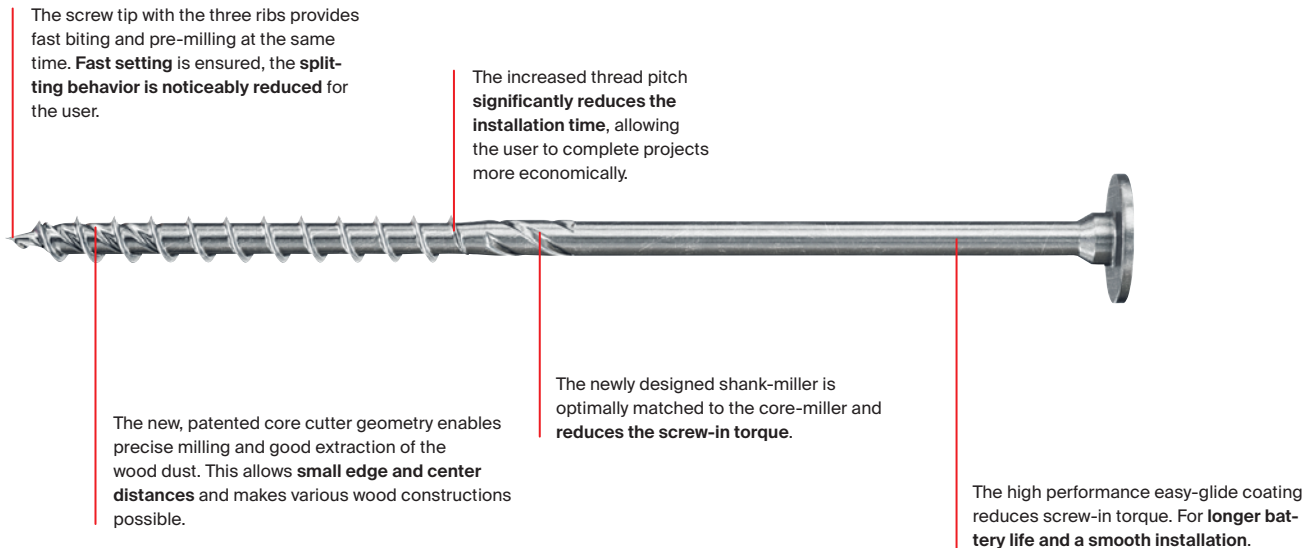


fischer 

PowerFast II.
The wood construction screw for fast and flexible applications.



The wood construction screw for fast and flexible applications.



Step countersunk head

In contrast to a standard flange head, the flat head can be completely countersunk in the wood and does not protrude. This allows a **second component to lie flush** or to be screwed on.



Countersunk head

The bottom head geometry with optimized double cone and patented milling pockets ensure **fewer ripped surfaces on wood or metal components**. As a result, they corrode less. In addition, the milling pockets **avoid protrusions on metal components** and facilitate the attachment of constructions.



Flange head

Compared to countersunk head screws, **higher pull-out resistances** can be realized due to the larger head diameter. This also has a significant positive effect when pulling together components.



Hexagonal head

The hexagonal head **enables a very high load transmission** and is therefore suitable, for example, for screwing in hardwood.

For many different applications.

Post-beam-connection



Steel panel-wood connections



Fixing of on-rafter insulation - Countersunk head



Roof trusses



Carports



Fixing of on-rafter insulation - Flange head



Suitable for substrates such as:

- Glued-laminated timber
- Cross-laminated timber
- Laminated veneer plywood panels
- Oriented strand boards (e.g. OSB panels)
- Solid structural timber
- Glued timber boards on solid wood
- Soft wood (e.g. Douglas, spruce, pine, fir, etc.)
- Solid wood made of beech, ash or oak
- Glued laminated timber made of beech, ash or oak
- LVL laminated veneer lumber
- Construction beech
- Laminated duo- and trio-beams

Further processing possibility



- A tangential impact wrench can also be used for the PowerFast II wood construction screw.

Certificates:



ETA-19/0175

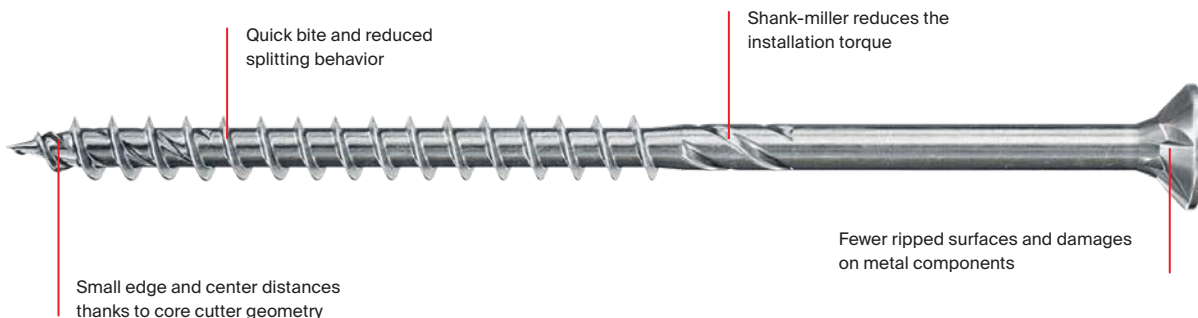


Other suitability

The PowerFast II wood construction screw is also suitable for use in plugs.

Also discover the other types of screws by fischer.

Chipboard screw PowerFast II



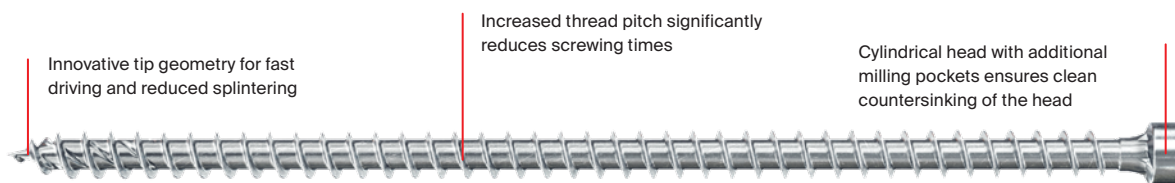
Wooden formwork



Application in plug



Full thread screw PowerFull II



Main/supporting beam joint

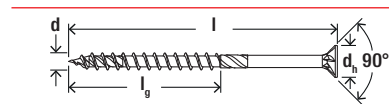


Beam doubling



You can find the assortments, loads and many other information on our website: fischer-international.com/products/screws

