



fischer FIS EM Plus Injection Mortar Instruction Manual

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fischer
FIS EM Plus



ETA-17/1056
EAD 331522-00-0601

Post-installed rebar connection
(TR23)



ETA-17/0979
EAD 330499-01-0601

Option 1 for cracked concrete

Seismic performance category C1, C2



See ICC-ES
Evaluation Report
at www.icc-es.org



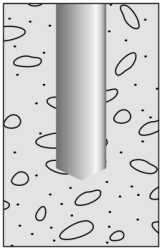
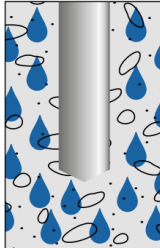
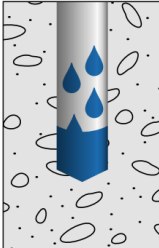
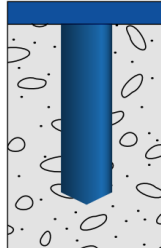
Fire resistance
classification
R 240
Anchor Types
see test report

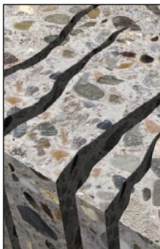
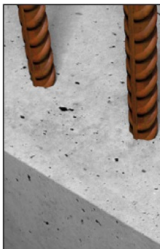
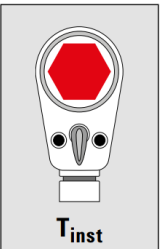


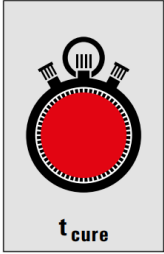
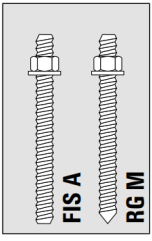
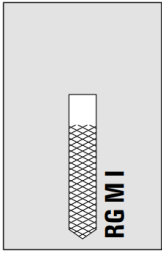
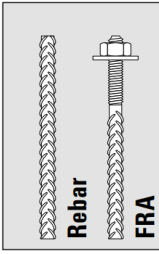
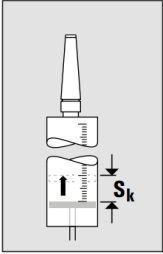
fischer 
innovative solutions

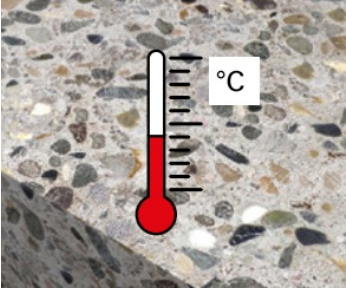


Operating instructions

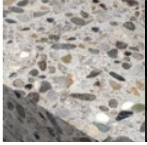
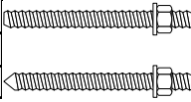
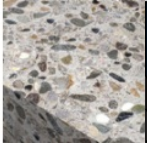
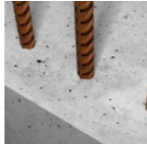
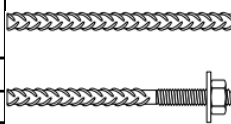
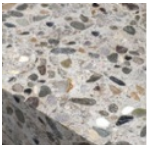
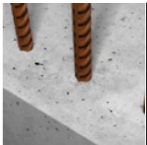
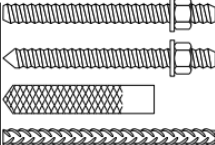
				
Dry concrete	Water saturated concrete	Contaminated drill hole	Water filled borehole	Drillhole under water

			 T_{inst}	 t_{work}
Cracked concrete	Non-cracked concrete	Reinforcement connection	Required torque	Open time

				
Hardening time	Anchor rods	Internal thread anchors	Reinforcement rod, Reinforcement anchor	Scale divisions

	 FIS EM Plus	 FIS EM Plus
$- 5^{\circ}\text{C} - \pm 0^{\circ}\text{C}$	240 min.	200 h
$> \pm 0^{\circ}\text{C} - + 5^{\circ}\text{C}$	150 min.	90 h
$> + 5^{\circ}\text{C} - + 10^{\circ}\text{C}$	120 min.	40 h
$> + 10^{\circ}\text{C} - + 20^{\circ}\text{C}$	30 min.	22 h
$> + 20^{\circ}\text{C} - + 30^{\circ}\text{C}$	14 min.	10 h
$> + 30^{\circ}\text{C} - + 40^{\circ}\text{C}$	7 min.	5 h

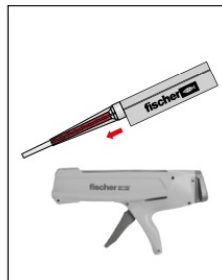
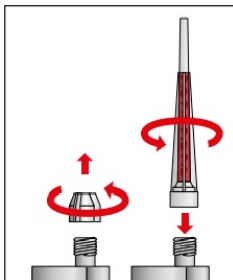
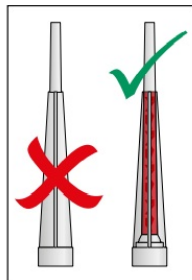
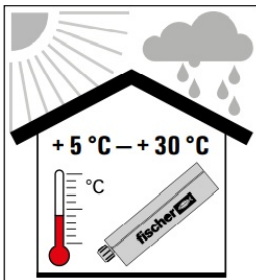


		 ETA-17/0979 EAD 330499-01-0601 Option 1 for cracked concrete		FIS A, RG M	10, 11, 15-17
		 ETA-17/0979 EAD 330499-01-0601 Option 1 for cracked concrete		RG M I	12, 15, 17
		 ETA-17/0979 EAD 330499-01-0601 Option 1 for cracked concrete		Rebar, FRA	13-16
		 ICC ES ESR-1990		FIS A, RG M, RG M I, Rebar	18-23

ar



OK?



