	60	72	96	120
$a_{4,c}$ [mm]	35	42	56	70	**$a_{4,c}$ [mm]**	35	42	56	70
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_o [mm]	3	4	5	6	**d_o [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 LVL characteristic density in range of 420 kg/m^3 < ρ_k ≤ 500 kg/m^3
3. Hole diameter d_o is valid for softwood LVL

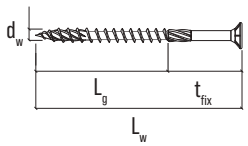
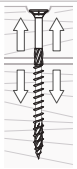




WKCS - Countersunk head construction screw with TX drive

TIMBER

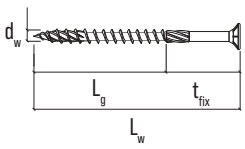
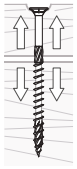
Characteristic resistances for laterally and axially loaded screws - timber

DIMENSIONS				SHEAR								TENSION		
Diameter	Length	Thread length	Usable length	timber-timber	timber-timber (with washer)	OSB-timber		steel-timber (thin plate)		steel-timber (thick plate)		Withdrawal	Head pull-through	Head pull-through (with washer)
														
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]	$R_{head,k}$ [kN]	$R_{head,k}$ [kN]
WKCS 3														
ø3	30	17	13	0,56	-	t = 9 mm	0,52	t = 1,5 mm	0,66	t = 3 mm	0,87	0,66	0,81	-
	35	17	18	0,61	-		0,52		0,66		0,87	0,66	0,81	-
	40	22	18	0,68	-		0,52		0,71		0,92	0,86	0,81	-
WKCS 3,5														
ø3,5	30	17	13	0,63	-	t = 9 mm	0,61	t = 1,75 mm	0,78	t = 3,5 mm	1,05	0,77	1,02	-
	35	17	18	0,69	-		0,61		0,80		1,05	0,77	1,02	-
	40	22	18	0,79	-		0,61		0,85		1,10	1,00	1,02	-
	50	30	20	0,84	-		0,61		0,95		1,20	1,37	1,02	-
WKCS 4														
ø4	30	17	13	0,70	-	t = 12 mm	0,73	t = 2 mm	0,85	t = 4 mm	1,22	0,88	1,24	-
	35	17	18	0,77	-		0,83		1,00		1,35	0,88	1,24	-
	40	22	18	0,92	-		0,85		1,12		1,47	1,14	1,24	-
	45	30	15	0,92	-		0,85		1,23		1,57	1,56	1,24	-
	50	30	20	1,01	-		0,85		1,23		1,57	1,56	1,24	-
	60	40	20	1,01	-		0,85		1,36		1,70	2,08	1,24	-
	70	40	30	1,15	-		0,85		1,36		1,70	2,08	1,24	-
WKCS 4,5														
ø4,5	40	22	18	1,01	-	t = 12 mm	1,00	t = 2,25 mm	1,24	t = 4,5 mm	1,73	1,29	1,49	-
	50	30	20	1,18	-		1,00		1,48		1,91	1,76	1,49	-
	60	40	20	1,18	-		1,00		1,63		2,06	2,34	1,49	-
	70	40	30	1,40	-		1,00		1,63		2,06	2,34	1,49	-
	80	50	30	1,40	-		1,00		1,77		2,21	2,93	1,49	-
WKCS 5														
ø5	40	22	18	1,07	-	t = 15 mm	1,11	t = 2,5 mm	1,33	t = 5 mm	1,85	1,32	1,74	-
	50	30	20	1,34	-		1,21		1,64		2,13	1,80	1,74	-
	60	40	20	1,34	-		1,21		1,79		2,28	2,40	1,74	-
	70	40	30	1,56	-		1,21		1,79		2,28	2,40	1,74	-
	80	50	30	1,56	-		1,21		1,94		2,43	3,00	1,74	-
	90	50	40	1,62	-		1,21		1,94		2,43	3,00	1,74	-
	100	60	40	1,62	-		1,21		2,09		2,58	3,60	1,74	-
	120	60	60	1,62	-		1,21		2,09		2,58	3,60	1,74	-

