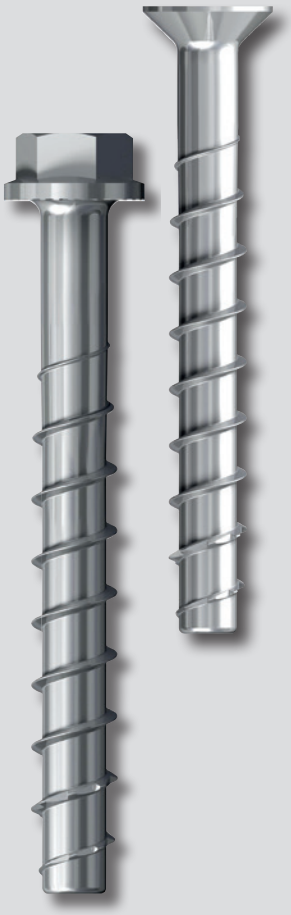
fischer concrete screw ULTRACUT FBS II

NEW

The high-performance concrete screw for absolute mounting ease.



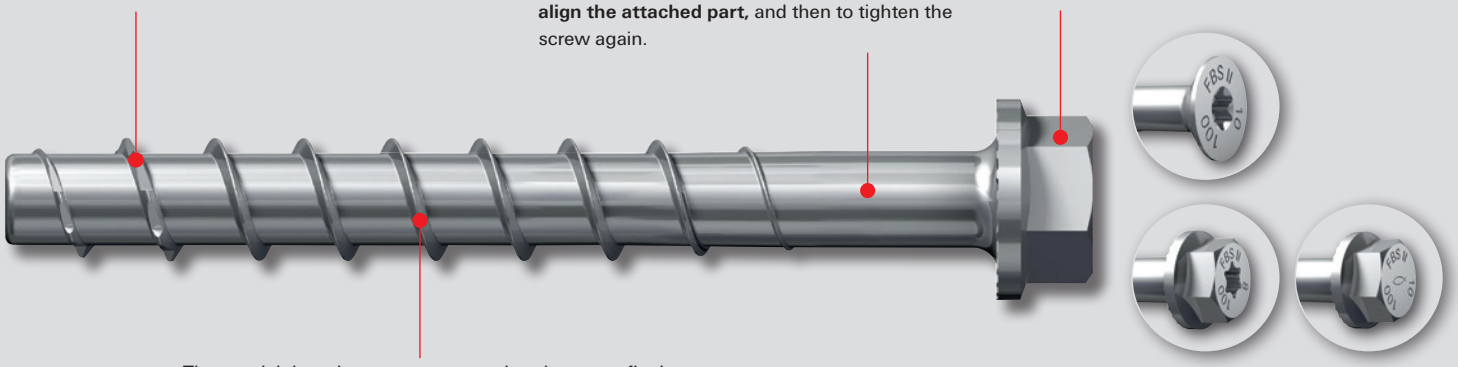
fischer
innovative solutions

ULTRACUT FBS II 8,10,12 and 14 zinc-plated steel. The high-performance concrete screw for absolute mounting ease.

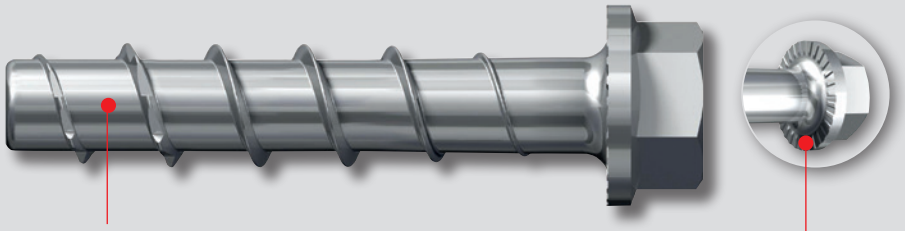
The unique saw-tooth geometry **cuts quickly into the substrate** and can be installed several times.

The approval for the concrete screws allows the screw to be unscrewed twice for a total of 20 mm, **to place maximal 10 mm packing below it or to align the attached part,** and then to tighten the screw again.

