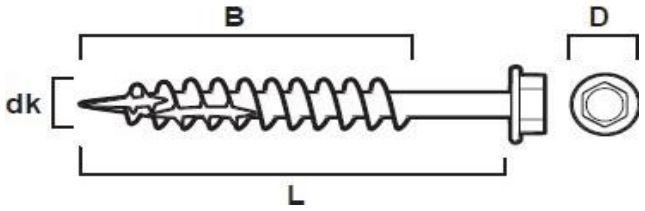
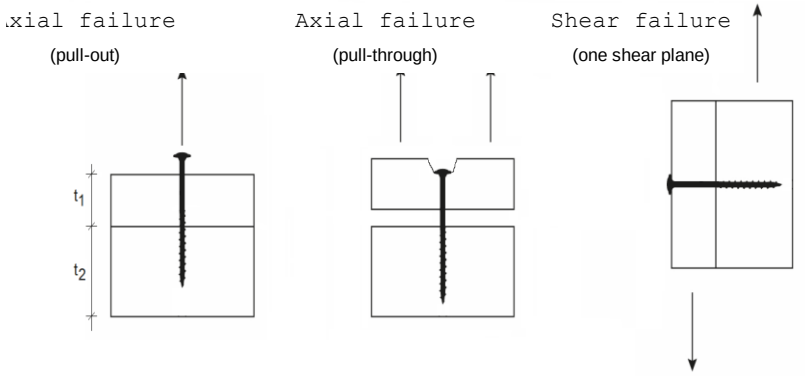
LOAD CAPACITY

Wood screw -HF (HEX) 6.0 - 10.0 mm. CorrSeal



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 (γ = 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):

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

LOAD CAPACITY

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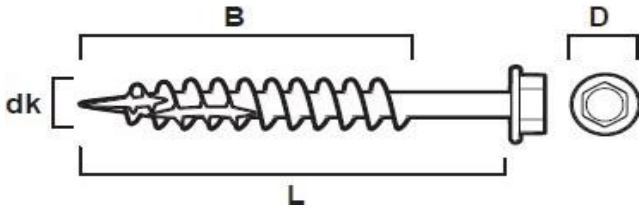


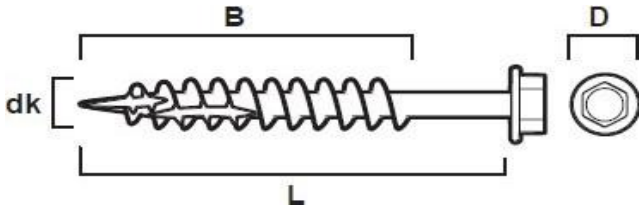
Recommended load

Intended for craftsmen

Art. No.	CE-marking EN 14592	Dimension dk × L [mm]	Thread length B [mm]	Inner thread diameter d_1 [mm]	Head diameter D [mm]	Timber tickness at screw head t_1 [mm]	Timber tickness 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
113 403	✓	6.0 × 50	40	3.9	12.5	10	40	30	35	15	20
113 408	✓	6.0 × 70	40	3.9	12.5	30	40	30	35	30	40
113 411	✓	6.0 × 90	50	3.9	12.5	40	50	30	35	35	45
113 415	✓	6.0 × 120	75	3.9	12.5	45	75	30	35	40	45
113 417	✓	6.0 × 140	75	3.0	12.5	65	75	30	35	40	45
113 435	✓	8.0 × 70	50	5.3	14.5	20	50	40	45	45	50
113 439	✓	8.0 × 90	50	5.3	14.5	40	50	40	45	50	60
113 443	✓	8.0 × 120	80	5.3	14.5	40	80	40	45	55	60
113 451	✓	8.0 × 160	80	5.3	14.5	80	80	40	45	65	75
113 453	✓	8.0 × 200	100	5.3	14.5	100	100	40	45	65	75
113 455	✓	8.0 × 240	100	5.3	14.5	140	100	40	45	65	75
113 466	✓	10.0 × 80	60	6.4	17.5	20	60	55	65	55	70
113 467	✓	10.0 × 100	60	6.4	17.5	40	60	55	65	80	95
113 469	✓	10.0 × 120	80	6.4	17.5	40	80	55	65	80	95
113 473	✓	10.0 × 160	80	6.4	17.5	80	80	55	65	110	120
113 477	✓	10.0 × 200	100	6.4	17.5	100	100	55	65	110	120
113 481	✓	10.0 × 240	100	6.4	17.5	140	100	55	65	110	120

