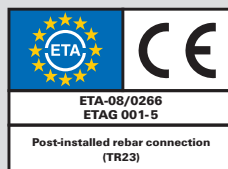
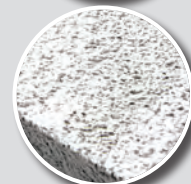




fischer Injection System FIS V

The all-rounder for all building materials.



fischer 
innovative solutions

fischer Injection System FIS V: Fixes securely in all building materials.

Injection mortar FIS V, FIS VS *LOW SPEED* and FIS VW *HIGH SPEED*

The universal injection mortar for use all year round!

Pages 3-5



- The all-round injection mortar FIS V for non-cracked concrete, masonry and many special applications

3

Applications in masonry and non-cracked concrete

Universal and variable fixing solutions with a systematic approach!

Pages 6-13



- System and accessories for non-cracked concrete
- System and accessories for solid brick
- System and accessories for perforated brick
- System and accessories for aerated concrete

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Special applications

Economic and professional special applications with approval!

Pages 14-15



- Rebar connections professionally executed
- Economic façade repair of two-leaf cavity walls
- Economic renovation of triple-skin outer wall panels

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14

Systems, assortments and loads

Easily find the suitable system combination for all building materials!

Pages 16-27



- Overview of building material-related system combinations
- Injection mortar and dispensers
- Overview of assortment by building material and special application
- Installation accessories
- Loads in different building materials

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fischer injection mortar FIS V: Secures absolutely firmly. Everything. Everywhere.



fischer injection mortar FIS V: Universal in masonry and concrete. In every season.

Advantages at a glance

- The injection system FIS V is the all-round talent for all important building materials and almost all tasks in non-cracked concrete, masonry and reinforcement.
- Additional variations FIS VW *HIGH SPEED* with short curing times and FIS VS *LOW SPEED* with longer processing times available.
- Extensive range of accessories for almost all applications.



For guaranteed safety



For external fixings



For high loads



Universally usable. Always with approval.

The injection mortar FIS V is a high-performance vinyl ester hybrid mortar, which has a variety of system approvals in masonry and concrete as well as approvals for special applications. This makes it the universal mortar with guaranteed safety for almost any application and any season. **FIS V** with normal curing, **FIS VW HIGH SPEED** with accelerated curing and **FIS VS LOW SPEED** with longer processing time, allow a range of uses throughout the year.

■ Absolute high performance!

fischer **FIS V** is a styrene-free, fast-setting vinyl ester hybrid mortar for the highest building requirements. High-performance, expansion pressure-free anchorages provide security and confidence.

■ All relevant approvals!

fischer **FIS V** is the first injection system worldwide, which is approved for all relevant building materials. This means absolute safety for the professional user.

■ Professional accessories!

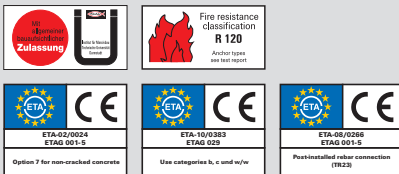
The extensive range of accessories is ideally suited for the base material and numerous applications.

■ Broad temperature spectrum!

The cement in the vinyl ester generates the highest temperature resistance up to 120 °C. This allows its use in a wide range of temperatures and provides reliable function even when subjected to increased demands.

Injection mortar FIS V

- **FIS V** for almost all applications. With approval for solid and perforated brick, masonry, non-cracked concrete, rebar connections, the remedial wall system VBS 8, the weather facing reconstruction system FWS and Thermax.



Curing times FIS V

Temperature in base material	Curing time
-5 °C – ±0 °C	24 hours
±0 °C – +5 °C	3 hours
+5 °C – +10 °C	90 minutes
+10 °C – +20 °C	60 minutes
+20 °C – +30 °C	45 minutes
+30 °C – +40 °C	35 minutes



Injection mortar FIS VS LOW SPEED and injection mortar FIS VW HIGH SPEED

- **FIS VW HIGH SPEED** – with accelerated curing and **FIS VS LOW SPEED** – with longer processing times. Approved for solid brick and perforated brick, masonry, non-cracked concrete, the FWS weather facing reconstruction system and Thermax. As a result of the specially adapted variants, the mortar can be used throughout the year, at extreme temperatures from -15 °C to summery temperatures of +40 °C.



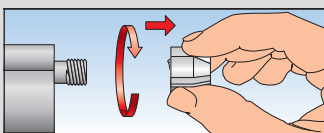
Curing times FIS VW HIGH SPEED

Temperature in base material	Curing time	FIS VS LOW SPEED Curing time
-15 °C – -10 °C*	12 hours	-
-10 °C – -5 °C*	8 hours	-
-5 °C – ±0 °C	3 hours	-
±0 °C – +5 °C	90 minutes	6 hours
+5 °C – +10 °C	45 minutes	3 hours
+10 °C – +20 °C	30 minutes	2 hours
+20 °C – +30 °C	-	60 minutes
+30 °C – +40 °C	-	30 minutes

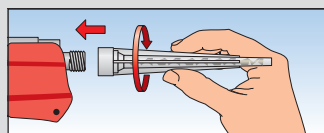
* without approval.



The perfect preparation. How to prepare the mortar for safe use:



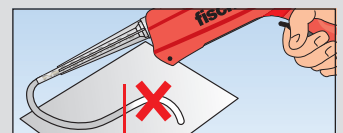
Remove sealing cap.



Attach static mixer with integrated mixing spiral.



Place cartridge in the dispenser.



Apply until the mortar exits in a consistent grey (approx. 10 cm long strand). Please discard the first strand of mortar.

fischer injection mortar FIS V: Non-cracked concrete? Holds as solid as a rock.

Advantages at a glance

- Maximum safety through a broad assortment of approved fixings with FIS A anchor rods, RG MI internal thread anchors and FRA rebar anchors.
- Approved FIS A anchor rods from M6 to M30 and variable anchorage depths of 50 to 600 mm allow the optimum adjustment to the load to be supported.
- Push-through installation is possible without special parts in conjunction with FIS A anchor rods.



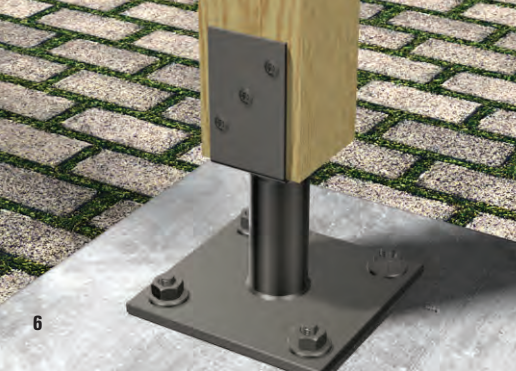
Internal thread anchor RG MI

Rebar anchor FRA

Anchor rod RG M

Anchor rod FIS A

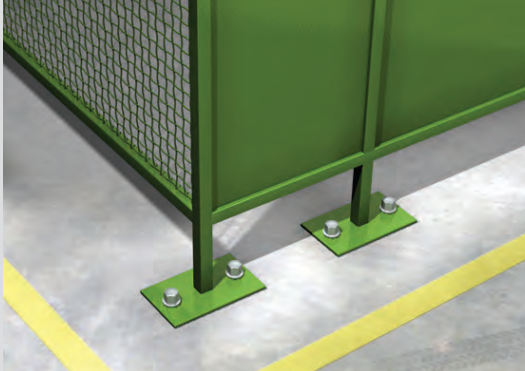
For high loads



For variable anchorage depths



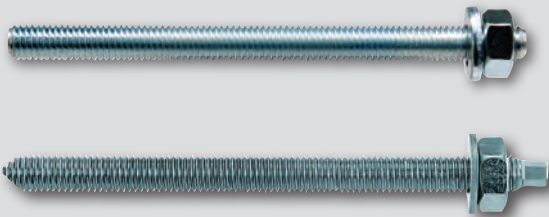
Ideal for series installation



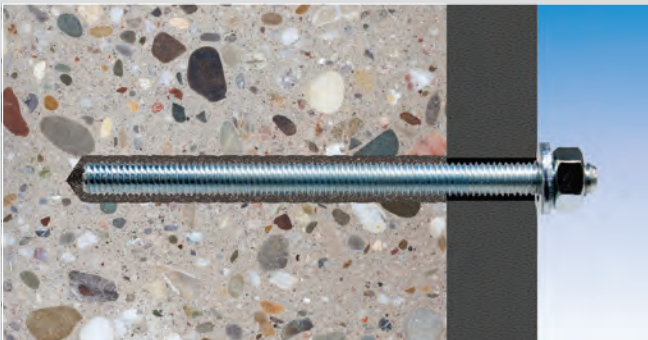
System accessories for perfect hold in non-cracked concrete.

Professionals love variability. With the system comprising **FIS V**, **FIS VS LOW SPEED** or **FIS VW HIGH SPEED** injection mortar and the broad range of fixing solutions for non-cracked concrete, almost every application problem can be universally solved.

