Load values of EVO-GRIP connectors EN KNAPP GmbH

V_01_250822

Technical Note on the Characteristic Load Values in the Following Tables:

The load values presented have been derived using the design equations specified in the European Technical Assessment (ETA). These values are influenced by multiple design parameters, which have been deliberately selected to reflect realistic and application-oriented load capacities for the various EVO-GRIP connector sizes.

It is important to note that any modification to individual parameters—such as connector geometry, base material properties, or installation conditions—can have a direct impact on the resulting load values.

SECONDARY BEAM

EVO-GRIP sizes	45° angled screws	90° horizontal screws	Installation height	Characteristic load values for strength class GL24h		
Height x Width x Depth [mm]	Quantity x Diameter × Length	Quantity x Diameter × Length	h_0 [mm]	$F_{2,J,screw,Rk}$ [1] [kN]	$F_{2,J,\tau,Rk}$ [2] [kN]	**$F_{2,J,Rk}$ [3] [kN]**
200x60x25 H	4 x SK 8x120	3 x SK 8x160	60	55,2	57,7	**55,2**
200x100x25 H	6 x SK 8x120	3 x SK 8x160	100	82,9	69,0	**69,0**
200x140x25 H	8 x SK 8x120	3 x SK 8x160	140	110,5	80,2	**80,2**
200x180x25 H	8 x SK 8x120	3 x SK 8x160	180	110,5	91,4	**91,4**
360x60x30 H	8 x SK 8x160	4 x SK 8x160	60	132,7	159,7	**132,7**
360x100x30 H	10 x SK 8x160	4 x SK 8x160	100	165,9	179,7	**165,9**
360x140x30 H	12 x SK 8x160	4 x SK 8x160	140	199,0	199,7	**199,0**
360x180x30 H	14 x SK 8x160	4 x SK 8x160	180	232,2	219,6	**219,6**
500x60x40 H	12 x SK 8x200	6 x SK 8x160	60	278,8	353,3	**278,8**
500x100x40 H	20 x SK 8x200	6 x SK 8x160	100	464,7	384,0	**384,0**
500x140x40 H	20 x SK 8x200	6 x SK 8x160	140	464,7	414,7	**414,7**
500x180x40 H	20 x SK 8x200	6 x SK 8x160	180	464,7	445,4	**445,4**
500x220x40 H	22 x SK 8x200	6 x SK 8x160	220	511,1	476,2	**476,2**
500x260x40 H	24 x SK 8x200	6 x SK 8x160	260	557,6	506,9	**506,9**
500x300x40 H	24 x SK 8x200	6 x SK 8x160	300	557,6	537,6	**537,6**

[1] ... Shear load capacity of the 45° screws and the friction coefficient of the connector plate; load value depends on the screw length of the 45° angled screws and the timber strength class

[2] ... Shear load capacity of the timber due to rolling shear and transverse compression in the secondary beam; load value depends on the installation height h_0

