

fischer FIS V Plus



ETA-20/0603, EAD 330499-01-0601,
Option 1 for cracked concrete,
Option 7 for non-cracked concrete



ETA-20/0728, EAD 330087-00-0601,
Post-installed rebar connection



ETA-20/0729, EAD 330076-00-0604,
Masonry use categories b, c or d



See ICC-ES
Evaluation Report
ESR-2786
at www.icc-es.org



ÉMISSIONS DANS L'AIR INTÉRIEUR



Information sur le niveau d'émission de substances volatiles dans l'air intérieur: présentant un risque de toxicité par inhalation, sur une échelle de classe allant de A+ (très faibles émissions) à C (fortes émissions).

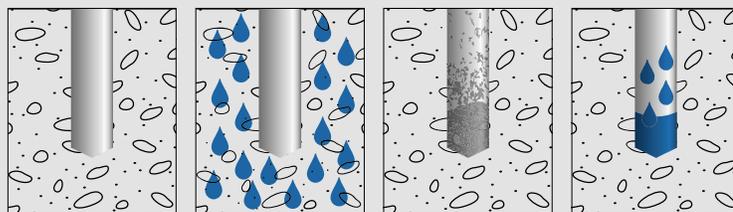


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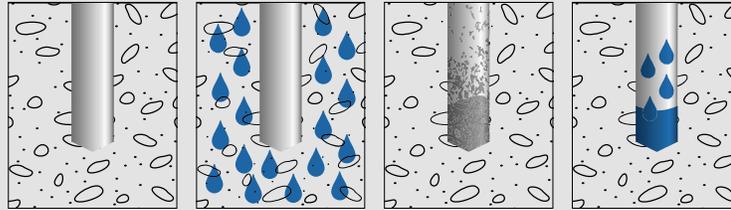
fischer FIS V Plus



DE	Gebrauchsanweisung	HR	Upute za instalaciju	DE
EN	Operating instructions	SR	Uputstvo za instalaciju	EN
FR	Mode d'emploi	TR	Kurulum talimatları	FR
NL	Montagehandleiding	EL	Οδηγίες Εγκατάστασης	NL
IT	Istruzioni per l'installazione	BG	Инструкции за инсталиране	IT
ES	Instrucciones de uso	RU	Инструкция по установке	ES
PT	Instruções de utilização	UK	Інструкція з використання	PT
DA	Installationsvejledning	KK	Қолдану нұсқаулығы	DA
SV	Installationsinstruktioner	ZH	使用说明书	SV
NO	Installasjonsveiledning	JA	取扱説明書	NO
FI	Asennusohjeet	KO	사용 설명서	FI
IS	Notkunarleiðbeiningar	HI	Panduan Penggunaan	IS
ET	Kasutusjuhend	AR	تعليمات الاستخدام	ET
LV	Lietošanas instrukcija			LV
LT	Naudojimo instrukcija			LT
PL	Instrukcja instalacji			PL
CS	Návod k instalaci			CS
SK	Návod na používanie			SK
HU	Szerelési útmutató			HU
RO	Instrucțiuni de utilizare			RO
SL	Navodila za namestitev			SL



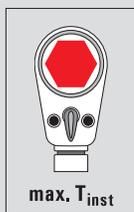
DE	Trockener Beton	Nasser Beton	Verschmutztes Bohrloch	Wassergefülltes Bohrloch
EN	Dry concrete	Water saturated concrete	Contaminated drill hole	Water filled borehole
FR	Béton sec	Béton humide	Perçage non dépoussiéré	Trou inondé
NL	Droog beton	Met water verzadigd beton	Vervuild boorgat	Met water gevuld boorgat
IT	Calcestruzzo secco	Calcestruzzo saturo d'acqua	Foro sporco	Foro pieno d'acqua nel calcestruzzo
ES	Hormigón seco	Hormigón saturado de agua	Agujero de taladrado sucio	Taladro lleno de agua en hormigón
PT	Betão seco	Betão saturado de água	Furo com sujidade	Furo cheio de água
DA	Tør beton	Vandmættet beton	Tilsmudset borehul	Vandfyldt borehul
SV	Torr betong	Vattenmättad betong	Smutsigt hål	Vattenfyllt hål
NO	Tørr betong	Vannmettet betong	Tilskitnet borehull	Vannfylte borehull
FI	Kuiva betony	Veden kyllästämä betoni	Likaantunut poranreikä	Vedellä täyttynyt porareikä
IS	Purr steinsteypa	Blaut steinsteypa	Óhrein borhola	Vatnsfyllt borhola
ET	Kuivbetoon	Märgbetoon	Mustunud puuriauk	Veega täidetud puuriauk
LV	Sauss betons	Mitrš betons	Piesārņots urbums	Urbums ar ūdeni
LT	Sausas betonas	Drėgnas betonas	Užteršta išgręžta skylė	Vandens pripildyta išgręžta skylė
PL	Beton suchy wodą	Beton nasycony wodą	Zabrudzony wywiercony otwór	Wywiercony otwór wypełnionym
CS	Suchý beton	Mokrý beton otvory vyvrtané do	Znečištěný vývrt	Naplňené vodou
SK	Suchý betón	Vodou nasýtený betón	Znečistený vývrt	Vodou naplnený otvor vyvrtaný
HU	Száraz beton	Nedves beton	Szennyezett furat	Vízzel töltött furat
RO	Beton uscat	Beton ud	Gaură forată contaminată	Gaură forată umplută cu apă
SL	Suh beton	Moker beton	Umazana izvrtina	Z vodo napolnjena izvrtina



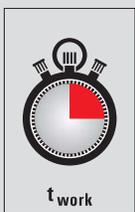
HR	Suhi beton	Mokri beton	Zaprljani provrt	Vodom napunjen provrt	DE
SR	Suv beton	Mokar beton	Zaprljan provrt	Provrt napunjen vodom	EN
TR	Kuru beton	Yaş beton	Kirli delik	Su dolu delik	FR
EL	Στεγνό μπετόν	Υγρό μπετόν	Βρώμικη τρύπα	Τρύπα γεμάτη νερό	NL
BG	Сух бетон	Мокър бетон	Замърсен отвор	Пълен с вода отвор	IT
RU	Сухой бетон	Водонасыщенный бетон	Загрязненное отверстие	Отверстие в бетоне, заполненное водой	ES
UK	Сухий бетон	Водонасичений бетон	Забруднений отвір	Заповнений водою отвір	PT
KK	Құрғақ бетон	Ылғалды бетон	Ластанған саңылау	Сумен толтырылған саңылау	DA
ZH	干燥混凝土	湿混凝土	受污的钻孔	注水的钻孔	SV
JA	いたベトン	湿ったベトン	汚れた掘削孔	水がたまった掘削孔	NO
KO	건조 콘크리트	습윤 콘크리트	이물질이 삽입된 드릴 구멍	물이 찬 드릴 구멍	FI
HI	Beton kering	Beton basah	Lubang bor terkontaminasi	Lubang bor terisi air	IS
AR	خرسانة جافة	خرسانة رطبة	ثقب ملوث	ثقب ممتلئ بالماء	ET



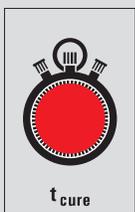
HR	Ispucani beton	Neispucani beton	Priključak armature	Puni kamen	Šupljikavi kamen	Porobeton	DE
SR	Ispucao beton	Neispucao beton	Priključak armature	Puni kamen	Šupljikavi kamen	Porobeton	EN
TR	Çatlamış beton	Çatlamamış beton	Destek bağlantısı	Dolu tuğla	Delikli tuğla	Gözenekli beton	FR
EL	Μπετόν με ρωγμές	Μπετόν χωρίς ρωγμές	Σύνδεση οπλισμού	Συμπαγείς πλίνθοι	Διότρητοι πλίνθοι	Πορώδες μπετόν	NL
BG	Напукан бетон	Ненапукан бетон	Връзка за армировка	Плътен камък	Порест камък	Газобетон	IT
RU	Треснутый бетон	Цельный бетон	Соединитель армирования	Полнотельный кирпич	Пустотелый кирпич	Пористый бетон	ES
UK	Тріснутий бетон	Бетон у зоні стиснення	Арматурне пруття	Бетон щільної структури	Бетон порожнистої структури	Газобетон	PT
KK	Жарықтары бар бетон	Бүтін бетон	Арматуралау қосылымы	Көлемді блок	Қуыс кірпіш	Кеуек бетон	DA
ZH	有裂缝的混凝土	无裂缝的混凝土	钢筋连接件	实心砖	空心砖	多孔混凝土	SV
JA	ひび割れがあるベトン	ひび割れないベトン	強化コネクタ	全面石材	穴付き石材	気泡コンクリート	NO
KO	균열 콘크리트	비균열 콘크리트	보강재 연결	일반 벽돌	공동 벽돌	기포 콘크리트	FI
HI	Beton retak	Beton tidak licin	Sambungan penguat	Batu bata penuh	Batu bata berlubang	Batu bata berpori	IS
AR	خرسانة متصدعة	خرسانة غير متصدعة	وصلة حديد مسلح	طوبة كاملة	طوبة مخرمة	خرسانة ذات مسام	ET