WKCS - Countersunk head construction screw with TX drive

TIMBER

Characteristic resistances for laterally and axially loaded screws - timber

DIMENSIONS				SHEAR					TENSION		
Diameter	Length	Thread length	Usable length	timber-timber	timber-timber (with washer)	OSB-timber	steel-timber (thin plate)	steel-timber (thick plate)	Withdrawal	Head pull-through	Head pull-through (with washer)
											
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]	$R_{head,k}$ [kN]	$R_{head,k}$ [kN]
WKCS 6											
⌀6	50	30	20	1,62	1,62	t = 15 mm	1,55	t = 3 mm	1,89	t = 6 mm	2,69	2,16	2,29	6,35
	60	30	30	1,79	1,79		1,55		2,17		2,85	2,16	2,29	6,35
	70	40	30	1,95	2,10		1,55		2,35		3,03	2,88	2,29	6,35
	80	50	30	1,95	2,28		1,55		2,53		3,21	3,60	2,29	6,35
	90	50	40	2,20	2,53		1,55		2,53		3,21	3,60	2,29	6,35
	100	60	40	2,20	2,71		1,55		2,71		3,39	4,32	2,29	6,35
	120	75	45	2,20	2,98		1,55		2,98		3,66	5,40	2,29	6,35
	140	75	65	2,20	2,98		1,55		2,98		3,66	5,40	2,29	6,35
	160	75	85	2,20	2,98		1,55		2,98		3,66	5,40	2,29	6,35
	180	75	105	2,20	2,98		1,55		2,98		3,66	5,40	2,29	6,35
	200	75	125	2,20	2,98		1,55		2,98		3,66	5,40	2,29	6,35
	220	75	145	2,20	2,98		1,55		2,98		3,66	5,40	2,29	6,35
	240	75	165	2,20	2,98		1,55		2,98		3,66	5,40	2,29	6,35
	260	75	185	2,20	2,98		1,55		2,98		3,66	5,40	2,29	6,35
	280	75	205	2,20	2,98		1,55		2,98		3,66	5,40	2,29	6,35
	300	75	225	2,20	2,98		1,55		2,98		3,66	5,40	2,29	6,35

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

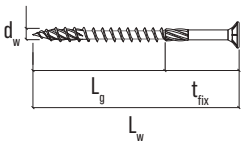
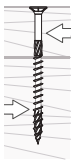
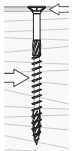
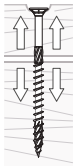
3. Characteristic resistances were calculated for a characteristic density of timber ρ_k = 350 kg/m^3
4. Characteristic resistances were calculated considering that the threaded part of the screw is fully inserted into timber element
5. Characteristic shear resistances were calculated for connections 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 ≤ 0,5d_w
8. Characteristic shear resistances for steel-timber connections were calculated for thick steel plate with thickness t ≥ 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

