WASP

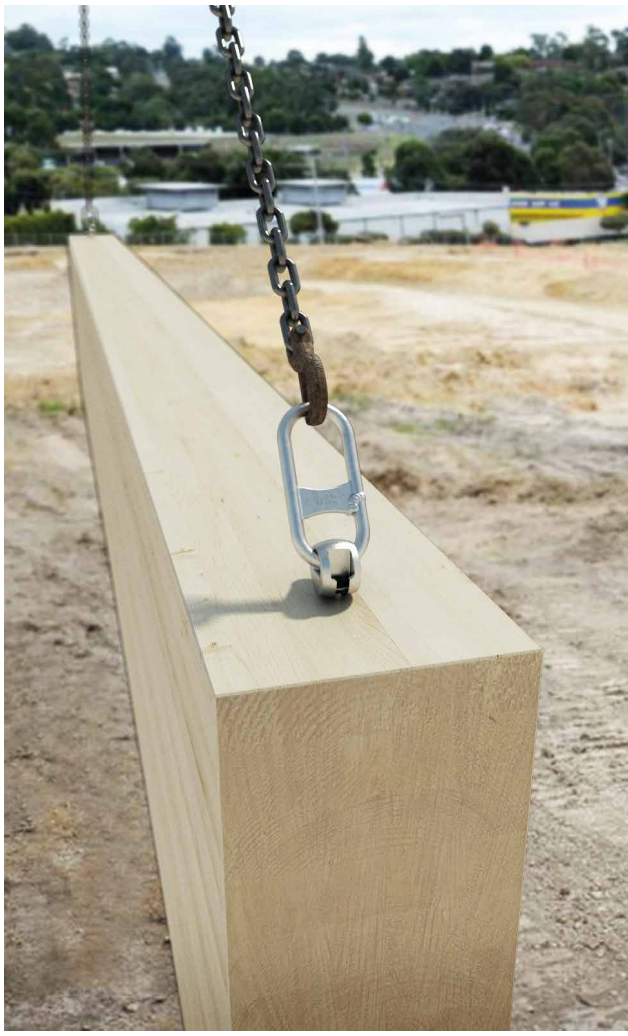
ANNUAL REPORT REUSABLE 2006/42/CE

HOOK FOR TIMBER ELEMENTS TRANSPORT

FAST
Fastened with just one screw, it allows significant time savings due to its quick assembly and disassembly.

INGENIOUS
The lifting hook can be used for both axial and lateral loads.

CERTIFIED
Pursuant to the Directive 2006/42/EC on machinery.



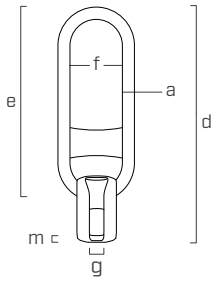
MANUALS

CODES

	suitable screws	pcs
WASP	VGS Ø11 - HBS Ø10	2
WASPL	VGS Ø11 - VGS Ø13 - HBS Ø12	1

DIMENSIONS

	a [mm]	d [mm]	e [mm]	f [mm]	g [mm]	m [mm]
WASP	12	185	157	40	12	6
WASPL	14	205	180	54	13	8



MATERIAL

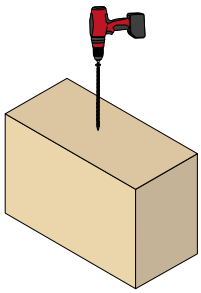
WASP is made of very high strength carbon steel.
WASPL is forged from high-strength steel. Both versions are coated with white electro-galvanising for a long service life.

VERSATILITY

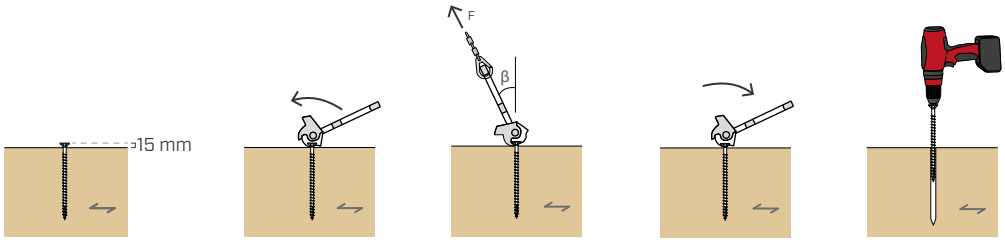
Various installation options with more types of screws for load conditions and different material.