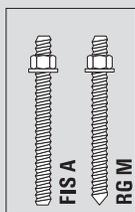
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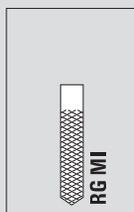
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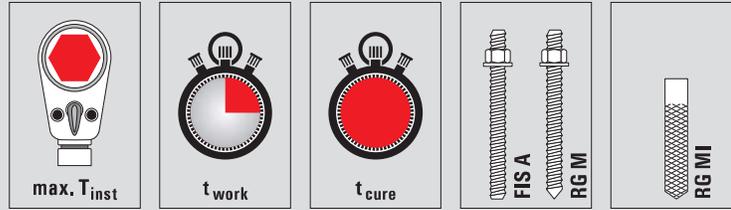


FIS A
RG M

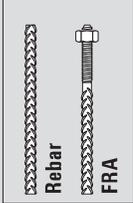
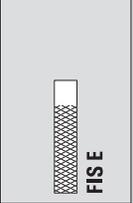
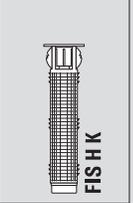
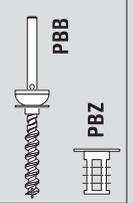
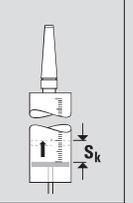


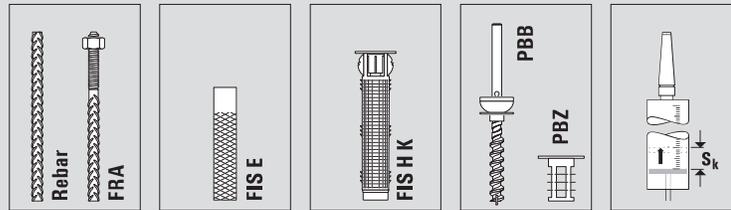
RG MI

DE	Drehmoment	Verarbeitungszeit	Aushärtezeit	Ankerstangen	Innengewindeanker
EN	Required torque	Open time	Hardening time	Anchor rods	Internal thread anchors
FR	Couple	Temps de manipulation	Temps de durcissement	Tiges filetées	Douilles taraudées
NL	Draaimoment	Verwerkingstijd	Uithardtijd	Ankerstangen	Binnendraadanker
IT	Coppia	Tempo di lavorazione	Tempo di indurimento	Barre di ancoraggio	Ancoraggio con filettatura interna
ES	Par	Tiempo de tratamiento	Tiempo de endurecimiento	Barras de anclaje	Anclaje de rosca interior
PT	Binário	Tempo de processamento	Tempo de endurecimento	Tirantes de ancoragem	Ancoragem de rosca interna
DA	Tilspændingsmoment	Forarbejdsningstid	Hærdetid	Gevindstænger	Anker med indvendigt gevind
SV	Vridmoment	Bearbetningstid	Hårdningstid	Förankringsstänger	Ankare med innergånga
NO	Dreiemoment	Bearbeidelsestid	Herdetid	Ankerstenger	Innvendig gjengeanker
FI	Vääntömomentti	Käsittelyaika	Kovettumisaika	Harustangot	Sisäkierreankkuri
IS	Snúningsátak	Vinnslutími	Pornunartími	Festistangir	Festing með skrifgangi að innanverðu
ET	Pöördemoment	Töötlemisaeg	Kõvastumisaeg	Ankurvardad	Sisekeermega ankur
LV	Griezies moments	Apstrādājamības laiks	Sacietēšanas laiks	Enkura stienis	Iekšējās vītnes enkurs
LT	Sukimo momentas	Darbo su medžiaga laikas	Kietėjimo laikas	Inkariniai strypai	Strypas su vidiniu sriegiu
PL	Moment dokręcenia	Czas żelowania	Czas wiązania	Kotwy	Kotwy z gwintem wewnętrznym
CS	Utahovací moment	Doba zpracování	Doba vytvrzení	Kotevní tyče	Svorník s vnitřním závitem
SK	Utahovací moment	Doba spracovania	Doba vytvrdnutia	Kotviace tyče	Kotva s vnútorným závitom
HU	Forgatónyomaték	Feldolgozási idő	Kikeményedési idő	Horgonyrudak	Belsőmenetes horgony
RO	Cuplu	Timp de punere în operă	Timp de întărire	Bare de ancorare	Ancoră cu filet interior
SL	Navor	Čas obdelave	Čas strjevanja	Sidra	Sidro z notranjim navojem



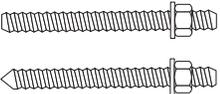
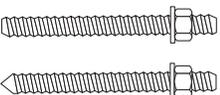
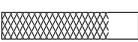
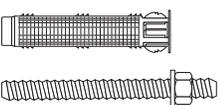
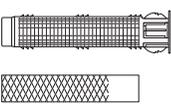
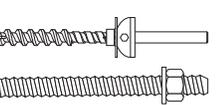
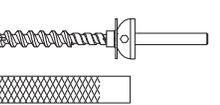
HR	Okretni moment	Vrijeme obrade	Vrijeme stvrdnjavanja	Sidrene šipke	Sidro s unutrašnjim navojem	DE
SR	Obrtni moment	Vreme obrade	Vreme otvrdnjavanja	Šipke za ankerovanje	Kotva s unutrašnjim navojem	EN
TR	Tork	Kullanma süresi	Sertleşme süresi	Dübel çubukları	İçten dişli dübel	FR
EL	Ροπή σύσφιξης	Χρόνος επεξεργασίας	Χρόνος σκλήρυνσης	Ντιζες αγκύρωσης	Αγκύρια εσωτερικού σπειρώματος	NL
BG	Въртящ момент	Време за обработка	Време за втвърдяване	Анкерни пръти	Анкерен болт с вътрешна резба	IT
RU	Крутящий момент	Время обработки	Время отверждения	Анкерные болты	Анкеры с внутренней резьбой	ES
UK	Крутний момент	Час обробки	Час затвердіння	Анкерні шпильки	Анкер із внутрішнім різьбленням	PT
KK	Айналдыру моменті	Өңделу уақыты	Қатаю уақыты	Анкерлік болттары	Ішкі бұрандасы бар анкерлер	DA
ZH	扭矩	加工时间	硬化时间	系杆	内部螺纹系杆	SV
JA	トルク	加工時間	凝固時間	アンカーロード	めねじアンカー	NO
KO	토크	작업 시간	경화 시간	앵커 로드	내부 스레드 앵커	FI
HI	Torsi	Waktu pemrosesan	Waktu pengerasan	Batang jangkar	Jangkar berulir dalam	IS
AR	عزم الدوران	وقت التصنيع	وقت التصلب	قضبان تثبيت	لولبة تثبيت داخلية	ET
						LV
						LT
						PL
						CS
						SK
						HU
						RO

						
njim	DE	Bewehrungsstab Bewehrungsanker	Innengewinde- anker	Ankerhülse Kunststoff	Konusbohrer, Zentriertülle	Skalenteile
njim	EN	Reinforcement rod Reinforcement anchor	Internal thread anchor	Plastic anchor sleeve	Cone drill, centring sleeve	Scale divisions
	FR	Barres d'armatures Ancrage d'armature	Douilles taraudées	Tamis d'injection	Foret à rotule, douille de centrage	Graduations
	NL	Wapeningsstaaf Wapeningsanker	Binnendraadanker	Ankerhuls kunststof	Conusboor, Centreerhuls	Schaalonderdelen
c bā	IT	Ferro di ripresa Ancoraggio di ripresa	Ancoraggio con filettatura interna	Boccola di ancoraggio in plastica	Punta conica, boccola di centrag- gio	Divisioni di scala
	ES	Barra de refuerzo Anclaje de refuerzo	Anclaje de rosca interior	Vaina de anclaje plástica	Broca cónica, bo- quilla para centrado	Unidades de escala
	PT	Barra de armação Ancoragem de reforço	Ancoragem de rosca interna	Manga de ancoragem em plástico	Broca cónica, Manga de centra- gem	Intervalos de gradação
ы	DA	Armeringsstav Armeringsanker	Anker med indvendigt gevind	Sihylse kunststof	Konusbor, centeringshylse	Skalatrín
杆	SV	Armeringsjärn Armeringsankare	Ankare med innergånga	Ankarhylsa plast	Koniskt borr, centeringshylsa	Skaldelar
	NO	Wapeningsstaaf Wapeningsanker	Innvendig gjenge anker	Ankerhylse kunststoff	Konusbor, sentreringsstykke	Skaladeler
	FI	Tartuntateräs Tartuntaankkuri	Sisäkierreankkuri	Muovinen ankkurihylsy	Kartiopora, keskitysholkki	Asteikkojaot
لول	IS	Styrktarteinn Styrktarfesting	Festing með skruf- gangi að innanverðu	Festihulsa geriefni	Kónískur bor, miðstýringarkápa	Mælikvarði
	ET	Sarrusvarras Sarrusankur	Sisekeermega ankur	Ankurhülss plast	Koonuspuur, Tsentreerimisümbris	Skaala jaotused
	LV	Enkura stiegrojuma Stienis	Iekšējās vitnes enkurs	Plastmasas enkura uzmava	Koniskais urbis, centrēšanas uzmava	Skalas iedaļas
	LT	Armatūrinis strypas, Armatūrinis inkaras	Inkaras su vidiniu sriegiu	Plastikinė inkarinė įvorė	Kūginis grąžtas, centravimo įvorė	Skalės padalos
	PL	Pręt zbrojarski Kotwa zbrojarska	Kotwa z gwintem wewnętrznym	Tuleja kotwiąca syntetyczna	Wiertło stożkowe, tulejka centrująca	Podziałki skali
	CS	Výztužná tyč Kotva výztuže	Svorník s vnitřním závitem	Kotevní pouzdro plast	Kuželový vrták, středící pouzdro	Dílky na stupnici
	SK	Výstužný prút Vystužovacia kotva	Kotva s vnútorným závitom	Puzdro z plastu	Kuželový vrták, centrovacie hrdlo	Diely na stupnici
	HU	Betonvas rúd Horgonyzó vas	Belsőmenetes horgony	Műanyag horgonyhüvely	Kúpfüró, központoszó persely	Skálarészértékek
	RO	Tijă de armătură Ancoră de armătură	Ancoră cu filet interior	Manșon de ancoră material plastic	Găuritor conic, ineluș de centrare	Diviziuni scală