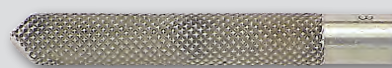
Anchor rod FIS A / RGM



- Whether in stainless steel or zinc-plated, in 5.8 or 8.8 beneath the FIS A / RGM anchor rods, an optimum and economic solution is available for every load level and application.
- A broad range of approved anchor rods from M6 to M30 and in different lengths satisfies every wish.
- Variable anchorage depths of 50 to 600 mm allow for ideal adaptation to the load to be applied, and ensure an optimised installation time and use of materials.
- The anchor rods are also approved for push-through installation.



Internal thread anchor RG MI



- The internal thread anchor RG MI allows for surface-flush removal and reuse of the fixing point, and therefore offers the best possible flexibility.
- The metric internal thread allows for the use of standard screws or threaded rods for the ideal adaptation to suit the intended use.
- It is approved in zinc-plated or stainless steel A4 in sizes M8 to M20.

Rebar anchor FRA

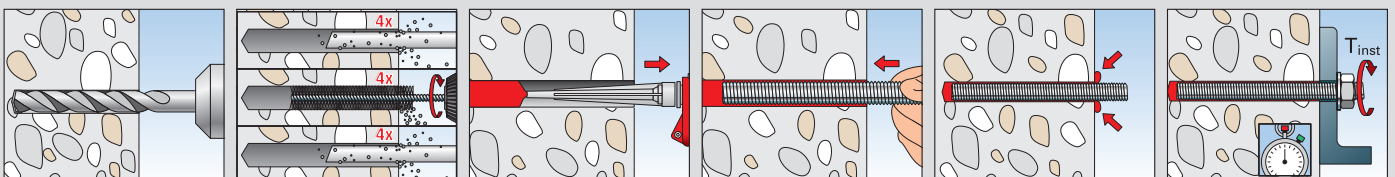


- The perfect combination of stainless steel A4 for external use with metric connecting thread and untreated structural steel.
- For high loads and large anchorage depths.
- Sizes M12 to M20.

NEW Approval completely revised:

- Up to 20% more performance with the same anchorage depths.
- Extra load increase through up to 67% greater anchorage depths.

Installation



fischer injection mortar FIS V: Solid brick masonry? Of course.

Advantages at a glance

- The fixing system comprising FIS A anchor rods or FIS E internal thread anchors can either be used with the **FIS V**, **FIS VS LOW SPEED** or **FIS VW HIGH SPEED** injection mortar as required.
- The wide range of approved anchor rods FIS A from M6 to M16 allows for various applications.
- The internal thread anchor FIS E allows for the surface-flush removal and reuse of the fixing point.

Internal thread anchor FIS E



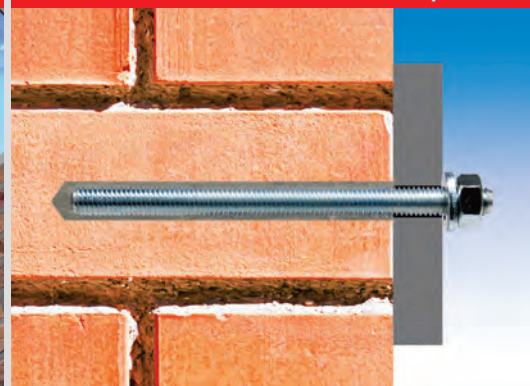
Anchor rod FIS A



For guaranteed safety



Cross-section of solid brick masonry



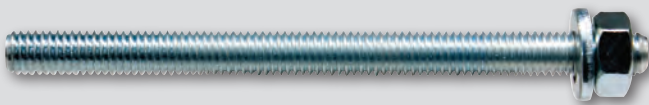
For external use



System accessories for perfect hold in solid brick masonry.

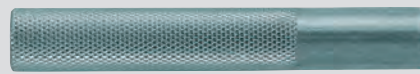
For approved fixings with the **FIS V**, **FIS VS LOW SPEED** or **FIS VW HIGH SPEED** injection mortars, depending on the requirements either the FIS A anchor rods or the FIS E internal thread anchors can be used.

Anchor rod FIS A

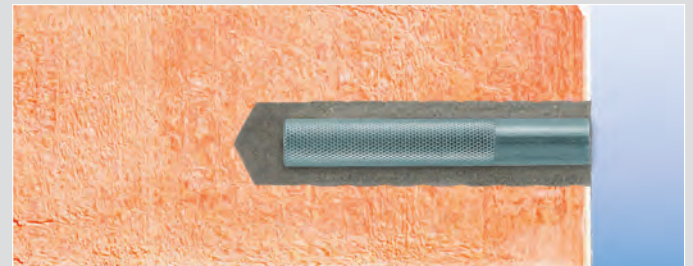
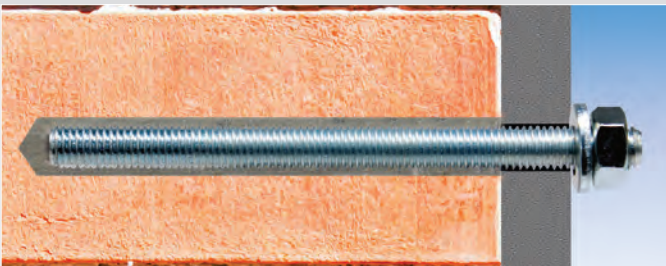


- The FIS A anchor rod is approved for pre-positioned and push-through installation, allowing a variety of possible uses.
- FIS A anchor rods are available in zinc-plated steel and stainless steel A4 and are approved for internal and external use.
- Anchor rod diameters of M6 to M16 give the professional a broad spectrum of applications.
- The smallest edge and axial distances allow the use of small anchor plates and fixings close to the edges, offering considerably more design freedom.
- High loads at small anchorage depths reduce drilling work and save time.

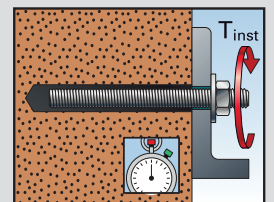
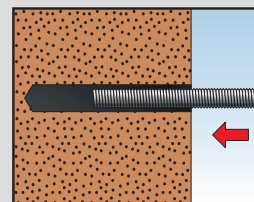
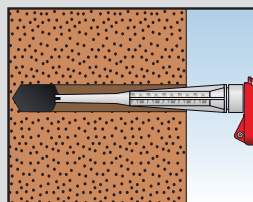
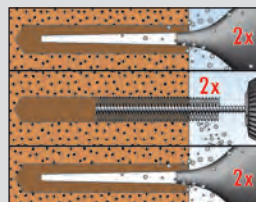
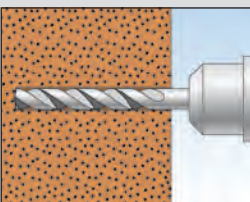
Internal thread anchor FIS E



- The FIS E internal thread anchor is approved for pre-positioned installation.
- The FIS E internal thread anchor, available zinc-plated and in connector sizes M6 to M12, allow flexible planning of the connection by the user
- The internal thread anchor FIS E allows for surface-flush removal and reuse of the fixing point, and therefore offers the best possible flexibility.
- The design of the metric screw (countersunk head, hexagon etc.) can be selected freely and therefore precisely adapted to the application.



Installation



fischer injection mortar FIS V: Perforated brick? No problem.

Advantages at a glance

- Optimum hold in perforated brick masonry with FIS HK anchor sleeve.
- Simple and quick installation.
- Depending on the size, the FIS HK anchor sleeve reduces mortar consumption by up to 80 %
- The wide range of approved threaded anchors FIS A from M6 to M16 allows for various applications.
- The geometry of the anchor sleeves allows non-load bearing layers to be bridged.

Internal thread anchor FIS E

Anchor sleeves FIS HK

Anchor rod FIS A

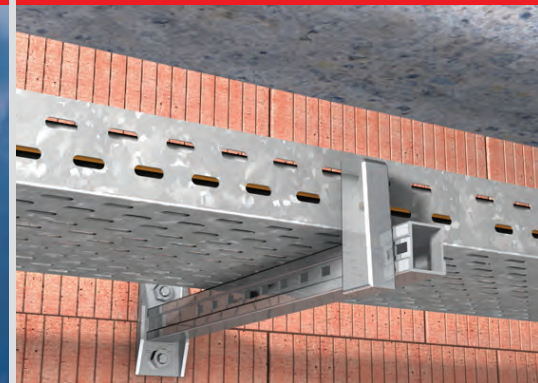
For high loads



For external use



For load-bearing fixings



System accessories for perfect hold in perforated brick masonry.

In perforated building materials, the mortar has to be held precisely at the correct position in the base material. No problem for the professional, with the approved system comprising FIS HK anchor sleeves, **FIS V**, **FIS VS LOW SPEED** or **FIS VW HIGH SPEED** injection mortar and FIS A anchor rods or FIS E internal thread anchors.

Anchor sleeve FIS HK



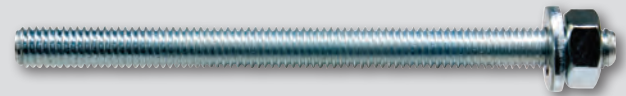
- The optimum lattice structure reduces mortar consumption and ensures that there is an ideal interlock.
- The centring blades on the side fold in when the anchor sleeve is pushed into the base material, centring the anchor rod during installation.
- The wide edge prevents it from sliding further into the building material and neatly covers the drill hole.

