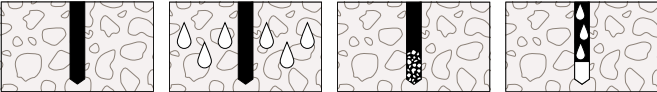


## FIS V Zero



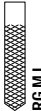
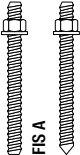
**DE** Gebrauchsanweisung · **EN** Operating instructions · **FR** Mode d'emploi ·  
**NL** Montagehandleiding · **IT** Istruzioni per l'installazione · **ES** Instrucciones de uso ·  
**PT** Instruções de utilização · **DA** Installationsvejledning · **SV** Installationsinstruk-  
tioner · **NO** Installasjonsveiledning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



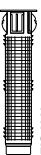
|    |                    |                                |                             |                                       |
|----|--------------------|--------------------------------|-----------------------------|---------------------------------------|
| DE | Trockener Beton    | Nasser Beton                   | Verschmutztes Bohrloch      | Wassergefülltes Bohrloch              |
| EN | Dry concrete       | Water saturated concrete       | Contaminated drill hole     | Water filled borehole                 |
| FR | Béton sec          | Béton humide                   | Perçage non dépourssiéré    | 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 täytynyt porareikä            |
| IS | Þurr steinsteypa   | Blaut steinsteypa              | Óhreinn borhola             | Vatnsfyllt borhola                    |
| ET | Kuivbetoon         | Märgbetoon                     | Mustunud puuriauk           | Veega täidetud puuriauk               |
| LV | Sauss betons       | Mītrs 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 wypelniony           |
| CS | Suchý beton        | Mokrý beton otvory vyvrtané do | Znečištěný vývrt            | Naplněné 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                 |
| SR | Suv beton          | Mokar beton                    | Zaprljan provrt             | Provrt napunjen vodom                 |
| TR | Kuru beton         | Yaş beton                      | Kirli delik                 | Su dolu delik                         |
| EL | Στεγνό μπετόν      | Υγρό μπετόν                    | Βρώμικη τρύπα               | Τρύπα γεμάτη νερό                     |
| BG | Сух бетон          | Мокър бетон                    | Замърсен отвор              | Пълен с вода отвор                    |
| RU | Сухой бетон        | Водонасыщенный бетон           | Загрязненное отверстие      | Отверстие в бетоне, заполненное водой |
| UK | Сухий бетон        | Водонасичений бетон            | Забруднений отвір           | Заповнений водою отвір                |
| KK | Құрғақ бетон       | Ылғалды бетон                  | Ластанған саңылау           | Сүмен толтырылған саңылау             |
| ZH | 干燥混凝土              | 湿混凝土                           | 受污的钻孔                       | 注水的钻孔                                 |
| 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                             |
| KO | 건조 콘크리트            | 습윤 콘크리트                        | 이물질이 삽입된 드릴 구멍              | 물이 찬 드릴 구멍                            |
| ID | Beton kering       | Beton basah                    | Lubang bor terkontaminasi   | Lubang bor berisi air                 |
| AR | خرسانة جافة        | خرسانة رطبة                    | ثقب ملوث                    | ثقب ممتلئ بالماء                      |



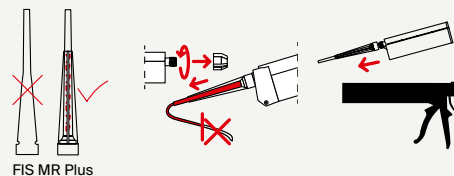
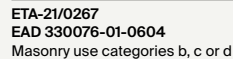
|    |                        |                            |                              |                         |
|----|------------------------|----------------------------|------------------------------|-------------------------|
| DE | Gerissener Beton       | Ungerissener Beton         | Bewehrungsanschluss          | Vollstein               |
| EN | Cracked concrete       | Non-cracked concrete       | Reinforcement connection     | Solid brick             |
| FR | Béton fissuré          | Béton non fissuré          | Scellement d'armatures       | Maçonneries pleines     |
| NL | Gescheurd beton        | Ongescheurd beton          | Wapeningsaansluiting         | Volle steen             |
| IT | Calcestruzzo fessurato | Calcestruzzo non fessurato | Ferri di ripresa             | Mattone pieno           |
| ES | Hormigón agrietado     | Hormigón sin grietas       | Conexión de refuerzo         | Ladrillo macizo         |
| PT | Betão fissurado        | Betão não fissurado        | Conetor de reforço           | Pedra maciça            |
| DA | Revnet beton           | Ikke revnet beton          | Armeringsstilslutninger      | Massiv sten             |
| SV | Sprucken betong        | Ej sprucken betong         | Armeringsanslutning          | Massiv sten             |
| NO | Betong med riss        | Betong uten riss           | Armeringsforbindelse         | Helstein                |
| FI | Haljennut betoni       | Halkeamaton betoni         | Vahvistusliitäntä            | Umptiili                |
| IS | Sprungin steypa        | Óbrotin steinsteypa        | Tenging við styrkingu        | Gegnehill steinn        |
| ET | Pragunenud betoon      | Pragudeta betoon           | Sarusühendus                 | Täistellis              |
| LV | Betons ar plaisām      | Betons bez plaisām         | Stieģrojuma savienojums      | Masīvs ķieģelis         |
| LT | Sutūkiniųjų betonas    | Vientisas betonas          | Armatusų sujungimo elementas | Pilnavidurė plyta       |
| PL | Beton spekany          | Beton niespekany           | Złącze zbrojarskie           | Cegła pełna             |
| CS | Beton s trhlinami      | Beton bez trhlín           | Připojka výztuže             | Plně cihly              |
| SK | Betón s trhlinami      | Betón bez trhlín           | Styková výstuž               | Plná tehla              |
| HU | Repedéses beton        | Repedésmentes beton        | Betonvasalatsatlakozás       | Tömör kő                |
| RO | Beton fisurat          | Beton fără fisuri          | Racord de armătură           | Căramidă plină          |
| SL | Razpokan beton         | Nerazpokan beton           | Priključek za armaturo       | Polna opeka             |
| HR | Ispucani beton         | Neispucani beton           | Priključak armature          | Puni kamen              |
| SR | Ispucao beton          | Neispucao beton            | Priključak armature          | Puni kamen              |
| TR | Çatlamaş beton         | Çatlamaşmş beton           | Destek bağlantisı            | Dolu tuğla              |
| EL | Μπρετόν με ρωγμές      | Μπρετόν χωρίς ρωγμές       | Σύνδεση οπλισμού             | Συμπογείες πλινθοί      |
| BG | Напукан бетон          | Ненапукан бетон            | Връзка за армировка          | Плътен камък            |
| RU | Треснутый бетон        | Цельый бетон               | Соединитель армирования      | Полнотелый кирпич       |
| UK | Тріснутий бетон        | Бетон у зоні стиснення     | Арматурне пруття             | Бетон щільної структури |
| KK | Жарықтары бар бетон    | Бүтін бетон                | Арматуралау қосылымы         | Көлемді блок            |
| ZH | 有裂縫的混凝土                | 无裂縫的混凝土                    | 钢筋连接件                        | 实心砖                     |
| JA | ひび割れがあるベトン             | ひび割れのないベトン                 | 強化コネクタ                       | 全面石材                    |
| KO | 균열 콘크리트                | 비균열 콘크리트                   | 보강재 연결                       | 일반 벽돌                   |
| ID | Beton retak            | Beton tidak licin          | Sambungan penguat            | Batu bata penuh         |
| AR | خرسانة متصدعة          | خرسانة غير متصدعة          | وصلة حديد مسلح               | طوبة كاملة              |