	 Art. No.		
390 ml	FIS DM S	511118	FIS MR Plus 
	FIS AM	058000	
	FIS DCD S	543629	
	FIS AP	058027	
585 ml	FIS DM S-L	510992	FIS UMR 
	FIS DP S-L	511125	
1500 ml	FIS DP S-XL	512401	



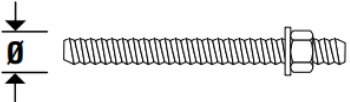
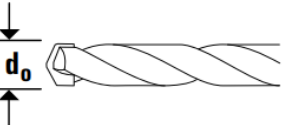
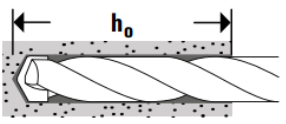
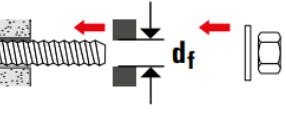
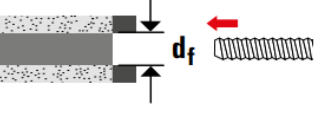
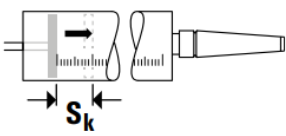
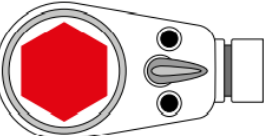
FIS A

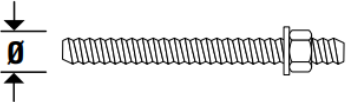
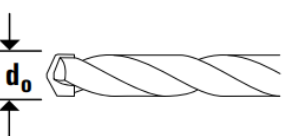
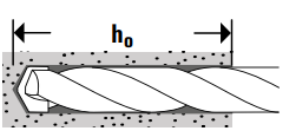
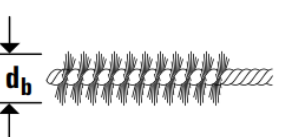
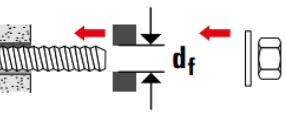
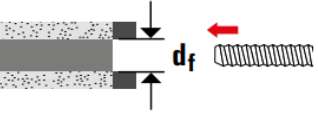
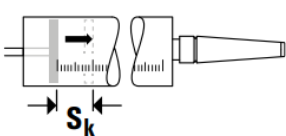
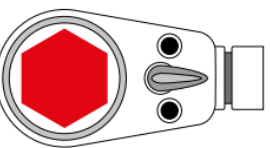


RG M



FIS A, RG M

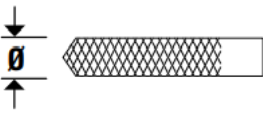
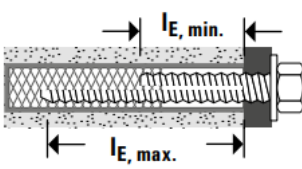
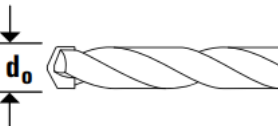
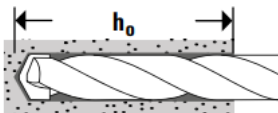
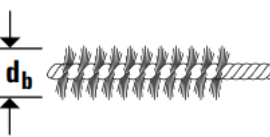
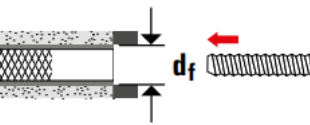
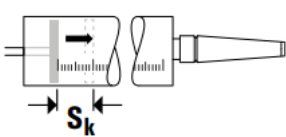
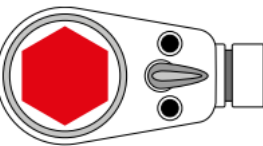
		M6	M8	M10	M12	M14	M16	M20
		-	✓	✓	✓	✓	✓	✓
	d_o [mm]	8	10	12	14	16	18	24
	$h_{o,min}$ [mm]	50	60	60	70	75	80	90
	$h_{o,max}$ [mm]	120	160	200	240	280	320	400
	fischer BS	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 14
	d_b [mm]	10	11	14	16	20	20	26
	d_f [mm]	7	9	12	14	16	18	22
	d_f [mm]	9	12	14	16	18	20	26
	$S_k (h_{o,min})$ [-]	2	3	4	3	5	5	11
	$S_k (h_{o,max})$ [-]	4	8	12	10	16	19	48
	T_{inst} [Nm]	5	10	20	40	50	60	120

		M22	M24	M27	M30	M33	M36	M40
		✓	✓	✓	✓	-	-	-
	d_o [mm]	25	28	30	35	37	40	44
	$h_{o,min}$ [mm]	93	96	108	120	132	144	160
	$h_{o,max}$ [mm]	440	480	540	600	660	720	800
	fischer BS	Ø 25	Ø 28	Ø 35	Ø 35	Ø 37	Ø 40	Ø 44
	d_b [mm]	27	30	40	40	40	42	47
	d_f [mm]	24	26	30	33	36	39	43
	d_f [mm]	28	30	33	40	43	46	50
	$S_k(h_{o,min})$ [-]	10	14	17	27	29	36	50
	$S_k(h_{o,max})$ [-]	46	69	85	132	144	179	245
	T_{inst} [Nm]	135	150	200	300	400	500	600



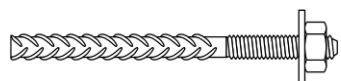
RG M I



		M5	M6	M8	M10	M12	M16	M20
		-	-	✓	✓	✓	✓	✓
	$l_{E, min}$ [mm]	8	8	8	10	12	16	20
	$l_{E, max}$ [mm]	14	16	18	23	26	35	45
	d_0 [mm]	10	12	14	18	20	24	32
	h_0 [mm]	75	75	90	90	125	160	200
	fischer BS	Ø 10	Ø 12	Ø 14	Ø 18	Ø 20	Ø 24	Ø 35
	d_b [mm]	11	14	16	20	25	26	40
	d_f [mm]	6	7	9	12	14	18	22
	s_k [-]	3	3	4	6	11	17	39
	T_{inst} [Nm]	-	-	10	20	40	80	120



