fischer

FIS V Zero.

Maximum safety for people and nature.

Zero

Zero hazard technology

The universal mortar without hazardous substance labelling.

FIS V Zero 300 T

FIS V Zero 360 S

Advantages

- The innovative formula of the universal mortar FIS V Zero is free of labelling-required hazardous substances, such as dibenzoyl peroxide, which is classified as sensitising, irritating to the eyes and hazardous to the environment.
- The non-labelled ingredients of the FIS V Zero guarantee safe installation for maximum user protection.
- The injection mortar is approved for anchoring in concrete and masonry, for post-installed rebar connections and for water-filled drill holes.
- The possible installation temperatures of -10 to 40 °C allow the universal use of FIS V Zero all year round.
- Used cartridges can be disposed of environmentally friendly in the residual waste and thus avoids cost-intensive hazardous waste.

Approvals

ETA-20/0572, for cracked concrete
ETA-20/0574, for post-installed rebar connections
ETA-21/0267, for masonry

3097 0044

Performance features at a glance.

Special formulation

Revolutionary formula for safe application:
Through the replacement of dibenzoyl peroxide and other substances classified as environmentally hazardous, sensitising and eye-irritating hazardous substances, the FIS V Zero does not require any labelling of hazardous substances nor the corresponding safety data sheet.

Water-filled drill holes

Can be used in all weather conditions:
FIS V Zero can be easily installed in water-filled drill holes in concrete according to ETA and can therefore be used under all building conditions.

Highest work safety

Maximum user protection in every situation:
Thanks to its non-labelled ingredients, the FIS V Zero offers its users maximum protection during processing and achieves the lowest emission class with the A+ rating.

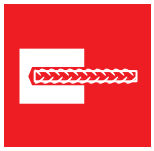
Installation temperatures

Well prepared for every season:
The possible installation temperatures of -10 to 40 °C allow the universal use of FIS V Zero all year round.
In addition, an internal expert report confirms installation temperatures of up to -15 °C.

Maximum nature protection

Innovative ingredients for more nature protection:
Significantly reduced environmental risk even with improper disposal thanks to the innovative ingredients. The simple disposal in the residual waste avoids the usual costly disposal as hazardous waste.

Post-installed rebar connections



Maximum safety for rebars:
Post-installed rebar connections complete the range of possible applications of FIS V Zero and make the injection mortar the perfect choice on the construction site.

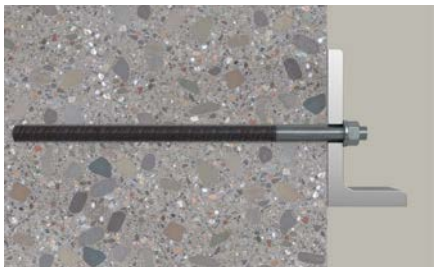
Application in cracked and uncracked concrete.

fischer anchor rod FIS A or RG M

- Diameters M8 - M24 in uncracked and cracked concrete
- Available as zinc-plated steel 5.8 and 8.8 as well as stainless steel R
- Anchorage depth 60 - 480 mm

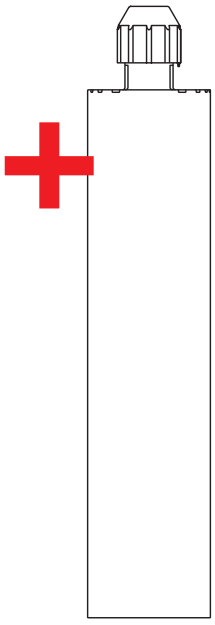
fischer internal threaded anchor RG M I

- Diameters M8 - M16 in uncracked and cracked concrete
- Available as zinc-plated steel and stainless steel R
- Anchorage depth 90 - 160 mm



