

CABLE ACCESSORIES & CHEMICAL COMPOUNDING



ALWAYS IN PROGRESS

LOW VOLTAGE
MEDIUM VOLTAGE
HEATING CABLES
COMPOUNDING

**Ray
tech®**





**Ray
tech®**

1 LOW VOLTAGE

NEW



- 3 FILLERS
- 4 GEL
- 16 RUBBER
- 20 RESIN



- 25 JOINTING BOXES
- 28 PRE-FILLED IP68
- 36 KIT IP68
- 42 IP55

NEW



- 45 CONNECTORS-TERMINAL BLOCKS
- GEL COVER-GEL BOX
- 46 LEVER CONNECTORS
- 48 CONNECTOR COVERS

NEW



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- 64 PRE-FILLED FOR PHOTOVOLTAIC
- 69 PRE-FILLED IP68
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- 88 PRE-FILLED IPX8 - CYLINDRICAL
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- 110 HEAT-SHRINK

NEW



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- 132 CABLE PULLERS
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153 MEDIUM VOLTAGE

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NEW

155 COLD-SHRINK

156 INDOOR TERMINATIONS

158 OUTDOOR TERMINATIONS

160 INDOOR/OUTDOOR TERMINATIONS

162 JOINTS



167 HEAT-SHRINK

170 INDOOR TERMINATIONS

173 OUTDOOR TERMINATIONS

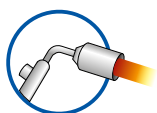
176 INDOOR/OUTDOOR TERMINATIONS

178 ENEL CERTIFIED TERMINATIONS

180 JOINTS

188 ENEL CERTIFIED JOINTS

189 RAY FRUST


NEW

191 SEPARABLE CONNECTORS, SHEATHS, TAPES



201 HEATING CABLES

205 INDUSTRIAL USE

CLASSIFIED AREAS

206 MCA - MCA-I-PF - MCA-I-FF

SAFE AREAS

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NEW


215 DOMESTIC USE

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232 MCA 88

NEW


235 COMFORT HOUSE

FLOORING

236 EASY FLOOR

MIRROR

238 EASY MIRROR

CEILING

239 WARM-UP



243 ACCESSORIES

250 Forms



Ray tech®

OVER 30 YEARS OF EXCELLENCE

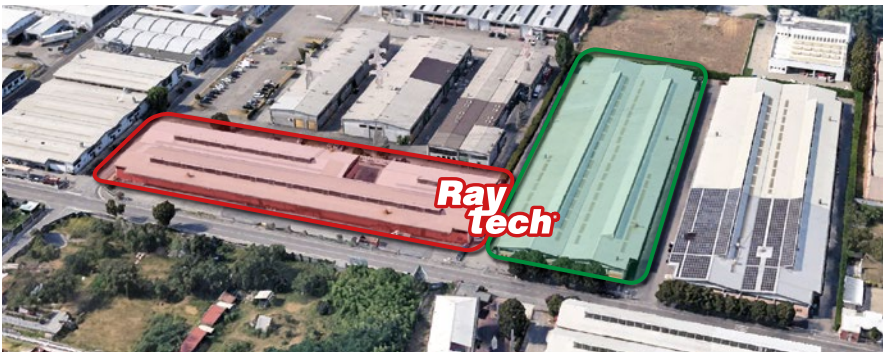
Since 1995, we have been dedicated to the development of innovative solutions carefully controlling every stage of the process thanks to significant investments in our production independence, which result in:

On-time deliveries
thanks to a meticulous planning of raw materials purchases.

Products
Release of very recently produced and therefore more qualitative materials onto the market.

Quality
Complete quality control.

Skills
Steady increase in both organizational and production skills that result in long-term targets of business growth with a focus on sustainability.



HEADQUARTER
Offices, warehouses, logistics ———
Laboratories and production ———



QUALITY, SECURITY AND ENVIRONMENT

We are proud to maintain the **ISO certifications**, which prove our continuous commitment in quality and reliability, respecting the environment and ensuring the safety of our stakeholders. These recognitions are the result of rigorous controls and a systematic approach aimed at ensuring that every product dispatched from our factory meets the highest international standards.

ISO 9001:2015 Quality Management Systems.

Policies, processes and procedures for a constant improvement of our performances.

ISO 14001:2015 Environmental Management Systems

We are committed to continuous improvement of our performances while respecting the environment.

ISO 45001:2018 Management systems for the occupational health and safety.

We protect our workers by reducing risks, improving the safety and health and well-being of workers.

TRANSPARENT SUSTAINABILITY

Our commitment to reducing environmental impact, improving working conditions and promoting ethical practices throughout our supply chain is assessed annually and made public through **EcoVadis**, one of the leading providers of corporate social responsibility ratings.

LOOKING TO THE FUTURE

After more than 30 years we look at the future with enthusiasm and determination. We are aware of the crucial function that the **AI** has in our daily lives and how much it can further support us in our business development, enabling us to continue innovating and renewing ourselves, listening to our customers and investing on our people, who remain the true engine of our company.

♥ THANK YOU!

We must thank those who believed and still believe in us for our success: **employees, clients, suppliers and partners**. Without your support, this long journey would not have been possible and could not continue. We invite you to browse this catalogue and discover the latest news and projects that excite us for the future.

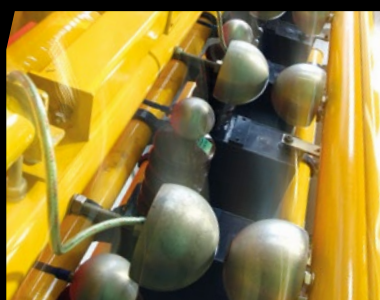
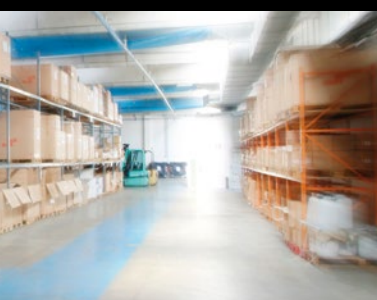
With gratitude



LET'S DO OUR PART

We support the Foundation Casa della Carità "Angelo Abriani" an open House that listens to and cares for the most vulnerable, by joining the "Siamo di Casa" program.

We believe that each of us walks a fine line, where it is easy to lose balance and fall, and that everyone deserves a helping hand and strong support to rise again. Our participation in this program is a concrete way to show our closeness to the many vulnerable people welcomed by Casa della Carità. Their support extends to all those in need, without distinction of faith, ethnicity, or gender, and our commitment goes beyond the organization's religious affiliation.





Ray



FORMULATION
& COMPOUNDING
COMPANY

HIGH-PERFORMANCE SILICONE SOLUTIONS

RaySi is the division of Raytech specialized in the formulation of RTV-2 platinum cross-linking silicone systems, designed to meet the needs of modern industry.

The range includes **silicone resins, gels and two-component rubbers** developed for protection, insulation and encapsulation applications of electrical, electronic and industrial components. Each formulation is created to meet specific application needs, guaranteeing high performance, ease of use and constant quality over time.

180 **DEGREES**
Exceptional
long-term
thermal resistance

15 **MINUTES**
Average curing
time



SILICONE SYSTEMS

RaySi formulations ensure high protection of components against humidity, dust, chemical agents, vibrations and thermal stresses, maintaining excellent dielectric and elastic properties over time. The distinctive silicone structure allows to absorb expansions and mechanical stresses without stiffening the material, helping to increase the reliability and durability of the systems.

Thanks to the ease of dosing and the rapid and controlled cross-linking, **RaySi** formulations are used in numerous sectors, from industry to energy, from plant engineering to electronics, offering high-performance solutions even in the most complex applications.

FROM THE LAB TO YOUR APPLICATION

Thanks to the experience gained in the development of technical materials, **RaySi** supports its customers in the creation of reliable solutions, from the selection of raw materials to the design of **customized formulations**.

The ability to collaborate side by side with the customer, combined with production flexibility and in-depth knowledge of materials, allows us to create custom solutions, perfectly integrated with specific application needs.

Scientific expertise, industrial culture and continuous innovation define **RaySi**'s identity: a reliable technological partner, capable of transforming the chemistry of silicones into high value-added solutions.

RaySi

CUSTOM SOLUTIONS

RESIN • GEL • SILICONE RUBBERS

- Standard and custom formulations
- Technical support in product development
- Internal production and quality control
- Dedicated solutions for every application

WHY CHOOSE **RaySi**

- High protection up to IP68*
- Excellent electrical insulation
- Elasticity and stability over time
- Resistance to high temperatures and chemical agents
- Isocyanate-free formulation
- Ease of application and maintenance

*Depending on the application.

FIND OUT MORE

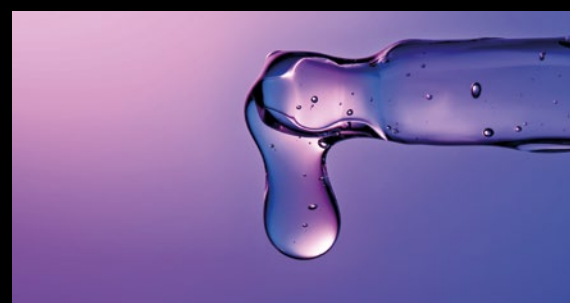
Formulas
Data sheets
Characteristics

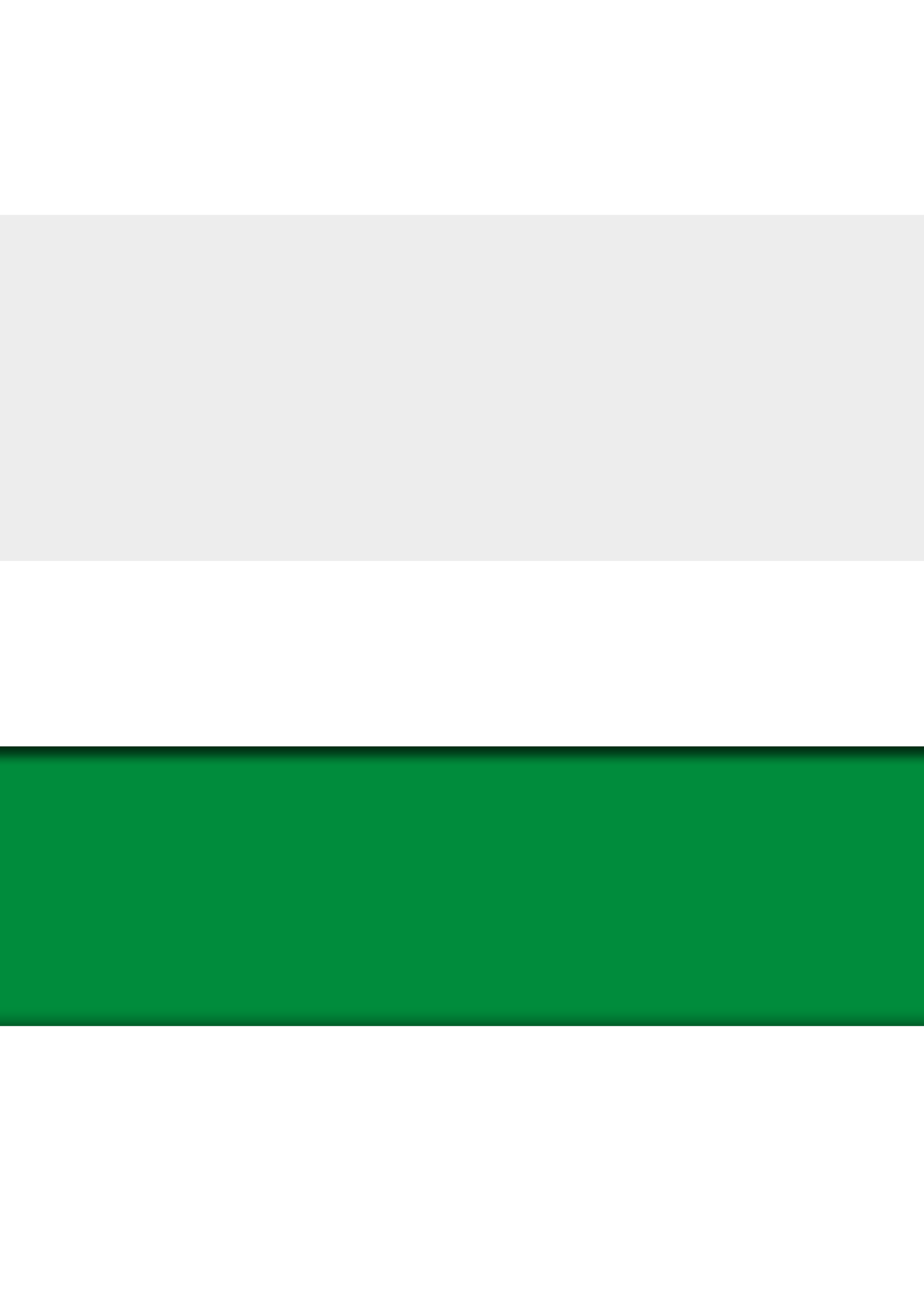


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LITERS

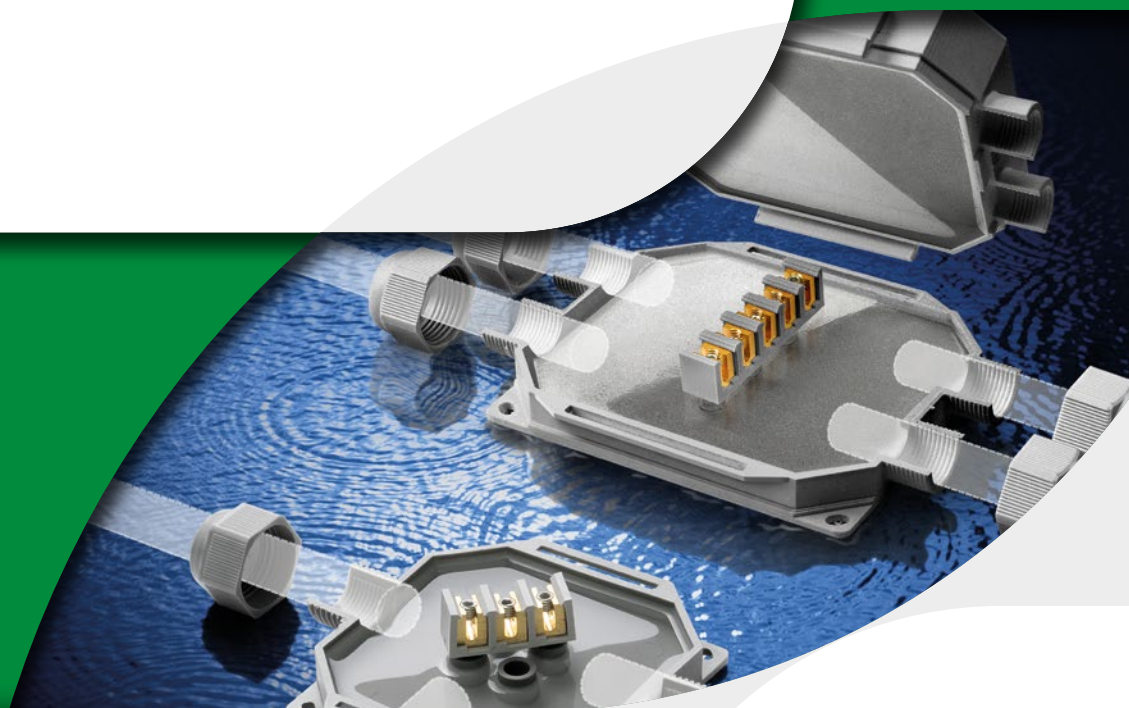
Gel and gum
produced
in one year





LOW VOLTAGE

FILLERS - JOINTING BOXES
CONNECTORS - TERMINAL BLOCKS
GEL COVER - GEL BOX
JOINTS - ACCESSORIES





LOW VOLTAGE FILLERS

GEL

MAGIC GEL SPRINT

MAGIC GEL

MAGIC FLUID

MAGIC POWER GEL

RAY GEL

WONDER GEL

MONOGEL

RUBBER

GEL GUM

SKY PLAST

MAGIC RUBBER

RESIN

SEAL UP RESIN

RAY RESIN





ALL IN ONE
Ready in 1 Bottle!



Gel: UL 94-HB

Dielectric strength:

>20 kV/mm

Cross linking time:

fast (about 7 min. at 23°C)

Volume resistivity:

>2 · 10¹⁵ Ω cm

Working temperature:

-60°C / +200°C

Overload temperature

for short periods:

up to 250°C

Stabilised for:

mould - UV

Degree of protection:

IP68 (in proper casings)

Magic Gel Sprint protects against dust and seals the connections from the effects of continuous immersion in water when it is poured into casings protected from the ingress of solid bodies, thus helping to create a **IP68** system.

IP68
OFFICIALLY
TESTED | **IMQ**



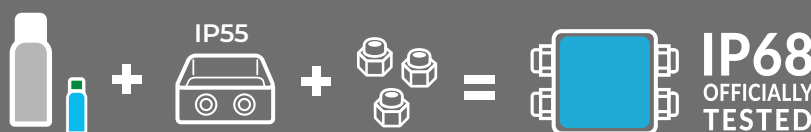
MAGIC GEL SPRINT

Insulating and sealing gel with very high dielectric and thermal characteristics, ideal for POWER cables, TELECOM cables and ELECTRONICS CIRCUITS.

Magic Gel Sprint is formulated for an extra fast curing directly inside the bottle. Practical, performing, eco-sustainable, it is the ideal GEL for insulating and sealing boxes of the most commonly used dimensions.

ADVANTAGES

- ▶ Non-toxic, safe and not classified as hazardous under CLP Directive.
- ▶ Suitable for installation in salt water (sea) and in chlorinated water (pools).
- ▶ For any type of indoor / outdoor and even submerged installation.
- ▶ For installations up to 1 kV.
- ▶ Suitable for high temperatures.
- ▶ Removable.
- ▶ No shelf life.



HOW IS IP68 DEGREE OF PROTECTION OBTAINED?

The GEL protects against dusts and seals the connections from the effects of continuous immersion in water when it is poured into enclosures protected from the ingress of solid bodies, therefore contributing to create an IP68 system.

1 UNSCREW



2 ACTIVATE



3 SHAKE



4 POUR

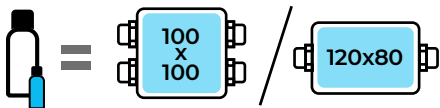


READY IN 1 BOTTLE!

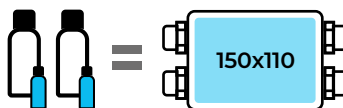
Extra fast
curing!



Magic Gel 450 Sprint



Magic Gel 900 Sprint



PRODUCT / Item	Colour	Package type	Total quantity
MAGIC GEL SPRINT 450 MAGICSPRINT450	●	1 bottle + 1 catalyst	450 ml
MAGIC GEL SPRINT 900 MAGICSPRINT900	●	2 bottles + 2 catalysts	900 ml



IP68



IP68



MAGIC GEL SPRINT is available in 2 version which are sustainable in terms of packaging and in terms of volume, as they are specifically designed for filling boxes in the most commonly used formats.



MAGIC GEL MAGIC FLUID

Two-component gel with very high dielectric and thermal characteristics, ideal for connection systems (joint shells or enclosures) for power cables.

The insulating and sealing gel, when cast in suitable casings, ensures an IP68 degree of protection and it is able to replace all types of resins. This is a self-sealing insulation polymeric type in two practical bottles or in a single use bag, with cold cross linking. Once poured, the insulation, characterized by very low viscosity, surrounds and envelopes any type of material, cross linking in less than 10 minutes. Completely non-toxic, cross linking with a very low isothermal peak that does not thermally stress the materials it comes into contact with.

ADVANTAGES

- For high temperature applications!
- The gel is not-classified as hazardous under the CLP Directive.
- Quick cross linking (only 10 minutes).
- Re-enterable also after long working periods.
- Low viscosity.
- No shelf life.



Gel: UL 94-HB   

Dielectric strength:

>20 kV/mm

Cross linking time:

fast (about 10 min. at 23°C)

Volume resistivity

>2 . 10¹⁵ Ω cm

Working temperature:

-60°C / +200°C

Overload temperature

for short periods:

up to 250°C

Stabilised for:

mould - UV

Degree of protection:

IP68 (in proper casings)

Magic Gel protects against dust and seals the connections from the effects of continuous immersion in water when it is poured into casings protected from the ingress of solid bodies, thus helping to create a **IP68** system.

IP68
OFFICIALLY
TESTED

IMQ





PRODUCT / Item	Colour	Package type	Total quantity
MAGIC GEL 300 MAGICGEL300	●	2 bottles	300 ml
MAGIC GEL 420 MAGICGEL-420	●	1 single, two-component bottle 1 jug - 1 spatula in wood	420 ml
MAGIC GEL 1000 MAGIC-GEL	●	2 bottles - 1 jug 1 spatula in wood	1000 ml
MAGIC GEL 2000 MAGICGEL-2000	●	2 single, two-component bottles 1 jug - 1 spatula in wood	2 x 1000 ml
MAGIC GEL 10000 MAGICGEL10	●	2 tanks - 1 jug 1 spatula in wood	10 lt



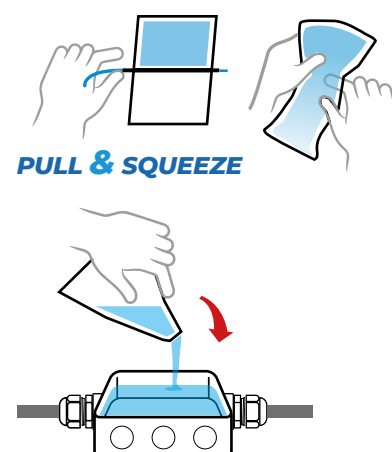
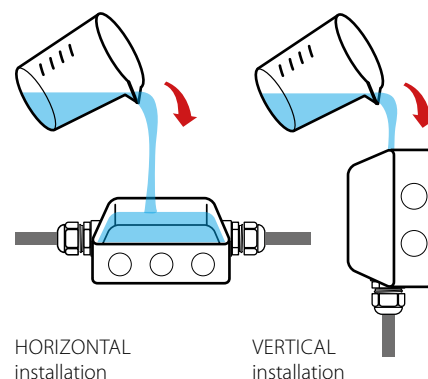
PRODUCT / Item	Colour	Package type	Total quantity
MAGIC FLUID 90 100090-MAG	●	Two-component single dose bag	90 ml
MAGIC FLUID 110 100110-MAG	●	Two-component single dose bag	110 ml
MAGIC FLUID 170 100170-MAG	●	Two-component single dose bag	170 ml
MAGIC FLUID 210 100210-MAG	●	Two-component single dose bag	210 ml
MAGIC FLUID 420 100420-MAG	●	Two-component single dose bag	420 ml
MAGIC FLUID 550 100550-MAG	●	Two-component single dose bag	550 ml

Problem ENERGY

What does a gel for this type of system have to give?

- ✓ **INSULATION:** Elevated voltages (1 kV operating, 4 kV testing)
- ✓ **THERMAL PERFORMANCE:** Operating temperature 90°C, overload temperature 130°C, short circuit temperature 250°C
- ✓ **SEALING:** Installations also possible in humid environments, flooded wells
- ✓ **DEGREE OF PROTECTION:** Must also work with water between the cores of the cable
- ✓ **CERTIFIED SYSTEMS:** The combination of insulation gel + casing must comply with current standards CEI 20-33 and EN 50393

Solution: *Magic Gel* meets all your Energy System requirements!