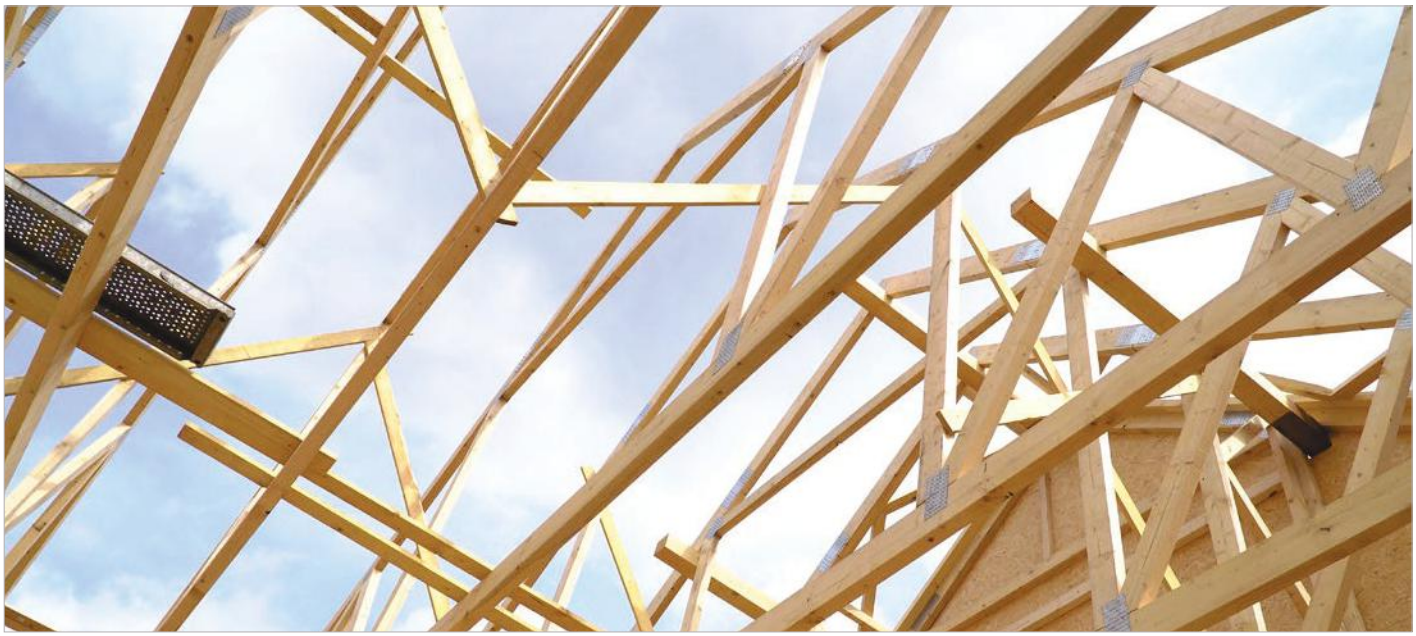


WKCS - Countersunk head construction screw with TX drive

TIMBER

Characteristic resistances for laterally and axially loaded screws - timber

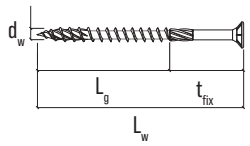
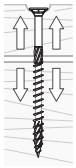
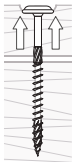
DIMENSIONS				SHEAR					TENSION		
Diameter	Length	Thread length	Usable length	timber-timber	timber-timber (with washer)	OSB-timber	steel-timber (thin plate)	steel-timber (thick plate)	Withdrawal	Head pull-through	Head pull-through (with washer)
											
d_w [mm]	L_w [mm]	L_g [mm]	t_{fix} [mm]	$R_{V,k}$ [kN]	$R_{V,k}$ [kN]	$R_{V,k}$ [kN]	$R_{V,k}$ [kN]	$R_{V,k}$ [kN]	$R_{ax,k}$ [kN]	$R_{head,k}$ [kN]	$R_{head,k}$ [kN]
WKCS 8											
ø8	80	50	30	2,77	3,25	t = 18 mm	2,44	t = 4 mm	3,74	t = 8 mm	5,23	4,80	2,88	9,19
	100	50	50	3,27	3,75		2,44		4,05		5,23	4,80	2,88	9,19
	120	80	40	3,05	4,25		2,44		4,77		5,95	7,68	2,88	9,19
	140	100	40	3,05	4,62		2,44		5,25		6,43	9,60	2,88	9,19
	160	100	60	3,57	5,15		2,44		5,25		6,43	9,60	2,88	9,19
	180	100	80	3,57	5,15		2,44		5,25		6,43	9,60	2,88	9,19
	200	100	100	3,57	5,15		2,44		5,25		6,43	9,60	2,88	9,19
	220	100	120	3,57	5,15		2,44		5,25		6,43	9,60	2,88	9,19
	240	100	140	3,57	5,15		2,44		5,25		6,43	9,60	2,88	9,19
	260	100	160	3,57	5,15		2,44		5,25		6,43	9,60	2,88	9,19
	280	100	180	3,57	5,15		2,44		5,25		6,43	9,60	2,88	9,19
	300	100	200	3,57	5,15		2,44		5,25		6,43	9,60	2,88	9,19
	320	100	220	3,57	5,15		2,44		5,25		6,43	9,60	2,88	9,19
	340	100	240	3,57	5,15		2,44		5,25		6,43	9,60	2,88	9,19
	360	100	260	3,57	5,15		2,44		5,25		6,43	9,60	2,88	9,19
	380	100	280	3,57	5,15		2,44		5,25		6,43	9,60	2,88	9,19
	400	100	300	3,57	5,15		2,44		5,25		6,43	9,60	2,88	9,19
	440	100	340	3,57	5,15		2,44		5,25		6,43	9,60	2,88	9,19
	480	100	380	3,57	5,15		2,44		5,25		6,43	9,60	2,88	9,19
	520	100	420	3,57	5,15		2,44		5,25		6,43	9,60	2,88	9,19
	560	100	460	3,57	5,15		2,44		5,25		6,43	9,60	2,88	9,19
	600	100	500	3,57	5,15		2,44		5,25		6,43	9,60	2,88	9,19