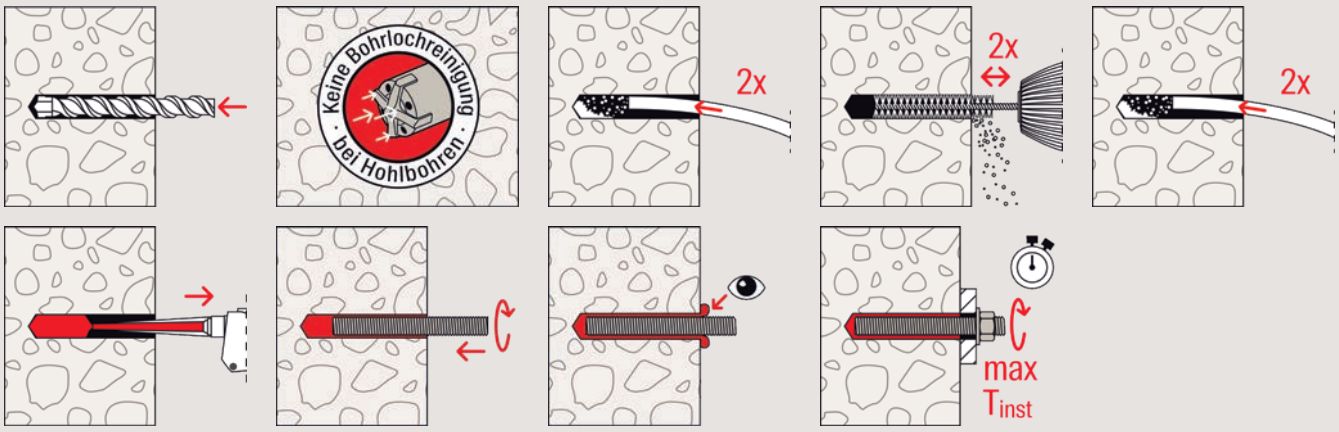
fischer rebar anchor FRA

- Reinforcing steel with connection thread made of stainless steel for uncracked concrete
- Connection threads M12 - M24
- Embedment depth up to 480 mm

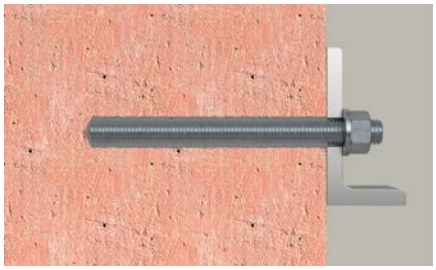


Injection mortar FIS V Zero

Exemplary installation in concrete with FIS V Zero and FIS A / RG M

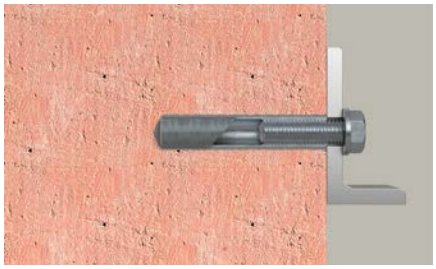


Application in solid masonry.



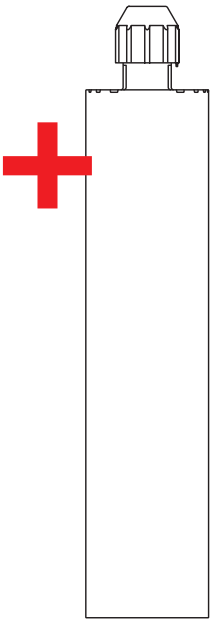
fischer anchor rod FIS A or RG M

- Available as zinc-plated steel in steel grades 5.8 and 8.8 and stainless steel R
- Diameters M8 - M16
- Anchorage depth 50 - 80 mm



