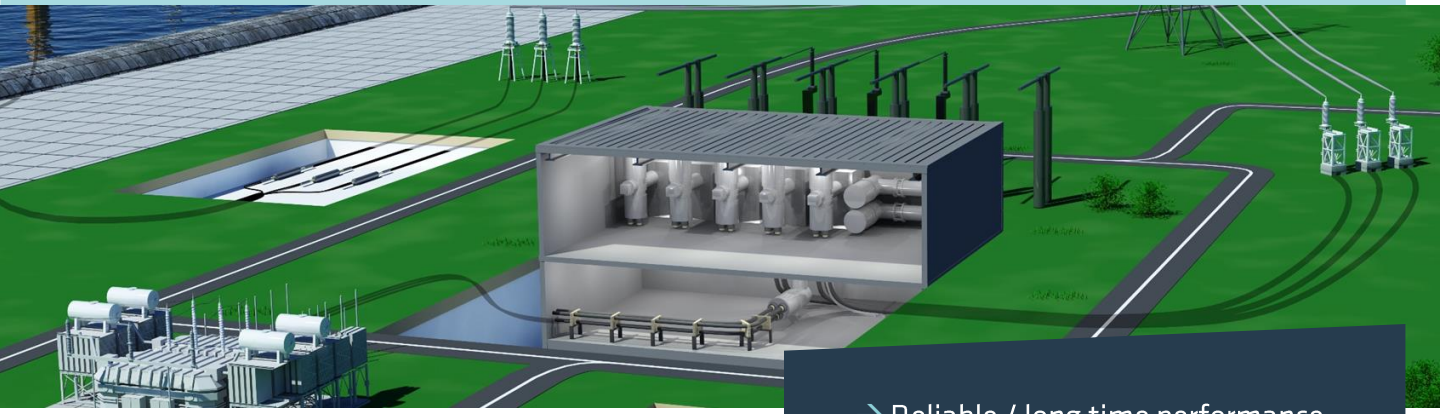
ClickFit™

CFT OUTDOOR TERMINATION (DRY TYPE)



- → Reliable / long time performance
- → Ease of installation
- → One training enables installation of the whole range

A brand of the Prysmian Group

Outdoor Termination Dry Type

Click-Fit Termination concept

The CLICK-FIT® Dry Type Outdoor Termination type CFT is a highly reliable 'Plug-in type' cable connection assembly designed to connect any extruded high voltage cable to outdoor apparatus or overhead lines.
The termination concept is a fully dry type and self supporting design, no oil and also no gasses required, only solid materials are being used which makes the design highly environmental friendly.

Termination in operation

The cable end, provided with a CLICK-FIT® plug, is inserted into the silicone rubber insulating body and connected by using silver plated electrical contacts. An integrated metallic grooved ring locks the position of the plugs through a spring-loaded bayonet mechanism. The CLICK-FIT® plug is connected to the cable by means of compression, MIG-welding or shear-off bolts.
The solid composite insulator with silicone sheds, protecting against very heavy pollution conditions, is designed according protection level e of the IEC-60815 standard. The cable metal sheath is electrically insulated from the steel construction by the use of composite support insulators. The installation, which uses a minimum number of components, is user friendly, increasing the speed of installation and limiting outage time of the network.

Features

- Dry Type 'Plug In' Termination
- Integrated Click Fit connector system
- Solid insulation with silicone sheds
- Self supporting design
- System voltage ranges up to 170 kV
- Pre-assembled and factory High Voltage AC routine tested (100%) stress control parts
- Modular assembly design
- Designed for low temperature ambient conditions
- Excellent environmental properties
- Maintenance free

Main Benefits

- High reliability with full product factory testing
- Reduced network outage time
- Simplified jointing (reduced installation time)
- Insulator is range taking up to 2500 mm² Cu (cable related parts are variable)
- Limited number of components

Prysmian Click-Fit
Termination type CFT

Product Overview

Click-Fit Outdoor Termination

Description	Code	Available for cable systems with maximum system voltage U_m [kV]		
		123	145	170
Click-Fit® Termination Dry Type	CFT-(U_m)	✓	✓	✓

Range of Application

Below table describes the variable cable dimensions and test-values for the dry type outdoor terminations involved.

