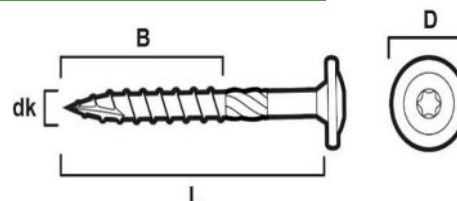


LOAD CAPACITY

Wood screw -W (WAF) 6.0 - 10.0 mm. Electro zinc plated

ESSVE
GET IT DONE



Conditions for tabulated load capacity

The tabulated values are calculated in accordance with Eurocode 5 (EN 1995-1-1:2004 incl. AC:2006, A1:2008 and A2:2014). The calculation assumes that the entire threaded part B is screwed into the underlying timber part and that it has at minimum the same thickness, i.e. $t_2 \geq B$. Furthermore it is assumed the two timber parts are made of the same timber quality class (e.g. C24). If the screw is subjected to both axial and shear load the total load capacity must be verified. The tabulated loads are for one screw, if more screws are used a reduction may be needed depending on spacing. The final design should consider edge and spacing distances.

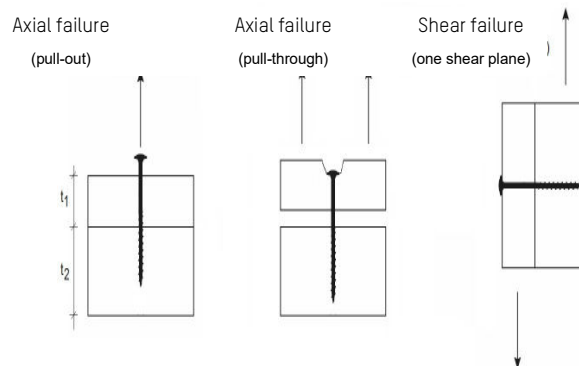
Recommended load

The recommended load given in unit [kg] can be applied directly since all safety factors have been considered incl. a factor on the applied load ($\gamma = 1.4$). It is calculated for a permanent load and service class 3 (acc. to Eurocode 5).

Characteristic resistance

The characteristic resistance given in unit [kN] is intended for an engineer that wants to do a detailed analysis of the timber connection using the appropriate partial coefficients for design resistance based on load duration and service class in accordance with Eurocode 5 eq. (2.17):

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



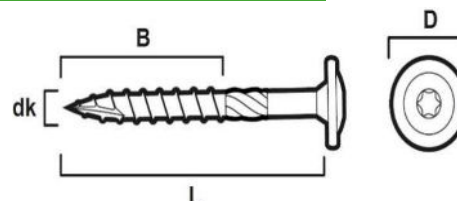
All information in this document is given in accordance with known facts and information at the time of writing. The information is subject to change without further notification. The document is updated continuously in conjunction with regular revision or in the event of major-specific technical changes.

All advice given by ESSVE should only be seen as guidance and does not mean that ESSVE can be held responsible for the advice provided. It is always the customer's own responsibility to decide on the choice of product, usage, application, etc. The supplier's advice is only a part of the customer's basis for decision making.