Assortment



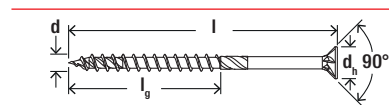
Ø 8,0

Wood construction screw PowerFast II FPF II CTP 8,0



FPF II CTP BC

Item	Item no.	Approval ETA	Diameter d [mm]	Length l [mm]	GewindeLength l _g [mm]	Head-Ø d _k [mm]	Drive	Sales unit [Pcs]
FPF II CTP 8,0 x 80 BC 50	566309	●	8,0	80	60	14,4	TX40	50
FPF II CTP 8,0 x 100 BC 50	566310	●	8,0	100	60	14,4	TX40	50
FPF II CTP 8,0 x 120 BC 50	566311	●	8,0	120	80	14,4	TX40	50
FPF II CTP 8,0 x 140 BC 50	566312	●	8,0	140	80	14,4	TX40	50
FPF II CTP 8,0 x 160 BC 50	566313	●	8,0	160	80	14,4	TX40	50
FPF II CTP 8,0 x 180 BC 50	566314	●	8,0	180	100	14,4	TX40	50
FPF II CTP 8,0 x 220 BC 50	568156	●	8,0	220	100	14,4	TX40	50
FPF II CTP 8,0 x 300 BC 50	568160	●	8,0	300	100	14,4	TX40	50
FPF II CTP 8,0 x 380 BC 50	568164	●	8,0	380	100	14,4	TX40	50
FPF II CTP 8,0 x 400 BC 50	568165	●	8,0	400	100	14,4	TX40	50
FPF II CTP 8,0 x 280 BC 50	568159	●	8,0	280	100	14,4	TX40	50
FPF II CTP 8,0 x 240 BC 50	568157	●	8,0	240	100	14,4	TX40	50
FPF II CTP 8,0 x 260 BC 50	568158	●	8,0	260	100	14,4	TX40	50
FPF II CTP 8,0 x 200 BC 50	568155	●	8,0	200	100	14,4	TX40	50
FPF II CTP 8,0 x 340 BC 50	568162	●	8,0	340	100	14,4	TX40	50
FPF II CTP 8,0 x 320 BC 50	568161	●	8,0	320	100	14,4	TX40	50
FPF II CTP 8,0 x 360 BC 50	568163	●	8,0	360	100	14,4	TX40	50



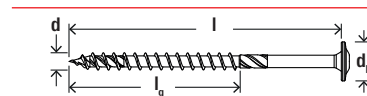
Ø 10,0

Wood construction screw PowerFast II FPF II CTP 10,0



FPF II CTP BC

Item	Item no.	Ap- proval ETA	Diameter d [mm]	Length l [mm]	GewindeLength l _g [mm]	Head-Ø d _k [mm]	Drive	Sales unit [Pcs]
FPF II CTP 10,0 x 80 BC 50	566315	●	10,0	80	60	18,4	TX40	50
FPF II CTP 10,0 x 100 BC 50	566316	●	10,0	100	60	18,4	TX40	50
FPF II CTP 10,0 x 120 BC 50	566317	●	10,0	120	80	18,4	TX40	50
FPF II CTP 10,0 x 140 BC 50	566318	●	10,0	140	80	18,4	TX40	50
FPF II CTP 10,0 x 160 BC 50	566319	●	10,0	160	80	18,4	TX40	50
FPF II CTP 10,0 x 180 BC 50	566320	●	10,0	180	100	18,4	TX40	50
FPF II CTP 10,0 x 200 BC 50	566321	●	10,0	200	100	18,4	TX40	50
FPF II CTP 10,0 x 220 BC 50	566322	●	10,0	220	100	18,4	TX40	50
FPF II CTP 10,0 x 240 BC 50	566323	●	10,0	240	100	18,4	TX40	50
FPF II CTP 10,0 x 260 BC 50	566324	●	10,0	260	100	18,4	TX40	50
FPF II CTP 10,0 x 280 BC 50	566325	●	10,0	280	115	18,4	TX40	50
FPF II CTP 10,0 x 300 BC 50	566326	●	10,0	300	115	18,4	TX40	50
FPF II CTP 10,0 x 320 BC 50	566327	●	10,0	320	115	18,4	TX40	50
FPF II CTP 10,0 x 340 BC 50	566328	●	10,0	340	115	18,4	TX40	50
FPF II CTP 10,0 x 360 BC 50	566329	●	10,0	360	115	18,4	TX40	50
FPF II CTP 10,0 x 380 BC 50	566330	●	10,0	380	115	18,4	TX40	50
FPF II CTP 10,0 x 400 BC 50	566331	●	10,0	400	115	18,4	TX40	50



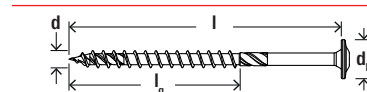
Ø 8,0

Wood construction screw PowerFast II FPF II WTP 8,0



FPF II WTP BC

Item	Item no.	Ap- proval ETA	Diameter	Length	GewindeLength	Head-Ø	Drive	Sales unit
			d [mm]	l [mm]	l _g [mm]	d _k [mm]		[Pcs]
FPF II WTP 8,0 x 80 BC 50	566332	●	8,0	80	60	21,0	TX40	50
FPF II WTP 8,0 x 100 BC 50	566333	●	8,0	100	60	21,0	TX40	50
FPF II WTP 8,0 x 120 BC 50	566334	●	8,0	120	80	21,0	TX40	50
FPF II WTP 8,0 x 140 BC 50	566335	●	8,0	140	80	21,0	TX40	50
FPF II WTP 8,0 x 160 BC 50	566336	●	8,0	160	80	21,0	TX40	50
FPF II WTP 8,0 x 180 BC 50	566337	●	8,0	180	100	21,0	TX40	50
FPF II WTP 8,0 x 200 BC 50	568166	●	8,0	200	100	21,0	TX40	50
FPF II WTP 8,0 x 220 BC 50	568167	●	8,0	220	100	21,0	TX40	50
FPF II WTP 8,0 x 240 BC 50	568168	●	8,0	240	100	21,0	TX40	50
FPF II WTP 8,0 x 260 BC 50	568169	●	8,0	260	100	21,0	TX40	50
FPF II WTP 8,0 x 280 BC 50	568170	●	8,0	280	100	21,0	TX40	50
FPF II WTP 8,0 x 300 BC 50	568171	●	8,0	300	100	21,0	TX40	50
FPF II WTP 8,0 x 320 BC 50	568172	●	8,0	320	100	21,0	TX40	50
FPF II WTP 8,0 x 340 BC 50	568173	●	8,0	340	100	21,0	TX40	50
FPF II WTP 8,0 x 360 BC 50	568174	●	8,0	360	100	21,0	TX40	50
FPF II WTP 8,0 x 380 BC 50	568175	●	8,0	380	100	21,0	TX40	50
FPF II WTP 8,0 x 400 BC 50	568176	●	8,0	400	100	21,0	TX40	50