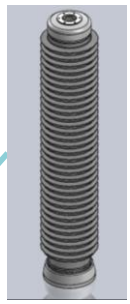
The cable connectors are also suitable for flexible rubber cable (Feltoflex) applications.

System Voltage U_m [kV]	123	145	170
Dimensions:			
Max. conductor size [mm^2]	2500*	2500*	2500*
Max. cable insulation diameter (prepared) [mm]	100	100	100
Testing:			
HVAC routinetest 100%	2,5 U_0-30 min / PD level <5 pC at 1,7 U_0		
L.I. widthstand voltage test [kV +10/-10]	550	650	750
24 hr AC [kV]	190	240	260
1 minute AC [kV]	230	310	325
Short circuit current (1 sec) [kA]	limited by cable design		
Standards:			
Pollution level according	IEC-60815:2008 (e-very heavy)		
Type Test according to requirements	IEC-60840 NEN-HD 632 4K/5K DIN-VDE-0276-632 4D/5D ICEA S-108-720 IEEE-Std 44		

**nominal operating current max 2000 A*

Main Components

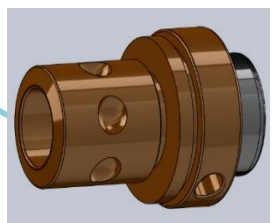
Main components



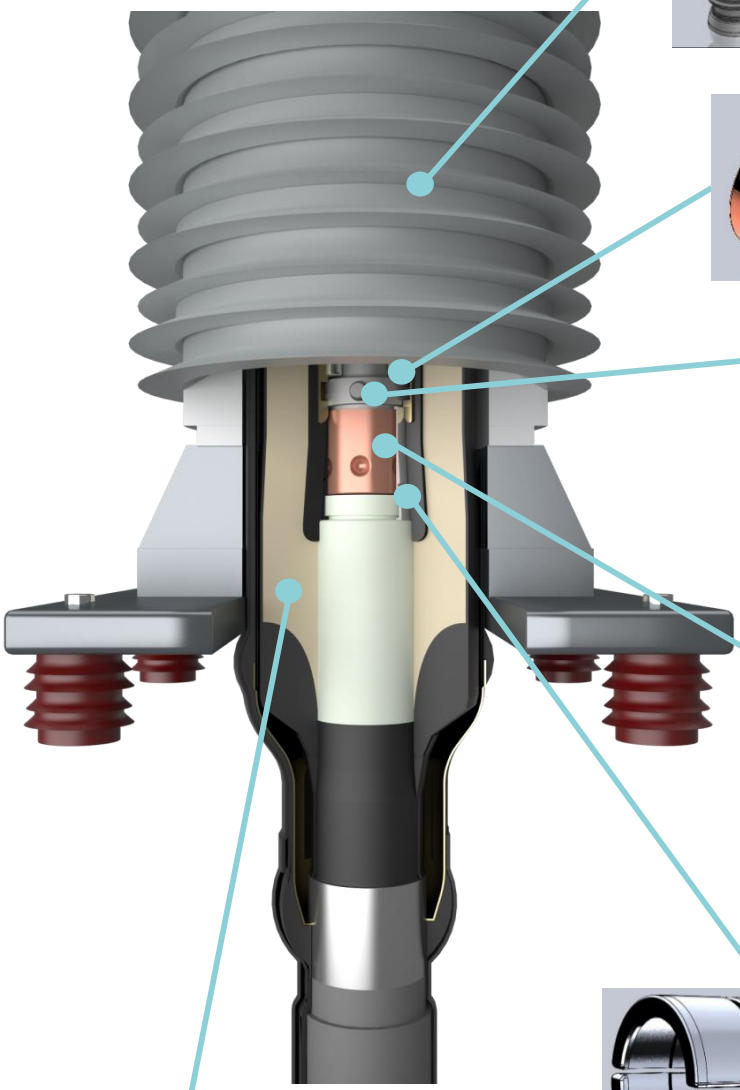
Solid insulator with sheds
Sheds made of silicone for protection against heavy polluted environments
Aluminium solid rod top connector

