



fischer greenline

The first range of fixing products with renewable resources.



Environmentally friendly and secure.

Sustainable building.

- With the introduction of its greenline products, fischer is the first manufacturer worldwide to offer a range of bio-based fixing systems. We are adapting to the demands of processors and builders who greatly value sustainability when building and renovating, even when it comes to installation.



Grown naturally.

- All greenline products are produced with renewable raw materials. These do not compete with food and feed products or with corresponding cultivation areas. The regenerative material percentage is always confirmed by independent testing and certification by the DIN CERTCO / TÜV Rheinland. All products are in the "BIOBASED 50 - 85 %" class. With FIS GREEN, the first mortar with renewable resources, fischer gained the 2nd place of the innovation award "Bio-based Material of the Year 2014" offered by nova Institute.



Durably secure.

- We do not make any compromises when it comes to the security of greenline products. They have the same features and load-bearing capacity as the grey coloured originals. Just 100% fischer nylon quality - made in Germany!



Ecological proof of performance.

- The GREEN installation mortar has an Environmental Product Declaration from the Institute of Building and Environment (IBU) and thereby a data basis for ecological building rating. Furthermore, it has been classified in the best possible emission class: A+ "very low emission" for volatile substances as per the French VOC directive. Ecological advantages that also pay dividends in competition.



The product is certified as per the French directive (no. 2011-321 from 23/03/2011) on the labelling of building products for their indoor air emissions. The emissions are rated on a scale of A+ (very low emissions) to C (high emissions).

We take responsibility.

- For decades fischer has been actively practising environmental protection and taking on responsibility so that the environment remains intact for future generations. We have an environmental management system certified according to DIN ISO 14001 and are a member of the German Sustainable Building Council (DGNB).



For more information visit:
www.fischer.de/sustainability

Maximum performance, naturally!

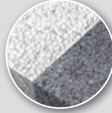
The greenline product line has a green solution for every building material.



greenline

-  safe and durable like the grey-coloured originals
-  environmentally friendly due to renewable resources

Green alternatives

								
UX GREEN 	✓	✓	✓	✓	✓	✓	✓	
SX GREEN 	✓	✓	✓	✓	✓			
GK GREEN 							✓	
N GREEN 	✓	✓	✓	✓	✓			
GB GREEN 				✓				
FID GREEN 								✓
FIS GREEN 	✓	✓	✓	✓	✓			

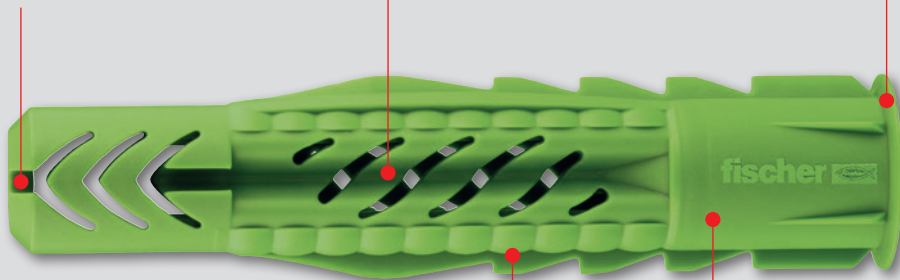
fischer Universal plug UX GREEN.

The nylon plug for all construction materials.

The tip of the plug **expands and adjusts to different screw sizes.**

The slanting connection bridges guarantee **precise screw guidance.**

The rim of the plug **prevents it from falling deeper** into the drill hole.



The serrated anti-rotation **locks prevent rotation** in the drill hole, even in "frayed" drill holes.

The integrated hammer-in stop **prevents premature expansion** e.g. push-through installation

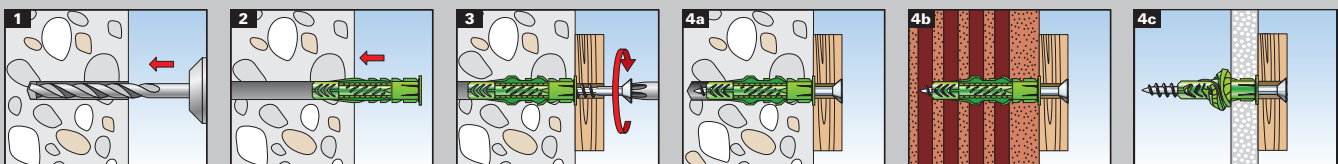
Functioning.

- Because of its rim, the universal plug is best suited for pre-positioned installation.
- When the screw is screwed-in, the UX GREEN expands in solid building materials and knots within the cavity.
- It can be used with wood screws and chipboard screws as well as spacing screws.

Your advantages at a glance:

- With its universal functioning principle - knotting in cavities and expanding in solid building materials - the UX GREEN adapts to every sub-surface.
- Whether in concrete, aerated concrete, gypsum plasterboard, solid or vertically perforated brick, the UX GREEN always finds a secure hold.
- The rim prevents falling deeper into the drill hole when the screw is screwed in.
- The plug has a low, and thus comfortable screw-in torque and a high fixed torque.
This way the plug really "pulls".
- The UX GREEN is available in diameters from 6 to 12 mm.

Installation

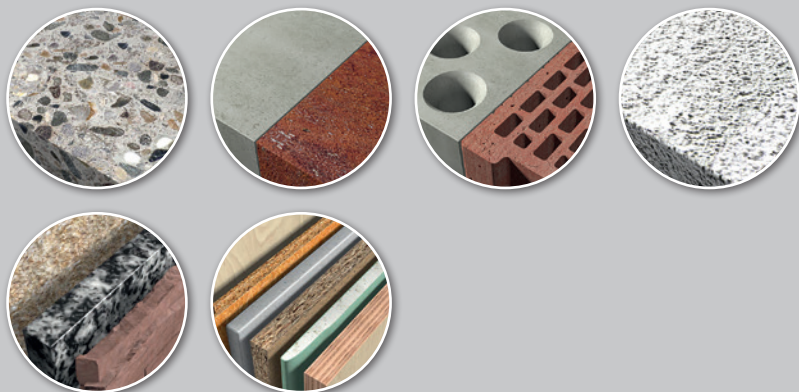


Applications.

Test mark



Recommendation



Suitable for:

- Concrete
- Gypsum plasterboard and gypsum fibreboards
- Vertically perforated brick
- Hollow lightweight concrete blocks
- Cavity floor slabs made of brick, concrete, etc.
- Perforated sand-lime brick
- Solid sand-lime brick
- Natural stone
- Aerated concrete
- Chipboard
- Solid panel made from gypsum
- Solid block made from lightweight concrete
- Solid brick

Typical anchoring solutions

Curtain rods



Shelves



Outdoor lamps



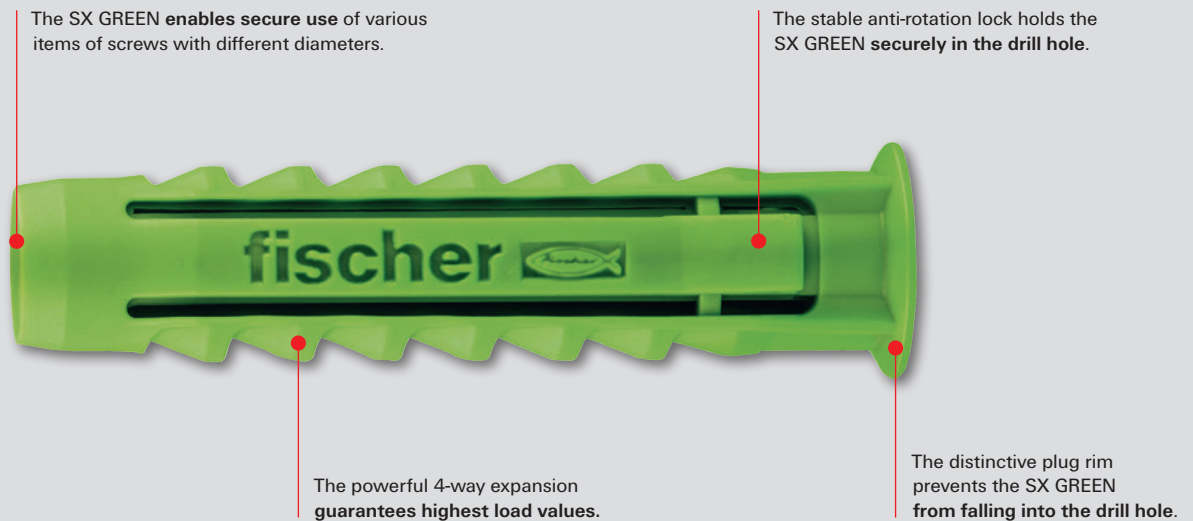
Washbasins



- The universal plug UX GREEN can be used in a number of building materials.
- Typical applications are mounting pictures, lights, baseboards, lightweight wall cupboards, curtain rails, bathroom fittings, TV consoles and much more.

fischer Expansion plug SX GREEN.

