Raychem

Frost Protection for pipes, gutters and downpipes



In frost conditions, thermal insulation alone cannot fully protect pipes from freezing. Harsh weather may also cause fuel lines to clog.
Melting and refreezing of ice can damage roofs and gutters. Ice dams can prevent further water from draining, resulting in serious damage (water infiltration/damage). The Raychem frost protection system prevents fluids in plastic and metal pipes from freezing. It also eliminates the danger of ice dams in gutters, or icicle formation.





Easy design

The FroStop cable is placed directly and in a straight line on the pipe, under the insulation; or in a straight line in the gutter.

Flexible installation

The self-regulating cable can be cut-to length on site to the desired length

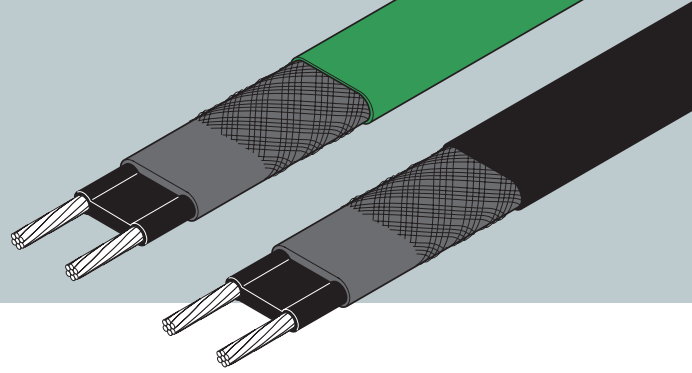
Reliable self-regulating cable

The self-regulating cables prevent overheating - even when they are overlapped. The systems are maintenance free.

Convenient packaging

FroStop heating cable are available on a spool and can be ordered per meter or in an easy-to use pack.

Self-regulating frost protection system for pipes



Design guide

1. Application

Frost protection for pipework at max. 65 °C operating temperature

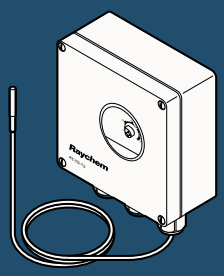
FroStop Green	10 W/m at 5 °C
FroStop Black	18 W/m at 5 °C

2. Cable length

The heating cable should be installed in a straight line on the pipework.
Cable loops can be made instead of T-connections on short stubs (up to approx. 3 m)

