

HILTI

喜利得模块式
电缆密封系统

Hilti Cable
Transit System



更加安全的工作平台。
More safety on board.

Hilti. Outperform. Outlast.

值得依靠的伙伴。 **You can depend on us.**

作为国际领先的制造商，二十多年来喜利得一直致力于提供最高品质、方便耐用的防火产品。我们的服务贯穿于项目的整个过程，从前期的整体规划，到后期的设计以及施工时的现场培训，喜利得将为您提供全面的技术和产品支持。

作为值得您信赖的合作伙伴，我们将始终如一地向您提供高品质的产品和服务，帮助您提高工程的质量，获取最大的效益。

Hilti has been a leading manufacturer and supplier of high-quality, easy-to-use firestop systems for over 20 years. We support you at the preparatory and execution stages of your firestop projects by offering quick planning assistance, comprehensive technical literature and application-specific training.

With Hilti you can depend on high-grade products and services that secure your competitive edge by offering many decisive advantages and thus tremendous added value.

- 防火
 - 气密和水密-7道凹凸式结构实现更好的密封
 - 低库存-7种规格的模块，可覆盖从3mm-99mm外径的所有电缆
 - 高弹性变径环，可以快速调节变径范围
 - 一体化的结构，使垂直安装时更加快捷
 - 定位锚板设计和CFS-T SQU安装工具使安装更方便
 - 单螺栓压紧装置更便于安装
-
- Fire resistant
 - Gastight and watertight thanks to 7 sealing lips
 - Low inventory requirements-only 7 different modules are needed to cover all cable diameters from 3 to 99 mm
 - Versatile adapter modules for quick, easy accommodation of each cable diameter
 - Big savings thanks to module interlinking, especially where cables run vertically through deck penetrations.
 - Easy to install using anchor plates and the CFS-T SQU module squeezer
 - Wedge seals with only one bolt for quick installation



喜利得设计软件 Hilti planning software

第4页

框架选型 Selecting a transit frame

第6页

模块选型 The Hilti Cable Transit System

第10页

附件选型 Clever accessories

第12页

框架安装 Welding cable transit frames

第14页

模块安装 Installing the cable transit system

第16页

二次安装 Exchanging modules

第18页

圆形密封件 Selecting a plug seal

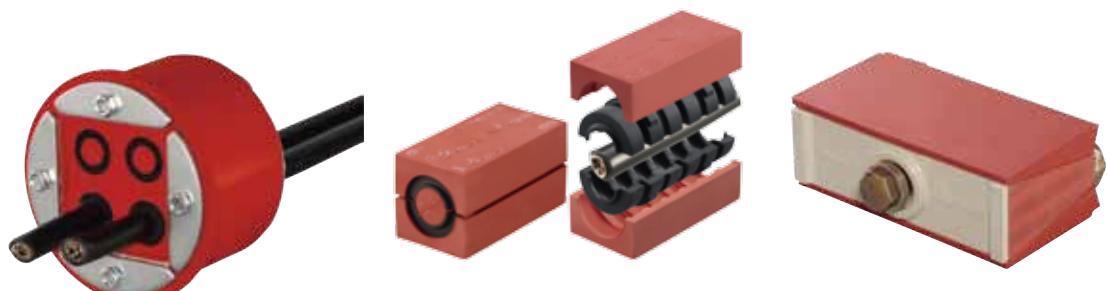
第20页

圆形密封件安装 Installing the plug seal system

第22页

产品系列清单 Overview of the product range

第24页



抗爆证书
Blast Report

EMC证书
EMC Report

ATEX防爆证书
EX Certificate

建筑防火报告 (GB23864)
Firestop Report (GB23864)



DNV 认证
DNV Certificate



ABS 认证
ABS Certificate



CCS 认证
CCS Certificate



BV 认证
BV Certificate



GL 认证
GL Certificate

喜利得模块化密封设计软件.

Hilti Cable Transit planning software.

快速设计防火解决方案.

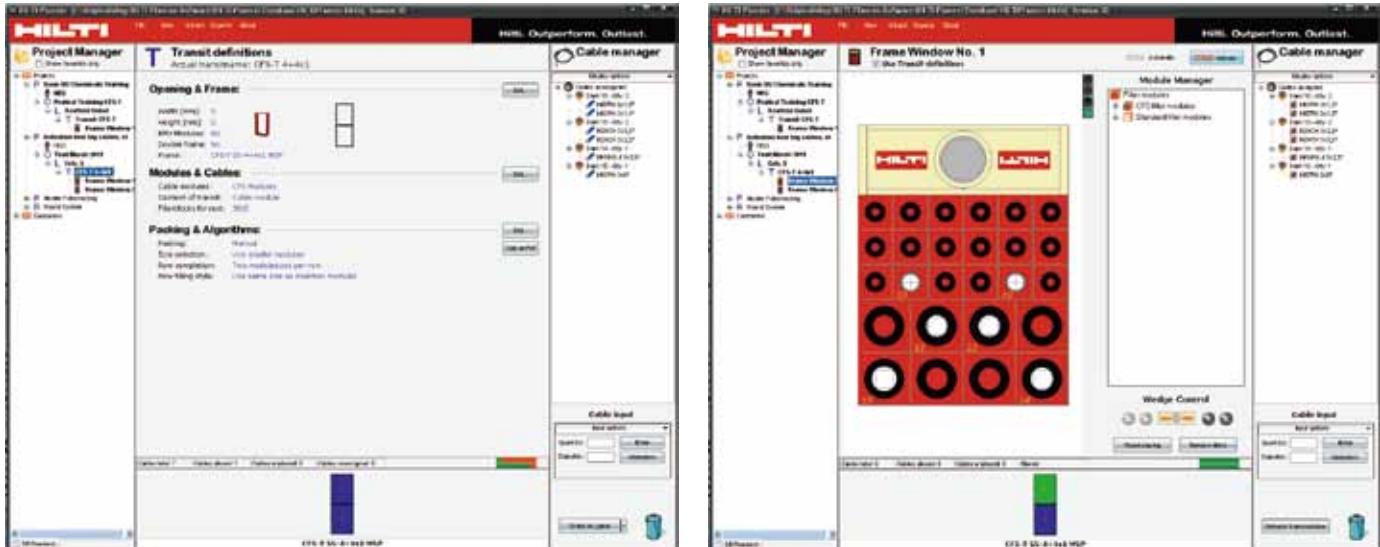
Puts firestop solutions at your fingertips.



喜利得模块化电缆密封系统设计软件可以帮助您在项目初期制定高标准的安全设计。

它可以帮助您计算和选择正确的框架和模块，制定精准的材料单，并让您根据安装的需要定义每根电缆。这种易于使用的软件可以帮助您从开始就节省时间和费用。

The Hilti Cable Transit PC application helps you achieve high safety standards right from the very earliest stages of your project. It helps you calculate and select frames and modules of the right dimensions for your projects, prepares accurate bills of materials and lets you define each individual cable according to the needs of the installation. This easy-to-use program helps you save time and costs right from the word go.



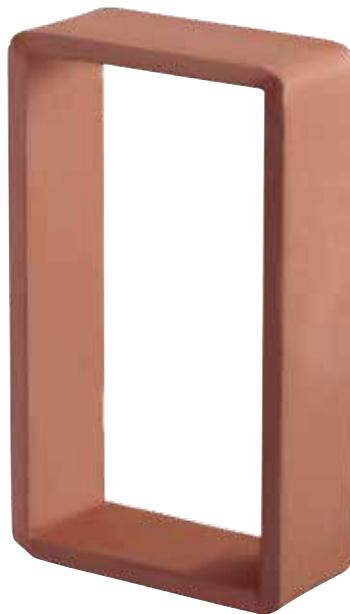
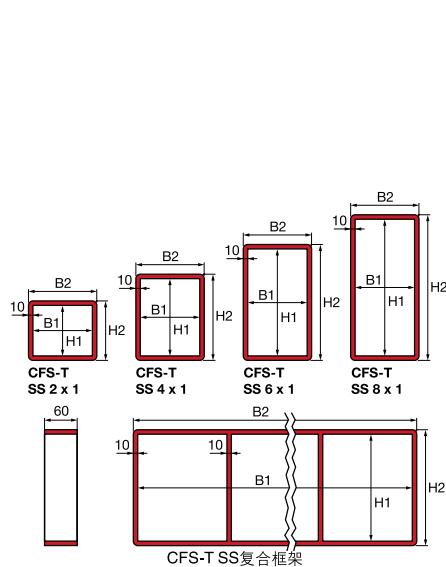
- 按照开孔尺寸和电缆外径设计需要的框架和模块 (CFS-T-SS, CFS-T-RR)
- 按照电缆的数量、尺寸和规格设计精确的密封系统
- 自动生成设计图纸和订货清单
- Designing and calculating the frames and modules required according to the size of the opening and applicable materials (CFS-T-SS, CFS-T-RR).
- Precise planning of all cable transits according to the number, size and type of cables.
- Preparation of parts lists and drawings to be used as a basis for ordering the items required for a project.

- 可以直观地显示每套系统的彩色设计图以及其他信息
- 通过喜利得设计软件，设计人员可对每一根电缆的位置进行调整
- Presentation of the frame packing and cable layout plans for each cable transit, plus documentation containing all project-relevant information.
- The Project Manager incorporated in the Hilti planning software takes the user step-by-step through the project, designing each cable transit on the basis of the specific cable configuration.

全方位的安全密封.

Safety on all sides.

CFS-T SS 框架 CFS-T SS transit frames



喜利得CFS-T SS 框架对在船舶和海工钢结构上的安装进行了优化。四个基本的尺寸涵盖所有常用的贯穿尺寸的要求，且很容易进行组合。

Hilti CFS-T SS transit frames have been optimized for use in steel structures in shipbuilding and offshore installations. Only four basic sizes, easily combinable to suit requirements, are all it takes to cover penetrations of all common sizes.

认证

认证由国际认证机构发布，确认产品符合 SOLAS A60甲板和IMO 754 (18) 舱壁的要求。

Approvals

Approvals issued by international certification organizations for use of the product in SOLAS A60 decks and bulkheads in accordance with IMO 754(18) are available on request.