Contact bush
Silver plated bush for the electrical connection

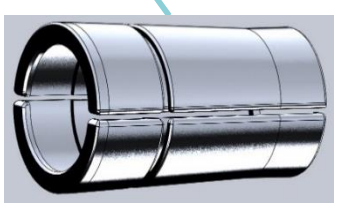
Locking pin
The locking pin is used to lock the cable to the joint body



Cable plug
Cable plug is designed to connect all conductor types



Termination Joint
Electrical stress control part to connect the cable to the termination



Fixation bush
Locks the extruded insulation to the cable plug (to prevent shrink back)

Additional Components

Additional components

- Aerial lug (Nema pad)
- Arcing horn
- Integration of optical fiber exit in metal casing
- Integration of Partial Discharge sensor (Pry-wing)

Emergency stock

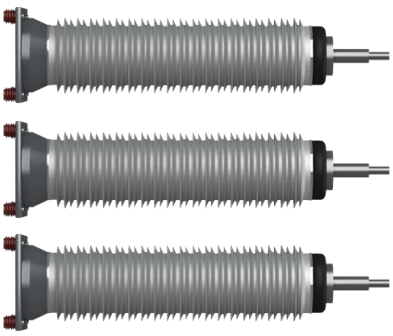
- Pre-engineered emergency packages for any stock or emergency situation
- Limited number of components required
- Limited storage area

Combinations of base parts (prefab-insulators) together with a number of variable parts (cable related parts) can be made.
Once the insulator is installed to the steel construction the correct variable parts can be connected to the insulator and installed to the cable end, depending on the cable construction used.

Example

How to create a set of 3 CFT-terminations when 3 different cables types are involved, using minimum number of components:

Insulator base set (1x)



