



Any connection into Brick or Block



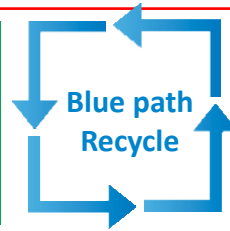
Steel Connection into Concrete



Post Installed Rebar Connections



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



APPLICATIONS

- Steel Work Construction
- Guard Rails
- Facades
- Staircases
- Steel Brackets
- Machine Installation
- Post Installed Rebar
- Canopies
- Pipeline work
- Satellite Antennas

BUILDING MATERIALS

- Cracked & Un-Cracked Concrete 2500 psi to 8500 psi
- Natural stone with dense structure
- Hollow Blocks made of Concrete
- Vertically Perforated Brick
- Perforated Sand Lime Brick
- Solid Sand lime Brick
- Aerated Concrete
- Solid Brick



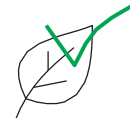
Water Filled
Drilled Holes As
per ETA



Well Preferred
for Every
Season 14°F to
104°F



Maximum
Safety for
Rebars

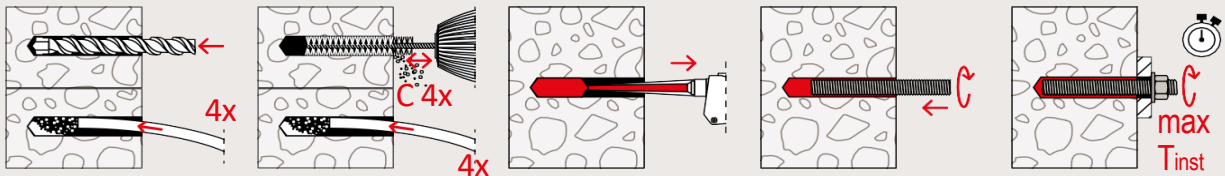


Revolutionary formula for safe application: Through the replacement of dibenzoyl peroxide and other substances classified as environmentally hazardous, the FIS V Zero does not require any labelling of hazardous substances nor the corresponding safety data sheet.

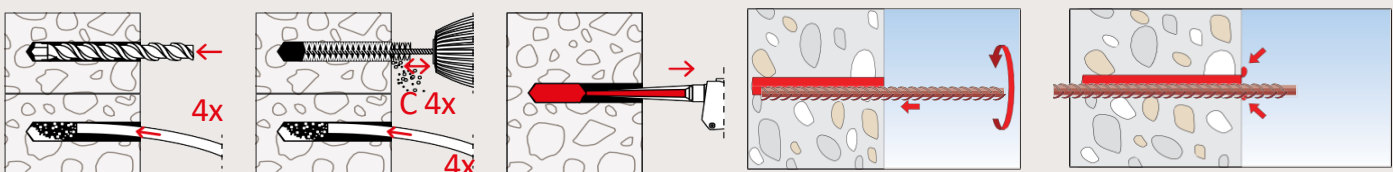


CONCRETE		Solid Brick, Solid AAC Block	Hollow Block, Perforated Brick	Natural Stone, Dense Structure	ICC Approval	Seismic C1/C2	Certification of Fire Protection		Anchor Diameter in Inch	Threaded Rod and Hex Nut	Rebar	Hex Head	Flat Head	Under 500 lbs	Over 500 lbs	Over 5000 lbs	Zinc Plated Carbon Steel	Galvanised Steel	Stainless Steel
CRACKED	UN-CRACKED																		
									Diameter										
										Threaded rod 5/16" to 1-3/16"									

Installation with Threaded Rod with FIS V Zero Chemical Mortar in hammer-drilled drill hole



Installation with Rebar with FIS V Zero Chemical Mortar in hammer-drilled drill hole





- 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 14°F to 104°F 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.

Curing Times

FIS V Zero Temperature at anchoring base [°F]	Maximum processing time t _{work}		Minimum curing time 1) t _{cure}	
	[hrs.]	[min.]	[hrs.]	[min.]
> +14 – +23	6	–	72	–
> +23 – +32	2	–	24	–
> +32 – +41	–	45	12	–
> +41 – +50	–	20	6	–
> +50 – +59	–	8	3	–
> +59 – +68	–	5	2	–
> +68 – +77	–	3	1	–
> +77 – +86	–	2	–	45
> +86 – +104	–	1	–	30

- 1) In wet concrete or water-filled holes the curing times must be doubled.
2) Minimum cartridge temperature 41 °F.

Fixings in inhabited rooms



Steel Constructions



Rebar Connections



Loads in Cracked and Un-Cracked concrete with Threaded rod as per European Standard

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.