材质

- St.37镀锌低碳钢
- 316不锈钢
- Si.05铝材

Material quality

- Standard, steel St.37, rust preventive primer coated
- Stainless steel, material grade 1.4571/A4 (DIN 17456 or AISI 316Ti).
- Aluminium, material grade Al.Mg.Si.05

CFS-T SS 框架尺寸

Dimensions of CFS-T SS transit frames

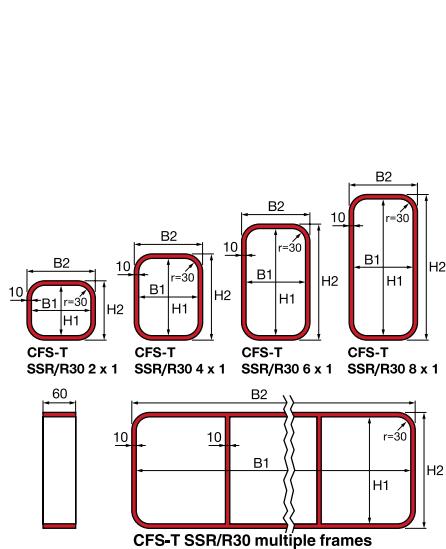
| CFS-T SS | 2 x 1 | 2 x 2 | 2 x 3 | 2 x 4 | 2 x 5 |
|-----------------|-----------|-----------|-----------|-----------|-----------|
| H1 x B1 (in mm) | 101 x 120 | 101 x 250 | 101 x 380 | 101 x 510 | 101 x 640 |
| H2 x B2 (in mm) | 121 x 140 | 121 x 270 | 121 x 400 | 121 x 530 | 121 x 660 |
| | 4 x 1 | 4 x 2 | 4 x 3 | 4 x 4 | 4 x 5 |
| H1 x B1 (in mm) | 160 x 120 | 160 x 250 | 160 x 380 | 160 x 510 | 160 x 640 |
| H2 x B2 (in mm) | 180 x 140 | 180 x 270 | 180 x 400 | 180 x 530 | 180 x 660 |
| | 6 x 1 | 6 x 2 | 6 x 3 | 6 x 4 | 6 x 5 |
| H1 x B1 (in mm) | 218 x 120 | 218 x 250 | 218 x 380 | 218 x 510 | 218 x 640 |
| H2 x B2 (in mm) | 238 x 140 | 238 x 270 | 238 x 400 | 238 x 530 | 238 x 660 |
| | 8 x 1 | 8 x 2 | 8 x 3 | 8 x 4 | 8 x 5 |
| H1 x B1 (in mm) | 277 x 120 | 277 x 250 | 277 x 380 | 277 x 510 | 277 x 640 |
| H2 x B2 (in mm) | 297 x 140 | 297 x 270 | 297 x 400 | 297 x 530 | 297 x 660 |

公差：CFS-T SS 框架单位公差为-0.0/+0.4毫米。因此，复合型框架的最大公差不超过4毫米（B1/B2维度）。

Tolerances: CFS-T SS frames are manufactured with a tolerance of -0.0/+0.4 mm for each frame window. Accordingly, with multiple frame combinations, total tolerance may be up to 4 mm (dimensions B1/B2).

满足极端环境需求。 For extreme demands.

CFS-T SSR / R30 框架 CFS-T SSR/R30 transit frames



喜利得 CFS-T SSR/R30 高强度框架，用于船舶和海工钢结构的特高负荷应用。

Hilti CFS-T SSR/R30 transit frames are the high-strength alternative for steel structures in shipbuilding and offshore applications where the frame is subjected to extra-high loads.

认证

认证由国际认证机构发布，确认产品符合 SOLAS A60 甲板和 IMO 754 (18) 舱壁的要求。

Approvals

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材质

- St.37镀锌低碳钢

Material quality

- Standard, steel St.37, rust preventive primer coated

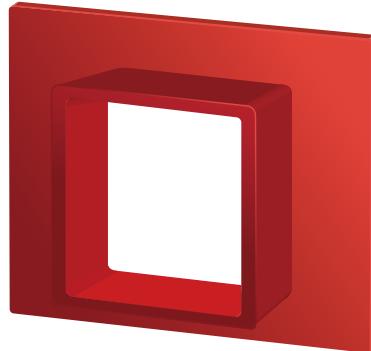
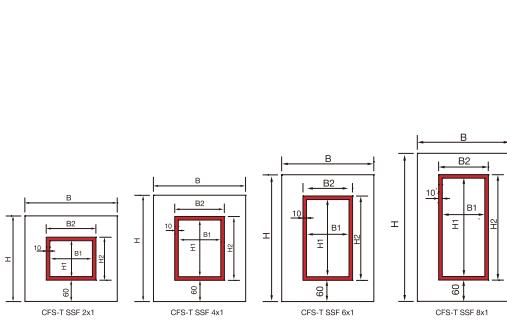
CFS-T SSR / R30 框架尺寸

Dimensions of CFS-T SSR/R30 transit frames

| CFS-T SSR/R30 | 4 x 1 | 4 x 2 | 4 x 3 | 4 x 4 | 4 x 5 |
|-----------------|-----------|-----------|-----------|-----------|-----------|
| H1 x B1 (in mm) | 160 x 120 | 160 x 250 | 160 x 380 | 160 x 510 | 160 x 640 |
| H2 x B2 (in mm) | 180 x 140 | 180 x 270 | 180 x 400 | 180 x 530 | 180 x 660 |
| | 6 x 1 | 6 x 2 | 6 x 3 | 6 x 4 | 6 x 5 |
| H1 x B1 (in mm) | 218 x 120 | 218 x 250 | 218 x 380 | 218 x 510 | 218 x 640 |
| H2 x B2 (in mm) | 238 x 140 | 238 x 270 | 238 x 400 | 238 x 530 | 238 x 660 |
| | 8 x 1 | 8 x 2 | 8 x 3 | 8 x 4 | 8 x 5 |
| H1 x B1 (in mm) | 277 x 120 | 277 x 250 | 277 x 380 | 277 x 510 | 277 x 640 |
| H2 x B2 (in mm) | 297 x 140 | 297 x 270 | 297 x 400 | 297 x 530 | 297 x 660 |

多样化的安装方式. Diversity of installation.

CFS-T SSF 框架 CFS-T SSF frame



喜利得CFS-T SSF框架用于电力、石化、商业建筑等混凝土基材，可采用浇注、栓接、焊接三种方式安装。四种基本框架自由组合，以满足不同尺寸孔洞的要求。

Hilti CFS-T SSF frames work for power, petrochemical, commercial buildings and other concrete substrate, can be cast, bolted, welded installation in three ways. Free combination of four basic frames to meet the requirements of different hole sizes.

认证

认证由国际认证机构发布，确认产品符合 SOLAS A60甲板和IMO 754 (18) 舱壁的要求。

Approvals

Approvals issued by international certification organizations for use of the product in SOLAS A60 decks and bulkheads in accordance with IMO 754(18) are available on request.

材质

- St.37镀锌低碳钢
- 316不锈钢
- Si.05铝材

Material quality

- Standard, steel St.37, rust preventive primer coated
- Stainless steel, material grade 1.4571/A4 (DIN 17456 or AISI 316Ti).
- Aluminium, material grade Al.Mg.Si.05

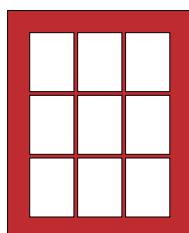
CFS-T SSF 单框框架尺寸

根据客户需要可订制更多特殊框型。

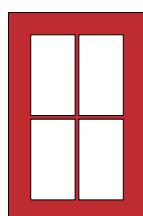
CFS-T SSF single box frame size

Can be customized according to customer needs more special frame type.

| CFS-T SSF | 2 x 1 | 4 x 1 | 6 x 1 | 8 x 1 |
|-----------------|-----------|-----------|-----------|-----------|
| H1 x B1 (in mm) | 101 x 120 | 160 x 120 | 218 x 120 | 277 x 120 |
| H2 x B2 (in mm) | 121 x 140 | 180 x 140 | 238 x 140 | 297 x 140 |
| H x B (in mm) | 241 x 260 | 300 x 260 | 358 x 260 | 417 x 260 |



CFS-T SSF 4+4+4x3



CFS-T SSF 6+6x2



CFS-T SSF 8+8+8x1

CFS-T SSF 复合框框架尺寸

CFS-T SSF composite box frame size

| | H2 | H | B2 | B | B2 | B | B2 | B | |
|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|-----|
| | | | x1 | | x2 | | x3 | | x4 | | x5 | | x6 | | x7 | | x8 | | x9 | | x10 |
| CFS-T SSF 2 | 121 | 241 | | | | | | | | | | | | | | | | | | | |
| CFS-T SSF 2+2 | 232 | 352 | 140 | 260 | 270 | 390 | 400 | 520 | 530 | 650 | 660 | 780 | 790 | 910 | 920 | 1040 | 1050 | 1170 | 1180 | 1300 | |
| CFS-T SSF 2+2+2 | 343 | 463 | | | | | | | | | | | | | | | | | | 1310 | |
| CFS-T SSF 2+2+2+2 | 454 | 574 | | | | | | | | | | | | | | | | | | 1430 | |

| | H2 | H | B2 | B | B2 | B | B2 | B | B2 | B |
|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|-----|---|
| | | | x1 | | x2 | | x3 | | x4 | | x5 | | x6 | | x7 | | x8 | | x9 | | x10 | |
| CFS-T SSF 4 | 180 | 300 | | | | | | | | | | | | | | | | | | | | |
| CFS-T SSF 4+4 | 350 | 470 | 140 | 260 | 270 | 390 | 400 | 520 | 530 | 650 | 660 | 780 | 790 | 910 | 920 | 1040 | 1050 | 1170 | 1180 | 1300 | | |
| CFS-T SSF 4+4+4 | 520 | 640 | | | | | | | | | | | | | | | | | | 1310 | | |
| CFS-T SSF 4+4+4+4 | 690 | 810 | | | | | | | | | | | | | | | | | | 1430 | | |

| | H2 | H | B2 | B | B2 | B | B2 | B | B2 | B |
|-------------------|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|-----|---|
| | | | x1 | | x2 | | x3 | | x4 | | x5 | | x6 | | x7 | | x8 | | x9 | | x10 | |
| CFS-T SSF 6 | 238 | 358 | | | | | | | | | | | | | | | | | | | | |
| CFS-T SSF 6+6 | 466 | 586 | 140 | 260 | 270 | 390 | 400 | 520 | 530 | 650 | 660 | 780 | 790 | 910 | 920 | 1040 | 1050 | 1170 | 1180 | 1300 | | |
| CFS-T SSF 6+6+6 | 694 | 814 | | | | | | | | | | | | | | | | | | 1310 | | |
| CFS-T SSF 6+6+6+6 | 922 | 1042 | | | | | | | | | | | | | | | | | | 1430 | | |

| | H2 | H | B2 | B | B2 | B | B2 | B | B2 | B |
|-------------------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|-----|---|
| | | | x1 | | x2 | | x3 | | x4 | | x5 | | x6 | | x7 | | x8 | | x9 | | x10 | |
| CFS-T SSF 8 | 297 | 417 | | | | | | | | | | | | | | | | | | | | |
| CFS-T SSF 8+8 | 584 | 704 | 140 | 260 | 270 | 390 | 400 | 520 | 530 | 650 | 660 | 780 | 790 | 910 | 920 | 1040 | 1050 | 1170 | 1180 | 1300 | | |
| CFS-T SSF 8+8+8 | 871 | 991 | | | | | | | | | | | | | | | | | | 1310 | | |
| CFS-T SSF 8+8+8+8 | 1158 | 1278 | | | | | | | | | | | | | | | | | | 1430 | | |

* 用于电缆已经穿越工况的开放式框架请咨询当地技术工程师

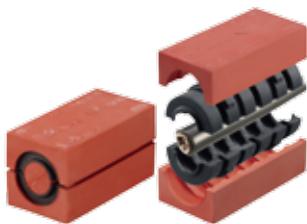
快速、方便、灵活。

Quick, easy and versatile.

喜利得模块化电缆密封系统。

The Hilti Cable Transit System.