|    |                             |                        |                       |                                      |
|----|-----------------------------|------------------------|-----------------------|--------------------------------------|
| DE | Lochstein                   | Porenbeton             | Ankerstangen          | Innengewindeanker                    |
| EN | Perforated brick            | Aerated concrete       | Anchor rods           | Internal thread anchors              |
| FR | Maçonneries creuses         | Béton cellulaire       | Tiges filetées        | Douilles taraudées                   |
| NL | Holle steen                 | Cellenbeton            | Ankerstangen          | Binnendraadanker                     |
| IT | Mattone forato              | Calcestruzzo cellulare | Barre di ancoraggio   | Ancoraggio con filettatura interna   |
| ES | Ladrillo perforado          | Hormigón celular       | Barras de anclaje     | Anclaje de rosca interior            |
| PT | Pedra porosa                | Concreto aerado        | Tirantes de ancoragem | Ancoragem de rosca interna           |
| DA | Hulsten                     | Porebeton              | Gevindstænger         | Anker med indvendigt gevind          |
| SV | Hålsten                     | Lättad betong          | Förankringsstänger    | Ankare med innergånga                |
| NO | Perforet (mur) stein        | Lettbetong             | Ankerstenger          | Innvendig gjengeanker                |
| FI | Reikätili                   | Hiilipapettu betoni    | Harustangot           | Sisäkierreankkuri                    |
| IS | Holusteinn                  | Löftblandað steypa     | Festistangir          | Festing með skrúfgangi að innanverðu |
| ET | Öönestellis                 | Gaseeritud betoon      | Ankurvardad           | Sisekeermega ankur                   |
| LV | Dobļieģelis                 | Gāzbetons              | Enkura stienis        | Iekšējās vītnes enkurs               |
| LT | Plyta su kiaurymėmis        | Gazuotas betonas       | Inkariniai strypai    | Strypas su vidiniu sriegiu           |
| PL | Pustak                      | Komórkowy              | Kotwy                 | Kotwy z gwintem wewnętrznym          |
| CS | Děrovaný cihly              | Pórobeton              | Kotevní tyče          | Svorník s vnitřním závitem           |
| SK | Dierovaná tehla             | Pórobeton              | Kotviace tyče         | Kotva s vnútorným závitom            |
| HU | Lyukaskő                    | Szénsavas beton        | Horgonyrudak          | Belsőmenetes horgony                 |
| RO | Căramidă cu găuri           | Beton celular          | Bare de ancorare      | Ancoră cu filet interior             |
| SL | Votla opeka                 | Gazirani beton         | Sidra                 | Sidro z notranjim navojem            |
| HR | Šupljikavi kamen            | Gazirani beton         | Sidrene šipke         | Sidro s unutrašnjim navojem          |
| SR | Šupljikavi kamen            | Gazirani beton         | Šipke za ankerovanje  | Kotva s unutrašnjim navojem          |
| TR | Delikli tuğla               | Gaz beton              | Dübel çubukları       | İçten dışlı dübel                    |
| EL | Διάτρητοι πλίνθοι           | Αεριομένο σκυρόδεμα    | Ντιζές αγκύρωσης      | Αγκύρια εσωτερικού σπειρώματος       |
| BG | Порест камък                | Газобетон              | Анкерни пръти         | Анкерен болт с вътрешна резба        |
| RU | Пустотелый кирпич           | Газобетон              | Анкерные болты        | Анкеры с внутренней резьбой          |
| UK | Бетон порожнистої структури | Газобетон              | Анкерні шпильки       | Анкер із внутрішнім різьбленням      |
| KK | Қуыс кірпіш                 | Аэрациялық бетон       | Анкерлік болттары     | Ішкі бұрандасы бар анкерлер          |
| ZH | 空心砖                         | 加气混凝土                  | 系杆                    | 内部螺纹系杆                               |
| JA | 穴付き石材                       | 発泡コンクリート               | アンカーロード               | めねじアンカー                              |
| KO | 공동 벽돌                       | 꼭기 콘크리트                | 앵커 로드                 | 내측 螺絲釘 操                             |
| ID | Batu bata berlubang         | Beton aerasi           | Batang jangkar        | Jangkar berulir dalam                |
| AR | طوبة مخرومة                 | الخرسانة الخلوية       | قضبان تثبيت           | لولية تثبيت داخلية                   |