Push-through anchor sleeve FIS HK



- The FIS HK push-through sleeve allows the otherwise difficult installation of longer fixtures with several fixing points, such as wooden beams for carports or extending balconies.
- Push-through sleeve and anchor rod FIS A can be cut to length individually to fixture thicknesses of 20 to 200 mm.

Anchor rod FIS A



- The broad FIS A range from M6 to M16 offers the appropriate anchor rod in steel qualities 5.8 and 8.8 or stainless steel A4-70 for every application
- Cut to length and chamfered, including nuts and washers.

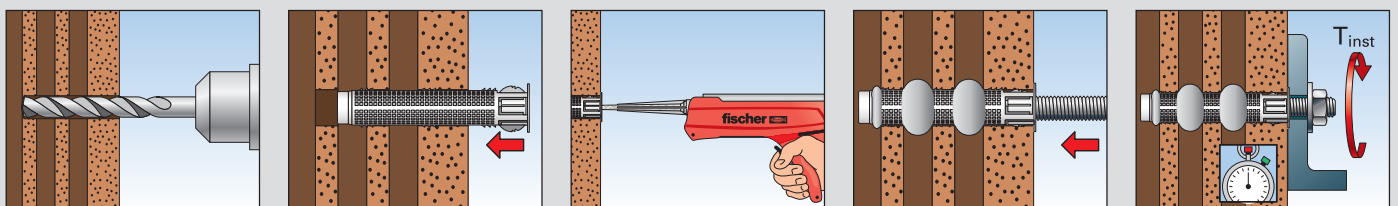
Internal thread anchor FIS E



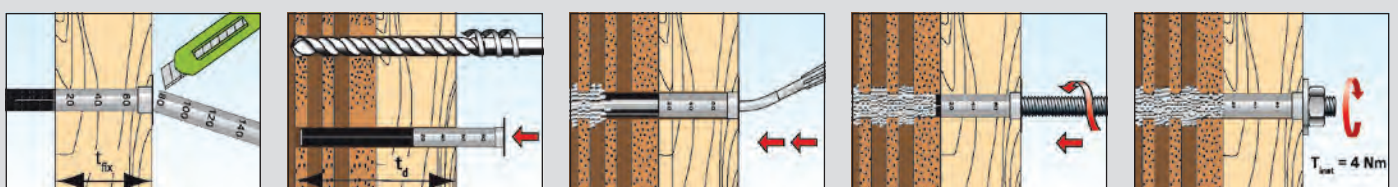
- The FIS E internal thread anchor is suitable for pre-positioned installation.
- Available zinc-plated and in connector sizes M6 to M12



Installation with anchor sleeve



Application with push-through sleeve



fischer injection mortar FIS V: Aerated concrete? The undercut does the trick.

Advantages at a glance

- Maximum load capacity is guaranteed in aerated concrete through the conical drill hole, created with the PBB cone drill.
- The centring sleeve allows safe and easy installation.
- Optimum adjustment to the load to be supported through two anchorage depths in conjunction with the FIS A anchor rod.
- Fire resistance class R 120.

Cone drill PBB

Internal thread
anchor FIS E

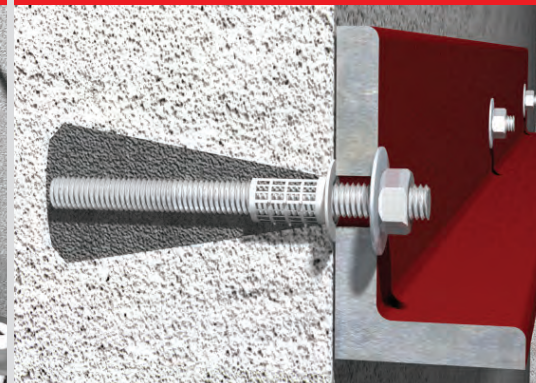
Centring sleeve PBZ

Anchor rod FIS A

For external fixings

Undercut drill hole in aerated concrete

For internal fixings



System accessories for perfect hold in aerated concrete.

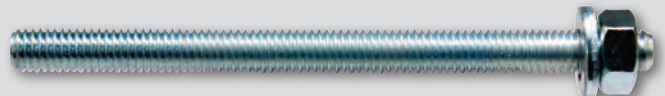
The **FIS V**, **FIS VS LOW SPEED** or **FIS VW HIGH SPEED** injection mortar, in conjunction with the PBB cone drill, the PBZ centring sleeve and the FIS A anchor rod, offer high-performance and safe anchoring even in chalking aerated concrete. Professionals value this.

Cone drill PBB



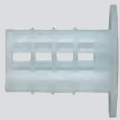
- The cone drill PBB allows for the drill hole and undercut to be made in one step by pivoting the drill.
- Thanks to the undercut, higher loads can be supported by the aerated concrete than with cylindrical drill holes.
- Depending on the load amount, two different drill hole depths can be selected – without changing the bit.

Anchor rod FIS A



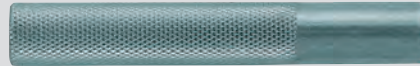
- Approval exists for the internal and external use of the appropriate FIS A anchor rods.
- Approved connection sizes are the FIS A anchor rods M8 to M12.
- The expansion-pressure-free fixing allows the smallest edge and axial distances, and therefore flexible use.

Centring sleeve PBZ



- The PBZ centring sleeve centres and also secures the position of the FIS A anchor rod, even with overhead installation.
- It covers the drill hole against undesired loss of mortar.

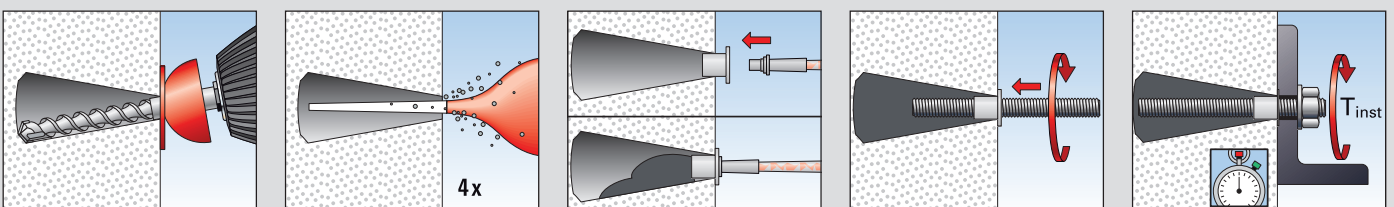
Internal thread anchor FIS E



- The internal thread anchor FIS E allows for surface-flush removal and reuse of the fixing point, and therefore offers the best possible flexibility.
- The internal thread anchors in connector sizes M6 and M8 are approved.



Installation



fischer injection mortar FIS V: Special applications? Perfectly solved.

Rebar connection



Advantages at a glance

Installing rebar connections of \varnothing 8–28 mm with FIS V and FIS VS *LOW SPEED* injection mortar.

- The FIS rebar case with all required individual components and accessories for the construction site, such as injection adapters and extension tubes, makes installation easy.
- Because of its longer processing time, we recommend the FIS VS *LOW SPEED* injection mortar for large anchorage depths.
- The FRA rebar anchor with connecting thread in stainless steel A4 fully utilises the load-bearing capacity of the concrete. This means that extremely high tension loads can be introduced into the base material.

Remedial wall tie VBS



Advantages at a glance

For professional façade repair of two-leaf cavity walls.

- Application also in old and delicate masonry and in heavily aged joint material.
- Approved fixing, provides a high level of safety.
- Suitable for bridging air gaps and insulation layers up to 150 mm.
- Safe, expansion pressure-free anchorage allows use close to edges.

Weather facing reconstruction system FWS



Advantages at a glance

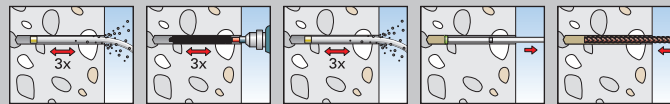
For economic renovation of triple-skin outer wall panels

- The large bolt diameter means that FWS achieves a high shear load-bearing capacity.
- The drill hole can be drilled in one step using standard diamond drill bits. This ensures quick progress.
- High installation safety through intelligent visual control possibility.

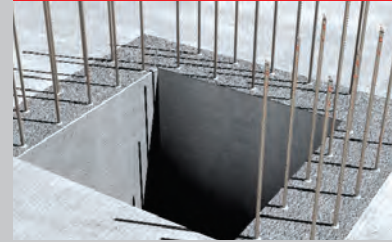
Rebar connections professionally executed.



- Suitable for post-installed reinforcement steel bars for, e.g. overlap joints, end anchoring systems, connection reinforcements, needling, etc.
- Anchoring as with cast-in reinforcement bars in line with Eurocode 2 and DIN 1045-1.
- The mortar is injected bubble-free into the drill hole using the injection adapter. The geometry causes a build-up of pressure in the drill hole, which pushes the injection adapter and extension tube automatically out of the drill hole.