MAGIC POWER GEL

The unique two component gel in a single bottle, with superior dielectric, sealing and thermal characteristics, re-enterable and re-usable!

ADVANTAGES

- Very sticky.
- Strong self amalgamating characteristics.
- The gel is not-classified as hazardous under the CLP Directive.
- Single compact bottle; convenient twin compartment.
- Re-usable as well as re-enterable, even after long working periods.
- It doesn't give any waste.
- No shelf life.



Gel: UL 94-HB

Dielectric strength:

>20 kV/mm

Cross linking time:

fast (about 15 min. at 23°C)

Volume resistivity:

>2 . 10¹⁵ Ω cm

Operating temperature:

-60°C / +200°C

Overload temperature

for short periods:

up to 250°C

Stabilised for:

mould - UV

Degree of protection:

IP68 (in proper casings)

Magic Power Gel protects against dust and seals the connections from the effects of continuous immersion in water when it is poured into casings protected from the ingress of solid bodies, thus helping to create a **IP68** system.

IP68
OFFICIALLY
TESTED

IMQ



INSULATING and SEALING GEL

RE-ENTERABLE

RE-USABLE



For all types of connections, even in the toughest conditions, for power, telecom and signalling!



STICKINESS

- Exceptional sealing properties in any condition.
- Better resistance to pressure.
- Effective even in vertical or ceiling applications.

ZERO WASTE

- Due to the nature of the product waste is eliminated; even residual product can be saved and used for the next application.
- Also any left over product maintains its high performance characteristics.

SELF-AGGLOMERATING

- Once cross linked it perfectly adheres on itself to get an homogeneous and compact mass.
- It can be therefore applied in multiple layers.

SINGLE BOTTLE

- Highly useful.
- The most compact packaging.
- Less space occupied in the toolbox.
- Both components in the same packaging.



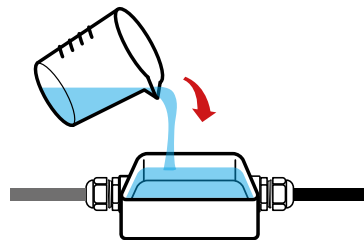
PRODUCT / Item	Colour	Package type	Total quantity
MAGIC POWER GEL 250 MAGICPOWER-250	●	1 single, two-component bottle	250 ml
MAGIC POWER GEL 500 MAGICPOWER-500	●	1 single, two-component bottle 1 jug - 1 spatula in wood	500 ml
MAGIC POWER GEL MAGICPOWER-GEL	●	1 single, two-component bottle 1 jug - 1 spatula in wood	1000 ml



PRODUCT / Item	Colour	Package type	Total quantity
MAGIC POWER GEL BAG 150 MAGICPOWERBAG150	●	Two-component single dose bag	150 ml
MAGIC POWER GEL BAG 250 MAGICPOWERBAG250	●	Two-component single dose bag	250 ml

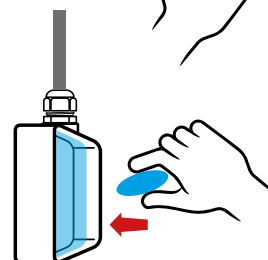
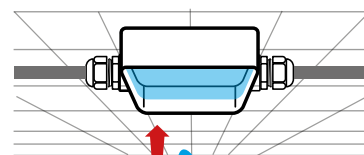
CASTING APPLICATION

HORIZONTAL installation



AFTER CURING MANUAL APPLICATION

CEILING or WALL application





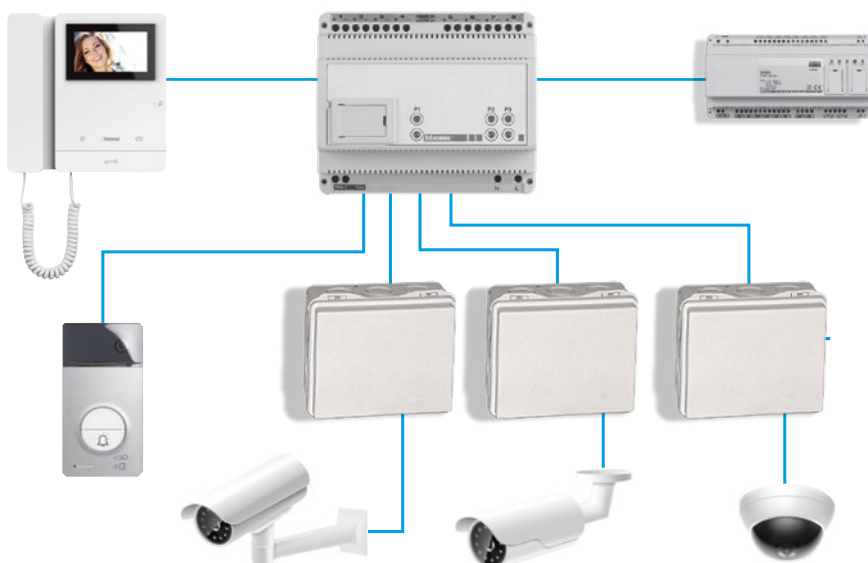
**INTERCOMS
LED DISPLAY**

RAY GEL

Insulating, sealing, re-enterable fast cross linking two-component silicone gel for telephone and intercom systems and for LED and display protection.

ADVANTAGES

- Quick cross linking.
- Antioxidant protection.
- Low temperature resistant.
- The gel is not-classified as hazardous under the CLP Directive.
- No shelf life.



Gel: UL 94-HB   us

Dielectric strength:

>20 kV/mm

Cross linking time:

about 15 min. at 23°C

Volume resistivity:

>1,5 x 10¹⁵ Ω cm

Operating temperature:

-60°C / +180°C

Thermal conductivity:

< 0,2 W/m²K

Dielectric constant:

< 7

Degree of protection:

IP68 (in proper casings)

Ray Gel protects against dust and seals the connections from the effects of continuous immersion in water when it is poured into casings protected from the ingress of solid bodies, thus helping to create a IP68 system.

IP68
OFFICIALLY
TESTED

IMQ

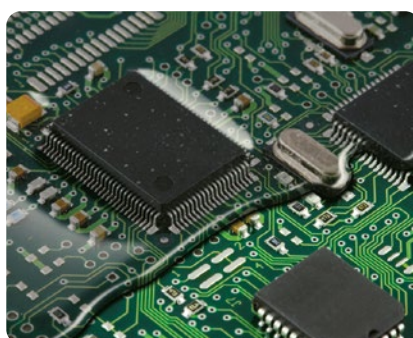


**RED**

- Specially formulated for UV resistance
- Suitable for "surface" installations
- Ideal for intercom systems

**TRANSPARENT**

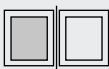
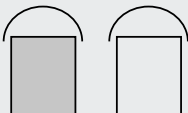
- Excellent transparency
- Does not opacify
- Ideal for protecting printed circuit boards, for sealing displays, for insulating and sealing LEDs

**Problem TELECOM**

What does a gel for this type of system have to give?

- ✓ **SEALING:** Installations also possible in humid environments, flooded wells.
- ✓ **DEGREE OF PROTECTION:** IP68 in proper casing.
- ✓ **PREVENTION FROM OXIDATION:** Contacts in Telecom connections shouldn't give attenuations (low signal currents).
- ✓ **HIGH INSULATION FLUIDITY:** During casting, the the insulation has to fill all interstitial spaces between the cores of the cable.
- ✓ **ANTICRACKING:** Insulation in the permanently cold joint should not crack at low temperatures.
- ✓ **INSULATION:** The filler should be an insulating component.

Solution: Ray Gel meets all your Telecom system requirements.

PRODUCT / Item	Colour	Package type	Total quantity
BAG GEL 200-T BAGGEL200-T	○	Two-component single dose bags	200 ml
BAG GEL 400-T BAGGEL400-T	○		400 ml
BAG GEL 200-R BAGGEL200-R	●		200 ml
BAG GEL 400-R BAGGEL400-R	●		400 ml
RAY GEL 300-T RAYGEL300-T	○	2 bottles	300 ml
RAY GEL 1000-T RAYGEL1000-T	○		1000 ml
RAY GEL 300-R RAYGEL300-R	●		300 ml
RAY GEL 1000-R RAYGEL1000-R	●		1000 ml
RAY GEL 10K-T RAYGEL10K-T	○	2 tanks	10 lt
RAY GEL 20K-T RAYGEL20K-T	○		20 lt
RAY GEL 10K-R RAYGEL10K-R	●		10 lt
RAY GEL 20K-R RAYGEL20K-R	●		20 lt





ALWAYS AT YOUR
FINGERTIPS!



Gel: UL 94-HB

Dielectric strength:

>20 kV/mm

Volume resistivity:

>2 . 10¹⁵ Ω cm

Operating temperature:

-60°C / +200°C

Overload temperature

for short periods:

up to 250°C

Stabilised for:

mould - UV

Degree of protection:

IP68 (in proper casings)

Wonder Gel protects against dust and seals the connections from the effects of continuous immersion in water when it is poured into casings protected from the ingress of solid bodies, thus helping to create a **IP68** system.

IP68
OFFICIALLY
TESTED | **IMQ**

WONDER GEL

Single component insulating gels in cartridge to instantly protect new installations and oversee maintenance of all types of electrical connections.

Installer's best friends. Electrical connections, within empty enclosures, are exposed to the risk of short circuit, oxidation and corrosion, at times, resulting in irreparable damages. Without stress and no waiting around, **WonderGel** and **WonderGel Invisible** make your job easier, guaranteeing the protection and safety of systems in compliance to best practice rules to provide the highest quality solution, quick and perfect to get the satisfaction of both you and your clients.

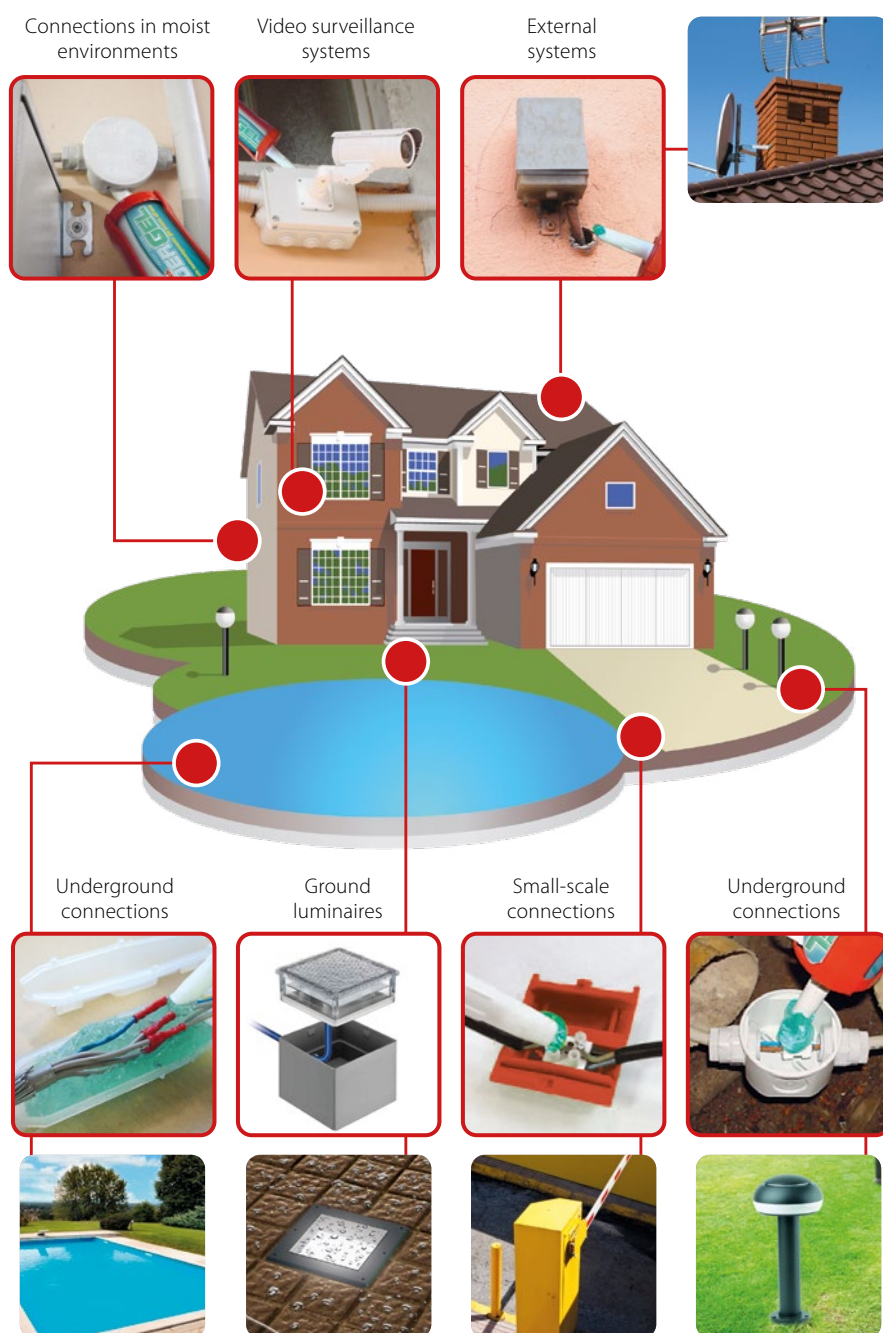
ADVANTAGES

- ▶ Ready to use! No mixing required! Already cross-linked! No need to wait!
- ▶ Resolve issues connected to incorrect insulation or sealing.
- ▶ Eliminate annoying out of service instances caused by moisture.
- ▶ Protect your systems from the penetration of insects.
- ▶ Protect your electrical connections from oxidation and corrosion.
- ▶ Applicable in all climatic conditions.
- ▶ The gel is not-classified as hazardous under the CLP Directive.

EASY TO APPLY EVEN
IN AREAS WHICH ARE
DIFFICULT TO ACCESS!

INSPECTABLE





WHAT IS WONDER GEL?

- A single component gel
- Extremely sticky
- Stays soft with time
- Never dries
- Non-toxic and safe
- No shelf life



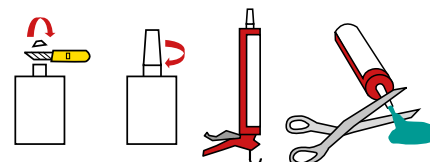
WHAT DOES GUARANTEE?

- Maximum insulation and sealing
- Effective and stable adhesion with the passing of time
- High resistance to water pressure
- Degree of protection IP68 when dispensed in suitable casings



WHY IS IT IN A CARTRIDGE?

- Always ready to use and at your fingertips
- Can be used with standard guns
- It is measurable
- No waste
- Complete with nozzle
- Extremely rapid to use even in difficult positions
- Compact



PRODUCT / Item	Colour	Package type	Total quantity
WONDER GEL WONDER	●	Cartridge with dosing nozzle	280 ml
WONDER GEL INVISIBLE WONDER-INV	○	Cartridge with dosing nozzle	280 ml



WONDER FLUID

Single component insulation fluid gel cartridge.

ADVANTAGES

- The gel is not-classified as hazardous under the CLP Directive.
- Ready-to-use fluid gel.
- Suitable for box filling.
- Does not solidify when opened.
- No waste.
- No shelf life.



Gel: UL 94-HB

Dielectric strength:

>20 kV/mm

Operating temperature:

-60°C / +200°C

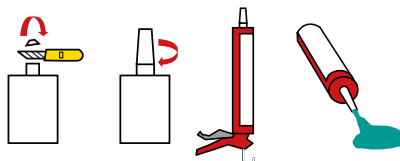
Installation temperature:

-40°C / +110°C

Degree of protection:

IP68 (in proper casings)

Wonder Gel Fluid protects against dust and seals the connections from the effects of continuous immersion in water when it is poured into casings protected from the ingress of solid bodies, thus helping to create a **IP68** system.



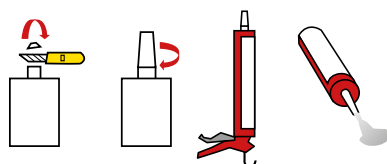
PRODUCT / Item	Colour	Package type	Total quantity
WONDER FLUID 280 WONDER-F280	●	Cartridge with dosing nozzle	280 ml

MONOGEL

Single component transparent insulation gel for generic use.

ADVANTAGES

- The gel is not-classified as hazardous under the CLP Directive.
- Ready to use.
- No shelf life.
- Inspectable.



PRODUCT / Item	Colour	Package type	Total quantity
MONOGEL MONOGEL	○	Cartridge with dosing nozzle	300 ml

Gel: UL 94-HB

Dielectric strength:

>20 kV/mm

Operating temperature:

-60°C / +200°C

Installation temperature:

-40°C / +110°C

Degree of protection:

IP68 (in proper casings)



**Dielectric strength:**

>20 kV/mm

Specific weight:

~ 1.05

Cross linking time:

fast (about 15 min. at 23°C)

Volume resistivity:>2 . 10¹⁴ Ω cm**Operating temperature:**

-60°C / +200°C

Overload temperature**for short periods:**

up to 250°C

Stabilised for:

mould - UV

Degree of protection:

IP68 (in proper casings)

Techno Gel Gum protects against dust and seals the connections from the effects of continuous immersion in water when it is poured into casings protected from the ingress of solid bodies, thus helping to create a **IP68** system.

IP68
OFFICIALLY
TESTED

IMQ



TECHNO GEL GUM

Single bottle two-component insulation with very high dielectric, thermal and sealing characteristics. Waterproof and re-enterable!

TechnoGelGum is a strong hold flexible elastomer whose formula has been optimised for the protection of POWER CABLE, TELECOM CABLE and ELECTRONIC CIRCUIT connections. A new recipe that gives the product a surprising, original texture that combines the characteristics of GEL and RUBBER to emphasise its features. It's elastic and flexible like gel, but also tough and dry like rubber.

ADVANTAGES

- ▶ For installations up to 1 kV, suitable for high temperatures.
- ▶ Suitable for installation in salt water (sea) and in chlorinated water (pools).
- ▶ For any type of indoor / outdoor and even submerged installation.
- ▶ Waterproof > 1 MPa.
- ▶ Vibration resistant can act as a damper.
- ▶ Removable.
- ▶ The gel is not-classified as hazardous under the CLP Directive.
- ▶ No shelf life.

STRONG CONSISTENCY**EXTREMELY FLEXIBLE
AND WATER-REPELLENT**

FLEXIBLE like GEL

STRONG like RUBBER



SAFE



WATERPROOF



RE-ENTERABLE



Shake before using.



Pour TechnoGelGum into the provided jug in a 1:1 ratio.



Mix for 20" max.



Pour within 1 min. max.



In just 15 minutes the curing is completed.

PRODUCT / Item	Colour	Package type	Total quantity
TECHNO GEL GUM 500 TEGELGUM500	●	1 single, two-component bottle 1 jug - 1 spatula in wood	500 gr
TECHNO GEL GUM TEGELGUM	●	1 single, two-component bottle 1 jug - 1 spatula in wood	1 kg





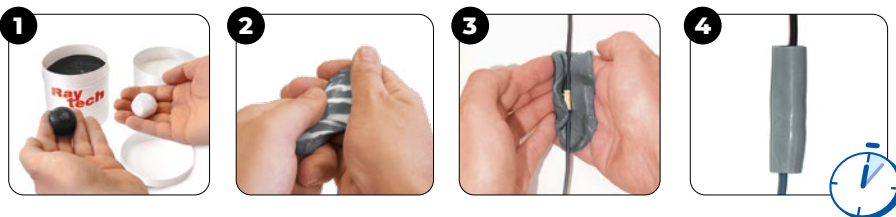
SKY PLAST

Two-component insulating rubber, mouldable, self-extinguishing paste with high dielectric characteristics.

Sky Plast is ideal for covering, protecting, insulating, finishing and fireproofing any electrical and non-electrical component. Once the 2 components have been blended in a ratio of 1:1 (for max 2 min.) until uniform, it cross links quickly at room temperature in less than 5 minutes. After being wrapped around the component to be protected, Sky Plast quickly transforms into a layer of rubber with high dielectric and self-extinguishing characteristics.

ADVANTAGES

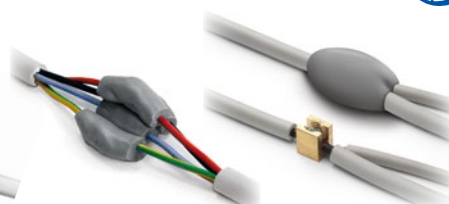
- Low smoke and toxic and corrosive gases emission.
- Able to replace taping, heat-shrinking, resin finishes.
- Flexible and elastic.
- Quickly ready for use.



Cable gland sealing



Creation of LV terminals



Insulation of multiple connections



Preparation on-site of expanders for inserts



Preparation of bars, washers, round wire insulators



Preparation on-site of seals



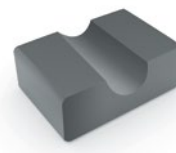
Conduit protection



Preparation on-site of small moulds for reliefs



Drop line, bar, transformer through insulation



On-site preparation of braces and supports



Preparation of deflectors, nozzles, flow deviators



**SKY PLAST
BECOMES RUBBER
IN 5 MINUTES**

PRODUCT / Item	Colour	Package type	Total quantity
SKY PLAST 250 SKYPLAST250	●	2 cans	250 gr
SKY PLAST SKYPLAST	●	2 cans	500 gr

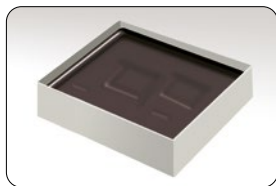
MAGIC RUBBER

Fast cross linking two-component rubber.

Two-component insulating liquid rubber, extremely conformable and fluid, flexible, elastic and re-enterable. In just a few minutes, transforms into a rubber with very high dielectric, thermal, mechanical and elastic characteristics.

ADVANTAGES

- For installation up to 1kV.
- Low smoke, toxic and corrosive gas emissions.
- Ideal also for casts and moulds.
- No shelf life.



Moulds for making models



Animal Barrier



Joint filling

PRODUCT / Item	Colour	Package type	Total quantity
MAGIC RUBBER 500 MAGIC-RUBBER	●	1 single two-component bottle 1 jug - 1 spatula in wood	500 gr
MAGIC RUBBER 10 MAGICRUBBER-10	●	Two-component tanks 1 jug - 1 spatula in wood	10 kg

PRODUCT / Item	Colour	Package type	Total quantity
RUBBER FLUID 200 RUBBERFLUID-200	●	Two-component single dose bags	200 gr
RUBBER FLUID 350 RUBBERFLUID350	●	Two-component single dose bags	350 gr

PRODUCT / Item	Colour	Package type	Total quantity
GASKET KIT RAYGASKIT	●	Mould + Two-component liquid rubber	360 gr



Side A



Side B



Cross linking time:

15 minutes at 23°C

Volume resistivity:

> 2 10¹⁵ Ω cm

Dielectric strength:

> 20 kV/mm

Specific weight:

1,22 approx

Degree of protection:

IP68 (in proper casings)

Magic Rubber protects against dust and seals the connections from the effects of continuous immersion in water when it is poured into casings protected from the ingress of solid bodies, thus helping to create a **IP68** system.