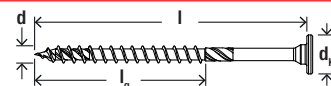
Ø 10,0

Wood construction screw PowerFast II FPF II WTP 10,0



FPF II WTP BC

Item	Item no.	Ap- proval ETA	Diameter	Length	GewindeLength	Head-Ø	Drive	Sales unit
			d [mm]	l [mm]	l _g [mm]	d _k [mm]		[Pcs]
FPF II WTP 10,0 x 80 BC 50	566338	●	10,0	80	60	25,5	TX40	50
FPF II WTP 10,0 x 100 BC 50	566339	●	10,0	100	60	25,5	TX40	50
FPF II WTP 10,0 x 120 BC 50	566340	●	10,0	120	80	25,5	TX40	50
FPF II WTP 10,0 x 140 BC 50	566341	●	10,0	140	80	25,5	TX40	50
FPF II WTP 10,0 x 160 BC 50	566342	●	10,0	160	80	25,5	TX40	50
FPF II WTP 10,0 x 180 BC 50	566343	●	10,0	180	100	25,5	TX40	50
FPF II WTP 10,0 x 200 BC 50	566344	●	10,0	200	100	25,5	TX40	50
FPF II WTP 10,0 x 220 BC 50	566345	●	10,0	220	100	25,5	TX40	50
FPF II WTP 10,0 x 240 BC 50	566346	●	10,0	240	100	25,5	TX40	50
FPF II WTP 10,0 x 260 BC 50	566347	●	10,0	260	100	25,5	TX40	50
FPF II WTP 10,0 x 280 BC 50	566348	●	10,0	280	115	25,5	TX40	50
FPF II WTP 10,0 x 300 BC 50	566349	●	10,0	300	115	25,5	TX40	50
FPF II WTP 10,0 x 320 BC 50	566350	●	10,0	320	115	25,5	TX40	50
FPF II WTP 10,0 x 340 BC 50	566351	●	10,0	340	115	25,5	TX40	50
FPF II WTP 10,0 x 360 BC 50	566352	●	10,0	360	115	25,5	TX40	50
FPF II WTP 10,0 x 380 BC 50	566353	●	10,0	380	115	25,5	TX40	50



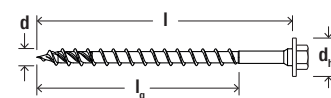
Ø 8,0

Wood construction screw PowerFast II FPF II STP 8,0



FPF II STP BC

Item	Item no.	Ap- proval ETA	Diameter	Length	GewindeLength	Head-Ø	Drive	Sales unit
			d [mm]	l [mm]	l _g [mm]	d _k [mm]		[Pcs]
FPF II STP 8,0 x 80 BC 50	566355	●	8,0	80	60	21,0	TX40	50
FPF II STP 8,0 x 100 BC 50	566356	●	8,0	100	60	21,0	TX40	50
FPF II STP 8,0 x 120 BC 50	566357	●	8,0	120	80	21,0	TX40	50
FPF II STP 8,0 x 140 BC 50	566358	●	8,0	140	80	21,0	TX40	50
FPF II STP 8,0 x 160 BC 50	566359	●	8,0	160	80	21,0	TX40	50
FPF II STP 8,0 x 180 BC 50	566360	●	8,0	180	100	21,0	TX40	50
FPF II STP 8,0 x 200 BC 50	566361	●	8,0	200	100	21,0	TX40	50
FPF II STP 8,0 x 220 BC 50	566362	●	8,0	220	100	21,0	TX40	50
FPF II STP 8,0 x 240 BC 50	566363	●	8,0	240	100	21,0	TX40	50
FPF II STP 8,0 x 260 BC 50	566364	●	8,0	260	100	21,0	TX40	50
FPF II STP 8,0 x 280 BC 50	566365	●	8,0	280	100	21,0	TX40	50
FPF II STP 8,0 x 300 BC 50	566366	●	8,0	300	100	21,0	TX40	50
FPF II STP 8,0 x 320 BC 50	566367	●	8,0	320	100	21,0	TX40	50
FPF II STP 8,0 x 340 BC 50	566368	●	8,0	340	100	21,0	TX40	50
FPF II STP 8,0 x 360 BC 50	566369	●	8,0	360	100	21,0	TX40	50
FPF II STP 8,0 x 380 BC 50	566370	●	8,0	380	100	21,0	TX40	50
FPF II STP 8,0 x 400 BC 50	566371	●	8,0	400	100	21,0	TX40	50



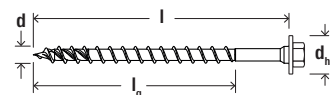
Ø 8,0

Wood construction screw PowerFast II FPF II HWTF 8,0



FPF II HWTF BC

Item	Item no.	Ap- proval ETA	Diameter	Length	GewindeLength	Head-Ø	Drive	Sales unit
			d [mm]	l [mm]	l _g [mm]	d _k [mm]		[Pcs]
FPF II HWTF 8,0 x 80 BC 50	566372	●	8,0	80	75	18,0	TX40 / SW 13	50
FPF II HWTF 8,0 x 100 BC 50	566373	●	8,0	100	75	18,0	TX40 / SW 13	50
FPF II HWTF 8,0 x 120 BC 50	566374	●	8,0	120	100	18,0	TX40 / SW 13	50
FPF II HWTF 8,0 x 140 BC 50	566375	●	8,0	140	100	18,0	TX40 / SW 13	50



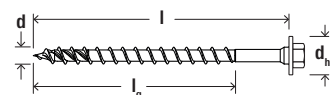
Ø 10,0

Wood construction screw PowerFast II FPF II HWTF 10,0



FPF II HWTF BC

Item	Item no.	Ap- proval ETA	Diameter	Length	GewindeLength	Head-Ø	Drive	Sales unit
			d [mm]	l [mm]	l _g [mm]	d _k [mm]		[Pcs]
FPF II HWTF 10,0 x 80 BC 50	566376	●	10,0	80	75	21,3	TX40 / SW 15	50
FPF II HWTF 10,0 x 100 BC 50	566377	●	10,0	100	75	21,3	TX40 / SW 15	50
FPF II HWTF 10,0 x 120 BC 50	566378	●	10,0	120	115	21,3	TX40 / SW 15	50
FPF II HWTF 10,0 x 140 BC 50	566379	●	10,0	140	115	21,3	TX40 / SW 15	50



Ø 12,0

Wood construction screw PowerFast II FPF II HWTF 12,0



FPF II HWTF BC

Item	Item no.	Ap- proval ETA	Diameter	Length	GewindeLength	Head-Ø	Drive	Sales unit
			d [mm]	l [mm]	l _g [mm]	d _k [mm]		[Pcs]
FPF II HWTF 12,0 x 100 BC 25	566380	●	12,0	100	80	23,4	TX50 / SW 17	25
FPF II HWTF 12,0 x 120 BC 25	566381	●	12,0	120	100	23,4	TX50 / SW 17	25
FPF II HWTF 12,0 x 140 BC 25	566382	●	12,0	140	120	23,4	TX50 / SW 17	25

fischer design software

WOOD-Fix.



