

WKLC

Round head screw for plates

Diameters: $\varnothing 5$ mm

Length range: from 30 to 70 mm



Construction cylindrical head screws with full thread and TX drive for structural connections and reinforcements of wooden members.



TX DRIVE



Zn
WHITE



EUROPEAN TECHNICAL
ASSESSMENT
ETA-18/0817

SCREW MATERIAL - Carbon steel

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

PRODUCT ADVANTAGES:



ROUND HEAD WITH CYLINDRICAL UNDERHEAD AND TX DRIVE - Allows safe and secure fastening of perforated and angular metal plates. TX drive guarantees optimum torque transfer.



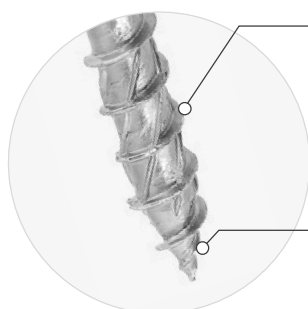
UNDERHEAD REINFORCEMENT - Wider screw diameter under the head improves shear strength of the screw.



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



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



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.

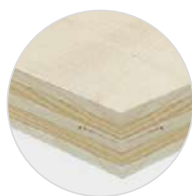
EXAMPLES OF APPLICATIONS:



SUBSTRATES



Solid timber

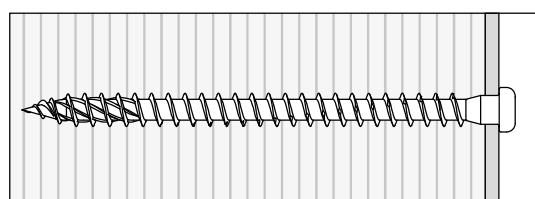
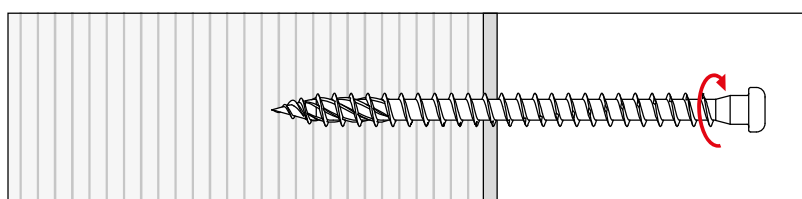


Glued laminated timber
CLT, KVH, BSH/GLT

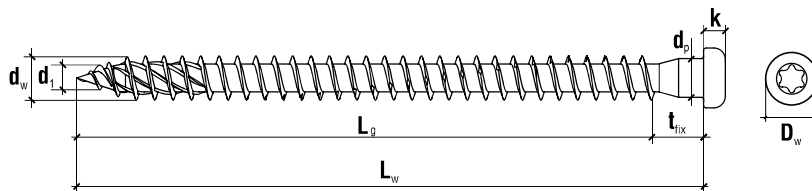


Laminated Veneer Lumber - LVL

INSTALLATION INSTRUCTIONS (screw requires no pre-drilling)



WKLC - Round head screw for plates



Codes and dimensions

	Product code	Dimensions	Thread length	Max. usable length	Type of drive	Quantity
	Galvanized - white	$d_w \times L_w$ [mm]	L_g [mm]	t_{fix} [mm]	[-]	[pcs]
WKLC-5						
ø5	WKLC-50030-B	5x30	22	8	TX 20	250
	WKLC-50035-B	5x35	30	5	TX 20	250
	WKLC-50040-B	5x40	30	10	TX 20	250
	WKLC-50050-B	5x50	40	10	TX 20	250
	WKLC-50060-B	5x60	50	10	TX 20	250
	WKLC-50070-B	5x70	60	10	TX 20	250

Geometry

Product	Outer thread diameter	Inner thread diameter	Underhead diameter	Head diameter	Head thickness	Length range
	d_w [mm]	d_l [mm]	d_p [mm]	D_w [mm]	k [mm]	L_w [mm]
WKLC ø5	5	3,15	4,80	7,4	2,70	30-70

Mechanical characteristics

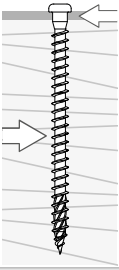
Product	Characteristic yield moment	Characteristic withdrawal resistance parameter	Characteristic head-pull-through resistance parameter	Characteristic tensile strength	Characteristic torsional strength
	M_{yk} [N*m]	$f_{ak,k}$ [N/mm ²]	$f_{head,k}$ [N/mm ²]	$f_{tens,k}$ [kN]	$f_{tor,k}$ [N*m]
WKLC ø5	6	12	20,2	9	6