LOAD CAPACITY

Wood screw -HF (HEX) 6.0 - 10.0 mm. CorrSeal



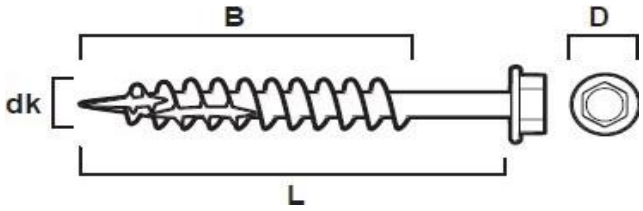
Characteristic resistance

Intended for engineers

Art. No.	CE-marking EN 14592	Dimension dk × L [mm]	Thread length B [mm]	Inner thread diameter d_1 [mm]	Head diameter D [mm]	Timber tickness at screw head t_1 [mm]	Timber tickness at screw tip t_2 [mm]	Axial direction (pull-out/-through) $F_{ax,Rk}$ [kN]		Shear direction (one shear plane) $F_{v,Rk}$ [kN]	
								C14	C24	C14	C24
113 403	✓	6.0 × 50	40	3.9	12.5	10	40	1.1	1.3	0.7	0.8
113 408	✓	6.0 × 70	40	3.9	12.5	30	40	1.1	1.3	1.2	1.5
113 411	✓	6.0 × 90	50	3.9	12.5	40	50	1.1	1.3	1.4	1.7
113 415	✓	6.0 × 120	75	3.9	12.5	45	75	1.1	1.3	1.5	1.7
113 417	✓	6.0 × 140	75	3.9	12.5	65	75	1.1	1.3	1.6	1.7
113 435	✓	8.0 × 70	50	5.3	14.5	20	50	1.4	1.7	1.6	1.9
113 439	✓	8.0 × 90	50	5.3	14.5	40	50	1.4	1.7	1.9	2.3
113 443	✓	8.0 × 120	80	5.3	14.5	40	80	1.4	1.7	2.0	2.3
113 451	✓	8.0 × 160	80	5.3	14.5	80	80	1.4	1.7	2.4	2.7
113 453	✓	8.0 × 200	100	5.3	14.5	100	100	1.4	1.7	2.4	2.7
113 455	✓	8.0 × 240	100	5.3	14.5	140	100	1.4	1.7	2.4	2.7
113 466	✓	10.0 × 80	60	6.4	17.5	20	60	2.1	2.5	2.1	2.6
113 467	✓	10.0 × 100	60	6.4	17.5	40	60	2.1	2.5	3.0	3.4
113 469	✓	10.0 × 120	80	6.4	17.5	40	80	2.1	2.5	3.0	3.4
113 473	✓	10.0 × 160	80	6.4	17.5	80	80	2.1	2.5	4.0	4.4
113 477	✓	10.0 × 200	100	6.4	17.5	100	100	2.1	2.5	4.0	4.4
113 481	✓	10.0 × 240	100	6.4	17.5	140	100	2.1	2.5	4.0	4.4

LOAD CAPACITY

Wood screw -HF (HEX) 6.0 - 10.0 mm. CorrSeal



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 increased to:

$$60kg \times \left(\frac{400}{290}\right)^{0,8} = 75kg$$

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 guidence please contact ESSVE technical support.