WKCS - Countersunk head construction screw with TX drive

TIMBER

Characteristic resistances for laterally and axially loaded screws - timber

DIMENSIONS				SHEAR						TENSION		
Diameter	Length	Thread length	Usable length	timber-timber	timber-timber (with washer)	OSB-timber		steel-timber (thin plate)		steel-timber (thick plate)		Withdrawal	Head pull-through	Head pull-through (with washer)
														
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]	$R_{head,k}$ [kN]	$R_{head,k}$ [kN]
WKCS 10														
⌀10	120	80	40	4,07	5,22	t = 22 mm	3,89	t = 5 mm	6,24	t = 10 mm	7,92	8,80	4,20	13,27
	140	80	60	4,78	5,93		3,89		6,24		7,92	8,80	4,20	13,27
	160	100	60	4,78	6,48		3,89		6,79		8,47	11,00	4,20	13,27
	180	100	80	5,09	6,79		3,89		6,79		8,47	11,00	4,20	13,27
	200	100	100	5,09	6,79		3,89		6,79		8,47	11,00	4,20	13,27
	220	100	120	5,09	6,79		3,89		6,79		8,47	11,00	4,20	13,27
	240	100	140	5,09	6,79		3,89		6,79		8,47	11,00	4,20	13,27
	260	100	160	5,09	6,79		3,89		6,79		8,47	11,00	4,20	13,27
	280	100	180	5,09	6,79		3,89		6,79		8,47	11,00	4,20	13,27
	300	100	200	5,09	6,79		3,89		6,79		8,47	11,00	4,20	13,27
	320	100	220	5,09	6,79		3,89		6,79		8,47	11,00	4,20	13,27
	340	100	240	5,09	6,79		3,89		6,79		8,47	11,00	4,20	13,27
	360	100	260	5,09	6,79		3,89		6,79		8,47	11,00	4,20	13,27
	380	100	280	5,09	6,79		3,89		6,79		8,47	11,00	4,20	13,27
	400	100	300	5,09	6,79		3,89		6,79		8,47	11,00	4,20	13,27
	440	100	340	5,09	6,79		3,89		6,79		8,47	11,00	4,20	13,27
	480	100	380	5,09	6,79		3,89		6,79		8,47	11,00	4,20	13,27
	520	100	420	5,09	6,79		3,89		6,79		8,47	11,00	4,20	13,27
	560	100	460	5,09	6,79		3,89		6,79		8,47	11,00	4,20	13,27
	600	100	500	5,09	6,79		3,89		6,79		8,47	11,00	4,20	13,27