|    |                     |                          |                                      |                                    |
|----|---------------------|--------------------------|--------------------------------------|------------------------------------|
| DE | Bewehrungsstab      | Bewehrungsanker          | Innengewindeanker                    | Ankerhülse Kunststoff              |
| EN | Reinforcement rod   | Reinforcement anchor     | Internal thread anchor               | Plastic anchor sleeve              |
| FR | Barres d'armatures  | Ancrage d'armature       | Douilles taraudées                   | Tamis d'injection                  |
| NL | Wapeningsstaaf      | Wapeningsanker           | Binnendraadanker                     | Ankerhuls kunststof                |
| IT | Ferro di ripresa    | Ancoraggio di ripresa    | Ancoraggio con filettatura interna   | Boccola di ancoraggio in plastica  |
| ES | Barra de refuerzo   | Anclaje de refuerzo      | Anclaje de rosca interior            | Vaina de anclaje plástica          |
| PT | Barra de armação    | Ancoragem de reforço     | Ancoragem de rosca interna           | Manga de ancoragem em plástico     |
| DA | Armeringsstav       | Armeringsanker           | Anker med indvendigt gevind          | Sihylse kunststof                  |
| SV | Armeringsjärn       | Armeringsankare          | Ankare med innergånga                | Ankarhylsa plast                   |
| NO | Wapeningsstaaf      | Wapeningsanker           | Innvendig gjenge anker               | Ankerhylse kunststoff              |
| FI | Tartuntäteräs       | Tartuntaankkuri          | Sisäkierreankkuri                    | Muovinen ankkurihylsy              |
| IS | Styrkarteynn        | Styrkartesting           | Festing með skrúfgangi að innanverðu | Festihúlsa gerviefni               |
| ET | Sarrusvarras        | Sarrusankur              | Sisekeermega ankur                   | Ankurhüüsis plast                  |
| LV | Enkura stiegrojuma  | Enkura stienis           | Iekšējās vītnes enkurs               | Plastmasas enkura uzmaiva          |
| LT | Armaturinis strypas | Armaturinis inkaras      | Inkaras su vidiniu sriegiu           | Plastikinė inkarinė įvorė          |
| PL | Pręt zbrojarski     | Kotwa zbrojarska         | Kotwa z gwintem wewnętrznym          | Tuleja kotwiąca syntetyczna        |
| CS | Výztužná tyč        | Kotva výztuže            | Svorník s vnitřním závitem           | Kotevní pouzdro plast              |
| SK | Výstužný prút       | Vysužovacia kotva        | Kotva s vnútorným závitom            | Puzdro z plastu                    |
| HU | Betonvas rúd        | Horgonyzó vas            | Belsőmenetes horgony                 | Műanyag horgonyhüvely              |
| RO | Tijă de armătură    | Ancoră de armătură       | Ancoră cu filet interior             | Manșon de ancoră material plastic  |
| SL | Armaturna palica    | Sidro armature           | Sidro z notranjim navojem            | Plastični sidrni vložec            |
| HR | Armaturna šipka     | Armaturno sidro          | Sidro s unutrašnjim navojem          | Plastična košuljica sidra          |
| SR | Armaturna šipka     | Armaturna kotva          | Kotva sa unutrašnjim navojem         | Plastična košuljica kotve          |
| TR | Takviye çubuğu      | Takviye demiri           | İçten dışlı dübel                    | Plastik dübel kovani               |
| EL | Ράβδος οπλισμού     | Αγκύριο οπλισμού         | Αγκύρια με εσωτερικό σπειρώμα        | Πλαστικό βύσμα αγκύρωσης           |
| BG | Армировъчен прът    | Армировъчен анкерен болт | Анкерен болт с вътрешна резба        | Анкерна втулка пластмаса           |
| RU | Арматурный стержень | Арматурный анкер         | Анкер с внутренней резьбой           | Анкерная гильза пластиковая        |
| UK | Арматурний стрижень | Арматурний анкер         | Анкер із внутрішнім різьбленням      | Анкерна гільза Полімерний матеріал |
| KK | Арматуралық өзеке   | Арматуралық анкері       | ішкі бұрандасы бар анкерлер          | Анкерлік төлке, пластмассасы       |
| ZH | 钢筋                  | 钢筋锚杆                     | 型内螺纹锚栓                               | 型塑料 螺絲套管                           |
| 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                   |
| KO | 보강 로드               | 보강 앵커                    | 내부 스레드 앵커                            | 앵커 슬리브 플 라스틱                       |
| ID | Batang penguat      | Jangkar penguat          | Jangkar berulir dalam                | Selongsong jangkar plastik         |
| AR | قضيب حديد مسلح      | تثبيت حديد مسلح          | لولية تثبيت داخلية                   | كُم تثبيت بلاستيكي                 |

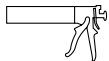




### FIS V Zero

| [°C]              | t <sub>work</sub> | t <sub>cure</sub> |
|-------------------|-------------------|-------------------|
| -10 °C – -5 °C    | 6 h               | 72 h              |
| -5 °C – ±0 °C     | 2 h               | 24 h              |
| > ±0 °C – +5 °C   | 45 min.           | 12 h              |
| > +5 °C – +10 °C  | 20 min.           | 6 h               |
| > +10 °C – +15 °C | 8 min.            | 3 h               |
| > +15 °C – +20 °C | 5 min.            | 2 h               |
| > +20 °C – +25 °C | 3 min.            | 1 h               |
| > +25 °C – +30 °C | 2 min.            | 45 min.           |
| > +30 °C – +40 °C | 1 min.            | 30 min.           |

### FIS V Zero

|        |  |                 |  |
|--------|-----------------------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------|
|        | Typ                                                                               | Art. No.        |                                                                                   |
| 150 ml | FIS AM<br>FIS DM S Pro                                                            | 58000<br>563337 | FIS MR Plus                                                                       |
| 300 ml | FIS AM                                                                            | 058000          |                                                                                   |
|        | FIS AP                                                                            | 058027          |                                                                                   |
|        | FIS DB S Pro                                                                      | 558955 (EU)     |                                                                                   |
|        | FIS DB S Pro                                                                      | 562004 (UK)     |                                                                                   |
|        | FIS DM S Pro                                                                      | 563337          |                                                                                   |
|        | KPM 2 Plus                                                                        | 53117           |                                                                                   |
|        | KPM 3                                                                             | 541441          |                                                                                   |
| 360 ml | FIS AM                                                                            | 058000          |                                                                                   |
|        | FIS AP                                                                            | 058027          |                                                                                   |
|        | FIS DB S Pro                                                                      | 558955 (EU)     |                                                                                   |
|        | FIS DB S Pro                                                                      | 562004 (UK)     |                                                                                   |
|        | FIS DM S Pro                                                                      | 563337          |                                                                                   |

### FIS A, RG M

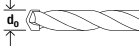
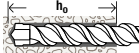
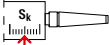
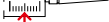