WASP INSTALLATION

PERPENDICULAR INSTALLATION



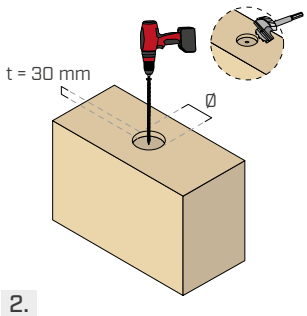
1.



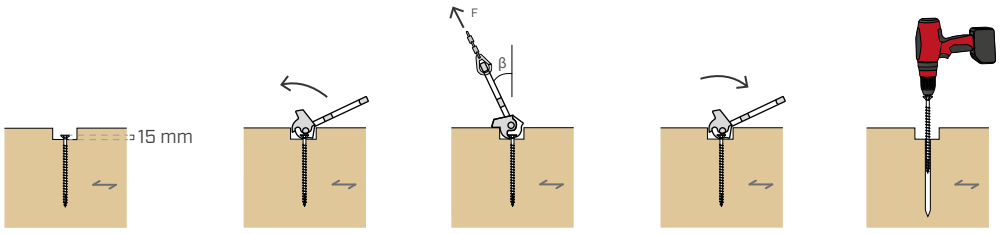
1a. 1b. 1c. 1d. 1e.

1. Insertion of the screw into the timber element to be lifted.
1a. The screw head must protrude approx. 15 mm.
1b. Hook positioning.
1c. Lifting of the structure (perpendicular or inclined force).
1d. Hook removal (unhooking).
1e. For safety reasons, insert or completely remove the screw from the timber element after use.

INSTALLATION WITH MILLING



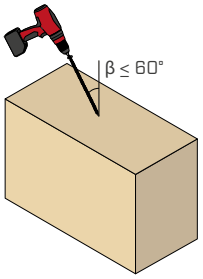
2.



2a. 2b. 2c. 2d. 2e.

2. Make the milling cut, WASP-Ø55 mm and WASPL-Ø65 mm, to accommodate the hook. Insertion of the screw into the timber element to be lifted.
2a. The screw head must protrude approx. 15 mm from the bottom of the milling cut.
2b. Hook positioning.
2c. Lifting of the structure (perpendicular or inclined force).
2d. Hook removal (unhooking).
2e. After use, the screw can remain in place. Optional insert or completely remove the screw from the timber element.

INCLINED INSTALLATION



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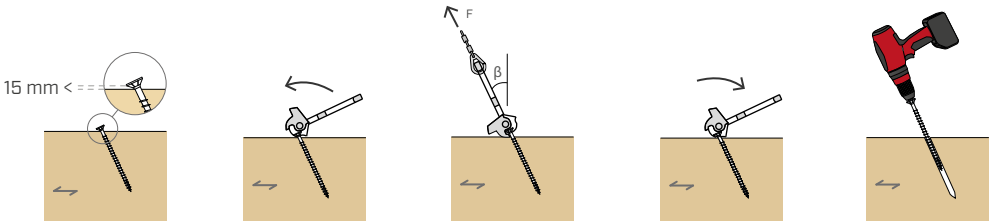


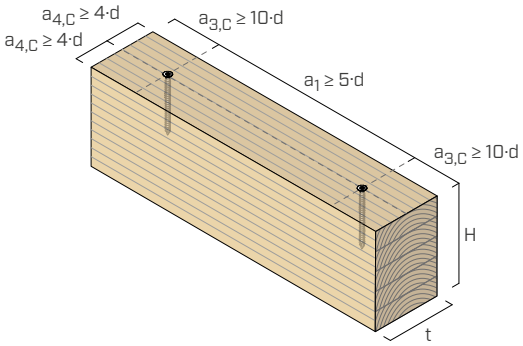
3a. 3b. 3c. 3d. 3e.