LOAD CAPACITY

Wood screw -W (WAF) 6.0 - 10.0 mm. Electro zinc plated

ESSVE
GET IT DONE



Recommended load

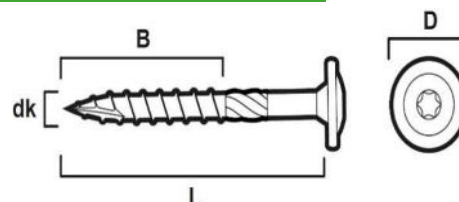
Intended for craftsmen

Art. No.	CE-marking EN 14592	Dimension dk × L [mm]	Thread length B [mm]	Inner thread diameter d _i [mm]	Head diameter D [mm]	Timber thickness at screw head t ₁ [mm]	Timber thickness at screw tip t ₂ [mm]	Axial direction (pull-out/-through) F _{ax,rec} [kg]		Shear direction (one shear plane) F _{v,rec} [kg]	
								C14	C24	C14	C24
113 203	✓	6.0 × 50	40	3,9	14,5	10	40	50	60	15	20
113 205	✓	6.0 × 60	40	3,9	14,5	20	40	50	60	35	40
113 209	✓	6.0 × 80	40	3,9	14,5	40	40	50	60	40	50
113 211	✓	6.0 × 90	50	3,9	14,5	40	50	65	75	45	55
113 213	✓	6.0 × 100	50	3,9	14,5	50	50	65	75	50	55
113 215	✓	6.0 × 120	75	3,9	14,5	45	75	75	85	50	60
113 217	✓	6.0 × 140	75	3,9	14,5	65	75	75	85	55	60

LOAD CAPACITY

Wood screw -W (WAF) 6.0 - 10.0 mm. Electro zinc plated

ESSVE
GET IT DONE



Recommended load

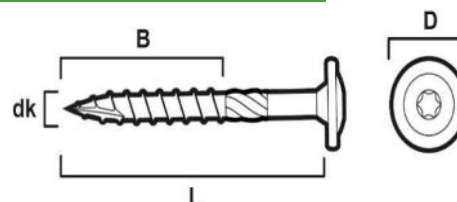
Intended for craftsmen

Art. No.	CE-marking EN 14592	Dimension	Thread length	Inner thread diameter	Head diameter	Timber tickness at screw head	Timber tickness at screw tip	Axial direction pull-out/-through		Shear direction one shear plane	
		dk × L [mm]	B [mm]	d _i [mm]	D [mm]	t ₁ [mm]	t ₂ [mm]	F _{ax,rec} [kg]		F _{v,rec} [kg]	
								C14	C24	C14	C24
113 235	✓	8.0 × 70	50	5,3	21,0	20	50	100	115	45	55
113 237	✓	8.0 × 80	50	5,3	21,0	30	50	100	115	65	75
113 239	✓	8.0 × 90	50	5,3	21,0	40	50	100	115	65	80
113 241	✓	8.0 × 100	60	5,3	21,0	40	60	110	130	75	85
113 243	✓	8.0 × 120	80	5,3	21,0	40	80	110	130	75	85
113 247	✓	8.0 × 140	80	5,3	21,0	60	80	110	130	85	95
113 251	✓	8.0 × 160	80	5,3	21,0	80	80	110	130	85	95
113 252	✓	8.0 × 180	80	5,3	21,0	100	80	110	130	85	95
113 253	✓	8.0 × 200	100	5,3	21,0	100	100	110	130	85	95
113 255	✓	8.0 × 240	100	5,3	21,0	140	100	110	130	85	95
113 256	✓	8.0 × 280	100	5,3	21,0	180	100	110	130	85	95
113 257	✓	8.0 × 320	100	5,3	21,0	220	100	110	130	85	95

LOAD CAPACITY

Wood screw -W (WAF) 6.0 - 10.0 mm. Electro zinc plated

ESSVE
GET IT DONE



Recommended load

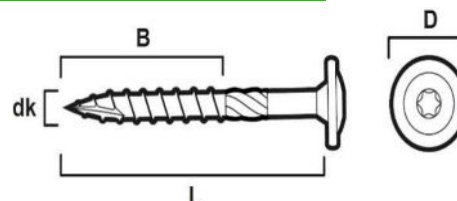
Intended for craftsmen

Art. No.	CE-marking EN 14592	Dimension	Thread length	Inner thread diameter	Head diameter	Timber tickness at screw head	Timber tickness at screw tip	Axial direction pull-out/-through		Shear direction one shear plane	
		dk × L [mm]	B [mm]	d _i [mm]	D [mm]	t ₁ [mm]	t ₂ [mm]	F _{ax,rec} [kg]		F _{v,rec} [kg]	
								C14	C24	C14	C24
113 266	✓	10.0 × 80	60	6,4	24,0	20	60	130	150	55	70
113 267	✓	10.0 × 100	60	6,4	24,0	40	60	130	150	100	115
113 269	✓	10.0 × 120	80	6,4	24,0	40	80	175	200	110	125
113 271	✓	10.0 × 140	80	6,4	24,0	60	80	175	200	125	145
113 273	✓	10.0 × 160	80	6,4	24,0	80	80	175	200	135	150
113 275	✓	10.0 × 180	80	6,4	24,0	100	80	175	200	135	150
113 277	✓	10.0 × 200	100	6,4	24,0	100	100	190	220	140	155
113 281	✓	10.0 × 240	100	6,4	24,0	140	100	190	220	140	155