FIS A



RG M



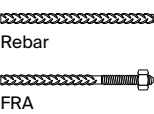
|                                            | M8   | M10  | M12  | M16     | M20     | M24  |
|-----------------------------------------------------------------------------------------------------------------------------|------|------|------|---------|---------|------|
|  *                                         | ●    | ●    | ●    | ●       | ●       | ●    |
|  d <sub>0</sub> [mm]                       | 10   | 12   | 14   | 18      | 22      | 28   |
|  h <sub>0,min</sub> [mm]                   | 60   | 60   | 70   | 80      | 90      | 96   |
|  h <sub>0,max</sub> [mm]                   | 160  | 200  | 240  | 320     | 400     | 480  |
|  fischer BS                                | ø 10 | ø 12 | ø 14 | ø 16/18 | ø 20/22 | ø 28 |
|  d <sub>b</sub> [mm]                       | 11   | 14   | 16   | 20      | 25      | 30   |
|  d <sub>f</sub> [mm]                       | 9    | 12   | 14   | 18      | 22      | 26   |
|  d <sub>f</sub> [mm]                       | 12   | 14   | 16   | 20      | 24      | 30   |
|  S <sub>k</sub> [mm]                       | 2    | 3    | 3    | 5       | 7       | 15   |
|  S <sub>k</sub> (h <sub>0,max</sub> ) [mm] | 5    | 7    | 10   | 19      | 32      | 69   |
|  max T <sub>inst</sub> [Nm]                | 10   | 20   | 40   | 60      | 120     | 150  |

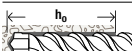
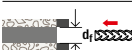
\* ETA-20/0572, EAD 330499-01-0601, Option 1 for cracked concrete  
ETA-20/0572, EAD 330499-01-0601, Option 7 for non-cracked concrete



|  |                                                          |            |               |               |            |
|--|----------------------------------------------------------|------------|---------------|---------------|------------|
|  | M8                                                       | M10        | M12           | M16           |            |
|  | ●                                                        | ●          | ●             | ●             |            |
|  | d <sub>0</sub><br>[mm]                                   | 14         | 18            | 20            | 24         |
|  | h <sub>0</sub><br>[mm]                                   | 90         | 90            | 125           | 160        |
|  | l <sub>E,min</sub><br>[mm]<br>l <sub>E,max</sub><br>[mm] | 8<br>18    | 10<br>23      | 12<br>26      | 16<br>35   |
|  | fischer BS<br>d <sub>0</sub><br>[mm]                     | ø 14<br>16 | ø 16/18<br>20 | ø 20/22<br>25 | ø 24<br>26 |
|  | d <sub>1</sub><br>[mm]                                   | 9          | 12            | 14            | 18         |
|  | S <sub>k</sub><br>[mm]                                   | 3          | 4             | 6             | 8          |
|  | max T <sub>inst</sub><br>[Nm]                            | 10         | 20            | 40            | 80         |

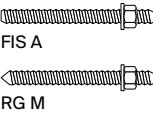
\* ETA-20/0572, EAD 330499-01-0601, Option 1 for cracked concrete  
ETA-20/0572, EAD 330499-01-0601, Option 7 for non-cracked concrete

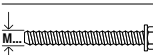
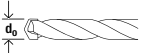
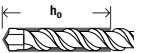
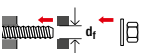
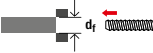
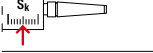


|                                                                                     |                                         |                            |             |                |             |             |      |      |      |      |
|-------------------------------------------------------------------------------------|-----------------------------------------|----------------------------|-------------|----------------|-------------|-------------|------|------|------|------|
|    | Rebar                                   | ø 8                        | ø 10        | ø 12           | ø 14        | ø 16        | ø 20 | ø 22 | ø 24 | ø 25 |
|    | FRA                                     | –                          | –           | M12            | –           | M16         | M20  | –    | –    | M24  |
|    | Rebar                                   | ●                          | ●           | ●              | ●           | ●           | ●    | ●    | ●    | ●    |
|                                                                                     | FRA                                     | –                          | –           | ●              | –           | ●           | ●    | –    | –    | ●    |
|    | d <sub>0</sub><br>[mm]                  | 10/<br>12                  | 12/<br>14   | 14/<br>16      | 18          | 20          | 25   | 28   | 30   | 30   |
|    | Rebar<br>h <sub>0,min</sub><br>[mm]     | 60                         | 60          | 70             | 75          | 80          | 90   | 94   | 98   | 100  |
|                                                                                     | h <sub>0,max</sub><br>[mm]              | 160                        | 200         | 240            | 280         | 320         | 400  | 440  | 480  | 500  |
|                                                                                     | FRA<br>h <sub>0,min</sub><br>[mm]       | –                          | –           | 170            | –           | 180         | 190  | –    | –    | 196  |
|                                                                                     | h <sub>0,max</sub><br>[mm]              | –                          | –           | 240            | –           | 320         | 400  | –    | –    | 480  |
|    | fischer BS<br>ø 10/<br>12               | ø 10/<br>12                | ø 12/<br>14 | ø 14/<br>16/18 | ø 16/<br>18 | ø 20/<br>22 | ø 25 | ø 28 | ø 35 | ø 35 |
|                                                                                     | d <sub>b</sub><br>[mm]                  | 11/14                      | 14/16       | 16/20          | 20          | 25          | 27   | 30   | 40   | 40   |
|    | FRA<br>d <sub>f</sub><br>[mm]           | –                          | –           | 14             | –           | 18          | 22   | –    | –    | 26   |
|   | FRA<br>d <sub>f</sub><br>[mm]           | –                          | –           | 18             | –           | 22          | 26   | –    | –    | 32   |
|  | Rebar<br>S <sub>k</sub> [–]             | (h <sub>0,min</sub> )<br>2 | 2           | 2              | 5           | 6           | 9    | 13   | 15   | 13   |
|                                                                                     | (h <sub>0,max</sub> )                   | 3                          | 5           | 6              | 17          | 22          | 40   | 58   | 69   | 61   |
|  | FRA<br>S <sub>k</sub> [–]               | (h <sub>0,min</sub> )<br>– | –           | 5              | –           | 14          | 21   | –    | –    | 26   |
|                                                                                     | (h <sub>0,max</sub> )                   | –                          | –           | 7              | –           | 24          | 43   | –    | –    | 63   |
|  | FRA<br>max<br>T <sub>inst</sub><br>[Nm] | –                          | –           | 40             | –           | 60          | 120  | –    | –    | 150  |