The ULTRACUT FBS II is available in different head designs. **Countersunk and hexagonal head** (with and without Torx drive).



The special thread geometry means that the screw flanks cut deeply into the concrete and allowing for **high loads.** This **saves costs** because less anchor points and smaller base plates are required.



The short ULTRACUT FBS II, with a reduced screw-in depth, **allows for a short drill hole depth and fast installation** which makes it a suitable option for many applications.

The ribs on the lower head prevent accidental unscrewing of the anchor making the system **more secure**.

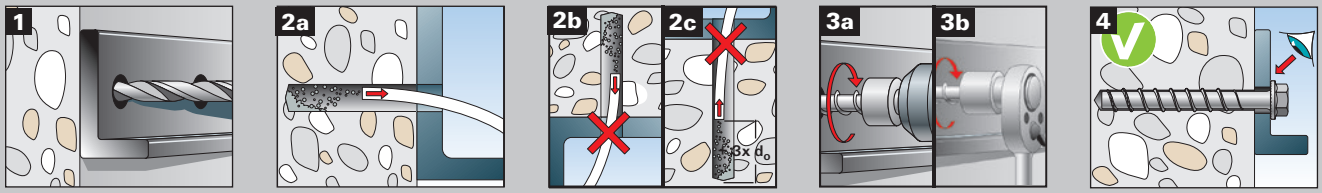
Secure, even without cleaning the drill hole.

- The ULTRACUT FBS II is designed for push-through installation.
- The screw is installed correctly when the screw head sits squarely on the fixture (visual check).
- Drill holes do not need to be cleaned during vertical assembly (ceiling and floor). For floor fixing the hole must be drilled 3x d_0 deeper.
- We recommend using a tangential impact screwdriver with a suitable impact screwdriver socket or Torx bit.
- The assessment document also covers the use of hollow drills (without cleaning of the hole) and diamond drilling holes.

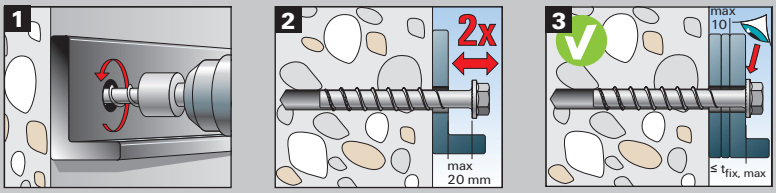
Your advantages

- With up to 3 embedment depths, the ULTRACUT FBS II makes it possible for the same **screw to be used for different component thicknesses.**
- Expansion-free anchoring (undercut) allows for **lowest edge and axle clearances.**
- The assessment (ETA Option 1) covers the **use of single-point anchors** in cracked and non-cracked concrete.
- The performance categorys Seismic C1 and C2 assessment **ensures that the strictest of safety standards has been fulfilled** (also with high earthquake specifications).
- The countersunk head is very suitable for **visually appealing.**
- The checking gauge allows a **multiple use** covered by the approval.

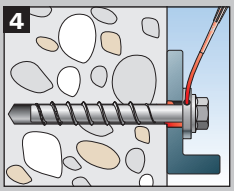
Installation



Fixture adjustment



Additional for seismic



Approvals

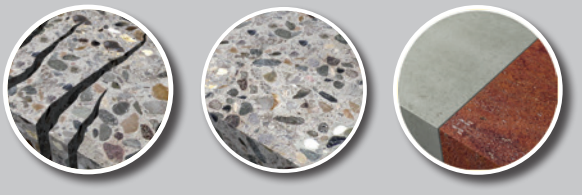
ETA-15/0352
EAD 330011-00-0601
Option 1 for cracked concrete
seismic performance category C1

Fire resistance classification
R 120
Anchor types see test report

SEISMIC

Zulassung
Z-21.8-2049

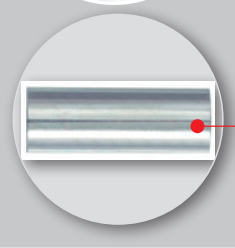
Recommendation

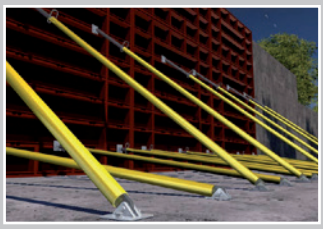


Reusability

Temporary fixing and reusability in green concrete according to Z-21.8 - 2049 (valid for diameter 10 - 14)

The checking gauge must be pushed over the thread of the ULTRACUT FBS II every time before assembly. As soon as the screw end protrudes over the sleeve, the thread is too worn and is no longer approved for use. The concrete screw must always be checked for visible damage (e.g. corrosion) and replaced, if necessary.