3. Check the lifting angle β and insert the screw at the same angle.
3a. The screw head must protrude approx. 15 mm.
3b. Hook positioning.
3c. Structure lifting (lifting chain always in line with transport hook and screw inclination).
3d. Hook removal (unhooking).
3e. For safety reasons, insert or completely remove the screw from the timber element after use.

MINIMUM DISTANCES

SCREW | TIMBER BEAM

PERPENDICULAR



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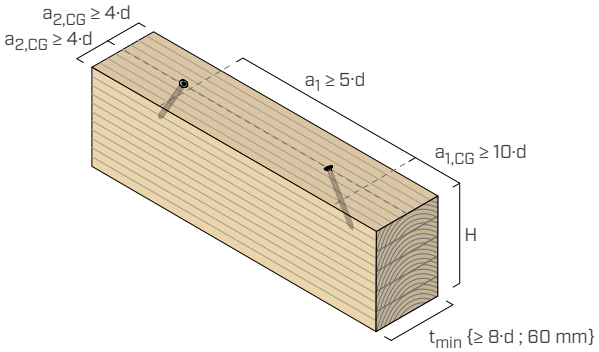
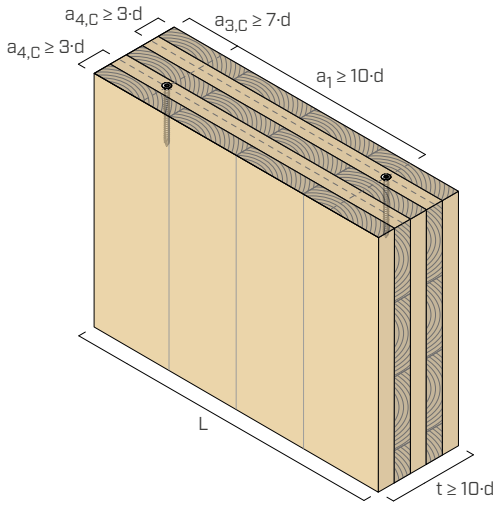


SCREW | CLT WALL

PERPENDICULAR



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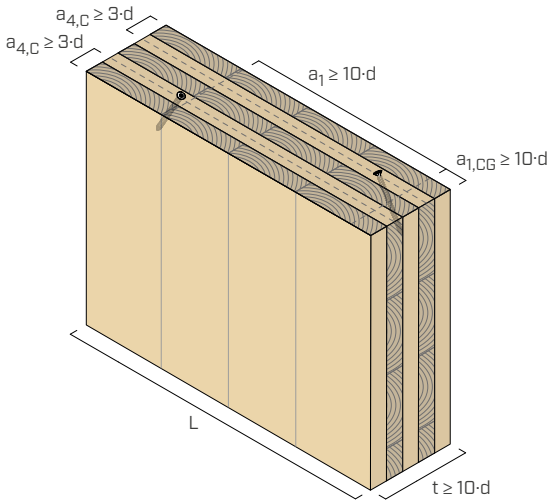
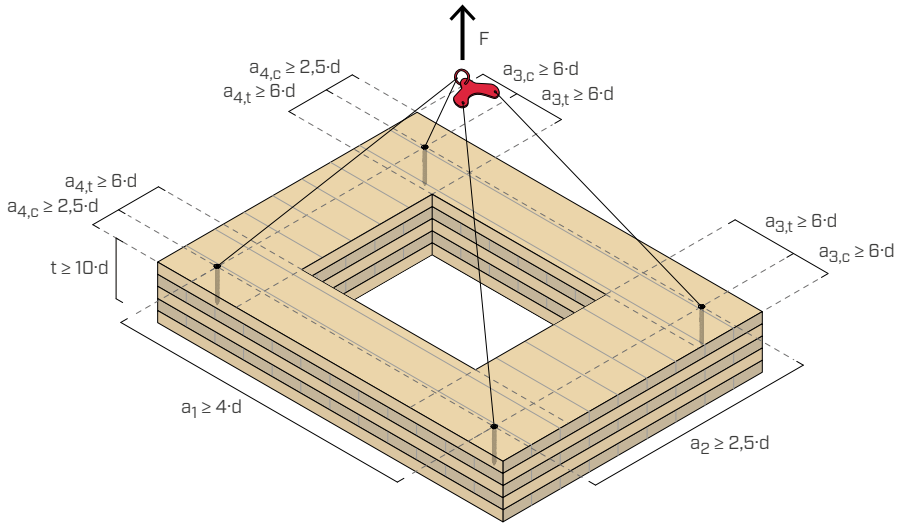