Rebar connections



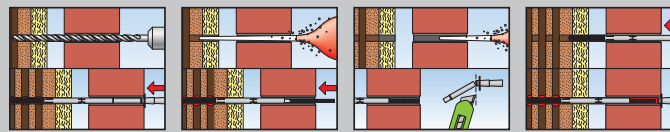
Rebar connections with FRA



The professional remedial wall tie.



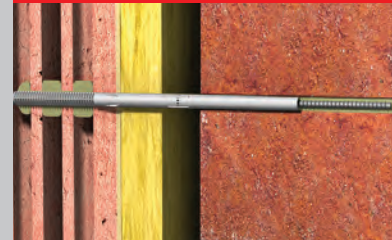
- Approved for the post-installation needling of two-leaf cavity walls in line with DIN 1053-1.
- The combination of FIS V injection mortar, perforated sleeve and stainless steel A4 wire anchors creates a very high load capacity, even in difficult building materials.
- The drill hole diameter of only 8 mm guarantees low mortar consumption and high cost effectiveness.
- No impact on the optical impression as a result of the almost invisible fixing.



Repairing outer leaves



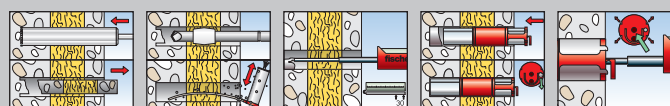
Detail: Repairing outer leaves



Repairs solved cost effectively.



- Approved for the post-installation securing of triple-skin outer wall panels.
- The weather facing reconstruction system FWS is secured in the load-bearing layer and the weather shell with FIS V injection mortar.
- The large cross-section of the bolt ensures a high shear load-bearing capacity, i.e. cost savings through fewer anchors per panel.
- The integrated visual control indicates the correct anchoring of the FWS, thereby ensuring high installation safety.



Weather facing reconstruction

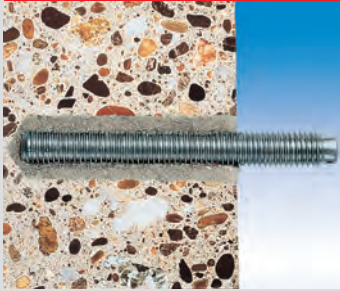


Detail: Securing weather facing



fischer injection mortar FIS V: Selection aid.

Applications in concrete



FIS V injection mortar
see table 1



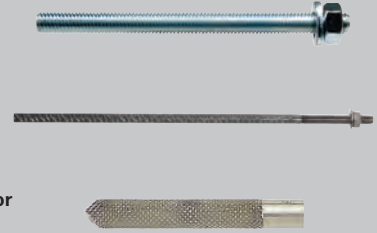
FIS A anchor rod
see table 7

or

FRA rebar anchor
see table 12

or

RG MI internal thread anchor
see table 8



Applications in solid brick



FIS V injection mortar
see table 1



FIS A anchor rod
see table 2

or

FIS E internal thread anchor
see table 3



Applications in perforated brick



FIS V injection mortar
see table 1



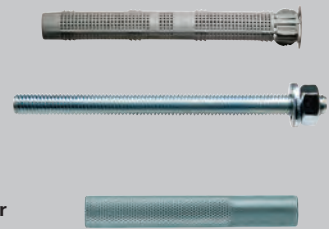
FIS HK perforated sleeve
see table 4

with

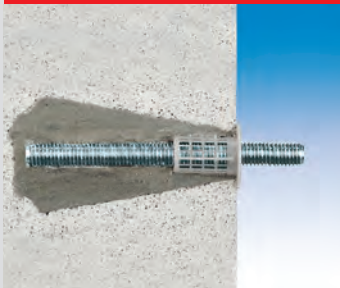
FIS A anchor rod
see table 2

or

FIS E internal thread anchor
see table 3



Applications in aerated concrete



FIS V injection mortar
see table 1



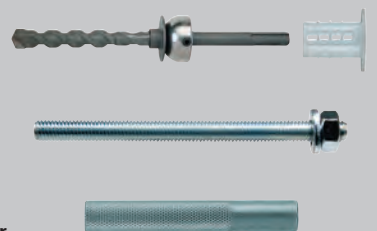
PBB cone drill and
PBZ centring sleeve
see table 6

with

FIS A anchor rod
see table 2

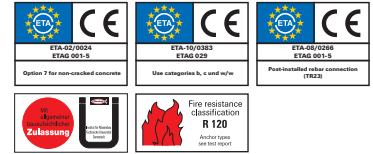
or

FIS E internal thread anchor
see table 3



fischer injection mortar FIS V: Mortar and dispensers.

Table 1 Injection mortar FIS V / FIS VW / FIS VS



FIS brush set

Type	Art.-No.	Approval		Languages on the cartridge	Scale unit	Contents	Sales unit [pcs]
		DIBt	ETA				
FIS V 360 S	094404	●	■	D, F, NL, TR, H, RUS	180	1 cartridge 360 ml, 2 x FIS easy mixer	6
FIS V 360 S	094405	●	■	GB, I, P, E, PRC, JP	180	1 cartridge 360 ml, 2 x FIS easy mixer	6
FIS V 360 S	068435	●	■	DK, S, N, FIN, PL, CZ	180	1 cartridge 360 ml, 2 x FIS easy mixer	6
FIS V 360 S	502283	●	■	LT, LV, EE, UA, RUS, KZ	180	1 cartridge 360 ml, 2 x FIS easy mixer	6
FIS V 360 S	041846	●	■	D, H, RO, SLO, HR, BG	180	1 cartridge 360 ml, 2 x FIS easy mixer	6
FIS V 360 S	043994	●	■	CZ, SK, PL, H, RO, RUS	180	1 cartridge 360 ml, 2 x FIS easy mixer	6
FIS V 950 S	017101	●	■	D, GB, F, NL, I, E, P, JP, PRC	500	1 cartridge 950 ml, 1 x static mixer big, 1 x easy mixer	6
FIS VW 360 S	090753	●	■	D, GB, F, I, NL, E	180	1 cartridge 360 ml, 2 x FIS easy mixer	6
FIS VW 360 S	043997	●	■	CZ, SK, PL, H, RO, RUS	180	1 cartridge 360 ml, 2 x FIS easy mixer	6
FIS VW 360 S	502284	●	■	RUS, LT, LV, EST, UA, KZ	180	1 cartridge 360 ml, 2 x FIS easy mixer	6
FIS VW 300 T	507793	●	■	D, GB, HR, SLO, SRB, BG	150	1 cartridge 360 ml, 2 x FIS easy mixer	12
FIS VW 300 T	507795	●	■	S, DK, N, CZ, SK, PL, RUS	150	1 cartridge 360 ml, 2 x FIS easy mixer	12
FIS VW 380 C	519328	●	■	CZ, SK, PL	190	1 cartridge 380 ml, 2 x FIS easy mixer	12
FIS VS 150 C SET	043316	●	■	D, H, RO, SLO, HR, BG	70	Set for hollow bricks: 1 cartridge 145 ml, 2 x FIS easy mixer, 6 x FIS H 16 x 85 K	6
FIS VS 100 P	072525	●	■	D, GB, F, I, NL, E	50	1 cartridge 100 ml, 2 x FIS easy mixer	6
FIS VS 100 P	092763	●	■	CZ, PL, H, SK, SLO, HR	50	1 cartridge 100 ml, 2 x FIS easy mixer	6
FIS VS 300 T	093180	●	■	D, GB, F, NL, E, P	150	1 cartridge 300 ml, 2 x FIS easy mixer	12
FIS VS 300 T	502285	●	■	RUS, LT, LV, EST, UA, KZ	150	1 cartridge 300 ml, 2 x FIS easy mixer	12
FIS VS 300 T	044102	●	■	CZ, SK, PL, H, RO, RUS	150	1 cartridge 300 ml, 2 x FIS easy mixer	12
FIS VS 300 T	093226	●	■	PL, CZ, DK, N, S, FIN	150	1 cartridge 300 ml, 2 x FIS easy mixer	12
FIS VS 300 T	051058	●	■	CZ, SK, PL, H, RO, RUS	150	1 cartridge 300 ml, 2 x FIS easy mixer	12
FIS VS 360 S	078664	●	■	GB, PRC, E, P, JP, RI	180	1 cartridge 360 ml, 2 x FIS easy mixer	6
FIS VS 360 S	518583	●	■	D, F, NL	180	1 cartridge 360 ml, 2 x FIS easy mixer	6
FIS Easy mixer	520742	—	—	—	—	10 static mixer	10

fischer injection mortar FIS V: Mortar and dispensers.