变径模块 **One system - a host of advantages**



每一个变径模块都能同时解决防火、气密和水密三个问题。变径模块由基本模块，变径垫圈和中心塞组成，不仅可以实现电缆的安全密封，还能被重复使用。不但能节省时间，降低成本，还有助于使库存降到最低。

Designed as a modular system, the Hilti Cable Transit System solves three problems simultaneously. These versatile sets consisting of the fire-resistant, gas- and watertight basic module, module adapter and core module not only seal around cables quickly and reliably, they're also re-usable. That saves time, cuts costs and helps keep your inventory to a minimum.

基本模块 **Basic module**



基本模块可实现2-3毫米的变径范围（不使用变径垫圈时）。出厂时为一体化结构，根据需要也可以单独使用。模块具有7种规格（15, 20, 30, 40, 60, 90, 120）。

The basic module for sealing around cables to a tolerance of 2-3 mm (without use of an adapter). The modules are supplied in a joined-together state but can be easily separated for individual use. Available in 7 different module sizes (15, 20, 30, 40, 60, 90 and 120mm).



变径垫圈 **Adapter module**

有黑色和灰色两种，各自可实现3-5毫米的变径范围。

Adapter modules in black or gray for sealing around cables to a tolerance of 3-5 mm.

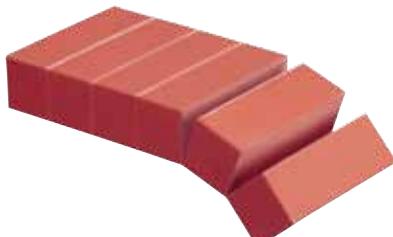


中心塞 **Core module**

在预留的模块里安装中心塞代替电缆。

The core module is used as a filler where space is reserved for future cable installations.

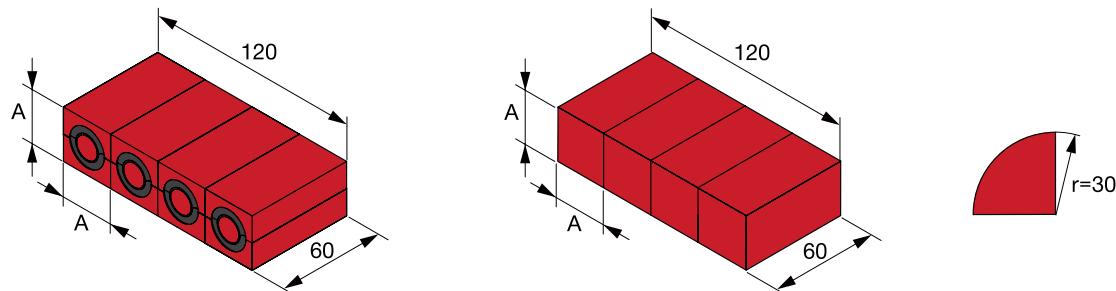
盲堵模块 **Filler modules**



为将来电缆安装预留空间时，可以用5, 10, 15, 20和30毫米边长的盲堵模块。盲堵模块出厂时是一体化结构，可以根据需要单独使用。

Space reserved for future cable installations can be filled with the filler modules in the sizes 5, 10, 15, 20 and 30mm. The filler modules are supplied in a joined-together state (filler module blocks) but can be easily separated for individual use.

模块尺寸. Dimensions of the basic modules.



| 模块 Module | A维 (毫米) Dimension A in mm | B维 (毫米) Dimension B in mm | 电缆直径范围 Cable diameter range |
|---|------------------------------|------------------------------|--------------------------------|
| CFS-T 15/0+3-9 电缆模块 CFS-T 15/0+3-9 cable module | 15 | 60 | 0; 3 – 9 |
| CFS-T 20/0+5-12 电缆模块 CFS-T 20/0+5-12 cable module | 20 | 60 | 0; 5 – 12 |
| CFS-T 30/0+13-23 电缆模块 CFS-T 30/0+13-23 cable module | 30 | 60 | 0; 13 – 23 |
| CFS-T 40/0+23-33 电缆模块 CFS-T 40/0+23-33 cable module | 40 | 60 | 0; 23 – 33 |
| CFS-T 60/0+34-51 电缆模块 CFS-T 60/0+34-51 cable module | 60 | 60 | 0; 34 – 51 |
| CFS-T 90/0+52-78 电缆模块 CFS-T 90/0+52-78 cable module | 90 | 60 | 0; 52 – 78 |
| CFS-T 120/0+79-99 电缆模块 CFS-T 120/0+79-99 cable module | 120 | 60 | 0; 79 – 99 |
| CFS-T FB 24x5/0 盲堵模块 CFS-T FB 24x5/0 filler module | 5 | 60 | 0 |
| CFS-T FB 12x10/0 盲堵模块 CFS-T FB 12x10/0 filler module | 10 | 60 | 0 |
| CFS-T FB 15/0 盲堵模块 CFS-T FB 15/0 filler module | 15 | 60 | 0 |
| CFS-T FB 20/0 盲堵模块 CFS-T FB 20/0 filler module | 20 | 60 | 0 |
| CFS-T FB 30/0 盲堵模块 CFS-T FB 30/0 filler module | 30 | 60 | 0 |
| CFS-T FB 30/0R30 盲堵模块 (round, for frame type CFS-T SSR/R30) CFS-T FB 30/0R30 filler module (round, for frame type CFS-T SSR/R30) | r = 30 | 60 | 0 |

附件. Clever accessories.



楔形压紧套件 **Wedge compression kit**

CFS-T WD 120楔形压紧套件用于快速安装模块和盲堵。压紧件可以放在框架的任何地方，用一个中心螺栓拧紧。螺栓和锚板由镀锌钢板或A4不锈钢材料1.4571 (AISI316Ti) 制成。CFS-T WD 120楔形压缩套件附带4个普通锚板，一个定位锚板和一瓶润滑油（30克）组成。

The CFS-T WD 120 wedge compression kit is used to allow quick and easy compression of modules and filler blocks for an effective seal. The sealing wedge can be placed anywhere within the frame and there is only one central bolt to be tightened. Available with bolt and counter-plate made from galvanized steel or A4 stainless steel material 1.4571 (AISI 316Ti). The CFS-T WD 120 wedge compression kit is supplied complete with 4 anchor plates, one fixing anchor plate and lubricant (30 g).



普通锚板 **Anchor plate**

锚板用于模块和盲堵的安装，将模块固定在框架内并紧密结合，从而增强其对静态和动态压力的防御。锚板由镀锌钢板或A4不锈钢材料1.4571 (AISI316Ti) 或铝制成。锚板安装在每层模块之间，以及模块和压紧件之间。

The anchor plate facilitates assembly of the cable modules and filler modules, secures these within the frame and increases tightness of the seal against static and dynamic pressure. The anchor plate is available in galvanized steel, A4 stainless steel material 1.4571 (AISI 316Ti) or in aluminium. Use one anchor plate between each row of modules and also to secure the CFS-T WD 120 wedge.



定位锚板 **Fixing anchor plate**

在使用安装工具预压模块时，可以将定位锚板坚固螺丝拧紧固定在框架上，从而留出空间安装最后一层模块和压紧件。当密封的电缆数量较多时建议使用定位锚板。

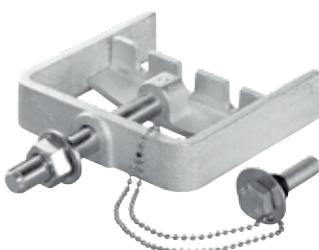
The fixing anchor plate is used in conjunction with the module squeezer. After precompression of the modules, the fixing anchor plate can be secured by tightening the screws against the frame. It thus holds the rows of modules in their precompressed position. This facilitates insertion of the last module and the wedge seal. Use of the fixing anchor plate is recommended in situations where a large number of cables pass through the transit frame.



安装工具 **Module squeezer**

安装工具使用千斤顶原理对模块进行预压紧，从而方便剩余模块和压紧件的插入。

The module squeezer uses the screw jack principle to achieve easy precompression of the modules before insertion of the row, or last two rows, and thus facilitates further assembly of the cable modules and insertion of the wedge seal.



拆装工具 **Wedge puller**

在二次安装时，使用拆装工具用于拆卸压紧件。

The wedge puller is used as a disassembly tool to aid removal of the CFS-T WD 120 wedge seal without damage to allow subsequent retrofitting of additional cables.



更加安全的工作平台.

喜利得. 性能卓越. 经久耐用.

喜利得CFS-T SS框架的焊接规程。

Welding procedure for Hilti CFS-T SS transit frames.

喜利得CFS-T框架的A60级舱壁或甲板焊接

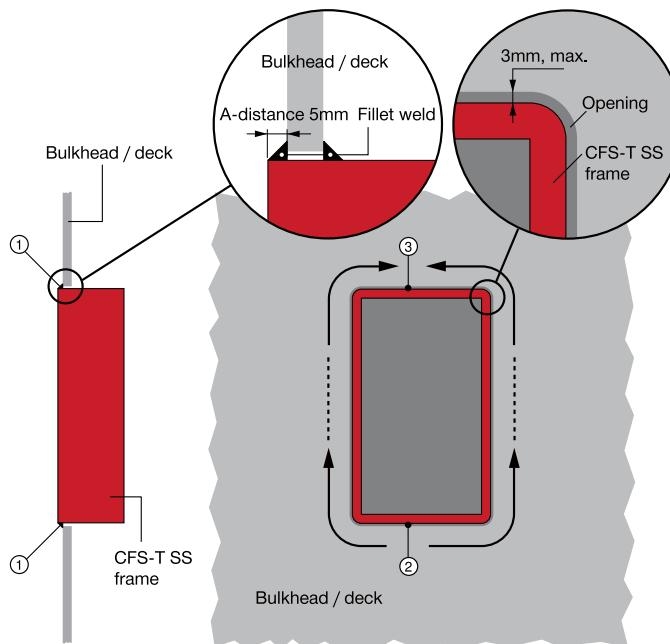
焊接过程取决于的各种参数（框架尺寸，厚度，钢墙/舱壁/甲板的大小和加固程度）。这些说明仅作为指导。但也有一些必须遵守，以避免有关框架尺寸公差和可能的钢板扭曲的问题。应使用药芯焊丝电弧焊或焊条电弧焊方法。

焊接方法：药芯焊丝电弧焊 (FCAW)

Instructions for welding Hilti CFS-T frames into class A60 bulkheads or decks

The welding procedure depends on various parameters (size of frame, thickness, size and reinforcement of steel wall / bulkhead / deck). These instructions thus serve only as a guide. There are, however, some important points that must be observed in order to avoid problems regarding frame size tolerances and possible warping of the steel sheet. Either the flux-cored arc or shielded metal arc welding method should be used.

Welding method: flux-cored arc welding (FCAW)



开孔尺寸公差 Size tolerances of the opening

开孔尺寸公差不应超过框架尺寸6毫米。

The size of the opening should not exceed the size of the frame by more than 6 mm.