Type	Material/ surface ³⁾	Effective anchorage depth hef [Inch]	Minimum member thickness hmin [Inch]	Maximum installati on-torque Tinst,max [Nm]	Cracked concrete				Un-cracked concrete			
					Permissible tension (Nperm) and shear loads (Vperm); minimum spacing (smin) and edge distances (cmin) with reduced loads				Permissible tension (Nperm) and shear loads (Vperm); minimum spacing (smin) and edge distances (cmin) with reduced loads			
					Nperm ⁴⁾ [lbf]	Vperm ⁴⁾ [lbf]	Smin ⁴⁾ [Inch]	cmin ⁴⁾ [mm]	Nperm ⁴⁾ [lbf]	Vperm ⁴⁾ [lbf]	smin ⁴⁾ [mm]	cmin ⁴⁾ [mm]
Dia 5/16" (8mm)	5.8	2-3/8" (60 mm)	4" (100 mm)	10	472 (2.1 kN)	1281 (5.7 kN)	1-1/2"	1-1/2"	1146 (5.1 kN)	1416 (6.3 kN)	1-1/2"	1-1/2"
	5.8	3-1/8" (80 mm)	4-5/16" (110 mm)	10	606 (2.7 kN)	1416 (6.3 kN)	1-1/2"	1-1/2"	1528 (6.8 kN)	1416 (6.3 kN)	1-1/2"	1-1/2"
	5.8	6-5/16" (160 mm)	7-1/2" (190 mm)	10	1236 (5.5 kN)	1416 (6.3 kN)	1-1/2"	1-1/2"	2023 (9.0 kN)	1416 (6.3 kN)	1-1/2"	1-1/2"
	R-70	2-3/8" (60 mm)	4" (100 mm)	10	472 (2.1 kN)	1281 (5.7 kN)	1-1/2"	1-1/2"	1146 (5.1 kN)	1348 (6.0 kN)	1-1/2"	1-1/2"
	R-70	3-1/8" (80 mm)	4-5/16" (110 mm)	10	606 (2.7 kN)	1416 (6.3 kN)	1-1/2"	1-1/2"	1528 (6.8 kN)	1348 (6.0 kN)	1-1/2"	1-1/2"
Dia 3/8" (10mm)	5.8	2-3/8" (60 mm)	4" (100 mm)	20	584 (2.6 kN)	1618 (7.2 kN)	1-3/4"	1-3/4"	1438 (6.4 kN)	2180 (9.7 kN)	1-3/4"	1-3/4"
	5.8	3-9/16" (90 mm)	4-3/4" (120 mm)	20	854 (3.8 kN)	2180 (9.7 kN)	1-3/4"	1-3/4"	2158 (9.6 kN)	2180 (9.7 kN)	1-3/4"	1-3/4"
	5.8	8" (200 mm)	9-1/16" (230 mm)	20	1910 (8.5 kN)	2180 (9.7 kN)	1-3/4"	1-3/4"	3102 (13.8 kN)	2180 (9.7 kN)	1-3/4"	1-3/4"
	R-70	2-3/8" (60 mm)	4" (100 mm)	20	584 (2.6 kN)	1618 (7.2 kN)	1-3/4"	1-3/4"	1438 (6.4 kN)	2068 (9.2 kN)	1-3/4"	1-3/4"
	R-70	3-9/16" (90 mm)	4-3/4" (120 mm)	20	854 (3.8 kN)	2180 (9.7 kN)	1-3/4"	1-3/4"	2158 (9.6 kN)	2068 (9.2 kN)	1-3/4"	1-3/4"
Dia 1/2" (12mm)	5.8	2-3/4" (70 mm)	4" (100 mm)	40	809 (3.6 kN)	2270 (10.1 kN)	2-1/8"	2-1/8"	2023 (9.0 kN)	3214 (14.3 kN)	2-1/8"	2-1/8"
	5.8	4-5/16" (110 mm)	5-1/2" (140 mm)	40	1258 (5.6 kN)	3214 (14.3 kN)	2-1/8"	2-1/8"	3169 (14.1 kN)	3214 (14.3 kN)	2-1/8"	2-1/8"
	5.8	9-7/16" (240 mm)	10-5/8" (270 mm)	40	2765 (12.3 kN)	3214 (14.3 kN)	2-1/8"	2-1/8"	4608 (20.5 kN)	3214 (14.3 kN)	2-1/8"	2-1/8"
	R-70	2-3/4" (70 mm)	4" (100 mm)	40	809 (3.6 kN)	2270 (10.1 kN)	2-1/8"	2-1/8"	2023 (9.0 kN)	3079 (13.7 kN)	2-1/8"	2-1/8"
	R-70	4-5/16" (110 mm)	5-1/2" (140 mm)	40	1258 (5.6 kN)	3079 (13.7 kN)	2-1/8"	2-1/8"	3169 (14.1 kN)	3079 (13.7 kN)	2-1/8"	2-1/8"
Dia 5/8" (16mm)	5.8	3-1/8" (80 mm)	4-3/4" (120 mm)	60	1236 (5.5 kN)	3439 (15.3 kN)	2-1/2"	2-1/2"	2697 (12.0 kN)	6047 (26.9 kN)	2-1/2"	2-1/2"