SEAL UP
RESIN

NEW

Dielectric strength:

>20 kV/mm

Specific density:

Approx. 1 gr/cc

Curing time:

15-20 min. at 25°C

Volume resistivity:>2 .10¹⁵ Ω cm**Operating Temperature:**

-60°C / +200°C

**Overload temperature
for short periods of time:**

Up to 250°C

Viscosity of the 2 parts:

3500 – 4500 cP

Cone penetration:

90-120 1/10 mm (ASTM D217/C)

Thermal conductivity:

0,2 W/mK

Water absorption after**30 days of immersion:**

<< 0,05%

Degree of protection:

IP68 (in suitable enclosures)

IP68
OFFICIALLY
TESTED

IMQ

SEAL UP RESIN

Insulating removable, sturdy resin with high mechanical resistance designed to prevent the penetration of moisture in both electrical and electronic fields.

Seal Up Resin it is suitable for multiple applications, both in the electrical and electronic fields, where reliability and speed of installation even at low temperature are of crucial importance. **Seal Up Resin** it is available in single-dose sachets, which are extremely easy to prepare as it is sufficient to remove the separator placed between the two components, blend the content for a few seconds and pour, thus obtaining, in a few minutes and at room temperature, a solid-plastic insulation. The product is also available in industrial formats. **The removability feature** allows an easy separation of the components at the end of life and consequent disposal of the products/casings in which it has been used.

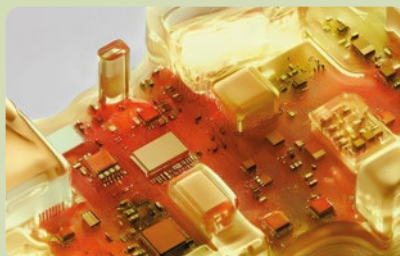
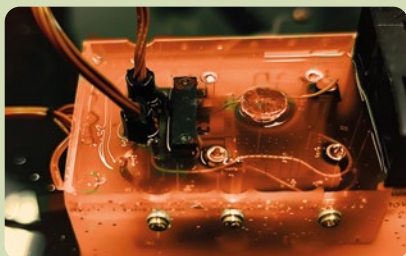
ADVANTAGES

- ▶ REACH compliant and free of substances classified as hazardous according to the current CLP regulation.
- ▶ Isocyanate-free resin.
- ▶ Resistant to mold and UV rays.
- ▶ No shelf-life.



**IDEAL FOR**

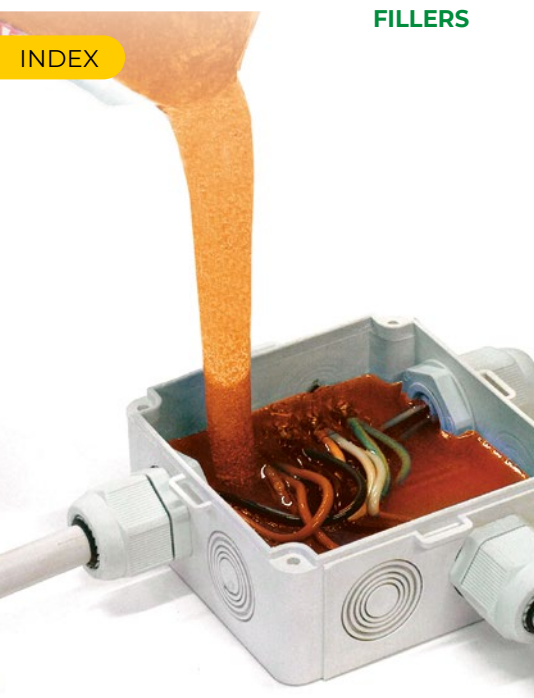
- Seal and insulate 0.6/1kV LV cable connections in junction boxes and cases.
- Accessing the connections in case of modifications.
- Direct buried and submerged installations even in the presence of chlorinated water.
- Installations even at low temperatures.

**OTHER BENEFITS**

- No exothermic reaction
- Inspectable as it is translucent amber colour
- Mixing ratio: 1:1
- Performing over time

PRODUCT / Item	Colour	Package type	Total quantity
SEAL UP RESIN 170 SEALUPRESIN170	●	Two-component single-dose sachet	170 gr
SEAL UP RESIN 210 SEALUPRESIN210	●	Two-component single-dose sachet	210 gr
SEAL UP RESIN 420 SEALUPRESIN420	●	Two-component single-dose sachet	420 gr
SEAL UP RESIN 500 SEALUPRESIN500	●	1 single, two-component bottle 1 jug - 1 spatula in wood	500 gr
SEAL UP RESIN 10K SEALUPRESIN10K	●	5 litre tanks A+B	10 lt
SEAL UP RESIN 200K SEALUPRESIN200K	●	200 litre drums A+B	400 lt



**Cross linking time:**

25 minutes at 25°C

Hardness:

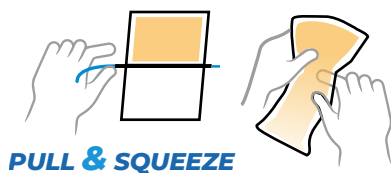
95 Shore A

Dielectric strength:

20 kV/mm

Specific weight:1,07 kg/dm³**Water absorption:**

0,8% max



RAY RESIN

Two-component epoxy resin for installations up to 1 kV.

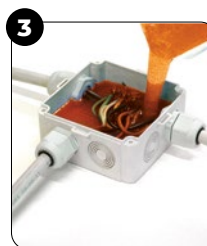
Resin for electrical insulation and for the protection of thermosetting LV and MV accessories. The two components, the base resin and hardener, are mixed in close contact to trigger the cross linking reaction. Excellent bonding to metal, plastic and rubber components.



Remove the separator from the Rayresin bag.



Mix the 2 components.



Pour Rayresin in the tray (1' max).

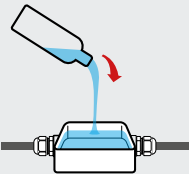
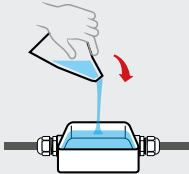
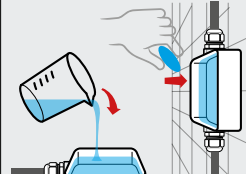


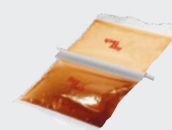
Installation completed.

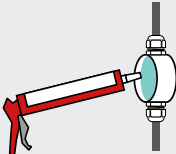
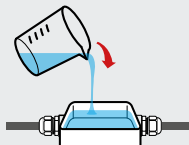
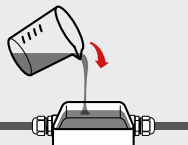
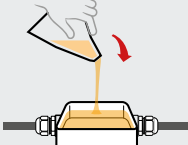
PRODUCT / Item	Colour	Package type	Total quantity
RAYRESIN 170 100170-000	●	Two-component single dose bags	170 gr
RAYRESIN 210 100210-000	●	Two-component single dose bags	210 gr
RAYRESIN 420 100420-000	●	Two-component single dose bags	420 gr

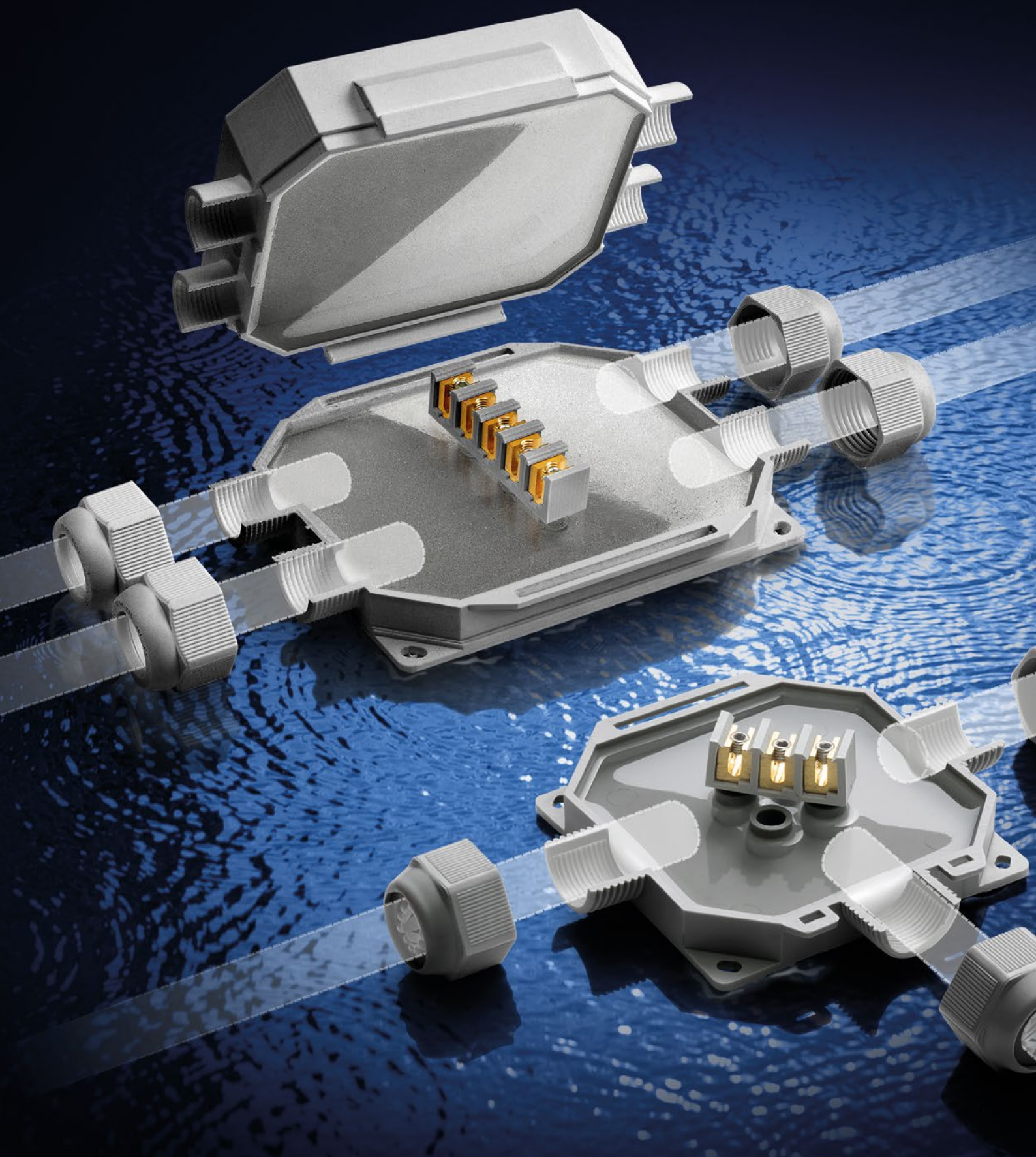
FILLERS COMPARISON CHART



	MAGIC GEL SPRINT	MAGIC FLUID	MAGIC GEL	MAGIC POWER GEL	RAY GEL
PACK CONTENTS	1 bottle + 1 catalyst	1 sachet	2 bottles or one single 2 compartment bottle + jug + spatula	One single 2 compartment bottle + jug + spatula	2 bottles or 1 sachet
MIXING RATIO	Predeterminate	Predeterminate	1:1 ratio with measuring Jug	1:1 ratio with measuring Jug	1:1 ratio
MIXING TIME	20 seconds	20 seconds	20 seconds	20 seconds	20 seconds
CURING TIME (at 23° C)	~ 7 minutes	~ 7 minutes	~ 10 minutes	~ 15 minutes	~ 15 minutes
INSTALLATION TEMPERATURE	-15° / +55°C	-15° / +55°C	-15° / +55°C	-15° / +55°C -40° / +60° (cured)	-15° / +55°C
USAGE	By pouring  ALL IN ONE Ready in 1 bottle!	By pouring  ALL IN ONE CLASSIC	By pouring  CLASSIC	By pouring or "cure and stick"  SELF AGGLOMERATING	By pouring  INTERCOMS Led display



	WONDER GEL / FLUID	TECHNO GEL GUM	MAGIC RUBBER	SEAL UP RESIN	RAY RESIN
PACK CONTENTS	1 cartridge	One single 2 compartment bottle + jug + spatula	One single 2 compartment bottle + jug + spatula	One single 2 compartment bottle + jug + spatula	1 sachet
MIXING RATIO	None	1:1 ratio with measuring Jug	1:1 ratio with measuring Jug	1:1 ratio with measuring Jug	Predeterminate
MIXING TIME	-	20 seconds	20 seconds	90 seconds	30 seconds
CURING TIME (at 23° C)	Already cross-linked	~ 15 minutes	~ 15 minutes	~ 19 minutes	~ 25 minutes
INSTALLATION TEMPERATURE	-15° / +55°C	-15° / +55°C	-15° / +55°C	-15° / +55°C	+5° / +55°C
USAGE	Injection 	By pouring 	By pouring 	By pouring 	By pouring 



LOW VOLTAGE JOINTING BOXES

PRE-FILLED IP68

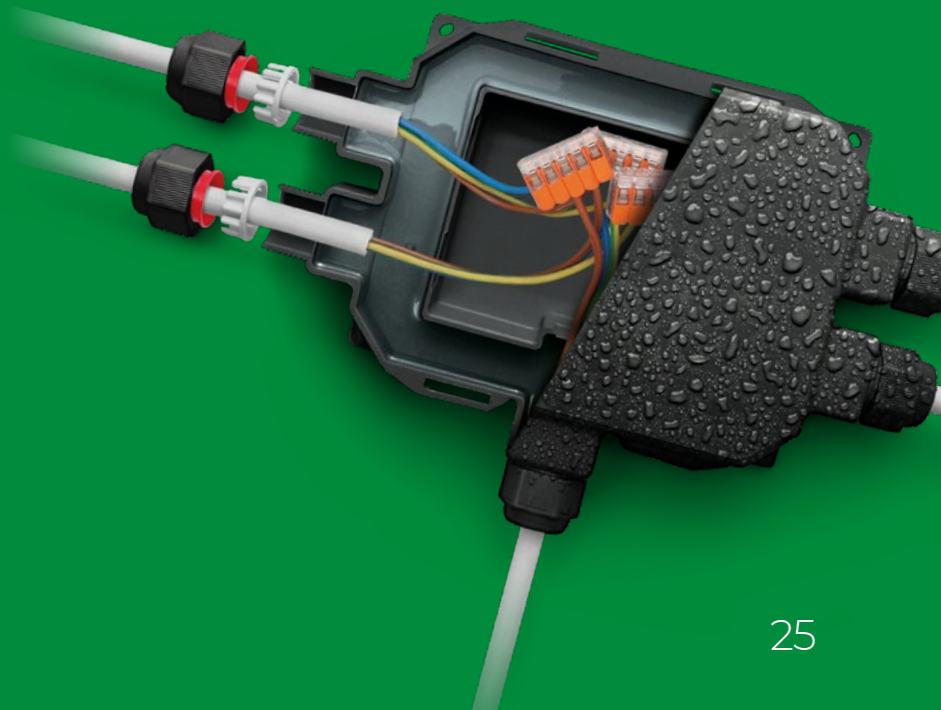
BOB
BABY BOX
READY BOX
FOX BOX

KIT IP68

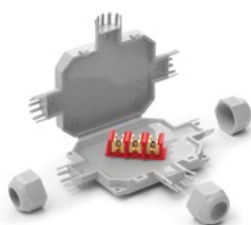
MAGIC BOX
POWER KIT
MAGIC GEL SPRINT BOX 100

IP55

J-BOX



RAYTECH PRE-FILLED BOXES



BOB 3

1
Entrance

2
Outputs


Connector
3x 4 mm²
or free
connections

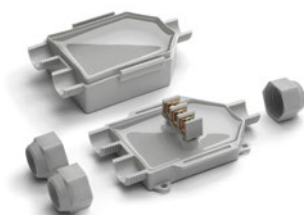


BOB 4

1
Entrance

3
Outputs


Connector
3x 4 mm²
or free
connections



**BABY
BOX**

1
Entrance

2
Outputs


Connector
3x 6 mm²
or free
connections



**BABY
BOX 3**

1
Entrance

3
Outputs


Connector
5x 6 mm²
or free
connections



**READY
BOX 90**

1
Entrance

2
Outputs


Connector
3x 6 mm²
or free
connections



**READY
BOX 120**

1
Entrance

3
Outputs


Connector
5x 6 mm²
or free
connections



**FOX
BOX 3**

1
Entrance

2
Outputs

Free
connections



**FOX
BOX**

1
Entrance

4
Outputs

Free
connections



3 nuts

Cables Ø
mm 8-13

Colours

mm

105 x 80 x h 25



4 nuts

Cables Ø
mm 8-13

Colours

mm

105 x 65 x h 25

3 nuts
+ adaptersCables Ø
mm 8-18

Colours

mm

95 x 80 x h 43

4 nuts
+ adaptersCables Ø
mm 8-18

Colours

mm

95 x 110 x h 43

3 nuts
+ adaptersCables Ø
mm 8-18
Tubes Ø
mm 16/20/32

Colours

mm

90 x 90 x h 45

4 nuts
+ adaptersCables Ø
mm 8-18
Tubes Ø
mm 16/20/32

Colours

mm

120 x 100 x h 45

3 nuts
+ adaptersCables Ø
mm 8-18
Tubes Ø
mm 16/20/32

Colours

mm

180 x 135 x h 45

5 nuts
+ adaptersCables Ø
mm 8-18
Tubes Ø
mm 16/20/32

Colours

mm

210 x 155 x h 45

Electrical performance:**CEI EN 50393**

as applicable

Class 2 in accordance with **CEI 64-8**. **Gel:** UL 94-HB **Working temperature:** 90°C **Installation temperature:** -40°C / +50°C **Fully submersible** **Can be used underground** **Halogen-free Gel** **UV resistant****IP68**
OFFICIALLY
TESTED | **IMQ****IP69K**
OFFICIALLY
TESTED**IP68:**(6) protected against dust
and solid objects over 1 mm.(8) Protected from permanent
immersion in water.**IP69K:**(9K) protected against close-range high
pressure, high temperature spray downs.



BOB

The IP68 / IP69K micro-joints, gel pre-filled, complete with connector, suitable for any type of installation, even the most extreme.

Extremely compact and space-saving, pre-filled with soft, highly conformable gel. With minimal aesthetic impact and visually pleasing. Equipped with integrated cable glands for IP68 and IP69K degree of ingress protection and cable retention.

ADVANTAGES

- Pre-filled with a gel that is not-classified as hazardous under the CLP Directive.
- Extremely compact and ready to install.
- Ideal for connections in lighting systems for gardens, steps and stairways, pedestrian crossings, etc.
- Pre-threaded entries for the positioning of the clamping nuts.
- No shelf life.
- Always re-enterable.



Electrical performance:

- CEI EN 50393 as applicable
- Class 2 in accordance with CEI 64-8.

🔧 Gel: UL 94-HB  us

🌡️ Working temperature: 90°C

🌡️ Installation temperature: -40°C / +50°C

🌊 Fully submersible

🔧 Can be used underground

🌿 Halogen-free Gel

☀️ UV resistant

🔥 Self-extinguishing and resistant to abnormal heat and fire:
Glow Wire Flammability Index at +960°C according to EN60695-2-12

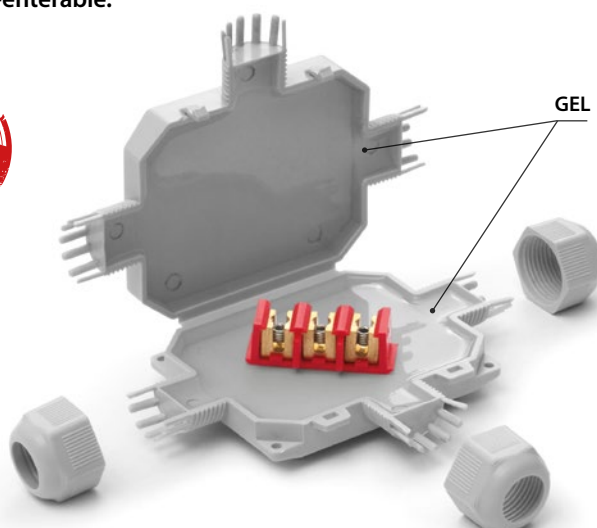
IP68
OFFICIALLY
TESTED

IMQ

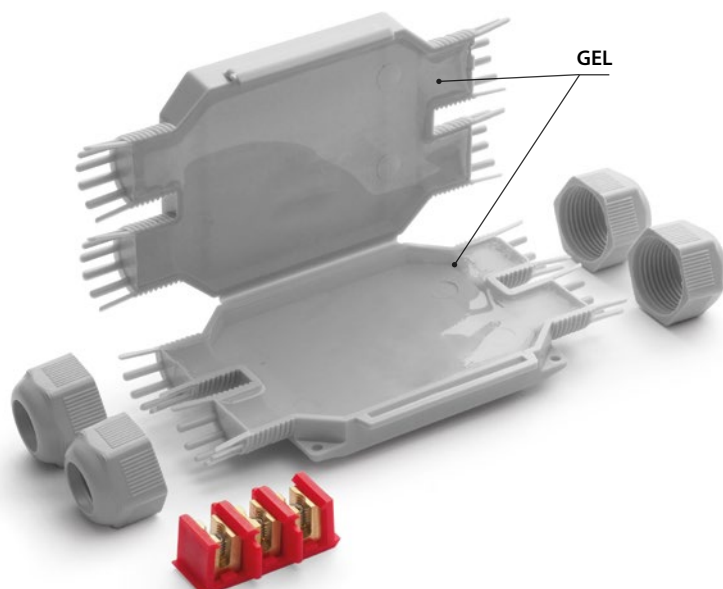
IP69K
OFFICIALLY
TESTED



BOB 3

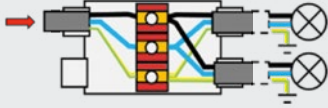


BOB 4



Some installation possibilities for BOB 4

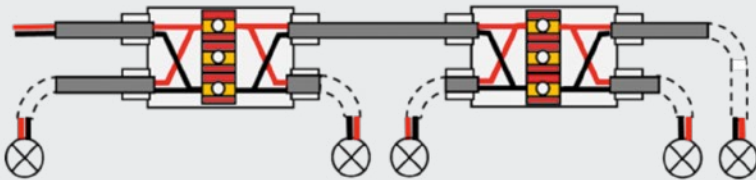
Parallel branch system with
3 three-core cables up to 3 x 4 mm²



Parallel branch system with
4 three-core cables up to 3 x 2.5 mm²

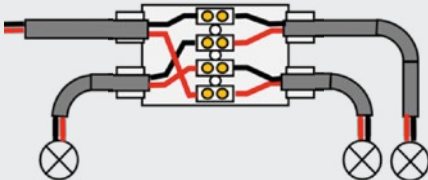


Parallel 5-lamp connection system

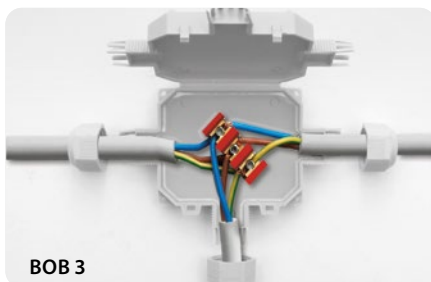
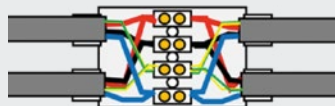


Can be installed with Mammut type connector (not included)

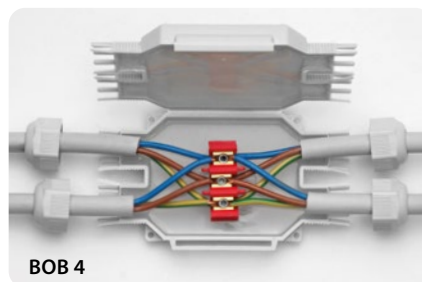
3-LED spotlight in-series system



3-LED RGB spotlight parallel system
with four-core cables



BOB 3

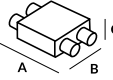


BOB 4



For use in traps. The ideal accessory for branch connections from a through cable to light fittings and spotlights. Suitable in applications where there is presence of water and moisture.