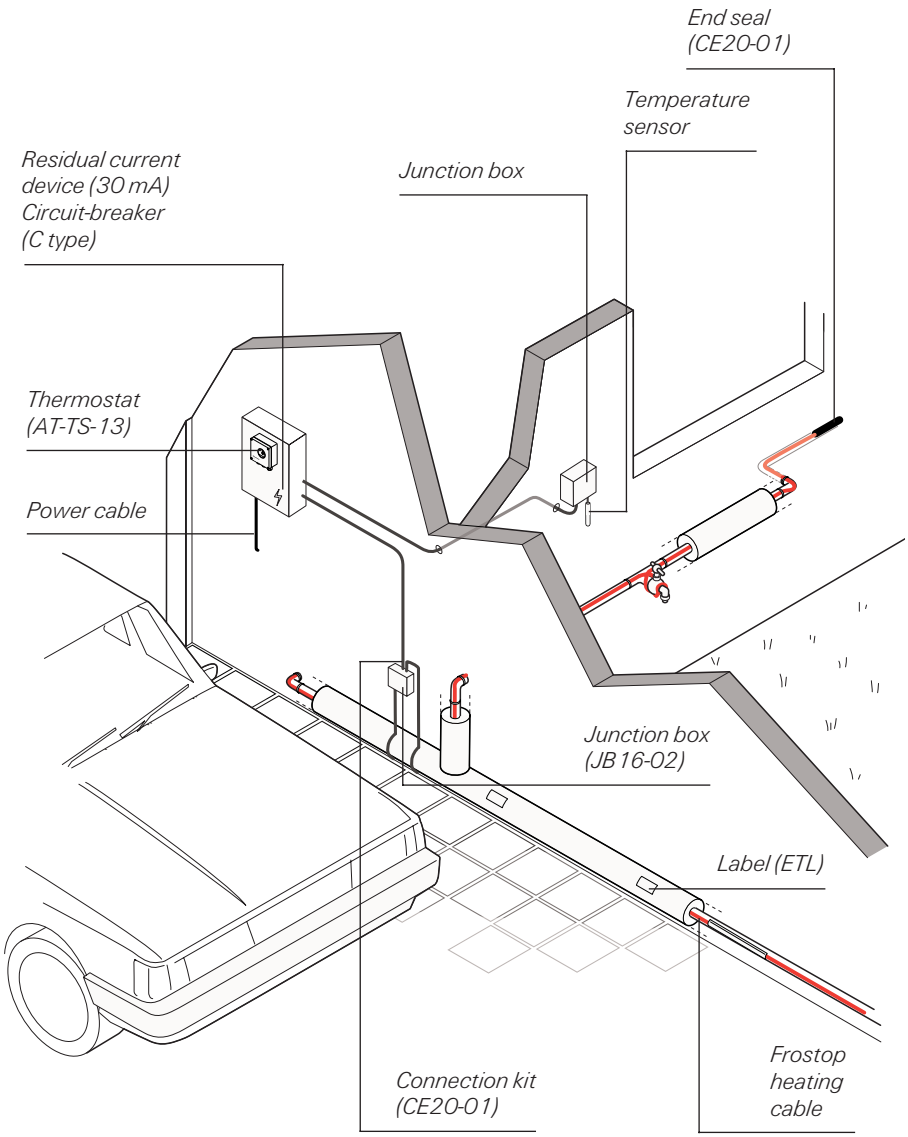
Total length of pipe to be traced
+ approx. 0.3 m per connection
+ approx. 1.0 m per T-connection
+ approx. 1.2 m per 4-way connection
+ approx. 1 m required for increased heat sinks at valves from 2″ and uninsulated pipe
= **required heating cable length**

3. Thermostat AT-TS-13



Thermostat

- Adjustable temperature range: −5 °C to +15 °C
- Line-sensing control thermostat or ambient thermstat
- Max. switching current 16 A 250 Vac

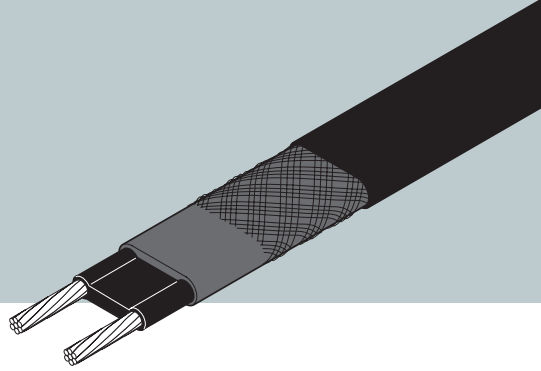


4. Insulation selection

Frost protection down to −20 °C

Insulation thicknesses	mm / Inches	Pipe diameter 15 1/2″	22 3/4″	28 1″	35 5/4″	42 11/2″	54 2″	67 21/2″	76 3″	108 4″	150 5″
10 mm		Green	Black	Black	Black	Black					
15 mm		Green	Green	Green	Black	Black	Black	Black			
20 mm		Green	Green	Green	Green	Green	Black	Black	Black		
25 mm		Green	Green	Green	Green	Green	Green	Black	Black	Black	
30 mm		Green	Green	Green	Green	Green	Green	Green	Black	Black	Black
40 mm		Green	Green	Green	Green	Green	Green	Green	Green	Black	Black
50 mm		Green	Green	Green	Green	Green	Green	Green	Green	Green	Black

Self-regulating frost protection system for gutters and downpipes



Design guide

1. Application

Frost protection for gutters and downpipes, ideal for lead gutters.
FroStop Black:
28 W/m in iced water and
16 W/m in the air at 0°C

Important note: When laying cables on asphalt, bitumen, roofing felt, etc., a cable with a special fluorpolymer jacket (8BTV2-CT) must be used.