Table 2 Injection mortar FIS V / FIS VW / FIS VS



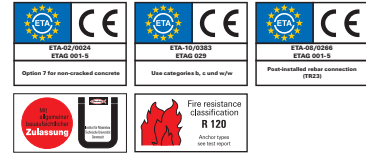
HWK small



HWK big



bucket



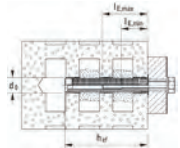
FIS brush set

Type	Art.-No.	Approval		Languages on the cartridge	Contents	Sales unit [pcs]
		DIBt	ETA			
FIS V 360 S HWK small	092430	●	■	D, F, NL, H, RUS, TR	10 cartridges 360 ml, 20 x FIS easy mixer	1
FIS V 360 S HWK big	091936	●	■	D, F, NL, H, RUS, TR	20 cartridges 360 ml, 40 x FIS easy mixer	1
FIS V 360 S HWK big	096554	●	■	GB, I, P, E, PRC, JP	20 cartridges 360 ml, 40 x FIS easy mixer	1
FIS V 360 S HWK big	503027	●	■	D, H, RO, SLO, HR, RUS	12 cartridges 360 ml, 24 x FIS easy mixer, 1 x dispenser FIS DM S	1
FIS V 360 S in bucket	518549	●	■	D, H, RO, SLO, HR, BG	20 cartridges 360 ml, 40 x FIS easy mixer	1
FIS V 360 S in bucket	503025	●	■	GB, I, P, E, PRC, JP	20 cartridges 360 ml, 20 x FIS easy mixer	1
FIS V 360 S in bucket	518538	●	■	CZ, SK, PL, H, RO, RUS	20 cartridges 360 ml, 20 x FIS easy mixer	1
FIS B Case set	024870	●	■	D, F, NL, TR, H, RUS	3 cartridges 360 ml, 1 x dispenser FIS DM S, 1 x blow-out pump ABG, 1 x set of brushes, 6 x FIS easy mixer	1
FIS VS 300 T in bucket	512062	●	■	D, GB, F, NL, E, P	20 cartridges 300 ml, 20 x FIS easy mixer	1
FIS VS 300 T in bucket	518539	●	■	CZ, SK, PL, H, RO, RUS, GR	20 cartridges 300 ml, 20 x FIS easy mixer	1
FIS VS 300 T HWK big	517645	●	■	D, GB, F, NL, E, P	20 cartridges 300 ml, 40 x FIS easy mixer	1
FIS VS 300 T HWK small	518832	●	■	D, GB, F, NL, E, P	10 cartridges 300 ml, 20 x FIS easy mixer	1
FIS VS 360 S in bucket	518832	●	■	GB, RC, E, P, JP, RI	20 cartridges 360 ml, 20 x FIS easy mixer	1
Thermosafe Case set, empty	518134	—	—	—	empty, for cartridges 360 ml, FIS DM S and Blow-out pump ABG	1

Table 3 FIS E internal thread anchor for solid/perforated brick masonry and aircrete



FIS E



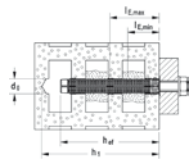
Internal threaded sockets FIS E

Type	Zinc-plated steel Art.-No.	Technical DATA				Application in solid brick		Application in perforated brick	Application in aircrete			Packaging [pcs]
		Approval DIBt	Min. anchorage depth $h_{ef, min}$ [mm]	Min. screw-in depth $l_{E, min}$ [mm]	Max. screw-in depth $l_{E, max}$ [mm]	Nominal drill hole diameter d_o [mm]	Fill capacity for min. anchorage depth in solid brick [scale units]	Suitable injection anchor sleeve	Nominal drill hole diameter in aircrete d_o [mm]	Min. anchorage depth in aircrete $h_{ef, min}$ [mm]	Fill capacity for min. anchorage depth in aircrete [scale units]	
FIS E 11 x 85 M6	043631	●	85	6	60	14	4	FIS H 16 x 85 K, FIS H 20 x 85 K	14	95	20	10
FIS E 11 x 85 M8	043632	●	85	8	60	14	4	FIS H 16 x 85 K, FIS H 20 x 85 K	14	95	20	10
FIS E 15 x 85 M10	043633	●	85	10	60	18	5	FIS H 20 x 85 K	-	-	-	10
FIS E 15 x 85 M12	043634	●	85	12	60	18	5	FIS H 20 x 85 K	-	-	-	10

Table 4 Anchor and push-through anchor sleeve FIS HK for perforated brick masonry



FIS HK



Plastic injection anchor sleeve FIS HK

Type	Art.-No.	Approval		Nominal drill hole diameter d_o [mm]	Min. drill hole depth h_1 [mm]	Min. anchorage depth h_{ef} [mm]	Max. effective length h_{ef} [mm]	Suitable for	Filling quantity per sleeve	Packaging [pcs]
		DIBt	ETA							
FIS H 12 x 50 K	041900	●	-	12	60	50	-	FIS A M6-M8	5	50
FIS H 12 x 85 K	041901	●	-	12	95	85	-	FIS A M6-M8	10	50
FIS H 16 x 85 K	041902	●	■	16	95	85	-	FIS A M8-M10, FIS E M6-M8	12	50
FIS H 16 x 130 K	041903	●	■	16	140	130	-	FIS A M8-M10	15	20
FIS H 20 x 85 K	041904	●	-	20	95	85	-	FIS A M12-M16, FIS E M10-M12	15	20
FIS H 20 x 130 K	046703	●	■	20	140	130	-	FIS A M12-M16	25	20
FIS H 20 x 200 K	046704	●	■	20	210	200	-	FIS A M12-M16	40	20
FIS H 18 x 130/200 K	045707	●	■	18	340	130	200	M10 - M12	35	10
FIS H 22 x 130/200 K	045708	●	■	22	340	130	200	M 16	45	10
FIS Set 18 x 130/200 M12/200 A4 ¹⁾	047452	●	■	18	340	130	200	M12 A4 set	35	5
FIS Set 18 x 130/200 M12/200 ²⁾	047443	●	■	18	340	130	200	M12 set	35	5
FIS Set 22 x 130/200 M16/200 A4 ¹⁾	047454	●	■	22	340	130	200	M16 A4 set	45	5
FIS Set 22 x 130/200 M16/200 ²⁾	047453	●	■	22	340	130	200	M16 set	45	5

¹⁾ With threaded rod FIS A, stainless steel of the corrosion resistance class III, e.g. A4. - ²⁾ With zinc-plated threaded rod.
³⁾ By lengthening the perforated sleeve or threaded rod, the drill hole length and fill quantity are reduced accordingly.

Table 5 Metal anchor sleeve FIS HL for perforated brick masonry, yard-goods



FIS HL

Yard-goods metal injection anchor sleeve FIS HL

Type	Art.-No.	Nominal drill hole diameter d_o [mm]	Total length l [mm]	Suitable for	Filling quantity per 10 cm	Packaging [pcs]
FIS H 12 x 1000 L	050598	12	1000	Ø6 / M6 - Ø8 / M8	12	10
FIS H 16 x 1000 L	050599	16	1000	Ø10/M10 / Ø12/M12	14	10
FIS H 22 x 1000 L	045301	22	1000	Ø12/M12 - Ø16/M16	20	6
FIS H 30 x 1000 L	000645	30	1000	Ø16/M16 - Ø22/M22	26	4

fischer injection mortar FIS V: Range.

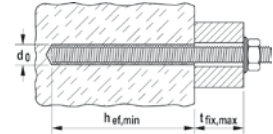
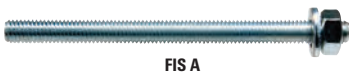
Table 6 PBB cone drill and PBZ centring sleeve for aircrete



PBB cone drill PBZ centring sleeve

Type	Art.-No.	Approval DIBt	Suitable for	Packaging [pcs]
Cone drill PBB	090634	●	FIS A M8 - M12; FIS E M6 + M8	1
Centring sleeve PBZ	090671	●	FIS A M8 - M12; FIS E M6 + M8	10