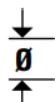
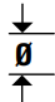
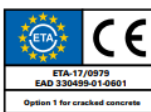
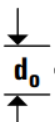
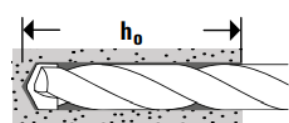
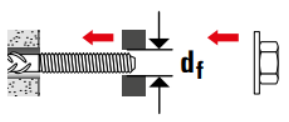
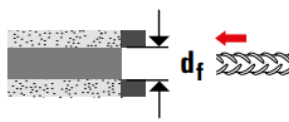
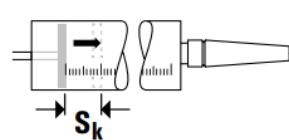
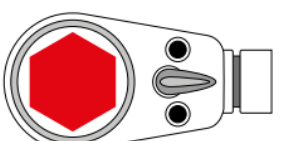
Rebar

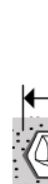
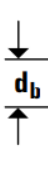
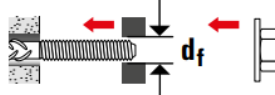
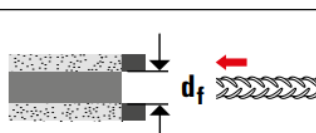
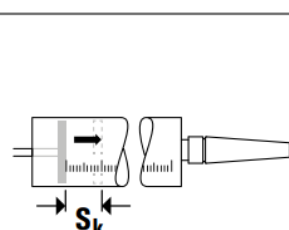
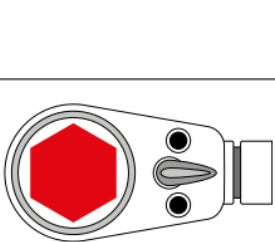


FRA



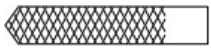
Rebar, FRA

	Rebar	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20	Ø 22	Ø 24	
	FRA	-	-	M12	-	M16	-	M20	-	-	
	Rebar	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	FRA	-	-	✓	-	✓	-	✓	-	-	
	d_0 [mm]	10/12	12/14	14/16	18	20	25	25	30	30	
	Rebar	$h_{o,min}$ [mm]	60	60	70	75	80	85	90	94	98
		$h_{o,max}$ [mm]	160	200	240	280	320	360	400	440	480
	FRA	$h_{o,min}$ [mm]	-	-	170	-	180	-	190	-	-
		$h_{o,max}$ [mm]	-	-	240	-	320	-	400	-	-
	fischer BS	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20	Ø 25	Ø 25	Ø 30	Ø 30	
	d_b [mm]	14	16	20	20	25	27	27	40	40	
	FRA	d_f [mm]	-	-	14	-	18	-	22	-	-
	FRA	d_f [mm]	-	-	18	-	22	-	26	-	-
	Rebar	$h_{o,min}$	3	3	4	5	6	12	10	18	15
		$h_{o,max}$	7	10	14	18	24	50	45	80	69
	FRA	$h_{o,min}$	-	-	10	-	14	-	22	-	-
		$h_{o,max}$	-	-	14	-	24	-	45	-	-
	FRA	T_{inst} [Nm]	-	-	40	-	60	-	120	-	-

	Rebar	Ø 25	Ø 26	Ø 28	Ø 30	Ø 32	Ø 34	Ø 36	Ø 40	
	FRA	M24	-	-	-	-	-	-	-	
	Rebar	✓	✓	✓	✓	✓	✓	✓	✓	
	FRA	✓	-	-	-	-	-	-	-	
	d ₀ [mm]	30	35	35	40	40	40	45	55	
	Rebar	h _{o,min} [mm]	100	104	112	120	128	136	144	160
		h _{o,max} [mm]	500	520	560	600	640	680	720	800
	FRA	h _{o,min} [mm]	196	-	-	-	-	-	-	-
		h _{o,max} [mm]	480	-	-	-	-	-	-	-
	fischer BS	Ø 30	Ø 35	Ø 35	Ø 40	Ø 40	Ø 40	Ø 45	Ø 55	
	d _b [mm]	40	40	40	42	42	42	47	58	
	FRA	d _f [mm]	26	-	-	-	-	-	-	
	FRA	d _f [mm]	32	-	-	-	-	-	-	
	Rebar	h _{o,min}	13	26	24	36	35	28	47	101
		S _k [-]	h _{o,max}	65	127	116	175	173	135	233
	FRA	h _{o,min}	26	-	-	-	-	-	-	-
		S _k [-]	h _{o,max}	63	-	-	-	-	-	-
	FRA	T _{inst} [Nm]	150	-	-	-	-	-	-	