PRODUCT / Item	Colour	Max cable formation (N° x mm ²)		Cables Ø min - max (mm)	Pieces Pack	 (mm)
		Through	Branch			
BOB 3 BOB3	●	1 cable 3 x 4	2 cables 3 x 4	8 - 13	1 piece Blister	105 x 80 x 25
BOB 3 - N BOB3-N	●	1 cable 3 x 2,5	2 cables 3 x 2,5		1 piece Blister	

PRODUCT / Item	Colour	Max cable formation (N° x mm ²)		Cables Ø min - max (mm)	Pieces Pack	 (mm)
		Through	Branch			
BOB 4 BOB	●	1 cables 3 x 4	2 cables 3 x 4	8 - 13	1 piece Blister	105 x 65 x 25
BOB 4 - N BOB4-N	●	1 cables 3 x 2,5	3 cables 3 x 2,5		1 piece Blister	





**JOINT OR BOX?
CHOOSE BABY BOX!**



Electrical performance:

- CEI EN 50393 as applicable
- Class 2 in accordance with CEI 64-8.

 **Gel:** UL 94-HB 

 **Installation temperature:**
-40°C / +50°C

 **Working temperature:** 90°C

 **Gel operating temperature:**
-60°C / +200°C

 **Fully submersible**

 **Can be used underground**

 **Halogen-free Gel**

 **UV resistant**

 **Self-extinguishing and resistant to abnormal heat and fire:**
Glow Wire Flammability Index at +960°C according to EN60695-2-12

BABY BOX

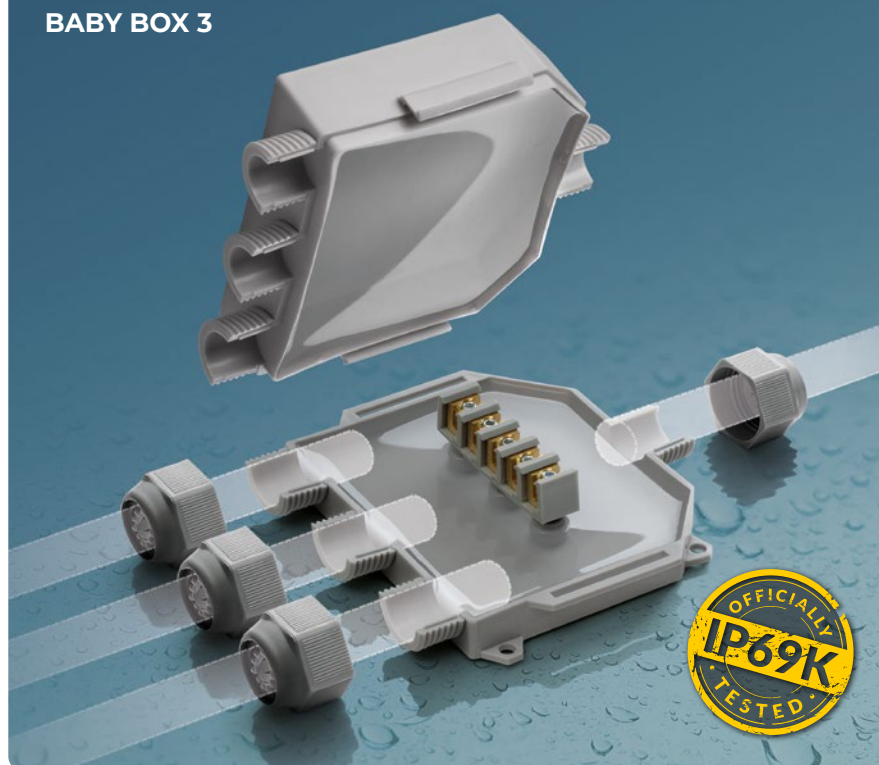
Pre-filled boxes (1 to 2) – (1 to 3)
with integrated terminal block and clamping nuts.

BABY BOX is the range of ready to use boxes/junction boxes, complete with terminal block and a kit of components that allow its use with cables from 8 to 18 mm in diameter and ducts from 16 to 20 mm in diameter. Nothing to pour and no waiting times as it is already pre-filled with a non-toxic gel, not classified as dangerous and with no shelf life, which insulates and seals the connection thoroughly and gives to the range the maximum of reliability; the accessory is ideal for underground, submerged or aerial installations. BABY BOX, 3-entrances box with three-pole terminal block and BABY BOX 3, 4-entrances box with five-pole terminal block, are available in grey or black, they are very simple to install and equipped with external holes for wall fixing.

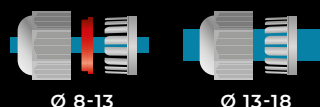
ADVANTAGES

- Pre-filled with a gel that is not-classified as hazardous under the CLP Directive.
- Ready to use.
- Also suitable for wet or flooded environments.
- Always re-enterable.
- Wall or external ceiling fixing system.
- Click and hook closure, does not require screws.
- No shelf life.

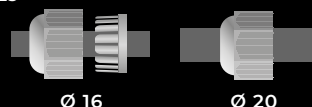
BABY BOX 3



CABLES



TUBES

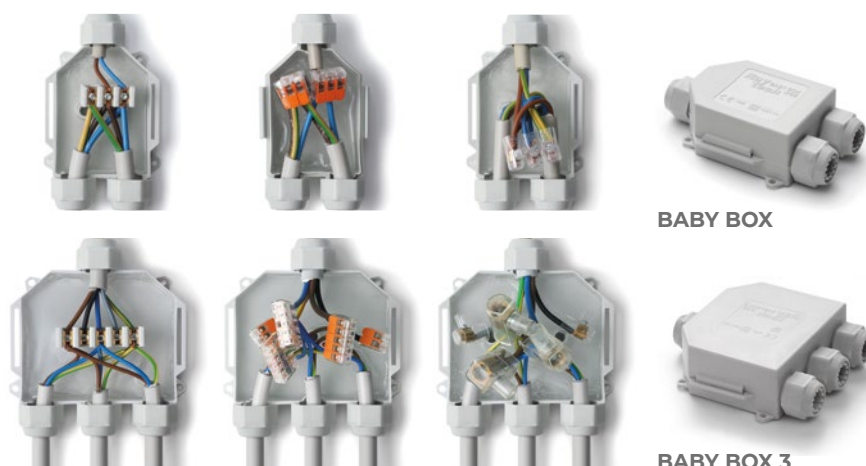
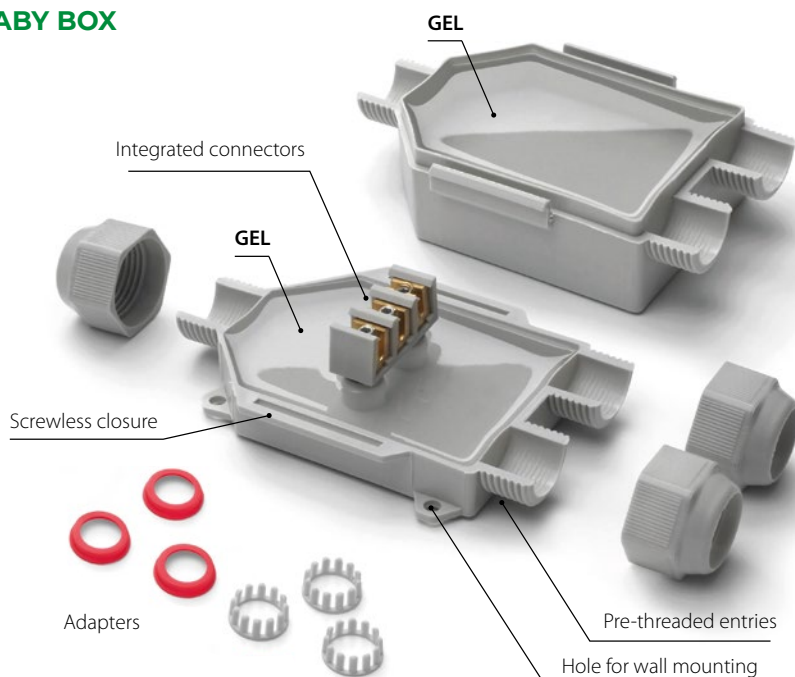


IP68
OFFICIALLY
TESTED

IMQ

IP69K
OFFICIALLY
TESTED

BABY BOX



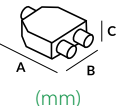
BABY BOX

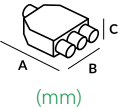
BABY BOX 3

With integrated connectors.

Also suitable for extra-flat lever connectors.

Also suitable for screw terminals.

PRODUCT / Item	Colour		Connectors	Cables Ø min - max (mm)	Tubes Ø (mm)	 (mm)
BABY BOX BABYBOX	●	3	 3x Max 12 mm ²	8 - 18	16 / 20	90 x 80 x 47
BABY BOX - N BABYBOX-N	●					

PRODUCT / Item	Colour		Connectors	Cables Ø min - max (mm)	Tubes Ø (mm)	 (mm)
BABY BOX 3 BABYBOX3	●	4	 5x Max 12 mm ²	8 - 18	16 / 20	95 x 110 x 43
BABY BOX 3 - N BABYBOX3-N	●					

Baby Box

Baby Box 3





READY BOX

3 or 4 entrances junction boxes pre-filled with gel, complete with integrated terminal block and cable glands

Ready Boxes are pre-filled with gel and ready to use; complete with terminal blocks but can also be used with the most common connection systems. Supplied with nuts for the conformation with 3 or 4 outputs, they are suitable for a very wide range of cables or ducts diameters.

ADVANTAGES

- Pre-filled with a gel that is not-classified as hazardous under the CLP Directive.
- Ready to use.
- Also suitable for wet or flooded environments.
- Always re-enterable.
- Wall or external ceiling fixing system.
- Click and hook closure, does not require screws.
- Pre-threaded entries for cable gland mounting.
- No shelf life.



Electrical performance:

- CEI EN 50393 as applicable
- Class 2 in accordance with CEI 64-8.

🔧 Gel: UL 94-HB  us

🌡️ Working temperature: 90°C

🌡️ Gel operating temperature: -60°C / +200°C

🌊 Fully submersible

🔧 Can be used underground

🌿 Halogen-free Gel

☀️ UV resistant

🔥 Self-extinguishing and resistant to abnormal heat and fire:
Glow Wire Flammability Index at +960°C according to EN60695-2-12

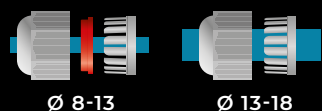
IP68
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IMQ

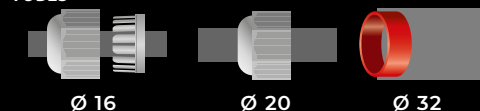
IP69K
OFFICIALLY
TESTED



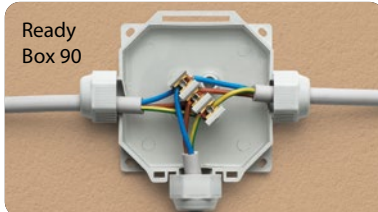
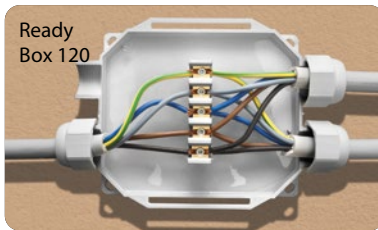
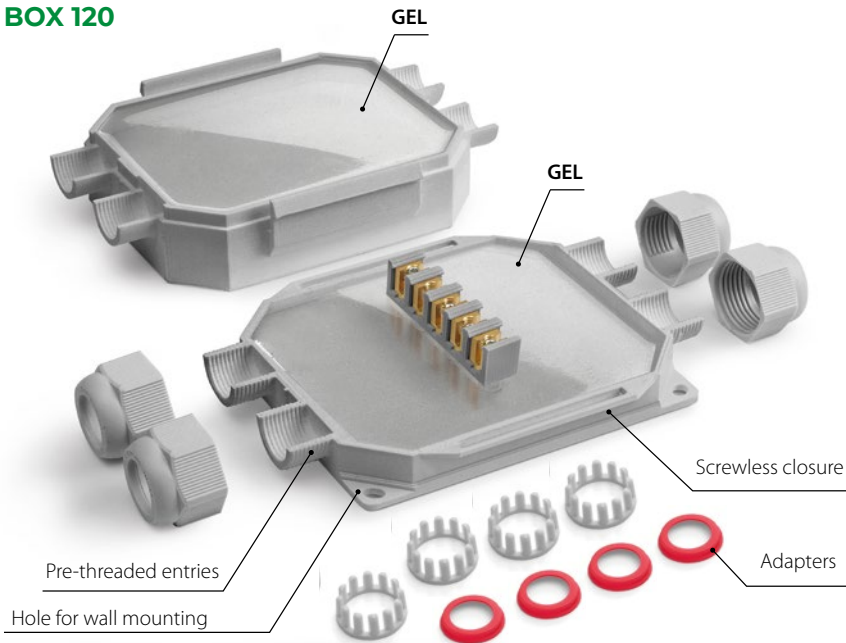
CABLES



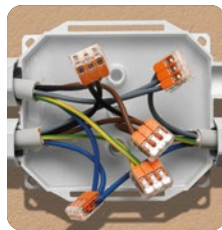
TUBES



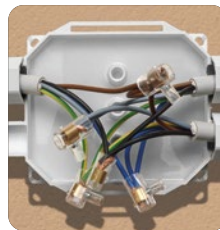
READY BOX 120



Thanks to its innovative design, unlike a standard box, there is no need to break through the walls of the box to insert the cable.



Also suitable for extra-flat lever connectors.



Also suitable for screw terminals.

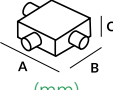
READY BOX 90

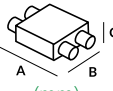


Installation with free cables.

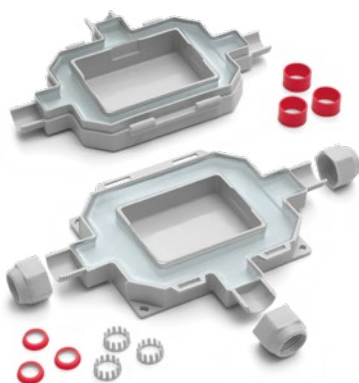


Installation with cable gland duct.

PRODUCT / Item	Colour		Cables Ø min-max (mm)	Tubes Ø (mm)	 (mm)
Ready Box IP68 90 READYBOX90	●	3	8 - 18	16 / 20 / 32	90 x 90 x 45
Ready Box IP68 90/N READYBOX90-N	●				

PRODUCT / Item	Colour		Cables Ø min-max (mm)	Tubes Ø (mm)	 (mm)
Ready Box IP68 120 READYBOX120	●	4	8 - 18	16 / 20 / 32	120 x 100 x 45
Ready Box IP68 120/N READYBOX120-N	●				




Electrical performance:

- CEI EN 50393 as applicable
- Class 2 in accordance with CEI 64-8.

 **Gel:** UL 94-HB 

 **Working temperature:** 90°C

 **Gel operating temperature:**
-60°C / +200°C

 **Fully submersible**

 **Can be used underground**

 **Halogen-free Gel**

 **UV resistant**

 **Self-extinguishing and resistant to abnormal heat and fire:**
Glow Wire Flammability Index at +960°C according to EN60695-2-12

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FOX BOX

3 or 5 entrance jointing enclosure with gel filled perimeter chamber providing lighter weight with maximum capacity.

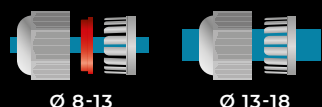
Kit includes accessories to maximise versatility allowing the use of cables from 8 to 18 mm in diameter or with 16, 20 and 32 mm diameter cable conduits. The internal, gel-free compartment allows for dry connections or any future alterations or disconnections. The gel, contained in the perimeter chamber also surrounds, insulates and seals any armour continuity connections or cable shields.

ADVANTAGES

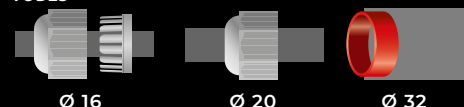
- ▶ Pre-filled with a gel that is not-classified as hazardous under the CLP Directive.
- ▶ Functional, elegant design.
- ▶ Ideal for exposed and safety systems and for video camera installation.
- ▶ Ready for use.
- ▶ Click and hook closure, does not require screws.
- ▶ Ready and installable in all environmental conditions.
- ▶ Also suitable for wet or flooded environments.
- ▶ Always re-enterable.
- ▶ Wall or external ceiling fixing system.
- ▶ No shelf life.

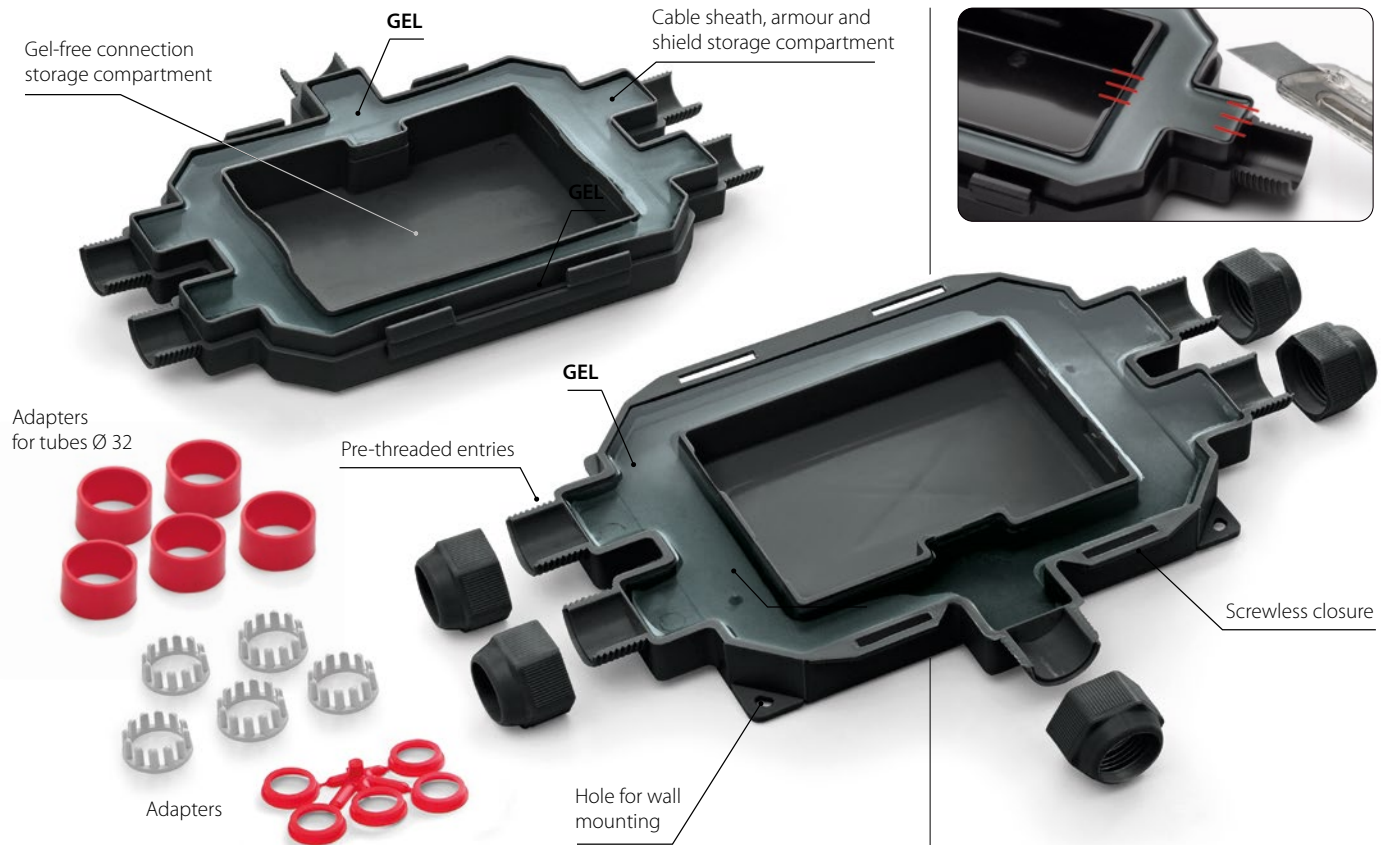


CABLES



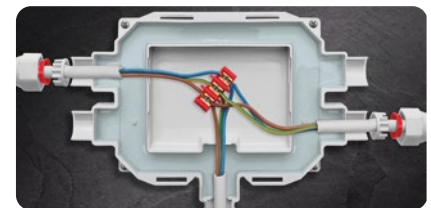
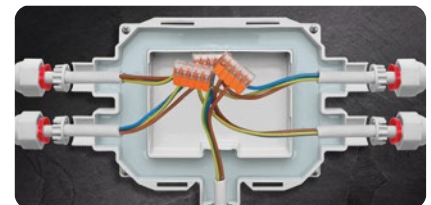
TUBES





PRODUCT / Item	Colour	Cables Ø min-max (mm)	Tubes Ø (mm)	Inner capacity (mm)	Outer dimensions (mm)
FOX BOX 3 FOXBOX3	●				
FOX BOX 3 - N FOXBOX3-N	●	8 - 18	16 / 20 / 32	79 x 60 x 32	180 x 135 x 45
FOX BOX 3 - ARM FOXBOX3-ARM	●				

PRODUCT / Item	Colour	Cables Ø min-max (mm)	Tubes Ø (mm)	Inner capacity (mm)	Outer dimensions (mm)
FOX BOX FOXBOX	●				
FOX BOX - N FOXBOX-N	●	8 - 18	16 / 20 / 32	116 x 78 x 32	210 x 155 x 45
FOX BOX - ARM FOXBOX-ARM	●				



The Fox Box – Arm kit includes:

- The yellow/green insulated wires.
- The roll springs to carry out the continuity of the armouring.

Armourings and their continuity are housed in the chamber with the gel, ensuring perfect sealing.



MAGIC BOX

IP68 Connection kit complete with Magic Fluid insulating gel.

Universal IP68 kit without shelf life, mechanically robust, non-toxic, suitable for installation even in the most extreme conditions, re-enterable, meeting all international standards. Protects from water, moisture, dust and accidental contact caused by small animals.

ADVANTAGES

- ▶ With pre-drilled walls for a faster installation.
- ▶ Re-enterable even after long periods of operation.
- ▶ Able to absorb external shock without fracturing.
- ▶ For installations even at high depths.
- ▶ Also suitable for vertical filling.
- ▶ No shelf life.
- ▶ The gel is not-classified as hazardous under the CLP Directive.



Electrical performance:

- CEI EN 50393 as applicable
- Class 2 in accordance with CEI 64-8.