[3] ... Minimum value of $F_{2,J,screw,Rk}$ and $F_{2,J,\tau,Rk}$

MAIN BEAM

EVO-GRIP sizes	45° angled screws	90° horizontal screws	Installation height	Characteristic load values for strength class GL24h		
H x W x D [mm]	Quantity x Diameter × Length	Quantity x Diameter × Length	h_u [mm]	$F_{2,H,screw,Rk}$ [1] [kN]	$F_{2,H,\tau,Rk}$ [2] [kN]	**$F_{2,H,Rk}$ [3] [kN]**
200x60x25 H	4 x SK 8x120	3 x SK 8x160	20	55,2	58,5	**55,2**
200x100x25 H	6 x SK 8x120	3 x SK 8x160	30	82,9	70,5	**70,5**
200x140x25 H	8 x SK 8x120	3 x SK 8x160	40	110,5	83,4	**83,4**
200x180x25 H	8 x SK 8x120	3 x SK 8x160	40	110,5	92,3	**92,3**
360x60x30 H	8 x SK 8x160	4 x SK 8x160	20	132,7	159,9	**132,7**
360x100x30 H	10 x SK 8x160	4 x SK 8x160	20	165,9	173,4	**165,9**
360x140x30 H	12 x SK 8x160	4 x SK 8x160	40	199,0	200,2	**199,0**
360x180x30 H	14 x SK 8x160	4 x SK 8x160	50	232,2	221,7	**221,7**
500x60x40 H	12 x SK 8x200	6 x SK 8x160	20	278,8	352,8	**278,8**
500x100x40 H	20 x SK 8x200	6 x SK 8x160	40	464,7	390,7	**390,7**
500x140x40 H	20 x SK 8x200	6 x SK 8x160	50	464,7	421,2	**421,2**
500x180x40 H	20 x SK 8x200	6 x SK 8x160	60	464,7	452,6	**452,6**
500x220x40 H	22 x SK 8x200	6 x SK 8x160	70	511,1	485,0	**485,0**
500x260x40 H	24 x SK 8x200	6 x SK 8x160	80	557,6	518,4	**518,4**
500x300x40 H	24 x SK 8x200	6 x SK 8x160	90	557,6	552,7	**552,7**

[1] ... Shear load capacity of the 45° screws and the friction coefficient of the connector plate, as well as the bearing pressure of the connector plate and the compression screws (90° horizontal screws); load value depends on the screw length of the 45° angled screws and the timber strength class

[2] ... Shear load capacity of the timber due to rolling shear and transverse compression in the main beam; load value depends on the lower height h_u

[3] ... Minimum value of $F_{2,H,screw,Rk}$ and $F_{2,H,\tau,Rk}$

COLUMN

EVO-GRIP sizes	45° angled screws	90° horizontal screws	Characteristic load values for strength class GL24h		
H x W x D [mm]	Quantity x Diameter × Length	Quantity x Diameter × Length	$F_{2,C,screw,Rk}$ [1] [kN]	$F_{2,C,\tau,Rk}$ [2] [kN]	**$F_{2,C,Rk}$ [3] [kN]**
200x60x25 H	4 x SK 8x120	3 x SK 8x160	55,2	58,9	**55,2**
200x100x25 H	6 x SK 8x120	3 x SK 8x160	82,9	113,3	**82,9**
200x140x25 H	8 x SK 8x120	3 x SK 8x160	110,5	207,7	**110,5**
200x180x25 H	8 x SK 8x120	3 x SK 8x160	110,5	302,2	**110,5**
360x60x30 H	8 x SK 8x160	4 x SK 8x160	132,7	129,8	**129,8**
360x100x30 H	10 x SK 8x160	4 x SK 8x160	165,9	165,5	**165,5**
360x140x30 H	12 x SK 8x160	4 x SK 8x160	199,0	228,7	**199,0**
360x180x30 H	14 x SK 8x160	4 x SK 8x160	232,2	355,8	**232,2**
500x60x40 H	12 x SK 8x240	6 x SK 8x160	276,0	249,9	**249,9**
500x100x40 H	20 x SK 8x240	6 x SK 8x160	460,0	287,4	**287,4**
500x140x40 H	20 x SK 8x240	6 x SK 8x160	460,0	427,1	**427,1**
500x180x40 H	20 x SK 8x200	6 x SK 8x160	464,7	508,3	**464,7**
500x220x40 H	22 x SK 8x200	6 x SK 8x160	511,1	667,1	**511,1**
500x260x40 H	24 x SK 8x200	6 x SK 8x160	557,6	826,0	**557,6**
500x300x40 H	24 x SK 8x200	6 x SK 8x160	557,6	984,8	**557,6**

[1] ... Shear load capacity of the 45° screws and the friction coefficient of the connector plate, as well as the bearing pressure of the connector plate and the compression screws (90° horizontal screws); load value depends on the screw length of the 45° angled screws and the timber strength class

[2] ... Shear load capacity of the timber due to rolling shear and axial compression in the column; load value depends on the screw length of the 45° angled screws and the timber strength class

[3] ... Minimum value of $F_{2,C,screw,Rk}$ and $F_{2,C,\tau,Rk}$