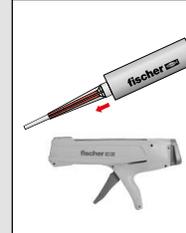
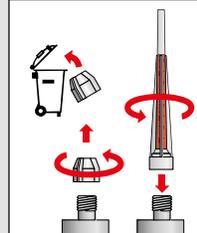
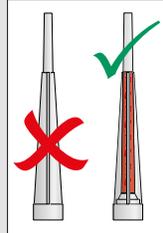
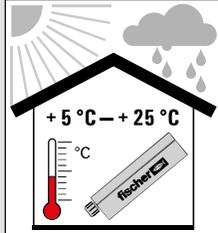
SL	Armaturna palica Sidro armature	Sidro z notranjim navojem	Plastični sidrni vložek	Konusni sveder, centrirni tulec	Razdelki na skali
HR	Armaturna šipka Armaturno sidro	Sidro s unutrašnjim navojem	Plastična košuljica sidra	Konusno svrdlo, kšuljica za centriranje	Dijelovi skale
SR	Armaturna šipka Armaturna kotva	Kotva sa unutrašnjim navojem	Plastična košuljica kotve	Konusna burgija, košuljica za centriranje	Delovi skale
TR	Takviye çubuğu Takviye demiri	İçten dişli dübel	Plastik dübel kovani	Konik matkap ucu, Merkezleme kılavuzu	Kadran bölümleri
EL	Ράβδος οπλισμού Αγκύριο οπλισμού	Αγκύρια με εσωτερικό σπείρωμα	Πλαστικά βύσματα αγκύρωσης	Κωνικό τρυπάνι, περιβλήμα κεντραρίσματος	Διαβαθμίσεις κλίμακας
BG	Армировъчен прът Армировъчен анкерен болт	Анкерен болт с вътрешна резба	Анкерна втулка пластмаса	Конусно сверло, центрираща приставка	Части на скалата
RU	Арматурный стержень Арматурный анкер	Анкер с внутренней резьбой	Анкерная гильза пластиковая	Конусное сверло, центрирующий футляр	Деление шкалы
UK	Арматурний стрижень Арматурний анкер	Анкер із внутрішнім різьбленням	Анкерна гільза Полімерний матеріал	Конусне свердло, Центрувальна втулка	Поділки шкали
KK	Арматуралық өзек арматуралық анкері	ішкі бурандасы бар анкерлер	Анкерлік төлке, пластмассасы	конустық бұрғысы, ортаға дәл келтіру ұшы	Шәкіл бөліктері
ZH	钢筋 钢筋锚杆	型内螺纹 锚栓	型塑料 螺丝套管	锥形钻头, 定心套筒	刻度
JA	鉄筋 強化アンカー	内ねじ付きアンカー	プラスチック製アン カースリーブ	テーパードリル、 センタリングスリーブ	目盛り分割
KO	보강 로드 보강 앵커	내부 스레드 앵커	앵커 슬리브 플 라ستيك	원추형 드릴, 센터링 케이스	스케일의 눈 금폭
HI	Batang penguat Jangkar penguat	Jangkar berulir dalam	Selongsong jangkar plastik	Bor kerucut, Nosel pusat	Bagian skala
AR	قضيب حديد مسلح تثبيت حديد مسلح	لولية تثبيت داخلية	كُم تثبيت بلاستيكي	مثقب مخروطي، كُم المركزة	أجزاء المقياس



	 CE ETA-20/0603, EAD 330499-01-0601, Option 1 for cracked concrete		FIS A / RG M	13 / 16 / 17
	 CE ETA-20/0603, EAD 330499-01-0601, Option 7 for non-cracked concrete		RG MI	14 / 18
	 CE ETA-20/0603, EAD 330499-01-0601, Option 1 for cracked concrete		Rebar / FRA	15 / 16 / 17
	 CE ETA-20/0729, EAD 330076-00-0604, Masonry use categories b, c or d		FIS A / RG M	19 / 21 / 22
	 CE ETA-20/0729, EAD 330076-00-0604, Masonry use categories b, c or d		FIS E	20 / 21 / 23
	 CE ETA-20/0729, EAD 330076-00-0604, Masonry use categories b, c or d		FIS HK + FIS A / RG M	24 / 25 / 27
	 CE ETA-20/0729, EAD 330076-00-0604, Masonry use categories b, c or d		FIS HK + FIS E	26 / 27
	 CE ETA-20/0729, EAD 330076-00-0604, Masonry use categories b, c or d		FIS H 18 x 130/200 K, FIS H 22 x 130/200 K FIS A / RG M	28 / 29
	 CE ETA-20/0729, EAD 330076-00-0604, Masonry use categories b, c or d		PBB / FIS A / RG M	30 / 32
	 CE ETA-20/0729, EAD 330076-00-0604, Masonry use categories b, c or d		PBB / FIS E	31 / 32
	 See ICC-ES Evaluation Report ESR-2786 at www.icc-es.org		Rods / Rebars	33 / 34 / 35



STOP 11/2024 OK?



FIS MR Plus (≤ 410 ml)
FIS JMR (825 ml)

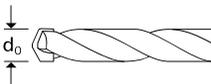
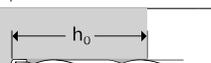
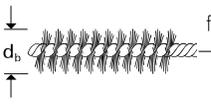
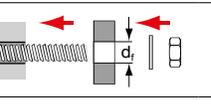
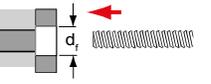
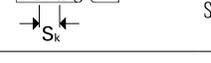
 °C	t_{work}			t_{cure}		
	FIS VS Plus LOW SPEED	FIS V Plus (standard)	FIS VW Plus HIGH SPEED	FIS VS Plus LOW SPEED	FIS V Plus (standard)	FIS VW Plus HIGH SPEED
-10 °C - -5 °C	-	-	-	-	-	12 h
> -5 °C - ±0 °C	-	-	5 min.	-	24 h	3 h
> ±0 °C - +5 °C	-	13 min.	5 min.	6 h	3 h	3 h
> +5 °C - +10 °C	20 min.	9 min.	3 min.	3 h	90 min.	50 min.
> +10 °C - +20 °C	10 min.	5 min.	1 min.	2 h	60 min.	30 min.
> +20 °C - +30 °C	6 min.	4 min.	-	60 min.	45 min.	-
> +30 °C - +40 °C	4 min.	2 min.	-	30 min.	35 min.	-



		Art. No.	
150 ml 300 ml	KPM 2	053117	
150 ml 300 ml 345 ml 360 ml	FIS DM S	511118	
	FIS AM	058000	
	FIS DB S Pro	558955 (EU) 564960 (UK)	
	FIS AP	058027	
380 ml 410 ml	FIS AC	096497	
825 ml	FIS AM S-XL	563241	
	FIS DB SL Pro	562004 (EU) 564961 (UK)	



FIS A, RG M

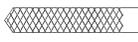
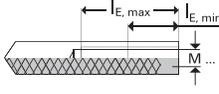
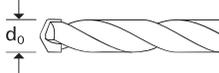
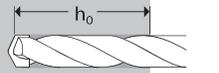
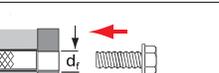
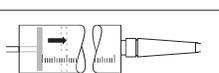
 M ...	M6	M8	M10	M12	M16	M20	M24	M27	M30
  CE ETA-20/0603, EAD 330499-01-0601, Option 1 for cracked concrete	-	✓	✓	✓	✓	✓	✓	✓	✓
  CE ETA-20/0603, EAD 330499-01-0601, Option 7 for non-cracked concrete	✓	✓	✓	✓	✓	✓	✓	✓	✓
 d_0 [mm]	8	10	12	14	18	24	28	30	35
 h_0 $h_{0,min}$ [mm]	50	60	60	70	80	90	96	108	120
 h_0 $h_{0,max}$ [mm]	72	160	200	240	320	400	480	540	600
 fischer BS d_b [mm]	Ø 8	Ø 10	Ø 12	Ø 14	Ø 18	Ø 24	Ø 28	Ø 35	Ø 35
 d_f [mm]	7	9	12	14	18	22	26	30	33
 d_f [mm]	9	12	14	16	20	26	30	33	40
 $Sk(h_{0,min})$ [-]	2	2	3	3	5	11	15	18	28
 $Sk(h_{0,max})$ [-]	2	5	7	10	19	48	75	80	130
 max. T_{inst} [Nm]	5	10	20	40	60	120	150	200	300