 **Gel:** UL 94-HB 

 **Working temperature:** 90°C

 **Gel operating temperature:**
-60°C / +200°C

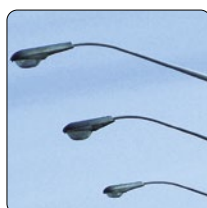
 **Fully submersible**

 **Can be used underground**

 **Halogen-free Gel**

 **Self-extinguishing and resistant to abnormal heat and fire:**
Glow Wire Flammability Index at +960°C according to EN60695-2-12

IP68
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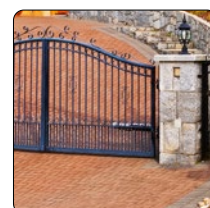
PUBLIC LIGHTING



NAVAL SECTOR

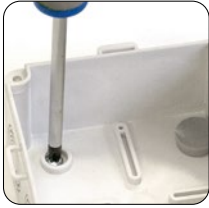


OUTDOOR - GARDENS



ELECTRIC GATES

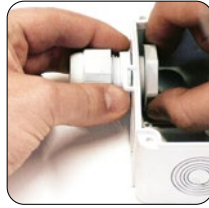
Kit box installation sequence



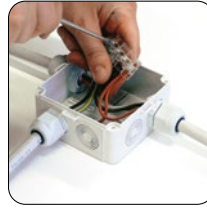
Fix the box and cover the screws with the caps.



Knock out the pre prepared holes.

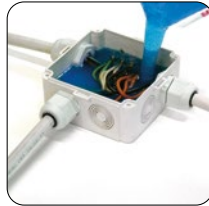


Install the cable glands.



Insert the cables and connect the wires.

Horizontal installation sequence



Vertical installation sequence



PRODUCT / Item	Input cables max. external Ø (mm)	N° and type of cable glands	Box dimensions (mm)
MAGIC BOX 65 MAGICBOX65	22	3 x PG16	Ø 65 x h 35
MAGIC BOX 80 MAGICBOX80	22	3 x PG16	Ø 80 x h 40
MAGIC BOX 100 MAGICBOX100	20	3 x M25 x 1.5	100 x 100 x h 50
MAGIC BOX 120 MAGICBOX120	20	3 x M25 x 1.5	120 x 80 x h 50
MAGIC BOX 150 MAGICBOX150	26	3 x M25 x 1.5	150 x 110 x h 70
MAGIC BOX 190 MAGICBOX190	26	3 x M25 x 1.5	190 x 140 x h 70
MAGIC BOX 240 MAGICBOX240	26	3 x M25 x 1.5	240 x 190 x h 90



Complete kit with:

- Cover
- 3 cable glands
- Series of closing plugs
- Insulating gel for complete filling



POWER KIT IP68

The only re-enterable and reusable IP68 kit. Can easily be used for ceiling mounted or recessed applications!

The most versatile, safe solution to fully protect connections in boxes with an IP68 degree of protection. Thanks to **Magic Power**, the newly developed, fast cross-linking, safe and reliable, extremely sticky self-agglomerating gel with very high dielectric, thermal and elastic characteristics, sealing is guaranteed in all type of installation, including submerged. The Power Kit IP68 solution is the only product of its kind! Not only because the insulation can be used in two different ways, both as a traditional "pour" in the box and as a "cross linked and sticky" product (cross linking first), but also because, thanks to its re-enterability and re-usability, it helps you save time and money!

ADVANTAGES

- ▶ **Magic Power Gel is not-classified as hazardous under the CLP Directive.**
- ▶ **Complete Kit for a perfect connection IP68.**
- ▶ **Insulated with Magic Power Gel the innovative self-amalgamating gel.**
- ▶ **Can also be used in severe environmental conditions.**
- ▶ **Suitable for very high depths.**
- ▶ **No waste.**
- ▶ **No shelf life.**



Electrical performance:

- CEI EN 50393 as applicable
- Class 2 in accordance with CEI 64-8.

🔧 Gel: UL 94-HB 

🌡️ Working temperature: 90°C

🌡️ Gel operating temperature: -60°C / +200°C

🌊 Fully submersible

🔑 Can be used underground

🌿 Halogen-free Gel

🔥 Self-extinguishing and resistant to abnormal heat and fire:
Glow Wire Flammability Index at +960°C according to EN60695-2-12

IP68
OFFICIALLY
TESTED | **IMQ**

WHERE CAN YOU USE THE POWER KIT?

In pools, tanks, submerged pumps, outdoor lighting systems, underground, port piers, marinas, sewer systems, and with temporary connections such as with lights, street vendors, etc.

HOW DO YOU USE THE POWER KIT?

The insulation can be poured into the box (Pour!) or, for special applications, cross linked in the measuring jug and applied around the connection (Stick!). Mix the Magic Power gel in a 1:1 ratio in the supplied measuring jug. The gel will cross link in less than 15 minutes.

NO WASTE

The cross linked gel which remains on the bottom after mixing can be easily removed from the jug and saved for later use.

Chose the **POUR** or **STICK** method most suited for your needs

POUR



You can use the Magic Power gel supplied in the two-component bottle in a 1:1 ratio by simply pouring it after mixing into the box supplied in the kit, to protect and seal internal connections. The gel cross links in just 15 minutes, but the box can be energised immediately.

RE-ENTER AND RE-USE



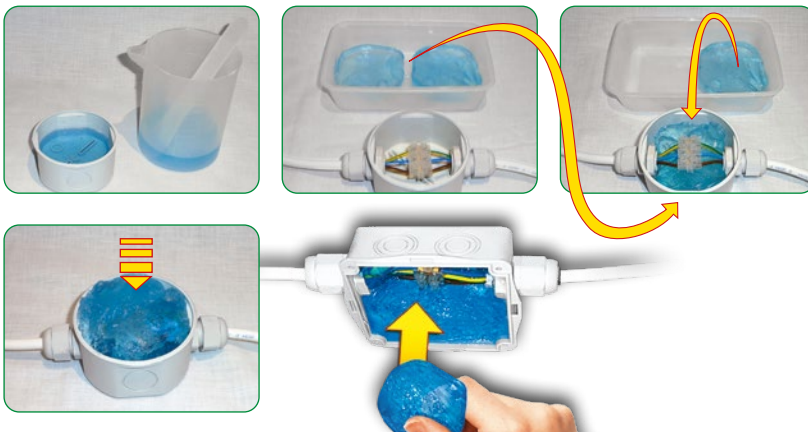
Thanks to Magic Power Gel, the box can be **re-opened, inspected** and **re-insulated** all using the original installed product.

STICK



Pour the components in the measuring jug, mix and leave to cross link (about 15 minutes). Remove the insulation and position it in small parts around the connection so that it is fully covered. Insulation saved from previous mixes can of course be utilised.

IN A HURRY? ADVERSE WEATHER CONDITIONS? PREPARE YOUR INSULATION BEFORE INSTALLING IT!





WHAT ARE THE ADVANTAGES TO USING THE POWER KIT?

- The insulation is extremely sticky and self-amalgamating, with no shelf life, it is non-toxic and it adheres to everything while leaving your hands clean and dry.
- The kit does not cause waste: insulation left over in the measuring jug can be saved for later use.
- Re-enterable and reusable, saving time and money.
- The supplied box has pre-marked holes.
- Compatible with Magic Gel.
- A slight exothermic reaction (temperature increase of about 3°C) speeds up cross linking in cold weather conditions.
- Even protects boxes mounted on the ceiling to IP68 if using the "stick" method. Could also use left over product from previous installations.
- Insulation can be pre-prepared: at home, at work or in your car and then applying it once cross linked, saving time when you're in a hurry or in adverse weather conditions.

SOME LEFT OVER? SAVE IT!



Left over gel that has already cross linked can be easily removed from the measuring jug and saved for later use.



PRODUCT / Item	Box	Insulating filler
POWER KIT 65 POWER-65	Ø 65 x h 35 mm + 2 cable glands PG16 / caps	Single two-component bottle 1 small jug - 1 spatula in wood
POWER KIT 80 POWER-80	Ø 80 x h 40 mm + 3 cable glands PG16 / caps	Single two-component bottle 1 small jug - 1 mixing spatula
POWER KIT 100 POWER-100	100 x 100 x h 50 mm + 3 cable glands M25 x 1,5 / caps	Single two-component bottle 1 small jug - 1 mixing spatula
POWER KIT 120 POWER-120	120 x 80 x h 50 mm + 3 cable glands M25 x 1,5 / caps	Single two-component bottle 1 small jug - 1 mixing spatula

MAGIC GEL SPRINT BOX 100

Kit for IP68 connections with Magic Gel Sprint.

The kit includes a pack of Magic Gel Sprint 450, the gel formulated for an extra-rapid polymerization directly inside the bottle, and a 100 x 100 x h50 mm box: once connected the conductors in the box, the gel is prepared simply by pouring into the large bottle the content of the small one. Then shake and pour. Operation finished!

ADVANTAGES

- For POWER CABLES, TELECOM CABLES and ELECTRONIC CIRCUITS.
- Non-toxic, safe and not classified as hazardous under CLP Directive.
- Suitable for installation in salt water (sea) and in chlorinated water (pools).
- Suitable for very high depths.
- For installations up to 1 kV.
- No shelf life.
- Re-enterable.
- Suitable for high temperatures.



Extra fast
curing!



PRODUCT / Item	Box	Insulating filler
MAGIC GEL SPRINT BOX 100 MAGICSPRINTBOX1	100 x 100 x h 50 mm + 3 cable glands M25 x 1,5	Bottle + Catalyst



Electrical performance:

- CEI EN 50393 as applicable
- Class 2 in accordance with CEI 64-8.

Gel: UL 94-HB

Working temperature: 90°C

Gel operating temperature:
-60°C / +200°C

Fully submersible

Can be used underground

Halogen-free Gel

Self-extinguishing and resistant
to abnormal heat and fire:
Glow Wire Flammability Index at +960°C
according to EN60695-2-12

IP68
OFFICIALLY
TESTED

IMQ



**Electrical Performance:**

CEI 23-48, IEC 60670

Degree of protection:

empty IP55

filled with Gel Raytech IP68

Self-extinguishing and resistant to abnormal heat and fire:

Glow Wire Flammability Index at +960° C according to EN60695-2-12

J-BOX

Snap shut closing enclosures with perforated knockouts.

Enclosure with snap shut cover and perforated knockouts for faster mounting of cable glands. Very high mechanical and flame retardant properties. Re-enterable only by means of a tool. The screwless design prevents screws rusting over time due to moisture and always allows for easy re-entry. Screw caps are also supplied for the wall mounting screws along with 3 cable glands and a stopping plug for vertical filling.

ADVANTAGES

- Can be insulated with *Magic Power Gel, Magic Gel, Wonder Gel* (IP68).
- Re-enterable only with the use of a tool.
- Snap-shut closing (without screws).
- Also suitable for vertical filling.
- Excellent shock-resistance.



Snap-shut closing (without screws)



Pre - drilled walls



PRODUCT Item	Max N° of cables that can be jointed	Max Ø predrilling holes (mm)	Max Ø possible drilling (mm)	Max dimension housed cable glands (pass)		Dimension (mm)
				PG	METRIC	
J-BOX 65 JBOX65	4	23	23	16	20	Ø 65 x h 35
J-BOX 80 JBOX80	4	23	23	16	20	Ø 80 x h 40
J-BOX100 JBOX100	8	29	29	21	25	100 x 100 x h 50
J-BOX120 JBOX120	6	25	29	21	25	120 x 80 x h 50
J-BOX150 JBOX150	10	29	37	29	32	150 x 110 x h 70
J-BOX190* JBOX190	10	37	37	29	32	190 x 140 x h 70
J-BOX240* JBOX240	12	37	37	29	32	240 x 190 x h 90

* Supplied with extractable hinge for opening book type.

Note: All boxes include 3 cable glands Ray Pass 16.

J-BOX ACCESSORIES

RAY-PRESS

METRIC pitch	Metric pict	Assembly hole Ø (mm)	Cable range Ø		Pack of (PCS)
PRODUCT / Item			min (mm)	max (mm)	
Ray PRESS-16 RAYPRESS16	M16 x 1.5	16	6	10	50
Ray PRESS-20 RAYPRESS20	M20 x 1.5	20	8	13	50
Ray PRESS-25 RAYPRESS25	M25 x 1.5	25	12	18	20
Ray PRESS-32 RAYPRESS32	M32 x 1.5	32	16	20	20



PG pitch	PG pict	Assembly hole Ø (mm)	Cable range Ø		Pack of (PCS)
PRODUCT / Item			min (mm)	max (mm)	
Ray PRESS-PG11 RAYPRESSPG11	11	19	6	9	50
Ray PRESS-PG13.5 RAYPRESSPG13.5	13,5	20	9	12	50
Ray PRESS-PG16 RAYPRESSPG16	16	23	11	14	50
Ray PRESS-PG21 RAYPRESSPG21	21	29	14	18	20



RAY-PASS

PRODUCT / Item	For pipe Ø max external (mm)	Assembly hole Ø (mm)	Pack of (PCS)
Ray PASS 16 RAYPASS16	20	23	50
Ray PASS 21 RAYPASS21	23,5	29	50
Ray PASS 29 RAYPASS29	32	38	50





LOW VOLTAGE
CONNECTORS
TERMINAL BLOCKS
GEL COVER
GEL BOX

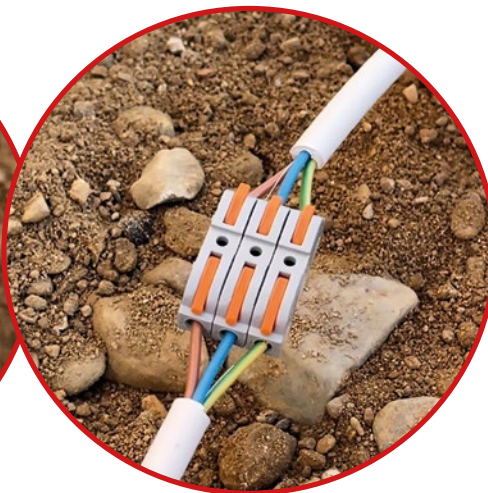
RAY BLOCK
SUPER BLOCK
HAPPY LINE
GEL BOX LINE
NANO LINE
BRAVO



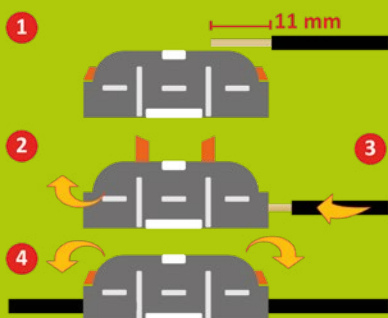
NEW

LEVER CONNECTORS IN & OUT

CE UK
RoHS
Compliant



- MODULAR
- COMPOSABLE
- ULTRAFAST
- SELF-EXTINGUISHING



SECTION: 0.5-4 mm²
VOLTAGE: 600V
CAPACITY: 32A

RAY
BLOCK



x 50

COD. ART.
RAYBLOCK

MINIMUM ORDER QUANTITY
1 DISPLAY
OF 12 PACKS

RAY
BLOCK uno



x 20

COD. ART.
RAYBLOCKUNO

MINIMUM ORDER QUANTITY
1 DISPLAY
OF 20 BLISTERS

RAY BLOCK B

The new range of lever connectors, quick and safe, time and cost-saving.

ADVANTAGES

- ▶ Extra compact, robust, practical, safe and very quick to install.
- ▶ They do not require the use of tools.
- ▶ They allow independent locking and release of individual conductors.
- ▶ Equipped with 2 voltage test points: on front and on back side.
- ▶ With high-quality, acid-resistant stainless steel pressure spring.



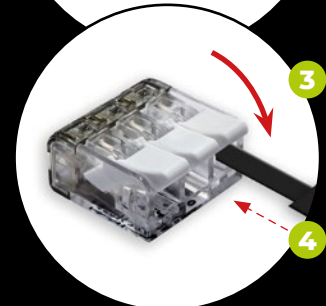
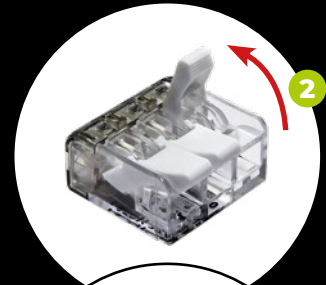
OPERATING: Max 105° C
VOLTAGE: 450V
CAPACITY: 32A

CEI/IEC 60998-1
CEI/IEC 60998-2-2



For **FLEXIBLE**
wires 0,34 - 4,0 mm²

For **RIGID**
wires 0,2 - 4,0 mm²



Ray
Block B2

10,56 mm
20,64 mm
13 mm



x 40 **COD. ART.**
RAYBLOCKB2

MINIMUM ORDER QUANTITY
1 DISPLAY
OF 20 BLISTERS

Ray
Block B3

10,56 mm
20,64 mm
18,60 mm



x 30 **COD. ART.**
RAYBLOCKB3

MINIMUM ORDER QUANTITY
1 DISPLAY
OF 20 BLISTERS

Ray
Block B5

10,56 mm
20,64 mm
29,8 mm



x 18 **COD. ART.**
RAYBLOCKB5

MINIMUM ORDER QUANTITY
1 DISPLAY
OF 20 BLISTERS

NEW

SUPERBLOCK



SUPER BLOCK

The new Gel Box with integrated lever connectors: ready, complete, submersible and compact.

The GEL BOX range, designed in 2015, is enriched with a new range of compact and waterproof connecting devices. For increasingly secure and high-performance connections over time.

ADVANTAGES

- For straight or branch connections of 3 or 5 rigid or flexible wires up to 4 mm².
- Tool-less.
- Can be powered immediately - Always re-enterable.
- Pre-filled with conforming viscoelastic gel, not classified as hazardous.
- Reusable.
- Without shelf-life.

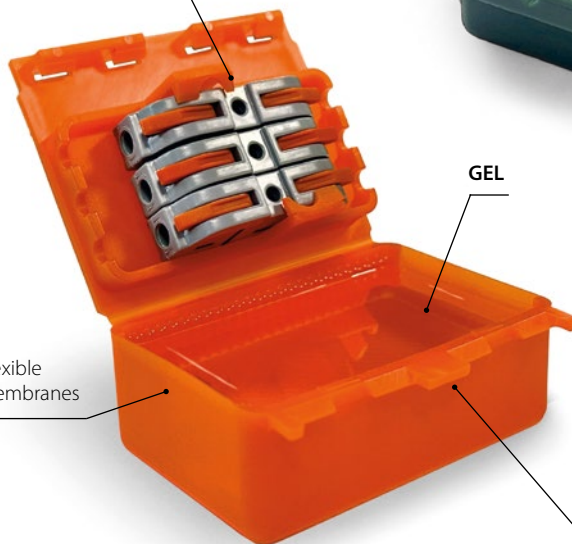


Integrated connector

GEL

Flexible membranes

Safety closing system



Electrical performance:

- CEI EN 50393 as applicable (testing under water head of the accessory installed in a box).
- Class 2 in accordance with CEI 64-8.
- CEI EN 60998-1 - CEI EN 60998-2

Gel: UL 94-HB 

Working temperature: 90°C

Installation temperature: -40°C / +50°C

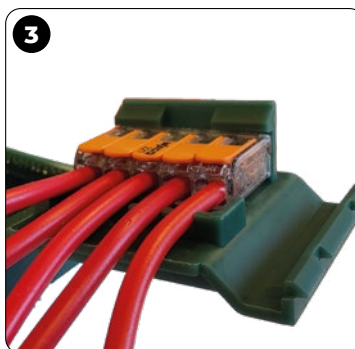
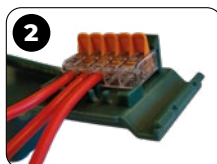
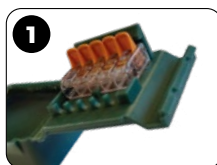
Fully submersible

Can be used underground

Halogen-free Gel

UV resistant

IP68
OFFICIALLY
TESTED | IMQ





SUPER BLOCK IN-OUT M

Item
SUPERBLOCKINOUTM

Up to 3 x 4 mm²

Dimensions:
67 x 50 x 28 mm



SUPER BLOCK 3W

Item
SUPERBLOCK3W

Up to 3 x 4 mm²

Dimensions:
57 x 47 x 26 mm



SUPER BLOCK 3

Item
SUPERBLOCK3

Up to 3 x 4 mm²

Dimensions:
57 x 47 x 26 mm



SUPER BLOCK 5W

Item
SUPERBLOCK5W

Up to 5 x 2.5 mm²

Dimensions:
57 x 47 x 26 mm



SUPER BLOCK 5

Item
SUPERBLOCK5

Up to 5 x 4 mm²

Dimensions:
57 x 47 x 26 mm



SUPER BLOCK IN-OUT W

Item
SUPERBLOCKINOUTW

Up to 3 x 4 mm²

Dimensions:
67 x 50 x 28 mm



SUPER BLOCK IN-OUT

Item
SUPERBLOCKINOUT

Up to 3 x 4 mm²

Dimensions:
67 x 50 x 28 mm





HAPPY LINE

The revolutionary mini accessories with 3 entrances, pre-filled with gel and suitable for submersible installations (IPX8).

Designed in 3 dimensions to rapidly insulate and seal the most commonly used connectors. The 3 entrances not only guarantee the extreme flexibility in the range of these products by making possible triple configurations but also by the housing accepting a wide variety of connectors.