Safe and convenient design

- The design principles follow European Technical Assessment (ETA) and DIN EN 1995-1-1 (Eurocode EC5), including a free choice of national application document (NAD).
- Simple and quick operation by entering the values in the Toolbox.
- Safe and reliable: The program recognises incorrect entries regarding geometrical conditions.
- Clear and flexible: Choice of representation in 2D or 3D. The graphics can be panned, tilted and zoomed.
- Always up-to-date thanks to automatic or manual "Live Update" function.

The application-based software

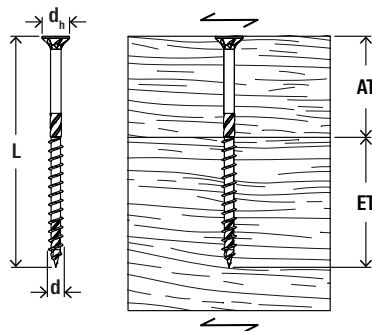
- The software contains numerous different and newly added application cases from day-to-day work. This allows you as a user or planner to work efficiently and design projects for realisation with fischer screws. Calculation of applications with fischer PowerFast II screws (\varnothing 3.0 x 20 – 10.0 x 400 mm) and fischer PowerFull II screws (\varnothing 6.0 x 100 – 10.0 x 600 mm).

Examples of above-rafter insulation:

- Pitched roof
- Saddle roof
- Hip roof
- General connection (timber/wood, sheet steel/wood)
- Main/secondary beam connection
- Support transverse pressure reinforcement
- Notching
- Beam doubling
- Beam head renovation
- Breakthrough
- Transverse tension reinforcement
- Tension shear connection
- Transverse shear connection
- **NEW** Facade insulation
- **NEW** Rafter purlin connection

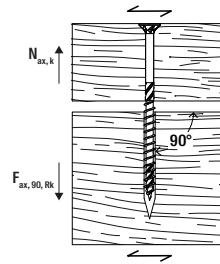
Loads

Load table for wood construction screw PowerFast II countersunk head



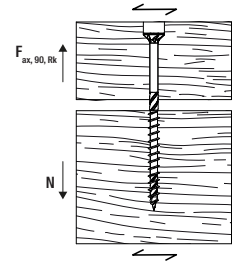
Characteristic / permissible
thread pull-out resistance
ETA-19/0175
DIN EN 1995-1-1 + NA

Screw-in angle to the grain
 ϵ_{AT} and $\epsilon_{ET} = 90^\circ$



Characteristic / permissible head pull-
through resistance
ETA-19/0175
DIN EN 1995-1-1 + NA

Screw-in angle to the grain
 ϵ_{AT} and $\epsilon_{ET} = 90^\circ$



Countersunk head

d [mm]	l [mm]	d _k [mm]	AT [mm]	ET [mm]	F _{ax,90,Rk} [kN]	zul. F _{ax,90} [kN]	F _{ax,90,Rk} [kN]	zul. F _{ax,90} [kN]
8,0	80	14,4	40	40	3,84	1,90	2,59	1,28
8,0	100	14,4	50	50	4,80	2,37	2,59	1,28
8,0	120	14,4	50	70	7,08	3,50	2,59	1,28
8,0	140	14,4	60	80	8,28	4,09	2,59	1,28
8,0	160	14,4	80	80	8,28	4,09	2,59	1,28
8,0	180	14,4	80	100	10,68	5,28	2,59	1,28
...
8,0	400	14,4	300	100	10,68	5,28	2,59	1,28
10,0	80	18,4	40	40	4,60	2,27	4,06	2,01
10,0	100	18,4	40	60	6,90	3,41	4,06	2,01
10,0	120	18,4	50	70	8,05	3,98	4,06	2,01
10,0	140	18,4	60	80	9,20	4,55	4,06	2,01
10,0	160	18,4	80	80	9,20	4,55	4,06	2,01
10,0	180	18,4	80	100	11,88	5,87	4,06	2,01
10,0	200	18,4	100	100	11,88	5,87	4,06	2,01
10,0	220	18,4	120	100	11,88	5,87	4,06	2,01
10,0	240	18,4	140	100	11,88	5,87	4,06	2,01
10,0	260	18,4	160	100	11,88	5,87	4,06	2,01
10,0	280	18,4	165	115	13,91	6,88	4,06	2,01
...
10,0	400	18,4	285	115	13,91	6,88	4,06	2,01

For screws 8,0 x 200 to 8,0 x 380 mm the same values apply as for 8,0 x 180 mm, provided that the thickness of the attachment part AT = at least 80 mm.

Minimum screw-in depth ET = at least 100 mm.

For screws 10,0 x 300 to 10,0 x 380 mm the same values apply as for 10,0 x 280 mm, provided that the thickness of the attachment part AT = at least 165 mm.

Minimum screw-in depth ET = at least 115 mm.

¹⁾ Tolerance of the hole diameter in the sheet steel must be in accordance to DIN EN 1995-1-1 $\leq 0,1 \cdot d$. For sheet steel thicknesses t between $0,5 \cdot d$ and d, the transverse load-bearing capacities may be interpolated.

In general:

The ETA-19/0175 must be observed.

Loads only valid for single screws in line with ETA-19/0175 and DIN EN 1995-1-1 with NA.

In the case of groups of screws, reductions should be applied to the load-bearing capacity of each screw (n_{gr} according ETA-19/0175).

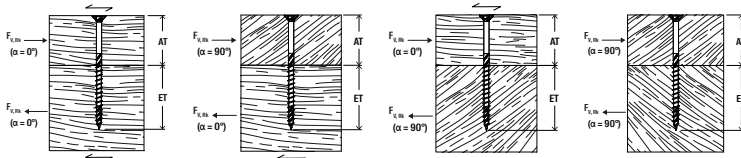
Projecting timber gross density: $\rho_k = 350 \text{ kg/m}^3$. Screw-in angle: $\epsilon = 90^\circ$ to the surface and thus the grain of the wood.

The values relating to the shear load resistance refer to zinc-plated screws. Minimum screw-in depth (ET) for load-bearing connections Min. $h_{gr} = 4 \cdot d$.