The powerful nylon plug with 4-way expansion.



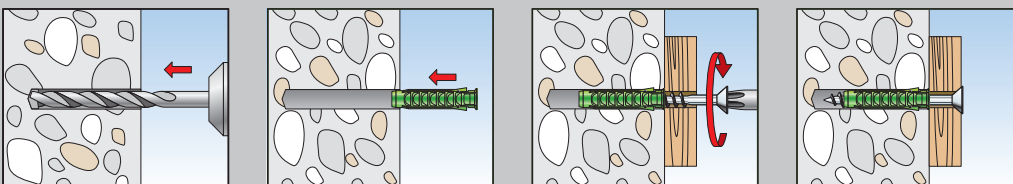
Functioning.

- The SX GREEN is suitable for pre-positioned and push-through installation.
- When screwing in the screw, the SX GREEN expands in four directions, thus providing a secure anchoring in the building material.
- Suitable for wood, chipboard and spacing screws.

Your advantages at a glance:

- The powerful 4-way expansion provides optimum force distribution in the building material and offers high load bearing capacities.
- The anti-rotation lock prevents the plug from rotating in the drill hole.
- The expansion-free plug neck prevents damage to tiles and plaster.
- Fast and easy push through mounting reduces installation time.
- The SX GREEN is available in diameters from 5 to 12 mm.

Installation

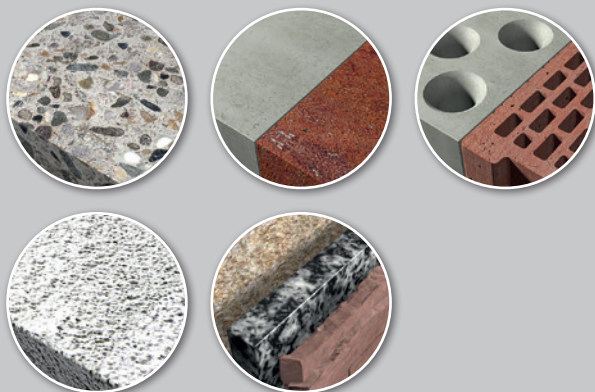


Applications.

Test mark



Recommendation



Suitable for:

- Concrete
- Vertically perforated brick
- Hollow lightweight concrete blocks
- Cavity floor slabs made of brick, concrete, etc.
- Perforated sand-lime brick
- Solid sand-lime brick
- Natural stone with dense structure
- Aerated concrete
- Solid panel made from gypsum
- Solid block made from lightweight concrete
- Solid brick

Typical anchoring solutions

Mirrors



Building technology



- The powerful 4-way expansion of the SX GREEN expansion plug provides high load values, particularly in concrete as well as in solid and perforated bricks.
- Typical applications are mounting lights, coat racks, small wall shelves, mirror cabinets, letterbox units, trellises, folding shutters and much more.

TV consoles



Sanitary ceramics

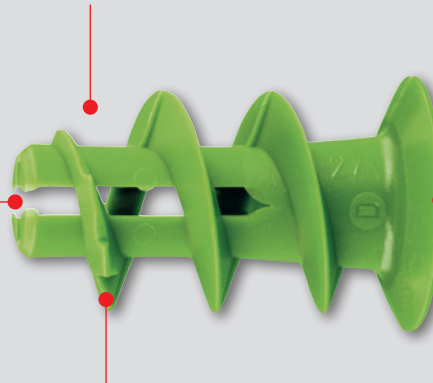


fischer gypsum plasterboard fixing GK GREEN

The fastest installation in gypsum plasterboard.

Thanks to its short plug length the GK GREEN can also be used with unknown board thickness and cavity depth.

The continuous groove provides a perfect fit and force transfer of the setting tool.



With the cross drive recess the GK GREEN can even be mounted and dismantled without screw-in tools.

The sharp, self-tapping threading enables a secure, interlocking connection with the building material.



incl. setting tool GKW

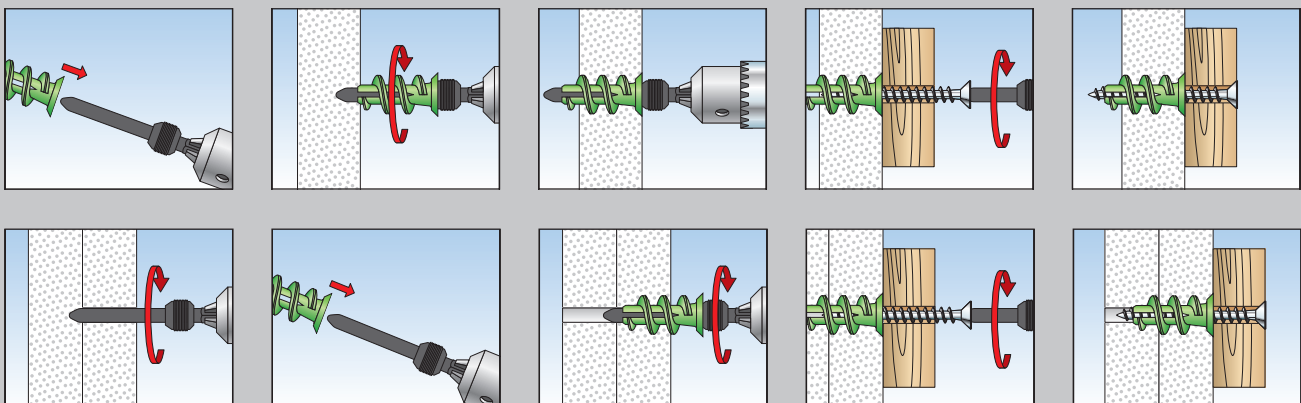
Functioning.

- The gypsum plasterboard fixing GK GREEN is suitable for pre-positioned installation.
- The gypsum plasterboard fixing GK GREEN is screwed flush into the gypsum plasterboard using the setting tool provided. Avoid manual and machine-aided overtightening.
- For board thickness greater than 15 mm, drill a hole first by using the setting tool.
- Not suitable for gypsum fibreboard and tiled plasterboard.
- Adapted for wood, self-tapping and chipboard screws of Ø 4.0 to 5.0 mm diameter.

Your advantages at a glance:

- The setting tool combines the functions of drilling and anchoring, completing the installation in one step.
- Fast and power-saving installation using a cordless or electric screwdriver.
- The sharp, self-tapping threading creates an interlocking connection which provides a high load capacity.
- The cross-drive recess in the head of the fixing means that the GK GREEN can also be uninstalled like a screw without using a setting tool.
- The GK GREEN can be used with various screws, hooks, and eyes making it very versatile in its applications.
- The GK GREEN, available in a length of 22 mm, enables installation in unknown cavity depths.

Installation

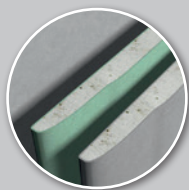


Applications.

Test mark



Recommendation



Suitable for:

- Gypsum plasterboard, single and double-planked

Typical anchoring solutions

Pictures



Skirting

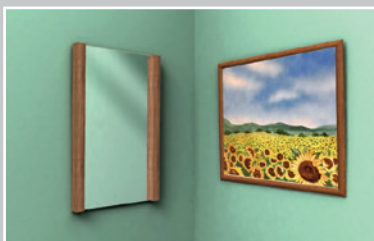


- The gypsum plasterboard fixing GK GREEN is the economic solution for mounting single and double planked gypsum plasterboard panels.
- Typical applications are series mounting of pictures, lamps, electric installations, interior accessories and much more.