SCREW | CLT FLOOR

PERPENDICULAR - INCLINED

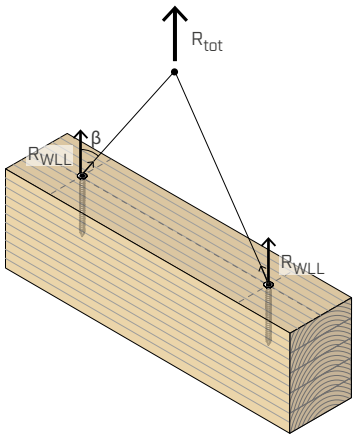


NOTES:

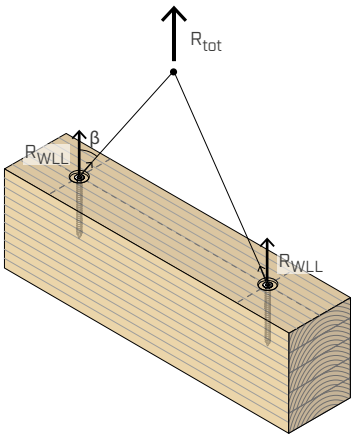
- The minimum distances are in accordance with ETA-11/0030 and are valid if no other information is specified in the timber data sheet.
- The minimum distance always refers to the barycentre of the threaded part of the timber.
- The minimum distances for CLT apply unless otherwise specified by the timber manufacturer.

LOAD VALUES | HOOK WITH VGS Ø11 AND VGS Ø13

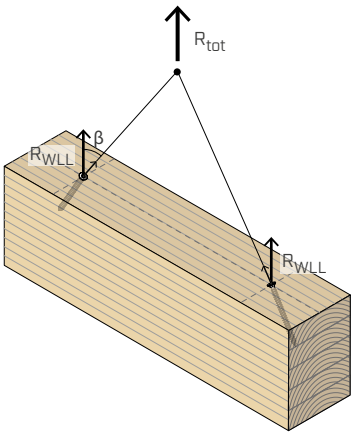
HORIZONTAL BEAM | STATICALLY DEFINED SYSTEM



PERPENDICULAR



PERPENDICULAR WITH MILLING



INCLINED

LOAD CAPACITY PER STOPPING POINT

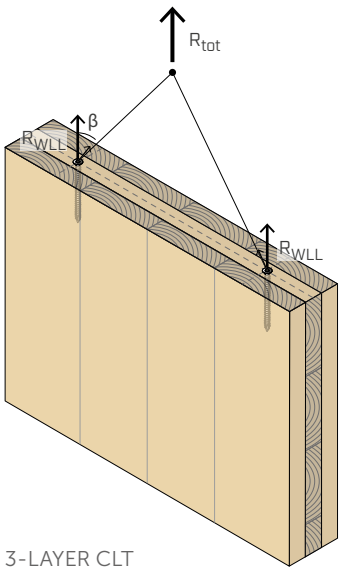
WASP | WASP L screw		assembly variant		
		perpendicular	perpendicular with milling	inclined
VGS Ø x L [mm]	β [°]	R_{WLL} [kg]	R_{WLL} [kg]	R_{WLL} [kg]
Ø11 x 80	0	367	367	367
	15	308	354	354
	30	215	318	318
	45	141	260	259
Ø11 x 100	0	500	500	500
	15	422	477	483
	30	294	413	433
	45	193	324	354
Ø11 x 125	0	667	667	667
	15	561	626	644
	30	392	526	578
	45	257	398	472
Ø11 x 150	0	834	834	834
	15	702	774	805
	30	490	634	722
	45	322	467	590
Ø11 x 175	0	1000	1000	1000
	15	843	921	966
	30	588	739	866
	45	386	536	707
Ø11 x 200	0	1167	1167	1167
	15	983	1066	1127
	30	686	842	1011
	45	451	604	825
Ø11 x 225	0	1300 | (1334)*	1300 | (1334)*	1300 | (1334)*
	15	1109	1204	1256 | (1288)*
	30	761	931	1126 | (1155)*
	45	497	654	919 | (943)*
Ø11 x 250	0	1300 | (1501)*	1300 | (1501)*	1300 | (1501)*
	15	1231	1256 | (1338)*	1256 | (1450)*
	30	832	1011	1126 | (1300)*
	45	539	701	919 | (1061)*
Ø11 x 275	0	1300 | (1600)*	1300 | (1600)*	1300 | (1600)*
	15	1256 | (1351)*	1256 | (1468)*	1256 | (1545)*
	30	901	1091	1126 | (1386)*
	45	579	746	919 | (1131)*