Cable related sets (3x), including termination joint

Set A

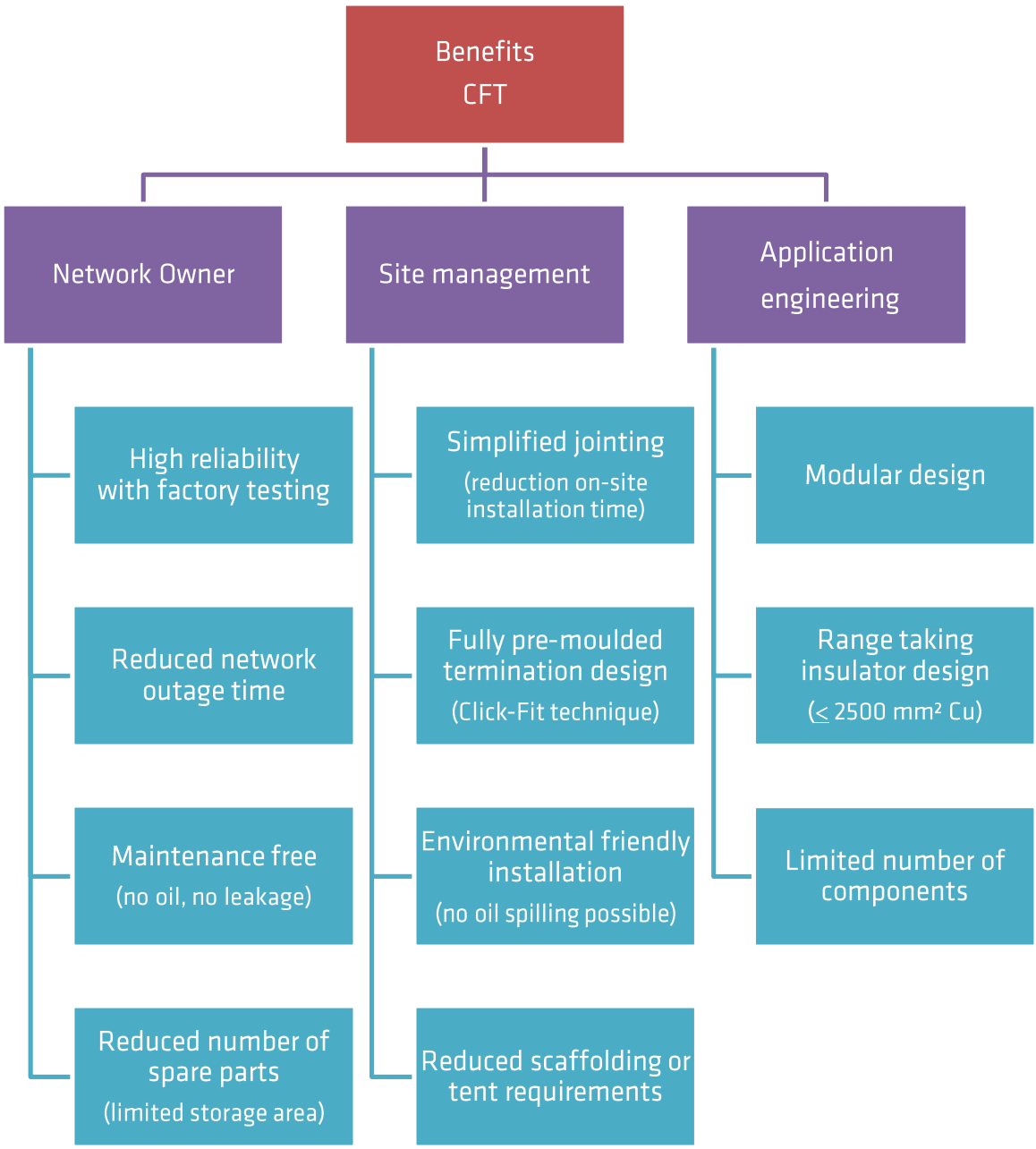
Set B

Set C

Benefits

Benefits

Prysmian Group has just released the latest product for the dry type outdoor termination family.
The CFT is the latest in the market for dry type solution technology. This termination has the following benefits:



Cost Reduction (TCO)

Total Cost of Ownership

To reduce the Total Cost of Ownership (TCO) the following topics have a positive effect on cost reduction as well as increasing the overall quality:

- High reliable product with full product factory testing
- Reduced network outage time
- Simplified jointing (reduced installation time)
- Insulator is range taking up to 2500 mm² Cu (cable related parts are variable)
- Limited number of components
- Maintenance free
- Reduced number of spare parts
- Reduced scaffolding or tent requirements

Reduced installation time

Up to **40%** reduction on-site installation/jointing time compared to conventional installation design.

Up to **60%** reduction of on-site installation time by usage of CFT + prefabricated cable ends.

Retrofit solutions

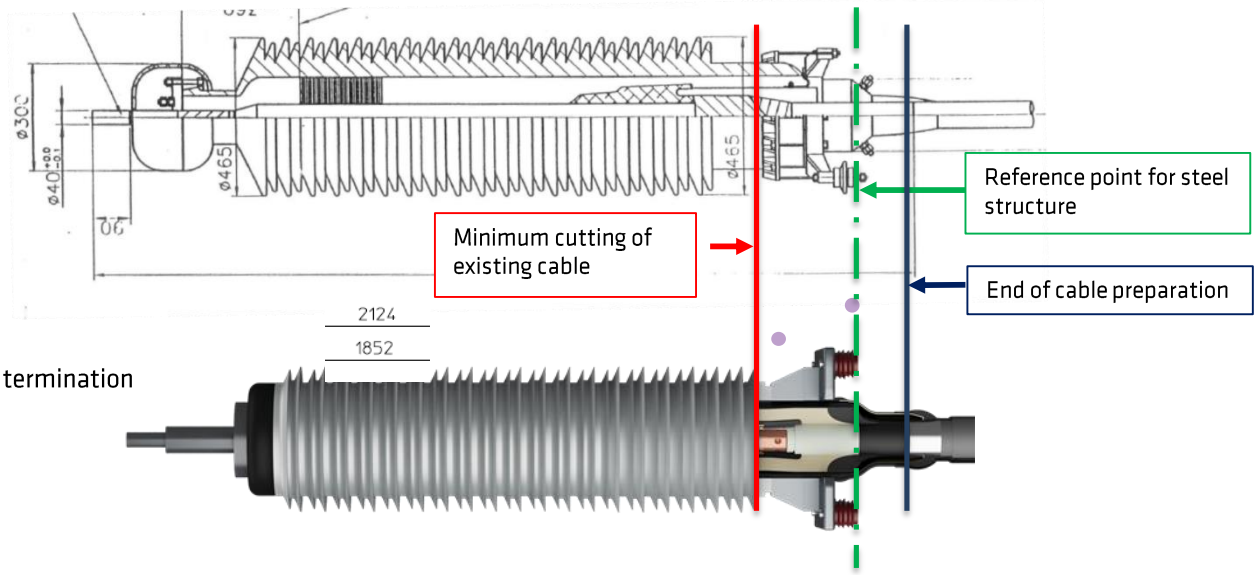
Pre-engineered retrofit packages for replacing conventional outdoor terminations.