Table 7 FIS A anchor rod for concrete



FIS A anchor rod for installation with FIS V injection mortar

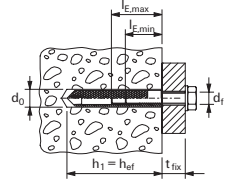
Type	Zinc-plated steel grade 5.8 Art.-No.	Zinc-plated steel grade 8.8 Art.-No.	Stainless steel A4-70 Art.-No.	Approval	Nominal drill hole diameter d_0 [mm]	Minimum anchorage depth $h_{ef, min}$ [mm]	Effective length with $h_{ef, min}$ $t_{fix, hef, min}$ [mm]	Fill capacity FIS V at $h_{ef, min}$ [scale units]	Maximum anchorage depth $h_{ef, max}$ [mm]	Effective length with $h_{ef, max}$ $t_{fix, hef, max}$ [mm]	Fill capacity FIS V at $h_{ef, max}$ [scale units]	Packaging [pcs]
FIS A M 6 x 70	046204	-	046205	■	8	50	11	2	60	1	3	10
FIS A M 6 x 75	090243	-	090437	■	8	50	16	2	65	1	3	10
FIS A M 6 x 85	090272	-	090438	■	8	50	26	2	72	4	3	10
FIS A M 6 x 110	090273	-	090439	■	8	50	51	2	72	29	3	10
FIS A M 8 x 90	090274	519390	090440	■	10	60	19	2	78	1	3	10
FIS A M 8 x 110	090275	519391	090441	■	10	60	39	2	98	1	3	10
FIS A M 8 x 130	090276	519392	090442	■	10	60	59	2	118	1	4	10
FIS A M 8 x 175	090277	519393	090443	■	10	60	104	2	160	4	5	10
FIS A M 8 x 1000	509214	519394	509230	■	10	60	-	2	160	-	5	10
FIS A M 10 x 110	090278	-	090444	■	12	60	37	3	96	1	4	10
FIS A M 10 x 130	090279	-	090447	■	12	60	57	3	116	1	5	10
FIS A M 10 x 150	090281	517935	090448	■	12	60	77	3	136	1	5	10
FIS A M 10 x 170	044969	519395	044973	■	12	60	97	3	156	1	6	10
FIS A M 10 x 190	-	517936	519420	■	12	60	117	3	176	1	7	10
FIS A M 10 x 200	090282	519396	090449	■	12	60	127	3	186	1	7	10
FIS A M 10 x 1000*	509215	509223	509231	■	12	60	-	3	200	-	7	10
FIS A M 12 x 120	044971	519397	044974	■	14	70	34	3	103	1	5	10
FIS A M 12 x 140	090283	519398	090450	■	14	70	54	3	123	1	6	10
FIS A M 12 x 160	090284	517937	090451	■	14	70	74	3	143	1	7	10
FIS A M 12 x 180	090285	519399	090452	■	14	70	94	3	163	1	7	10
FIS A M 12 x 200	-	517938	519421	■	14	70	114	3	183	1	8	10
FIS A M 12 x 210	090286	-	090453	■	14	70	124	3	193	1	9	10
FIS A M 12 x 260	090287	-	090454	■	14	70	174	3	240	4	10	10
FIS A M 12 x 1000*	509216	509224	509232	■	14	70	-	3	240	-	10	10
FIS A M 16 x 130	044972	519400	044975	■	18	80	30	5	109	1	7	10
FIS A M 16 x 175	090288	519401	090455	■	18	80	75	5	154	1	10	10
FIS A M 16 x 200	090289	517939	090456	■	18	80	100	5	179	1	11	10
FIS A M 16 x 250	090290	517940	090457	■	18	80	150	5	229	1	14	10
FIS A M 16 x 300	090291	519402	090458	■	18	80	200	5	279	1	17	10
FIS A M 16 x 1000*	509217	509225	509233	■	18	80	-	5	320	-	19	10
FIS A M 20 x 245	090292	519404	090459	■	24	90	131	11	220	1	28	10
FIS A M 20 x 290	090293	519406	090460	■	24	90	176	11	265	1	32	10
FIS A M 20 x 1000*	-	519410	519427	■	24	90	-	11	400	-	48	10
FIS A M 24 x 290	090294	-	090468	■	28	96	165	15	260	1	39	5
FIS A M 24 x 380	090295	-	090462	■	28	96	255	15	350	1	52	5
FIS A M 30 x 340	090296	-	090463	■	35	120	185	28	304	1	67	5
FIS A M 30 x 430	090297	-	090464	■	35	120	275	28	394	1	88	5

* excluding nuts and washers - FIS A highly corrosion-resistant steel 1.4529 on request. Additional sizes on request.

Table 8 RG MI Internal thread anchor for concrete



RG MI



Internal thread anchor RG MI

Type	Zinc-plated steel grade 8 Art.-No.	Stainless steel A4-70 Art.-No.	Approval	Nominal drill diameter d_0 [mm] [mm]	Min. screw-in depth $l_{E,min}$ [mm]	Max. screw-in depth $l_{E,max}$ [mm]	Fill quantity [scale units]	Special cleaning brush BS	Packaging [pcs]
RG 8 x 75 M 5 I	048221 ¹⁾	-	-	10	8	14	5	078178 BS Ø 10	10
RG 10 x 75 M 6 I	048222 ¹⁾	-	-	12	10	16	5	078179 BS Ø 12	10
RG 12 x 90 M8 I	050552 ¹⁾	050565 ¹⁾	■	14	12	18	5	078180 BS Ø 14	10
RG 16 x 90 M10 I	050553 ¹⁾	050566 ¹⁾	■	18	15	23	7	078181 BS Ø 16/18	10
RG 16 x 125 M12 I	050562 ¹⁾	050567 ¹⁾	■	20	18	26	11	052277 BS Ø 20	10
RG 22 x 160 M16 I	050563 ¹⁾	050568 ¹⁾	■	24	24	35	17	078182 BS Ø 24	5
RG 28 x 200 M20 I	050564 ¹⁾	050569 ¹⁾	■	32	30	45	48	078184 BS Ø 35	5

¹⁾ Setting tool is included with every packet.

Table 9 Nuts and washers for FIS A anchor rod yard goods



Nut

Washer



Nut and washer

Type	Zinc-plated steel grade 8 Art.-No.	Stainless steel A4-70 Art.-No.	Wrench size WS [mm]	Washer (outside-Ø x thickness) [mm]	Suitable for	Packaging [pcs]
Nut and washer M8	510509	510113	13	16 x 1.6	FIS A M8 x 1000	50
Nut and washer M10	510510	510514	17	20 x 2	FIS A M10 x 1000	50
Nut and washer M12	510511	510515	19	24 x 2.5	FIS A M12 x 1000	25
Nut and washer M16	510512	510516	24	30 x 3	FIS A M16 x 1000	20
Nut and washer M20	519737	513738	30	37 x 3	FIS A M20 x 1000	10

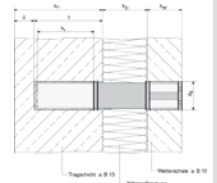
Table 10 Weather facing reconstruction system FWS for special applications



FWS



FWS-B



Weather facing reconstruction system FWS

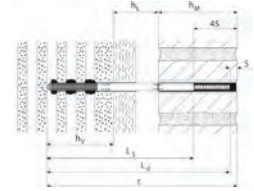
Type	Art.-No.	Approval	Total length l [mm]	Nominal diameter of drill bit d_G [mm]	Anchorage depth in the facing masonry h_V [mm]	Anchor per cartridge FIS V 360 S	Packaging [pcs]
FWS-A 205	062342	●	205	40	80	4 - 5	5
FWS-A 230	062343	●	230	40	80	4 - 5	5
FWS-B	062344			Residual core remover			1

fischer injection mortar FIS V: Range.

Table 11 VBS 8 Remedial wall tie for special applications



VBS 8



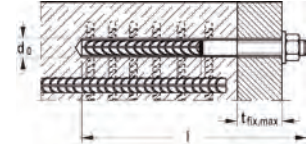
Remedial wall tie VBS

Type	Stainless steel A4-70 Art.-No.	Approval		Air layer or insulation [mm]	Nominal drill hole diameter d_0 [mm]	Outer leaf [mm]	Drill depth = mounting depth $h_0 = h_s$ [mm]	Wire anchor length l [mm]	Anchorage depth h_{ef} [mm]	Fill capacity FIS V in facing masonry [scale units]	Packaging [pcs]
		DIBt									
VBS 8/20	078763 ¹⁾²⁾	●		0 - 20	8	≥ 90	195	188	> 60	3	100
VBS 8/50	078799 ¹⁾²⁾	●		20 - 50	8	≥ 90	225	218	> 60	3	100
VBS 8/80	078800 ¹⁾²⁾	●		50 - 80	8	≥ 90	255	248	> 60	3	100
VBS 8/120	078801 ¹⁾²⁾	●		80 - 120	8	≥ 90	295	288	> 60	4	100
VBS 8/150	078801 ¹⁾²⁾	●		120 - 150	8	≥ 90	325	318	> 60	4	100
VBS 8 Cleaning set	090241	Contents cleaning brush and extension tube for blow-out pump									1
Compressed-air cleaning gun	093286	For professional drill hole cleaning									1
SDS-Plus Pointer 8,0 / 460 mm	503936	Hammer drill with self-centring drill bit and relief-ground drill grooving									1

Table 12 FRA rebar anchor for special applications



FRA



Rebar anchor FRA

Type	Art.-No.	Approval		Total length l [mm]	Max. embedment depth t_{fix} [mm]	Drill hole d_0 [mm]	Fill quantity [scale units]	Packaging [pcs]
		DIBt	ETA					
FRA 12/900 M12-60	505529	●	■	975	60	16	50	8
FRA 16/1100 M16-60	505533	●	■	1180	60	20	81	8
FRA 20/1400 M20-60	505534	●	■	1485	60	25	160	4

Table 13 FIS Rebar case for special applications



FIS Rebar case



FIS Rebar case

Type	Art.-No.	Approval		Contents	Packaging [pcs]
		DIBt	ETA		
FIS Rebar case D	505941	●	■	8 x cleaning brushes, 5 x extensions for cleaning brushes à 40 cm, 1 x SDS chuck with internal thread M 8, 24 x injection adapters, 1 x cleaning tube, complete, 1 x brush control cartridge, 8 x cleaning jets, 1 x marking tape, 1 x digital thermometer, 1 x safety glasses, 1 x installation instructions (German), 10 x setting protocol, 2 x flat spanners SW 7 and the relevant approvals	8
FIS Rebar case Int	505942	-	■	8 x Cleaning brush, 5 x Extensions for cleaning brushes à 40 cm, 1 x SDS Chuck with internal thread M 8, 24 x Injection adapter, 1 x cleaning tube, complete, 1 x brush control cartridge, 8 x cleaning jets, 1 x marking tape, 1 x digital thermometer, 1 x safety glasses, 1 x installation instructions (German, English, French, Italian and Spanish), 2 x flat spanners SW 7 and the relevant approvals	1

fischer injection mortar FIS V: Installation accessories.