焊接 The weld

“A” 点厚度应不小于5毫米。

常识

焊接部分可能有底漆涂层（可焊接底漆），但不能有油脂，油，水和氧化物等。焊接超过500毫米大小的复合框架时，应始终首先焊接垂直缝焊，从底部开始。环境温度低于10°C的情况下，建议焊接开始前预热该框架焊接位置周边宽度100毫米的区域。

Dimension “A” should be no less than 5 mm.

焊接顺序 Welding sequence

1. 点焊 / 对焊固定框架
2. 焊接起点
3. 焊接终点

 1. Secure the frame in position with spot / step welds
 2. Start welding at this point
 3. Finish welding at this point

General points

Parts to be welded may be primer coated (weldable primer) but must be free from grease, oil, water and oxides etc. When welding multiple frames of over 500 mm in size, the vertical seams should always be welded first, beginning at the bottom.

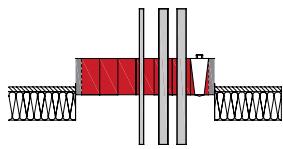
In situations where the ambient temperature is below 10° C, it is recommended that the area up to a width of 100 mm around the frame is preheated before beginning welding.

喜利得 CFS-T SS 框架安装实例。 Installation examples for Hilti CFS-T SS transit frames.

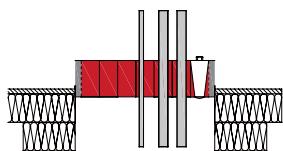
喜利得拥有大量的国际认证，以满足符合海洋或近海环境IMO7541 (18) A类，气密性和水密性等要求。下面安装图示可满足单独的证书或测试报告的要求。

Hilti holds a large number of approvals issued by international certification organizations for use of this product in marine or offshore applications in accordance with IMO 7541(18) class A, gastight and watertight. The installation examples given below are shown in the form of block diagrams and may be adapted to meet the requirements of the individual approval certificates or test reports.

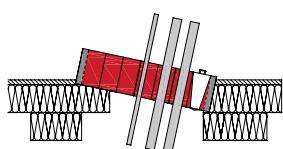
甲板安装 Installation in decks



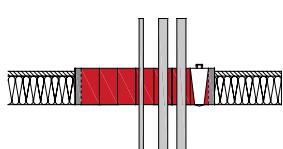
凸出式安装1 Frame surface mounted, with deck insulation



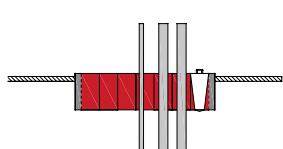
凸出式安装2 Frame surface mounted, with insulation collar



倾角式安装 Frame mounted at an angle, with insulation collar

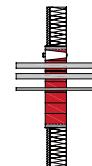


埋入式安装1 Frame flush mounted, with deck insulation

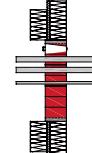


埋入式安装2 Frame flush mounted, without deck insulation

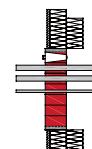
舱壁安装 Installation in bulkheads



埋入式安装1 Frame flush mounted, with bulkhead insulation



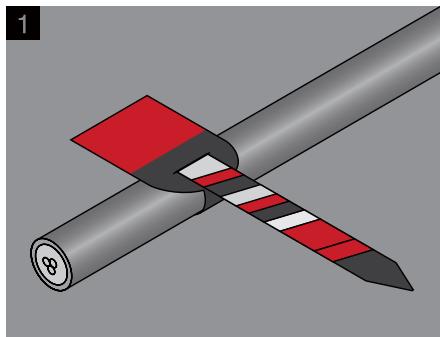
埋入式安装2 Frame flush mounted, with insulation collar



埋入式安装3 Frame flush mounted, with insulation collar

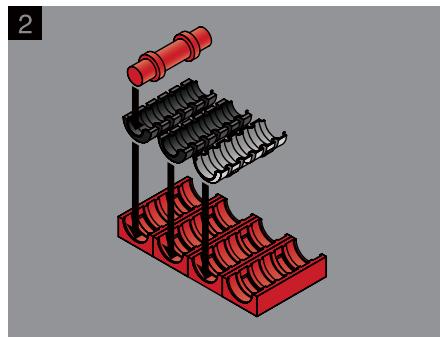
模块安装.

Installing the system - this is how it's done in a few easy steps.



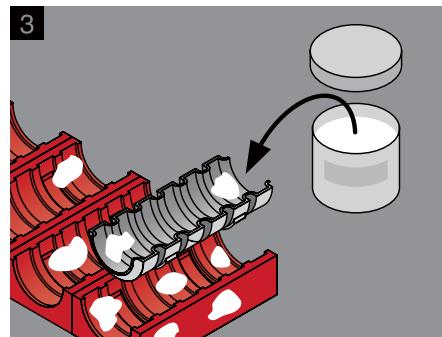
测量电缆外径，选取合适的模块

Wrap the Hilti size gauge around the cable in order to determine the module and adapter size required.



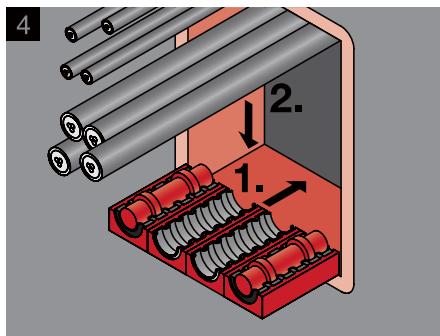
选择变径垫圈

If necessary, remove the black adapter and replace it with one of the correct size or, depending on the size required, use the basic module without the adapter.



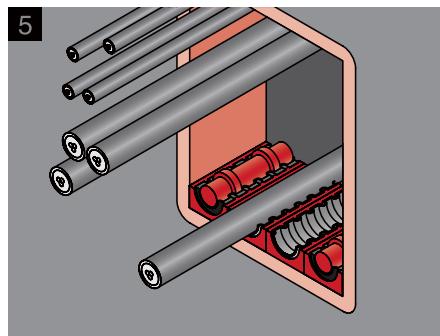
涂抹润滑油

Carefully apply Hilti CFS-T LUB lubricant to all system parts.



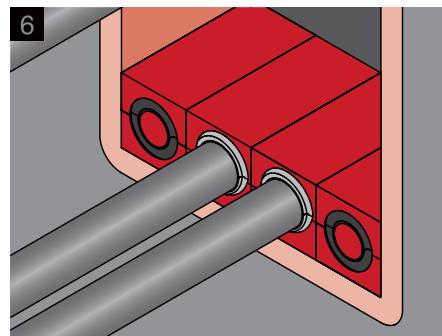
安装底层模块

Place the open module in the frame beneath the cables.



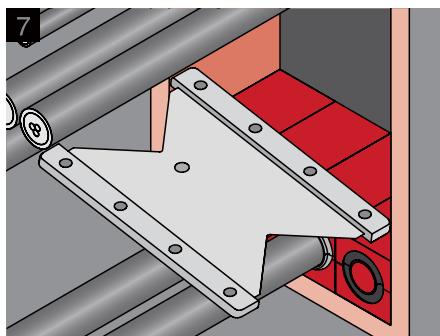
放入电缆

Position the cables in the module.



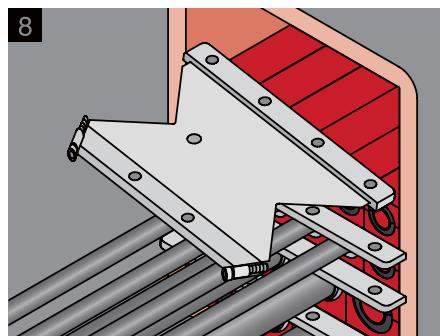
放入顶层模块

Close the module by fitting the appropriate top half.



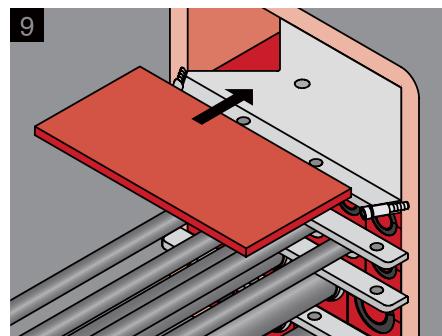
放置锚板，并逐层安装模块

Place the anchor plate on top of the module row and then continue with the next row as described above, using modules of the appropriate sizes.



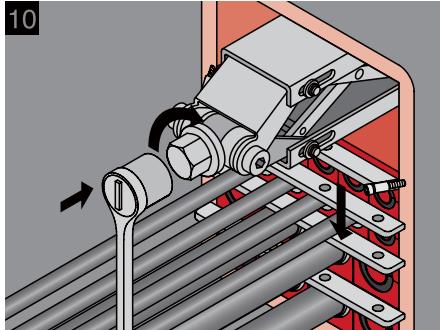
在倒数第二行模块上放置定位锚板

Place the fixing anchor plate on top of the second-last module row.



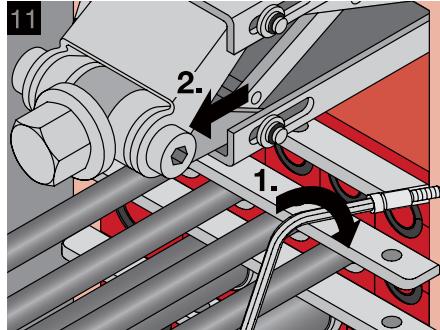
在定位锚板上放置橡胶压板

Place the pressure plate on top of the last anchor plate in the frame.



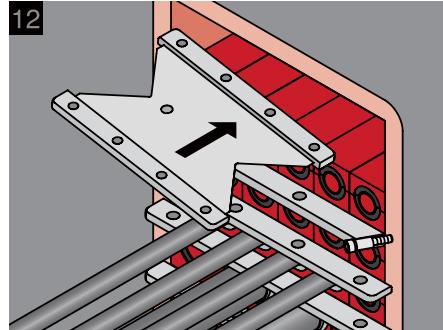
使用安装工具进行预压紧

Position the module squeezer centrally in the space above the last module and apply pressure by turning the spindle with a suitable wrench.



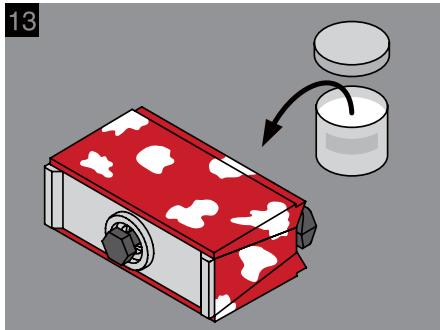
拧紧定位锚板上的螺丝

Tighten the screws on the fixing anchor plate. Remove the module squeezer. The modules remain compressed, making it easier to insert the wedge seal.



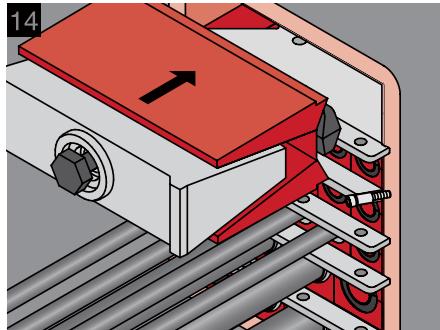
放置最后一层模块和隔板

The last module row and anchor plate can then be inserted.