Lamps

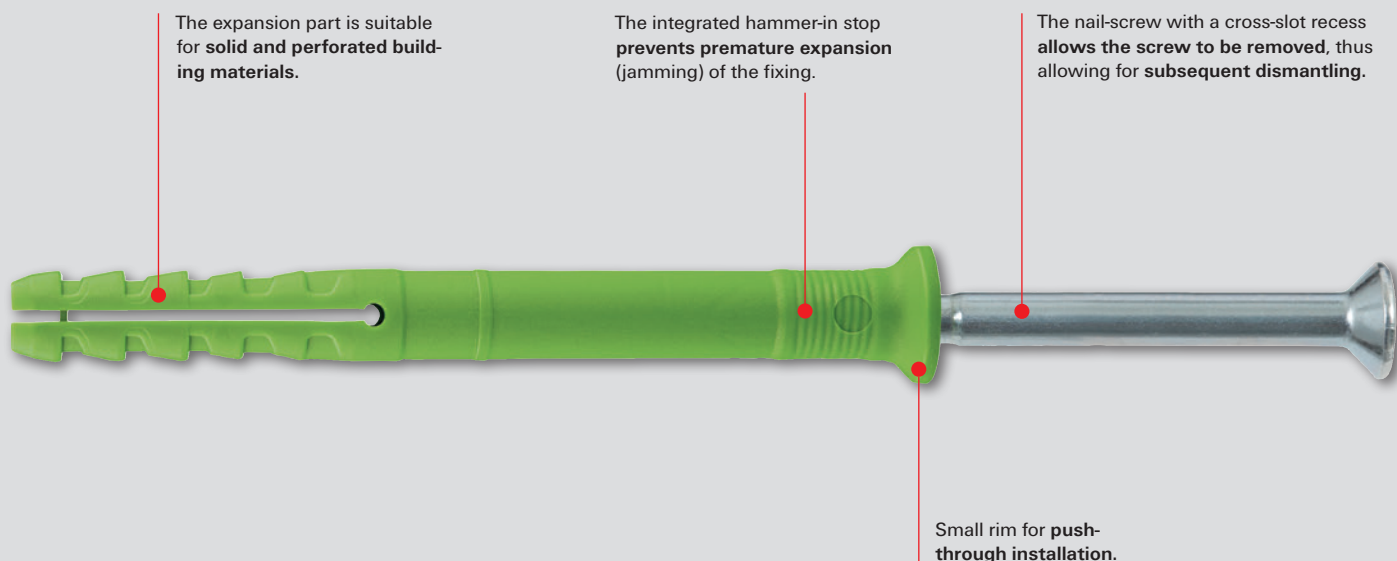


Wall decorations



fischer Hammerfix N GREEN.

The hammer-in plug for simple, fast and economic installation.



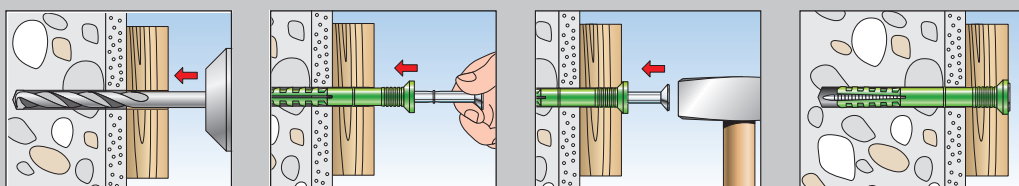
Functioning.

- The Hammerfix N GREEN is suitable for push-through installation.
- Rapid installation: drill, knock in - finished.
- When hammered in, the screw-nail causes the plug to expand in two directions, thus providing a secure anchoring in the building material.

Your advantages at a glance:

- The rapid push-through and hammer-set installation reduces the amount of work required and allows for an economic series installation.
- The integrated hammer-in stop prevents the plug from expanding prematurely enabling problem-free installation.
- Together with the cross-slot recess, the thread of the screw-nail allows the screw to be removed, thus allowing for subsequent dismantling.
- The N GREEN is available in sizes 6 x 40 to 8 x 120 mm.

Installation

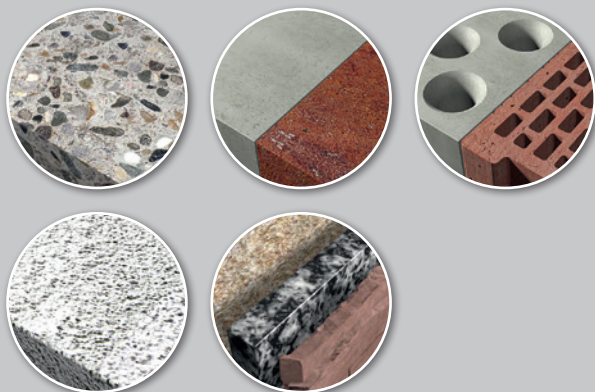


Applications.

Test mark



Recommendation



Suitable for:

- Concrete
- Solid sand-lime brick
- Solid brick
- Solid block made from lightweight concrete
- Perforated brick
- Aerated concrete
- Natural stone

Typical anchoring solutions

Wood substructures



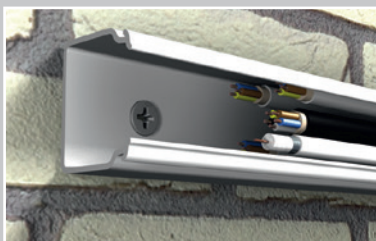
Cable clamps



Metal substructures

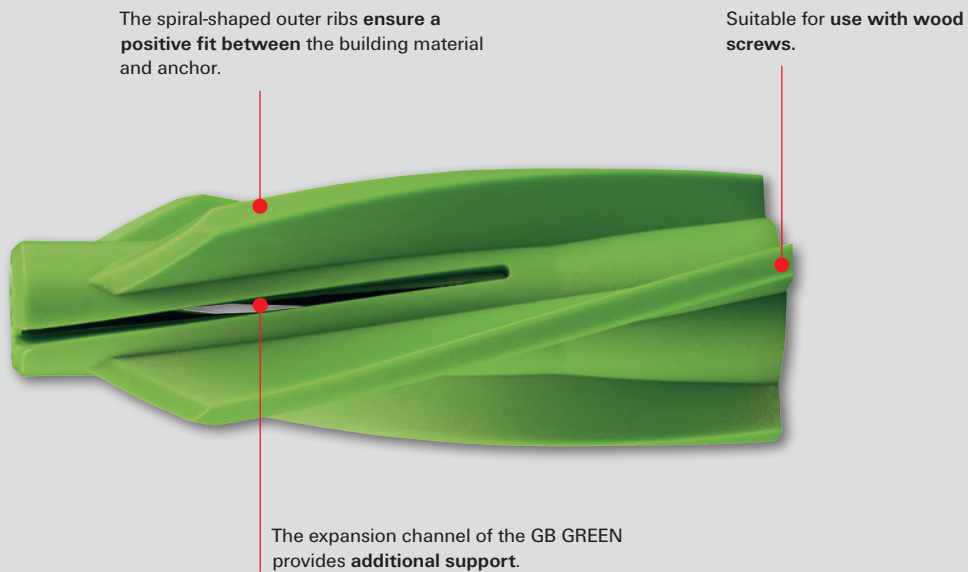


Cable ducts



- Ready to strike, quick and economic - that's the Hammerfix N GREEN. For series installation in concrete and solid building materials.
- Typical applications are mounting substructures made from wood and metal, wall fixtures and plaster profiles, foils, sheet metal, cable conduits, pipe clamps and much more.

fischer Aircrete anchor GB GREEN. Secure in aerated concrete.



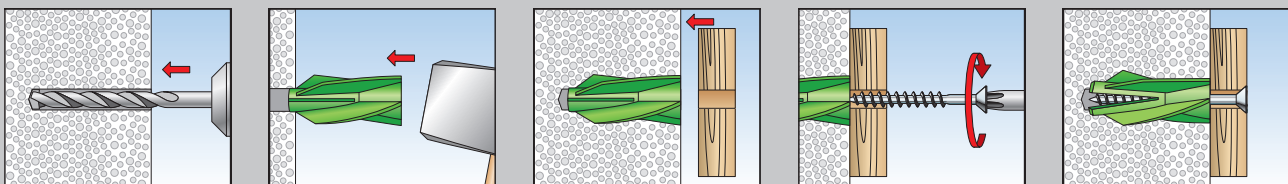
Functioning.

- The Aircrete anchor GB GREEN is suitable for pre-positioned installation.
- The spiral-shaped outer ribs cut a positive fit into the soft building material when knocked in, ensuring the best pressure distribution and load-bearing capacity.
- Can be used in unplastered aerated concrete.

Your advantages at a glance:

- The spiral-shaped outer ribs cut a positive fit into the building material ensuring a secure hold.
- Can be applied with a hammer - there is no need for special tools, thus saving time and money during installation.
- The GB GREEN is available in sizes 8 and 10.

Installation

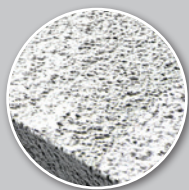


Applications.

Test mark



Recommendation



Suitable for:

- Aerated concrete with compressive strength 2 to 4 N/mm²
- Aerated concrete wall and ceiling boards with compressive strength 3.3 to 4.4 N/mm²

Typical anchoring solutions

Radiators



Pipes



- The aerated concrete anchor GB GREEN provides a secure hold in unplastered walls and ceiling boards made from aerated concrete.
- Typical applications are mounting suspended ceilings, cable routes, pipelines, façades and roof structures, canopy consoles and much more.