The checking gauge, available separately, allows the outer diameter of the thread to be checked prior to the screw being reused; this complies with the **approval for multiple use**.

Applications.

Metal construction

Railings

- For maximum loads and minimal edge and axial spacings in cracked concrete.

e.g. ULTRACUT FBS II 10x95 SK

Shelving systems

- For the anchoring of impact protection for high shear forces.

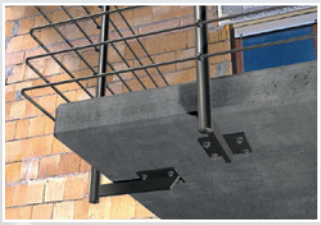
e.g. ULTRACUT FBS II 14x125 US

Brackets/base plates

- For maximum loads in cracked concrete.

e.g. ULTRACUT FBS II 12x110 US

Ballustrades

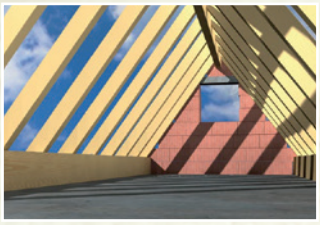


- With reduced embedment depth for use in thin concrete members from 100 mm thickness.

e.g. ULTRACUT FBS II 10x60 US

Timber work

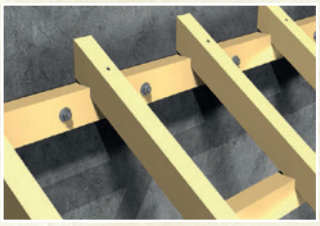
Step/rise anchorage



- Ideal for very large fixing thicknesses.
- Ideal for adjustment after installation.

e.g. ULTRACUT FBS II 10x230 US

Beam anchorage



- For the perfect transmission of force between the screw and the step/beam.

e.g. ULTRACUT FBS II 10x200 US

Formwork construction/site facilities

Inclined supports

- Reuseable.
- For the temporary anchoring of inclined supports or formwork props.

e.g. ULTRACUT FBS II 14x125 US

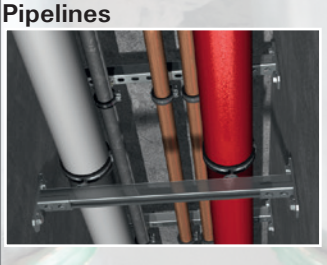
Site facilities in tunnels

- Reuseable.
- For the temporary anchoring of supply lines in tunnels.

e.g. ULTRACUT FBS II 10x120 US

Sanitary / heating / electrics

Pipelines



- For the anchoring of heavy pipelines.

e.g. ULTRACUT FBS II 10x90 US

Cable trays

- For fast anchoring in a push-through installation method.
- For maximum loads with fire approval.

e.g. ULTRACUT FBS II 8x70 US

Air conditioner

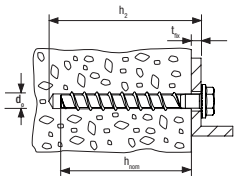
- Version with integral washer and additional Torx Drive for a perfect mounting with tight mounting rails.

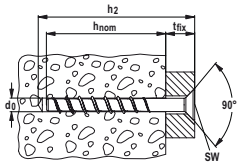
e.g. ULTRACUT FBS II 8x90 US TX

Range.