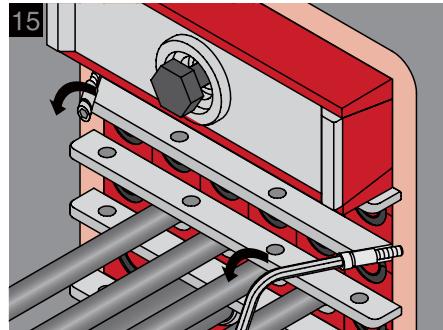
压紧件涂抹润滑油

Apply lubricant to all surfaces of the CFS-T WD 120 wedge seal.



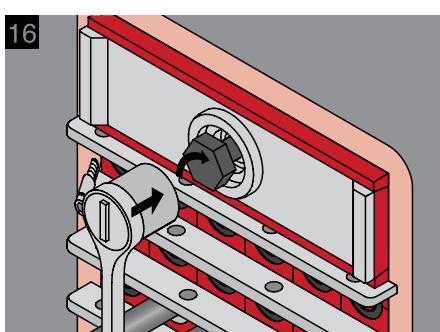
放入压紧件

Push the wedge seal into the remaining space in the frame.



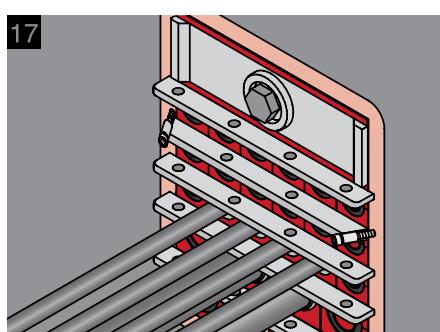
松开定位锚板上的螺丝

Release the screws on the fixing anchor plate before tightening the bolt in the wedge seal.



拧紧压紧件上的螺栓

Secure the whole assembly by tightening the bolt in the wedge seal with a suitable wrench.



按照安装规范表逐项检查

Make sure that all modules have been correctly installed in accordance with the points in the checklist.

安装规范表

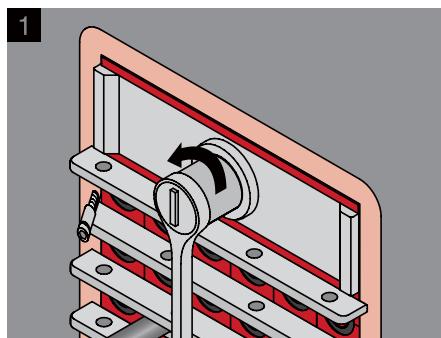
- 压紧件是否完全插入在框架内?
- 模块是否全部嵌入在锚板内部?
- 模块的数量是否正确
- 模块的选型是否正确
- 变径垫圈安装是否正确
- 润滑油的涂抹是否正确

Installation checklist

- Is the wedge seal completely, or almost completely, within the frame?
- Are all modules securely seated behind the raised edge of the anchor plate where they cannot fall out?
- Has the right number of modules been installed? Check the original installation plan.
- Have modules of the correct size been installed? Check the original installation plan.
- Have module adapters and core modules of the correct color been installed (gray, red, black or none)?
- Were the modules well lubricated?

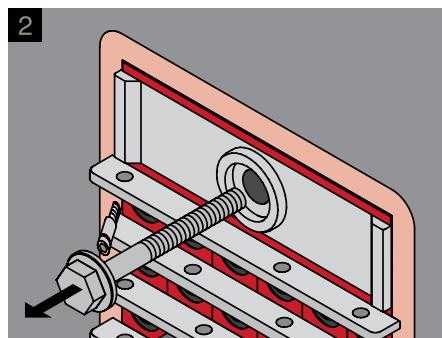
快捷的模块更换.

Exchanging the modules quickly and easily.



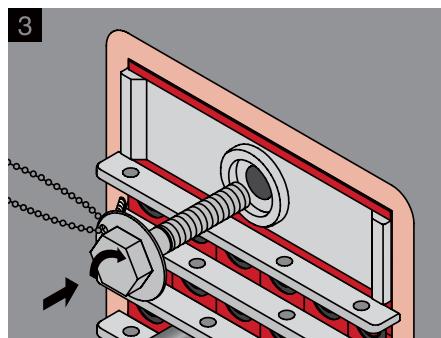
用扳手松开压紧件上的螺母

Use a wrench to unscrew the bolt in the wedge seal.



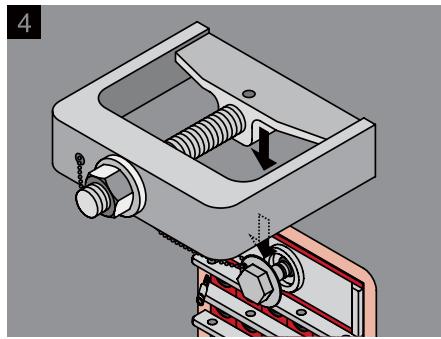
移除压紧件上的螺栓

Remove the bolt from the wedge seal.



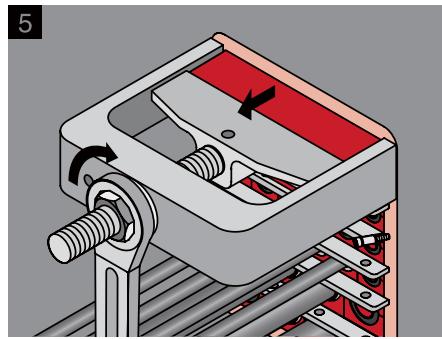
装入拉拔螺栓（在拆装工具上）

Insert the pulling bolt (attached to the wedge puller).



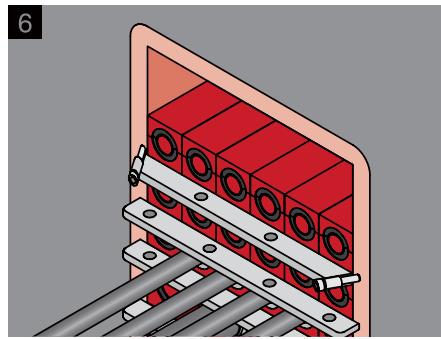
将拆装工具卡在拉拔螺栓上

Bring the CFS-T WD 120 wedge puller into position so that it grips the head of the pulling bolt.



用M24的圆形扳手转动螺帽将压紧件从框架上拉出

Pull the wedge seal out of the frame by turning the nut on the puller with an M24 ring wrench.

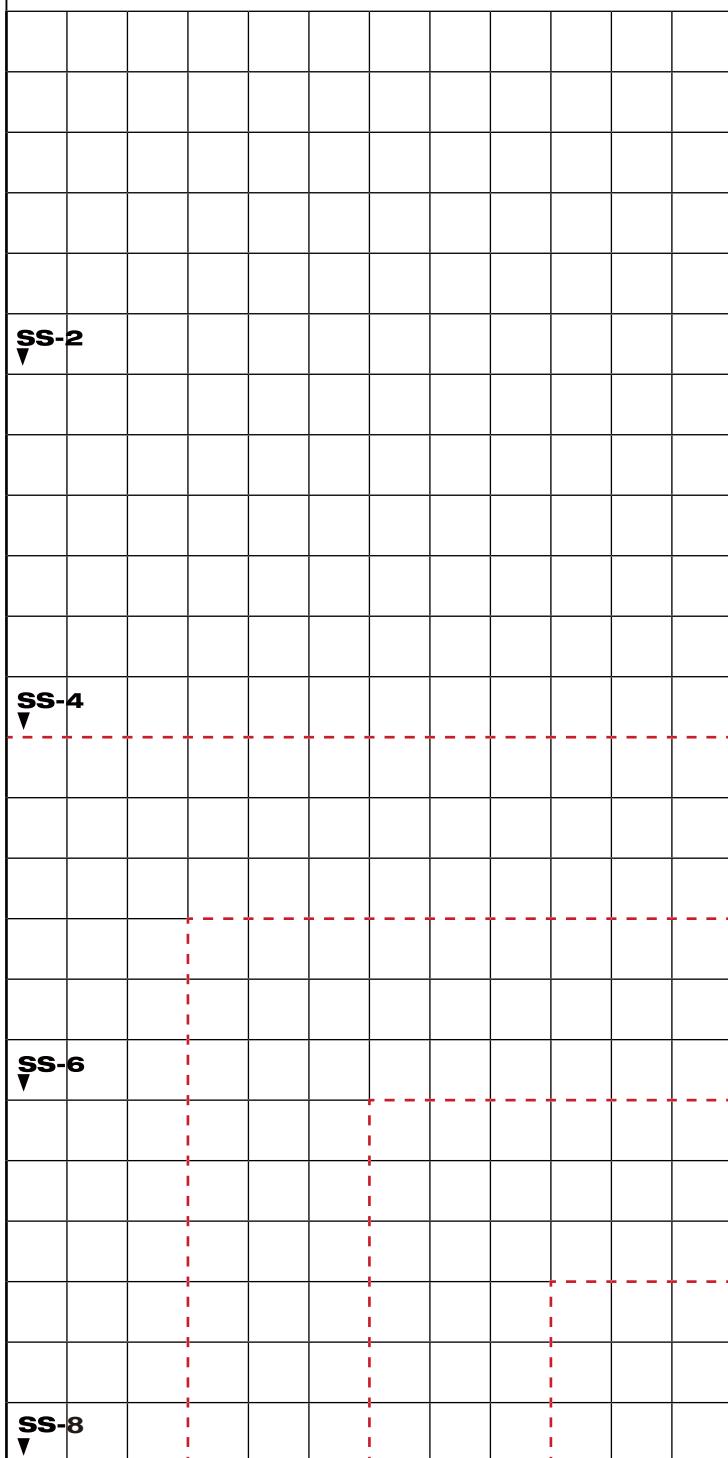


从框架中移除相应的模块，然后按照安装说明重新安装所需模块

Remove the applicable modules from the frame and then follow the installation instructions when refitting the required items.

K-120压紧件的空间已经考虑在内。

Space for the K-120 wedge seal is already taken into account.



信息 Information

模块设计表格

这幅图以每一格10毫米的比例展示了SS-2/4/6/8的框架和RR-50/70/100/125/150/200密封件的可用空间。可作为参考设计各种模块。

模块容量/空间要求:

Frame packing plan

The drawing shows the space available in one frame window of the types SS-2/4/6/8 and for the plug seals of the types RR-50/70/100/125/150/200 in 10 mm increments and thus serves as a planning aid for positioning the modules.

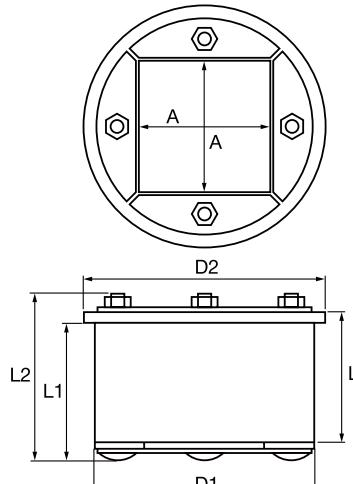
Module capacity / space requirements:

| | |
|---------|-----------|
| SS-2: | 120x60mm |
| SS-4: | 120x120mm |
| SS-6: | 120x180mm |
| SS-8: | 120x240mm |
| RR-50: | 30x30mm |
| RR-70: | 40x40mm |
| RR-100: | 60x60mm |
| RR-125: | 80x80mm |
| RR-150: | 90x90mm |
| RR-200: | 120x120mm |

圆形电缆密封解决方案.