FIS A



RG M I



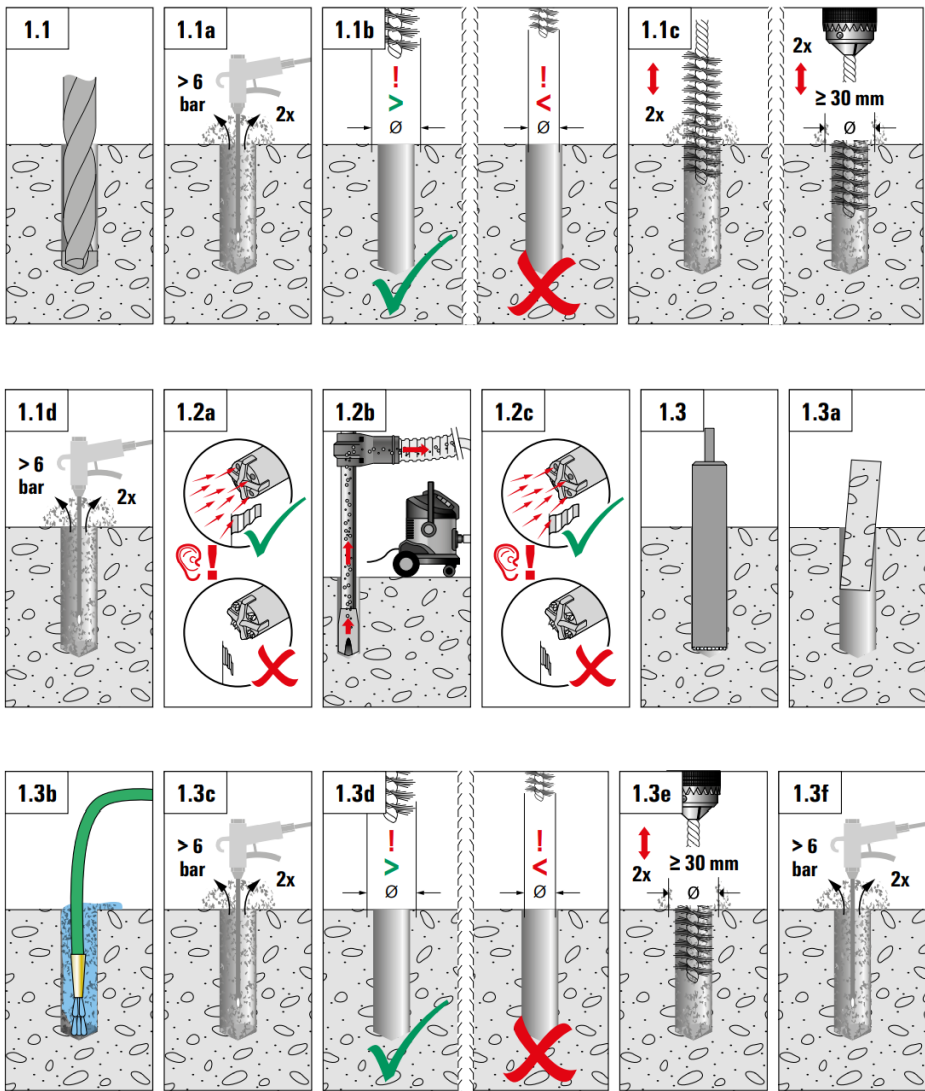
Rebar

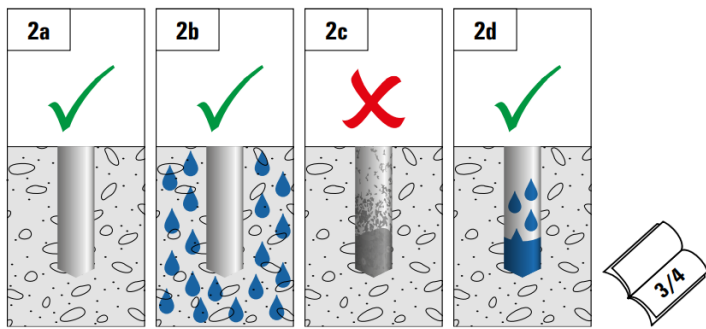


FRA



FIS A, RG M I, Rebar, FRA





FIS A



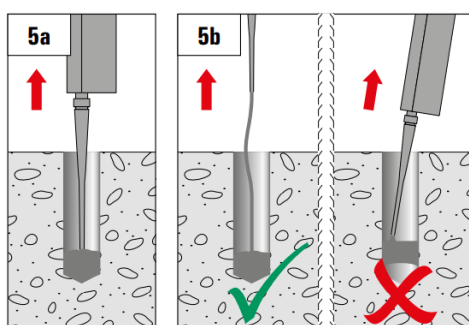
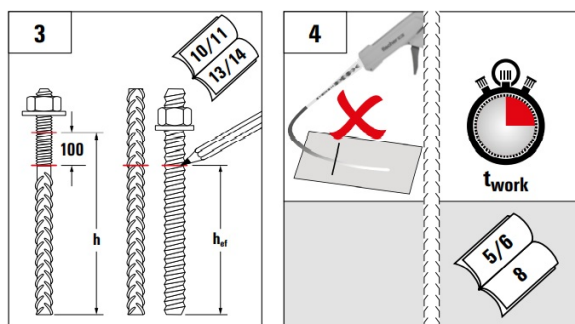
Rebar

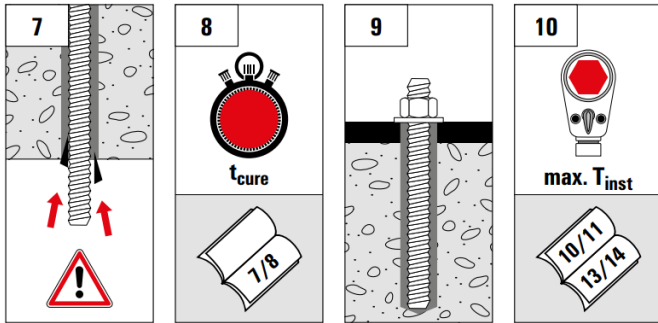
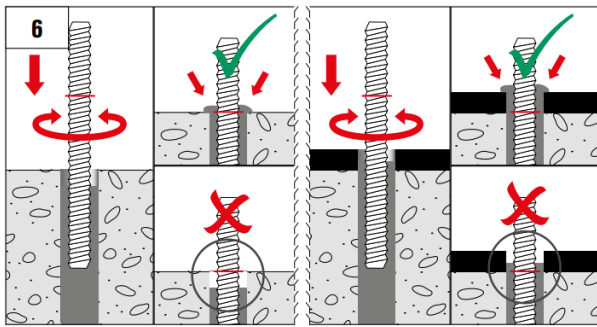