ULTRACUT FBS II - US - hexagon head with integral washer

ULTRACUT FBS II - SK -countersunk head





Concrete screw ULTRACUT FBS II zinc plated

Item	Zinc plated steel Art.-No gvz	Approval ETA	Drill hole diameter d_0 [mm]	Min. drill hole depth for push-through fixings h_2 [mm]	Screw length l [mm]	Screw-in depth $h_{nom,1}$ [mm]	Screw-in depth t_{fix} [mm]	Screw-in depth $h_{nom,2}$ [mm]	Screw-in depth t_{fix} [mm]	Screw-in depth $h_{nom,3}$ [mm]	Screw-in depth t_{fix} [mm]	width across flat / Torx SW / TX	Sales unit [pcs]
ULTRACUT FBS II 8x55 5/- US TX	536851	■	8	65	55	50	5	-	-	-	-	SW 13/TX 40	50
ULTRACUT FBS II 8x70 20/5 US TX	536852	■	8	80	70	50	20	-	-	65	5	SW 13/TX 40	50
ULTRACUT FBS II 8x80 30/15 US TX	536853	■	8	90	80	50	30	-	-	65	15	SW 13/TX 40	50
ULTRACUT FBS II 8x90 40/25 US TX	536854	■	8	100	90	50	40	-	-	65	25	SW 13/TX 40	50
ULTRACUT FBS II 8x100 50/35 US TX	536855	■	8	110	100	50	50	-	-	65	35	SW 13/TX 40	50
ULTRACUT FBS II 8x110 60/45 US TX	536856	■	8	120	110	50	60	-	-	65	45	SW 13/TX 40	50
ULTRACUT FBS II 8x130 80/65 US TX	536857	■	8	140	130	50	80	-	-	65	65	SW 13/TX 40	50
ULTRACUT FBS II 10x60 5/-/- US	536858	■	10	70	60	55	5	-	-	-	-	SW 15	50
ULTRACUT FBS II 10x70 15/5/- US	536859	■	10	80	70	55	15	65	5	-	-	SW 15	50
ULTRACUT FBS II 10x80 25/15/- US	536860	■	10	90	80	55	25	65	15	-	-	SW 15	50
ULTRACUT FBS II 10x90 35/25/5 US	536861	■	10	100	90	55	35	65	25	85	5	SW 15	50
ULTRACUT FBS II 10x100 45/35/15 US	536862	■	10	110	100	55	45	65	35	85	15	SW 15	50
ULTRACUT FBS II 10x120 65/55/35 US	536863	■	10	130	120	55	65	65	55	85	35	SW 15	50
ULTRACUT FBS II 10x140 85/75/55 US	536864	■	10	150	140	55	85	65	75	85	55	SW 15	50
ULTRACUT FBS II 10x160 105/95/75 US	536865	■	10	170	160	55	105	65	95	85	75	SW 15	50
ULTRACUT FBS II 10x200 145/135/115 US	536866	■	10	210	200	55	145	65	135	85	115	SW 15	20
ULTRACUT FBS II 10x230 175/165/145 US	536867	■	10	240	230	55	175	65	165	85	145	SW 15	20
ULTRACUT FBS II 10x260 205/195/175 US	536868	■	10	270	260	55	205	65	195	85	175	SW 15	20
ULTRACUT FBS II 12x70 10/-/- US	536869	■	12	80	70	60	10	-	-	-	-	SW 17	20
ULTRACUT FBS II 12x85 25/10/- US	536870	■	12	95	85	60	25	75	10	-	-	SW 17	20
ULTRACUT FBS II 12x110 50/35/10 US	536871	■	12	120	110	60	50	75	35	100	10	SW 17	20
ULTRACUT FBS II 12x130 70/55/30 US	536872	■	12	140	130	60	70	75	55	100	30	SW 17	20
ULTRACUT FBS II 12x150 90/75/50 US	536873	■	12	160	150	60	90	75	75	100	50	SW 17	20
ULTRACUT FBS II 14x75 10/-/- US	536874	■	14	90	75	65	10	-	-	-	-	SW 21	20
ULTRACUT FBS II 14x95 30/10/- US	536875	■	14	110	95	65	30	85	10	-	-	SW 21	20
ULTRACUT FBS II 14x100 35/15/- US	536876	■	14	115	100	65	35	85	15	-	-	SW 21	20
ULTRACUT FBS II 14x125 60/40/10 US	536877	■	14	140	125	65	60	85	40	115	10	SW 21	10
ULTRACUT FBS II 14x150 85/65/35 US	536878	■	14	165	150	65	85	85	65	115	35	SW 21	10
ULTRACUT FBS II 8x60 10/- SK	536880	■	8	70	60	50	10	-	-	-	-	TX 40	50
ULTRACUT FBS II 8x80 30/15 SK	536881	■	8	90	80	50	30	-	-	65	15	TX 40	50
ULTRACUT FBS II 8x90 40/25 SK	536882	■	8	100	90	50	40	-	-	65	25	TX 40	50
ULTRACUT FBS II 10x65 10/-/- SK	536884	■	10	75	65	55	10	-	-	-	-	TX 50	50
ULTRACUT FBS II 10x80 25/15/- SK	536885	■	10	90	80	55	25	65	15	-	-	TX 50	50
ULTRACUT FBS II 10x95 40/30/10 SK	536886	■	10	105	95	55	40	65	30	85	10	TX 50	50
ULTRACUT FBS II 10x100 45/35/15 SK	536887	■	10	110	100	55	45	65	35	85	15	TX 50	50
ULTRACUT FBS II 10x120 65/55/35 SK	536888	■	10	130	120	55	65	65	55	85	35	TX 50	50