RG MI



RG MI

 M...	M5	M6	M8	M10	M12	M16	M20
 CE ETA-20/0603, EAD 330499-01-0601, Option 7 for non-cracked concrete	-	-	✓	✓	✓	✓	✓
 $l_{E, \min}$ [mm] $l_{E, \max}$ [mm]	8	8	8	10	12	16	20
 d_0 [mm]	10	12	14	18	20	24	32
 h_0 [mm]	75	75	90	90	125	160	200
 fischer BS d_b [mm]	Ø 10	Ø 12	Ø 14	Ø 18	Ø 20	Ø 24	Ø 35
 d_f [mm]	6	7	9	12	14	18	22
 S_k [-]	2	3	5	7	11	17	48
 $\max. T_{inst}$ [Nm]	-	-	10	20	40	80	120



Rebar, FRA

	Rebar	8	10	12	14	16	20	25	28
	FRA	-	-	M12	-	M16	M20	M24	-
ETA CE ETA-20/0603, EAD 330499-01-0601, Option 1 for cracked concrete	Rebar	-	✓	✓	✓	✓	✓	✓	✓
ETA CE ETA-20/0603, EAD 330499-01-0601, Option 7 for non-cracked concrete	Rebar	✓	✓	✓	✓	✓	✓	✓	✓
	FRA	-	-	✓	-	✓	✓	✓	-
d_o	d_o [mm]	12	14	16	18	20	25	30	35
h_o	$h_{o,min}$ [mm]	60	60	70	75	80	90	100	112
	$h_{o,max}$ [mm]	160	200	240	280	320	400	500	560
d_b	fischer BS	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20	Ø 25	Ø 35	Ø 35
	d_b [mm]	14	16	20	20	25	27	40	40
d_f	d_f [mm]	-	-	14	-	18	22	26	-
d_f	d_f [mm]	-	-	18	-	22	26	32	-
S_k	$S_k (h_{o,min})$ [-]	3	3	4	5	6	10	13	24
	$S_k (h_{o,max})$ [-]	7	10	14	18	24	45	65	116
T_{inst}	max. T_{inst} [Nm]	-	-	40	-	60	120	150	-



FIS A / RG M



RG MI



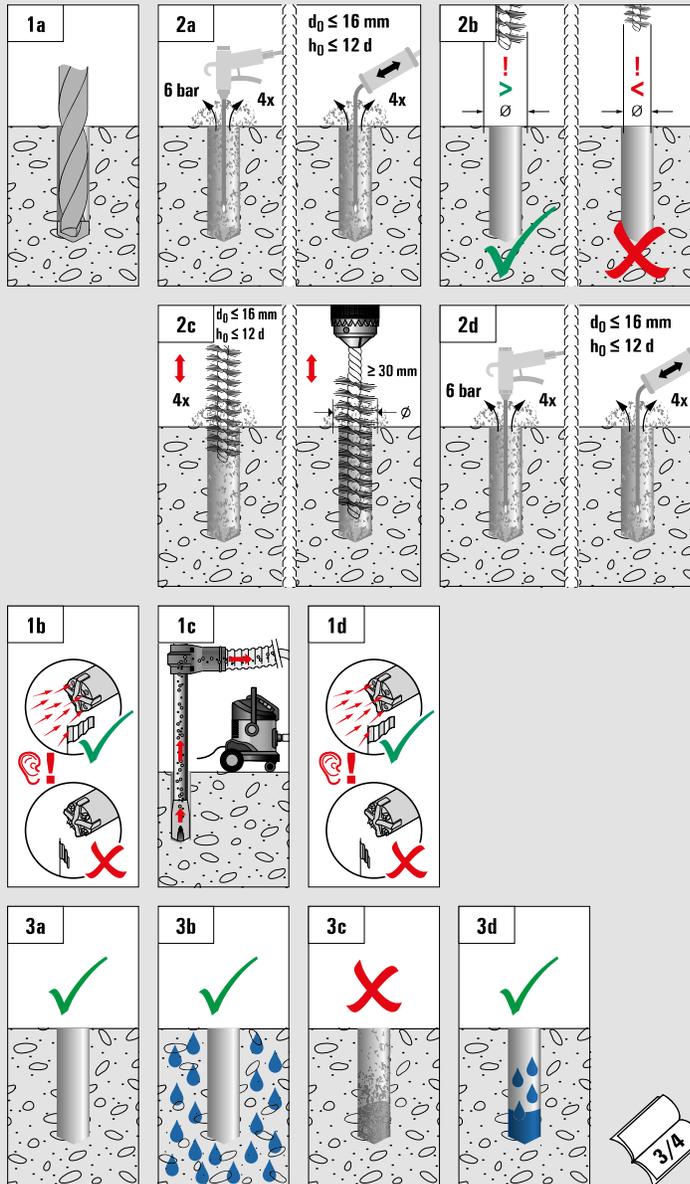
Rebar



FRA



FIS A / RG M, RG MI, Rebar, FRA





FIS A / RG M



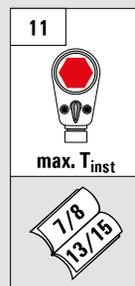
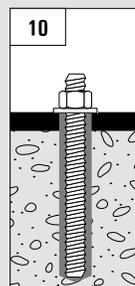
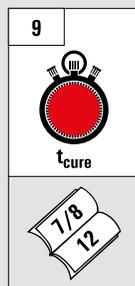
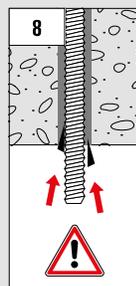
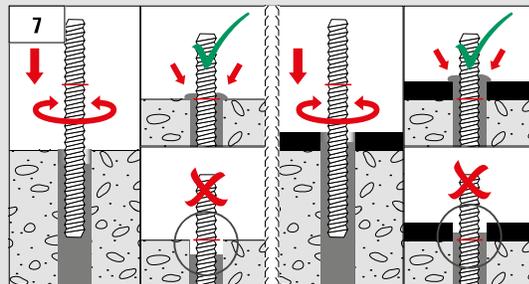
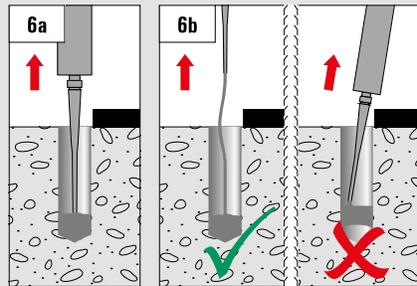
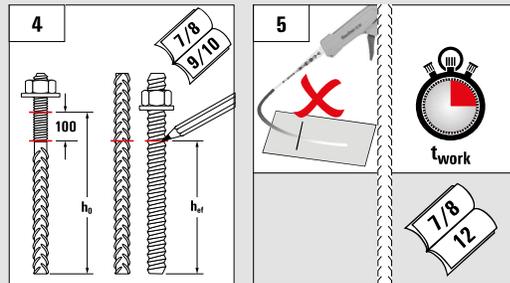
Rebar



FRA



FIS A / RG M, Rebar, FRA





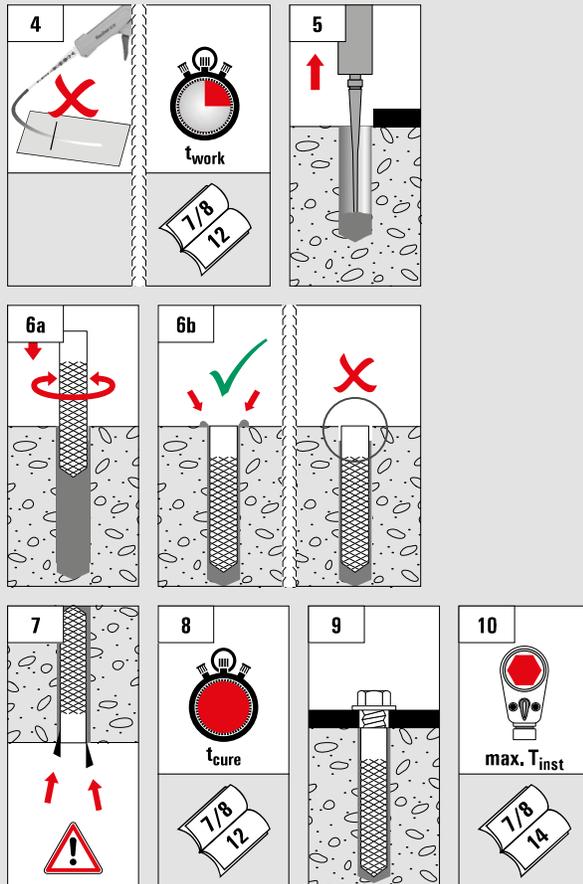
RG MI



FIS

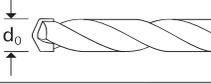
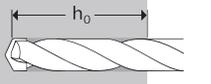
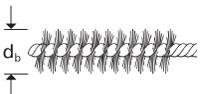
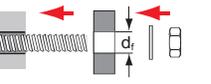
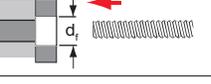
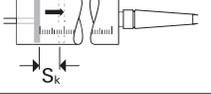
RG MI