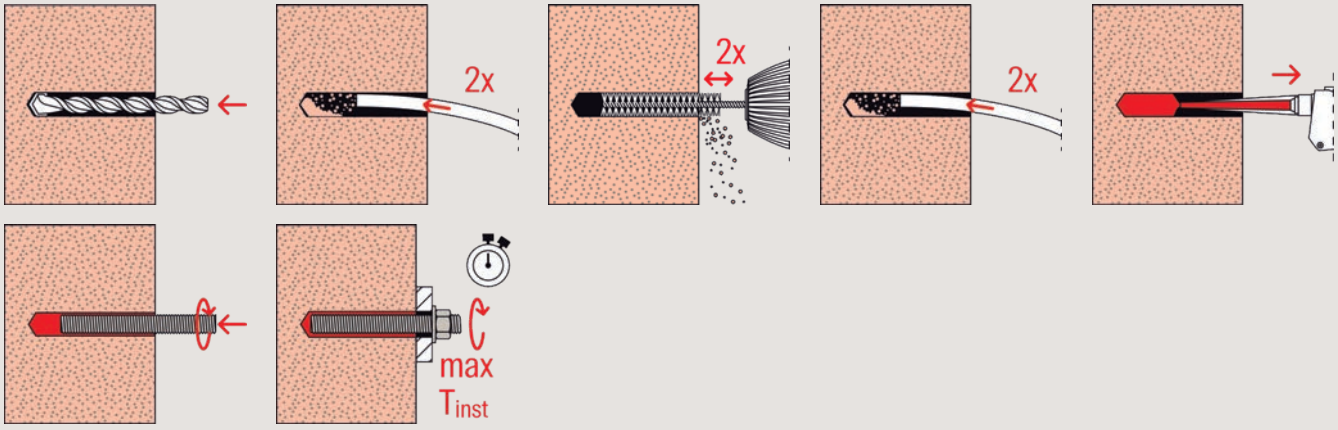
fischer internal threaded anchor FIS E

- Diameters M8 - M12 available as zinc-plated steel
- Diameters M8 - M10 available as stainless steel R
- Anchorage depth 85 mm



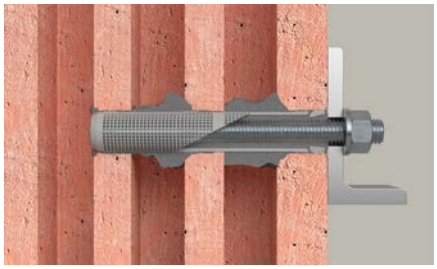
Injection mortar FIS V Zero

Exemplary installation in solid brick with FIS V Zero and FIS A



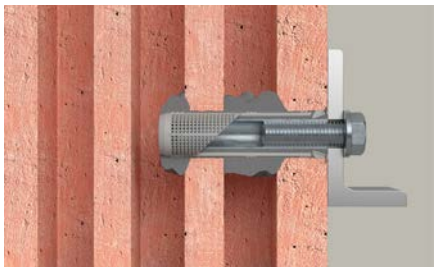
Application in perforated brickwork.

In various perforated bricks, such as vertically perforated bricks, sand-lime bricks, hollow blocks, etc.



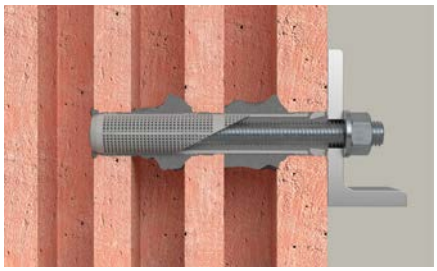
fischer anchor rod FIS A or RG M

- Diameters M8 - M16
- Available as zinc-plated steel in steel grades 5.8 and 8.8 and stainless steel R
- Anchorage depth 50, 85 and 130 mm



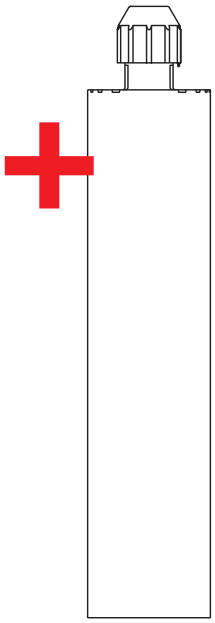
fischer internal threaded anchor FIS E

- Diameters M8 - M12 available as zinc-plated steel
- Diameters M8 - M10 available as stainless steel R
- Anchorage depth 85 mm