WASP L screw		assembly variant		
		perpendicular	perpendicular with milling	inclined
VGS Ø x L [mm]	β [°]	R_{WLL} [kg]	R_{WLL} [kg]	R_{WLL} [kg]
Ø13 x 80	0	434	434	434
	15	364	416	419
	30	253	366	375
	45	167	292	307
Ø13 x 100	0	591	591	591
	15	496	558	571
	30	345	475	512
	45	227	363	418
Ø13 x 150	0	985	985	985
	15	828	906	952
	30	576	729	853
	45	379	528	697
Ø13 x 200	0	1379	1379	1379
	15	1158	1249	1332
	30	807	971	1195
	45	530	685	975
Ø13 x 250	0	1600	1600	1600
	15	1476	1545	1545
	30	1016	1192	1386
	45	663	824	1131
Ø13 x 300	0	1600	1600	1600
	15	1545	1545	1545
	30	1181	1375	1386
	45	761	930	1131

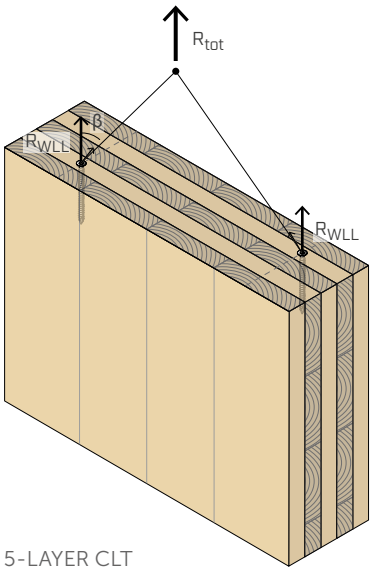
(*) The second value refers only to the WASPL + VGS Ø11 mm system.

LOAD VALUES | HOOK WITH VGS Ø11 AND VGS Ø13

VERTICAL CLT PANEL[*]