\* ETA-20/0572, EAD 330499-01-0601, Option 7 for non-cracked concrete

FIS A, RG M

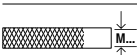
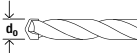
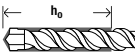
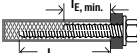
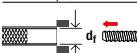
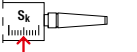


|                                   | M8                                                                                   | M10  | M12  | M16  |
|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------|------|------|
|  *                                | ●                                                                                    | ●    | ●    | ●    |
| <br>$d_o$<br>[mm]                 | 10                                                                                   | 12   | 14   | 18   |
| <br>$h_o$<br>$h_{o,min}$ [mm]     |  50 | 50   | 50   | 50   |
| <br>$h_{o,max}$ [mm]             | 200                                                                                  | 200  | 200  | 200  |
| <br>$h_{o,min} = h_{o,max}$ [mm] | 100                                                                                  | 100  | 100  | 100  |
| <br>fischer BS<br>$d_b$ [mm]      | ø 10                                                                                 | ø 12 | ø 14 | ø 18 |
| <br>$d_f$ [mm]                    | 9                                                                                    | 12   | 14   | 18   |
| <br>$d_f$ [mm]                    | 11                                                                                   | 14   | 16   | 20   |
| <br>$S_k$ ( $h_{o,min}$ )<br>[-]  | 2                                                                                    | 2    | 3    | 3    |
| <br>$S_k$ ( $h_{o,max}$ )<br>[-] | 6                                                                                    | 7    | 9    | 12   |
| <br>min $T_{inst}$<br>[Nm]      | 0                                                                                    | 0    | 0    | 0    |
| <br>max $T_{inst}$<br>[Nm]      | **                                                                                   | **   | **   | **   |

\* ETA-21/0267, EAD 330076-01-0604, Masonry use categories b, c or d  
\*\* [www.fischer-international.com](http://www.fischer-international.com), [www.fischer.de](http://www.fischer.de) → ETA-21/0267

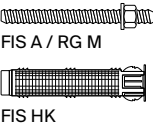
FIS E

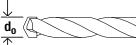
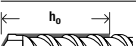


|    | M8              | M10  | M12  |
|-------------------------------------------------------------------------------------|-----------------|------|------|
|    | ●               | ●    | ●    |
|    | 14              | 18   | 18   |
|    | 85              | 85   | 85   |
|    | fischer BS      | ø 14 | ø 18 |
|    | 16              | 20   | 20   |
|    | 8               | 10   | 12   |
|    | 60              | 60   | 60   |
|   | 9               | 12   | 14   |
|  | 5               | 6    | 6    |
|  | min T_inst [Nm] | 0    | 0    |
|  | max T_inst [Nm] | **   | **   |

\* ETA-21/0267, EAD 330076-01-0604, Masonry use categories b, c or d  
\*\* [www.fischer-international.com](http://www.fischer-international.com), [www.fischer.de](http://www.fischer.de) → ETA-21/0267

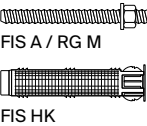
FIS A / RG M

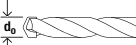
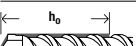
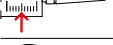


|                                                                                   |                                                                |         |         |         |          |         |          |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------|---------|---------|---------|----------|---------|----------|
|   | FIS A /<br>RG M                                                | M8      | M8      | M8      | M8       | M10     | M10      |
|   | FIS HK                                                         | 12 x 50 | 12 x 85 | 16 x 85 | 16 x 130 | 16 x 85 | 16 x 130 |
|   |                                                                | ●       | ●       | ●       | ●        | ●       | ●        |
|   | d <sub>0</sub><br>[mm]                                         | 12      | 12      | 16      | 16       | 16      | 16       |
|   | h <sub>0</sub><br>[mm]                                         | 55      | 90      | 90      | 135      | 90      | 135      |
|   | fischer BS<br>d <sub>b</sub><br>[mm]                           | ø 12    | ø 12    | ø 16    | ø 16     | ø 16    | ø 16     |
|   | t <sub>tol</sub><br>[mm]                                       | 0       | 20      | 0       | 20       | 0       | 20       |
|   | d <sub>f</sub><br>[mm]                                         | 9       | 9       | 9       | 9        | 12      | 12       |
|   | S <sub>k</sub><br>[-]                                          | 6       | 14      | 14      | 14       | 18      | 18       |
|  | min T <sub>inst</sub><br>[Nm]<br>max T <sub>inst</sub><br>[Nm] | 0<br>** | 0<br>** | 0<br>** | 0<br>**  | 0<br>** | 0<br>**  |

\* ETA-21/0267, EAD 330076-01-0604, Masonry use categories b, c or d  
\*\* [www.fischer-international.com](http://www.fischer-international.com), [www.fischer.de](http://www.fischer.de) → ETA-21/0267

FIS A / RG M

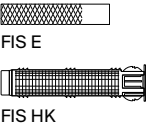


|                                                                                    |                                                                |         |          |         |          |
|------------------------------------------------------------------------------------|----------------------------------------------------------------|---------|----------|---------|----------|
|   | FIS A /<br>RG M                                                | M12     | M12      | M16     | M16      |
|   | FIS HK                                                         | 20 x 85 | 20 x 130 | 20 x 85 | 20 x 130 |
|   |                                                                | ●       | ●        | ●       | ●        |
|   | d <sub>0</sub><br>[mm]                                         | 20      | 20       | 20      | 20       |
|   | h <sub>0</sub><br>[mm]                                         | 90      | 135      | 90      | 135      |
|   | fischer BS<br>d <sub>b</sub><br>[mm]                           | ø 20    | ø 20     | ø 20    | ø 20     |
|   | t <sub>tol</sub><br>[mm]                                       | 0       | 20       | 0       | 20       |
|   | d <sub>f</sub><br>[mm]                                         | 14      | 14       | 18      | 18       |
|   | S <sub>k</sub><br>[-]                                          | 18      | 29       | 18      | 29       |
|  | min T <sub>inst</sub><br>[Nm]<br>max T <sub>inst</sub><br>[Nm] | 0<br>** | 0<br>**  | 0<br>** | 0<br>**  |

\* ETA-21/0267, EAD 330076-01-0604, Masonry use categories b, c or d  
\*\* [www.fischer-international.com](http://www.fischer-international.com), [www.fischer.de](http://www.fischer.de) → ETA-21/0267



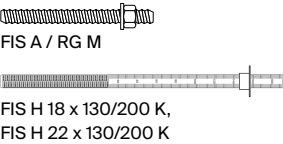
FIS E



|  |                                      |         |         |         |
|--|--------------------------------------|---------|---------|---------|
|  | FIS E                                | M8      | M10     | M12     |
|  | FIS HK                               | 16 x 85 | 20 x 85 | 20 x 85 |
|  |                                      | ●       | ●       | ●       |
|  | d <sub>0</sub><br>[mm]               | 16      | 20      | 20      |
|  | h <sub>0</sub><br>[mm]               | 90      | 90      | 90      |
|  | fischer BS<br>d <sub>0</sub><br>[mm] | ø 16    | ø 20    | ø 20    |
|  | l <sub>E, min</sub>                  | 8       | 10      | 12      |
|  | l <sub>E, max</sub>                  | 60      | 60      | 60      |
|  | t <sub>tol</sub><br>[mm]             | 0       | 0       | 0       |
|  | d <sub>1</sub><br>[mm]               | 9       | 12      | 14      |
|  | S <sub>k</sub><br>[-]                | 14      | 18      | 18      |
|  | min T <sub>inst</sub><br>[Nm]        | 0       | 0       | 0       |
|  | max T <sub>inst</sub><br>[Nm]        | **      | **      | **      |