FRA



FIS A, Rebar, FRA

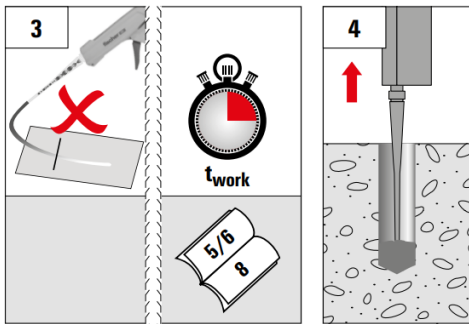


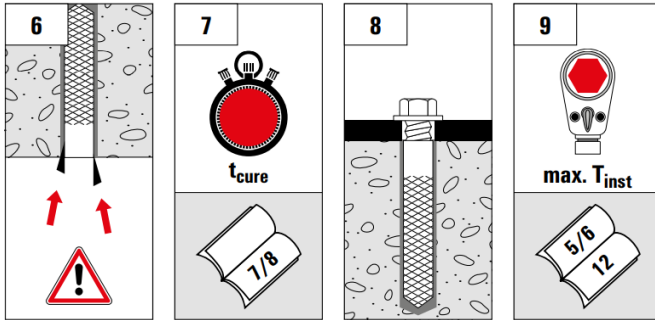
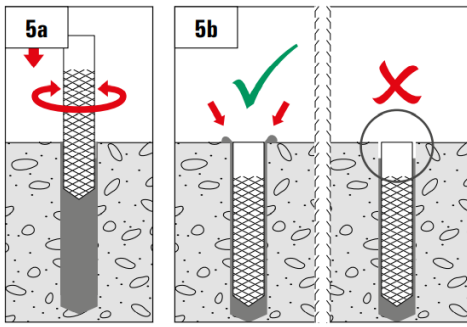


RG M I



RG M I



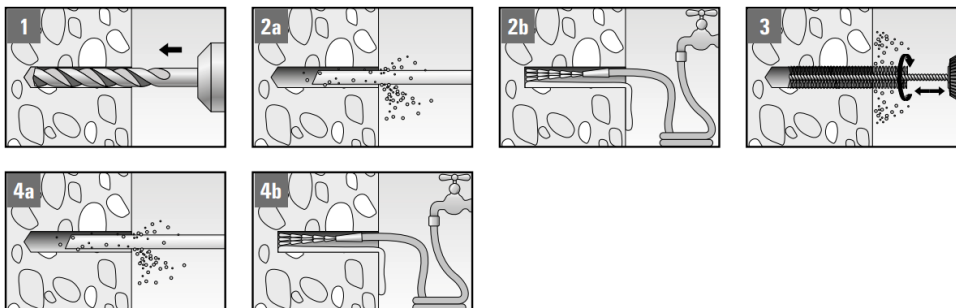


see ICC-ES Evaluation Report No. 1990
at www.icc-es.org

fischer adhesive anchoring system FIS EM Plus

fischer FIS EM Plus is an epoxy adhesive anchoring system for fastenings in normal weight concrete.
Important: Before use, read and review the installation instructions and the SDS (safety data sheet).
Do not use expired adhesive. Minimal concrete temperature - 5°C (23°F).

Drilling and cleaning the hole (hammer drilling with standard drill bit)



1 Drill the hole. Nominal drill hole diameter d_0 and drill hole depth h_0 see **Tables II, III, IV or VI, VII, VIII** respectively.

2a Cleaning of the drill hole (not applicable for under-water installation): Blow out the drill hole twice, with oil free compressed air ($p \geq 6$ bar / 87 psi).

2b For underwater installation only: Flush the drill hole with clean water until it flows clear.

3 Brush the drill hole at least twice, brush type see **Table I or V** respectively.

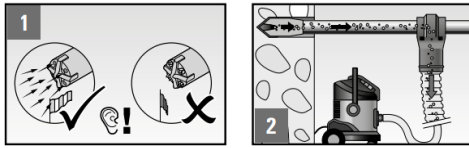
For drill hole diameter ≥ 30 mm / 1 1/2 inch use a power drill. For deep holes use an extension.

4a Cleaning of the drill hole (not applicable for under-water installation): Blow out the drill hole twice, with oil free compressed air ($p \geq 6 \text{ bar} / 87 \text{ psi}$).

4b For underwater installation only: Flush the drill hole with clean water until it flows clear.

→ Go to step 6.

Drilling and cleaning the hole
(hammer drilling with hollow drill bit)



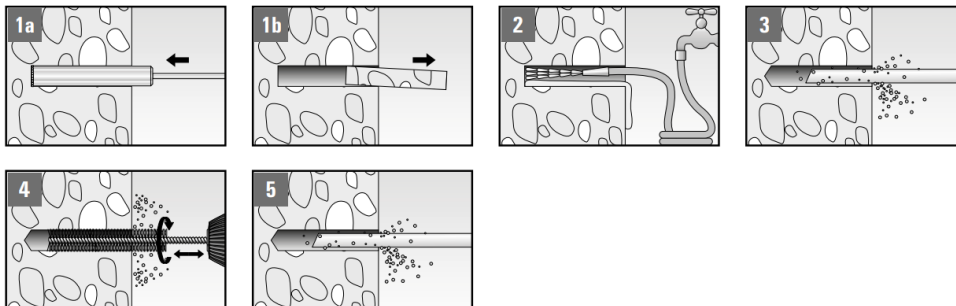
1 Check a suitable hollow drill for correct operation of the dust extraction.

2 Use a suitable dust extraction system, e. g. fischer FVC 35 M or a comparable dust extraction system with at least equivalent performance data (volume flow at the hose end $\geq 36 \text{ l/s} / 1.27 \text{ cfs}$).