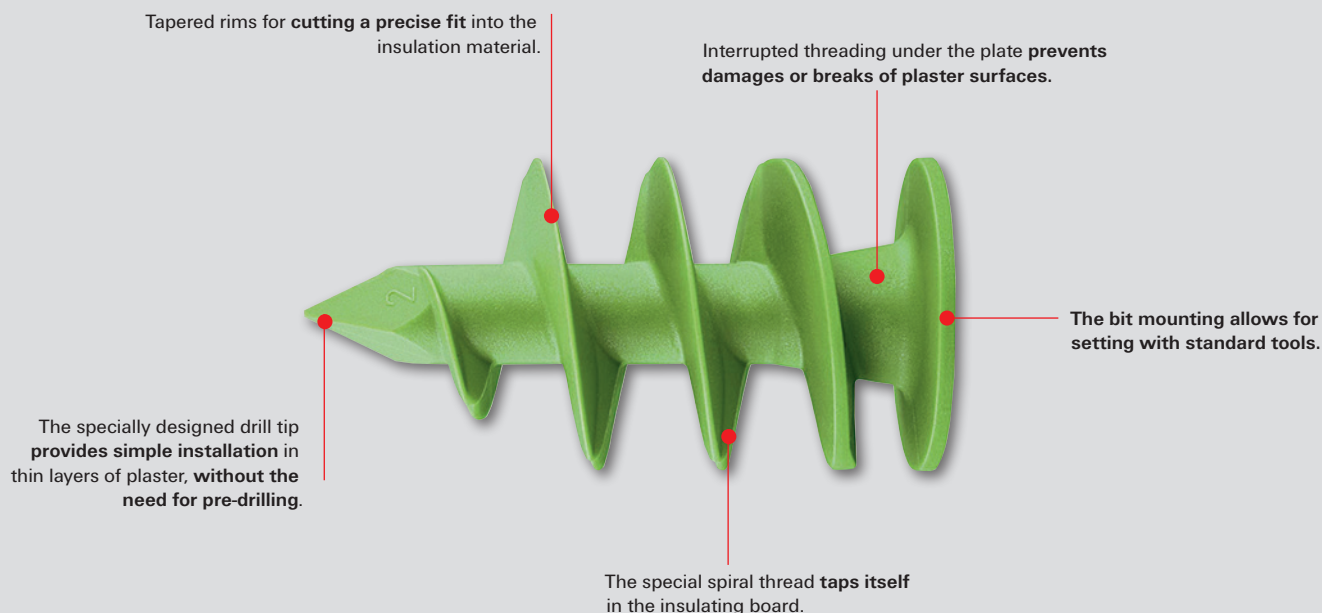
Suspended ceilings



Cable routes



fischer Insulation fixing FID GREEN. Thermal bridgefree installation in insulation materials.



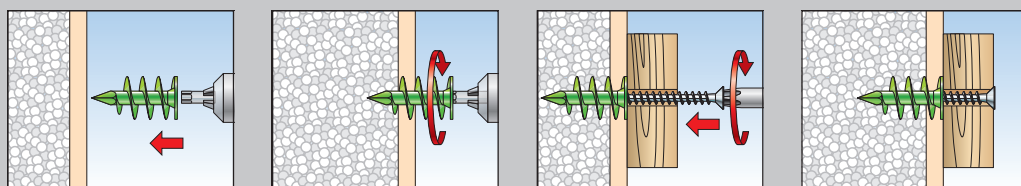
Functioning.

- With its strong drill tip the insulation fixing FID GREEN breaks through thin plaster layers and cuts a positive fit into the insulation panel with its specially shaped spiral thread.
- Water ingress in the insulation can be prevented by sealing the fixing after successful installation.
- Attachment parts can be easily attached with screws.
- Setting is possible using a cordless screwdriver or by hand.

Your advantages at a glance:

- Thermal bridgefree mounting when exclusively set in insulation material.
- Fast mounting, no pre-drilling. Can be used in unplastered and plastered hard-foam panels.
- Easy to set using a standard bit.
- Screw-in by hand or more conveniently with a cordless screwdriver.
- The FID GREEN is available in sizes 50 and 90 mm.

Installation

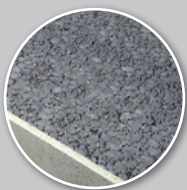
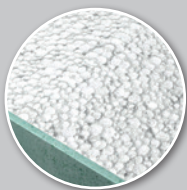


Applications.

Test mark



Recommendation



Suitable for:

- non-plastered, pressure-resistant insulating boards
- plastered, pressure-resistant insulating boards
- ETICS insulation panels

Typical anchoring solutions

Signs



Motion sensors



- The insulation fixing FID GREEN is the smart, thermal bridge-free mounting solution in unplastered and plastered, pressure-resistant insulation panels.
- Typical applications are mounting pictures, house numbers, outdoor lamps, mailboxes and much more.

Building technology



Outdoor lamps



fischer FIS GREEN 300 T.

Injection mortar with approval.

Advantages at a glance

- The first injection mortar made from renewable resources! Biobased 50-85 %, certified by DIN CERTCO / TÜV Rheinland.
- Approved for many solid and perforated bricks as well as uncracked concrete.
- Can also be used outdoors.
- With EPD environmental declaration from the Institute for Construction and the Environment (Institut Bauen und Umwelt e. V.).
- Best-possible emission class A+ (according to French VOC directive).
- The product is non-hazardous and therefore does not display any hazardous substances symbols.
- Can be used with the extensive range of fischer accessories.



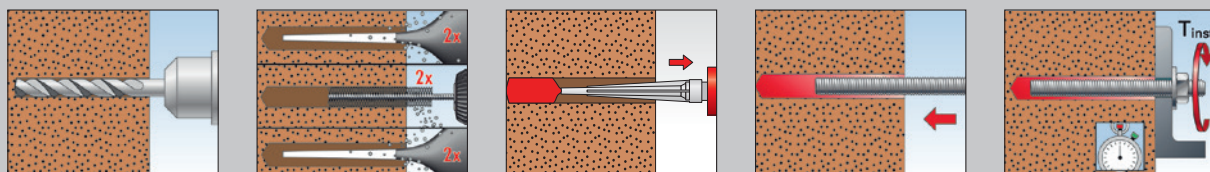
Anchor rod
FIS A

Internal threaded
anchor FIS E

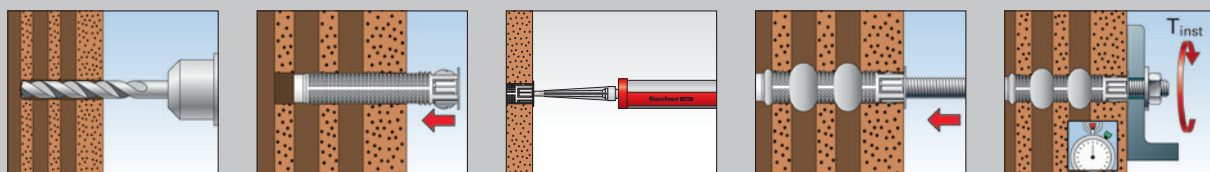
Injection anchor
sleeve FIS H K

Internal threaded
anchor RG M I

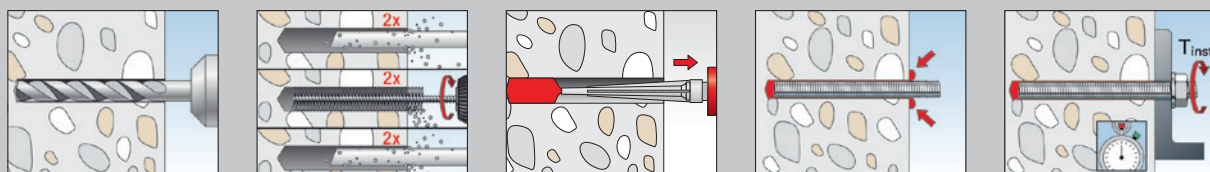
Application in solid brick



Application in perforated brick



Application in concrete



Applications.

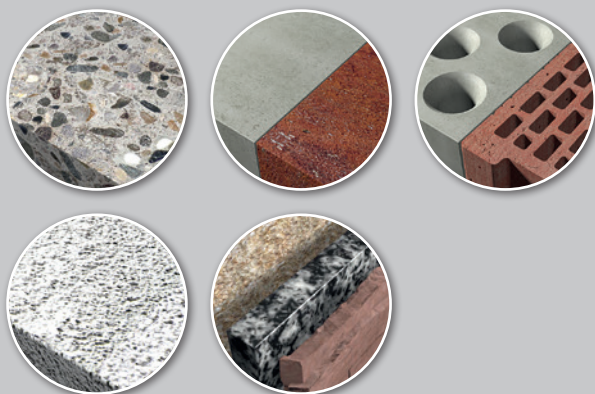
Test mark



The product is certified as per French directive (no. 2011-321 from 23/03/2011) on the labelling of building products for their indoor air emissions. The emissions are rated on a scale of A+ (very low emissions) to C (high emissions).