The solution for round cable transits.

CFS-T RR 密封件系统 CFS-T RR plug seal



技术信息

CFS-T RR密封件由无卤和高阻燃弹性合成橡胶与拉力螺栓和镀锌钢板或A4不锈钢板1.4571 (AISI316Ti) 组成。

Technical information

The CFS-T RR plug seal consists of an elastic, halogen-free and highly flame-resistant synthetic rubber (HFE) insert with tensioning bolts and plates made from galvanized steel or A4 stainless steel material 1.4571 (AISI316Ti).

CFS-T RR密封件系统是喜利得电缆密封的重要组成部分，用于圆形开口的电缆封堵。具有防火，水密和气密性能。

The CFS-T RR plug seal is an important component of the Hilti cable transit system for sealing around cables in circular openings.

It forms a fire-resistant, watertight and gastight seal.

CFS-T RR 密封塞的尺寸

Dimensions of the CFS-T RR plug seal

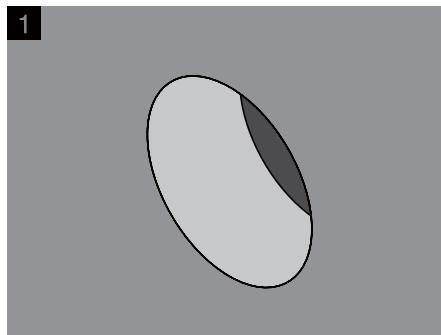
| 种类 Type | 应用空间 Space avail. | | 开孔直径 Hole dia. | 尺寸 Dimensions in mm | | | | 模块长度 Module length | 拉力螺栓 Tensioning bolts |
|------------|----------------------|-----|-------------------|------------------------|-----|-----|-----|-----------------------|--------------------------|
| | A cm ² | | ø mm | D 1 | D 2 | L 1 | L 2 | L 3 | DIN603(DIN84) |
| RR 50 | 30 | 9 | 50-51 | 50 | 56 | 33 | 42 | 60 | 4 Pcs. M4x40 |
| RR 70 | 40 | 16 | 70-72 | 70 | 76 | 33 | 43 | 60 | 4 Pcs. M5x40 |
| RR 100 | 60 | 36 | 100-103 | 100 | 111 | 71 | 85 | 60 | 4 Pcs. M6x80 |
| RR 125 | 80 | 64 | 125-128 | 125 | 135 | 76 | 95 | 60 | 8 Pcs. M6x90 |
| RR 150 | 90 | 81 | 150-154 | 150 | 160 | 76 | 95 | 60 | 8 Pcs. M8x90 |
| RR 200 | 120 | 144 | 200-205 | 200 | 210 | 76 | 95 | 60 | 8 Pcs. M8x90 |



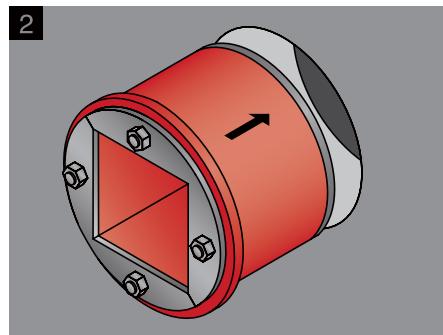
| 种类 Type | 填充模块 Filler | 最大电缆容量 Max. cable capacity |
|-------------------|--|--|
| RR 50 | 4个15/0 或 1个30/0 4 pcs. 15/0 or 1 pcs. 30/0 | 4 根 3-9 毫米直径电缆, 或1 根最大 23 毫米直径电缆 4 cables 3-9 mm dia. or 1 cable up to 23 mm dia. |
| RR 70 | 4个20/0 或 1个40/0 4 pcs. 20/0 or 1 pcs. 40/0 | 4 根 5-12 毫米直径电缆, 或1 根最大 33 毫米直径电缆 4 cables 5-12 mm dia. or 1 cable up to 33 mm dia. |
| RR 100 | 16个15/0 或 9个20/0 或 4个30/0 或 1个60/0 16 pcs. 15/0 or 9 pcs. 20/0 or 4 pcs. 30/0 or 1 pcs. 60/0 | 16 根 3-9 毫米直径电缆, 或9 根 5-12 毫米直径电缆, 或4 根 13-23 毫米 直径电缆, 或1 根最大 51 毫米直径电缆 16 cables 3-9 mm dia. or 9 cables 5-12 mm dia. or 4 cables 13-23 mm dia. or 1 cable up to 51 mm dia. |
| RR 125 | 16个20/0 或 4个40/0 16 pcs. 20/0 or 4 pcs. 40/0 | 16 根 5-12 毫米直径电缆, 或4 根 23-33 毫米直径电缆 16 cables 5-12 mm dia. or 4 cables 23-33 mm dia. |
| RR 150 | 36个15/0 或 9个30/0 或 1个90/0 36 pcs. 15/0 or 9 pcs. 30/0 or 1 pcs. 90/0 | 36 根 5-12 毫米直径电缆, 或9 根 13-23 毫米直径电缆, 或1 根最大 78 毫米 直径电缆 36 cables 5-12 mm dia. or 9 cables 13-23 mm dia. or 1 cable up to 78 mm dia. |
| RR 200 | 64个15/0 或 36个20/0 或 16个30/0 或 9个40/0 或 4个60/0 或 1个120/0 64 pcs. 15/0 or 36 pcs. 20/0 or 16 pcs. 30/0 or 9 pcs. 40/0 or 4 pcs. 60/0 or 1 pcs. 120/0 | 64 根 3-9 毫米直径电缆, 或36 根 5-12 毫米直径电缆, 或16 根 13-23 毫米直 径电缆, 或9 根 23-33 毫米直径电缆, 或4 根 34-51 毫米直径电缆, 或1 根最 大 99 毫米直径电缆 64 cables 3-9 mm dia. or 36 cables 5-12 mm dia. or 16 cables 13-23 mm dia. or 9 cables 23-33 mm dia. or 4 cables 34-51 mm dia. or 1 cable up to 99 mm dia. |

如何安装系统。

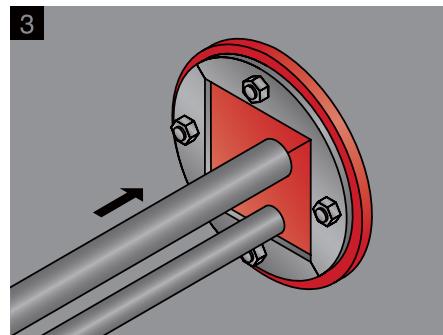
Installing the system - this is how it's done in a few easy steps.



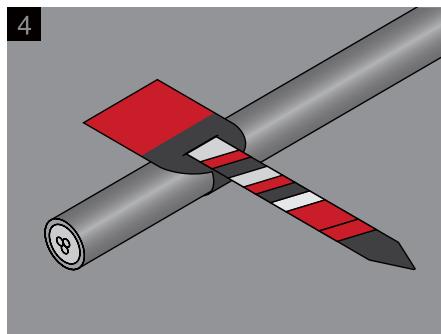
测量开孔以确保密封件将符合开孔大小。



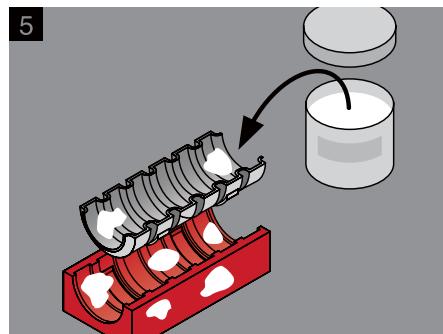
将密封件推入开孔。



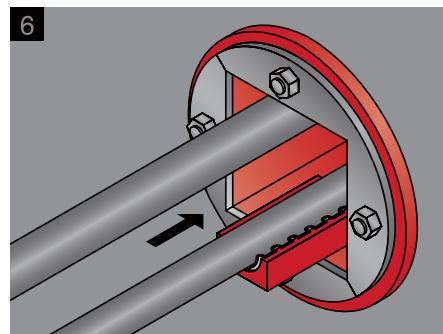
按照计划安装电缆。



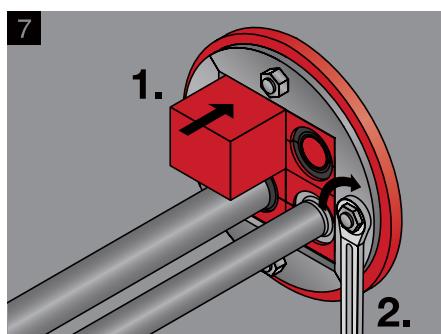
测量电缆外径，选择合适的模块。



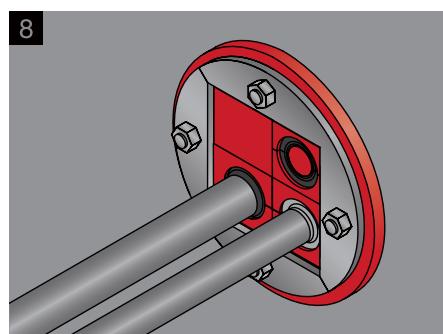
涂抹润滑油。



安装模块。



安装最后一个模块(或盲堵)后拧紧螺栓。



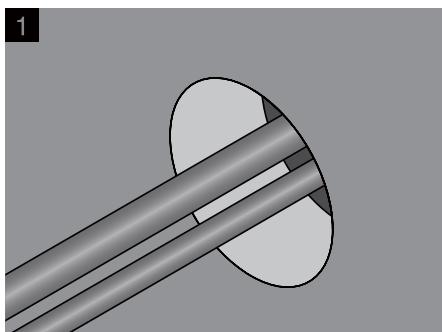
检查所有模块插入并安装正确。

After inserting the last module (can be a blank module), use a ring wrench to tighten the bolts on the frame.

Check that the modules are seated and installed correctly.

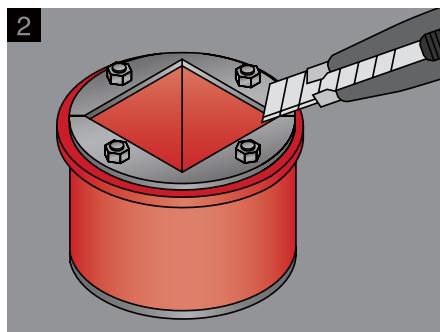
在电缆已穿越的情况下安装系统.

Installing the system where cables are already in place.



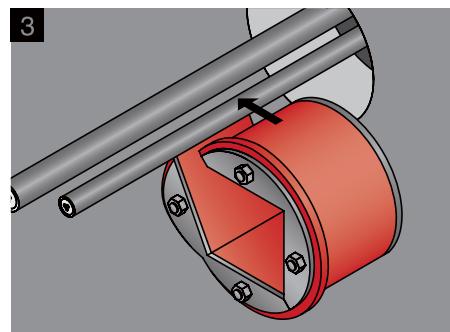
测量开孔以确保密封件符合开孔大小。

Check the size of the opening to ensure that the plug seal will fit snugly.