FI





FIS A / RG M

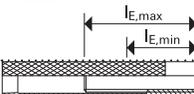
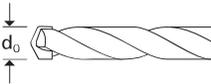
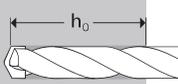
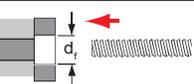
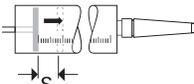
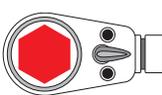
 FIS A / RG M	M6	M8	M10	M12	M16
 ETA CE ETA-20/0729, EAD 330076-00-0504, Masonry use categories b, c or d	✓	✓	✓	✓	✓
 d_0 [mm]	8	10	12	14	18
 h_0	$h_{0,min}$ [mm]	50	50	50	50
	$h_{0,max}$ [mm]	100	100	100	100
 d_b	fischer BS	Ø 8	Ø 10	Ø 12	Ø 14
	d_b [mm]	9	11	14	16
 d_f [mm]	7	9	12	14	18
 d_f [mm]	9	11	14	16	20
 S_k	$S_k (h_{0,min})$ [-]	2	2	2	3
	$S_k (h_{0,max})$ [-]	3	3	4	5
 $\max. T_{inst}$ [Nm]	 www.fischer-international.com www.fischer.de → ETA-20/0729				
	 ETA CE ETA-20/0729, EAD 330076-00-0504, Masonry use categories b, c or d				



FIS E



FIS E

 FIS E	M6	M8	M10	M12
 ETA-20/0729, EAD 330076-00-0604, Masonry use categories b, c or d	✓	✓	✓	✓
 $l_{E,min}$	6	8	10	12
$l_{E,max}$	60	60	60	60
 d_0 [mm]	14	14	18	18
 h_0 [mm]	85	85	85	85
 fischer BS	Ø 14	Ø 14	Ø 18	Ø 18
d_b [mm]	16	16	20	20
 d_j [mm]	7	9	12	14
 S_k [-]	4	4	5	5
 $max. T_{inst}$ [Nm]	 www.fischer-international.com www.fischer.de → ETA-20/0729			
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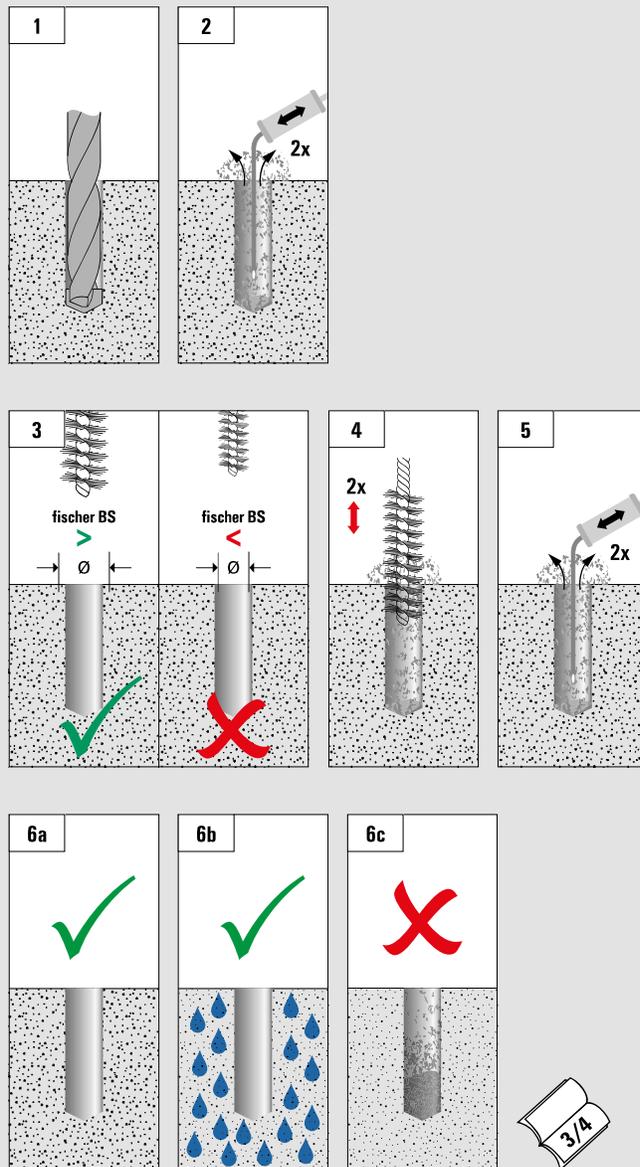
FIS A / RG M



FIS E



FIS A / RG M, FIS E



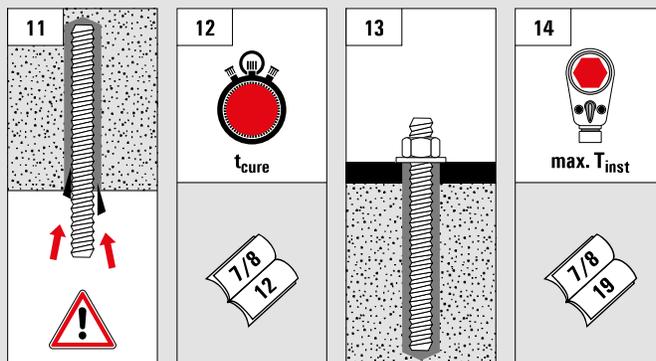
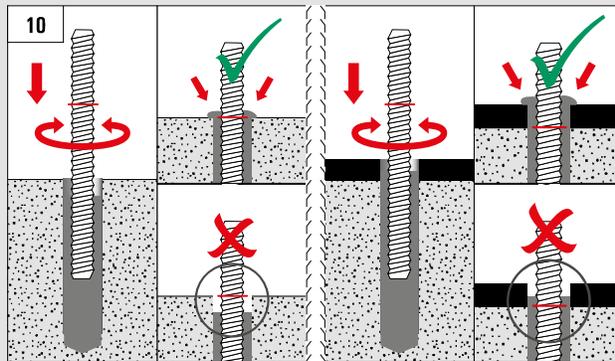
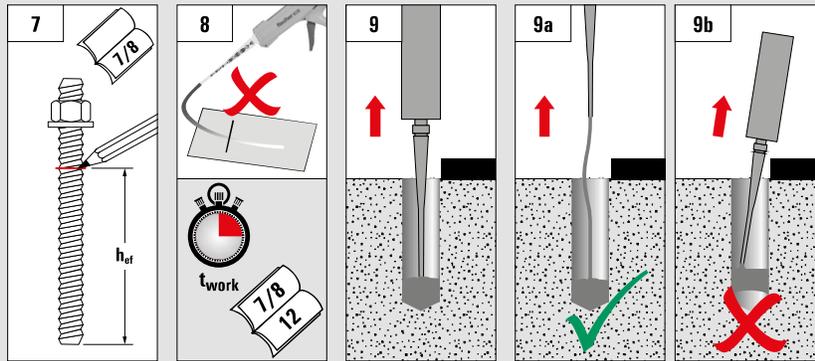


FIS A / RG M



FIS

FIS A / RG M

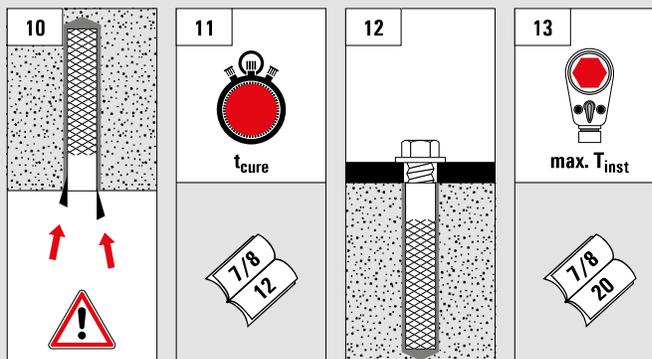
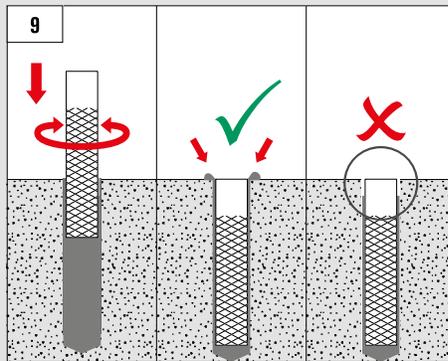
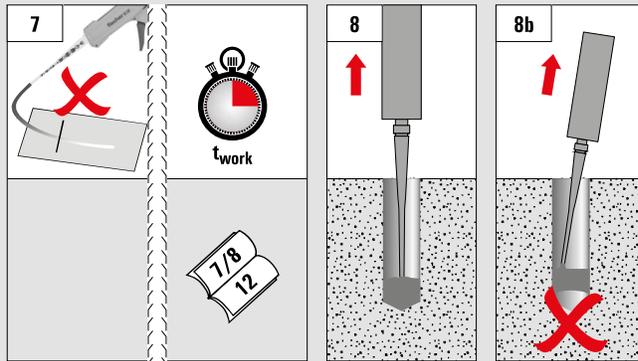