Table 14 Cleaning brushes for solid and perforated brick masonry



FIS brush set

FIS brush set

Type	Art.-No.	for drill hole diameter [mm]	Sales unit [pcs]
FIS brush set Ø 14/20 mm	048980	8 - 16	1
FIS brush set Ø 20/30 mm	048981	18 - 30	1

Table 15 Cleaning brush for concrete



Cleaning brush BS

SDS chuck

BS cleaning brushes for concrete

Type	Art.-No.	Description	Suitable for	Drill-Ø d ₀ [mm]	Sales unit [pcs]
BS ø 8	078117		FIS A M6	8	1
BS ø 10	078178		FIS A M 8 / RG M 5 I	10	1
BS ø 12	078179		FIS A M 10 / RG M 6 I	12	1
BS ø 14	078180		FIS A M 12 / RG M 8 I	14	1
BS ø 18	078181		FIS A M 16 / RG M 10 I	16 / 18	1
BS ø 20	052277		RG M 12 I	20	1
BS ø 24	078182		FIS A M 20 / RG M 16 I	24	1
BS ø 28	078183		FIS A M 24	30	1
BS ø 35	078184		FIS A M 30 / RG M 20 I	40	1
SDS chuck	511961	with internal thread M8	-	-	1
Brush extension	508791	for extensions with deep drill holes	M8 SDS chuck	-	1

Table 16 Blow-out pump for all applications



Compressed air cleaning gun ABP

Blow-out pump ABG

FIS extension tube

Compressed-air cleaning gun, blow-out pump and centring device

Type	Art.-No.	Description	Sales unit [pcs]
Compressed air cleaning gun ABP	093286	for professional drill hole cleaning	1
Blow-out pump ABG	089300	Manual blow-out pump	1
FIS extension tube	048985	for large drill hole depths > 150 mm	1

Load table Concrete.

FIS V, FIS VS LOW SPEED and FIS VW HIGH SPEED fischer injection systems with fischer anchor rods zinc-plated / stainless steel A4 Permissible loads¹⁾ of a single anchor in non-cracked normal concrete (concrete tensile zone) of strength C20/25⁴⁾ (~B25)

Model	Effective embedment depth h_{ef} ³⁾ [mm]	Anchor rod material	Installation torque T_{inst} [Nm]	Permissible tension load N_{perm} ²⁾ [kN]	Permissible shear load V_{perm} ²⁾ [kN]	Required axial spacing for max. tension load without edge influence s_{cr} [mm]	Minimum component thickness h_{min} [mm]	Minimum distances with simultaneous reduction in load	
								Min. axial spacing s_{min} [mm]	Min. edge distance c_{min} [mm]
M6	$h_{ef,min} = 50$	gvz., 5.8	≤ 5	3.4	2.9	150	100	40	40
		gvz., 8.8			4.6				
		A4-70			3.2				
	$h_{ef,max} = 72$	gvz., 5.8		4.8	2.9	216	102	40	40
		gvz., 8.8			4.6				
		A4-70			3.2				
M8	$h_{ef,min} = 60$	gvz., 5.8	≤ 10	6.6	5.1	180	100	40	40
		gvz., 8.8			9.1				
		A4-70			6.0				
	$h_{ef,max} = 160$	gvz., 5.8		9.0	5.1	480	190	40	40
		gvz., 8.8			14.3				
		A4-70			9.9				
M10	$h_{ef,min} = 60$	gvz., 5.8	≤ 20	8.2	8.6	180	100	45	45
		gvz., 8.8			13.1				
		A4-70			9.2				
	$h_{ef,max} = 200$	gvz., 5.8		13.8	8.6	600	230	45	45
		gvz., 8.8			22.4				
		A4-70			15.7				
M12	$h_{ef,min} = 70$	gvz., 5.8	≤ 40	11.5	12.0	210	100	55	55
		gvz., 8.8			19.4				
		A4-70			13.7				
	$h_{ef,max} = 240$	gvz., 5.8		20.5	12.0	720	270	55	55
		gvz., 8.8			32.4				
		A4-70			22.5				
M16	$h_{ef,min} = 80$	gvz., 5.8	≤ 60	14.3	22.3	240	116	65	65
		gvz., 8.8			34.4				
		A4-70			25.2				
	$h_{ef,max} = 320$	gvz., 5.8		37.6	22.3	960	356	65	65
		gvz., 8.8			60.0				
		A4-70			42.0				
M20	$h_{ef,min} = 90$	gvz., 5.8	≤ 120	17.1	34.9	270	138	85	85
		gvz., 8.8			41.1				
		A4-70			39.4				
	$h_{ef,max} = 400$	gvz., 5.8		58.6	34.9	1200	448	85	85
		gvz., 8.8			93.3				
		A4-70			65.7				
M24	$h_{ef,min} = 96$	gvz., 5.8	≤ 150	18.8	45.2	288	152	105	105
		gvz., 8.8			84.3				
		A4-70			50.9				
	$h_{ef,max} = 480$	gvz., 5.8		129.3	45.2	1440	536	105	105
		gvz., 8.8			80.6				
		A4-70			56.8				
M30	$h_{ef,min} = 120$	gvz., 5.8	≤ 300	26.3	63.2	360	190	140	140
		gvz., 8.8			133.8				
		A4-70			80.6				
	$h_{ef,max} = 600$	gvz., 5.8		190.7	63.2	1800	670	140	140
		gvz., 8.8			128.5				
		A4-70			90.2				

When dimensioning, observe the approval certificate ETA-02/0024 in its entirety.

¹⁾ The partial safety factors of the resistances and a partial safety factor of the effect of $\gamma_F = 1.4$, which are regulated in the approval, are considered. A single anchor could be, for example, an anchor with an axial spacing $s \geq 3 \times h_{ef}$. See approval certificate for exact details. The specified loads are applicable for anchoring in dry and wet concrete for temperatures in the base material of -40 °C to $+50\text{ °C}$ (or short-term up to $+80\text{ °C}$) and drill hole cleaning according to the approval certificate.

²⁾ With combinations of tension and shear loads, or with shear loads with a lever (bending), and with reduced edge and axial distances (anchor groups), a detailed measurement of the anchor, e.g. with our measurement programme Compufix, is required.

³⁾ The anchorage depth h_{ef} can be chosen freely between the values $h_{ef,min}$ and $h_{ef,max}$ according to the static requirements.

⁴⁾ With higher concrete strengths up to C50/60, higher permitted loads are possible, when concrete failure is considerable. See approval.

FIS V, FIS VS LOW SPEED and FIS VW HIGH SPEED injection systems with internal thread anchor RG MI / RG MI A4
zinc-plated / stainless steel A4
Approved loads¹⁾ of a single anchor in cracked normal concrete (concrete tensile zone) of strength C20/25³⁾

Model	Effective embedment depth h_{ef} [mm]	Minimum component thickness h_{min} [mm]	Screw material	Installation torque T_{inst} [Nm]	Permissible tension load $N_{perm. 2)}$ [kN]	Permissible shear load $V_{perm. 2)}$ [kN]	Required axial spacing for max. tension load without edge influence s_{cr} [mm]	Minimum distances with simultaneous reduction in load	
								Min. axial spacing s_{min} [mm]	Min. edge distance c_{min} [mm]
RG M 8 I	90	120	gvz., 8.8	≤ 10	11.9	8.5	270	40	40
RG M 8 I A4			A4-70		9.9	5.9			
RG M 10 I	90	125	gvz., 8.8	≤ 20	15.9	13.3	270	45	45
RG M 10 I A4			A4-70		15.7	9.3			
RG M 12 I	125	165	gvz., 8.8	≤ 40	19.8	19.3	375	60	60
RG M 12 I A4			A4-70			13.5			
RG M 16 I	160	205	gvz., 8.8	≤ 80	29.8	35.8	480	80	80
RG M 16 I A4			A4-70			25.1			
RG M 20 I	200	260	gvz., 8.8	≤ 120	45.6	42.9	600	125	125
RG M 20 I A4			A4-70			39.4			

When dimensioning, observe the approval certificate ETA-02/0024 in its entirety.

¹⁾ The partial safety factors of the resistances and a partial safety factor of the effect of $v_{Ft} = 1.4$, which are regulated in the approval, are considered. A single anchor could be, for example, an anchor with an axial spacing $s \geq 3 \times h_{ef}$.

See approval certificate for exact details. The specified loads are applicable for anchoring in dry and wet concrete for temperatures in the base material of -40 °C to $+50\text{ °C}$ (or short-term up to $+80\text{ °C}$) and drill hole cleaning according to the approval certificate.

²⁾ With combinations of tension and shear loads, or with shear loads with a lever (bending), and with reduced edge and axial distances (anchor groups), a detailed measurement of the anchor, e.g. with our measurement programme Compufix, is required.

³⁾ With higher concrete strengths up to C50/60, higher permitted loads are possible, when concrete failure is considerable. See approval.

Load table Masonry.