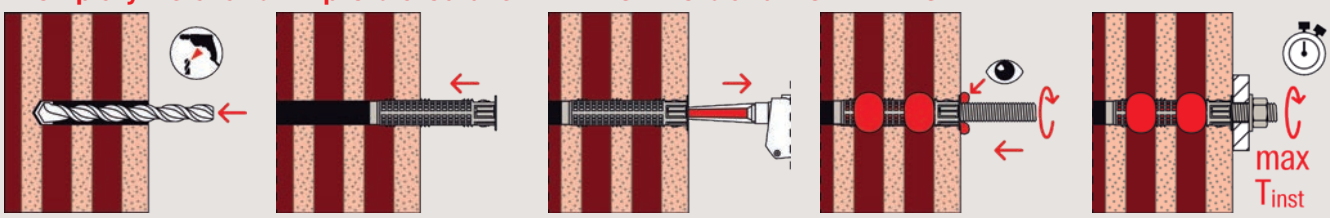
fischer anchor sleeve FIS H K

- Anchor sleeves Ø 12, 16 and 20 for anchor rods M8 - M16 or internal threaded anchor M8 - M12
- Anchorage depth 50, 85 and 130 mm



Injection mortar FIS V Zero

Exemplary installation in preforated brick with FIS V Zero and FIS HK + FIS A



Compatible anchoring elements.

fischer anchor rods FIS A / RG M zinc-plated steel grade 5.8 and 8.8

fischer anchor rods FIS A / RG M stainless steel R

Anchor rods

- The fischer FIS A and RG M anchor rods are approved for use in concrete with FIS V Zero in sizes M8 - M24 made of zinc-plated and stainless steel R.
- For use in masonry, the fischer anchor rods FIS A and RG M are approved in sizes M8 - M16 made of zinc-plated and stainless steel R. In perforated brickwork only in combination with the anchor sleeve FIS H K in diameters 12 - 20.
- The variable anchoring depths allow optimum adaptation to the application and load requirements in masonry.

fischer internal threaded anchor FIS E zinc-plated / stainless steel R

fischer internal threaded anchor RG M I zinc-plated / stainless steel R

Internally threaded anchor

- The internally threaded anchor RG M I is approved for use in concrete in the sizes M8 - M16 made of zinc-plated and stainless steel. The FIS E made of zinc-plated and stainless steel R is approved for use in masonry in sizes M8 - M12 (stainless steel R M8 and M10).
- In combination with metric screws or threaded rods the RG M I/ FIS E can be used for the installation of removable fixings.

Anchor sleeve FIS H K
Injection anchor sleeve for perforated brickwork.

Anchor sleeves

- The grid structure of the FIS H K anchor sleeve ensures economical mortar consumption with optimum form fit.
- The centring wings ideally align the fixing element in the anchor sleeve and allow the use of different anchor rod diameters.

fischer rebar anchor FRA
Reinforcing bar with metric thread made of stainless steel.

Rebar anchor

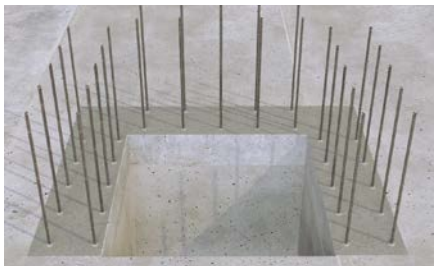
- The rebar anchor FRA is a rebar with metric connection thread made of stainless steel in the sizes M12 - M24.
- It fully utilises the load-bearing capacity of the concrete.
- This allows very high tensile loads to be introduced into the anchoring base.

Applications

Fixings in inhabited rooms

Steel constructions

Rebar connections



Sustainability at fischer.

For the coming years, the fischer group of companies has adopted its future strategy until 2025.
This defines the long-term goals and their medium-term implementation.
fischer‘s sustainability projects have already received several awards, including the German Sustainability Award 2020 in the „Large Companies“ category.

In the course of the strategic orientation, the topics of digitalisation, globalisation, innovation, technology and processes were identified as the main issues.
The foundation for successful development is an interaction between managers, the fischer process system and the fischer mission statement, as well as the focus on sustainability activities.

This includes, among other things, the further expansion of the Blue Trail. The stations are examples of various sustainability activities and are intended to promote and continuously expand awareness of this topic both inside and outside the company.
The colour blue symbolises the oceans, the sky and the earth.
In professional circles, it also stands for sustainability.