Recommendation



Approved for:

- Uncracked concrete
- Solid and vertically perforated bricks
- Sand-lime, solid and perforated bricks
- Aerated concrete

Suitable for:

- Hollow blocks made of normal weight concrete
- Natural stone

Typical anchoring solutions

Staircases



Building installation systems



- The injection mortar FIS GREEN is a two-component injection mortar with which high loads can be mounted in concrete, perforated and solid brick both indoors and outdoors.
- Typical applications are mounting kitchen and plumbing components, wood structures, outdoor facilities, canopies, awnings and much more.

Reconstruction of buildings



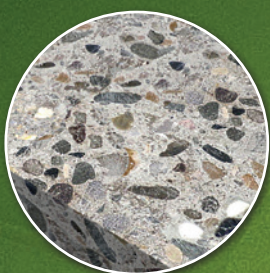
Garden grounds



Selection aid

Injection mortar FIS GREEN accessories.

Concrete



Dispenser unit KPM 2



+

Injection mortar
FIS GREEN 300 T



+

Injection anchor rod
FIS A

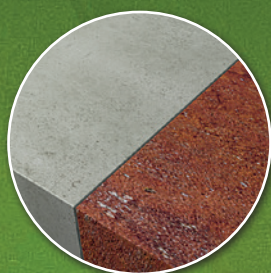


or

Internal threaded anchor
RG M I



Solid brick



Dispenser unit KPM 2



+

Injection mortar
FIS GREEN 300 T



+

Injection anchor rod
FIS A

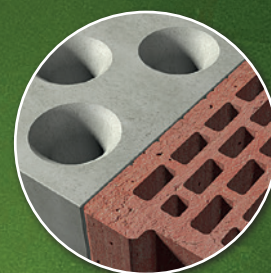


or

Internal threaded anchor
FIS E



Perforated building materials.



Dispenser unit KPM 2



+

Injection mortar
FIS GREEN 300 T



+

Injection anchor sleeve
FIS H K



+

Injection anchor rod FIS A

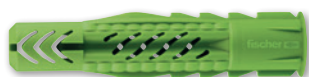


or

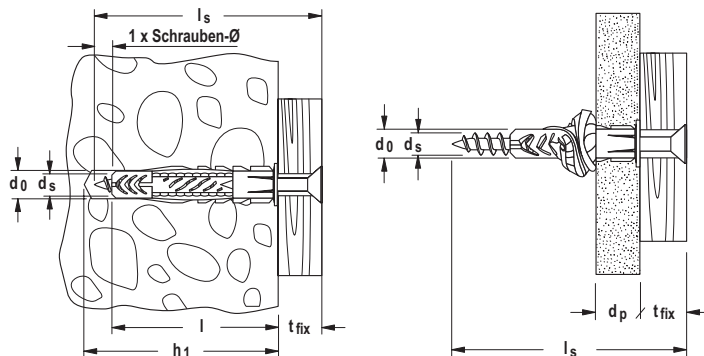
Internal threaded anchor FIS E



Range.



Universal plug **UX GREEN R** - with rim



UX GREEN R

Item	UX Art. no.	Nominal drill hole diameter d ₀ [mm]	Min. drill hole depth h ₁ [mm]	min. panel thickness d _p [mm]	Anchor length l [mm]	Chipboard/ wood screws d _s / d _s x l _s [mm]	max. fixture thickness t _{fix} [mm]	Sales unit [pcs]
UX GREEN 6 x 35 R	518885	6	45	9.5	35	4 - 5	—	40
UX GREEN 6 x 50 R	524855	6	60	9.5	50	4 - 5	—	40
UX GREEN 8 x 50 R	518886	8	60	9.5	50	4.5 - 6	—	40
UX GREEN 10 x 60 R	518887	10	75	12.5	60	6 - 8	—	20
UX GREEN 12 x 70	524858	12	85	—	70	8 - 10	—	18



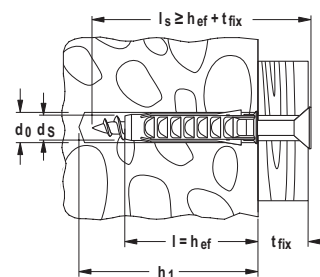
Expansion plug **SX GREEN** - with rim



Expansion plug **SX GREEN**
- larger anchoring depth, without rim



Expansion plug **SX GREEN S**
- with rim and screw



SX GREEN

Item	SX with rim Art. no.	SX with larger anchoring depth, without rim Art. no.	SX with rim and screw Art. no.	Nominal drill hole diameter d ₀ [mm]	Min. drill hole depth h ₁ [mm]	Anchor length l [mm]	max. fixture thickness t _{fix} [mm]	Chipboard/ wood screws d _s / d _s x l _s [mm]	Sales unit [pcs]
SX GREEN 5 x 25	524859	—	—	5	35	25	—	3 - 4	90
SX GREEN 6 x 30	524860	—	—	6	40	30	—	4 - 5	90
SX GREEN 6 x 30	—	—	524866	6	40	30	10	4.5 x 40	45
SX GREEN 6 x 50	—	524861	—	6	60	50	—	4 - 5	90
SX GREEN 8 x 40	524862	—	—	8	50	40	—	4.5 - 6	90
SX GREEN 8 x 40	—	—	524867	8	50	40	20	5 x 60	45
SX GREEN 8 x 65	—	524863	—	8	75	65	—	4.5 - 6	45
SX GREEN 10 x 50	524864	—	—	10	70	50	—	6 - 8	45
SX GREEN 12 x 60	524865	—	—	12	80	60	—	8 - 10	20

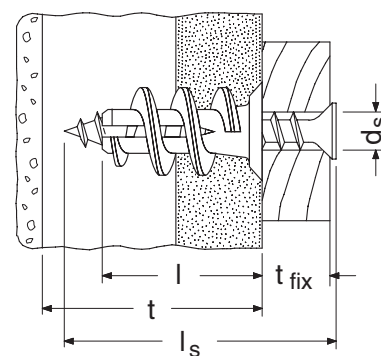
Range.



Gypsum plasterboard fixing **GK GREEN**



Gypsum plasterboard fixing **GK GREEN S**



GK GREEN

Item	Art. no.	Anchor length l [mm]	min. thickness to first supporting layer t [mm]	max. fixture thickness t_{fix} [mm]	screw $d_s \times l_s$ [mm]	Drive	Sales unit [pcs]
GK GREEN ^{1) 2)}	524868	22	25	—	4.0 - 5.0 x l_s	—	90
GK GREEN S ^{1) 3)}	524869	22	25	13	4.5 x 35	PZ2	45

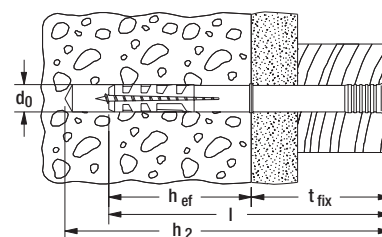
¹⁾ Includes a setting and insertion tool GKW.

²⁾ Min. screw length = length of plug 22 mm + thickness of building component.

³⁾ Supplied with plasterboard screws.



The Hammerfix **N GREEN** with countersunk head and electro-galvanised screw-nail, pre-assembled



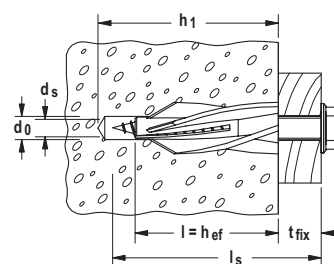
N GREEN

Item	Art. no.	Drill hole diameter d_0 [mm]	Effective anchoring depth h_{ef} [mm]	Anchor length l [mm]	min. drill hole depth for through fixings h_2 [mm]	max. fixture thickness t_{fix} [mm]	Sales unit [pcs]
N GREEN 6 x 40/10 S	524845	6	30	40	55	10	45
N GREEN 6 x 60/30 S	524847	6	30	60	75	30	45
N GREEN 6 x 80/50 S	524848	6	30	80	95	50	45
N GREEN 8 x 80/40 S	524849	8	40	80	95	40	45
N GREEN 8 x 100/60 S	524850	8	40	100	115	60	45

Range.