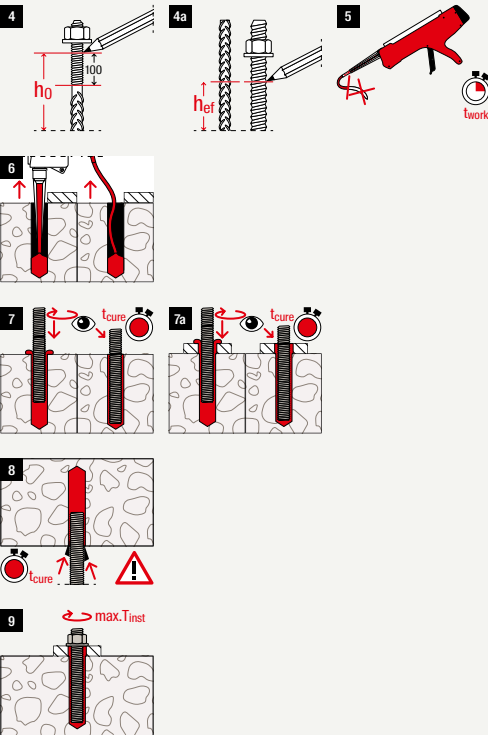
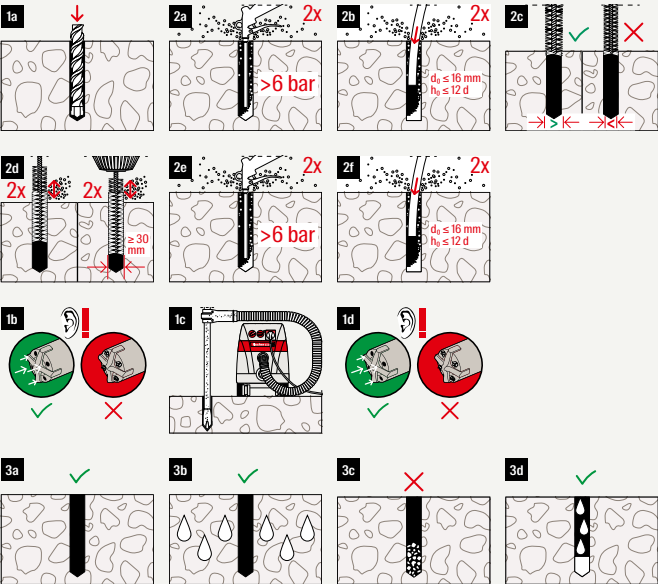
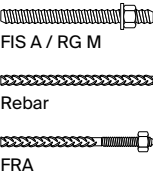
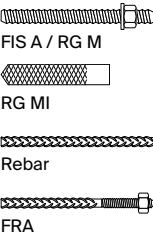
\* ETA-21/0267, EAD 330076-01-0604, Masonry use categories b, c or d  
\*\* [www.fischer-international.com](http://www.fischer-international.com), [www.fischer.de](http://www.fischer.de) → ETA-21/0267

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



|  |                                              |                        |                        |                        |
|--|----------------------------------------------|------------------------|------------------------|------------------------|
|  | FIS A /<br>RG M                              | M10                    | M12                    | M16                    |
|  | FIS HK                                       | 18 x<br>130/200        | 18 x<br>130/200        | 22 x<br>130/200        |
|  |                                              | ●                      | ●                      | ●                      |
|  | d <sub>0</sub><br>[mm]                       | 18                     | 18                     | 22                     |
|  | h <sub>0</sub><br>[mm]                       | 135 + t <sub>fix</sub> | 135 + t <sub>fix</sub> | 135 + t <sub>fix</sub> |
|  | t <sub>tol</sub><br>[mm]                     | 0                      | 0                      | 0                      |
|  | t <sub>fix, max</sub><br>[mm]                | 200                    | 200                    | 200                    |
|  | fischer BS<br>d <sub>0</sub><br>[mm]         | ø 18                   | ø 18                   | ø 20                   |
|  | d <sub>1</sub><br>[mm]                       | 18                     | 18                     | 22                     |
|  | S <sub>k</sub> (h <sub>0, min</sub> )<br>[-] | 23                     | 22                     | 34                     |
|  | S <sub>k</sub> (h <sub>0, max</sub> )<br>[-] | 42                     | 41                     | 52                     |
|  | min T <sub>inst</sub><br>[Nm]                | 0                      | 0                      | 0                      |
|  | max T <sub>inst</sub><br>[Nm]                | **                     | **                     | **                     |

\* ETA-21/0267, EAD 330076-01-0604, Masonry use categories b, c or d  
\*\* [www.fischer-international.com](http://www.fischer-international.com), [www.fischer.de](http://www.fischer.de) → ETA-21/0267





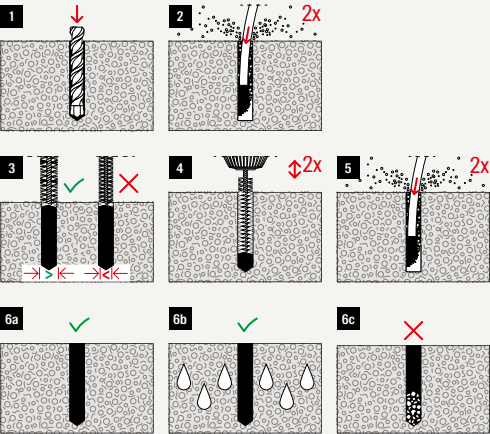
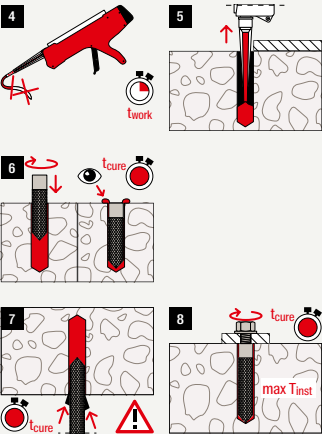
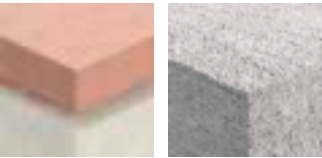
RG MI