Sustainability projects that have been implemented and those that are planned are displayed at various points on the company‘s premises and beyond - together they form the individual stations of the Blue Trail.
These include, among other things, a new shuttle facility at the Global Distribution Centre at the headquarters. For this purpose, the company was rewarded by the Environmental Technology Baden-Württemberg (UTBW) in the „100 Companies for Resource Efficiency“.
The sustainability management of the group of companies takes into account the twelve guiding principles of the (WIN) Baden-Württemberg as well as the UN‘s Sustainable Development Goals (SDG).

Deutscher Nachhaltigkeitspreis 2020

SIEGER
Großunternehmen

Blue path

Technical data

Injection mortar FIS V Zero


FIS V Zero 300 T


FIS V Zero 360 S

Item	Item No.	Approval ETA	Languages on the cartridge	Contents	Sales unit [pcs]
FIS V Zero 300 T	**562064**	●	EN, DA, SE, CS/SK, FI, NO, PL, RO, HU, RU	1 cartridge 300 ml, 2 x FIS MR Plus with transparent Clip	10
FIS V Zero 300 T	**558953**	●	DE, EN, NL, FR, IT, ES, PT	1 cartridge 300 ml, 2 x FIS MR Plus with transparent Clip	10
FIS V Zero 360 S	**558954**	●	DE, EN, FR, ES, PT, PL, HU	1 cartridge 360 ml, 2 x FIS MR Plus	6

Curing times

FIS V Zero Temperature at anchoring base [°C]	Maximum processing time t_{work} [hrs.]	[min.]	Minimum curing time 1) t_{cure} [hrs.]	[min.]
-10 – -5 2)	6	–	72	–
> -5 – 0 2)	2	–	24	–
> 0 – +5 2)	–	45	12	–
> +5 – +10	–	20	6	–
> +10 – +15	–	8	3	–
> +15 – +20	–	5	2	–
> +20 – +25	–	3	1	–
> +25 – +30	–	2	–	45
> +30 – +40	–	1	–	30

1) In wet concrete or water-filled holes the curing times must be doubled.

2) Minimum cartridge temperature +5 °C.

Loads

Injection system FIS V Zero with internal threaded anchor RG M I

Permissible loads of a single anchor1) 2) in normal concrete of strength class C20/25.
For the design the complete current assessment ETA-20/0572 has to be considered.

Type	Screw material 3)	Effective anchorage depth h_{ef} [mm]	Minimum member thickness h_{min} [mm]	Maximum installation-torque $T_{inst,max}$ [Nm]	Cracked concrete: Permissible tension (N_{perm}) and shear loads (V_{perm}); minimum spacing (s_{min}) and edge distances (c_{min}) with reduced loads				Uncracked concrete: Permissible tension (N_{perm}) and shear loads (V_{perm}); minimum spacing (s_{min}) and edge distances (c_{min}) with reduced loads			
					N_{perm} 4) [kN]	V_{perm} 4) [kN]	s_{min} 4) [mm]	c_{min} 4) [mm]	N_{perm} 4) [kN]	V_{perm} 4) [kN]	s_{min} 4) [mm]	c_{min} 4) [mm]
RG M8 I	5.8	90	120	10	5.2	5.3	40	40	8.7	5.3	40	40
	8.8	90	120	10	5.2	8.3	40	40	8.7	8.3	40	40
	R-70	90	120	10	5.2	5.9	40	40	8.7	5.9	40	40
RG M10 I	5.8	90	130	20	6.2	8.3	45	45	11.5	8.3	45	45
	8.8	90	130	20	6.2	13.3	45	45	11.5	13.3	45	45
	R-70	90	130	20	6.2	9.3	45	45	11.5	9.3	45	45
RG M12 I	5.8	125	170	40	9.6	12.1	55	55	18.0	12.1	55	55
	8.8	125	170	40	9.6	19.3	55	55	18.0	19.3	55	55
	R-70	125	170	40	9.6	13.5	55	55	18.0	13.5	55	55
RG M16 I	5.8	160	210	80	13.2	22.4	65	65	26.3	22.4	65	65
	8.8	160	210	80	13.2	30.9	65	65	26.3	30.9	65	65
	R-70	160	210	80	13.2	25.1	65	65	26.3	25.1	65	65

1) Design according to EN 1992-4:2018 (for static resp. quasi-static loads). The partial safety factors for material resistance as regulated in the ETA as well as a partial safety factor for load actions of γ_L = 1.4 are considered. As a single anchor counts e.g. an anchor with a spacing s ≥ 3 x h_{ef} and an edge distance c ≥ 1.5 x h_{ef}. Accurate data see ETA.