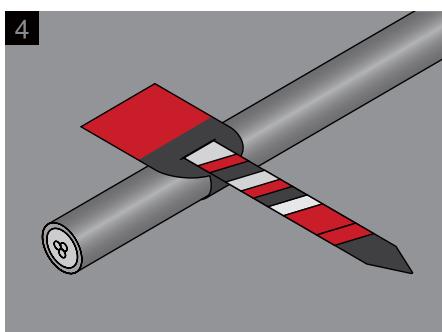
沿密封件一角切开。

In situations where cables are already in place, use a sharp knife to cut right through the plug seal at a corner of the frame.



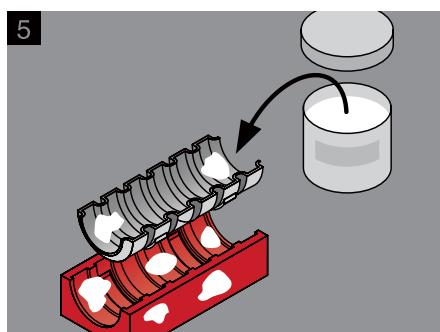
将密封件塞入孔洞。

Slip the opened frame over the cables and then push the plug seal into the opening (tap in with a hammer if necessary).



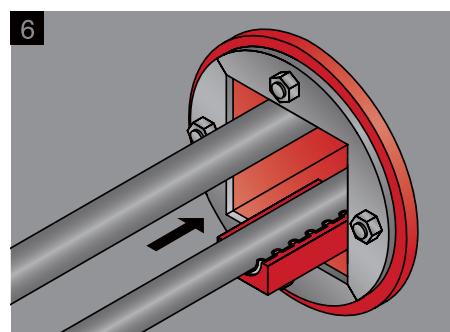
测量电缆外径，选择合适的模块。

Use the Hilti size gauge to determine the modules required.



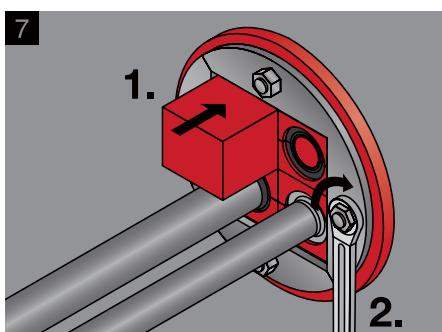
涂抹润滑油。

Lubricate all system parts carefully with Hilti lubricant.



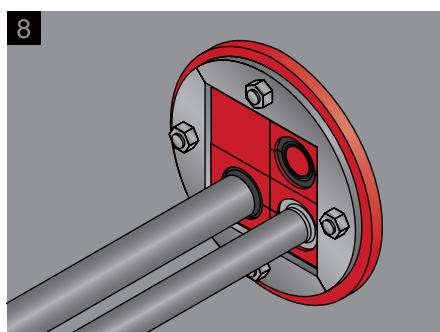
安装模块。

Insert the modules, row by row, and lay the cable on top. Rotate the modules through 90° if necessary.



安装最后一个模块(或盲堵)后拧紧螺栓。

After inserting the last module (can be a blank module), use a ring wrench to tighten the bolts on the frame.



检查所有模块插入并安装正确。

Check that the modules are seated and installed correctly.

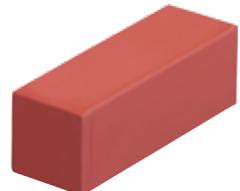
电缆模块 **Cable modules**

| | | |
|--|----|---------|
| CFS-T 15/0+3-9 电缆模块包括适配模块和内芯模块 CFS-T 15/0+3-9 cable module incl. adapter and core modules | 64 | 2014595 |
| CFS-T 20/0+5-12 电缆模块包括适配模块和内芯模块 CFS-T 20/0+5-12 cable module incl. adapter and core modules | 36 | 2014596 |
| CFS-T 30/0+13-23 电缆模块包括适配模块和内芯模块 CFS-T 30/0+13-23 cable module incl. adapter and core modules | 16 | 2014597 |
| CFS-T 40/0+23-33 电缆模块包括适配模块和内芯模块 CFS-T 40/0+23-33 cable module incl. adapter and core modules | 9 | 2014598 |
| CFS-T 60/0+34-51 电缆模块包括适配模块和内芯模块 CFS-T 60/0+34-51 cable module incl. adapter and core modules | 4 | 2014599 |
| CFS-T 90/0+52-78 电缆模块包括适配模块和内芯模块 CFS-T 90/0+52-78 cable module incl. adapter and core modules | 1 | 2014860 |
| CFS-T 120/0+79-99 电缆模块包括适配模块和内芯模块 CFS-T 120/0+79-99 cable module incl. adapter and core modules | 1 | 2014861 |



盲堵模块 **Filler modules**

| | | |
|---|----|---------|
| CFS-T FB 24x5/0 盲堵模块 CFS-T FB 24x5/0 filler module | 36 | 2014862 |
| CFS-T FB 12x10/0 盲堵模块 CFS-T FB 12x10/0 filler module | 18 | 2014863 |
| CFS-T FB 15/0 盲堵模块 CFS-T FB 15/0 filler module | 96 | 2014864 |
| CFS-T FB 20/0 盲堵模块 CFS-T FB 20/0 filler module | 54 | 2014865 |
| CFS-T FB 30/0 盲堵模块 CFS-T FB 30/0 filler module | 24 | 2014866 |
| CFS-T FB 30/0R30 盲堵模块 CFS-T FB 30/0R30 filler module | 16 | 2014867 |



压紧件和锚板 Wedge seals and anchor plates

CFS-T WD 120 GS 楔形压紧套件 包括 1 个压紧件, 4 个锚板 (镀锌钢), 1 个定位锚板 (镀锌钢), 润滑油 (30 g)

1 2014880



CFS-T WD 120 GS wedge compression kit comprising 1 wedge seal, 4 anchor plates (galvanized), 1 fixing anchor plate (galvanized), lubricant (30 g)

CFS-T WD 120 S/S 楔形压紧套件包括 1 个压紧件, 4 个锚板 (不锈钢材质 1.4571 / V4A (AISI 316Ti)), 1 个定位锚板(不锈钢材质1.4571 / V4A (AISI 316Ti)), 润滑油 (30 g)

1 2014881

CFS-T WD 120 S/S wedge compression kit comprising 1 wedge seal, 4 anchor plates (stainless steel material 1.4571 / V4A (AISI 316Ti)), 1 fixing anchor plate (stainless steel material 1.4571 / V4A (AISI 316Ti)), lubricant (30 g)

CFS-T WD 120 AL 楔形压紧套件包括 1 个压紧件 (不锈钢材质 1.4571 / V4A (AISI 316Ti)), 5 个锚板 (铝), 润滑油 (30 g)

1 2014922

CFS-T WD 120 AL wedge compression kit comprising 1 wedge seal (stainless steel material 1.4571 / V4A (AISI 316Ti)), 5 anchor plates (aluminium), lubricant (30 g)

CFS-T AP 120 GS 锚板套件 包括 10 个锚板 (镀锌钢)

10 2014882

CFS-T AP 120 GS anchor plate set comprising 10 anchor plates (galvanized)

CFS-T AP 120 S/S 锚板套件 包括 10 个锚板 (不锈钢材质1.4571 / V4A (AISI 316Ti))

10 2014883

CFS-T AP 120 S/S anchor plate set comprising 10 anchor plates (stainless steel material 1.4571 / V4A (AISI 316Ti))

CFS-T AP 120 AL 锚板套件 包括 10 个锚板 (铝)

10 2016767

CFS-T AP 120 AL anchor plate set comprising 10 anchor plates (aluminium)

CFS-T FAP 120 S/S 定位锚板套件 包括 10 个定位锚板(不锈钢材质1.4571 / V4A (AISI 316Ti))

10 2014923

CFS-T FAP 120 S/S fixing anchor plate set comprising 10 fixing anchor plates (stainless steel material 1.4571 / V4A (AISI 316Ti))

附件 Accessories

CFS-T SQU 安装工具

1 2014885

CFS-T SQU module squeezer



CFS-T PUL 拆装工具

1 2014884

CFS-T PUL wedge puller

圆形密封件 **Plug seals**

| | | |
|--|---|---------|
| CFS-T RR-50 GS 镀锌钢 CFS-T RR-50 GS steel, galvanized | 1 | 2014886 |
|--|---|---------|

| | | |
|---|---|---------|
| CFS-T RR-50 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) CFS-T RR-50 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | 1 | 2014887 |
|---|---|---------|



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|--|---|---------|
| CFS-T RR-70 GS 镀锌钢, galvanized CFS-T RR-70 GS steel, galvanized | 1 | 2014888 |
|--|---|---------|

| | | |
|---|---|---------|
| CFS-T RR-70 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) CFS-T RR-70 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | 1 | 2014889 |
|---|---|---------|

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|--|---|---------|
| CFS-T RR-100 GS 镀锌钢, galvanized CFS-T RR-100 GS steel, galvanized | 1 | 2014892 |
|--|---|---------|

| | | |
|---|---|---------|
| CFS-T RR-100 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) CFS-T RR-100 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | 1 | 2014893 |
|---|---|---------|

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|--|---|---------|
| CFS-T RR-125 GS 镀锌钢 CFS-T RR-125 GS steel, galvanized | 1 | 2014896 |
|--|---|---------|

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|---|---|---------|
| CFS-T RR-125 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) CFS-T RR-125 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | 1 | 2014897 |
|---|---|---------|

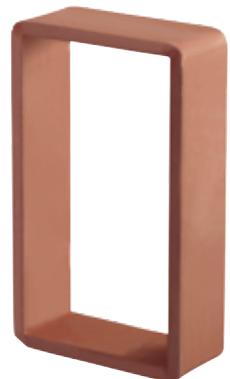
| | | |
|--|---|---------|
| CFS-T RR-150 GS 镀锌钢 CFS-T RR-150 GS steel, galvanized | 1 | 2014898 |
|--|---|---------|

| | | |
|---|---|---------|
| CFS-T RR-150 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) CFS-T RR-150 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | 1 | 2014899 |
|---|---|---------|

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|--|---|---------|
| CFS-T RR-200 GS 镀锌钢 CFS-T RR-200 GS steel, galvanized | 1 | 2014902 |
|--|---|---------|

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|---|---|---------|
| CFS-T RR-200 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) CFS-T RR-200 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | 1 | 2014903 |
|---|---|---------|