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

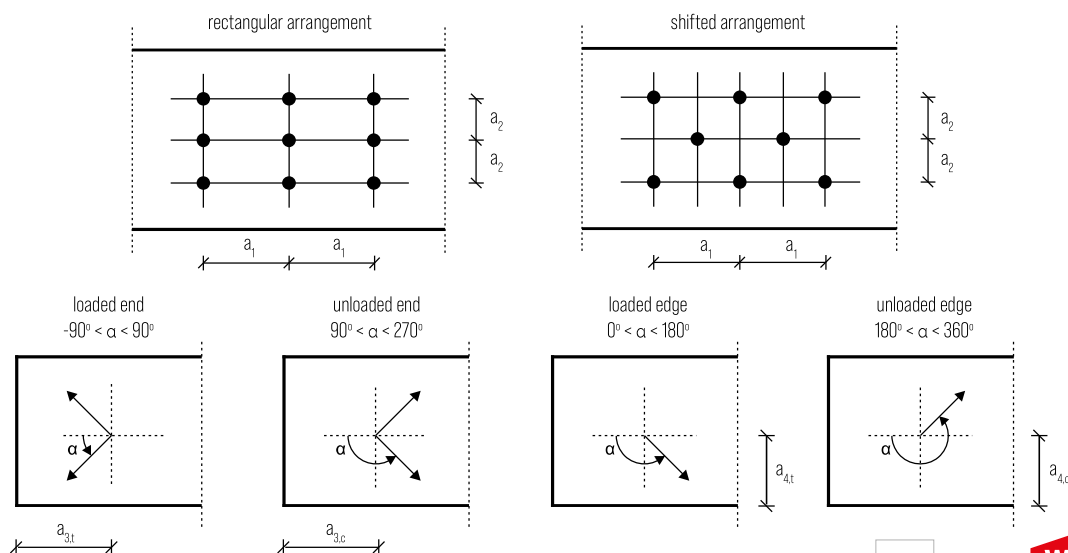
WKLC - Round head screw for plates

TIMBER

Minimum distances for laterally loaded screws - timber

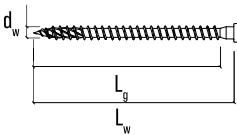
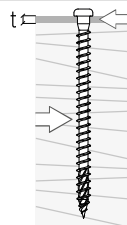
Angle between force and fiber direction $\alpha = 0^\circ$		Angle between force and fiber direction $\alpha = 90^\circ$	
			
WITHOUT PRE-DRILLED HOLE		WITHOUT PRE-DRILLED HOLE	
d_w [mm]	Ø 5	d_w [mm]	Ø 5
a_1 [mm]	42	a_1 [mm]	17,5
a_2 [mm]	17,5	a_2 [mm]	17,5
$a_{3,t}$ [mm]	75	$a_{3,t}$ [mm]	50
$a_{3,c}$ [mm]	50	$a_{3,c}$ [mm]	50
$a_{4,t}$ [mm]	25	$a_{4,t}$ [mm]	50
$a_{4,c}$ [mm]	25	$a_{4,c}$ [mm]	25
WITH PRE-DRILLED HOLE		WITH PRE-DRILLED HOLE	
d_w [mm]	Ø 5	d_w [mm]	Ø 5
d_0 [mm]	3	d_0 [mm]	3
$d_{0,steel}$ [mm]	5	$d_{0,steel}$ [mm]	5
a_1 [mm]	17,5	a_1 [mm]	14
a_2 [mm]	10,5	a_2 [mm]	14
$a_{3,t}$ [mm]	60	$a_{3,t}$ [mm]	35
$a_{3,c}$ [mm]	35	$a_{3,c}$ [mm]	35
$a_{4,t}$ [mm]	15	$a_{4,t}$ [mm]	35
$a_{4,c}$ [mm]	15	$a_{4,c}$ [mm]	15

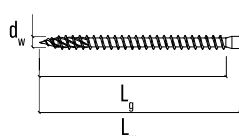
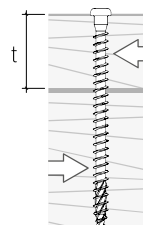
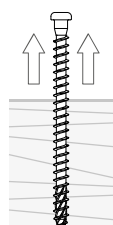
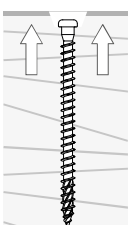
1. Minimum distances in accordance with EN 1995 and ETA-18/0817
2. Minimum distances is valid for timber characteristic density of $\rho_k \leq 420 \text{ kg/m}^3$
3. In case of connection timber-timber minimum distances (a_1, a_2) should be multiplied by a factor of 1,45
4. Hole diameter d_0 is valid for softwood
5. Hole diameter $d_{0,steel}$ is valid for steel plate



WKLC - Round head screw for plates
TIMBER

Characteristic resistances for laterally and axially loaded screws - timber

DIMENSIONS			SHEAR															
Diameter	Length	Thread length	steel - timber															
																		
d_w [mm]	L_w [mm]	L_g [mm]	R_{V_k} [kN]															
WKLC-5																		
ø5	5x30	22	t = 1,5 mm	1,66	t = 2 mm	1,65	t = 2,5 mm	1,63	t = 3 mm	1,62	t = 4 mm	1,60	t = 5 mm	1,57	t = 6 mm	1,55		
	5x35	30		1,92		1,91		1,90		1,88		1,85		1,82		1,78		
	5x40	30		2,08		2,06		2,05		2,03		2,00		1,97		1,94		
	5x50	40		2,28		2,28		2,28		2,28		2,28		2,28		2,28		
	5x60	50		2,43		2,43		2,43		2,43		2,43		2,43		2,43		
	5x70	60		2,58		2,58		2,58		2,58		2,58		2,58		2,58		

DIMENSIONS			SHEAR		TENSION	
Diameter	Length	Thread length	timber-timber		Withdrawal	Head pull-through
						
d_w [mm]	L_w [mm]	L_g [mm]	t [mm]	$R_{v,k}$ [kN]	$R_{ax,k}$ [kN]	$R_{head,k}$ [kN]
WKLC-5						
ø5	5x30	22	10	0,88	1,32	1,11
	5x35	30	15	0,93	1,80	1,11
	5x40	30	20	1,01	1,80	1,11
	5x50	40	25	1,19	2,40	1,11
	5x60	50	30	1,38	3,00	1,11
	5x70	60	35	1,46	3,60	1,11

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 shear resistances were calculated for connections without pre-drilled holes

 5. Characteristic shear resistances for steel-timber connections were calculated for thick steel plate with thickness $t \geq 1,5 \text{ mm}$

 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 timber element