2) The specified loads are valid for anchorages in dry and damp concrete. For temperatures in the anchoring substrate up to 50 °C (resp. short term up to 80 °C). Drill hole cleaning as per specification in the ETA. The factor Ψ_{sus} for sustained load was taken into account with 1.0.

3) Further steel grades, versions and technical data see ETA, e.g. for dry internal conditions, galvanised steel (gvz); for damp interiors and for outdoor use, stainless steel (R).

4) In the case of combinations of tension and shear loads, bending moments with reduced or minimum spacing and edge distances (anchor groups), the design must be carried out in accordance with the provisions of the complete ETA and the provisions of the EN 1992-4:2018. We recommend using our anchor design software C-FIX.

Loads

Injection system FIS V Zero with threaded rod FIS A

Permissible loads of a single anchor[1) 2)] in normal concrete of strength class C20/25.
For the design the complete current assessment ETA-20/0572 has to be considered.

					Cracked concrete				Uncracked concrete			
	Material/ surface[3)]	Effective anchorage depth	Minimum member thickness	Maximum installation-torque	Permissible tension (N_{perm}) and shear loads (V_{perm}); minimum spacing (s_{min}) and edge distances (c_{min}) with reduced loads				Permissible tension (N_{perm}) and shear loads (V_{perm}); minimum spacing (s_{min}) and edge distances (c_{min}) with reduced loads			
		h_{ef}	h_{min}	$T_{inst,max}$	N_{perm} [4)]	V_{perm} [4)]	s_{min} [4)]	c_{min} [4)]	N_{perm} [4)]	V_{perm} [4)]	s_{min} [4)]	c_{min} [4)]
Type		[mm]	[mm]	[Nm]	[kN]	[kN]	[mm]	[mm]	[kN]	[kN]	[mm]	[mm]
FIS A M 8	5.8	60	100	10	2.1	5.7	40	40	5.1	6.3	40	40
	5.8	80	110	10	2.7	6.3	40	40	6.8	6.3	40	40
	5.8	160	190	10	5.5	6.3	40	40	9.0	6.3	40	40
	R-70	60	100	10	2.1	5.7	40	40	5.1	6.0	40	40
	R-70	80	110	10	2.7	6.0	40	40	6.8	6.0	40	40
	R-70	160	190	10	5.5	6.0	40	40	9.9	6.0	40	40
FIS A M 10	5.8	60	100	20	2.6	7.2	45	45	6.4	9.7	45	45
	5.8	90	120	20	3.8	9.7	45	45	9.6	9.7	45	45
	5.8	200	230	20	8.5	9.7	45	45	13.8	9.7	45	45
	R-70	60	100	20	2.6	7.2	45	45	6.4	9.2	45	45
	R-70	90	120	20	3.8	9.2	45	45	9.6	9.2	45	45
	R-70	200	230	20	8.5	9.2	45	45	15.7	9.2	45	45
FIS A M 12	5.8	70	100	40	3.6	10.1	55	55	9.0	14.3	55	55
	5.8	110	140	40	5.6	14.3	55	55	14.1	14.3	55	55
	5.8	240	270	40	12.3	14.3	55	55	20.5	14.3	55	55
	R-70	70	100	40	3.6	10.1	55	55	9.0	13.7	55	55
	R-70	110	140	40	5.6	13.7	55	55	14.1	13.7	55	55
	R-70	240	270	40	12.3	13.7	55	55	22.5	13.7	55	55
FIS A M 16	5.8	80	120	60	5.5	15.3	65	65	12.0	26.9	65	65
	5.8	125	170	60	8.5	23.9	65	65	21.4	26.9	65	65
	5.8	320	360	60	21.9	26.9	65	65	37.6	26.9	65	65
	R-70	80	120	60	5.5	15.3	65	65	12.0	25.2	65	65
	R-70	125	170	60	8.5	23.9	65	65	21.4	25.2	65	65
	R-70	320	360	60	21.9	25.2	65	65	42.0	25.2	65	65
FIS A M 20	5.8	90	140	120	7.7	21.5	85	85	14.3	40.0	85	85
	5.8	170	220	120	14.5	40.7	85	85	34.5	42.3	85	85
	5.8	400	450	120	34.2	42.3	85	85	58.6	42.3	85	85
	R-70	90	140	120	7.7	21.5	85	85	14.3	39.4	85	85
	R-70	170	220	120	14.5	39.4	85	85	34.5	39.4	85	85
	R-70	400	450	120	34.2	39.4	85	85	65.7	39.4	85	85
FIS A M 24	5.8	96	160	150	9.8	27.6	105	105	15.7	44.1	105	105
	5.8	210	270	150	21.5	60.3	105	105	45.8	60.6	105	105
	5.8	480	540	150	49.2	60.6	105	105	84.3	60.6	105	105
	R-70	96	160	150	9.8	27.6	105	105	15.7	44.1	105	105
	R-70	210	270	150	21.5	56.8	105	105	45.8	56.8	105	105
	R-70	480	540	150	49.2	56.8	105	105	94.3	56.8	105	105