2. Laying

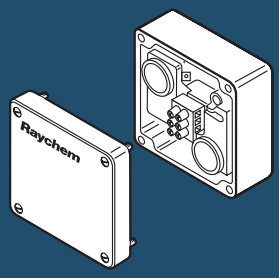
The heating cable should be installed in a straight line in the gutter.
The cable lengths should be adjusted according to the geographical situation and the gutters

- More than one cable should be laid in wide valley, parapet or box gutters
- Lay only in channels that are not coated with asphalt, bitumen, etc.
- The cable should descend approx. 1 m below the frost-free area

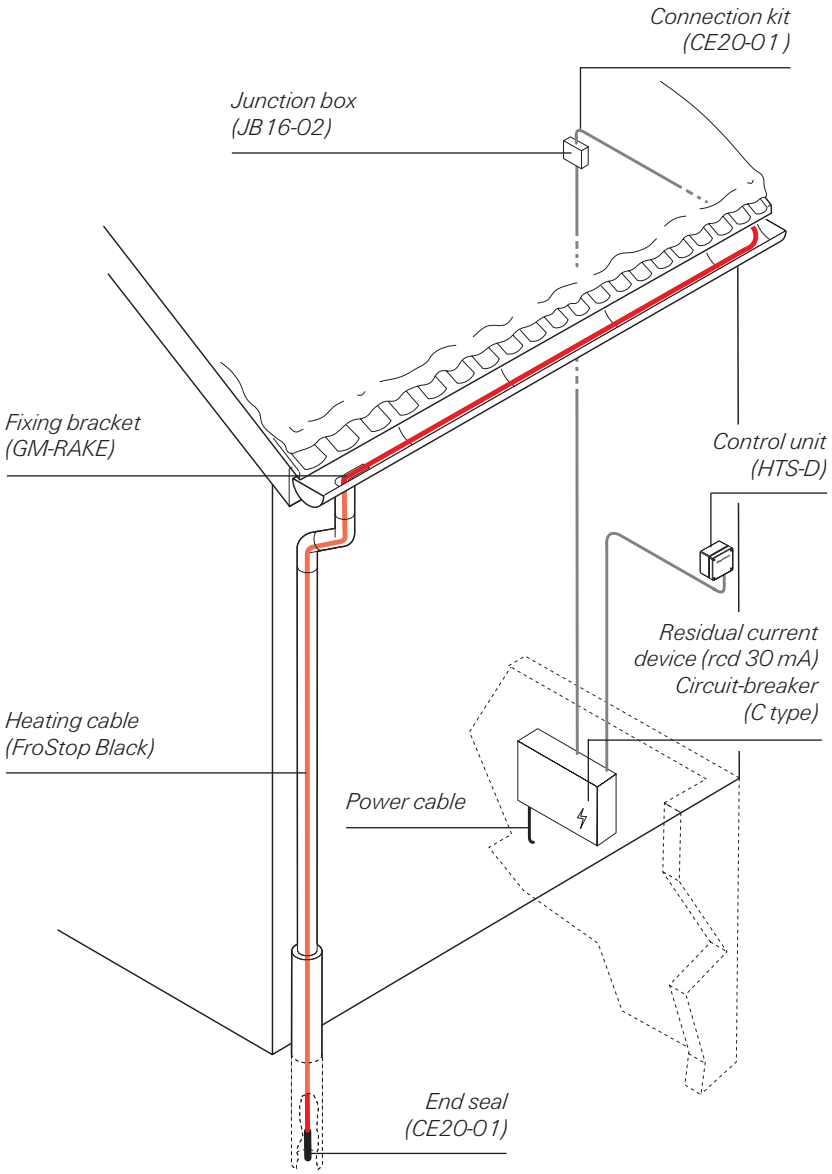
3. Cable length

Gutter length
+ drainpipe length
+ 1 m per connection
+ 1 m in the soil (frost line)
= required heating cable length