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

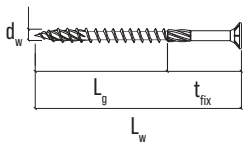
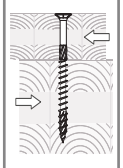
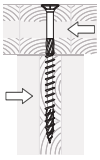
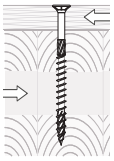
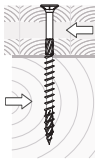
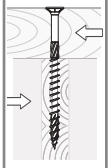
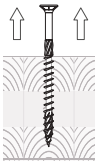
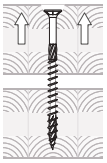
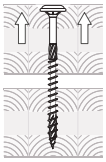
3. Characteristic resistances were calculated for a characteristic density of timber ρ_k = 350 kg/m^3
4. Characteristic resistances were calculated considering that the threaded part of the screw is fully inserted into timber element
5. Characteristic shear resistances were calculated for connections 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 ≤ 0,5d_w
8. Characteristic shear resistances for steel-timber connections were calculated for thick steel plate with thickness t ≥ 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



WKCS - Countersunk head construction screw with TX drive

CLT

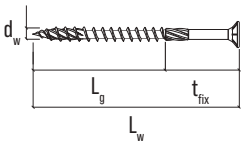
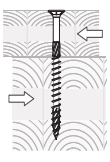
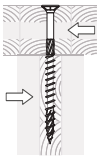
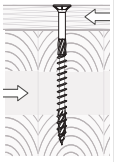
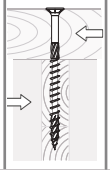
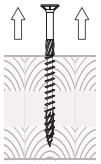
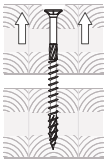
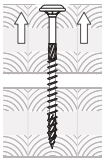
Characteristic resistances for laterally and axially loaded screws - CLT

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	Head pull-through (with washer)
												
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]	$R_{head,k}$ [kN]
WKCS 6												
ø6	50	30	20	1,62	-	t = 15 mm	1,55	1,62	-	2,16	-	2,29	6,35
	60	30	30	1,79	-		1,55	1,79	-	2,16	-	2,29	6,35
	70	40	30	1,95	-		1,55	1,95	-	2,88	-	2,29	6,35
	80	50	30	1,95	-		1,55	1,95	-	3,60	-	2,29	6,35
	90	50	40	2,20	-		1,55	2,20	-	3,60	-	2,29	6,35
	100	60	40	2,20	-		1,55	2,20	-	4,32	-	2,29	6,35
	120	75	45	2,20	-		1,55	2,20	-	5,40	-	2,29	6,35
	140	75	65	2,20	-		1,55	2,20	-	5,40	-	2,29	6,35
	160	75	85	2,20	-		1,55	2,20	-	5,40	-	2,29	6,35
	180	75	105	2,20	-		1,55	2,20	-	5,40	-	2,29	6,35
	200	75	125	2,20	-		1,55	2,20	-	5,40	-	2,29	6,35
	220	75	145	2,20	-		1,55	2,20	-	5,40	-	2,29	6,35
	240	75	165	2,20	-		1,55	2,20	-	5,40	-	2,29	6,35
	260	75	185	2,20	-		1,55	2,20	-	5,40	-	2,29	6,35
	280	75	205	2,20	-		1,55	2,20	-	5,40	-	2,29	6,35
	300	75	225	2,20	-		1,55	2,20	-	5,40	-	2,29	6,35
WKCS 8												
ø8	80	50	30	2,77	-	t = 18 mm	2,44	2,77	-	4,80	-	2,88	9,19
	100	50	50	3,27	-		2,44	3,27	-	4,80	-	2,88	9,19
	120	80	40	3,05	2,65		2,44	3,05	2,65	7,68	5,45	2,88	9,19
	140	100	40	3,05	2,66		2,44	3,05	2,66	9,60	6,66	2,88	9,19
	160	100	60	3,57	2,98		2,44	3,57	2,98	9,60	6,66	2,88	9,19
	180	100	80	3,57	2,98		2,44	3,57	2,98	9,60	6,66	2,88	9,19
	200	100	100	3,57	2,98		2,44	3,57	2,98	9,60	6,66	2,88	9,19
	220	100	120	3,57	2,98		2,44	3,57	2,98	9,60	6,66	2,88	9,19
	240	100	140	3,57	2,98		2,44	3,57	2,98	9,60	6,66	2,88	9,19
	260	100	160	3,57	2,98		2,44	3,57	2,98	9,60	6,66	2,88	9,19
	280	100	180	3,57	2,98		2,44	3,57	2,98	9,60	6,66	2,88	9,19
	300	100	200	3,57	2,98		2,44	3,57	2,98	9,60	6,66	2,88	9,19
	320	100	220	3,57	2,98		2,44	3,57	2,98	9,60	6,66	2,88	9,19
	340	100	240	3,57	2,98		2,44	3,57	2,98	9,60	6,66	2,88	9,19
	360	100	260	3,57	2,98		2,44	3,57	2,98	9,60	6,66	2,88	9,19
	380	100	280	3,57	2,98		2,44	3,57	2,98	9,60	6,66	2,88	9,19
	400	100	300	3,57	2,98		2,44	3,57	2,98	9,60	6,66	2,88	9,19
	440	100	340	3,57	2,98		2,44	3,57	2,98	9,60	6,66	2,88	9,19
	480	100	380	3,57	2,98		2,44	3,57	2,98	9,60	6,66	2,88	9,19
	520	100	420	3,57	2,98		2,44	3,57	2,98	9,60	6,66	2,88	9,19
	560	100	460	3,57	2,98		2,44	3,57	2,98	9,60	6,66	2,88	9,19
	600	100	500	3,57	2,98		2,44	3,57	2,98	9,60	6,66	2,88	9,19