LOAD CAPACITY

Wood screw -W (WAF) 6.0 - 10.0 mm. Electro zinc plated

ESSVE
GET IT DONE



Characteristic resistance

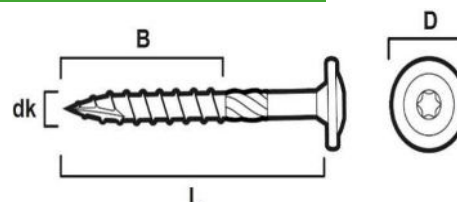
Intended for engineers

Art. No.	CE-marking EN 14592	Dimension	Thread length	Inner thread diameter	Head diameter	Timber thickness at screw head	Timber thickness at screw tip	Axial direction pull-out/-through		Shear direction one shear plane	
		dk × L [mm]	B [mm]	d _i [mm]	D [mm]	t ₁ [mm]	t ₂ [mm]	F _{ax,Rk} [kN]		F _{v,Rk} [kN]	
								C14	C24	C14	C24
113 203	✓	6.0 × 50	40	3,9	14,5	10	40	1,4	1,7	0,7	0,8
113 205	✓	6.0 × 60	40	3,9	14,5	20	40	1,4	1,7	1,2	1,4
113 209	✓	6.0 × 80	40	3,9	14,5	40	40	1,4	1,7	1,5	1,7
113 211	✓	6.0 × 90	50	3,9	14,5	40	50	1,4	1,7	1,5	1,8
113 213	✓	6.0 × 100	50	3,9	14,5	50	50	1,4	1,7	1,6	1,8
113 215	✓	6.0 × 120	75	3,9	14,5	45	75	1,4	1,7	1,6	1,8
113 217	✓	6.0 × 140	75	3,9	14,5	65	75	1,4	1,7	1,6	1,8

LOAD CAPACITY

Wood screw -W (WAF) 6.0 - 10.0 mm. Electro zinc plated

ESSVE
GET IT DONE



Characteristic resistance

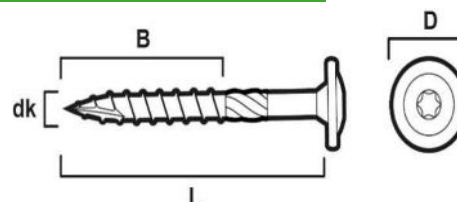
Intended for engineers

Art. No.	CE-marking EN 14592	Dimension	Thread length	Inner thread diameter	Head diameter	Timber thickness at screw head	Timber thickness at screw tip	Axial direction pull-out/-through		Shear direction one shear plane	
		dk × L [mm]	B [mm]	d _i [mm]	D [mm]	t ₁ [mm]	t ₂ [mm]	F _{ax,Rk} [kN]		F _{v,Rk} [kN]	
								C14	C24	C14	C24
113 235	✓	8.0 × 70	50	5,3	21,0	20	50	3,6	4,2	1,6	2,0
113 237	✓	8.0 × 80	50	5,3	21,0	30	50	3,6	4,2	2,3	2,8
113 239	✓	8.0 × 90	50	5,3	21,0	40	50	3,6	4,2	2,5	2,9
113 241	✓	8.0 × 100	60	5,3	21,0	40	60	4,1	4,8	2,7	3,1
113 243	✓	8.0 × 120	80	5,3	21,0	40	80	4,1	4,8	2,7	3,1
113 247	✓	8.0 × 140	80	5,3	21,0	60	80	4,1	4,8	3,1	3,6
113 251	✓	8.0 × 160	80	5,3	21,0	80	80	4,1	4,8	3,2	3,6
113 252	✓	8.0 × 180	80	5,3	21,0	100	80	4,1	4,8	3,2	3,6
113 253	✓	8.0 × 200	100	5,3	21,0	100	100	4,1	4,8	3,2	3,6
113 255	✓	8.0 × 240	100	5,3	21,0	140	100	4,1	4,8	3,2	3,6
113 256	✓	8.0 × 280	100	5,3	21,0	180	100	4,1	4,8	3,2	3,6
113 257	✓	8.0 × 320	100	5,3	21,0	220	100	4,1	4,8	3,2	3,6