3-LAYER CLT



5-LAYER CLT

LOAD CAPACITY PER STOPPING POINT

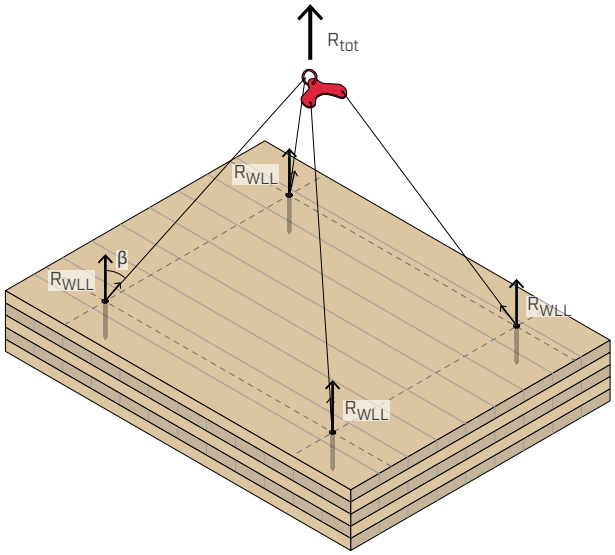
WASP | WASP L screw		assembly variant perpendicular	perpendicular with milling	inclined
VGS Ø x L [mm]	β [°]	R_{WLL} [kg]	R_{WLL} [kg]	R_{WLL} [kg]
Ø11 x 80	0	241	241	241
	15	140	235	233
	30	76	216	209
	45	45	184	170
Ø11 x 100	0	318	318	318
	15	189	306	308
	30	103	272	276
	45	62	219	225
Ø11 x 125	0	413	413	413
	15	249	390	399
	30	137	332	357
	45	82	255	292
Ø11 x 150	0	504	504	504
	15	309	469	487
	30	171	385	437
	45	103	285	357
Ø11 x 175	0	594	594	594
	15	368	545	574
	30	205	434	515
	45	123	311	420
Ø11 x 200	0	683	683	683
	15	427	617	660
	30	238	478	591
	45	144	337	483
Ø11 x 225	0	770	770	770
	15	486	687	744
	30	272	520	667
	45	164	361	544
Ø11 x 250	0	856	856	856
	15	544	753	827
	30	306	561	741
	45	185	384	605
Ø11 x 275	0	941	941	941
	15	602	820	909
	30	339	600	815
	45	205	406	666

WASP L screw		assembly variant perpendicular	perpendicular with milling	inclined
VGS Ø x L [mm]	β [°]	R_{WLL} [kg]	R_{WLL} [kg]	R_{WLL} [kg]
Ø13 x 80	0	275	275	275
	15	158	267	266
	30	85	241	238
	45	51	200	195
Ø13 x 100	0	364	364	364
	15	213	347	352
	30	115	301	315
	45	69	236	257
Ø13 x 150	0	577	577	577
	15	348	528	557
	30	191	421	499
	45	115	304	408
Ø13 x 200	0	780	780	780
	15	482	692	754
	30	267	521	676
	45	160	358	552
Ø13 x 250	0	978	978	978
	15	613	844	945
	30	342	609	847
	45	206	410	692
Ø13 x 300	0	1172	1172	1172
	15	744	990	1132
	30	417	693	1015
	45	252	458	829

(*) When transporting CLT boards vertically, the screw must always be tightened in a transverse position (perpendicular to the direction of the grain). If the screws cannot be tightened in the centre of the element, e.g. because they would be parallel to the fibres in a longitudinal layer, they must be installed offset in the next inner transverse layer (see illustration "5-layer CLT" above).