[1)] Design according to EN 1992-4:2018 (for static resp. quasi-static loads). The partial safety factors for material resistance as regulated in the ETA as well as a partial safety factor for load actions of $\gamma_L = 1.4$ are considered. As a single anchor counts e.g. an anchor with a spacing $s \geq 3 \times h_{ef}$ and an edge distance $c \geq 1.5 \times h_{ef}$. Accurate data see ETA.

[2)] The specified loads are valid for anchorages in dry and damp concrete. For temperatures in the anchoring substrate up to 50 °C (resp. short term up to 80 °C). Drill hole cleaning as per specification in the ETA. The factor Ψ_{sus} for sustained load was taken into account with 1.0.

[3)] Further steel grades, versions and technical data see ETA, e.g. for dry internal conditions, galvanised steel (gvz); for damp interiors and for outdoor use, stainless steel (R).

[4)] In the case of combinations of tension and shear loads, bending moments with reduced or minimum spacing and edge distances (anchor groups), the design must be carried out in accordance with the provisions of the complete ETA and the provisions of the EN 1992-4:2018. We recommend using our anchor design software C-FIX.

Loads

Injection system FIS V Zero with threaded rod FIS A in solid and perforated masonry

Permissible loads[1) 2)] for a single anchor in masonry for pre-positioned installation.
For the design the complete valid European Technical Assessment ETA-21/0267 has to be considered.