Aircrete anchor **GB GREEN**

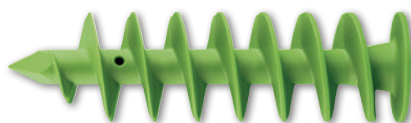


GB GREEN

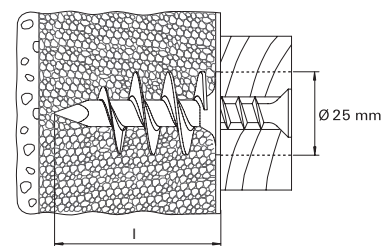
Item	Art. no.	Nominal drill bit diameter d_0 [mm]	Min. drill hole depth h_1 [mm]	Plug length = min. anchoring depth $l = h_{ef}$ [mm]	fischer safety screw d_s [mm]	Sales unit [pcs]
GB GREEN 8	524870	8	60	50	5	20
GB GREEN 10	524871	10	65	55	7	18



Insulation fixing
FID GREEN 50



Insulation fixing
FID GREEN 90



FID GREEN

Item	Art. no.	Anchor length l [mm]	min. bolt penetration [mm]	Chipboard/ wood screws d_s [mm]	Drive Item	Sales unit [pcs]
FID GREEN 50	524851	50	50	4.5 - 5.0	T40	45
FID GREEN 90	524852	90	90	6	6 mm / 6-kt	20



Injection mortar **FIS GREEN**

Injection mortar FIS GREEN

Item	Art. no.	Contents	Sales unit [pcs]
FIS GREEN 300 T (DK, S, N, FIN)	532972	1 x cartridge 300 ml + 2 x static mixer	12
FIS GREEN 300 T (F)	522989	1 x cartridge 300 ml + 2 x static mixer	12
FIS GREEN 300 T (I)	523245	1 x cartridge 300 ml + 2 x static mixer	12
FIS GREEN 300 T (E, P)	534073	1 x cartridge 300 ml + 2 x static mixer	12

Loads.

Universal plug UX GREEN

Highest recommended loads¹ of an individual anchor. Load values apply to the use of wood screws with the specified screw diameters.

Model			UX GREEN 6 x 35 R	UX GREEN 6 x 50 R	UX GREEN 8 x 50 R	UX GREEN 10 x 60 R	UX GREEN 12 x 70
Screw diameter	Ø	[mm]	5	5	6	8	10
Recommended load in the respective building material F _{empt} ²⁾							
Concrete	≥ C20/25	[kN]	0.40	0.60	0.60	1.00	1.50
Solid brick	≥ Mz 12	[kN]	0.20	0.30	0.30	0.50	0.70
Perforated sand-lime brick	≥ KSL 12	[kN]	0.40	0.40	0.50	0.60	0.80
Vertically perforated brick	≥ Hlz 12	[kN]	0.20	0.20	0.20	0.20	0.30
Aerated concrete	≥ PB4, PP4 (G4)	[kN]	0.20	0.20	0.30	0.40	0.60
Gypsum plasterboard	12.5 mm	[kN]	0.10	0.10	0.10	0.10	-
Gypsum plasterboard	25 mm	[kN]	0.15	0.15	0.15	0.15	-
Gypsum fibreboard	(Fermacell)	[kN]	0.20	0.20	0.20	0.25	-
Gypsum wall board	ρ ≥ 0,9 kg/dm³	[kN]	-	-	0.15	0.35	0.45

¹⁾ Contains safety factor 7.

²⁾ Applies to tension load, shear load and diagonal pull under each angle.

Expansion plug SX GREEN

Highest recommended loads¹ of an individual anchor. Load values apply to the use of wood screws with the specified screw diameters.

Model			SX GREEN 5 x 25	SX GREEN 6 x 30 SX GREEN 6 x 50	SX GREEN 8 x 40 SX GREEN 8 x 65	SX GREEN 10 x 50	SX GREEN 12 x 60
Screw diameter	Ø	[mm]	4	5	6	8	10
min. rim clearance concrete	c _{min}	[mm]	-	35	40	50	65
Recommended load in the respective building material F _{empt} ²⁾							
Concrete	≥ C20/25	[kN]	0.30	0.65	0.70	1.20	1.70
Solid brick	≥ Mz 12	[kN]	0.25	0.30	0.60	0.65	0.70
Solid sand-lime brick	≥ KS 12	[kN]	0.30	0.50	0.60	1.20	1.70
Aerated concrete	≥ PB2, PP2 (G2)	[kN]	0.03	0.03	0.04	0.09	0.14
Aerated concrete	≥ PB4, PP4 (G4)	[kN]	0.09	0.09	0.14	0.30	0.45
Vertically perforated brick	≥ Hlz 12 (ρ ≥ 1,0 kg/dm³)	[kN]	0.07	0.07	0.17	0.17	0.26
Perforated sand-lime brick	≥ KSL 12	[kN]	0.17	0.30	0.35	0.30	0.35
Gypsum wall board	-	[kN]	-	-	0.26	0.37	1.00

¹⁾ Contains safety factor 7.

²⁾ Applies to tension load, shear load and diagonal pull under each angle.

Gypsum plasterboard fixing GK GREEN

Highest recommended loads¹ of an individual anchor. Load values apply to the use of chipboard screws with the specified screw diameters.

Model			GK GREEN
Plasterboard screw	Ø	[mm]	4.0 - 5.0
Recommended load in the respective building material F _{empt} ²⁾			
Gypsum plasterboard	9.5 mm	[kN]	0.07
Gypsum plasterboard	12.5 mm	[kN]	0.08
Gypsum plasterboard	2 x 12.5 mm	[kN]	0.11

¹⁾ Required safety factor taken into account.

²⁾ Applies to tension load, shear load and diagonal pull under each angle.

Loads.

Hammerfix N GREEN

Highest recommended loads¹⁾ of an individual anchor. Load values apply to the use of the provided screw-nails with the specified screw diameter.

Model			N GREEN 6	N GREEN 8
Nail-screw diameter	Ø	[mm]	4	5
Recommended load in the respective building material F _{empt} ²⁾				
Concrete	≥ C20/25	[kN]	0.20	0.27
Solid brick	≥ Mz12	[kN]	0.18	0.24
Solid sand-lime brick	≥ KS12	[kN]	0.17	0.24
Solid block made from lightweight concrete	≥ V4	[kN]	0.12	0.15
Aerated concrete	≥ PB2	[kN]	0.04	0.05
Aerated concrete	≥ PB4	[kN]	0.10	0.13

¹⁾ Contains safety factor 4.

²⁾ Applies to tension load, shear load and diagonal pull under each angle.

Aircrete anchor GB GREEN

Highest recommended loads¹⁾ of an individual anchor in aerated concrete.

Load values apply to the use of fischer safety screws⁴ as per the selection chart.

Model			GB GREEN 8	GB GREEN 10
min. axial spacing ⁶⁾	s _{min}	[mm]	150 (100) ⁷⁾	200 (150) ⁷⁾
min. rim clearance ²⁾	c _{min}	[mm]	100 (75) ⁷⁾	150 (100) ⁷⁾
Rim distance to mortared joints ⁵⁾	c _{min}	[mm]	9	10
Minimum member thickness	h _{min}	[mm]	75	100
Anchoring depth	h _{ef} (h _v)	[mm]	50	55
Recommended load in the respective building material F _{empt} ³⁾				
Aerated concrete	PB2, PP2 (G2)	[kN]	0.20	0.25
Aerated concrete	P3,3 (GB3,3)	[kN]	0.30	0.50
Aerated concrete	≥ PB4, PP4, P4,4 (≥ G4, GB4,4)	[kN]	0.40	0.60

¹⁾ Required safety factor taken into account.

²⁾ Smallest possible rim clearance.

³⁾ Applies to tension load, shear load and diagonal pull under each angle with no additional bending.

⁴⁾ Gvz and A4.

⁵⁾ Only in aerated concrete masonry.

⁶⁾ Smallest possible axial spacing for simultaneous reduction of recommended load.

⁷⁾ Values in brackets apply to PB2, PP2 (G2).

Insulation fixing FID GREEN

Highest recommended loads¹⁾ of an individual anchor. Load values apply to the use of chipboard screws with the largest diameter.

Model			FID GREEN 50	FID GREEN 90
Screw diameter	Ø	[mm]	4.5 - 5.0	6
Recommended load in the respective building material F _{empt} ²⁾				
Styrofoam	PS 15	[kN]	0.05	0.08
Styrofoam	PS 20	[kN]	0.09	0.14

¹⁾ Contains safety factor 5.

²⁾ Applies to tension load, shear load and diagonal pull under each angle.