Drill the hole with hollow drill bit. The dust extraction system has to extract the drill dust nonstop during the drilling process and must be adjusted to maximum power. Nominal drill hole diameter d_0 and drill hole depth h_0 see **Tables II, III, IV or VI, VII, VIII** respectively.

→ Go to step 6.

Drilling and cleaning the hole
(wet drilling with diamond drill)



1a Drill the hole. Drill hole diameter d_0 and nominal drill hole depth h_0 see **Tables II, III, IV or VI, VII, VIII** respectively.

1b Break the drill core and remove it.

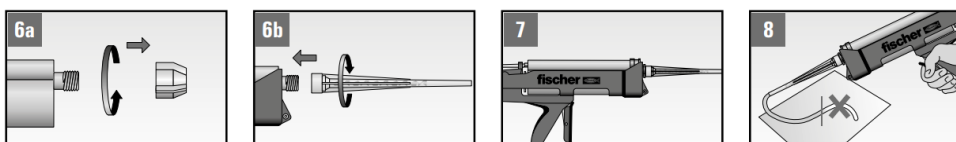
2 Flush the drill hole with clean water until it flows clear.

3 Blow out the drill hole at least twice, using oil free compressed air ($p \geq 6 \text{ bar} / 87 \text{ psi}$).

4 Brush the drill hole at least twice using a power drill, brush type see **Table I or V** respectively.

5 Blow out the drill hole at least twice, using oil free compressed air ($p \geq 6 \text{ bar} / 87 \text{ psi}$).

Preparing the cartridge



6a Remove the sealing cap.

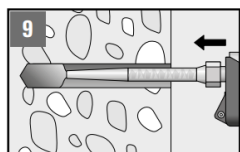
6b Screw on the static mixer (the spiral in the static mixer must be clearly visible).

7 Place the cartridge into the dispenser.

8 Extrude approximately 10 cm / 4 inch of material out until the resin is evenly grey in colour. Do not inject mortar that is not uniformly grey.

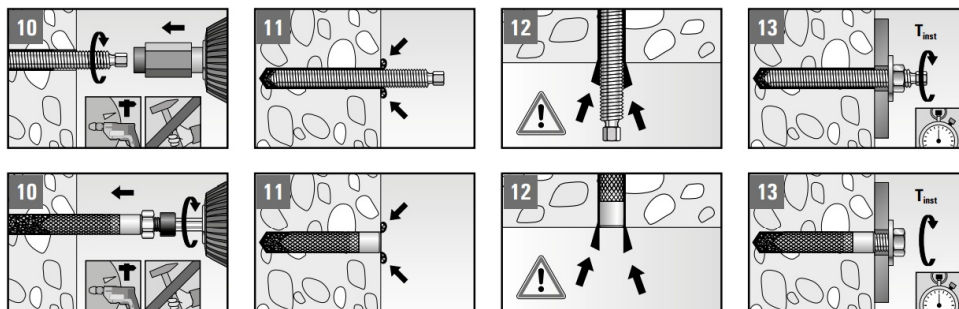
Cartridge	Dispenser	Item No.	Static mixer
390 ml	FIS DM S	511118	FIS Mixer Red Plus 
	FIS DCD S	543629	
	FIS AP	058027	
585 ml	FIS DM S-L	510992	FIS Ultra Mixer Red 
	FIS DP S-L	511125	
1500 ml	FIS DP S-XL	512401	

Injection of the mortar

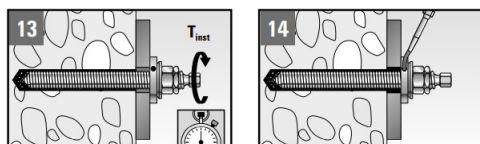


9 Fill approximately 2/3 of the drilled hole with mortar. Always begin from the bottom of the hole and avoid air pockets or voids. For drill hole depth $h_0 \geq 150$ mm / 6 inch use an extension tube.
For overhead installation, deep holes ($h_0 > 250$ mm / 10 inch) or drill hole diameter ($d_0 \geq 40$ mm / 1 1/2 inch) use an injection-adapter see **Table I** or **V** respectively.

Installation of anchor rods or fischer internal threaded anchors RG M I



10 Only use clean and oil-free metal parts. Mark the setting depth on the anchor rod. Push the anchor rod or fischer internal threaded anchor RG M I down to the bottom of the hole, turning it slightly while doing so.
11 After inserting the anchor element, excess mortar must be emerged around the anchor element.
12 For overhead installations support the anchor element with wedges (e. g. fischer centering wedges) or fischer overhead clips. For push through installation fill the annular gap with mortar.
13 Wait for the specified curing time t_{cure} see **Table IX**. Mounting the fixture max. T_{inst} See **Tables II, IV or VI, VIII** respectively.



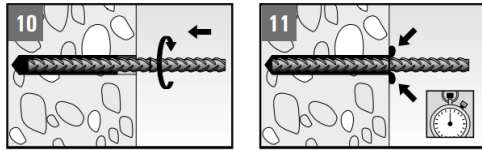
Option After the minimum curing time is reached, the gap between anchor element and fixture (annular

clearance) may be filled with mortar via the fischer filling disc FFD.

Compressive strength $\geq 50 \text{ N/mm}^2$ / 7250 psi (e.g. fischer injection mortars FIS HB, FIS SB, FIS V, FIS EM Plus).

ATTENTION: Using fischer filling disk FFD reduces t_{cfix} (usable length of the anchor).

Installation reinforcing bars



10 Only use clean and oil-free reinforcing bars. Mark the setting depth. Turn while using force to push the reinforcement bar into the filled hole up to the setting depth mark). When the setting depth mark is reached, excess mortar must be emerged from the mouth of the drill hole.

11 Wait for the specified curing time t_{cure} see **Table IX**.

Table I.

Drill hole diameter / Accessories for metric sizes.