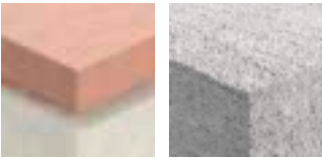
FIS A / RG M



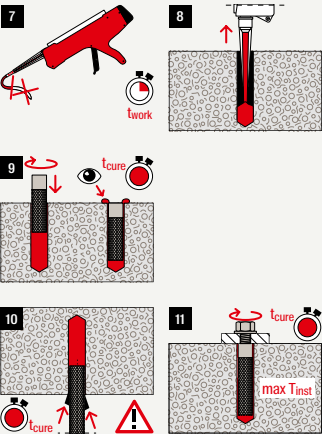
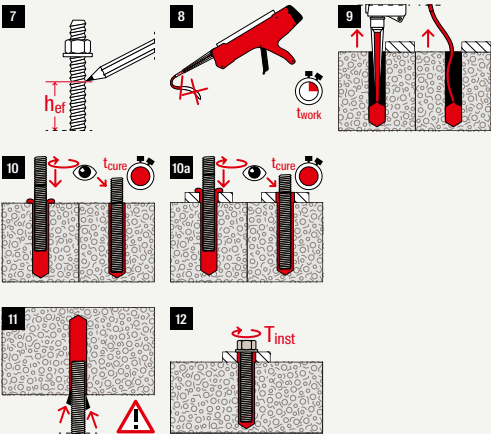
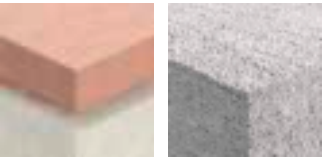
FIS E



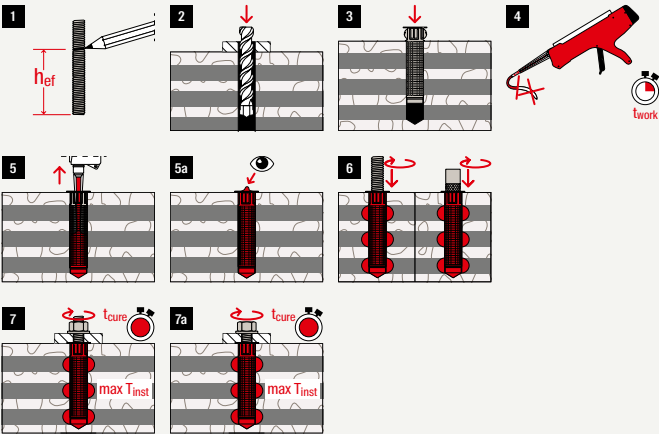
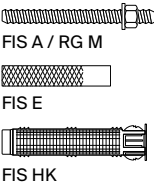
FIS A / RG M



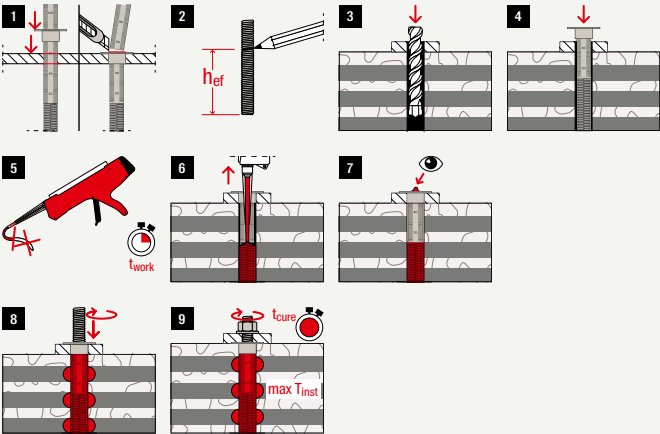
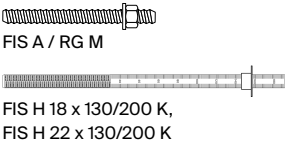
FIS E



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



**Germany**  
fischer Deutschland Vertriebs GmbH  
Klaus-Fischer-Straße 1  
72178 Waldachtal  
P +49 7443 12 - 6000  
F +49 7443 12 - 4500  
info@fischer.de  
www.fischer.de

**Argentina**  
fischer Argentina s.a.  
Colectora Este 34  
C.P. 1618 - El Talar - Buenos Aires  
P +54 1147 62 27 78  
F +54 1147 56 13 11  
asistenciaticnica@fischer.com.ar  
www.fischer.com.ar

**Austria**  
fischer Austria GmbH  
Wiener Straße 95  
2514 Traiskirchen  
P +43 2252 53730 0  
F +43 2252 53730 70  
office@fischer.at  
www.fischer.at

**Belgium**  
fischer Cobemabel snc  
Schaliënhoeverdreef 20 D  
2800 Mechelen  
P +32 152 8 47 00  
F +32 152 8 47 10  
info@fischer.be  
www.fischer.be

**Brazil**  
fischer brasil Industria e  
Avenida Marginal Projetada  
1652 Galpão 15 - Barueri  
São Paulo  
P +55 11 3178 25 20  
F +55 21 2467 01 44  
fischer@fischerbrasil.com.br  
www.fischerbrasil.com.br

**China**  
fischer (Taicang) fixings Co. Ltd.  
Building 1, Suntec Industrial Park,  
No.105 North Dongcang Road  
215400 Taicang Jiangsu  
P +86 51 25 35 88 93 8  
F +86 51 25 35 88 94 8  
fiscn@fischer.com.cn  
www.fischer.com.cn

**Czech Republic**  
fischer International s.r.o.  
Průmyslová 1833  
25001 Brandýs nad Labem  
P +42 03 26 90 46 01  
F +42 03 26 90 46 00  
info@fischer-cz.cz  
www.fischer-cz.cz

**Denmark**  
fischer a/s  
Sandvadsvej 17 A  
4600 Køge  
P +45 46 32 02 20  
F +45 46 32 50 52  
fick@fischerdanmark.dk  
www.fischerdanmark.dk

**France**  
fischer S. A. S.  
12, rue Livio, P. O. Box 10182  
67022 Strasbourg-Cedex 1  
P +33 388 39 18 67  
F +33 388 39 80 44  
ordre@fischer.fr  
www.fischer.fr

**Greece**  
fischer Hellas  
Kalavriton 2 & Kaifala  
14564 Kifissia, Athens  
P +30 210 283 81 67  
F +30 210 283 81 69  
info@fischer.gr  
www.fischer.gr

**Hungary**  
fischer Hungary Bt.  
Szerémi út 7/b  
1117 Budapest  
P +36 1 347 97 55  
F +36 1 347 97 66  
info@fischerhungary.hu  
www.fischerhungary.hu