Additional assortment.

ULTRACUT FBS II checking gauge FUP

Hex nut

Torx nut

MaXX Bit TX 40

Bit TX 50

Filling washer

Washer for concrete screw ULTRACUT FBS II 10, e.g. for use in timber

Complement for ULTRACUT FBS II

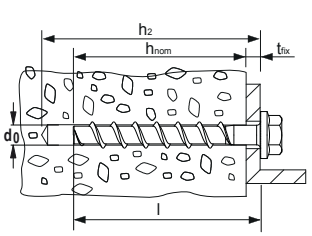
Item	Art.No	Internal-diameter [mm]	External-diameter [mm]	Torx-Drive [TX]	Suitable for ULTRACUT FBS II	Sales unit [pcs]
ULTRACUT FBS II checking gauge FUP 10	**537201**	12,0	-	-	FBS II 10	1
ULTRACUT FBS II checking gauge FUP 12	**537202**	13,9	-	-	FBS II 12	1
ULTRACUT FBS II checking gauge FUP 14	**537203**	15,6	-	-	FBS II 14	1
Nut Hexagon 13	**538578**	-	-	-	FBS II 8	1
Nut Hexagon 15	**538579**	-	-	-	FBS II 10	1
Nut Hexagon 17	**538580**	-	-	-	FBS II 12	1
Nut Hexagon 21	**538581**	-	-	-	FBS II 14	1
Nut TORX 40 1/2" - 1/4"	**538575**	-	-	-	FBS II	1
Nut TORX 50 1/2" - 15/16"	**538576**	-	-	-	FBS II	1
Bit TX 40	**533159**	-	-	TX 40	FBS II 8	5
Bit TX 50	**538574**	-	-	TX 50	FBS II 10 SK	1
Filling washer 1	**538458**	12,0	26		FBS II 8	4
Filling washer 2	**538459**	14,2	30		FBS II 10, FBS II 12	4
Filling washer 3	**538460**	19,2	38		FBS II 14	4
Washer for ULTRACUT FBS II 10	**520471**	13,5	44		FBS II 10	50

Installation parameters and loads.

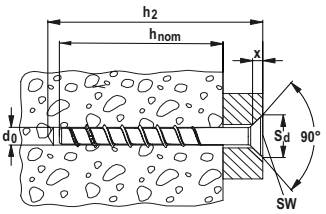
Installation parameters concrete C 20/25 - C50/60

ULTRACUT FBS II Concrete screw		8	10	12	14
Drill hole diameter [mm]	d_0	8	10	12	14
Nominal screw-in depth h_{nom}	h_{nom1}	50	55	60	65
	h_{nom2}	-	65	75	85
	h_{nom3}	65	85	100	115
Drill hole depth (push-through installation) [mm]	$h_2 \geq$	l + 10	l + 10	l + 10	l + 15
Clearance hole diameter [mm]	d_f	10,6 - 12	12,8 - 14	14,8 - 16	16,9 - 18
Maximum torque for installation with impact screw driver in concrete	$T_{imp, max}$	600	650	650	650
Maximum torque for manual installation in concrete	T_{max}	65	100	150	250
Width across flat	SW	13	15	17	21
Drive	Torx	T 40 (SK u. US)	T 50 (SK)	–	–