Characteristic resistance of the shear load / permissible shear load in timber-timber connections
ETA-19/0175
DIN EN 1995-1-1 + NA

Timber-Timber

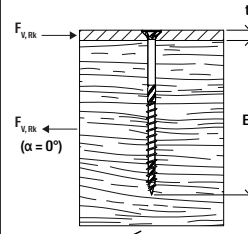
Screw-in angle to the grain ϵ_{AD} and $\epsilon_{ET} = 90^\circ$
Angle between shear load and grain of the wood: $0 - 90^\circ$



Characteristic resistance of the shear load / permissible shear load in steel-timber connections
ETA-19/0175
DIN EN 1995-1-1 + NA

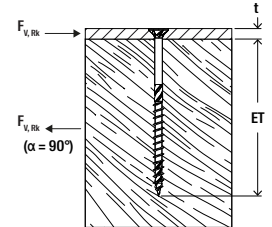
Steel-Timber

thin steel sheet $t \leq 0,5 \cdot d$
 $\epsilon_{ET} = 90^\circ$
Angle lateral force - fiber: $0 - 90^\circ$



Steel-Timber

thick steel sheet $t \geq d^{(1)}$
 $\epsilon_{ET} = 90^\circ$
Angle lateral force - fiber: $0 - 90^\circ$



$F_{v,Rk}$ [kN]	zul. F_v [kN]	t [mm]	ET [mm]	$F_{v,Rk}$ [kN]	zul. F_v [kN]	t [mm]	ET [mm]	$F_{v,Rk}$ [kN]	zul. F_v [kN]
2,57	1,27	4	76	3,54	1,75	8	72	4,66	2,30
3,06	1,51	4	96	3,81	1,89	8	92	4,90	2,42
3,13	1,55	4	116	4,38	2,17	8	112	5,47	2,70
3,26	1,61	4	136	4,68	2,32	8	132	5,77	2,85
3,26	1,61	4	156	4,68	2,32	8	152	5,77	2,85
3,26	1,61	4	176	5,23	2,58	8	172	6,37	3,15
...
3,26	1,61	4	396	5,23	2,58	8	392	6,37	3,15
3,27	1,62	5	75	4,08	2,02	10	70	5,83	2,88
3,80	1,88	5	95	5,17	2,55	10	90	6,91	3,42
4,12	2,04	5	115	5,68	2,81	10	110	7,20	3,56
4,49	2,22	5	135	5,97	2,95	10	130	7,49	3,70
4,68	2,32	5	155	5,97	2,95	10	150	7,49	3,70
4,68	2,32	5	175	6,64	3,28	10	170	8,16	4,03
4,68	2,32	5	195	6,64	3,28	10	190	8,16	4,03
4,68	2,32	5	215	6,64	3,28	10	210	8,16	4,03
4,68	2,32	5	235	6,64	3,28	10	230	8,16	4,03
4,68	2,32	5	255	6,64	3,28	10	250	8,16	4,03
4,68	2,32	5	275	7,14	3,53	10	270	8,66	4,28
...
4,68	2,32	5	395	7,14	3,53	10	390	8,66	4,28

Edge and centre distances according to ETA-19/0175 and to DIN EN 1995-1-1 Table 8.2 with NA.

The shear load resistance was measured in line with the exact procedure described in DIN EN 1995-1-1 Section 8.2.

Shear load resistance values do not apply to pre-drilled holes. Higher shear load resistance values are possible with pre-drilled holes.

In order to calculate the permissible load $\gamma_M = 1,3$; $\gamma_{F,global} = 1,4$ and $k_{mod} = 0,9$ (e.g. KLED = short and NKL 2) was used.

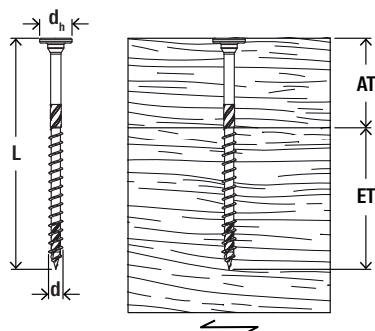
Verifications in the steel sheets, such as perforation and punching, must be provided by the customer.

All mechanical values given are to be considered within the context of the assumptions taken and represent example calculations.

All values given are subject to misprints and printing errors.

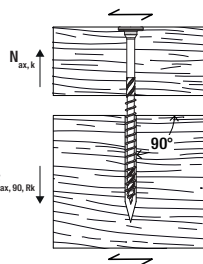
Note: These figures are given solely to aid planning. Projects should always be calculated by structural engineers or support structure planners!

Load table for wood construction screw PowerFast II stepcountersunk head



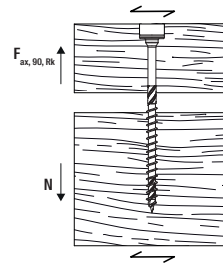
Characteristic / permissible thread pull-out resistance
ETA-19/0175
DIN EN 1995-1-1 + NA

Screw-in angle to the grain
 ϵ_{AT} and $\epsilon_{ET} = 90^\circ$



Characteristic / permissible head pull-through resistance
ETA-19/0175
DIN EN 1995-1-1 + NA

Screw-in angle to the grain
 ϵ_{AT} and $\epsilon_{ET} = 90^\circ$



Countersunk head

d [mm]	l [mm]	d _k [mm]	AT [mm]	ET [mm]	F _{ax,90,Rk} [kN]	zul. F _{ax,90} [kN]	F _{ax,90,Rk} [kN]	zul. F _{ax,90} [kN]
8,0	80	21,0	40	40	3,84	1,90	5,95	2,94
8,0	100	21,0	50	50	4,80	2,37	5,95	2,94
8,0	120	21,0	50	70	7,08	3,50	5,95	2,94
8,0	140	21,0	60	80	8,28	4,09	5,95	2,94
8,0	160	21,0	80	80	8,28	4,09	5,95	2,94
8,0	180	21,0	80	100	10,68	5,28	5,95	2,94
...
8,0	400	21,0	300	100	10,68	5,28	5,95	2,94

For screws 8,0 x 200 to 8,0 x 380 mm the same values apply as for 8,0 x 180 mm, provided that the thickness of the attachment part AT = at least 80 mm.

Minimum screw-in depth ET = at least 100 mm.

¹⁾ Tolerance of the hole diameter in the sheet steel must be in accordance with DIN EN 1995-1-1 $\leq 0,1 \cdot d$. For sheet steel thicknesses t between $0,5 \cdot d$ and d, the transverse load-bearing capacities may be interpolated.

In general:

Loads only valid for single screws in line with ETA-19/0175 and DIN EN 1995-1-1 with NA.

In the case of groups of screws, reductions should be applied to the load-bearing capacity of each screw (n_{ef} according to ETA-19/0175).