Type	Compressive brick strength f_b [N/mm²]	Brick raw density ρ [kg/dm³]	Minimum brick dimensions[3)] (L x W x H) [mm]	Effective anchorage depth h_{ef} [mm]	Minimum member thickness h_{min} [mm]	Maximum installation torque $T_{inst,max}$ [Nm]	Permissible tensile load[4)] N_{perm} [kN]	Permissible shear load[4)] V_{perm} [kN]	Minimum-spacing[5)] $s_{min\parallel}$ / $s_{min\perp}$ [mm]	Characteristic resp. minimum edge distance[5)] $c_{cr} = c_{min}$ [mm]
Solid brick Mz, acc. to EN 771-1										
M8	≥ 36	≥ 2.0	230 x 108 x 55	50	108	10	0.43	0.71	100 / 100	100
M10	≥ 36	≥ 2.0	230 x 108 x 55	80	110	10	0.57	1.29	100 / 100	100
M12	≥ 48	≥ 2.0	230 x 108 x 55	80	110	10	0.71	1.43	100 / 100	100
M16	≥ 36	≥ 2.0	230 x 108 x 55	80	110	10	1.00	1.29	100 / 100	100
M16	≥ 48	≥ 2.0	230 x 108 x 55	80	110	10	1.14	1.43	100 / 100	100
Solid sand-lime brick KS, acc. to EN 771-2										
M8	≥ 12	≥ 2.0	240 x 115 x 71	80	115	8	0.43	1.00	100 /100	100
M10	≥ 12	≥ 2.0	240 x 115 x 71	80	115	10	0.86	1.29	100 /100	100
M12	≥ 12	≥ 2.0	240 x 115 x 71	80	115	10	0.86	1.14	100 /100	100
M16	≥ 12	≥ 2.0	240 x 115 x 71	80	115	10	0.43	1.14	100 /100	100
Vertically perforated brick Hlz, acc. to EN 771-1[3)]										
M8 with FIS H 12 x 85 K	≥ 16	≥ 1.6	230 x 108 x 55	85	115	5	0.43	1.43	100 / 60	100
M8 / M10 with FIS H 16 x 130 K	≥ 16	≥ 1.6	230 x 108 x 55	130	160	5	0.71	1.43	100 / 60	100
M12 / M16 with FIS H 20 x 130 K	≥ 16	≥ 1.6	230 x 108 x 55	130	160	5	0.71	1.43	100 / 60	100
Perforated sand-lime brick KSL, acc. to EN 771-2[3)]										
M8 with FIS H 12 x 85 K	≥ 16	≥ 1.6	240 x 175 x 113	85	175	8	0.34	1.00	100 / 100	100
M8 / M10 with FIS H 16 x 130 K	≥ 16	≥ 1.6	240 x 175 x 113	130	175	8 / 10	1.00	1.14	100 / 100	100
M12 / M16 with FIS H 20 x 85 K	≥ 16	≥ 1.6	240 x 175 x 113	85	175	10	0.43	1.86	100 / 100	100
Lightweight concrete hollow block Hbl, acc. EN 771-3[3)]										
M8 / M10 with FIS H 16 x 85 K	≥ 2	≥ 1.0	500 x 200 x 200	85	200	2	0.09	0.43	100 / 100	100
M12 / M16 with FIS H 20 x 130 K	≥ 4	≥ 1.0	500 x 200 x 200	130	200	2	0.17	0.57	100 / 100	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. Load values are valid for zinc-plated steel gvz, stainless steel R and highly corrosion-resistant steel HCR. In perforated bricks and hollow blocks threaded rod FIS A in combination with anchor sleeve FIS H K.

2) The given loads are valid for installation and use of fixations in dry masonry - use category d/d - for temperatures in the substrate up to 50 °C (resp. short term up to 80 °C) and drill hole cleaning according to assessment. The given brick types in combination with the permissible loads are an extract of the assessment.

3) More information about, e.g. hole patterns, assortment of anchor sleeves FIS H K see assessment.

4) In the case of combinations of tensile and shear loads, bending moments and reduced edge and axial spacings (anchor groups), the design must be carried out in accordance with the provisions of the complete assessment.

5) Minimum feasible spacing resp. edge distance. Details as well as to the distances to joints see assessment.

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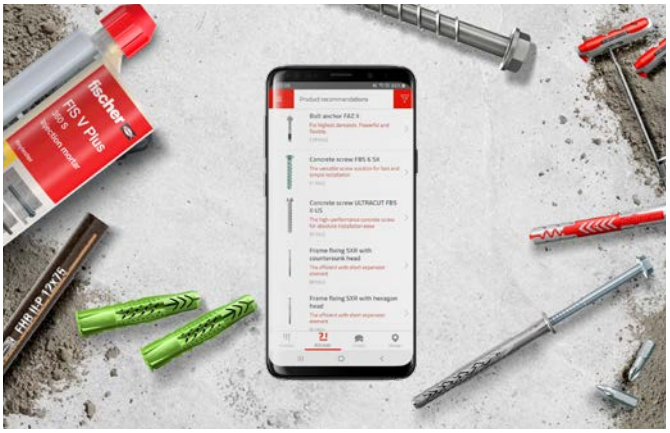

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