LOAD VALUES | HOOK WITH VGS Ø11 AND VGS Ø13

HORIZONTAL CLT PANEL | STATICALLY DEFINED SYSTEM



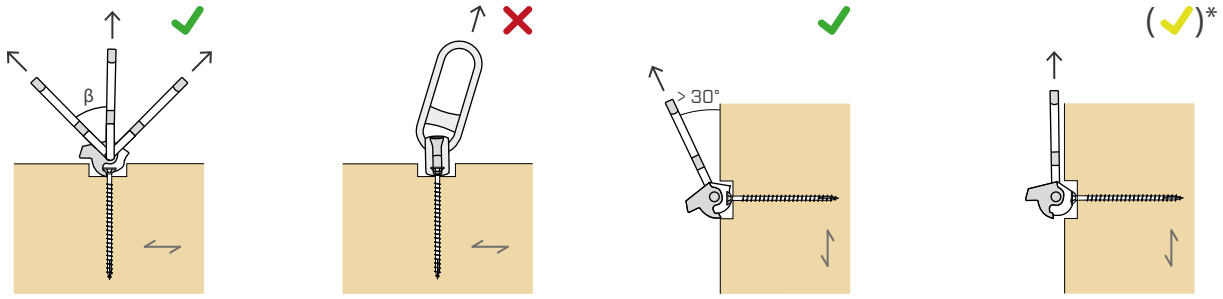
LOAD CAPACITY PER STOPPING POINT

WASP | WASP L screw		assembly variant		
		perpendicular	perpendicular with milling	inclined
VGS	β	R_{WLL}	R_{WLL}	R_{WLL}
Ø x L [mm]	[°]	[kg]	[kg]	[kg]
Ø11 x 80	0	340	340	340
	15	292	331	328
	30	209	304	294
	45	140	257	240
Ø11 x 100	0	464	464	464
	15	398	446	448
	30	285	398	401
	45	191	322	328
Ø11 x 125	0	618	618	618
	15	531	588	597
	30	381	509	535
	45	255	397	437
Ø11 x 150	0	773	773	773
	15	664	729	746
	30	476	616	669
	45	318	469	546
Ø11 x 175	0	927	927	927
	15	797	867	895
	30	571	720	803
	45	382	536	655
Ø11 x 200	0	1082	1082	1082
	15	921	1000	1045
	30	651	812	937
	45	433	594	765
Ø11 x 225	0	1236	1236	1236
	15	1035	1129	1194
	30	718	895	1070
	45	472	641	874
Ø11 x 250	0	1300 | (1391)*	1300 | (1391)*	1300 | (1391)*
	15	1150	1256 | (1257)*	1256 | (1343)*
	30	784	974	1126 | (1204)*
	45	510	686	919 | (983)*
Ø11 x 275	0	1300 | (1545)*	1300 | (1545)*	1300 | (1545)*
	15	1256 | (1261)*	1256 | (1379)*	1256 | (1492)*
	30	850	1051	1126 | (1338)*
	45	549	729	919 | (1092)*

WASP L screw		assembly variant		
		perpendicular	perpendicular with milling	inclined
VGS	β	R_{WLL}	R_{WLL}	R_{WLL}
Ø x L [mm]	[°]	[kg]	[kg]	[kg]
Ø13 x 80	0	402	402	402
	15	345	389	388
	30	246	351	348
	45	164	291	284
Ø13 x 100	0	548	548	548
	15	470	524	529
	30	336	459	474
	45	224	363	387
Ø13 x 150	0	913	913	913
	15	783	853	882
	30	560	708	791
	45	374	529	646
Ø13 x 200	0	1278	1278	1278
	15	1097	1177	1235
	30	785	947	1107
	45	523	687	904
Ø13 x 250	0	1600	1600	1600
	15	1378	1482	1545
	30	959	1144	1386
	45	629	804	1131
Ø13 x 300	0	1600	1600	1600
	15	1545	1545	1545
	30	1113	1321	1386
	45	721	905	1131

(*) The second value refers only to the WASPL + VGS Ø11 mm system.

DIRECTIONS OF APPLICATION ALLOWED

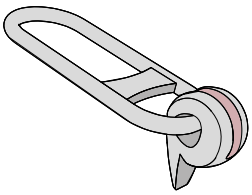


(*) See the "ELEVATION OF CLT ELEMENTS FROM HORIZONTAL TO VERTICAL" test.

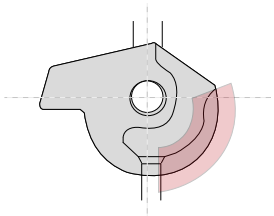
MAINTENANCE

ALWAYS FOLLOW THE INSTRUCTIONS IN THE MANUAL

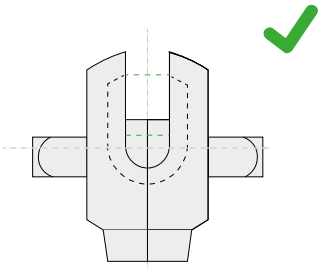
Prior to the inspection, the anchor's round head should be cleaned. Even if, under normal conditions, the lifting anchor does not show signs of wear, it should be checked at least annually by a skilled operator. Damage due to wear must be verified by a skilled operator. Plastic deformations (e.g. irreversible bending or punching) and cracks lead to the replacement of the hook; repairs and, in particular, welding on the hook are inadmissible.