CFS-T SS 框架 CFS-T SS transit frames



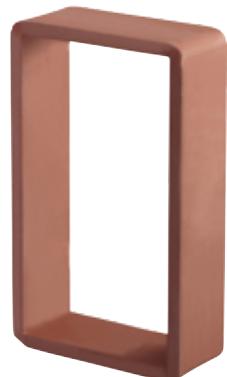
| | | |
|--|---|---------|
| CFS-T SS-2x1 MSP 低碳钢 | 1 | 2014745 |
| CFS-T SS-2x1 MSP steel, rust preventive primer coated | | |
| CFS-T SS-2x1 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) | 1 | 2014746 |
| CFS-T SS-2x1 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | | |
| CFS-T SS-2x1 AL 铝 | 1 | 2014747 |
| CFS-T SS-2x1 AL aluminium | | |
| CFS-T SS-2x2 MSP 低碳钢 | 1 | 2014748 |
| CFS-T SS-2x2 MSP steel, rust preventive primer coated | | |
| CFS-T SS-2x2 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) | 1 | 2014749 |
| CFS-T SS-2x2 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | | |
| CFS-T SS-2x2 AL 铝 | 1 | 2014930 |
| CFS-T SS-2x2 AL aluminium | | |
| CFS-T SS-2x3 MSP 低碳钢 | 1 | 2014931 |
| CFS-T SS-2x3 MSP steel, rust preventive primer coated | | |
| CFS-T SS-2x3 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) | 1 | 2014932 |
| CFS-T SS-2x3 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | | |
| CFS-T SS-2x3 AL 铝 | 1 | 2014933 |
| CFS-T SS-2x3 AL aluminium | | |
| CFS-T SS-2x4 MSP 低碳钢 | 1 | 2014934 |
| CFS-T SS-2x4 MSP steel, rust preventive primer coated | | |
| CFS-T SS-2x4 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) | 1 | 2014935 |
| CFS-T SS-2x4 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | | |
| CFS-T SS-2x4 AL 铝 | 1 | 2014936 |
| CFS-T SS-2x4 AL aluminium | | |
| CFS-T SS-2x5 MSP 低碳钢 | 1 | 2014937 |
| CFS-T SS-2x5 MSP steel, rust preventive primer coated | | |
| CFS-T SS-2x5 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) | 1 | 2014938 |
| CFS-T SS-2x5 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | | |
| CFS-T SS-2x5 AL 铝 | 1 | 2014939 |
| CFS-T SS-2x5 AL aluminium | | |
| CFS-T SS-4x1 MSP 低碳钢 | 1 | 2014940 |
| CFS-T SS-4x1 MSP steel, rust preventive primer coated | | |
| CFS-T SS-4x1 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) | 1 | 2014941 |
| CFS-T SS-4x1 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | | |

CFS-T SS 框架



| | | |
|--|---|---------|
| CFS-T SS-4x1 AL 铝 CFS-T SS-4x1 AL aluminium | 1 | 2014942 |
| CFS-T SS-4x2 MSP 低碳钢 CFS-T SS-4x2 MSP steel, rust preventive primer coated | 1 | 2014943 |
| CFS-T SS-4x2 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) CFS-T SS-4x2 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | 1 | 2014944 |
| CFS-T SS-4x2 AL 铝 CFS-T SS-4x2 AL aluminium | 1 | 2014945 |
| CFS-T SS-4x3 MSP 低碳钢 CFS-T SS-4x3 MSP steel, rust preventive primer coated | 1 | 2014946 |
| CFS-T SS-4x3 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) CFS-T SS-4x3 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | 1 | 2014947 |
| CFS-T SS-4x3 AL 铝 CFS-T SS-4x3 AL aluminium | 1 | 2014948 |
| CFS-T SS-4x4 MSP 低碳钢 CFS-T SS-4x4 MSP steel, rust preventive primer coated | 1 | 2014949 |
| CFS-T SS-4x4 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) CFS-T SS-4x4 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | 1 | 2014950 |
| CFS-T SS-4x4 AL 铝 CFS-T SS-4x4 AL aluminium | 1 | 2014951 |
| CFS-T SS-4x5 MSP 低碳钢 CFS-T SS-4x5 MSP steel, rust preventive primer coated | 1 | 2014952 |
| CFS-T SS-4x5 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) CFS-T SS-4x5 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | 1 | 2014953 |
| CFS-T SS-4x5 AL 铝 CFS-T SS-4x5 AL aluminium | 1 | 2014954 |
| CFS-T SS-6x1 MSP 低碳钢 CFS-T SS-6x1 MSP steel, rust preventive primer coated | 1 | 2014955 |
| CFS-T SS-6x1 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) CFS-T SS-6x1 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | 1 | 2014956 |
| CFS-T SS-6x1 AL 铝 CFS-T SS-6x1 AL aluminium | 1 | 2014957 |
| CFS-T SS-6x2 MSP 低碳钢 CFS-T SS-6x2 MSP steel, rust preventive primer coated | 1 | 2014958 |
| CFS-T SS-6x2 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) CFS-T SS-6x2 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | 1 | 2014959 |

| | | |
|---|---|---------|
| CFS-T SS-6x2 AL 铝 CFS-T SS-6x2 AL aluminium | 1 | 2014960 |
| CFS-T SS-6x3 MSP 低碳钢 CFS-T SS-6x3 MSP steel, rust preventive primer coated | 1 | 2014961 |
| CFS-T SS-6x3 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) CFS-T SS-6x3 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | 1 | 2014962 |
| CFS-T SS-6x3 AL 铝 CFS-T SS-6x3 AL aluminium | 1 | 2014963 |
| CFS-T SS-6x4 MSP 低碳钢 CFS-T SS-6x4 MSP steel, rust preventive primer coated | 1 | 2014964 |
| CFS-T SS-6x4 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) CFS-T SS-6x4 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | 1 | 2014965 |
| CFS-T SS-6x4 AL 铝 CFS-T SS-6x4 AL aluminium | 1 | 2014966 |
| CFS-T SS-6x5 MSP 低碳钢 CFS-T SS-6x5 MSP steel, rust preventive primer coated | 1 | 2014967 |
| CFS-T SS-6x5 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) CFS-T SS-6x5 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | 1 | 2014968 |
| CFS-T SS-6x5 AL 铝 CFS-T SS-6x5 AL aluminium | 1 | 2014969 |
| CFS-T SS-8x1 MSP 低碳钢 CFS-T SS-8x1 MSP steel, rust preventive primer coated | 1 | 2014970 |
| CFS-T SS-8x1 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) CFS-T SS-8x1 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | 1 | 2014971 |
| CFS-T SS-8x1 AL 铝 CFS-T SS-8x1 AL aluminium | 1 | 2014972 |

CFS-T SS 模块框架 CFS-T SS transit frames

| | | |
|--|---|---------|
| CFS-T SS-8x2 MSP 低碳钢 | 1 | 2014973 |
| CFS-T SS-8x2 MSP steel, rust preventive primer coated | | |
| CFS-T SS-8x2 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) | 1 | 2014974 |
| CFS-T SS-8x2 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | | |
| CFS-T SS-8x2 AL 铝 | 1 | 2014975 |
| CFS-T SS-8x2 AL aluminium | | |
| CFS-T SS-8x3 MSP 低碳钢 | 1 | 2014976 |
| CFS-T SS-8x3 MSP steel, rust preventive primer coated | | |
| CFS-T SS-8x3 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) | 1 | 2014977 |
| CFS-T SS-8x3 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | | |
| CFS-T SS-8x3 AL 铝 | 1 | 2014978 |
| CFS-T SS-8x3 AL aluminium | | |
| CFS-T SS-8x4 MSP 低碳钢 | 1 | 2014979 |
| CFS-T SS-8x4 MSP steel, rust preventive primer coated | | |
| CFS-T SS-8x4 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) | 1 | 2014980 |
| CFS-T SS-8x4 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | | |
| CFS-T SS-8x4 AL 铝 | 1 | 2014981 |
| CFS-T SS-8x4 AL aluminium | | |
| CFS-T SS-8x5 MSP 低碳钢 | 1 | 2014982 |
| CFS-T SS-8x5 MSP steel, rust preventive primer coated | | |
| CFS-T SS-8x5 S/S 不锈钢 1.4571 / V4A (AISI 316Ti) | 1 | 2014983 |
| CFS-T SS-8x5 S/S stainless steel material 1.4571 / V4A (AISI 316Ti) | | |
| CFS-T SS-8x5 AL 铝 | 1 | 2014984 |
| CFS-T SS-8x5 AL aluminium | | |

CFS-T SSR/R30 模块框架 CFS-T SSR/R30 transit frames

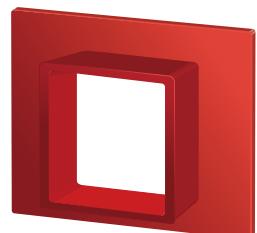


| | | |
|--|---|---------|
| CFS-T SSR/R30-4x1 MSP 低碳钢 | 1 | 2014985 |
| CFS-T SSR/R30-4x1 MSP steel, rust preventive primer coated | | |
| CFS-T SSR/R30-4x2 MSP 低碳钢 | 1 | 2014986 |
| CFS-T SSR/R30-4x2 MSP steel, rust preventive primer coated | | |
| CFS-T SSR/R30-4x3 MSP 低碳钢 | 1 | 2014987 |
| CFS-T SSR/R30-4x3 MSP steel, rust preventive primer coated | | |
| CFS-T SSR/R30-4x4 MSP 低碳钢 | 1 | 2014988 |
| CFS-T SSR/R30-4x4 MSP steel, rust preventive primer coated | | |
| CFS-T SSR/R30-4x5 MSP 低碳钢 | 1 | 2014989 |
| CFS-T SSR/R30-4x5 MSP steel, rust preventive primer coated | | |
| CFS-T SSR/R30-6x1 MSP 低碳钢 | 1 | 2014990 |
| CFS-T SSR/R30-6x1 MSP steel, rust preventive primer coated | | |
| CFS-T SSR/R30-6x2 MSP 低碳钢 | 1 | 2014991 |
| CFS-T SSR/R30-6x2 MSP steel, rust preventive primer coated | | |
| CFS-T SSR/R30-6x3 MSP 低碳钢 | 1 | 2014992 |
| CFS-T SSR/R30-6x3 MSP steel, rust preventive primer coated | | |
| CFS-T SSR/R30-6x4 MSP 低碳钢 | 1 | 2014993 |
| CFS-T SSR/R30-6x4 MSP steel, rust preventive primer coated | | |
| CFS-T SSR/R30-6x5 MSP 低碳钢 | 1 | 2014994 |
| CFS-T SSR/R30-6x5 MSP steel, rust preventive primer coated | | |
| CFS-T SSR/R30-8x1 MSP 低碳钢 | 1 | 2014995 |
| CFS-T SSR/R30-8x1 MSP steel, rust preventive primer coated | | |
| CFS-T SSR/R30-8x2 MSP 低碳钢 | 1 | 2014996 |
| CFS-T SSR/R30-8x2 MSP steel, rust preventive primer coated | | |
| CFS-T SSR/R30-8x3 MSP 低碳钢 | 1 | 2014997 |
| CFS-T SSR/R30-8x3 MSP steel, rust preventive primer coated | | |
| CFS-T SSR/R30-8x4 MSP 低碳钢 | 1 | 2014998 |
| CFS-T SSR/R30-8x4 MSP steel, rust preventive primer coated | | |
| CFS-T SSR/R30-8x5 MSP 低碳钢 | 1 | 2014999 |
| CFS-T SSR/R30-8x5 MSP steel, rust preventive primer coated | | |

CFS-T SSF 框架 CFS-T SSF frame

* 请详询当地技术工程师

* Please contact with Technical Engineer for detail information



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