	5.8	5" (80 mm)	6-11/16" (170 mm)	60	1910 (8.5 kN)	5372 (23.9 kN)	2-1/2"	2-1/2"	4810 (21.4 kN)	6047 (26.9 kN)	2-1/2"	2-1/2"
	5.8	12-5/8" (320 mm)	14-3/16" (360 mm)	60	4923 (21.9 kN)	6047 (26.9 kN)	2-1/2"	2-1/2"	8452 (37.6 kN)	6047 (26.9 kN)	2-1/2"	2-1/2"
	R-70	3-1/8" (80 mm)	4-3/4" (120 mm)	60	1236 (5.5 kN)	3439 (15.3 kN)	2-1/2"	2-1/2"	2697 (12.0 kN)	5665 (25.2 kN)	2-1/2"	2-1/2"
	R-70	5" (80 mm)	6-11/16" (170 mm)	60	1910 (8.5 kN)	5372 (23.9 kN)	2-1/2"	2-1/2"	4810 (21.4 kN)	5665 (25.2 kN)	2-1/2"	2-1/2"
Dia 13/16" (20mm)	5.8	3-9/16" (90 mm)	5-1/2" (140 mm)	120	1731 (7.7 kN)	4833 (21.5 kN)	3-1/4"	3-1/4"	3214 (14.3 kN)	8992 (40.0 kN)	3-1/4"	3-1/4"
	5.8	6-11/16" (170 mm)	8-11/16" (220 mm)	120	3259 (14.5 kN)	9149 (40.7 kN)	3-1/4"	3-1/4"	7755 (34.5 kN)	9509 (42.3 kN)	3-1/4"	3-1/4"
	5.8	16" (400 mm)	17-11/16" (450 mm)	120	7688 (34.2 kN)	9509 (42.3 kN)	3-1/4"	3-1/4"	13173 (58.6 kN)	9509 (42.3 kN)	3-1/4"	3-1/4"
	R-70	3-9/16" (90 mm)	5-1/2" (140 mm)	120	1731 (7.7 kN)	4833 (21.5 kN)	3-1/4"	3-1/4"	3214 (14.3 kN)	8857 (39.4 kN)	3-1/4"	3-1/4"
	R-70	6-11/16" (170 mm)	8-11/16" (220 mm)	120	3259 (14.5 kN)	8857 (39.4 kN)	3-1/4"	3-1/4"	7755 (34.5 kN)	8857 (39.4 kN)	3-1/4"	3-1/4"
Dia 1" (24mm)	5.8	3-3/4" (96 mm)	6-5/16" (160 mm)	150	2203 (9.8 kN)	6204 (27.6 kN)	4-1/8"	4-1/8"	3529 (15.7 kN)	9914 (44.1 kN)	4-1/8"	4-1/8"
	5.8	8-1/4" (210 mm)	10-5/8" (270 mm)	150	4833 (21.5 kN)	13555 (60.3 kN)	4-1/8"	4-1/8"	10296 (45.8 kN)	12623 (60.6 kN)	4-1/8"	4-1/8"
	5.8	18-7/8" (480 mm)	21-1/4" (540 mm)	150	11060 (49 kN)	13623 (60.6 kN)	4-1/8"	4-1/8"	18951 (84.3 kN)	12623 (60.6 kN)	4-1/8"	4-1/8"
	R-70	3-3/4" (96 mm)	6-5/16" (160 mm)	150	2203 (9.8 kN)	6204 (27.6 kN)	4-1/8"	4-1/8"	3529 (15.7 kN)	9914 (44.1 kN)	4-1/8"	4-1/8"
	R-70	8-1/4" (210 mm)	10-5/8" (270 mm)	150	4833 (21.5 kN)	12769 (56.8 kN)	4-1/8"	4-1/8"	10296 (45.8 kN)	12769 (56.8 kN)	4-1/8"	4-1/8"
R-70	18-7/8" (480 mm)	21-1/4" (540 mm)	150	11060 (49 kN)	12769 (56.8 kN)	4-1/8"	4-1/8"	21199 (94.3 kN)	12769 (56.8 kN)	4-1/8"	4-1/8"	4-1/8"

- 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.
- The specified loads are valid for anchorages in dry and damp concrete. For temperatures in the anchoring substrate up to 122 °F (resp. short term up to 176 °F). Drill hole cleaning as per specification in the ETA. The factor γ_{sus} for sustained load was taken into account with 1.0.
- 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).
- 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.

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Promotional Video- FIS V Zero