Solutions for replacement of:

- broken porcelain termination(s)
- leaking (fluid filled) termination(s)
- failed termination(s)
- a part of the cable system (using terminations and joints)

Example :

Old termination



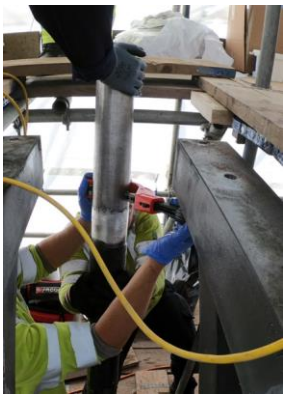
New termination

Result: complete replacement of termination without any additional cable or joint.

Installation of Retrofit

Installation of Retrofit (example National Grid UK)

Removal of stress cone, including cable inspection



Preparing existing cable end

Ready to energize

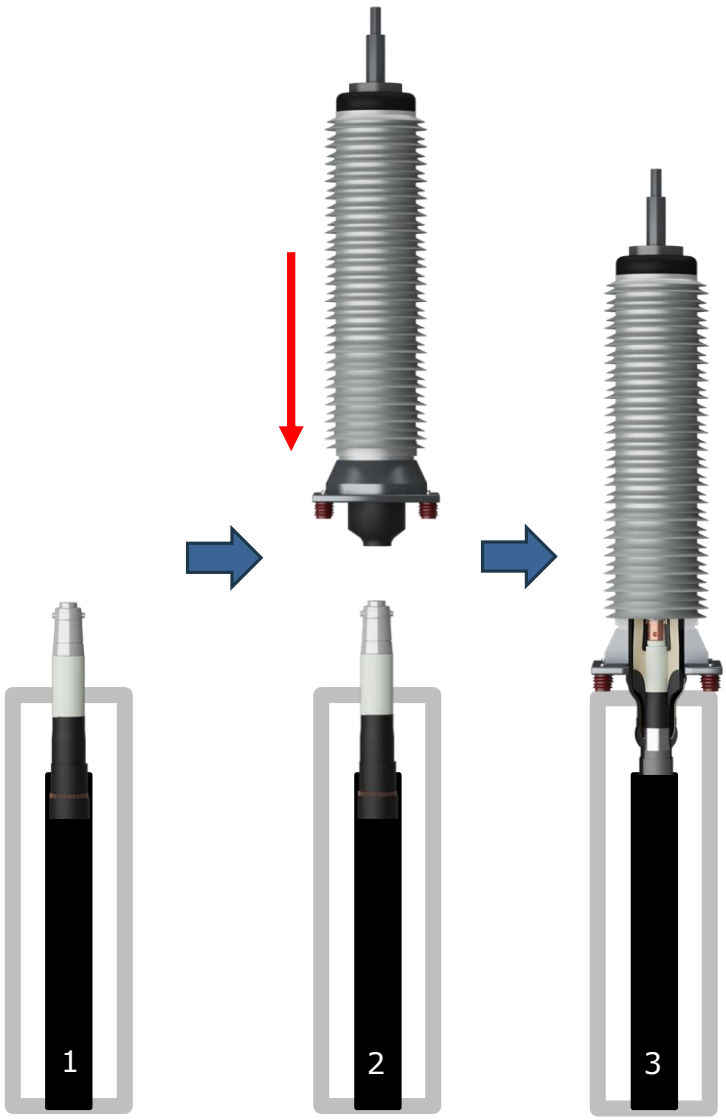
Installing termination on prepared cable end