WKCS - Countersunk 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	Head pull-through (with washer)
												
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]	$R_{head,k}$ [kN]
WKCS 10												
⌀10	120	80	40	4,07	-	t = 22 mm	3,89	4,07	-	8,80	-	4,20	13,27
	140	80	60	4,78	-		3,89	4,78	-	8,80	-	4,20	13,27
	160	100	60	4,78	4,02		3,89	4,78	4,02	11,00	7,96	4,20	13,27
	180	100	80	5,09	4,02		3,89	5,09	4,02	11,00	7,96	4,20	13,27
	200	100	100	5,09	4,02		3,89	5,09	4,02	11,00	7,96	4,20	13,27
	220	100	120	5,09	4,02		3,89	5,09	4,02	11,00	7,96	4,20	13,27
	240	100	140	5,09	4,02		3,89	5,09	4,02	11,00	7,96	4,20	13,27
	260	100	160	5,09	4,02		3,89	5,09	4,02	11,00	7,96	4,20	13,27
	280	100	180	5,09	4,02		3,89	5,09	4,02	11,00	7,96	4,20	13,27
	300	100	200	5,09	4,02		3,89	5,09	4,02	11,00	7,96	4,20	13,27
	320	100	220	5,09	4,02		3,89	5,09	4,02	11,00	7,96	4,20	13,27
	340	100	240	5,09	4,02		3,89	5,09	4,02	11,00	7,96	4,20	13,27
	360	100	260	5,09	4,02		3,89	5,09	4,02	11,00	7,96	4,20	13,27
	380	100	280	5,09	4,02		3,89	5,09	4,02	11,00	7,96	4,20	13,27
	400	100	300	5,09	4,02		3,89	5,09	4,02	11,00	7,96	4,20	13,27
	440	100	340	5,09	4,02		3,89	5,09	4,02	11,00	7,96	4,20	13,27
	480	100	380	5,09	4,02		3,89	5,09	4,02	11,00	7,96	4,20	13,27
	520	100	420	5,09	4,02		3,89	5,09	4,02	11,00	7,96	4,20	13,27
	560	100	460	5,09	4,02		3,89	5,09	4,02	11,00	7,96	4,20	13,27
	600	100	500	5,09	4,02		3,89	5,09	4,02	11,00	7,96	4,20	13,27