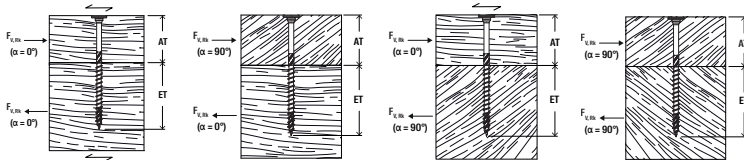
Projecting timber gross density: $\rho_k = 350 \text{ kg/m}^3$. Screw-in angle: 90° to the surface and thus the grain of the wood.

The values relating to the shear load resistance refer to zinc-plated screws. Minimum screw-in depth (ET) for load-bearing connections $\text{Min. } h_{ef} = 4 \cdot d$.

Characteristic resistance of the shear load / permissible shear load in timber-timber connections
 ETA-19/0175
 DIN EN 1995-1-1 + NA

Timber-Timber

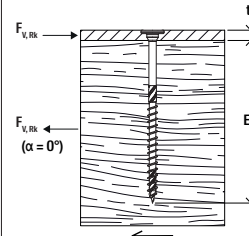
Screw-in angle to the grain ϵ_{AD} and $\epsilon_{ET} = 90^\circ$
 Angle between shear load and grain of the wood: $0 - 90^\circ$



Characteristic resistance of the shear load / permissible shear load in steel-timber connections
 ETA-19/0175
 DIN EN 1995-1-1 + NA

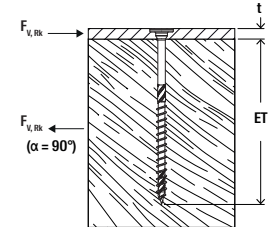
Steel-Timber

thin steel sheet $t \leq 0,5 \cdot d$
 $\epsilon_{ET} = 90^\circ$
 Angle lateral force - fiber: $0 - 90^\circ$



Steel-Timber

thick steel sheet $t \geq d^{(1)}$
 $\epsilon_{ET} = 90^\circ$
 Angle lateral force - fiber: $0 - 90^\circ$



$F_{v,Rk}$ [kN]	zul. F_v [kN]	t [mm]	ET [mm]	$F_{v,Rk}$ [kN]	zul. F_v [kN]	t [mm]	ET [mm]	$F_{v,Rk}$ [kN]	zul. F_v [kN]
2,89	1,43	4	76	3,54	1,75	8	72	4,66	2,30
3,61	1,78	4	96	3,81	1,89	8	92	4,90	2,42
3,97	1,96	4	116	4,38	2,17	8	112	5,47	2,70
4,10	2,03	4	136	4,68	2,32	8	132	5,77	2,85
4,10	2,03	4	156	4,68	2,32	8	152	5,77	2,85
4,10	2,03	4	176	5,23	2,58	8	172	6,37	3,15
...
4,10	2,03	4	396	5,23	2,58	8	392	6,37	3,15

Edge and centre distances according to ETA- 19/0175 and to DIN EN 1995-1-1 Table 8.2 with NA.

The shear load resistance was measured in line with the exact procedure described in DIN EN 1995-1-1 Section 8.2.

Shear load resistance values do not apply to pre-drilled holes. Higher shear load resistance values are possible with pre-drilled holes.

In order to calculate the permissible load $\gamma_M = 1,3$; $\gamma_{F,global} = 1,4$ and $k_{mod} = 0,9$ (e.g. KLED = short and NKL 2) was used.

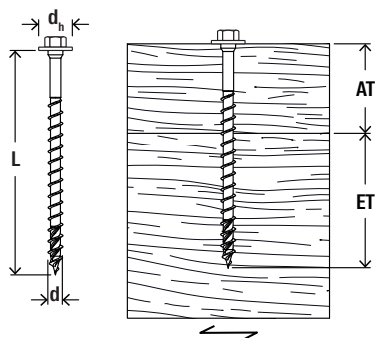
Verifications in the steel sheets, such as perforation and punching, must be provided by the customer.

All mechanical values given are to be considered within the context of the assumptions taken and represent example calculations.

All values given are subject to misprints and printing errors.

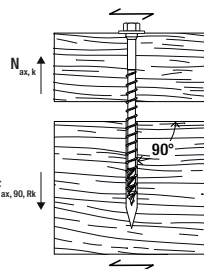
Note: These figures are given solely to aid planning. Projects should always be calculated by structural engineers or support structure planners!

Load table for wood construction screw PowerFast II hex head screw with pressed washer



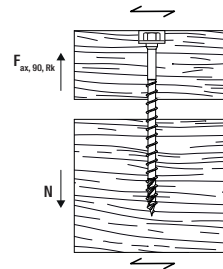
Characteristic / permissible thread pull-out resistance
ETA-19/0175
DIN EN 1995-1-1 + NA

Screw-in angle to the grain
 ϵ_{AT} and $\epsilon_{ET} = 90^\circ$



Characteristic / permissible head pull-through resistance
ETA-19/0175
DIN EN 1995-1-1 + NA

Screw-in angle to the grain
 ϵ_{AT} and $\epsilon_{ET} = 90^\circ$



Flange head

d [mm]	l [mm]	d _k [mm]	AT [mm]	ET [mm]	F _{ax,90,Rk} [kN]	zul. F _{ax,90} [kN]	F _{ax,90,Rk} [kN]	zul. F _{ax,90} [kN]
8,0	80	18,0	40	40	3,84	1,90	3,24	1,60
8,0	100	18,0	40	60	5,88	2,91	3,24	1,60
8,0	120	18,0	40	80	8,28	4,09	3,24	1,60
8,0	140	18,0	40	100	10,68	5,28	3,24	1,60
10,0	80	21,3	40	40	4,60	2,27	4,54	2,24
10,0	100	21,3	40	60	6,90	3,41	4,54	2,24
10,0	120	21,3	40	80	9,20	4,55	4,54	2,24
10,0	140	21,3	40	100	11,88	5,87	4,54	2,24
12,0	100	23,4	50	50	6,18	3,06	5,48	2,71
12,0	120	23,4	60	60	7,42	3,67	5,48	2,71
12,0	140	23,4	60	80	9,89	4,89	5,48	2,71

¹⁾ Tolerance of the hole diameter in the sheet steel must be in accordance to DIN EN 1995-1-1 $\leq 0,1 \cdot d$. For sheet steel thicknesses t between $0,5 \cdot d$ and d, the transverse load-bearing capacities may be interpolated.

In general:

Loads only valid for single screws in line with ETA-19/0175 and DIN EN 1995-1-1 with NA.

In the case of groups of screws, reductions should be applied to the load-bearing capacity of each screw (n_{ef} according ETA-119/0175).

Projecting timber gross density: $\rho_k = 350 \text{ kg/m}^3$. Screw-in angle: $\epsilon = 90^\circ$ to the surface and thus the grain of the wood.