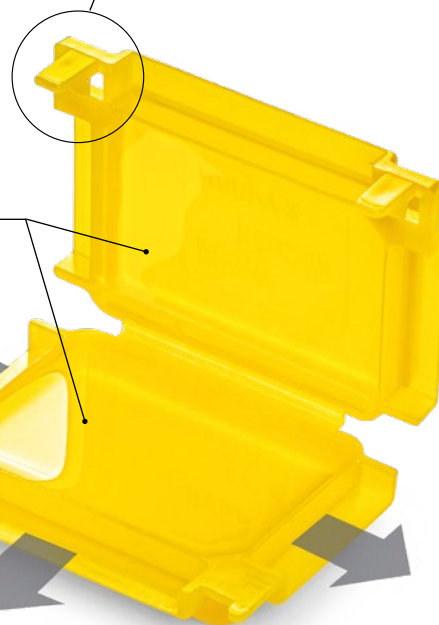
ADVANTAGES

- **Extremely versatile - Ready to use - Re-enterable.**
- **For rigid or flexible insulated wires up to 6 mm².**
- **Pre-filled with a gel that is not-classified as hazardous under the CLP Directive and with no shelf life.**
- **Small compact and robust.**

New closure
safety



New closure
safety



GEL

Extra flexible
membranes



Electrical performance:

- CEI EN 50393 as applicable (testing under water head of the accessory installed in a box).
- **Class 2** in accordance with CEI 64-8.
- CEI EN 60998-1 - CEI EN 60998-2

🔧 Gel: UL 94-HB **cULus**

🌡️ **Working temperature:** 90°C

🌡️ **Installation temperature:** -40°C / +50°C

🌊 **Fully submersible**

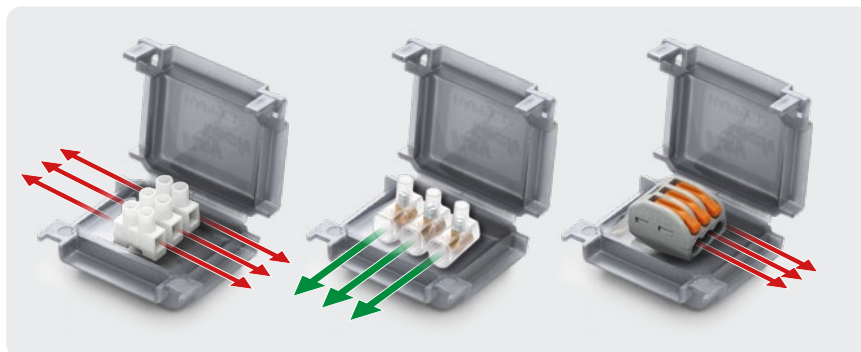
🔑 **Can be used underground**

🌿 **Halogen-free Gel**

☀️ **UV resistant**

IPX8
OFFICIALLY
TESTED | **IMQ**

Configuration examples



HAPPY 00

PRODUCT	Item	Colour	Pack of	Description	Dimension (mm)
HAPPY 00	HAPPY00	●	4 PCS	Blister	40 x 28 x 19
HAPPY 00-T	HAPPY00-T	○	4 PCS	Blister	
GEL BOX 00	GELBOX00	○	20 PCS	Blister	

IDEAL FOR (or similar):



2x 2.5 mm² 2x 1.5 mm² 2x 4 mm² 3x 4 mm²

HAPPY 0

PRODUCT	Item	Colour	Pack of	Description	Dimension (mm)
HAPPY 0	HAPPY0	●	4 PCS	Blister	40 x 29 x 22
HAPPY 0-T	HAPPY0-T	○	4 PCS	Blister	
HAPPY 0 BOX12	HAPPY0BOX12	○	12 PCS	Box	
GEL BOX 0	GELBOX0	○	20 PCS	Blister	

IDEAL FOR (or similar):



2x 2.5 mm² 2x 1.5 mm² 2x 2.5 mm² 3x 2.5 mm² 2x 2.5 mm² 3x 2.5 mm² 2x 4 mm² 3x 4 mm²

HAPPY 1

PRODUCT	Item	Colour	Pack of	Description	Dimension (mm)
HAPPY 1	HAPPY1	●	2 PCS	Blister	45 x 37 x 24
HAPPY 1-T	HAPPY1-T	○	2 PCS	Blister	
HAPPY 1 BOX10	HAPPY1BOX10	○	10 PCS	Box	
GEL BOX 1	GELBOX1	○	15 PCS	Blister	

IDEAL FOR (or similar):



3x 2.5 mm² 3x 2.5 mm² 2x + 2x 2.5 mm² 3x 2.5 mm² 5x 2.5 mm² 3x 2.5 mm² 5x 2.5 mm² 3x 4 mm² 5x 4 mm² 3x 6 mm² 2x + 2x 6 mm²

HAPPY 2

PRODUCT	Item	Colour	Pack of	Description	Dimension (mm)
HAPPY 2	HAPPY2	●	1 PC	Blister	53 x 39 x 24
HAPPY 2-T	HAPPY2-T	○	1 PC	Blister	
HAPPY 2 BOX7	HAPPY2BOX7	○	7 PCS	Box	
GEL BOX 2	GELBOX2	○	11 PCS	Blister	

IDEAL FOR (or similar):



3x 4 mm² 3x 4 mm² 2x+2x+2x 2.5 mm² 2x+2x+2x 4 mm² 5x 4 mm² 5x 6 mm²



Dimension (mm)



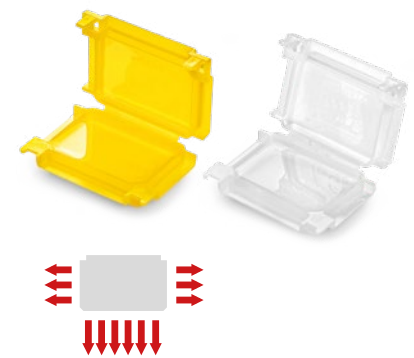
Dimension (mm)



Dimension (mm)



Dimension (mm)



Coloured casings are self-extinguishing according to the **UL 94-V2** standard.



HAPPY JOINT LINE

The revolutionary mini accessories with 3 entrances, pre-filled with gel and suitable for submersible installations (IPX8) complete with connectors.

ADVANTAGES

- ▶ Extremely versatile - ready to use - re-enterable.
- ▶ Small, compact and robust.
- ▶ No need for tools.
- ▶ Pre-filled with a gel that is not-classified as hazardous under the CLP Directive and with no shelf life.
- ▶ Can energise immediately.
- ▶ For straight and branch connections.
- ▶ For rigid or flexible insulated wires up to 6 mm².
- ▶ Up to 5 conductors on one phase or up to two conductors on two or three phases.



Electrical performance:

- CEI EN 50393 as applicable (testing under water head of the accessory installed in a box).
- **Class 2** in accordance with CEI 64-8.
- CEI EN 60998-1 - CEI EN 60998-2

🔧 Gel: UL 94-HB **UL** **us**

🌡️ Working temperature: 90°C

🌡️ Installation temperature: -40°C / +50°C

🌊 Fully submersible

🔧 Can be used underground

🌿 Halogen-free Gel

☀️ UV resistant

IPX8
OFFICIALLY
TESTED | **IMQ**

New closure
safety

GEL

**ULTRA-FLAT TERMINALS
FOR WIRES UP TO
6 mm²**



HAPPY JOINT 3

PRODUCT / Item	Formation and wires cross section (Max N° x mm²)	Combination	Pack of	Dimension (mm)
HAPPY JOINT 3 HAPPYJOINT3	3 x 1 - 4	2 through / 1 branch	4 PCS/ Blister	41 x 28 x 19
HAPPY JOINT 36 HAPPYJOINT36	3 x 1 - 6	2 through / 1 branch	2 PCS/ Blister	45 x 37 x 24



3 x 4 mm²



3 x 6 mm²



With one connector
included for each Happy

HAPPY JOINT 4

PRODUCT / Item	Formation and wires cross section (Max N° x mm²)	Combination	Pack of	Dimension (mm)
HAPPY JOINT 4 HAPPYJOINT4	2+2 x 1 - 4	2 through / in/out	2 PCS/ Blister	45 x 37 x 24
HAPPY JOINT 46 HAPPYJOINT46	2+2 x 1 - 6	2 through / in/out	2 PCS/ Blister	45 x 37 x 24



2+2 x 4 mm²



2+2 x 6 mm²



With two connectors
included for each Happy

HAPPY JOINT 5

PRODUCT / Item	Formation and wires cross section (Max N° x mm²)	Combination	Pack of	Dimension (mm)
HAPPY JOINT 5 HAPPYJOINT5	5 x 1 - 4	2 through / 3 branch	2 PCS/ Blister	45 x 37 x 24
Happy Joint 56 HAPPYJOINT56	5 x 1 - 6	2 through / 3 branch	1 PC/ Blister	53 x 39 x 24



5 x 4 mm²



5 x 6 mm²



With one connector
included for each Happy

HAPPY JOINT 6

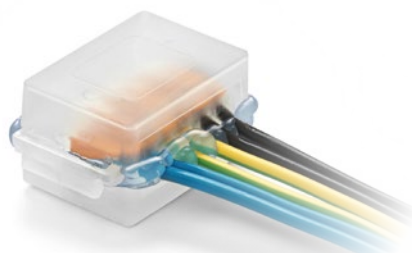
PRODUCT / Item	Formation and wires cross section (Max N° x mm²)	Combination	Pack of	Dimension (mm)
HAPPY JOINT 6 HAPPYJOINT6	6 x 1 - 4	3 through / in/out	1 PC/ Blister	53 x 39 x 24



6 x 4 mm²



With three connectors
included for each Happy


Electrical performance:

- CEI EN 50393 as applicable (testing under water head of the accessory installed in a box).
- Class 2 in accordance with CEI 64-8.

🔧 Gel: UL 94-HB 

🌡️ Working temperature: 90°C

🌡️ Installation temperature: -40°C / +50°C

🌊 Fully submersible

🔑 Can be used underground

🌿 Halogen-free Gel

☀️ UV resistant

IPX8
OFFICIALLY
TESTED | **IMQ**

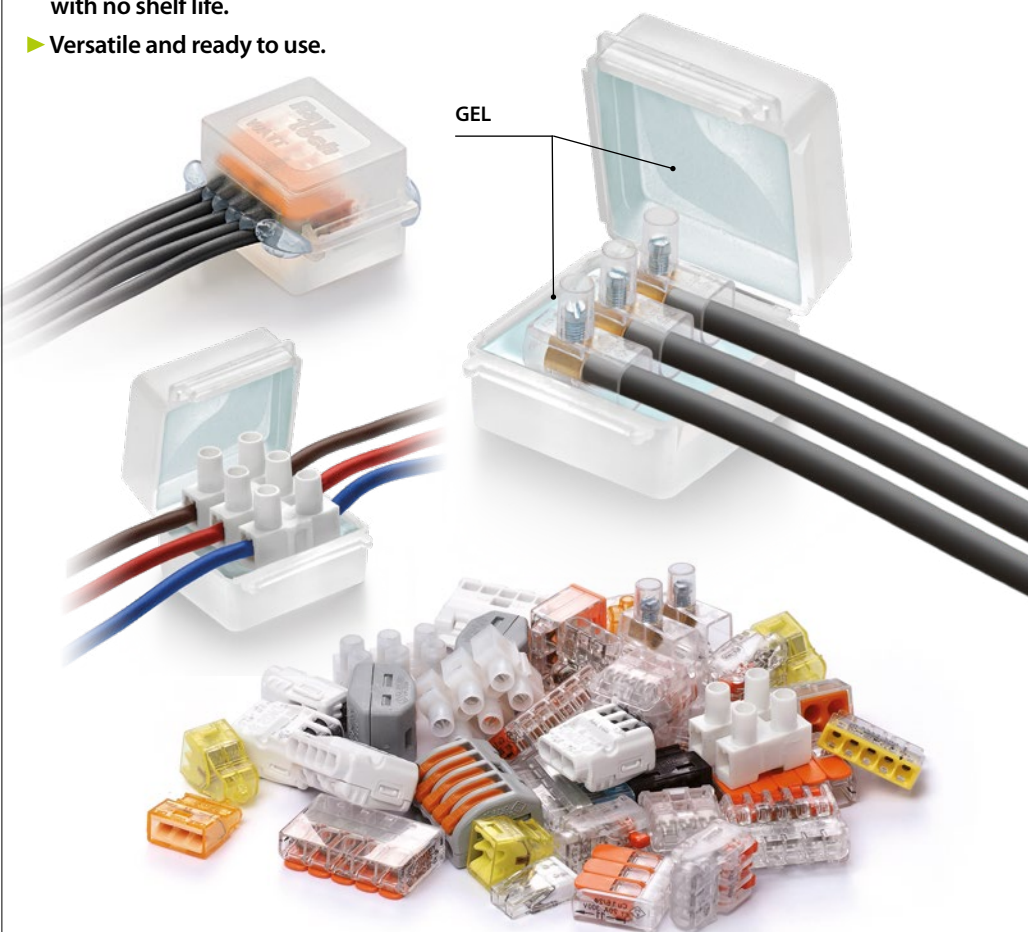


GEL BOX LINE

Gel pre-filled accessories for sealing, protecting and making safe electrical connections.

ADVANTAGES

- Designed with dimensions suitable for the most commonly used connectors.
- To put household systems in order.
- For rigid or flexible insulated wires.
- For civil and industrial connections.
- Also for submersible use.
- Pre-filled with a gel that is not-classified as hazardous under the CLP Directive and with no shelf life.
- Versatile and ready to use.



ISAAC

PRODUCT	Item	Pack of	Pack type	Dimension (mm)
ISAAC 4	ISAAC4	4 PCS	Blister	30 x 27 x 23
ISAAC 4 P30	ISAAC4P30	30 PCS	Box	
ISAAC 4 MP *	ISAAC4MP	50 PCS	Multipack	

IDEAL FOR
(or similar):



PASCAL

PRODUCT	Item	Pack of	Pack type	Dimension (mm)
PASCAL 6	PASCAL6	2 PCS	Blister	36 x 37 x 26
PASCAL 6 P15	PASCAL6P15	15 PCS	Box	
PASCAL 6 MP *	PASCAL6MP	25 PCS	Multipack	

IDEAL FOR
(or similar):



WATT

PRODUCT	Item	Pack of	Pack type	Dimension (mm)
WATT	WATT	2 PCS	Blister	30 x 42 x 26
WATT P15	WATTP15	15 PCS	Box	
WATT MP *	WATT-MP	25 PCS	Multipack	

IDEAL FOR
(or similar):



JOULE

PRODUCT	Item	Pack of	Pack type	Dimension (mm)
JOULE	JOULE	1 PC	Blister	33 x 52 x 26
JOULE MP *	JOULEMP	20 PCS	Multipack	

IDEAL FOR
(or similar):



KELVIN

PRODUCT	Item	Pack of	Pack type	Dimension (mm)
KELVIN	KELVIN	1 PC	Blister	52 x 53 x 29
KELVIN P9	KELVINP9	9 PCS	Box	
KELVIN MP *	KELVINMP	20 PCS	Multipack	

IDEAL FOR
(or similar):



* Also available in the self-extinguishing version according to the **UL 94-V2** standard in the colours: yellow, orange, blue or black.



GEL BOX LINE KIT

Complete with connectors.

PASCAL M2,5



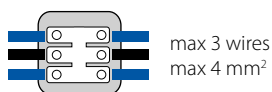
PRODUCT / Item	Pack content	Pack type	Dimension (mm)
PASCAL M2,5 PASCALM2,5	12 pieces + 36 terminal blocks (2.5 mm ²)	Box	36 x 37 x 26



KELVIN M4



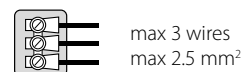
PRODUCT / Item	Pack content	Pack type	Dimension (mm)
KELVIN M4 KELVINM4	6 pieces + 24 terminal blocks (4 mm ²)	Box	52 x 53 x 29



WATT +



PRODUCT / Item	Pack content	Pack type	Dimension (mm)
WATT + 1.5 WATT-1.5	10 pieces + 30 end connectors/ terminal blocks (1.5 mm ²)	Box	30 x 42 x 26
WATT + 2.5 WATT-2.5	10 pieces + 30 end connectors/ terminal blocks (2.5 mm ²)	Box	



KELVIN +



PRODUCT / Item	Pack content	Pack type	Dimension (mm)
KELVIN + 4 KELVIN-4	10 pieces + 30 end connectors/ terminal blocks (4 mm ²)	Box	52 x 53 x 29
KELVIN + 6 KELVIN-6	10 pieces + 30 end connectors/ terminal blocks (6 mm ²)	Box	
KELVIN 6+4 KELVIN6-4	6 pieces + 20 end connectors/ terminal blocks (4 mm ²)	Box	
KELVIN 6+6 KELVIN6-6	6 pieces + 20 end connectors/ terminal blocks (6 mm ²)	Box	



NANO JOINT LINE

Gel pre-filled accessories to seal, protect and make safe electrical connections.
Inclusive of connectors.

ADVANTAGES

- ▶ Ready to use, quick, re-enterable!
- ▶ No tools required.
- ▶ Can energise immediately.
- ▶ For straight & branch connections.
- ▶ For rigid or flexible insulated wires from 1 a 4 mm².
- ▶ For 1, 2 and 3 cores connections.
- ▶ Up to 5 conductors on one phase or up to 2 conductors on two or three phase.
- ▶ Small, compact and resistant.
- ▶ Pre-filled with a gel that is not-classified as hazardous under the CLP Directive and with no shelf life.



CONNECTORS
INCLUDED IN THE KIT

Electrical performance:

- CEI EN 50393 as applicable (testing under water head of the accessory installed in a box).
- Class 2 in accordance with CEI 64-8.
- CEI EN 60998-1 - CEI EN 60998-2

💧 Gel: UL 94-HB 

🌡 Working temperature: 90°C

🌡 Installation temperature: -40°C / +50°C

🌊 Fully submersible

🔑 Can be used underground

🌿 Halogen-free Gel

☀ UV resistant

🔥 Self-extinguishing according to UL 94-V2

IPX8
OFFICIALLY
TESTED

IMQ

With extra flat connectors included



NANO 3

PRODUCT / Item	Formation and wires cross section (Max N° x mm²)		Package	Dimension (mm)
		Combination		
NANO 3 NANO3	3 x 1 - 4	2 through / 1 branch	4 PCS Blister	30 x 27 x 23



max 3 wires
max 4 mm²



NANO 5

PRODUCT / Item	Formation and wires cross section (Max N° x mm²)		Package	Dimension (mm)
		Combination		
NANO 5 NANO5	5 x 1 - 4	2 through / 3 branch	2 PCS Blister	30 x 42 x 26



max 5 wires
max 4 mm²

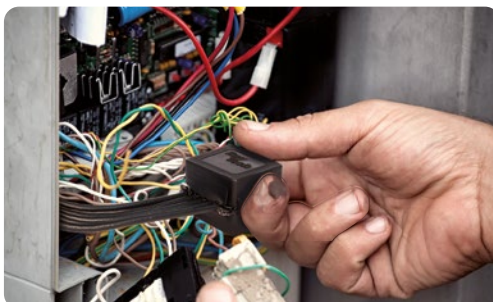


NANO 6

PRODUCT / Item	Formation and wires cross section (Max N° x mm²)		Package	Dimension (mm)
		Combination		
NANO 6 NANO6	6 x 1 - 4	3 through / In/Out	1 PC Blister	33 x 52 x 26



max 5 wires
max 4 mm²

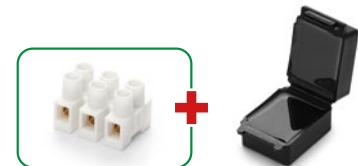


With one
connector
included



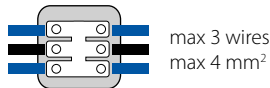
NANO MAM 2,5

PRODUCT / Item	Formation and wires cross section (Max N° x mm²)	Combination	Package	Dimension (mm)
NANO MAM 2,5 NANOMAM-2.5	3 x 1 - 2,5	3 through	2 PCS/ Blister	36 x 37 x 26



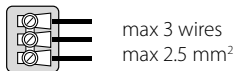
NANO MAM 4

PRODUCT / Item	Formation and wires cross section (Max N° x mm²)	Combination	Package	Dimension (mm)
NANO MAM 4 NANOMAM-4	3 x 1,5 - 4	3 through	1 PC/ Blister	52 x 53 x 29



NANO FOR 2,5

PRODUCT / Item	Formation and wires cross section (Max N° x mm²)	Combination	Package	Dimension (mm)
NANO FOR 2,5 NANOFOR-2.5	3 x 1 - 2,5	3 connections / In/Out	1 PC/ Blister	33 x 52 x 26



NANO FOR 4

PRODUCT / Item	Formation and wires cross section (Max N° x mm²)	Combination	Package	Dimension (mm)
NANO FOR 4 NANOFOR-4	3 x 1 - 4	3 connections / In/Out	1 PC/ Blister	52 x 53 x 29





BRAVO

The first "Gel-Box" with integrated connectors!

ADVANTAGES

- Ready to use, quick, re-enterable!
- For rigid or flexible insulated wires from 1 to 6 mm².
- It can be powered immediately.
- For straight & branch connections.
- For 1 or 3 cores connections.
- Small, compact and transparent.
- Pre-filled with a gel that is not-classified as hazardous under the CLP Directive and with no shelf life.



Electrical performance:

- CEI EN 50393 as applicable (testing under water head of the accessory installed in a box).
- Class 2 in accordance with CEI 64-8.

Gel: UL 94-HB 

 Working temperature: 90°C

 Installation temperature: -40°C / +50°C

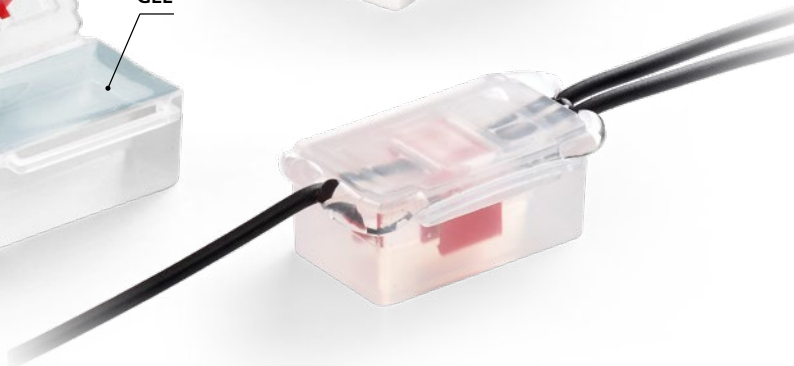
 Fully submersible

 Can be used underground

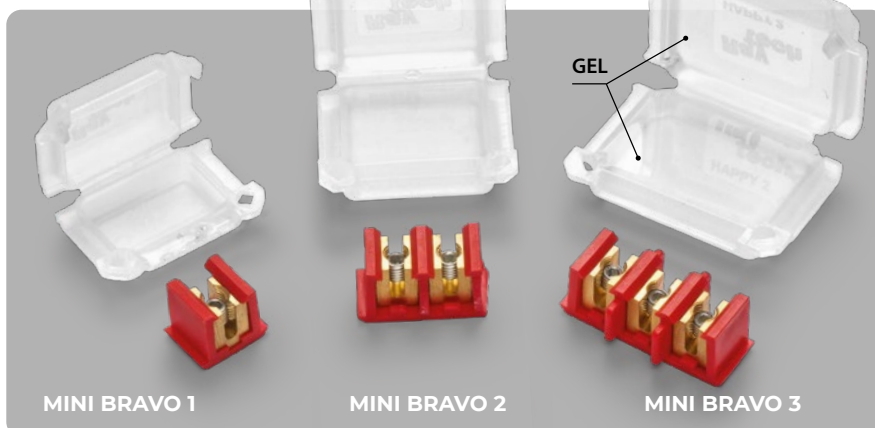
 Halogen-free Gel

 UV resistant

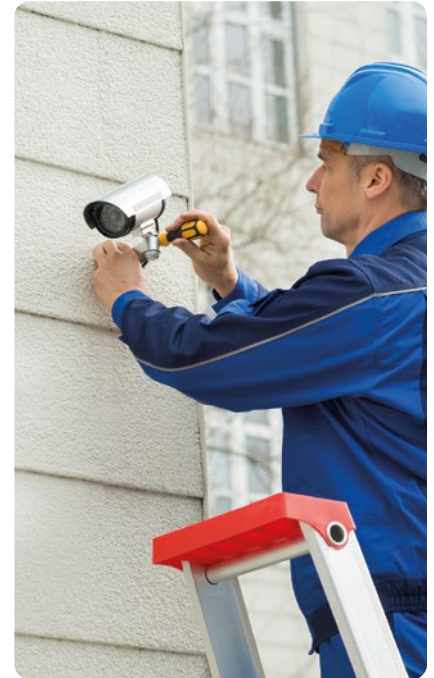
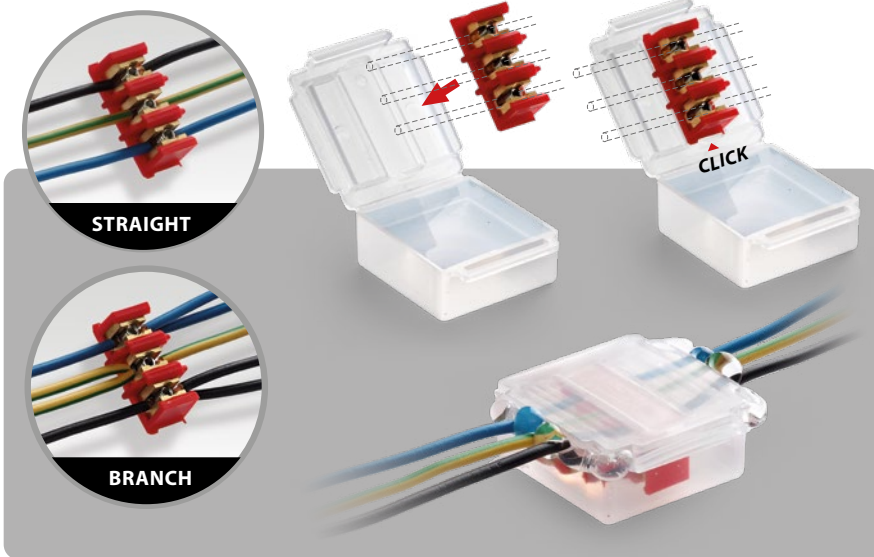
IPX8
OFFICIALLY
TESTED | **IMQ**



MINI BRAVO



1 CONNECT 2 FIX 3 CLOSE



BRAVO

PRODUCT / Item	Formation and wires cross section		Package	Dimension (mm)
	Straight or through (N° x mm²)	Branch (N° x mm²)		
BRAVO 1-6 BRAVO1-6	1 x 1 - 6	1 x 1 - 6	1 PC/ Blister	50 x 29 x 22
BRAVO 3-6 BRAVO3-6	2 x 1 - 6 3 x 1 - 6	2 x 1 - 6 3 x 1 - 6	1 PC/ Blister	53 x 49 x 22



MINI BRAVO

PRODUCT / Item	Formation and wires cross section		Package	Dimension (mm)
	Straight or through (N° x mm²)	Branch (N° x mm²)		
MINI BRAVO 1 MINIBRAVO1	1 x 1 - 4	1 x 1 - 4	3 PCS/ Blister	41 x 28 x 19
MINI BRAVO 2 MINIBRAVO2	2 x 1 - 4	2 x 1 - 4	1 PC/ Blister	45 x 37 x 24
MINI BRAVO 3 MINIBRAVO3	3 x 1 - 4	3 x 1 - 4	1 PC/ Blister	53 x 39 x 24







LOW VOLTAGE JOINTS

PRE-FILLED FOR PHOTOVOLTAIC SOLAR COVER

PRE-FILLED IP68

RAY JOLLY
LITTLE JOINT EASY
LITTLE JOINT
MINI RAPID JOINT IP68
RAPID JOINT IP68
READY CAST

PRE-FILLED IPX8 - FLAT

GEL COVER LINE
SUPERCLIK / CLIK / CLIK A2A

PRE-FILLED IPX8 - CYLINDRICAL

KING JOINT
RAPID JOINT

FOR CASTING

MAGIC POWER JOINT
MAGIC JOINT
SEAL UP JOINT
RAY CAST
RUBBER JOINT

HEAT-SHRINK

JOINTS / TERMINALS


NEW


It prevents the deterioration of connectors, preserving their performance over time, thus avoiding malfunctions and difficult and expensive maintenance.