Loads.

FIS GREEN in concrete

Injection system FIS GREEN with threaded rod FIS A (property class 5.8)

Highest permissible loads for a single anchor^{1) 6)} in concrete C20/25⁴⁾

For the design the complete approval ETA-14/0408 has to be considered.

					Non-cracked concrete			
Type	Min. effective anchorage depth $h_{ef,min}$ [mm]	Max. effective anchorage depth $h_{ef,max}$ [mm]	Min. member thickness h_{min} [mm]	Max. torque moment $T_{inst,max}$ [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]
FIS A M8 (5.8)	60		100	10,0	6,3	5,1	40	40
		160	190	10,0	9,0	5,1	40	40
FIS A M10 (5.8)	60		100	20,0	7,5	8,6	45	45
		200	230	20,0	13,8	8,6	45	45
FIS A M12 (5.8)	70		100	40,0	9,9	12,0	55	55
		240	270	40,0	20,5	12,0	55	55
FIS A M16 (5.8)	80		116	60,0	13,6	22,3	65	65
		320	356	60,0	37,6	22,3	65	65
FIS A M20 (5.8)	90		138	120,0	16,8	34,9	85	85
		400	448	120,0	58,6	34,9	85	85

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. 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 approval.

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

⁶⁾ The given loads are valid for temperatures in the substrate up to +50 °C (resp. short term up to 80 °C). Erection of the drill hole by hammer drilling with best possible drill hole cleaning according approval. The anchor may be installed in dry or wet concrete.

FIS GREEN in concrete

Injection system FIS GREEN with threaded rod FIS A A4 (property class A4-70)

Highest permissible loads for a single anchor^{1) 6)} in concrete C20/25⁴⁾

For the design the complete approval ETA-14/0408 has to be considered.

Type					Non-cracked concrete			
	Min. effective anchorage depth	Max. effective anchorage depth	Min. member thickness	Max. torque moment	Permissible tensile load	Permissible shear load	Min. spacing	Min. edge distance
	$h_{ef,min}$	$h_{ef,max}$	h_{min}	$T_{inst,max}$	$N_{zul}^{3)}$	$V_{zul}^{3)}$	$s_{min}^{2)}$	$c_{min}^{2)}$
	[mm]	[mm]	[mm]	[Nm]	[kN]	[kN]	[mm]	[mm]
FIS A M8 (A4-70)	60		100	10,0	6,3	6,0	40	40
		160	190	10,0	9,9	6,0	40	40
FIS A M10 (A4-70)	60		100	20,0	7,5	9,2	45	45
		200	230	20,0	15,7	9,2	45	45
FIS A M12 (A4-70)	70		100	40,0	9,9	13,7	55	55
		240	270	40,0	22,5	13,7	55	55
FIS A M16 (A4-70)	80		116	60,0	13,6	25,2	65	65
		320	356	60,0	42,0	25,2	65	65
FIS A M20 (A4-70)	90		138	120,0	16,8	39,4	85	85
		400	448	120,0	65,7	39,4	85	85

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. 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 approval.

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

⁶⁾ The given loads are valid for temperatures in the substrate up to +50 °C (resp. short term up to 80 °C). Erection of the drill hole by hammer drilling with best possible drill hole cleaning according approval. The anchor may be installed in dry or wet concrete.

Loads.

FIS GREEN in concrete

Injection system FIS GREEN with threaded rod FIS A C (property class C-70)

Highest permissible loads for a single anchor^{1) 6)} in concrete C20/25⁴⁾

For the design the complete approval ETA-14/0408 has to be considered.

					Non-cracked concrete			
Type	Min. effective anchorage depth	Max. effective anchorage depth	Min. member thickness	Max. torque moment	Permissible tensile load	Permissible shear load	Min. spacing	Min. edge distance
	$h_{ef,min}$	$h_{ef,max}$	h_{min}	$T_{inst,max}$	$N_{zul}^{3)}$	$V_{zul}^{3)}$	$s_{min}^{2)}$	$c_{min}^{2)}$
	[mm]	[mm]	[mm]	[Nm]	[kN]	[kN]	[mm]	[mm]
FIS A M8 (C-70)	60		100	10,0	6,3	7,4	40	40
		160	190	10,0	12,4	7,4	40	40
FIS A M10 (C-70)	60		100	20,0	7,5	11,4	45	45
		200	230	20,0	19,5	11,4	45	45
FIS A M12 (C-70)	70		100	40,0	9,9	17,1	55	55
		240	270	40,0	28,1	17,1	55	55
FIS A M16 (C-70)	80		116	60,0	13,6	31,4	65	65
		320	356	60,0	52,4	31,4	65	65
FIS A M20 (C-70)	90		138	120,0	16,8	40,4	85	85
		400	448	120,0	74,8	49,1	85	85

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. 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 approval.

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

6) The given loads are valid for temperatures in the substrate up to +50 °C (resp. short term up to 80 °C). Erection of the drill hole by hammer drilling with best possible drill hole cleaning according approval. The anchor may be installed in dry or wet concrete.

FIS GREEN in perforated brick masonry for push-through installation

Injection system FIS GREEN with threaded rod FIS A⁵⁾ and push-through anchor sleeve FIS HK

Highest permissible loads^{1) 6)} for a single anchor in perforated brick masonry for push-through installation.

For the design the complete approval ETA-10/0383 has to be considered.

Type							Perforated brick masonry			
	Compressive brick strength	Brick raw density	Minimum brick dimensions ⁷⁾	Min. effective anchorage depth ⁴⁾	Min. member thickness	Maximum torque	Permissible tensile load ³⁾	Permissible shear load ³⁾	Min. spacing ²⁾	Min. edge distance ²⁾
	f _b	ρ	(L x W x H)	h _{ef}	h _{min}	T _{inst,max}	N _{zul}	V _{zul}	s _{min}	c _{min}
	[N/mm ²]	[kg/dm ³]	[mm]	[mm]	[mm]	[Nm]	[kN]	[kN]	[mm]	[mm]
	Perforated sand-lime brick KSL acc. EN 771-2									
M10	≥ 8	≥ 1,4	240x175x113	130	175	4,0	1,00	2,57	115	120
M12	≥ 8						0,57	2,14	115	120
M16	≥ 8						0,57	2,14	115	120
Vertically perforated brick Hlz acc. EN 771-1										
M8/M10	≥ 12	≥ 0,9	240x175x113	130	175	4,0	0,71	1,57	115	120
M8/M10	≥ 12						0,57	1,71	115	120
M8/M10	≥ 12						1,71	1,71	115	120

1) The required partial safety factors for material resistance as well as a partial safety factor for load actions of $\gamma_L = 1,4$ are considered.

2) Minimum possible edge distance resp. axial spacing for anchor groups. For further measures e.g. the corresponding axial spacing for anchor groups or the minimum distance between anchor groups please see approval.

3) For combinations of tensile loads, shear loads, bending moments as well as reduced axial spacings (anchor groups) see approval.

4) The maximum anchorage depth is corresponding with the relevant anchor sleeves FIS HK (see technical data).

5) gvz, A4 and C.

6) The given loads are valid for installation and use of fixations in dry masonry for temperatures in the substrate up to +50 °C (resp. short term up to 80 °C) and drillhole cleaning according approval. The given brick types in combination with the permissible loads are only an extract of the approval.

7) Hole patterns see approval.

Loads.

FIS GREEN in perforated brick masonry for pre-positioned installation

Injection system FIS GREEN with threaded rod FIS A⁵⁾ and anchor sleeve FIS HK

Highest permissible loads^{1) 6)} for a single anchor in perforated brick masonry for pre-positioned installation.
For the design the complete approval has to be considered.

Type							Perforated brick masonry			
	Compressive brick strength	Brick raw density	Minimum brick dimensions ⁷⁾	Min. effective anchorage depth ⁴⁾	Min. member thick-ness	Maximum torque	Permissible tensile load ³⁾	Permissible shear load ³⁾	Min. spacing ²⁾	Min. edge distance ²⁾
	f _b	ρ	(L x W x H) ⁷⁾	h _{ef}	h _{min}	T _{inst,max}	N _{zul}	V _{zul}	s _{min}	c _{min}
	[N/mm ²]	[kg/dm ³]	[mm]	[mm]	[mm]	[Nm]	[kN]	[kN]	[mm]	[mm]
Vertically perforated brick Hlz acc. EN 771-1										
M8 / M10 / M12	≥ 8	≥ 1,4	230x106x55	85	106	4,0	0,57	0,71	55	100
M8	≥ 12	≥ 0,9	240x175x113	50	175	4,0	0,57	1,14	115	120
M8 / M10				0,57			1,57	115	120	
M12 / M16				0,71			1,71	115	120	

¹⁾ The required partial safety factors for material resistance as well as a partial safety factor for load actions of γ_L = 1,4 are considered.