4. Control unit HTS-D



Thermostat
- 2 independant switching points
- Max. switching current: 16 A – 230 Vac
- Temperature adjustment range: –15°C to +15°C
- Outdoor installation
- Economical for circuit lengths up to 30 m
- For lengths over 30 m use the EMDR-10 control unit



Technical data	FroStop Green 30 m	FroStop Black 30 m
Power output (W/m at 5°C on pipe)	10	18
Supply voltage	230 Vac	230 Vac
Minimum installation temp.	–20°C	–20°C
Minimum bending radius	13 mm	13 mm
Maximum circuit length @16 A	100 m	80 m
Electrical protection at 0°C start up	16 A	16 A
Max. exposure temp.: continuous	+65°C	+65°C
Max. exposure temp.: intermittent (800 h)	+85°C	+85°C

How to order

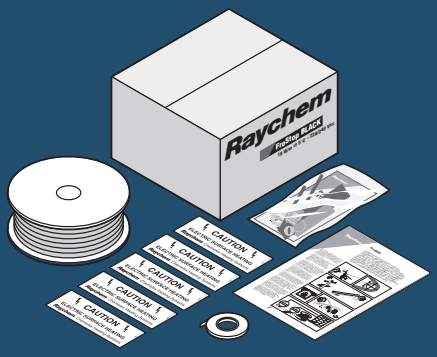
Cut-to-length heating cable with:

- Self-regulating heating cable:
  Frostop Black
  Frostop Green
- Junction box: JB16-02
- Support bracket: JB-SB-08
- Bracket for drain pipes: GM-rake

Frostop easy-to-use pack*:

- Pack Frostop-B-30: 30 m of Frostop black + accessories
- Pack Frostop-G-30: 30 m of Frostop green + accessories

* the pack contains:
30 m of heating cable
1 CE20-01 heat connection and end seal kit
1 roll glass-cloth tape
5 'electric traced' labels to beplaced at 5 m intervals on thermal insulation
1 installation instruction



Electrical protection

- The total length of heating cable determines the number and size of the fuses
- Residual current device (rcd): 30 mA required
- Installation according to local regulations
- The mains connections must be carried out by an approved electrical installer
- Use C type circuit-breakers

Max. length of the heating circuit is based on a minimum start-up temperature of 0°C, 230 V ac.

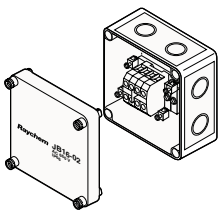
	FroStop Black	FroStop Green
10 A	50 m	60 m
13 A	65 m	80 m
16 A	80 m	100 m

Accessories

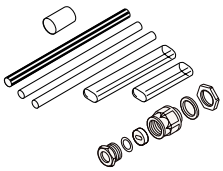
Power connection	1 JB16-02 + 1 CE20-01 + 1 JB-SB-08
Splice	1 JB16-02 + 2 CE20-01 + 1 JB-SB-08
Powered splice	1 JB16-02 + 2 CE20-01 + 1 JB-SB-08
T-connection	1 JB16-02 + 3 CE20-01 + 1 JB-SB-08
Powered T-connection	1 JB16-02 + 3 CE20-01 + 1 JB-SB-08
Four way connection	1 JB16-02 + 4 CE20-01 + 1 JB-SB-08

Notes: FroStop cables can't be used with RayClic connectors.
A JB-SB-08 support bracket is not required for installation in gutters.

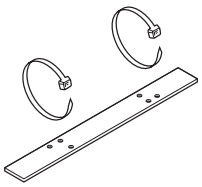
JB16-02
Temperature-resistant junction box for power connection or T-connections



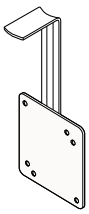
CE20-01
Connection and end seal kit
- Heat-shrink technique
- M20 gland



GM-RAKE
- Fixing bracket/ edge protection for drainpipes
- Spacer for use in wide channels or gutters where more than one run of cable is required (a spacer is placed every 100 cm)
- VA steel with UV-resistant cable ties



JB-SB-08
Single-leg support bracket for junction and connection boxes



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Flow Control

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