The values relating to the shear load resistance refer to zinc-plated screws. Minimum screw-in depth (ET) for load-bearing connections $\text{Min. } h_{ef} = 4 \cdot d$.

Characteristic resistance of the shear load / permissible shear load in timber-timber connections

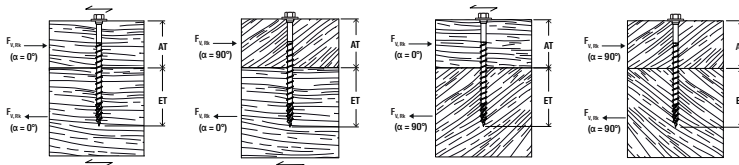
ETA-19/0175

DIN EN 1995-1-1 + NA

Timber-Timber

Screw-in angle to the grain ε_{AD} and $\varepsilon_{ET} = 90^\circ$

Angle between shear load and grain of the wood: $0 - 90^\circ$



Characteristic resistance of the shear load / permissible shear load in steel-timber connections

ETA-19/0175

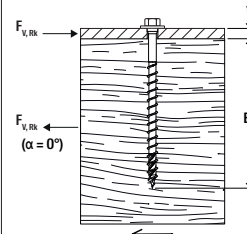
DIN EN 1995-1-1 + NA

Steel-Timber

thin steel sheet $t \leq 0,5 \cdot d$

$\varepsilon_{ET} = 90^\circ$

Angle lateral force - fiber: $0 - 90^\circ$

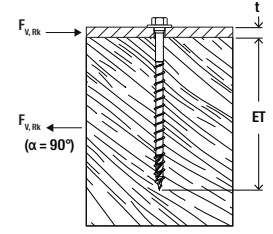


Steel-Timber

thick steel sheet $t \geq d^{(1)}$

$\varepsilon_{ET} = 90^\circ$

Angle lateral force - fiber: $0 - 90^\circ$



$F_{v,Rk}$ [kN]	zul. F_v [kN]	t [mm]	ET [mm]	$F_{v,Rk}$ [kN]	zul. F_v [kN]	t [mm]	ET [mm]	$F_{v,Rk}$ [kN]	zul. F_v [kN]
2,74	1,35	4	76	3,54	1,75	8	72	4,66	2,30
2,98	1,47	4	96	4,08	2,02	8	92	5,17	2,55
2,98	1,47	4	116	4,68	2,32	8	112	5,77	2,85
2,98	1,47	4	136	5,23	2,58	8	132	6,37	3,15
3,39	1,67	5	75	4,08	2,02	10	70	5,83	2,88
3,92	1,94	5	95	5,17	2,55	10	90	6,91	3,42
3,92	1,94	5	115	5,97	2,95	10	110	7,49	3,70
3,92	1,94	5	135	6,64	3,28	10	130	8,16	4,03
4,57	2,26	6	94	5,81	2,87	12	88	8,11	4,01
5,21	2,58	6	114	6,80	3,36	12	108	8,85	4,38
5,59	2,76	6	134	7,42	3,67	12	128	9,47	4,68

Edge and centre distances according to ETA-19/0175 and to DIN EN 1995-1-1 Table 8.2 with NA.

The shear load resistance was measured in line with the exact procedure described in DIN EN 1995-1-1 Section 8.2.

Shear load resistance values do not apply to pre-drilled holes. Higher shear load resistance values are possible with pre-drilled holes.

In order to calculate the permissible load $\gamma_M = 1,3$; $\gamma_{F,global} = 1,4$ and $k_{mod} = 0,9$ (e.g. KLED = short and NKL 2) was used.

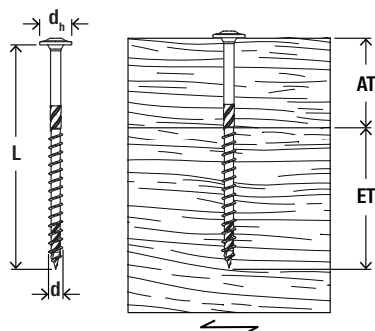
Verifications in the steel sheets, such as perforation and punching, must be provided by the customer.

All mechanical values given are to be considered within the context of the assumptions taken and represent example calculations.

All values given are subject to misprints and printing errors.

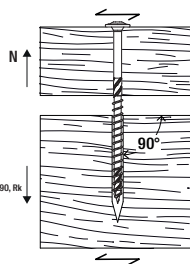
Note: These figures are given solely to aid planning. Projects should always be calculated by structural engineers or support structure planners!

Load table for wood construction screw PowerFast II flange head



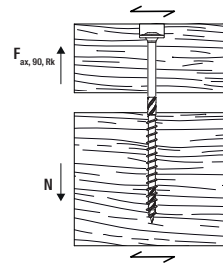
Characteristic / permissible thread pull-out resistance
ETA-19/0175
DIN EN 1995-1-1 + NA

Screw-in angle to the grain
 ϵ_{At} and $\epsilon_{Et} = 90^\circ$



Characteristic / permissible head pull-through resistance
ETA-19/0175
DIN EN 1995-1-1 + NA

Screw-in angle to the grain
 ϵ_{At} and $\epsilon_{Et} = 90^\circ$



Flange head

d [mm]	l [mm]	d _k [mm]	AT [mm]	ET [mm]	F _{ax,90,Rk} [kN]	zul. F _{ax,90} [kN]	F _{ax,90,Rk} [kN]	zul. F _{ax,90} [kN]
8,0	80	21,0	40	40	3,84	1,90	6,31	3,12
8,0	100	21,0	50	50	4,80	2,37	6,31	3,12
8,0	120	21,0	50	70	7,08	3,50	6,31	3,12
8,0	140	21,0	60	80	8,28	4,09	6,31	3,12
8,0	160	21,0	80	80	8,28	4,09	6,31	3,12
8,0	180	21,0	80	100	10,68	5,28	6,31	3,12
...
8,0	400	21,0	300	100	10,68	5,28	6,31	3,12
10,0	80	25,5	40	40	4,60	2,27	8,19	4,05
10,0	100	25,5	40	60	6,90	3,41	8,19	4,05
10,0	120	25,5	50	70	8,05	3,98	8,19	4,05
10,0	140	25,5	60	80	9,20	4,55	8,19	4,05
10,0	160	25,5	80	80	9,20	4,55	8,19	4,05
10,0	180	25,5	80	100	11,88	5,87	8,19	4,05
10,0	200	25,5	100	100	11,88	5,87	8,19	4,05
10,0	220	25,5	120	100	11,88	5,87	8,19	4,05
10,0	240	25,5	140	100	11,88	5,87	8,19	4,05
10,0	260	25,5	160	100	11,88	5,87	8,19	4,05
10,0	280	25,5	165	115	13,91	6,88	8,19	4,05
...
10,0	400	25,5	285	115	13,91	6,88	8,19	4,05

For screws 8,0 x 200 to 8,0 x 380 mm the same values apply as for 8,0 x 180 mm, provided that the thickness of the attachment part AT = at least 80 mm.