Electrical performance:

- CEI EN 50393 as applicable
- Class 2 in accordance with CEI 64-8.

💧 **Gel:** UL 94-HB  **US**

💧 **Casing mix:** UL 94-V2

🌡️ **Working temperature:** 125°C

🌡️ **Installation temperature:** -40°C / +50°C

🍃 **Halogen-free Gel**

☀️ **Loaded with CARBON BLACK**
UV resistant

🔥 **No flame propagation:**
CEI 20-35 IEC 60332-1 HD405-1
As applicable

🔥 **Self-ignition temperature:**
> 400°C

⚡ **Operating voltage:** 1500V DC

IP68
OFFICIALLY
TESTED | **IMQ**

SOLAR COVER

The extra dark cover with gel filler, for sealing connectors from 4 to 10 mm² for solar.

It prevents the deterioration of connectors, preserving their performance over time, thus avoiding malfunctions and difficult and expensive maintenance.

Resistant to UV rays, corrosion and immersion in water, even if salty or chlorinated. Ready, fast and always inspectable.

ADVANTAGES

- ▶ Made of UL 94-V2 polypropylene.
- ▶ Highly resistant to water, corrosion and frost.
- ▶ Complete with sealing silicone gel filler, non-toxic and safe.
- ▶ It is the ideal accessory to protect cable connections for solar and photovoltaic systems over the seasons and consequently affected by variations in temperature and weather conditions.
- ▶ It allows the reduction of risks from electric arcs and the resulting overheating.



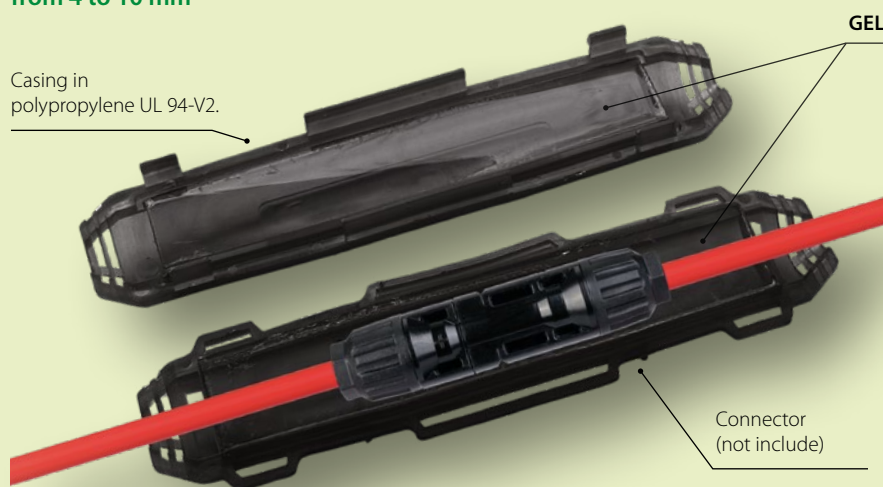


FOR CONNECTORS from 4 to 10 mm²

Casing in
polypropylene UL 94-V2.

GEL

Connector
(not include)



PRODUCT	Item	Pieces / Pack	Dimension (mm)
SOLARCOVER-4	SOLARCOVER-4	2 pcs / Box	165 x 45 x 27
SOLARCOVER-6	SOLARCOVER-6	2 pcs / Box	220 x 52 x 32



SOLARCOVER

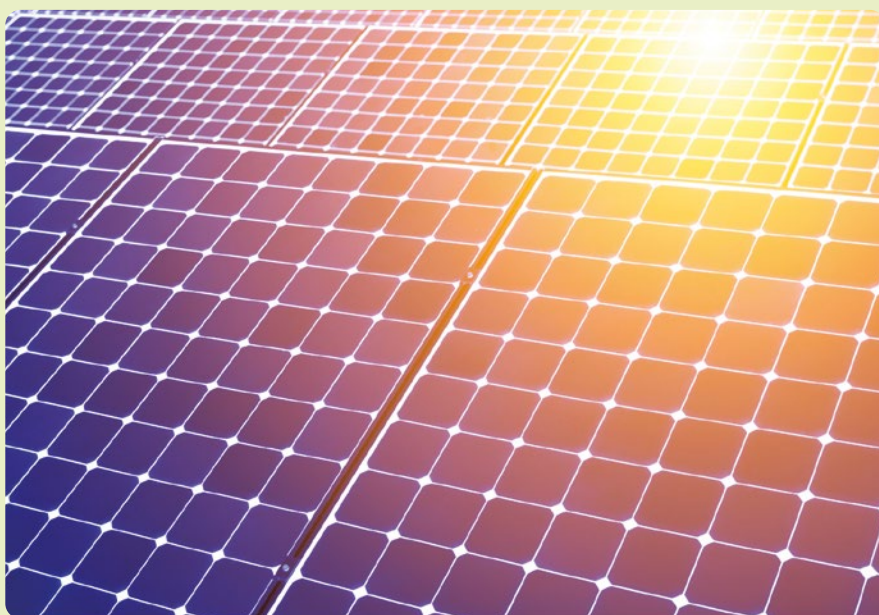


WHAT IT'S FOR

In the design of systems:

• PHOTOVOLTAIC SOLAR • SOLAR THERMAL • AGRIVOLTAIC

it's crucial to keep in mind that connectors play an essential role, as they're electrical devices responsible for transferring the energy produced by the panels. **SolarCover** is a safety device designed to protect and prevent connectors in solar and photovoltaic systems from deteriorating. It's perfect for preventing accidental opening and the related risks. **SolarCover** is the most reliable accessory to keep your connectors safe all year round, even through the harshest weather. Ready to use, it comes pre-filled with cross-linked silicone gel to shield the connectors and maintain their performance over time.



WHY IT MATTERS

1 HELPS PREVENT CONNECTOR WEAR AND TEAR

Exposure to the elements (sun, rain, wind, snow, fog, and hail) can speed up connector degradation, leading to faulty contacts, insulation issues, and leaks. This decreases reliability, increasing the risk of outages and malfunctions, ultimately impacting the overall efficiency of your system. As a result, you may face more frequent maintenance, higher operating costs, and added safety risks.

Even though some connectors on the market come with IP65/IP67 protection ratings, and rarely IP68, plus a maximum operating temperature of 85°C, over time they can become brittle, crack, or lose the seal in their gaskets and locking nuts, which puts your system's performance at risk.

2 PREVENTS ACCIDENTAL OPENINGS

Accidental openings or improper crimping of connectors can create electrical arcs, posing safety hazards and, in some cases, leading to fires in the facilities or areas where the systems are operating.

3 PREVENTS DIRECT CONTACT WITH THE CONNECTOR

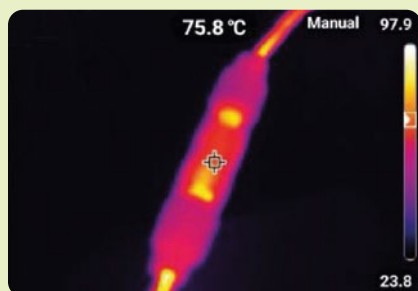
SolarCover, which can only be opened with a tool, provides an extra layer of protection against accidental contact with parts that may reach extremely high temperatures, especially during the hottest months.

4 ANNUAL MAINTENANCE, WASHING/CLEANING CYCLES

SolarCover fully wraps the connector, shielding it during module washing, a recommended routine for keeping your system at peak performance, and mandatory for AGRIVOLTAIC setups, where dirt, oil, debris, or the presence of lichens or fungi is not allowed (EN IEC 62446-2).

5 HELPS BOOST SYSTEMS PERFORMANCE

With **SolarCover**, thermal management for connections is straightforward and effective: • PREVENTS OVERHEATING • CONSISTENT STABILITY • ENHANCED SAFETY • LONGER SYSTEM LIFESPAN



CONNECTOR EXPOSED

Hotspots can form when the connector is exposed, causing it to reach high temperatures.



CONNECTOR + SOLAR COVER

Under the same conditions, **SolarCover** keeps the temperature significantly lower with improved heat distribution.



IP68 OFFICIAL
TESTED IMQ
8h @6BAR

CLICK
HERE

GEL MSDS



REACH
Conformity



TDS involucro



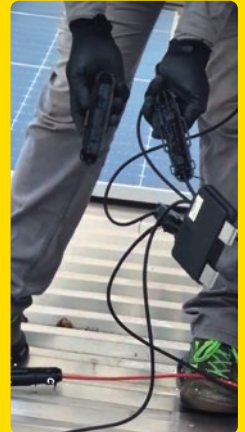
WHY USING IT NOW IS THE SMART CHOICE

SolarCover not only shields against water and moisture, but also prevents accidental contact with the connector by workers performing other maintenance, like antenna installation or root and chimney servicing.

Connectors must be selected in accordance with the Standard CEI EN 62852

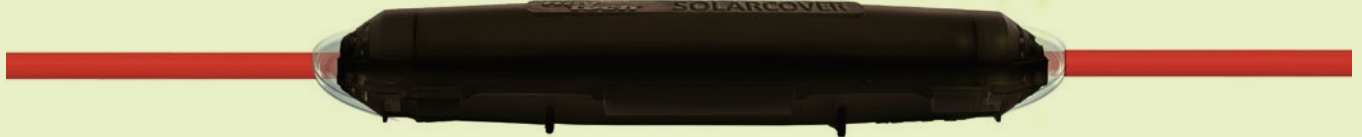
Connectors for DC applications in photovoltaic systems - Safety requirements and testing

Please note: "Connectors located in areas accessible to anyone other than trained personnel must be designed so they can only be disconnected using a key or tool, or they must be installed in an enclosure that can only be opened with a key or tool!"



It's also recommended to install DC cables in a straightforward, mechanically protected way that keeps the IP protection rating and prevents mechanical damage over time. These safety measures apply to all connection accessories as well.

INSTALLATION



PREPARATION

Cut the side membranes.



CONNECTION

Insert the connector and secure it inside the SolarCover.



CLOSING

Once the accessory is closed, the gel will be released to ensure a proper seal.

RAY JOLLY LINE

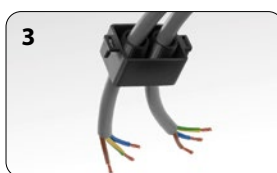
The range of one-way accessories for connecting or branching cables with terminals 450V or 0.6/1 kV

Ray Jolly Line are ready to use and very quick to install. They are supplied complete with pre-cross-linked silicone sealant gel, to ensure maximum insulation and sealing in the presence of water. Always re-opening and inspectable.

Ray Jolly Line are made of POLYPROPYLENE, a chemically resistant and 100% recyclable material and pre-filled with a highly sealing and insulating VISCOELASTIC GEL compliant with the REACH regulation and free of substances classified as hazardous according to the current CLP legislation.

ADVANTAGES

- ▶ Thanks to their compact design and degree of protection, they can be installed directly outdoors without junction boxes.
- ▶ Perfect for both straight and branch connections.
- ▶ Resistant to mold and UV rays.
- ▶ Compliant with EN 50393 as applicable.
- ▶ No shelf life.
- ▶ Halogen-Free Gel.



Electrical performance:

- CEI EN 50393 as applicable
- Class 2 in accordance with CEI 64-8.

💧 Gel: UL 94-HB

🌡 Working temperature: 90°C

🌡 Installation temperature: -40°C / +50°C

🌊 Fully submersible

🔧 Can be used underground

🌿 Halogen-free Gel

☀ UV resistant

🔥 Self-extinguishing and resistant to abnormal heat and fire:
UL 94-V2

IP68 | **IMQ**
OFFICIALLY TESTED



RAY Jolly



RAY Jolly 3





RAY JOLLY



RAY JOLLY L



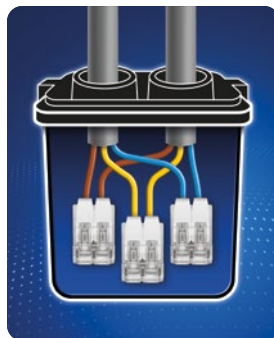
RAY JOLLY M



RAY JOLLY FOR STRAIGHT CONNECTIONS

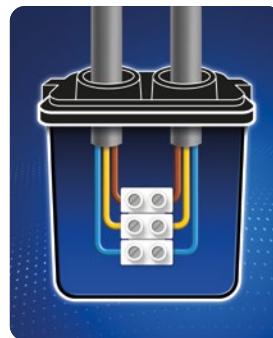


VERSATILE



Ray Jolly L

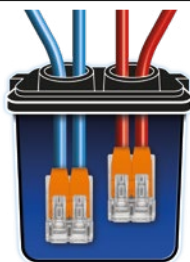
3 x 2 x 2,5 mm²
IP68 □



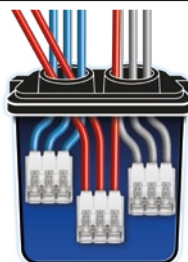
Ray Jolly M

3 x 2,5 mm²
IP68 □

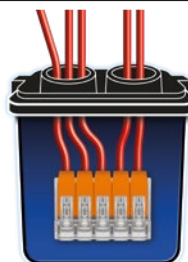
Other configurations can be used with various types of insulated terminals and wires.



2 x 2 x 4 mm²
2 x 2 x 6 mm²
IPX8



3 x 3 x 2,5 mm²
3 x 4 mm²
IPX8



5 x 4 mm²
IPX8



3 x 2,5 mm²
IP68 □

PRODUCT Item	Colour	Connector	Description	Pieces / Pack	 (mm)
RAY JOLLY RAYJOLLY	●	-	3 insulating/sealing accessories	3 / Blister	46 x 33 x 43
RAY JOLLY MP RAYJOLLY-MP	●	-	40 insulating/sealing accessories	40 / Multipack	46 x 33 x 43
RAY JOLLY L RAYJOLLYL	●		1 insulating/sealing accessory, 3 lever connectors 2x2,5 mm ² - 450 V	1 / Blister	46 x 33 x 43
RAY JOLLY L MP RAYJOLLYL-MP	●		40 insulating/sealing accessory, 120 lever connectors 2x2,5 mm ² - 450 V	40 / Multipack	46 x 33 x 43
RAY JOLLY M RAYJOLLYM	●		1 insulating/sealing accessory, 1 screw terminal 3x2,5 mm ² - 450 V	1 / Blister	46 x 33 x 43
RAY JOLLY M MP RAYJOLLYM-MP	●		40 insulating/sealing accessory, 40 screw terminal 3x2,5 mm ² - 450 V	40 / Multipack	46 x 33 x 43

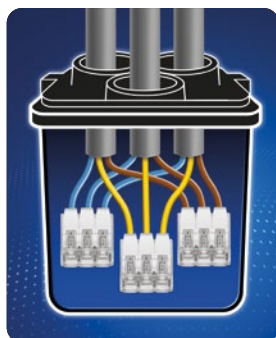
JOINTS

INDEX

RAY JOLLY 3 FOR BRANCH CONNECTIONS



VERSATILE

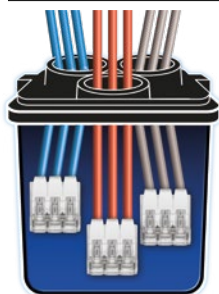


Ray Jolly 3 L
3 x 3 x 4 mm²
IP68



Ray Jolly 3 M
T: 3 x 4 mm²
B: 3 x 2,5 mm²
IP68

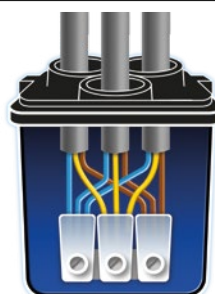
Other configurations can be used with various types of insulated terminals and wires.



3 x 3 x 4 mm²
IPX8



T: 3 x 4 mm²
B: 3 x 4 mm²
IPX8



T: 3 x 4 mm²
B: 3 x 2,5 mm²
IP68



RAY JOLLY 3



RAY JOLLY 3 is also designed for installing cables and conductors of section 6 mm².

RAY JOLLY 3 redefines versatility in cable jointing. Thanks to its three-entrances configuration, it allows to create both classic straight and complex branches joints in a single product. It is the "all-in-one" solution for every wiring need.

RAY JOLLY 3 is made of POLYPROPYLENE, a chemically resistant and 100% recyclable material and pre-filled with a highly sealing and insulating VISCOELASTIC GEL compliant with the REACH regulation and free of substances classified as hazardous according to the current CLP legislation.

RAY JOLLY 3



RAY JOLLY 3 L



RAY JOLLY 3 M



PRODUCT Item	Colour	Connector	Description	Pieces / Pack	 (mm)
RAY JOLLY 3 RAYJOLLY3	●	-	Insulating/sealing accessory	2 / Blister	52 x 40 x 54
RAY JOLLY 3 MP RAYJOLLY3-MP	●	-	40 insulating/sealing accessories	40 / Multipack	52 x 40 x 54
RAY JOLLY 3 L RAYJOLLY3-L	●		1 insulating/sealing accessory, 3 lever connectors 3x4 mm ² - 450 V	1 / Blister	52 x 40 x 54
RAY JOLLY 3 L MP RAYJOLLY3-L-MP	●		40 insulating/sealing accessory, 120 lever connectors 2x4 mm ² - 450 V	40 / Multipack	52 x 40 x 54
RAY JOLLY 3 M RAYJOLLY3-M	●		1 insulating/sealing accessory, 1 screw terminal 3x4 mm ² - 450 V	1 / Blister	52 x 40 x 54
RAY JOLLY 3 M MP RAYJOLLY3-M-MP	●		40 insulating/sealing accessory, 40 screw terminal 3x4 mm ² - 450 V	40 / Multipack	52 x 40 x 54



Electrical performance:

- CEI EN 50393 as applicable
- Class 2 in accordance with CEI 64-8.

💧 Gel: UL 94-HB 

🌡️ Working temperature: 90°C

🌡️ Installation temperature: -40°C / +50°C

🌊 Fully submersible

🔑 Can be used underground

🌿 Halogen-free Gel

☀️ UV resistant

🔥 Self-extinguishing and resistant to abnormal heat and fire:
Glow Wire Flammability Index at +960°C according to EN60695-2-12

IP68
OFFICIALLY
TESTED

IMQ

IP69K
OFFICIALLY
TESTED

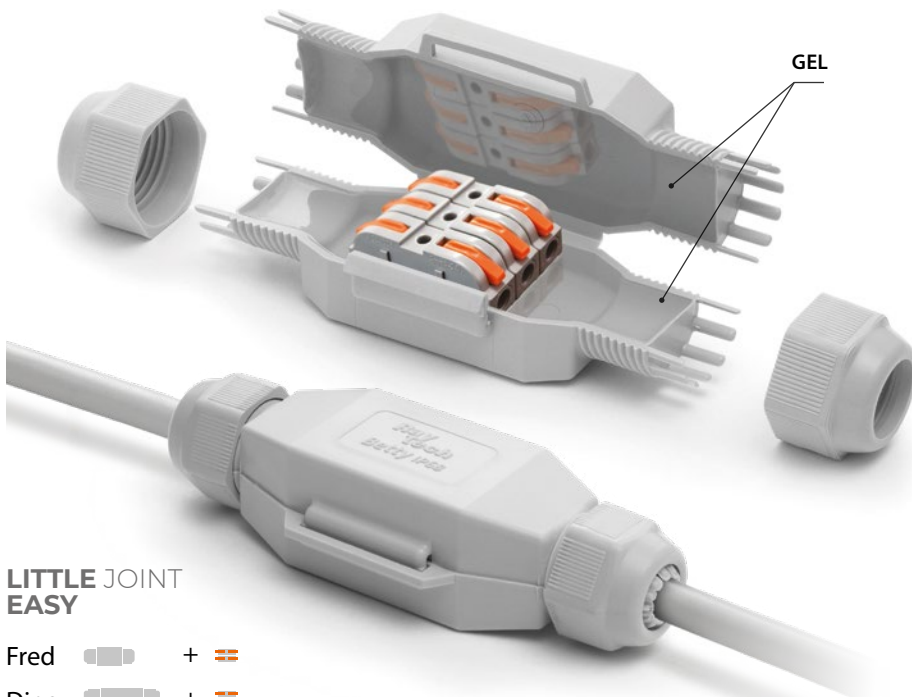
LITTLE JOINT EASY

The IP68/IP69K mini joints, gel pre-filled, complete with in-out lever connectors.