Installing connector / plugset

Installation procedure (option 1)

Installation procedure with pre-installed cable ends:

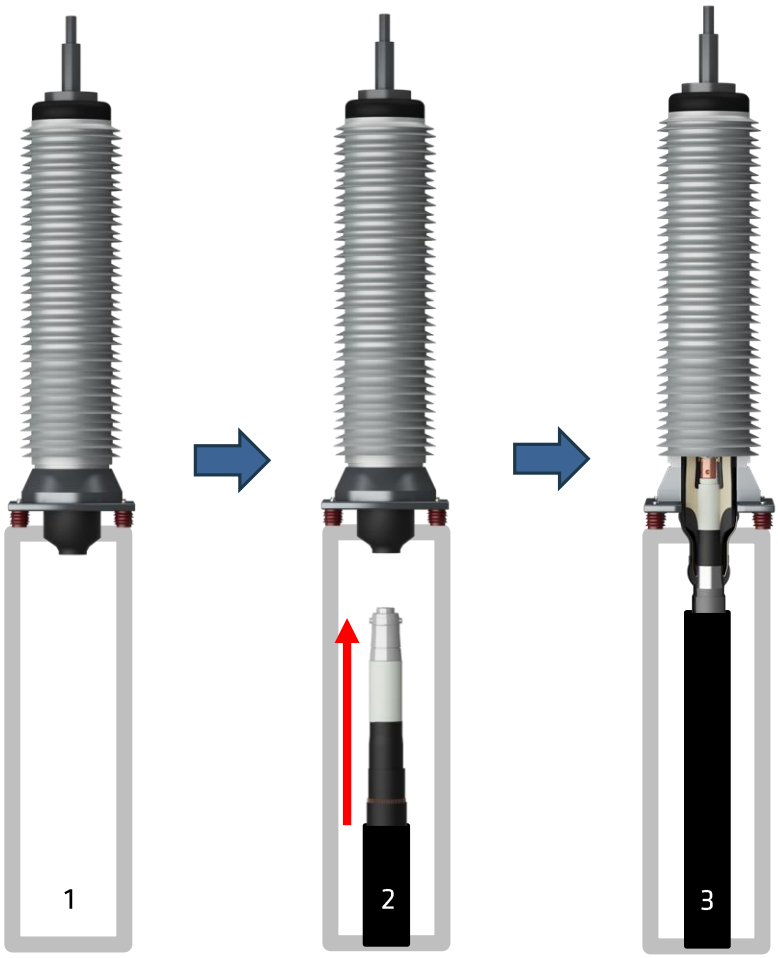
1. Prepared cable end already installed on the steel construction
2. CFT insulator to be installed onto the prepared cable
3. Completion of installation by installing metal casing, screen connection and water protection



Installation procedure (option 2)

Installation procedure with pre-installed insulator:

1. CFT insulator already installed on the steel construction
2. Plug in the prepared cable end into the pre-installed insulator
3. Completion of installation by installing metal casing, screen connection and water protection



Advantages

In summary, main advantages of the Prysmian solution

- Termination is self-supporting and fully dry (only solid dielectrics)
- Termination is completely pre-assembled in the factory and routine tested
- Replacement of old terminations possible without the need for adding cable/joint
- Only 40 cm of cable needs to be prepared (Click-Fit cable end)
- No/limited tent needed, just protection of the cable end during preparation
- Cost savings for the installation

Main advantages, especially for retrofitting:

- No need for extra cable/joint
- No/limited scaffolding
- No/Limited tent
- Very short installation time exceeds by far the cost of the termination

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