FIS V, FIS VS LOW SPEED and FIS VW HIGH SPEED injection systems with FIS A anchor rods⁵⁾ or FIS E internal thread anchors⁵⁾ with FIS HK anchor sleeves – Maximum permissible loads¹⁾⁶⁾ of a single anchor in perforated brick masonry

Model	Strength class Base material	Effective embedment depth ⁴⁾	Minimum compo- nent thickness ⁹⁾	Installation torque ⁸⁾	Permissible load ³⁾ hammer drilling	Permissible load ³⁾ rotation drilling	Minimum- axial spacing single anchor	Axial spacing within group of anchors	Minimum axial spacing ²⁾ within group of anchors	Minimum edge distance ⁷⁾
		h_{ef} [mm]	h_{min} [mm]	T_{inst} [Nm]	F_{zul} [kN]	F_{zul} [kN]	a_z [mm]	a [mm]	min a [mm]	a_r [mm]
Vertical perforated brick HLz										
M6 – M16	HLz 4	85	110	≤ 4	0.3	0.6	250	100	50	200 (50)
M6 – M16	HLz 6	85	110	≤ 4	0.4	0.8	250	100	50	200 (50)
M6 – M16	HLz 12	85	110	≤ 4	0.8	1.0	250	100	50	200 (50)
Perforated sand-lime brick KSL										
M6 – M16	KSL 4	85	110	≤ 4	0.4	0.6 ¹⁰⁾	250	100	50	200 (50)
M6 – M16	KSL 6	85	110	≤ 4	0.6	0.8 ¹⁰⁾	250	100	50	200 (50)
M6 – M16	KSL 12	85	110	≤ 4	0.8	1.4 ¹⁰⁾	250	100	50	200 (50)
Hollow block made from lightweight concrete Hbl										
M6 – M16	Hbl 2	85	110	≤ 4	0.3	0.5	250	200	200	200 (50)
M6 – M16	Hbl 4	85	110	≤ 4	0.6	0.8	250	200	200	200 (50)
Hollow block made of concrete Hbn										
M6 – M16	Hbn 4	85	110	≤ 4	0.6	0.8	250	200	200	200 (50)
Porous light-weight concrete TGL										
M8 – M10	-	85	175	≤ 4	1.3	1.3	200	150	100	200 (150)
M12 – M16	-	85	175	≤ 4	2.0	2.0	250	150	100	200 (150)

When dimensioning, observe the approval certificate Z-21.3-1824 in its entirety.

1) Required safety factor taken into account.

2) Smallest possible axial spacing for pairs of anchors or groups of four and simultaneous reduction in permissible load.

3) Applies to tension load, shear load and diagonal pull under each angle. For bending moments and reduced axial distances (groups of anchors), see approval certificate. The maximum load, which may be applied to a brick according to the approval, has to be taken into account depending on the brick size and superimposed load. In HLz masonry, which was erected before 1977, a load increase may be possible according to approval section 3.2.3.1.

4) Figures apply to all FIS A anchor rods M6 – M16 and FIS E internal thread anchors M6 – M12. Bridge plaster (bridging non-supporting layers) possible to max. 20 mm – not for KSL. For FIS A anchor rods M6 and M8 also $h_{ef} = 50$ mm with FIS H anchor sleeve 12 x 50 K – without bridging non-supporting layers. Other anchorage depths up to 200 mm and non-supporting layer thicknesses to 100 mm possible – see approval.

5) Gvz and A4. For FIS E, screw of strength class 5.8 or A4-70.

6) The specified permissible loads apply to anchoring in dry and damp masonry for temperatures of up to +50 °C (or short-term up to +80 °C) and drill hole cleaning according to the approval certificate.

7) Figures in brackets apply to masonry with superimposed load or proof against tilting. Not valid for loads towards the free edge.

8) 2 Nm if not placed in the mortar bed (for non-adjacent anchor plate on the base material).

9) For $h_{ef} = 50$ mm is $h_{min} = 90$ mm; for $h_{ef} = 130$ mm is $h_{min} = 150$ mm and for $h_{ef} = 200$ mm is $h_{min} = 240$ mm.

10) KSL has to have an external support thickness of at least 30 mm (old bricks).

FIS V, FIS VS LOW SPEED and FIS VW HIGH SPEED injection systems with FIS A anchor rods⁵⁾ or FIS E internal thread anchors⁵⁾ Maximum permissible loads¹⁾⁶⁾ of a single anchor in solid brick masonry

Model	Strength class Base material	Effective embedment depth ⁴⁾	Min. component thickness	Installation torque ⁸⁾	Permissible load ³⁾	Minimum- axial spacing single anchor	Axial spacing within group of anchors	Minimum axial spacing ²⁾ within group of anchors	Minimum edge distance ⁷⁾	
		h_{ef} [mm]	h_{min} [mm]	T_{inst} [Nm]	F_{zul} [kN]	a_z [mm]	a [mm]	min a [mm]	a_r [mm]	
Solid brick Mz										
M6 – M8	Mz 12	75	110	≤ 4	1.0 (1.4)⁹⁾	250	100	50	250 (60)	
M10 – M16	Mz 12	75	110	≤ 4	1.70	250	100	50	250 (60)	
Solid sand-lime brick block KS										
M6 – M8	KS 12	75	110	≤ 4	1.0 (1.4)⁹⁾	250	100	50	250 (60)	
M10 – M16	KS 12	75	110	≤ 4	1.70	250	100	50	250 (60)	

When dimensioning, observe the approval certificate Z-21.3-1824 in its entirety.

1) Required safety factor taken into account.

2) Smallest possible axial spacing for pairs of anchors or groups of four and simultaneous reduction in permissible load.

3) Applies to tension load, shear load and diagonal pull under each angle. For bending moments and reduced axial spacing (groups of anchors), see approval certificate. The maximum load, which may be applied to a brick according to the approval, has to be taken into account depending on the brick size and superimposed load.

4) Values apply to FIS A anchor rods. When using FIS E internal thread anchors (M6 to M12), the anchorage depth is 85 mm rather than 75 mm.

5) Gvz and A4. For FIS E, screw of strength class 5.8 or A4-70.

Load table

Aerated concrete.

FIS V, FIS VS LOW SPEED and FIS VW HIGH SPEED injection systems with FIS Anchor rods⁵⁾ or FIS E internal thread anchors⁵⁾
 Maximum permissible loads ¹⁾⁶⁾ of a single anchor in perforated brick

Model	Strength class Base material	Effective embedment depth	Min. component thickness	Installation torque ⁸⁾	Permissible load	Minimum- axial spacing single anchor	Axial spacing within group of anchors	Minimum axial spacing ²⁾ within group of anchors	Minimum edge distance ⁷⁾
		h_{ef} [mm]	h_{min} [mm]	T_{inst} [Nm]	F_{zul} [kN]	a_z [mm]	a [mm]	min a [mm]	a_r [mm]
Aircrete bricks/ aircrete blocks									
FIS A M8 – M12 FIS E M6 FIS E M8	P 2	75	110	≤ 5	0.9	250	200	50	200 (100)
	P 2	95 (85) ⁴⁾			1.3		250		300 (150)
	P 4	75			1.2		200		200 (100)
	P 4	95 (85) ⁴⁾			1.7		250		300 (150)
	P 6	75			1.6		200		200 (100)
	P 6	95 (85) ⁴⁾			2.1		250		300 (150)
Reinforced and non-reinforced wall panels, floor-to-ceiling reinforced wall panels, reinforced roof and ceiling panels (respectively, pressure zone and in the tension zone generated from the load tensions)									
FIS A M8 – M12 FIS E M6 FIS E M8	G 2.2 ⁹⁾	75	110	≤ 5	0.9	250	200	50	200 (100)
	G 2.2 ⁹⁾	95 (85) ⁴⁾			1.4		250		300 (150)
	G 3.3	75			1.2		200		200 (100)
	G 3.3	95 (85) ⁴⁾			1.6		250		300 (150)
	G 4.4	75			1.4		200		200 (100)
	G 4.4	95 (85) ⁴⁾			1.9		250		300 (150)

When dimensioning, observe the approval certificate Z-21.3-1824 in its entirety.

¹⁾ Required safety factor taken into account.

²⁾ Smallest possible axial spacing for pairs of anchors or groups of four and simultaneous reduction in permissible load. Does not apply to reinforced roof and floor slabs.

³⁾ Applies to tension load, shear load and diagonal pull under each angle. For bending moments and reduced axial spacing (groups of anchors), see approval certificate.

⁴⁾ Figures in brackets apply to the FIS E internal thread anchor (M6 and M8).

⁵⁾ Gvz and A4. For FIS E, screw of strength class 5.8 or A4-70. Only FIS E M6 and FIS E M8 permitted.

⁶⁾ The specified permissible loads apply to anchoring in dry and damp masonry for temperatures of up to +50 °C (or short-term up to +80 °C) and drill hole cleaning according to the approval certificate.

⁷⁾ Figures in brackets apply to masonry with superimposed load or proof against tilting. Not valid for loads towards the free edge.

⁸⁾ 10 Nm, for FIS A M10 and FIS A M12.

⁹⁾ This quality is not governed in the approval for floor-to-ceiling, reinforced wall panels.

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