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

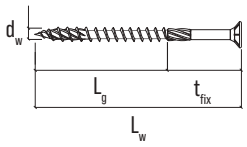
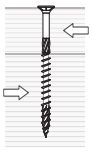
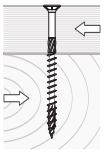
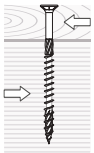
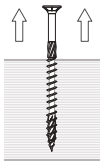
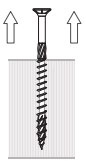
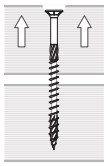
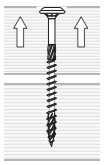
3. Characteristic resistances were calculated for a characteristic density of timber and CLT ρ_k = 350 kg/m^3
4. Characteristic resistances were calculated considering that the threaded part of the screw is fully inserted into timber element
5. Characteristic shear resistances were calculated for connections 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 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
8. Characteristic withdrawal resistances of CLT narrow face were calculated for minimum thickness $t_{min} = 10d_w$ and for minimum penetration length equal $L_{ef} = 10d_w$
9. Characteristic head pull-through resistances were calculated for CLT



WKCS - Countersunk head construction screw with TX drive

LVL

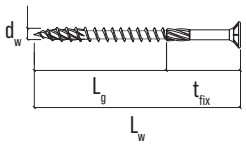
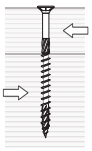
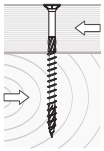
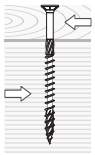
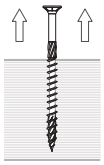
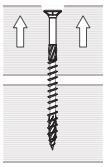
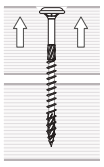
Characteristic resistances for laterally and axially loaded screws - LVL

DIMENSIONS				SHEAR			TENSION			
Diameter	Length	Thread length	Usable length	LVL-LVL	LVL-timber	timber-LVL	Withdrawal (wide face)	Withdrawal (edge face)	He ad pull-through	Head pull-through (with washer)
										
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]	$R_{head,k}$ [kN]
WKCS 5										
ø5	40	22	18	-	-	-	1,65	1,10	1,74	-
	50	30	20	-	-	-	2,25	1,50	1,74	-
	60	40	20	-	-	-	3,00	2,00	1,74	-
	70	40	30	1,82	1,71	1,63	3,00	2,00	1,74	-
	80	50	30	1,82	1,71	1,63	3,75	2,50	1,74	-
	90	50	40	1,82	1,71	1,71	3,75	2,50	1,74	-
	100	60	40	1,82	1,71	1,71	4,50	3,00	1,74	-
	120	60	60	1,82	1,71	1,71	4,50	3,00	1,74	-
WKCS 6										
ø6	50	30	20	-	-	-	2,34	1,56	2,29	6,35
	60	30	30	2,29	2,00	2,03	2,34	1,56	2,29	6,35
	70	40	30	2,35	2,24	2,03	3,12	2,08	2,29	6,35
	80	50	30	2,35	2,24	2,03	3,90	2,60	2,29	6,35
	90	50	40	2,48	2,33	2,32	3,90	2,60	2,29	6,35
	100	60	40	2,48	2,33	2,32	4,68	3,12	2,29	6,35
	120	75	45	2,48	2,33	2,33	5,85	3,90	2,29	6,35
	140	75	65	2,48	2,33	2,33	5,85	3,90	2,29	6,35
	160	75	85	2,48	2,33	2,33	5,85	3,90	2,29	6,35
	180	75	105	2,48	2,33	2,33	5,85	3,90	2,29	6,35
	200	75	125	2,48	2,33	2,33	5,85	3,90	2,29	6,35
	220	75	145	2,48	2,33	2,33	5,85	3,90	2,29	6,35
	240	75	165	2,48	2,33	2,33	5,85	3,90	2,29	6,35
	260	75	185	2,48	2,33	2,33	5,85	3,90	2,29	6,35
	280	75	205	2,48	2,33	2,33	5,85	3,90	2,29	6,35
	300	75	225	2,48	2,33	2,33	5,85	3,90	2,29	6,35
WKCS 8										
ø8	80	50	30	3,28	3,10	2,90	5,20	3,47	2,88	9,19
	100	50	50	4,06	3,51	3,51	5,20	3,47	2,88	9,19
	120	80	40	3,70	3,51	3,18	8,32	5,55	2,88	9,19
	140	100	40	3,70	3,51	3,18	10,40	6,93	2,88	9,19
	160	100	60	4,06	3,79	3,79	10,40	6,93	2,88	9,19
	180	100	80	4,06	3,79	3,79	10,40	6,93	2,88	9,19
	200	100	100	4,06	3,79	3,79	10,40	6,93	2,88	9,19