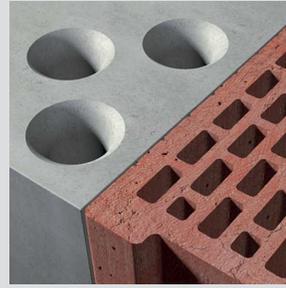


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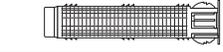
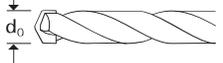
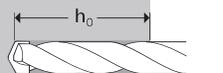
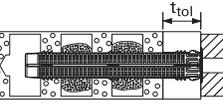
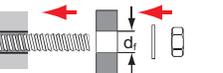
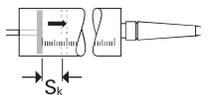
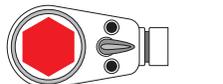


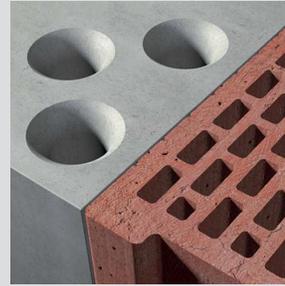
FIS E



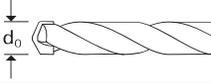
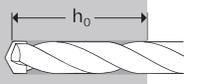
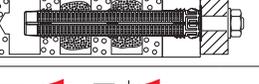
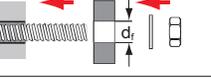
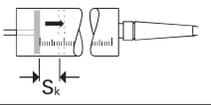


FIS A / RG M

 FIS A / RG M  FIS HK	M6		M8				M10	
	12x50	12x85	12x50	12x85	16x85	16x130	16x85	16x130
 <p>ETA ETA-20/0729, EAD 330076-00-0604, Masonry use categories b, c or d</p>	✓	✓	✓	✓	✓	✓	✓	✓
 d_0 [mm]	12	12	12	12	16	16	16	16
 h_0 [mm]	55	90	55	90	90	135	90	135
 fischer BS d_b [mm]	Ø 12	Ø 12	Ø 12	Ø 12	Ø 16	Ø 16	Ø 16	Ø 16
 t_{tol} [mm]	0	20	0	20	0	20	0	20
 d_f [mm]	7	7	9	9	9	9	12	12
 Sk [-]	5	10	5	10	12	15	12	15
 max. T_{inst} [Nm]	 www.fischer-international.com www.fischer.de → ETA-20/0729							
	 <p>ETA ETA-20/0729, EAD 330076-00-0604, Masonry use categories b, c or d</p>							

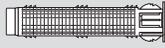


FIS A / RG M

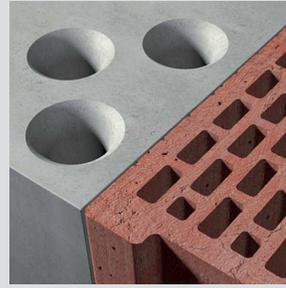
	 FIS A / RG M	M12			M16		
		FIS HK	20x85	20x130	20x200	20x85	20x130
130	 FIS HK	20x85	20x130	20x200	20x85	20x130	20x200
	 <p>ETA-20/0729, EAD 330076-00-0604, Masonry use categories b, c or d</p>	✓	✓	✓	✓	✓	✓
6	 d_0 [mm]	20	20	20	20	20	20
15	 h_0 [mm]	90	135	205	90	135	205
16	 fischer BS	Ø 20	Ø 20	Ø 20	Ø 20	Ø 20	Ø 20
0	 d_b [mm]	25	25	25	25	25	25
0	 t_{tol} [mm]	0	20	20	0	20	20
2	 d_f [mm]	14	14	14	18	18	18
5	 Sk [-]	15	25	40	15	25	40
	 max. T_{inst} [Nm]	 www.fischer-international.com www.fischer.de → ETA-20/0729			 <p>ETA-20/0729, EAD 330076-00-0604, Masonry use categories b, c or d</p>		



FIS E

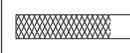
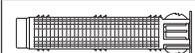
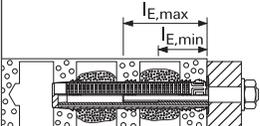
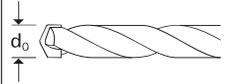
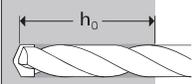
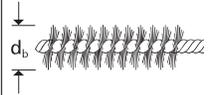
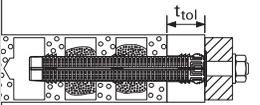
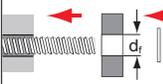
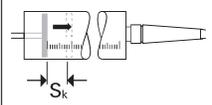
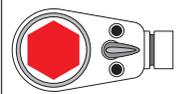


FIS HK



FIS
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FIS

FIS E

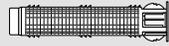
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	FIS HK	16x85	16x85	20x85	20x85
		✓	✓	✓	✓
	$l_{E,min}$	6	8	10	12
	$l_{E,max}$	60	60	60	60
	d_0 [mm]	16	16	20	20
	h_0 [mm]	90	90	90	90
	fisher BS	Ø 16	Ø 16	Ø 20	Ø 20
	d_b [mm]	20	20	25	25
	t_{td} [mm]	0	0	0	0
	d_f [mm]	7	9	12	14
	Sk [-]	12	12	15	15
	max. T_{inst} [Nm]	 www.fischer-international.com www.fischer.de → ETA-20/0729			
					



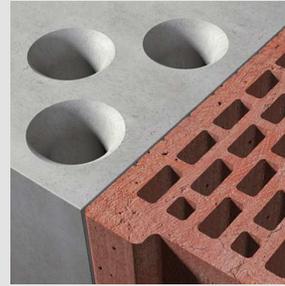
FIS A / RG M



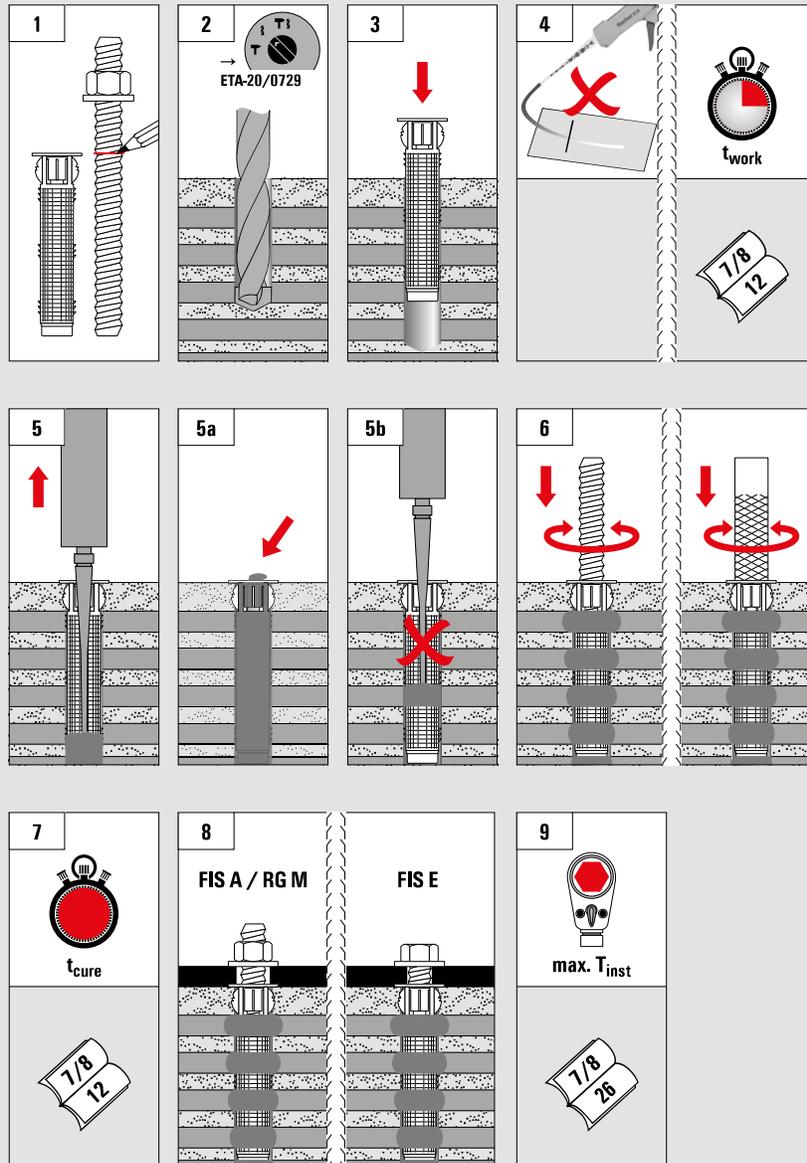
FIS E



FIS HK



FIS A / RG M, FIS E, FIS HK





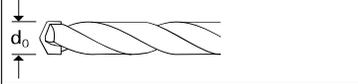
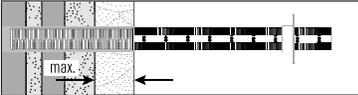
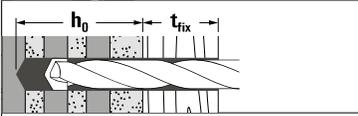
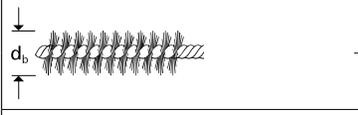
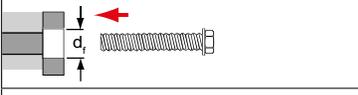
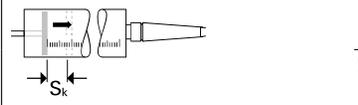
FIS A / RG M