Type US



Type SK



	X [mm]	Sd [mm]
ULTRACUT FBS II 8	6	20
ULTRACUT FBS II 10	7	23

Installation parameters masonry

ULTRACUT FBS II Concrete screws					
Base material	**Compressive strength class [N/mm²]**	**Size**	[mm]	8	10
		h_{nom}	[mm]	65	85
Solid clay brick (EN771-1)	≥ 12	T_{inst}	[Nm]	5	10
Solid sand-lime brick (EN771-2)	≥ 12	T_{inst}	[Nm]	15	15
Aerated concrete (EN771-4)	≥ 6	T_{inst}	[Nm]	5	10

Concrete screw ULTRACUT FBS II

Highest permissible loads for a single anchor[1] in concrete C20/25[4]

For the design the complete assessment ETA-15/0352 has to be considered.

				Cracked concrete				Non-cracked concrete			
Type	**Nominal embedment depth** h_{nom} [mm]	**Min. member thickness** h_{min} [mm]	**Installation torque** $T_{inst, max}$[5] [Nm]	**Permissible tensile load** N_{zul}[3] [kN]	**Permissible shear load** V_{zul}[3] [kN]	**Min. spacing** s_{min}[2] [mm]	**Min. edge distance** c_{min}[2] [mm]	**Permissible tensile load** N_{zul}[3] [kN]	**Permissible shear load** V_{zul}[3] [kN]	**Min. spacing** s_{min}[2] [mm]	**Min. edge distance** c_{min}[2] [mm]
FBS II 8	50	100	≤ 600	2,9	4,2	35	35	5,9	5,9	35	35
	65	120		5,7	9,0	35	35	9,0	9,0	35	35
FBS II 10	55	100	≤ 650	4,3	4,8	40	40	6,8	6,8	40	40
	65	120		5,7	12,5	40	40	8,8	14,0	40	40
	85	140		9,6	16,6	40	40	13,5	16,6	40	40
FBS II 12	60	110		5,5	11,0	50	50	7,7	15,2	50	50
	75	130		8,0	15,2	50	50	11,2	15,2	50	50
	100	150		12,5	20,3	50	50	17,5	20,3	50	50
FBS II 14	65	120		6,1	12,1	60	60	8,5	17,0	60	60
	85	140		9,4	18,8	60	60	13,2	22,1	60	60
	115	180		15,4	29,4	60	60	21,6	29,4	60	60

1) The partial safety factors for material resistance as regulated in the assessment as well as a partial safety factor for load actions of $\gamma_L = 1,4$ are considered. As an single anchor counts e.g. an anchor with a spacing $s \geq 3 \times h_{ef}$ and an edge distance $c \geq 1,5 \times h_{ef}$.

2) Minimum possible axial spacings resp. edge distance while reducing the permissible load.

3) For combinations of tensile loads, shear loads, bending moments as well as reduced edge distances or spacings (anchor groups) see assessment.

4) For higher concrete strength classes up to C50/60 higher permissible loads may be possible.

5) Maximun allowable torque moment for installation with any tangential impact screw driver.

Installation parameters and loads.

Concrete Screw ULTRACUT FBS II

Highest permissible loads[1] for a single anchor for use as a temporary fixing of site equipment [4].
For the design the complete approval Z-21.8-2049 has to be considered.