WKCS - Countersunk 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)	He ad pull-through	Head pull-through (with washer)
										
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]	$R_{head,k}$ [kN]
WKCS 8										
ø8	220	100	120	4,06	3,79	3,79	10,40	6,93	2,88	9,19
	240	100	140	4,06	3,79	3,79	10,40	6,93	2,88	9,19
	260	100	160	4,06	3,79	3,79	10,40	6,93	2,88	9,19
	280	100	180	4,06	3,79	3,79	10,40	6,93	2,88	9,19
	300	100	200	4,06	3,79	3,79	10,40	6,93	2,88	9,19
	320	100	220	4,06	3,79	3,79	10,40	6,93	2,88	9,19
	340	100	240	4,06	3,79	3,79	10,40	6,93	2,88	9,19
	360	100	260	4,06	3,79	3,79	10,40	6,93	2,88	9,19
	380	100	280	4,06	3,79	3,79	10,40	6,93	2,88	9,19
	400	100	300	4,06	3,79	3,79	10,40	6,93	2,88	9,19
	440	100	340	4,06	3,79	3,79	10,40	6,93	2,88	9,19
	480	100	380	4,06	3,79	3,79	10,40	6,93	2,88	9,19
	520	100	420	4,06	3,79	3,79	10,40	6,93	2,88	9,19
	560	100	460	4,06	3,79	3,79	10,40	6,93	2,88	9,19
	600	100	500	4,06	3,79	3,79	10,40	6,93	2,88	9,19
WKCS 10										
ø10	120	80	40	4,84	4,60	4,25	10,40	6,93	4,20	13,27
	140	80	60	5,79	5,40	4,99	10,40	6,93	4,20	13,27
	160	100	60	5,79	5,40	4,99	13,00	8,67	4,20	13,27
	180	100	80	5,79	5,40	5,40	13,00	8,67	4,20	13,27
	200	100	100	5,79	5,40	5,40	13,00	8,67	4,20	13,27
	220	100	120	5,79	5,40	5,40	13,00	8,67	4,20	13,27
	240	100	140	5,79	5,40	5,40	13,00	8,67	4,20	13,27
	260	100	160	5,79	5,40	5,40	13,00	8,67	4,20	13,27
	280	100	180	5,79	5,40	5,40	13,00	8,67	4,20	13,27
	300	100	200	5,79	5,40	5,40	13,00	8,67	4,20	13,27
	320	100	220	5,79	5,40	5,40	13,00	8,67	4,20	13,27
	340	100	240	5,79	5,40	5,40	13,00	8,67	4,20	13,27
	360	100	260	5,79	5,40	5,40	13,00	8,67	4,20	13,27
	380	100	280	5,79	5,40	5,40	13,00	8,67	4,20	13,27
	400	100	300	5,79	5,40	5,40	13,00	8,67	4,20	13,27
	440	100	340	5,79	5,40	5,40	13,00	8,67	4,20	13,27
	480	100	380	5,79	5,40	5,40	13,00	8,67	4,20	13,27
	520	100	420	5,79	5,40	5,40	13,00	8,67	4,20	13,27
	560	100	460	5,79	5,40	5,40	13,00	8,67	4,20	13,27
	600	100	500	5,79	5,40	5,40	13,00	8,67	4,20	13,27

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 ρ_k = 350 kg/m^3 and LVL ρ_k = 480 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