²⁾ Minimum possible edge distance resp. axial spacing for anchor groups. For further measures e.g. the corresponding axial spacing for anchor groups or the minimum distance between anchor groups please see approval.

³⁾ For combinations of tensile loads, shear loads, bending moments as well as reduced axial spacings (anchor groups) see approval.

⁴⁾ The maximum anchorage depth is corresponding with the relevant anchor sleeves FIS HK (see technical data).

⁵⁾ gvz, A4 and C.

⁶⁾ The given loads are valid for installation and use of fixations in dry masonry for temperatures in the substrate up to +50 °C (resp. short term up to 80 °C) and drillhole cleaning according approval. The given brick types in combination with the permissible loads are only an extract of the approval.

⁷⁾ Hole patterns see approval.

FIS GREEN in solid brick masonry for pre-positioned or push-through installation

Injection system FIS GREEN with threaded rod FIS A⁵⁾

Highest permissible loads^{1) 6)} for a single anchor in solid brick masonry for pre-positioned or push-through installation.
For the design the complete approval has to be considered.

Type	Compressive brick		Brick raw density	Minimum brick dimensions (L x W x H)	Min. effective anchorage depth	Min. member thickness	Maximum torque	Solid brick masonry			
	strength							Permissible tensile load ³⁾	Permissible shear load ³⁾	Min. spacing ²⁾	Min. edge distance ²⁾
	f _b	ρ						N _{zul}	V _{zul}	s _{min}	c _{min}
	[N/mm ²]	[kg/dm ³]		[mm]	[mm]	[mm]	[Nm]	[kN]	[kN]	[mm]	[mm]
Solid brick Mz acc. EN 771-1											
M8	≥ 10	≥ 1,8	240x115x71	50	115	10	0,86	0,71	150	100	
M10	≥ 10			50			0,71	1,00	150	100	
M12	≥ 10			80			1,14	1,00	150	100	
M8	≥ 20			50			1,14	1,14	150	100	
M10	≥ 20			50			1,14	1,43	150	100	
M12	≥ 20			80			1,71	1,29	150	100	
M8	≥ 16		230x108x55	50	108	10	0,57	1,14	150	100	
M10	≥ 16			50			0,71	1,57	150	100	
M12	≥ 16	50		0,86			1,57	150	100		
Solid sand-lime brick KS acc. EN 771-2											
M8	≥ 10	≥ 1,8	240x115x71	50	115	10	0,86	1,14	150	100	
M10	≥ 10			50			0,71	1,14	150	100	
M10	≥ 10			80			0,86	1,14	240	100	
M12	≥ 10			80			0,86	1,43	240	100	
M8	≥ 20			50			1,14	1,57	150	100	
M10	≥ 20			50			1,00	1,57	150	100	
M10	≥ 20			80			1,29	1,57	240	100	
M12	≥ 20			80			1,29	2,00	240	100	

¹⁾ The required partial safety factors for material resistance as well as a partial safety factor for load actions of γ_L = 1,4 are considered.

²⁾ Minimum possible edge distance resp. axial spacing for anchor groups. For further measures e.g. the corresponding axial spacing for anchor groups or the minimum distance between anchor groups please see approval.

³⁾ For combinations of tensile loads, shear loads, bending moments as well as reduced axial spacings (anchor groups) see approval.

⁵⁾ gvz, A4 and C.

⁶⁾ The given loads are valid for installation and use of fixations in dry masonry for temperatures in the substrate up to +50 °C (resp. short term up to 80 °C) and drillhole cleaning according approval. The given brick types in combination with the permissible loads are only an extract of the approval.

Loads.

FIS GREEN in aerated concrete masonry for pre-positioned or push-through installation

Injection system FIS GREEN with threaded rod FIS A⁵⁾

Highest permissible loads^{1) 6)} for a single anchor in aerated concrete masonry for pre-positioned or push-through installation.
For the design the complete approval has to be considered.

Type							Aerated concrete			
	Compressive brick strength	Brick raw density	Minimum brick dimensions (L x W x H)	Min. effective anchorage depth	Min. member thick-ness	Maximum torque	Permissible tensile load ³⁾	Permissible shear load ³⁾	Min. spacing ²⁾	Min. edge distance ²⁾
	f _b	ρ					N _{zul}	V _{zul}	s _{min}	c _{min}
	[N/mm ²]	[kg/dm ³]					[mm]	[mm]	[mm]	[mm]
Aerated concrete blocks										
M8	≥ 1,8	≥ 0,18	500x300x250	100	300	2,0	0,71	0,32	115	80
M10	≥ 1,8	≥ 0,18		100		4,0	0,71	0,32	115	80
M12	≥ 1,8	≥ 0,18		100		4,0	0,89	0,32	115	80
M16	≥ 1,8	≥ 0,18		100		4,0	0,89	0,43	115	80
M8	≥ 4,0	≥ 0,35		100		2,0	0,89	0,54	115	80
M10	≥ 4,0	≥ 0,35		100		4,0	1,07	0,54	115	80
M12	≥ 4,0	≥ 0,35		100		4,0	1,07	0,54	115	80
M16	≥ 4,0	≥ 0,35		100		4,0	0,89	0,54	115	80
M8	≥ 5,4	≥ 0,54		100		2,0	1,25	0,89	115	80
M10	≥ 5,4	≥ 0,54		100		4,0	1,43	0,89	115	80
M12	≥ 5,4	≥ 0,54		100		4,0	1,43	0,89	115	80
M16	≥ 5,4	≥ 0,54		100		4,0	1,07	0,71	115	80

1) The required partial safety factors for material resistance as well as a partial safety factor for load actions of $\gamma_L = 1,4$ are considered.

2) Minimum possible edge distance resp. axial spacing for anchor groups. For further measures e.g. the corresponding axial spacing for anchor groups or the minimum distance between anchor groups please see approval.

3) For combinations of tensile loads, shear loads, bending moments as well as reduced axial spacings (anchor groups) see approval.

5) gvz, A4 and C.

6) The given loads are valid for installation and use of fixations in dry masonry for temperatures in the substrate up to +50 °C (resp. short term up to 80 °C) and drillhole cleaning according approval. The given brick types in combination with the permissible loads are only an extract of the approval.

FIS GREEN in solid brick masonry for pre-positioned installation

Injection system FIS GREEN with threaded rod FIS A⁵⁾ and anchor sleeve FIS HK

Highest permissible loads^{1) 6)} for a single anchor in solid brick masonry for pre-positioned installation.
For the design the complete approval has to be considered.

							Solid brick masonry			
Type	Compressive brick strength	Brick raw density	Minimum brick dimensions	Min. effective anchorage depth ⁴⁾	Min. member thickness	Maximum torque	Permissible tensile load ³⁾	Permissible shear load ³⁾	Min. spacing ²⁾	Min. edge distance ²⁾
	f _b	ρ	(L x W x H)	h _{ef}	h _{min}	T _{inst,max}	N _{zul}	V _{zul}	s _{min}	c _{min}
	[N/mm²]	[kg/dm³]	[mm]	[mm]	[mm]	[Nm]	[kN]	[kN]	[mm]	[mm]
Solid sand-lime brick KS acc. EN 771-2										
M8/M10	≥ 20	≥ 1,8	240x115x113	85	115	10	0,86	1,86	230	100
M12/M16							2.29	1,86	230	100

1) The required partial safety factors for material resistance as well as a partial safety factor for load actions of $\gamma_L = 1,4$ are considered.

2) Minimum possible edge distance resp. axial spacing for anchor groups. For further measures e.g. the corresponding axial spacing for anchor groups or the minimum distance between anchor groups please see approval.

3) For combinations of tensile loads, shear loads, bending moments as well as reduced axial spacings (anchor groups) see approval.

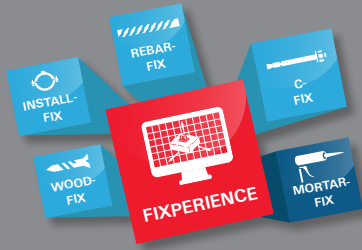
4) The maximum anchorage depth is corresponding with the relevant anchor sleeves FIS HK (see technical data).

5) gvz, A4 and C.

6) The given loads are valid for installation and use of fixations in dry masonry for temperatures in the substrate up to +50 °C (resp. short term up to 80 °C) and drillhole cleaning according approval. The given brick types in combination with the permissible loads are only an extract of the approval.

7) Hole patterns see approval.

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