**India**  
fischer building material india  
pvt ltd.  
Prestige Garnet Unit no - 401,  
4th floor 36, Ulsoor Road  
560042 Bangalore Karnataka  
P +91 0804 1511 991 92 93  
F +91 0804 1511 989  
info@fischer.in  
www.fischer.in

**Italy**  
fischer italia S.R.L  
Corso Stati Uniti, 25, Casella  
Postale 391  
35127 Padova Z.I. Sud  
P +39 049 8 06 31 11  
F +39 049 8 06 34 01  
sercli@fischeritalia.it  
www.fischeritalia.it

**Japan**  
fischer Japan K.K.  
3-4-15 Kudan Minami, Pronte Kudan  
Building 3rd Floor  
102-0074 Tokyo  
P +81 33 26 34 49 1  
F +81 36 27 29 93 5  
info@fischerjapan.co.jp  
www.fischerjapan.co.jp

**Korea, Republic**  
fischer Korea Co., Ltd (fikr)  
F2,(Yangjae-dong, Samnyung Building)  
55 Maeheon-ro 6-gil, Seocho-gu,  
Seoul 06770 Korea  
P +82 1544 89 55  
F +82 1544 89 03  
info@fiskerkorea.com  
www.fiskerkorea.com

**Mexico**  
fischer Sistemas de Fijación, S.A.  
de C.V.  
Blvd. Manuel Avila Camacho  
3130-400 C  
54020 Col. Valle Dorado,  
Tlalnepantla  
P +52 55 55 72 08 83  
F +52 55 55 72 15 90  
info@fiskermex.com.mx  
www.fiskermex.com.mx

**Norway**  
fischer Norge AS  
Oluf Onsumsvei 9  
0680 Oslo  
P +47 23 24 27 10  
F +47 23 24 27 13  
ordre@fischernorge.no  
www.fischernorge.no

**Philippines**  
fischer PH Asia, Inc.  
No 100 Congressional Avenue,  
Project 8  
1106 Quezon City  
P +63 2426 0888 217  
F +63 2880 3256  
contactus@fischerph.com  
www.fischer.ph

**Poland**  
fischerpolska Sp.z o.o  
ul. Albatrosow 2  
30-716 Kraków  
P +48 12 2 90 08 80  
F +48 12 2 90 08 88  
info@fischerpolska.pl  
www.fischerpolska.pl

**Portugal**  
fischerwerke Portugal, Lda.  
Rua das Musas, Passeio dos Cruze-  
dos Lote 2.01 (Bloco3), Loja 8 (01.D) /  
Parque das Nações, 1990-171 Lisboa  
P +351 218 954 180  
F +351 218 967 066  
fischerportugal.info@fischer.pt  
www.fischer.pt

**Qatar**  
fischer fasteners QD Trading LLC  
Building No. 233, Office No. 8A,  
1st Floor, Street No. - 230,  
Zone No. 41, C Ring Road,  
Doha

**Romania**  
fischer fixings Romania S.R.L.  
Strada Oradiei, Nr. 1-3-5-7  
400220 Cluj Napoca, Judetul Cluj  
P +40 264 455 166  
F +40 264 403 060  
office@fischer.com.ro  
www.fischer.com.ro

**Russian Federation**  
OOO'fischer Befestigungssysteme  
Rus  
Leningradskoe shosse, 4ld, Bldg. 2,  
2nd floor, apt. VI, 125195 Moscow  
P +7 495 223 61 62  
F +7 495 223 03 34  
Info@fischerfixing.ru  
www.fischerfixing.ru

**Singapore**  
fischer systems Asia Pte. Ltd.  
4 Kaki Bukit Avenue 1, #01-06  
417939 Singapore  
P +65 6741 0480  
F +65 6741 0481  
sales@fischersg  
www.fischer.sg

**Finland**  
fischer Finland Oy  
Suomalaistentie 7 B  
02270 Espoo  
P +358 20 741 46 60  
F +358 20 741 46 69  
orders@fischerfinland.fi  
www.fischerfinland.fi

**Spain**  
fischer Ibérica S.A.U.  
Klaus Fischer 1, 43300 Mont-Roig del  
Camp, Tarragona  
P +34 977 83 87 11  
F +34 977 83 87 70  
servicio.cliente@fischer.es  
www.fischer.es

**Sweden**  
fischer Sverige AB  
Nygatan 93  
602 34 Norrköping  
P +46 11 31 44 50  
info@fischersverige.se  
www.fischersverige.se

**Netherlands**  
fischer Benelux B.V.  
Goolmeer 14  
1411 DE Naarden  
P +31 35 6 95 66 66  
F +31 35 6 95 66 99  
info@fischer.nl  
www.fischer.nl

**United Arab Emirates**  
fischer FZE  
R/A 07, BA - 04, Jebel Ali Free Zone  
Dubai  
P +97 14 8 83 74 77  
F +97 14 8 83 74 76  
enquiry@fischer.ae  
www.fischer.ae

**Türkiye**  
fischer Metal Sanayi Ve Ticaret  
Ltd Sti  
Cevizli Mahallesi, Mustafa Kemal  
Paşa Cad. Seyit Gazi Sok. No 66,  
Hukukcular Towers A Blok, 34865  
Kartal İstanbul  
P +90 216 326 00 66  
F +90 216 326 00 18  
info@fischer.com.tr  
www.fischer.com.tr

**Slovakia**  
fischer S.K. s.r.o.  
Nová Rožňavská 134 A  
831 04 Bratislava  
P +421 2 4920 60 46  
F +421 2 4920 60 44  
info@fischerwerke.sk  
www.fischer-sk.sk

**United States**  
fischer fixings LLC (flus)  
1084 Doris Road  
48326 Auburn Hills, Michigan  
P +1 973 256 30 45  
F +1 845 625 26 66  
sales@fischerus.net  
www.fischerfixingsusa.com

**United Kingdom**  
fischer fixings UK Ltd.  
Whitley Road  
Oxon OX10 9AT Wallingford  
P +44 1491 82 79 00  
F +44 1491 82 79 53  
info@fischer.co.uk  
www.fischer.co.uk



**fischer stands for**

fixing Systems

fischertechnik

Consulting

Electronic Solutions

---

**fischerwerke GmbH & Co. KG**

Klaus-Fischer-Straße 1 · 72178 Waldachtal  
Germany

P +49 7443 12-0

[www.fischer-international.com](http://www.fischer-international.com) · [info@fischer.de](mailto:info@fischer.de)

---