FIS H 18 x 130/200 K,
FIS H 22 x 130/200 K



FIS A / RG M, FIS H 18 x 130/200 K, FIS H 22 x 130/200 K

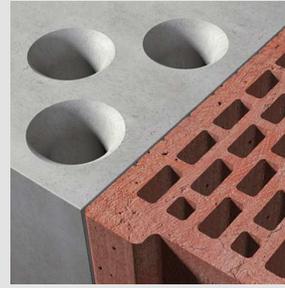
	FIS A / RG M	M10	M12	M16
	FIS HK	18x130/200	18x130/200	22x130/200
		✓	✓	✓
	d_0 [mm]	18	18	22
	t_{0d} [mm]	0	0	0
	$t_{fix, max}$ [mm]	200	200	200
	h_0 [mm]	$135 + t_{fix}$	$135 + t_{fix}$	$135 + t_{fix}$
	fischer BS	Ø 18	Ø 18	Ø 20
	d_b [mm]	20	20	25
	d_f [mm]	20	20	24
	Sk ($h_{0,min}$) [-]	15	15	25
	Sk ($h_{0,max}$) [-]	35	35	45
	max. T_{inst} [Nm]	   		



FIS A / RG M

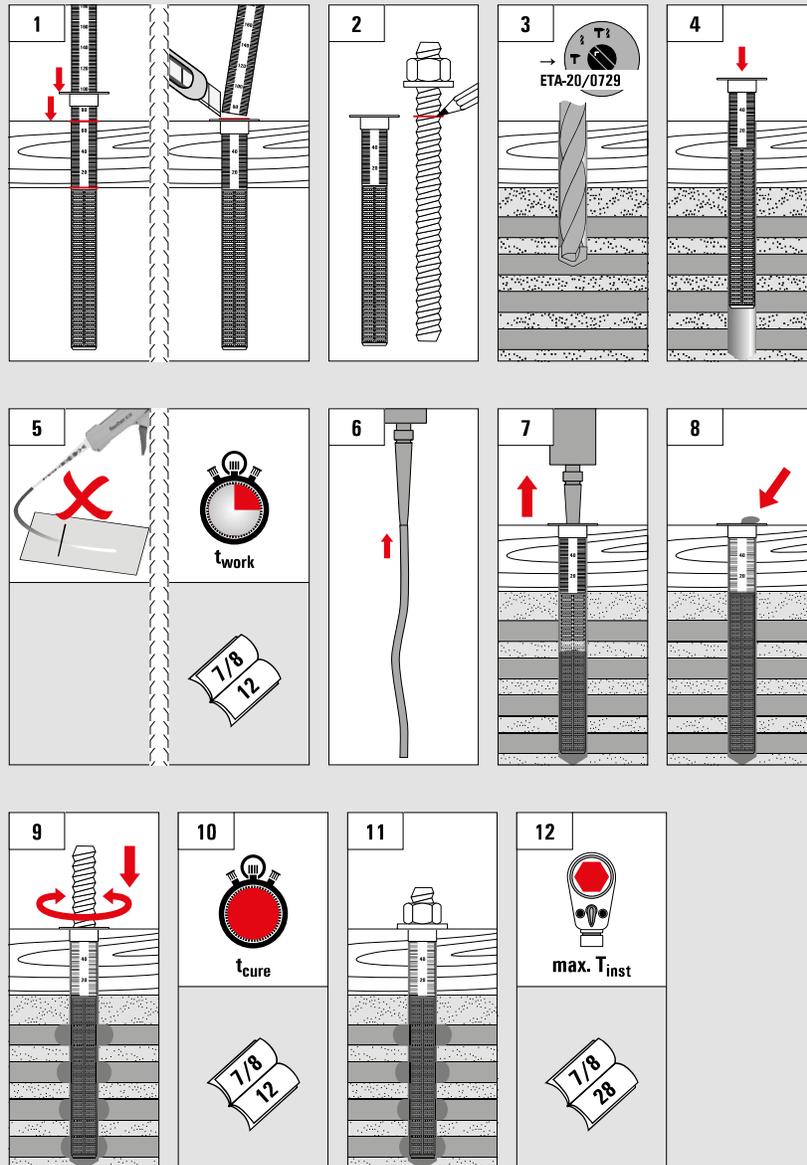


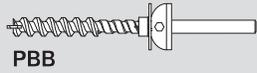
FIS H 18 x 130/200 K,
FIS H 22 x 130/200 K



K

FIS A / RG M, FIS H 18 x 130/200 K, FIS H 22 x 130/200 K





FIS A / RG M, PBB, PBZ

	FIS A / RG M	M8	M10	M12
	PBB	✓	✓	✓
	PBZ	✓	✓	✓
		✓	✓	✓
	$h_{0,1}$ [mm]	80	80	80
	$h_{0,2}$ [mm]	100	100	100
	d_f [mm]	9	12	14
	$Sk (h_{0,1})$ [-]	15	15	15
	$Sk (h_{0,2})$ [-]	20	20	20
	max. T_{inst} [Nm]	2	2	2



FIS E



PBB



PBZ



FIS E, PBB, PBZ

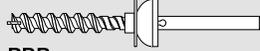
	FIS E	M6	M8
	PBB	✓	✓
	PBZ	✓	✓
		✓	✓
	$l_{E,min}$ [mm]	6	8
	$l_{E,max}$ [mm]	60	60
	$h_{0,1}$ [mm]	100	100
	d_f [mm]	7	9
	Sk [-]	20	20
	max. T_{inst} [Nm]	2	2



FIS A / RG M



FIS E



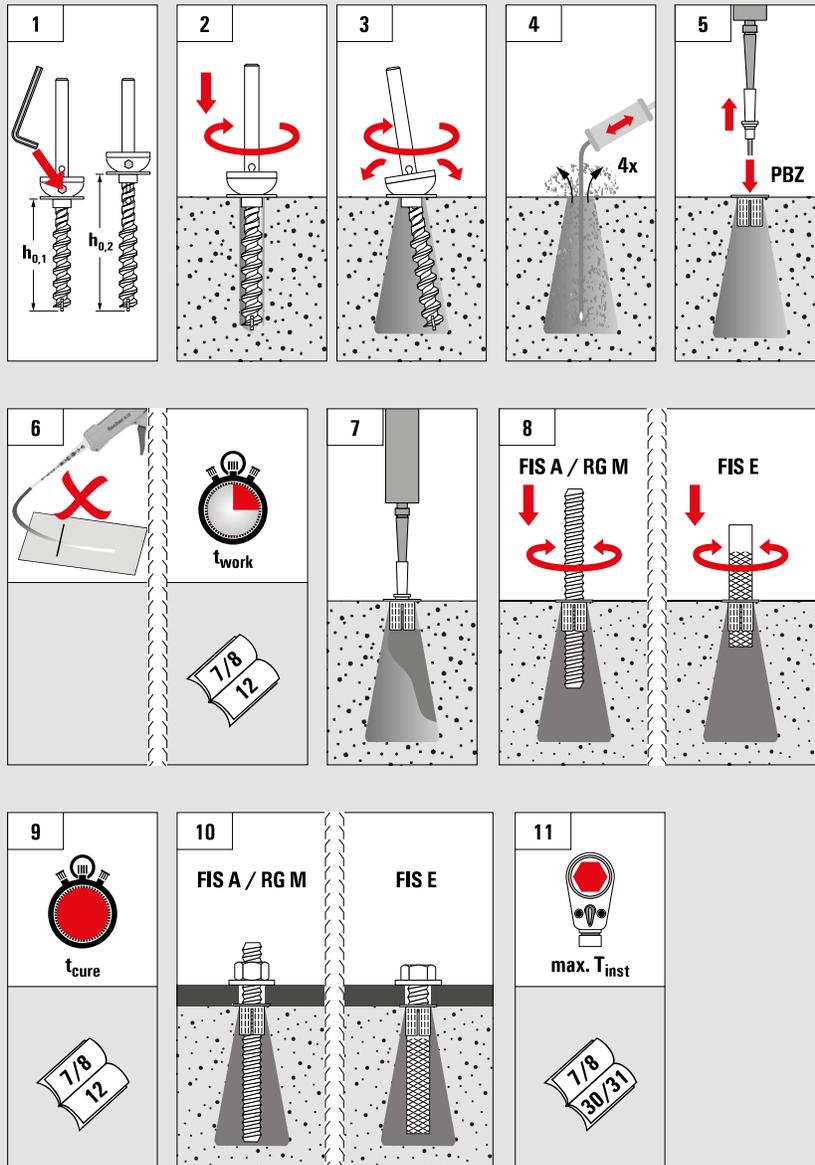
PBB



PBZ



FIS A / RG M, FIS E, PBB, PBZ



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Installation instruction

see ICC-ES Evaluation Report No. 2786
at www.icc-es.org

fischer Injection Mortar FIS V Plus

A Preparing the cartridge

1. Remove the cap by turning it to left and pulling it off.
2. Insert the static mixer and lock it in place (turn to the right). **The spiral mixer in the static mixer must be clearly visible.** Never use without the static mixer!
3. Place the cartridge in the dispenser.
4. Press approx 10 cm of material out **until the resin mortar comes out evenly grey in colour.** Mortar which is not grey colour will not cure and must be disposed of.
5. The temperature of the concrete must be at least 23 °F (5 °C) and at most 104 °F (40 °C) (see Table III). The temperature of the cartridge must be at least 41 °F (5 °C).
6. After finishing work, leave the static mixer attached to the cartridge.