LOAD CAPACITY

Wood screw -W (WAF) 6.0 - 10.0 mm. Electro zinc plated

ESSVE
GET IT DONE



Characteristic resistance

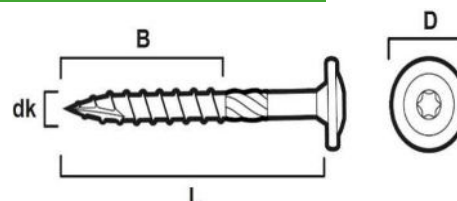
Intended for engineers

Art. No.	CE-marking EN 14592	Dimension	Thread length	Inner thread diameter	Head diameter	Timber tickness at screw head	Timber tickness at screw tip	Axial direction pull-out/-through		Shear direction one shear plane	
		dk × L [mm]	B [mm]	d _i [mm]	D [mm]	t ₁ [mm]	t ₂ [mm]	F _{ax,Rk} [kN]		F _{v,Rk} [kN]	
								C14	C24	C14	C24
113 266	✓	10.0 × 80	60	6,4	24,0	20	60	4,7	5,5	2,1	2,6
113 267	✓	10.0 × 100	60	6,4	24,0	40	60	4,7	5,5	3,6	4,1
113 269	✓	10.0 × 120	80	6,4	24,0	40	80	6,3	7,3	4,0	4,6
113 271	✓	10.0 × 140	80	6,4	24,0	60	80	6,3	7,3	4,5	5,3
113 273	✓	10.0 × 160	80	6,4	24,0	80	80	6,3	7,3	4,9	5,5
113 275	✓	10.0 × 180	80	6,4	24,0	100	80	6,3	7,3	4,9	5,5
113 277	✓	10.0 × 200	100	6,4	24,0	100	100	6,8	7,9	5,0	5,7
113 281	✓	10.0 × 240	100	6,4	24,0	140	100	6,8	7,9	5,0	5,7

LOAD CAPACITY

Wood screw -W (WAF) 6.0 - 10.0 mm. Electro zinc plated

ESSVE
GET IT DONE



Conversion factors for load-duration and service classes

The conversion factors can be used to re-calculated the recommended load in the tables for other load-durations and service classes. The conversion factors are based on the factor k_{mod} in Eurocode 5.

Load-duration classes can differ between different countries due to climate-based loads (snow, wind).

Conversion factors from permanent load duration in service class 3

Load-duration	Examples of loading	Service class 1-2	Service class 3
Permanent	Self-weight	1.20	1.00
Long-term	Storage	1.40	1.10
Medium-term	Imposed floor load, snow	1.60	1.30
Short-term	Snow, wind	1.80	1.40
Instantaneous	Wind, accidental load	2.20	1.80

Corrosion protection

Rules and best practice for corrosion protection may differ among European countries. The end-user should ensure that the corrosion protection is suitable for the current application.

Conversion to different timber quality

Re-calculation of load capacity in the axial direction for a different timber quality (characteristic density) is possible according to the formula below:

$$F_{ax(\rho_{k,1})} \times \left(\frac{\rho_{k,2}}{\rho_{k,1}} \right)^{0.8} = F_{ax(\rho_{k,2})}$$

If for example the load capacity in axial direction is 60 kg in

C14-timber the load capacity in C35-timber is

$$60kg \times \left(\frac{400}{290} \right)^{0.8} = 75kg$$

Material	Density ρ_k [kg/m ³]
C14	290
C18	320
C24	350
C30	380
C35	400
C40	420

Re-calculation for load capacity in the shear direction in the same way is however not possible. For guidance please contact ESSVE technical support.