Drill bit		Rods	Rebar	Internal threaded anchor	Brush		Injection adapter	
					Type	Item No.	Size	Color
$\emptyset$ [inch]	$\emptyset$ [mm]	$\emptyset$ [mm]	$\emptyset$ [mm]	$\emptyset$ [mm]				
3/8	10	M8	-	-	10	78178	-	-
7/16	12	M10	-	-	12	78179	12	nature
9/16	14	M12	10	RG M8 I	14	78180	14	blue
5/8	16	-	12	-	16/18	78181	16	red
3/4	18	M16	-	RG M10 I	16/18	78181	18	yellow
13/16	20	-	16	RG M12 I	20	52277	20	green
1	24	M20	-	RG M16 I	24	78182	24	brown
1	25	-	20	-	25	97806	25	black
1 1/8	28	M24	-	-	28	78183	28	blue
1 1/4	30	M27	25	-	35	78184	30	grey
1 1/4	32	-	-	RG M20 I	35	78184	30	grey
1 3/8	35	M30	28	-	35	78184	35	brown
1 1/2	40	-	32	-	40	505061	40	red

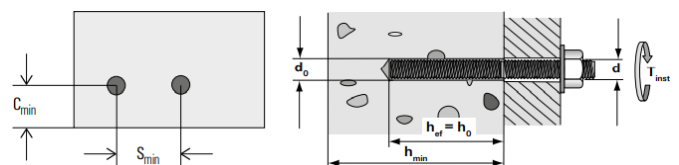


Table II.

Metric threaded rods.

d_a	d_0		$h_{ef, min}$		$h_{ef, max}$		h_{min}		$s_{min} = c_{min}$		$max T_{inst}$	
[mm]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[Nm]	[ft · lb]
M8	10	3/8	60	2.36	160	6.30	$h_{ef} + 30$ (≥ 100)	$h_{ef} + 1.25$ (≥ 4)	40	1.57	10	7
M10	12	7/16	60	2.36	200	7.87			45	1.77	20	15
M12	14	9/16	70	2.76	240	9.45			55	2.17	40	30
M16	18	3/4	80	3.15	320	12.60	$h_{ef} + 2d_0$	$h_{ef} + 2d_0$	65	2.56	60	44
M20	24	1	90	3.54	400	15.75			85	3.35	120	89
M24	28	1 1/8	96	3.78	480	18.90			105	4.13	150	111
M27	30	1 1/4	108	4.25	540	21.26			120	4.72	200	148
M30	35	1 3/8	120	4.72	600	23.62			140	5.51	300	221

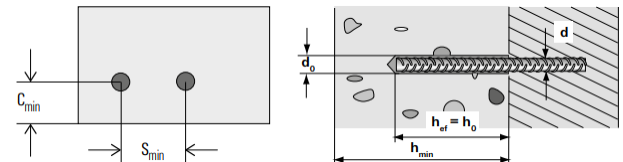


Table III.
Metric reinforcing bars.

d_a / d_b	d_0		$h_{ef, min}$		$h_{ef, max}$		h_{min}		$s_{min} = c_{min}$		$max T_{inst}^1)$	
[mm]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[Nm]	[ft · lb]
10	14	9/16	60	2.36	200	7.87	$h_{ef} + 30$ (≥ 100)	$h_{ef} + 1.25$ (≥ 4)	45	1.77	30	22
12	16	5/8	70	2.76	240	9.45			55	2.17	50	37
16	20	13/16	80	3.15	320	12.60			65	2.56	110	81
20	25	1	90	3.54	400	15.75	$h_{ef} + 2d_0$	$h_{ef} + 2d_0$	85	3.35	190	140
25	30	1 1/4	100	3.94	500	19.69			120	4.72	280	207
28	35	1 3/8	112	4.41	560	22.05			140	5.51	350	258
32	40	1 1/2	128	5.04	640	25.20			160	6.30	430	317

1) Torque moment only required when using threaded reinforcing bars to resist seismic loading.

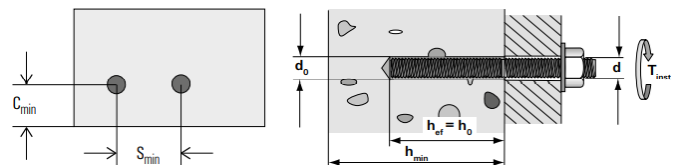
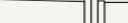


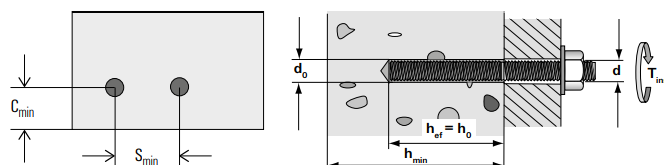
Table IV.
Metric internal threaded anchors.

d_e	d_a		d_0		h_{ef}		h_{min}		$s_{min} = c_{min}$		$max T_{inst}$	
[mm]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[Nm]	[ft · lb]
RG M8 I	12	1/2	14	9/16	90	3.54	120	4.72	55	2.17	10	7
RG M10 I	16	5/8	18	3/4	90	3.54	125	4.92	65	2.56	20	15
RG M12 I	18	11/16	20	13/16	125	4.92	165	6.50	75	2.95	40	30
RG M16 I	22	7/8	24	1	160	6.30	205	8.07	95	3.74	80	59
RG M20 I	28	1 1/8	32	1 1/4	200	7.87	260	10.24	125	4.92	120	89

Table V.

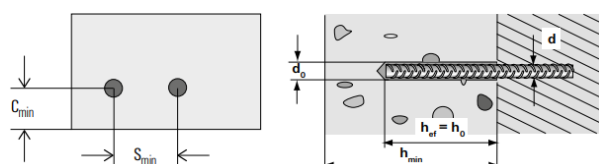
Drill hole diameter / Accessories for fractional sizes.