Important: If the processing time is exceeded, use a new static mixer and if necessary remove encrusted material in the cartridge mouth.

B Installation

Important: Installation instructions – follow the pictograms 1–7 for the sequence of operating and refer to **Tables I–III** for setting details. The construction drawings must be adhered. For any applications not covered by this document or by any problems with installation contact fischer.

1. Drill hole with a hammer drill set. Observe the correct hole diameter and depth according to **Table I and Table II.**
- 2.1/2.2/2.3. Standing water in bore holes must be completely removed by blowing out before cleaning the bore hole. The drill hole must be blown out four times with compressed air (oil-free ≥ 87 psi (6 bar)), brushed four times (minimal by hand) starting from the bottom of the hole and then again blown out four times with compressed air (oil-free ≥ 87 psi (6 bar)). For drill holes $d_0 < 18$ mm it is allowed to use hand pump. The diameters of the brushes are given in **Table I.** Clean dirty brushes. Check brushes for wear with brush gauge (brush $\varnothing \geq$ drill hole \varnothing). If required use brush extension.
3. Fill approx. $\frac{3}{5}$ of the hole with mortar starting from the bottom of the hole. For drill hole depth > 150 mm use an extension tube. Observe processing time.
4. Anchoring element must be straight and free of oil and other contaminants. Mark the anchor with correct embedment depth. Press the anchoring element down to the bottom of the hole, turning it slightly while so doing. After insert the anchoring element, excess mortar must emerge from the mouth of the hole.
5. For overhead installations and applications between horizontal and overhead use the appropriate injection adapter and wedges to support the anchor during curing time. Also use an injection adapter for all applications with a drill hole depth > 250 mm or a drill hole diameter $d_0 \geq 30$ mm. Use appropriate accessories to capture excess adhesive during installation of the anchor element in order to protect the unbonded portion of the anchor element from adhesive.
6. Do not disturb the anchoring element until cure time has elapsed. Do not apply load or installation torque moment to the anchor until the prescribed curing times are elapsed. The allowable working time and the minimum curing time are given in **Table III.**
7. The installation torque moments are given in **Table II.**

Table III Processing and curing times

Temperature range		Working time/ processing time	Curing time
°C	°F		
- 5 to ± 0	+23 to + 32	-	24 h
> ± 0 to + 5	> +32 to + 41	13 min	180 min
> + 5 to +10	> +41 to + 50	9 min	90 min
> +10 to +20	> +50 to + 68	5 min	60 min
> +20 to +30	> +68 to + 86	4 min	45 min
> +30 to +40	> +86 to +104	2 min	36 min

Storage temperature: + 5 °C – + 25 °C / + 41 °F – + 77 °F



Table I Drill hole diameter / Accessories

Drill bit		Rods		Brush		Injection adapter	
Ø [mm]	Ø [inch]	Ø [mm]	Ø [inch]	Ø [mm]	item No.	size	colour
10	3/8	M 8	-	11	78178	-	-
12	7/16	M10	3/8"	14	78179	12	nature
14	9/16	M12	1/2"	16	78180	14	blue
18	3/4	M16	5/8"	20	78181	18	yellow
24	1	M20	7/8"	26	78182	24	brown
28	1 1/8	M24	1"	30	78183	30	grey
30	1 1/4	M27	-	40	78184	30	grey
35	1 3/8	M30	1 1/4"	40	78184	35	brown

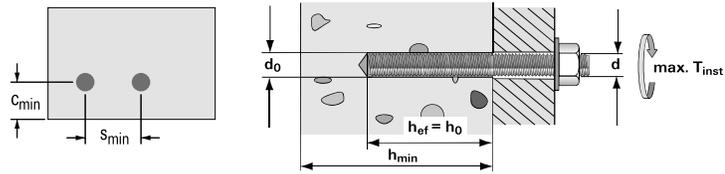
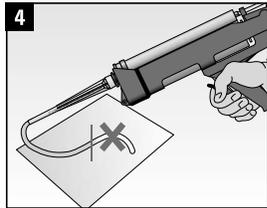
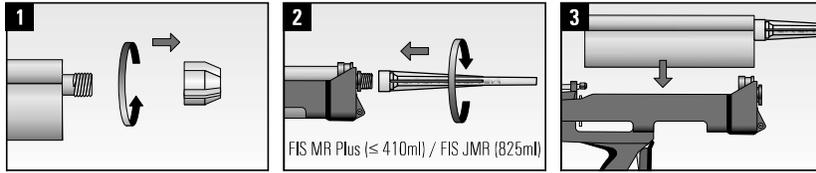


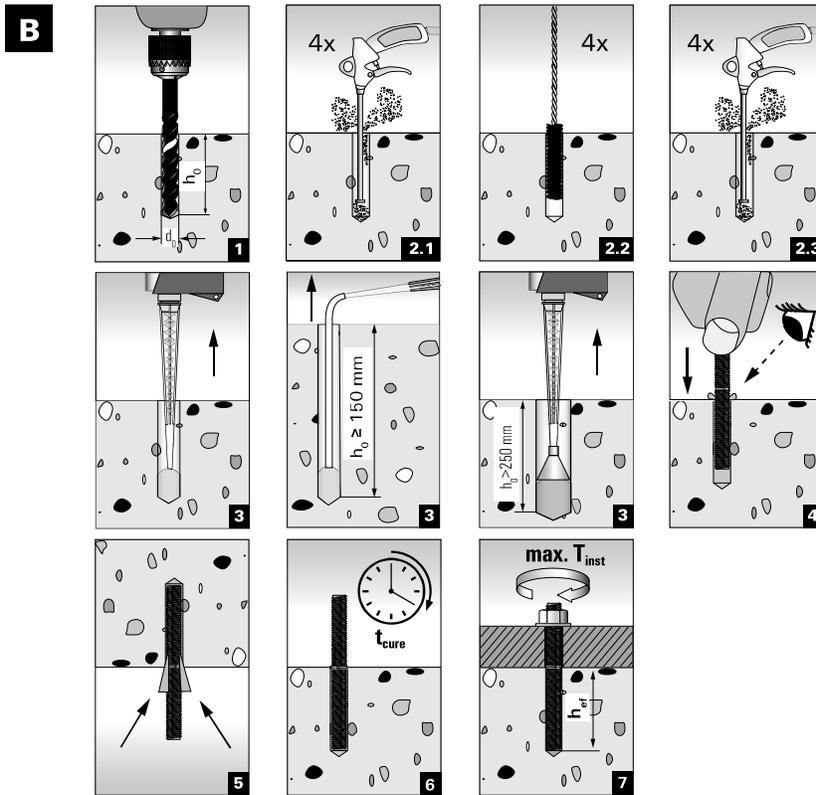
Table II Threaded rod, metric

d	d ₀	h _{ef,min}		h _{ef,max}		h _{min}		S _{min} = C _{min}		T _{inst}	
[mm]	[mm]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[Nm]	[ft-lb]
M 8	10	60	3/8	2,36	96			40	1,57	10	7,37
M10	12	60	7/16	2,36	120	h _{ef} + 30	h _{ef} + 1,25	45	1,77	20	14,75
M12	14	72	9/16	2,83	144			55	2,17	40	29,50
M16	18	96	3/4	3,78	192			65	2,56	60	44,25
M20	24	120	1	4,72	240			85	3,35	120	88,50
M24	28	144	1 1/8	5,67	288	h _{ef} + 2d ₀	h _{ef} + 2d ₀	105	4,13	150	110,62
M27	30	162	1 1/4	6,38	324			120	4,72	200	147,49
M30	35	180	1 3/8	7,09	360			140	5,51	300	221,24

A FIS V Plus 360 S / FIS V Plus 380 C / FIS V Plus 410 C / FIS V Plus 825 S



Cartridge	Dispenser	Item No.	Static mixer
360 ml	FIS DM S	511118	FIS MR Plus
	FIS AM	058000	
	FIS DB S Pro	558955	
	FIS AP	058027	
380 ml 410 ml	FIS AC	096497	
825 ml	FIS AM S-XL	563241	FIS JMR
	FIS DB SL Pro	562004	



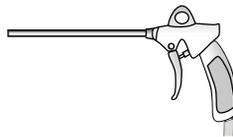
Cleaning brush (steel brush with steel bristles)



Static mixer FIS MR Plus / FIS JMR and extension tube



Compressed air cleaning tool



Hand pump



Injection adapter



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