Minimum screw-in depth ET = at least 100 mm.

For screws 10,0 x 300 to 10,0 x 380 mm the same values apply as for 10,0 x 280 mm, provided that the thickness of the attachment part AT = at least 165 mm.

Minimum screw-in depth ET = at least 115 mm.

¹⁾ Tolerance of the hole diameter in the sheet steel must be in accordance to DIN EN 1995-1-1 ≤ 0,1 · d. For sheet steel thicknesses t between 0,5 · d and d, the transverse load-bearing capacities may be interpolated.

In general:

Loads only valid for single screws in line with ETA-19/0175 and DIN EN 1995-1-1 with NA.

In the case of groups of screws, reductions should be applied to the load-bearing capacity of each screw (n_{ef} according ETA-19/0175).

Projecting timber gross density: ρ_k = 350 kg/m³. Screw-in angle: ε = 90° to the surface and thus the grain of the wood.

The values relating to the shear load resistance refer to zinc-plated screws. Minimum screw-in depth (ET) for load-bearing connections Min. h_{ef} = 4 · d.

Characteristic resistance of the shear load / permissible shear load in timber-timber connections

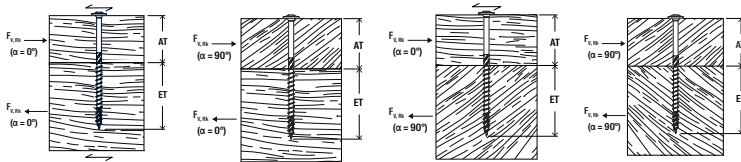
ETA-19/0175

DIN EN 1995-1-1 + NA

Timber-Timber

Screw-in angle to the grain ε_{AD} and $\varepsilon_{ET} = 90^\circ$

Angle between shear load and grain of the wood: $0 - 90^\circ$



Characteristic resistance of the shear load / permissible shear load in steel-timber connections

ETA-19/0175

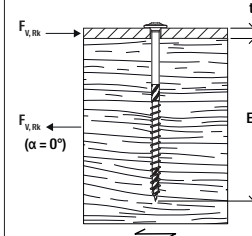
DIN EN 1995-1-1 + NA

Steel-Timber

thin steel sheet $t \leq 0,5 \cdot d$

$\varepsilon_{ET} = 90^\circ$

Angle lateral force - fiber: $0 - 90^\circ$

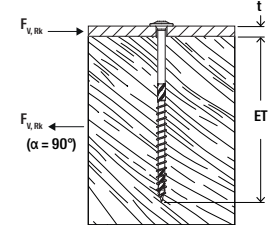


Steel-Timber

thick steel sheet $t \geq d^1)$

$\varepsilon_{ET} = 90^\circ$

Angle lateral force - fiber: $0 - 90^\circ$



$F_{v,Rk}$ [kN]	zul. F_v [kN]	t [mm]	ET [mm]	$F_{v,Rk}$ [kN]	zul. F_v [kN]	t [mm]	ET [mm]	$F_{v,Rk}$ [kN]	zul. F_v [kN]
2,89	1,43	4	76	3,54	1,75	8	72	4,66	2,30
3,61	1,78	4	96	3,81	1,89	8	92	4,90	2,42
4,05	2,00	4	116	4,38	2,17	8	112	5,47	2,70
4,19	2,07	4	136	4,68	2,32	8	132	5,77	2,85
4,19	2,07	4	156	4,68	2,32	8	152	5,77	2,85
4,19	2,07	4	176	5,23	2,58	8	172	6,37	3,15
...
4,19	2,07	4	396	5,23	2,58	8	392	6,37	3,15
3,40	1,68	5	75	4,08	2,02	10	70	5,83	2,88
4,51	2,23	5	95	5,17	2,55	10	90	6,91	3,42
5,12	2,53	5	115	5,68	2,81	10	110	7,20	3,56
5,52	2,73	5	135	5,97	2,95	10	130	7,49	3,70
5,72	2,83	5	155	5,97	2,95	10	150	7,49	3,70
5,72	2,83	5	175	6,64	3,28	10	170	8,16	4,03
5,72	2,83	5	195	6,64	3,28	10	190	8,16	4,03
5,72	2,83	5	215	6,64	3,28	10	210	8,16	4,03
5,72	2,83	5	235	6,64	3,28	10	230	8,16	4,03
5,72	2,83	5	255	6,64	3,28	10	250	8,16	4,03
5,72	2,83	5	275	7,14	3,53	10	270	8,66	4,28
...
5,72	2,83	5	395	7,14	3,53	10	390	8,66	4,28

Edge and centre distances according to ETA-19/0175 and to DIN EN 1995-1-1 Table 8.2 with NA.

The shear load resistance was measured in line with the exact procedure described in DIN EN 1995-1-1 Section 8.2.

Shear load resistance values do not apply to pre-drilled holes. Higher shear load resistance values are possible with pre-drilled holes.

In order to calculate the permissible load $\gamma_M = 1,3$; $\gamma_{F,global} = 1,4$ and $k_{mod} = 0,9$ (e.g. KLED = short and NKL 2) was used.

Verifications in the steel sheets, such as perforation and punching, must be provided by the customer.

All mechanical values given are to be considered within the context of the assumptions taken and represent example calculations.

All values given are subject to misprints and printing errors.

Note: These figures are given solely to aid planning. Projects should always be calculated by structural engineers or support structure planners!

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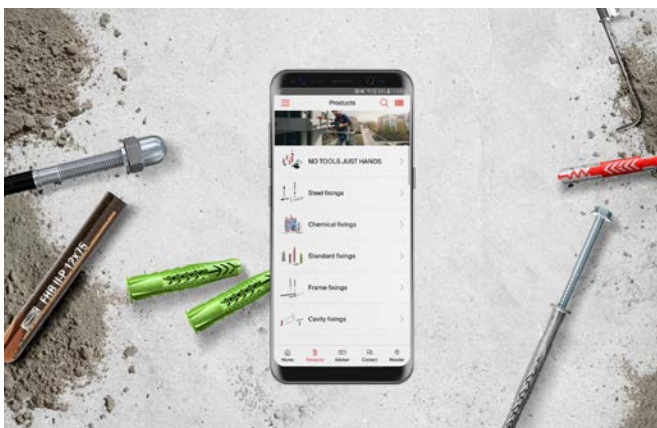
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Klaus-Fischer-Straße 1 · 72178 Waldachtal
Germany
T +49 7443 12 - 0
www.fischer-international.com · info@fischer.de