Drill bit		Rods	Rebar	Internal threaded anchor	Brush		Injection adapter	
								
					Type	Item No.	Size	Color
$\emptyset$ [inch]	$\emptyset$ [mm]	$\emptyset$ [inch]	#	$\emptyset$ [inch]				
7/16	12	3/8	-	-	12	78179	-	-
1/2	14	-	3	-	14	78180	12	nature
9/16	15	1/2	-	-	14	78180	14	blue
5/8	16	-	4	-	16/18	78181	16	red
3/4	18	5/8	-	RG M I 3/8	16/18	78181	18	yellow
13/16	20	-	5	RG M I 1/2	20	52277	20	green
7/8	22	3/4	6	-	20	52277	20	green
1	25	7/8	-	RG M I 5/8	25	97806	25	black
1 1/8	28	1	7	-	28	78183	28	blue
1 1/4	32	1 1/8	8	RG M I 3/4	35	78184	30	grey
1 3/8	35	1 1/4	9	-	35	78184	35	brown
1 1/2	40	-	10	-	40	505061	40	red
1 3/4	45	-	11	-	45	506254	45	yellow

**Table VI.**

Fractional threaded rods.

d _a	d ₀		h _{ef, min}		h _{ef, max}		h _{min}		s _{min} = c _{min}		max T _{inst}	
[mm]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[Nm]	[ft · lb]
3/8	12	7/16	60	2 3/8	191	7 1/2	h _{ef} +30	h _{ef} +1.25	42.5	1.67	20	15
1/2	15	9/16	70	2 3/4	254	10	(≥ 100)	(≥ 4)	57.5	2.26	41	30
5/8	18	3/4	79	3 1/8	318	12 1/2	h _{ef} + 2d ₀	h _{ef} + 2d ₀	65	2.56	68	50
3/4	22	7/8	89	3 1/2	381	15			80	3.15	122	90
7/8	25	1	89	3 1/2	445	17 1/2			95	3.74	136	100
1	28	1 1/8	102	4	508	20			110	4.33	183	135
1 1/8	32	1 1/4	114	4 1/2	572	22 1/2			135	5.31	244	180
1 1/4	35	1 3/8	127	5	635	25			160	6.30	325	240

**Table VII.**

Fractional reinforcing bars.

d_a / d_b	d_0		$h_{ef, min}$		$h_{ef, max}$		h_{min}		$s_{min} = c_{min}$		$max T_{inst}^1)$	
[-]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[Nm]	[ft · lb]
#3	14	1/2	60	2 3/8	190	7 1/2	$h_{ef} + 30$ (≥ 100)	$h_{ef} + 1.25$ (≥ 4)	43	1.69	30	22
#4	16	5/8	70	2 3/4	254	10	$h_{ef} + 2d_0$	$h_{ef} + 2d_0$	58	2.28	60	44
#5	20	13/16	79	3 1/8	318	12 1/2			65	2.56	110	81
#6	22	7/8	89	3 1/2	382	15			80	3.15	175	129
#7	28	1 1/8	89	3 1/2	444	17 1/2			95	3.74	240	177
#8	32	1 1/4	102	4	508	20			110	4.33	320	236
#9	35	1 3/8	114	4 1/2	574	22 1/2			130	5.12	380	280
#10	40	1 1/2	127	5	644	25			160	6.30	450	332
#11	45	1 3/4	140	5 1/2	698	27 1/2			175	6.89	450	332

1) Torque moment only required when using threaded reinforcing bars to resist seismic loading.

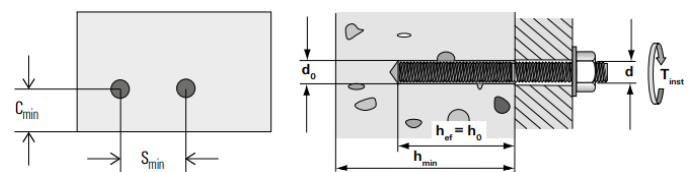


Table VIII.

Fractional internal threaded anchors.

d_e	d_a		d_0		h_{ef}		h_{min}		$s_{min} = c_{min}$		$max T_{inst}$	
[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[Nm]	[ft · lb]
RG M I 3/8	16	5/8	18	3/4	90	3.54	125	4.92	65	2.56	20	15
RG M I 1/2	18	11/16	20	13/16	125	4.92	165	6.50	75	2.95	40	30
RG M I 5/8	22	7/8	24	1	160	6.30	205	8.07	95	3.74	80	59
RG M I 3/4	28	1 1/8	32	1 1/4	200	7.87	260	10.24	125	4.92	120	89

Table IX.

Processing and curing times.

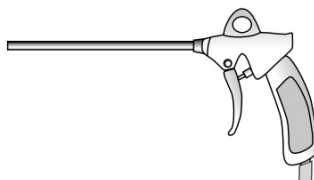
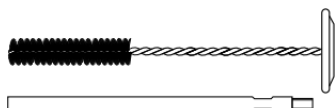
Temperature range 1)				Processing time		Curing time	
				t_{work}		t_{cure}	
[°C]				[min]		[h]	
- 5	-	± 0	+ 23 - + 32	240		200	
> ± 0	-	+ 5	> + 32 - + 41	150		90	
> + 5	-	+ 10	> + 41 - + 50	120		40	
> + 10	-	+ 20	> + 50 - + 68	30		22	
> + 20	-	+ 30	> + 68 - + 86	14		10	
> + 30	-	+ 40	> + 86 - + 104	7		5	

Store mortar in a cool dry place.

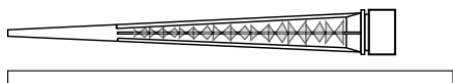
1) Minimal cartridge temperature + 5 °C / + 41 °F.

Brush with extension

Compressed air pistol



Static mixer FIS MR Plus / FIS UMR and extension tube



Injection adapter



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