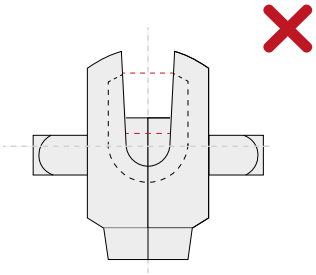
Isometric view of the WASP anchor.
The part of the anchor that must be checked is highlighted in red.



Section view of the WASP anchor round head.
The part of the eyelet subject to checking is highlighted in red.



Bottom view of the WASP anchor round head. The distance between the flanges corresponding to the closure of the eyelet is equal to that of the opening of the eyelet.
Check passed.

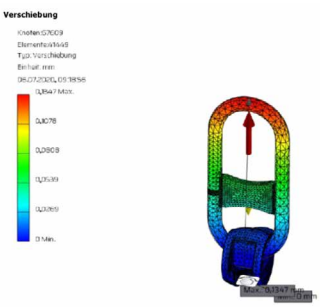


Bottom view of the anchor round head. The distance between the flanges corresponding to the closure of the eyelet is equal to that of the opening of the eyelet.
Check NOT passed.

WANT TO KNOW MORE?

For further technical information on the product, see the manual and further documents at www.rothoblaas.com.

ELEVATION OF CLT ELEMENTS FROM HORIZONTAL TO VERTICAL



For test reports and capacities for elevation of CLT elements, contact the Rothoblaas Technical Office.

NOTES:

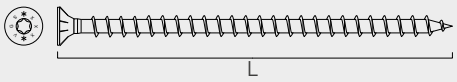
- Approved screws:

	VGS	HBS
	[mm]	[mm]
WASP	Ø11	Ø10
WASPL	Ø11 | Ø13	Ø12

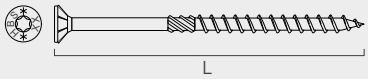
- The choice of fastener length is to be based each time on the dimensions of the wooden element, on the fastener's positioning, on the lift angle, on the weight of the load to be lifted and on the arrangement of the hooks.
- For safety reasons, the screws may only be used once.

ETA-11/0030

VGS



HBS



GENERAL PRINCIPLES:

- Design values can be obtained from characteristic values as follows:

$$R_{WLL} = \frac{R_k \cdot k_{mod}}{\varphi_2 \cdot \gamma_G \cdot \gamma_M}$$

The load bearing capacity values have been calculated according to ETA-11/0030, according with EN 1995:2014 standard. The following coefficients have been applied to the design values shown in the tables:

R_k = combinated characteristic resistance value of screw in axial and shear

$k_{mod} = 1,0$

$\gamma_M = 1,3$

$\gamma_G = 1,35$

$\varphi_2 = 1,2$

The coefficients γ_M, γ_G, kmod and φ_2 should be taken according to the current regulations used for the calculation: EN 1995:2014 and EN 1991-3:2010.

- The dynamic factor φ_2 does not include environmental impacts (e.g., wind loads) These factors must be added to the calculated design load.
- The calculation process used a timber characteristic density of $\rho_k = 385$ kg/m^3 for solid timber and $\rho_k = 350$ kg/m^3 for CLT elements. The values may change for timber species with a different density.
- The lifting hook may only be used by qualified personnel. The user manual (supplied with the product and available at www.rothoblaas.com) must be read and understood before use. The information and instructions contained therein must be followed. If in doubt, contact the Technical Department before use.
- Typical φ_2 coefficient values as a function of the lifting speed and the hoisting class:

DYNAMIC LOAD COEFFICIENT φ_2

hoisting class	**lifting speed** [m/min]		
	20	**50**	**90**
HC1	1,1	1,2	1,3
HC2	1,2	1,4	1,6
HC3	1,3	1,6	1,9
HC4	1,4	1,8	2,2

- For the φ_2 calculation criteria and crane classification according to hoisting class, see EN 1991-3-2010.

HORNET

- The calculated values refer to the load capacity of the screws, and therefore also apply to the HORNET lifting hook, which Rothoblaas has distributed until 2020, unless otherwise indicated. For any questions about HORNET, contact Rothoblaas Technical Department.