Type / screw diameter / drill hole diameter	[d_0]	8		10			12			14		
Screw in depth [mm]	[h_{nom}]	50	65	55	65	85	60	75	100	65	85	115
Permissible Loads N_{perm}[3] for cracked and non-cracked concrete												
Concrete strength $f_{ck,cube} \geq 10$ N/mm²	[kN]	1,9	3,4	2,2	2,9	5,7	2,8	4,0	7,5	2,4	3,6	8,9
Concrete strength $f_{ck,cube} \geq 15$ N/mm²	[kN]	2,3	4,1	2,7	3,5	7,0	3,4	4,9	9,2	2,9	4,5	10,9
Concrete strength $f_{ck,cube} \geq 20$ N/mm²	[kN]	2,6	4,8	3,1	4,1	8,1	3,9	5,6	10,6	3,4	5,2	12,6
Minimum spacing[2]	[mm]	200	260	220	260	340	240	300	400	260	340	460
Minimum edge distance in load direction[2]	[mm]	70	90	75	90	115	80	100	135	90	115	155
Minimum edge distance rectangular to load direction[2]	[mm]	100	130	110	130	170	120	150	200	130	170	230
Max. torque on installation with impact screw driver	$T_{imp, max}$	400	600	400	400	650	400	400	650	400	400	650
Max. torque on installation with standard torque wrench	T_{max}	45	65	65	65	100	75	75	150	75	75	150

1) The partial safety factors for material resistance as regulated in the approval as well as a partial safety factor for load actions of $\gamma_L = 1,4$ are considered.
2) Minimum possible axial spacings resp. edge distance for single anchors.
3) Valid for tensile load, shear load and oblique load under any angle, with the exception of rectangularly to the axis of the tilt-up brace acting forces.
4) E.g. tilt-up braces, fall protections and scaffoldings.

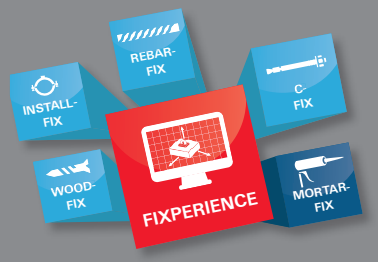
Concrete screw ULTRACUT FBS II

Highest recommended loads [1] [3] for each fixing point[4] [5] [6] [7] in solid brick masonry.

Base material	Compressive strength class [N/mm²]	Type		FBS II 8	FBS II 10
Nominal embedment depth		h_{nom}	[mm]	65	85
Solid clay brick (EN771-1)	≥ 12	F_{empf} [2]	[kN]	1,1	1,4
	≥ 20	F_{empf} [2] [8]	[kN]	1,6	1,6
Solid sand-lime brick (EN771-2)	≥ 12	F_{empf} [2] [8]	[kN]	1,2	1,2
	≥ 20	F_{empf} [2] [8]	[kN]	1,2	1,2
Aerated concrete (EN771-4)	≥6	F_{empf} [2]	[kN]	0,7	0,9
Minimum spacing within anchor groups of 2 or 4 anchors		s_{min}	[mm]	80	
Minimum distance to the horizontal joint		$c_{min,v}$	[mm]	20	
Minimum distance to the vertical joint		$c_{min,h}$	[mm]	40	
Minimum distance to the free edge		$c_{min,free}$	[mm]	200	

1) An appropriate safety factor is considered.
2) The given loads apply to the given brick measures. For bigger sizes higher recommended loads may be possible. In this case please contact our technical department for further advice.
3) Valid for tensile load, shear load and oblique load under any angle.
4) On - site screw testing is recommended to validate technical data. If the joints are not visible 100% anchor testing is recommended.
5) The given data are valid for multiple fixings of non-structural applications.
6) A fixing point can be a single anchor, 2 anchors or 4 anchors with a minimum spacing smin. Anchor groups of 4 anchors are arranged in rectangular disposition.
7) The fixing points have to be arranged in this way that there will be always maximum one fixing point arranged in one brick.

fischer FIXPERIENCE.
The new design and information software suite.



- The new modular design program includes engineering software and application modules.
- The software is based on international design standards (ETAG 001 and EC2, such as EC1, EC3 and EC5), including the national application documents. All common force and measurement units are available.
- Incorrect input will be recognized and the software gives tips to get a correct result. This ensures a safe and reliable design every time.
- The graphical display can easily be rotated through 360°, panned, tilted or zoomed as required.
- The 3 D display gives a detailed and realistic image.
- The "live update" feature helps to keep the program up to date ensuring you are always working with the latest version.
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