Thanks to the integrated cable glands, they allow the degree of protection IP68 and IP69K and at the same time the locking of the joint on the cable. Suitable for all types of installation, even the most extreme.

ADVANTAGES

- Pre-filled with a gel that is not-classified as hazardous under the CLP Directive and with no shelf life.
- Extremely compact and ready to install.
- Ideal for connections in lighting systems for gardens, steps and stairways, pedestrian crossings, etc.
- Always re-enterable.



LITTLE JOINT EASY

Fred  + 

Dino  + 

Betty  + 

NEW IN-OUT LEVER CONNECTORS

- Modular, Composable, Ultra-fast, Self-extinguishing.



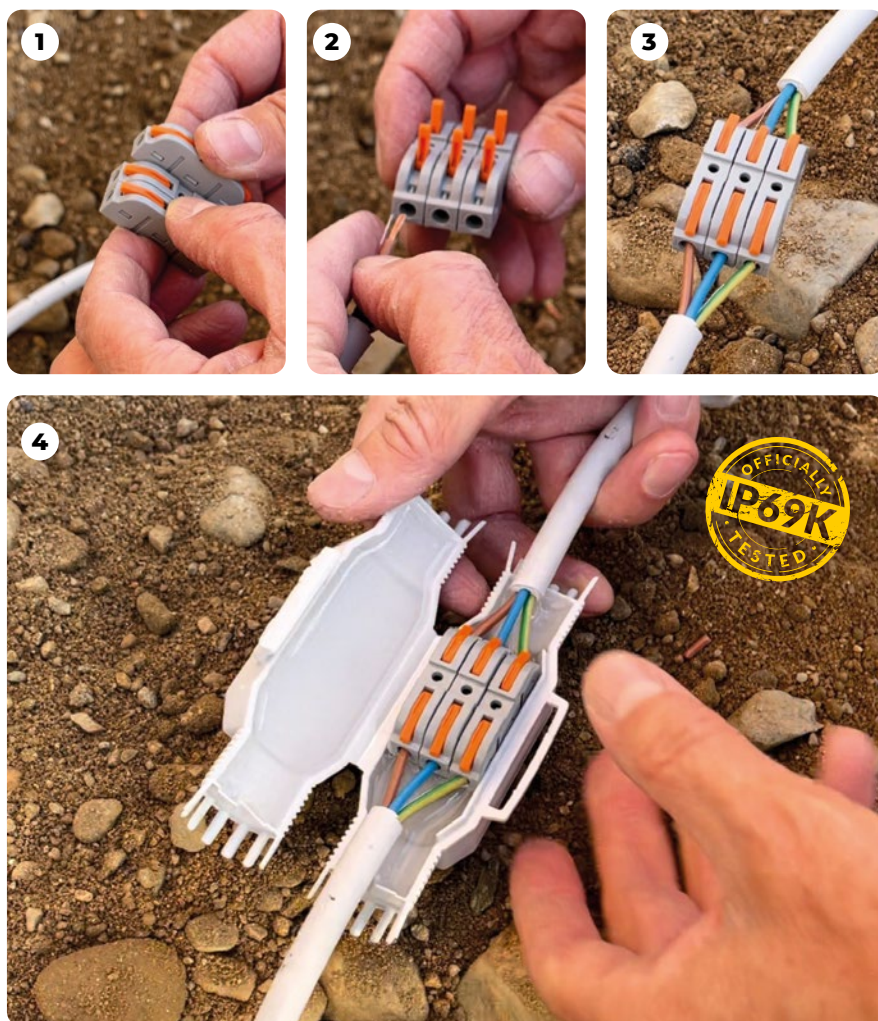
FRED EASY
2x 4 mm²

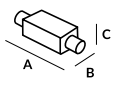


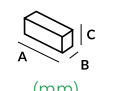
DINO EASY
3x 4 mm²



BETTY EASY
5x 4 mm²



PRODUCT Item	Colour	Connector	Cable formation max (N° x mm²)	Cable Ø min - max (mm)	Pieces / Pack	 (mm)
FRED EASY FRED-EASY	●		2 x 4	8 - 13	1 / Blister	80 x 36 x 23
DINO EASY DINO-EASY	●		3 x 4	10 - 16	1 / Blister	125 x 43 x 35
BETTY EASY BETTY-EASY	●		5 x 4	10 - 16	1 / Blister	145 x 46 x 35

PRODUCT Item	NEW IN-OUT LEVER CONNECTORS 0,5 - 4 mm²			Pieces / Pack	 (mm)
RAYBLOCK RAYBLOCK	Modular, Composable, Ultra-fast, Self-extinguishing Sections: 0,5 - 4 mm² Voltage: 600 V Capacity: 32 A Operating temperature of the insulating material: up to 105°C			50 / Box	39 x 8 x 15





Electrical performance:

- CEI EN 50393 as applicable
- Class 2 in accordance with CEI 64-8.

🔧 Gel: UL 94-HB 

🌡️ Working temperature: 90°C

🌡️ Installation temperature: -40°C / +50°C

🌊 Fully submersible

🔑 Can be used underground

🌿 Halogen-free Gel

☀️ UV resistant

🔥 Self-extinguishing and resistant to abnormal heat and fire:
Glow Wire Flammability Index at +960°C according to EN60695-2-12

IP68
OFFICIALLY
TESTED

IMQ

IP69K
OFFICIALLY
TESTED

LITTLE JOINT

The IP68 / IP69K micro-joints, gel pre-filled, complete with connector, suitable for any type of installation, even the most extreme.

Extremely compact and space-saving, pre-filled with soft, highly conformable gel. With minimal aesthetic impact and visually pleasing. Equipped with integrated cable glands for IP68 and IP69K degree of ingress protection and cable retention.

ADVANTAGES

- ▶ Pre-filled with a gel that is not-classified as hazardous under the CLP Directive and with no shelf life.
- ▶ Extremely compact and ready to install.
- ▶ Ideal for connections in lighting systems for gardens, steps and stairways, pedestrian crossings, etc.
- ▶ Always re-enterable.

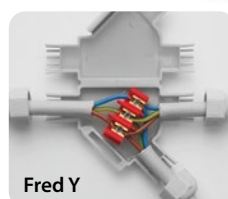
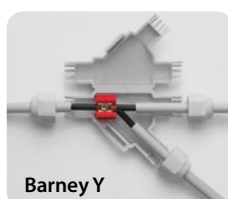
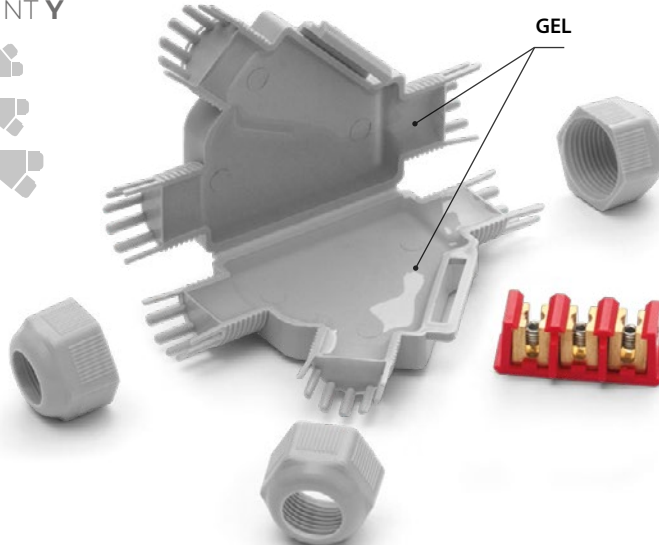
LITTLE JOINT L

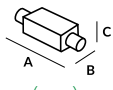
- Barney 
- Fred 
- Dino 
- Betty 
- Tom 

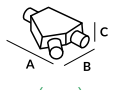


LITTLE JOINT Y

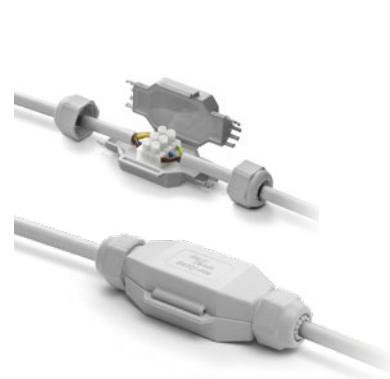
- Barney Y 
- Fred Y 
- Dino Y 



PRODUCT Item	Colour	Connector	Max cable formation (N° x mm²)	Cable Ø min - max (mm)	Pieces / Pack	 (mm)
BARNEY BARNEY	●		2 x 2,5	6 - 10	1 / Blister	75 x 28 x 19
BARNEY - N BARNEY-N	●				1 / Blister	
BARNEY MP BARNEY-MP	●				10 / Multipack	
FRED FRED	●		3 x 2,5	8 - 13	1 / Blister	80 x 36 x 23
FRED - N FRED-N	●				1 / Blister	
FRED MP FRED-MP	●				10 / Multipack	
FRED/4 FRED/4	●		3 x 4	8 - 13	1 / Blister	80 x 36 x 23
FRED/4 - N FRED/4-N	●				1 / Blister	
DINO DINO	●		4 x 4	10 - 16	1 / Blister	125 x 43 x 35
DINO - N DINO-N	●				1 / Blister	
DINO 6 DINO/6	●		3 x 6	10 - 16	1 / Blister	125 x 43 x 35
BETTY/4 BETTY/4	●		5 x 4	10 - 16	1 / Blister	145 x 46 x 35
BETTY/4 - N BETTY/4-N	●				1 / Blister	
BETTY/6 BETTY/6	●		5 x 6	14 - 19	1 / Blister	145 x 46 x 35
BETTY/6 - N BETTY/6-N	●				1 / Blister	
TOM TOM	●		5 x 16	19 - 23	1 / Blister	180 x 53 x 42
TOM - N TOM-N	●				1 / Blister	

PRODUCT Item	Colour	Connector	Max cable formation (N° x mm²)		Cable Ø min - max (mm)	Pieces / Pack	 (mm)
BARNEY Y BARNEY-Y	●		1 x 4 1 x 2,5	1 x 1,5 1 x 2,5	6 - 10	1 / Blister	85 x 55 x 22
BARNEY Y - N BARNEY-Y/N	●					1 / Blister	
FRED Y FRED-Y	●		3 x 4 3 x 2,5	3 x 1,5 3 x 2,5	8 - 13	1 / Blister	110 x 72 x 25
FRED Y - N FRED-Y/N	●					1 / Blister	
DINO Y DINOY	●		5 x 6 5 x 4 *	5 x 1,5 5 x 2,5 *	14 - 19	1 / Blister	160 x 75 x 37
DINO Y - N DINOY-N	●					1 / Blister	

* section for rigid cables.





MINI RAPID JOINT IP68

IP68 and IP69K joints for straight and branch connections, extremely compact and pre-filled with gel.

Extremely compact, ideal for lighting systems for gardens, steps and pedestrian crossings. Perfect for use in even small traps thanks to its very small overall dimensions. The cable glands supplied with the kit lock the joint on the cables.

ADVANTAGES

- Complete with screw connectors.
- Pre-filled with a gel that is not-classified as hazardous under the CLP Directive and with no shelf life.
- Extremely compact and ready to install.
- Always re-enterable.
- Ideal for straight or branch connections in lighting systems for gardens, steps and stairways, pedestrian crossings, etc.

Electrical performance:

- CEI EN 50393 as applicable
- Class 2 in accordance with CEI 64-8.

🔧 Gel: UL 94-HB 

🌡️ Working temperature: 90°C

🌡️ Installation temperature: -40°C / +50°C

🌊 Fully submersible

🔑 Can be used underground

🌿 Halogen-free Gel

☀️ UV resistant

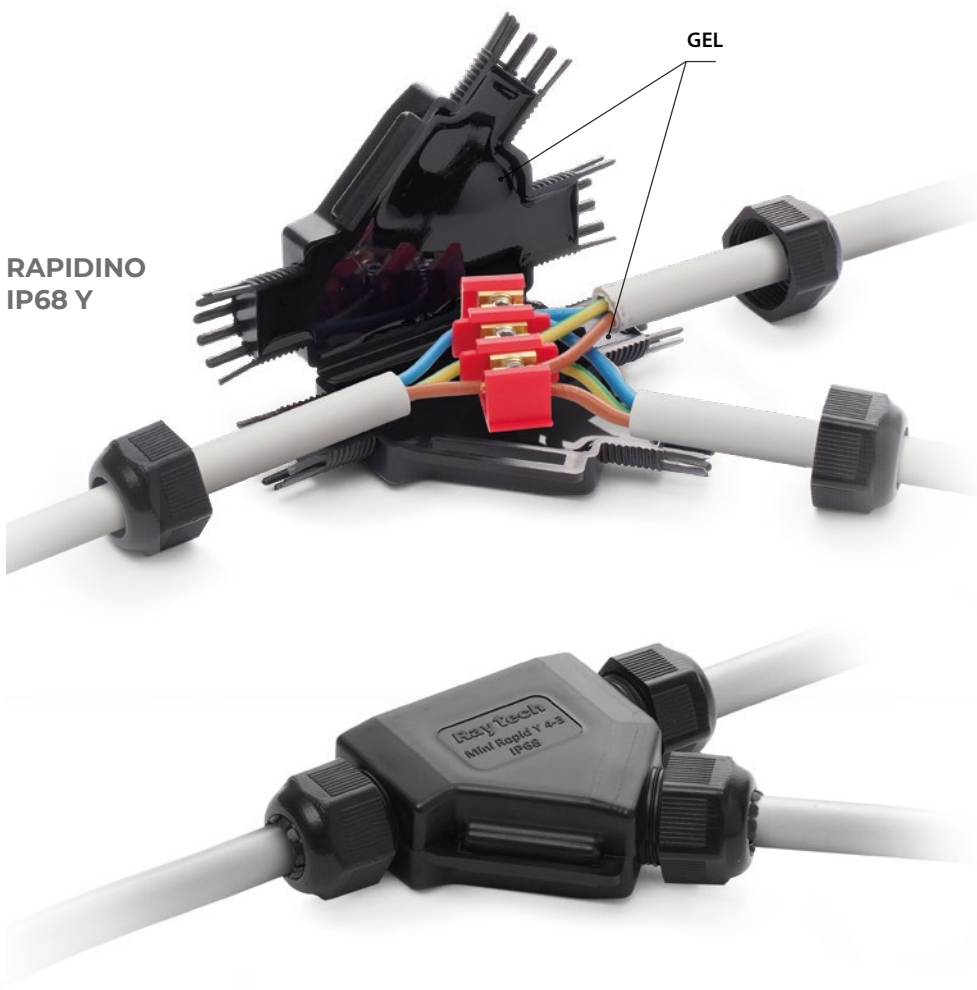
🔥 Self-extinguishing and resistant to abnormal heat and fire:
Glow Wire Flammability Index at +960°C according to EN60695-2-12

IP68
OFFICIALLY
TESTED

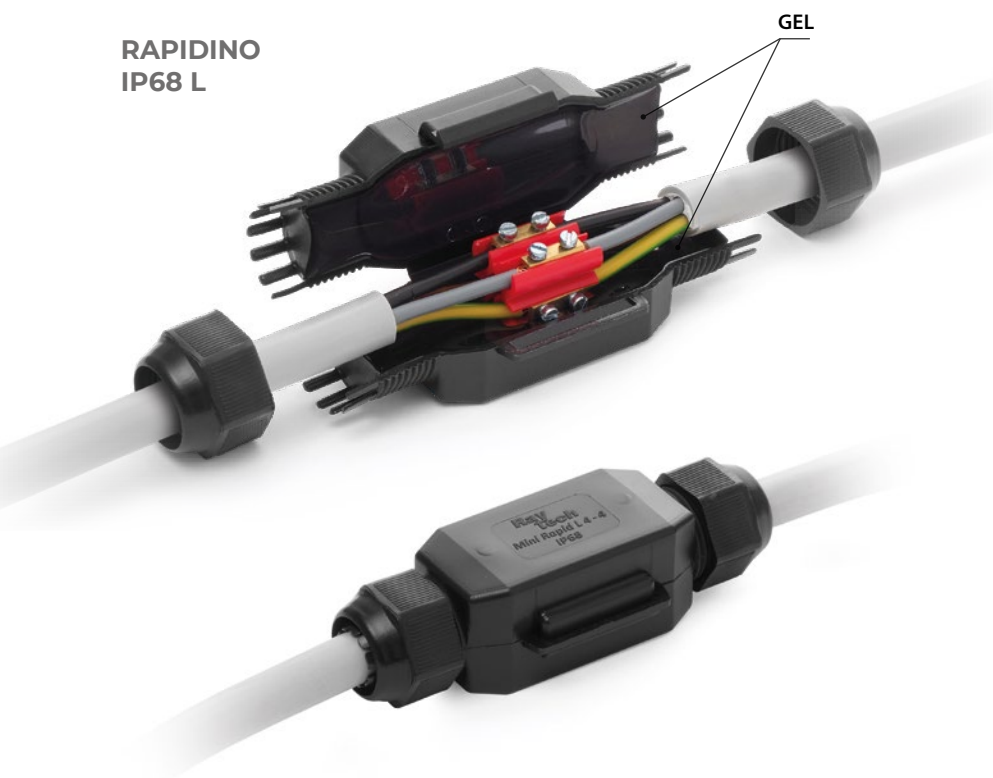
IMQ

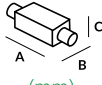
IP69K
OFFICIALLY
TESTED

RAPIDINO IP68 Y

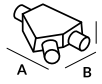


RAPIDINO IP68 L



PRODUCT Item	Cable	Connector	Max cable formation (N° x mm²)	Cable Ø min - max (mm)	Pieces / Pack	 (mm)
RAPIDINO IP68 L2 RAPIDINOL2			2 x 2,5	6 - 10	3 PCS / Box	75 x 28 x 19
RAPIDINO IP68 L3 RAPIDINOL3			3 x 2,5	8 - 13	3 PCS / Box	80 x 36 x 23
RAPIDINO IP68 L4 RAPIDINOL4			4 x 4	10 - 16	1 PC / Box	125 x 43 x 35



PRODUCT Item	Cable	Connector	Max cable formation (N° x mm²)	Cable Ø min - max (mm)	Pieces / Pack	 (mm)
RAPIDINO IP68 Y1 RAPIDINOY1			1 x 4 1 x 2,5	1 x 1,5 1 x 2,5	2 PCS / Box	85 x 55 x 22
RAPIDINO IP68 Y3 RAPIDINOY3			3 x 4 3 x 2,5	3 x 1,5 3 x 2,5	1 PC / Box	110 x 72 x 25




Electrical performance:

- CEI EN 50393
- Class 2 in accordance with CEI 64-8.

 Gel: UL 94-HB 

 Working temperature: 90°C

 Installation temperature: -40°C / +50°C

 Fully submersible

 Can be used underground

 Halogen-free Gel

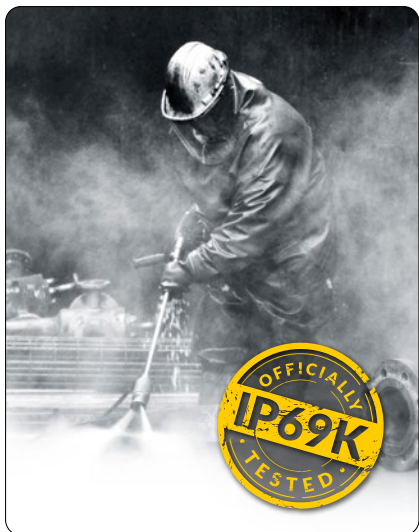
 UV resistant

 No flame propagation:
CEI 20-35 • IEC 60332-1 • HD405-1
(as applicable)

IP68
OFFICIALLY
TESTED

IMQ

IP69K
OFFICIALLY
TESTED



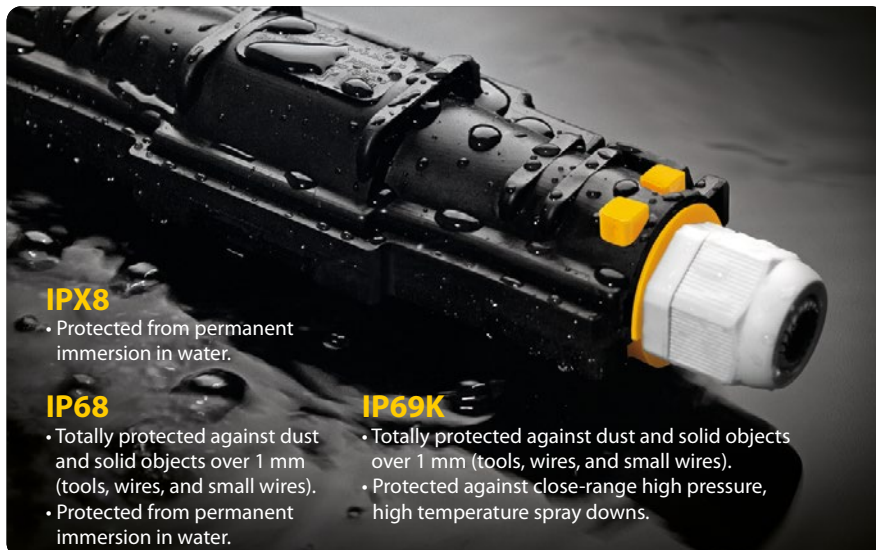
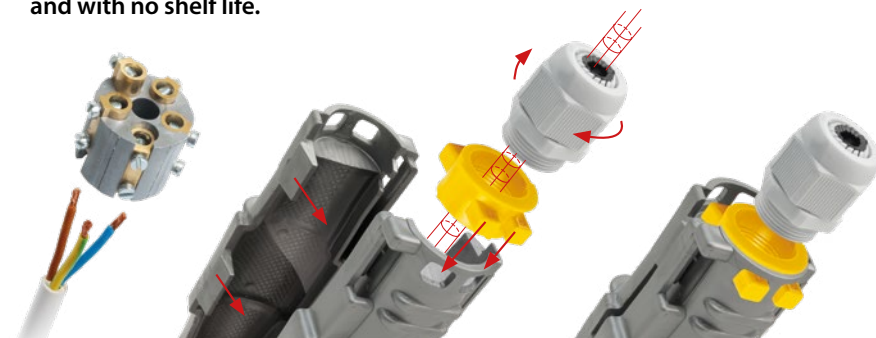
RAPID JOINT IP68

Radial closing gel pre-filled joint for extruded insulation cables up to 1 kV.

Primary insulation, consisting of a cross-linked polymer gel, and the exceptionally robust insulating plastic casing render Class 2 joints in accordance with the definitions contained in standard CEI 64-8. The joint has been tested in accordance with the main international specifications, with repeated flexing and torsion tests and immersion in water, and has been declared as conforming to the mechanical, electrical and sealing specifications required for plastic cable accessories. The joint and its components have an unlimited shelf life, are chemically inert and therefore completely safe. Conductor connections are re-enterable even after long periods of operation. Made with self-extinguishing material, flame retardant, for cables at 90°C working temperature. The radial closing system facilitates joint application, making them re-enterable only by means of a tool.

ADVANTAGES

- For straight connections (in line).
- For multi core cables of up to 5 cores.
- With suitable spacers.
- For all types of application, including submersible.
- Wide range of cable formations.
- Re-enterable only by means of a tool.
- Suitable for 3 core crossing.
- Pre-filled with a gel that is not-classified as hazardous under the CLP Directive and with no shelf life.


IPX8

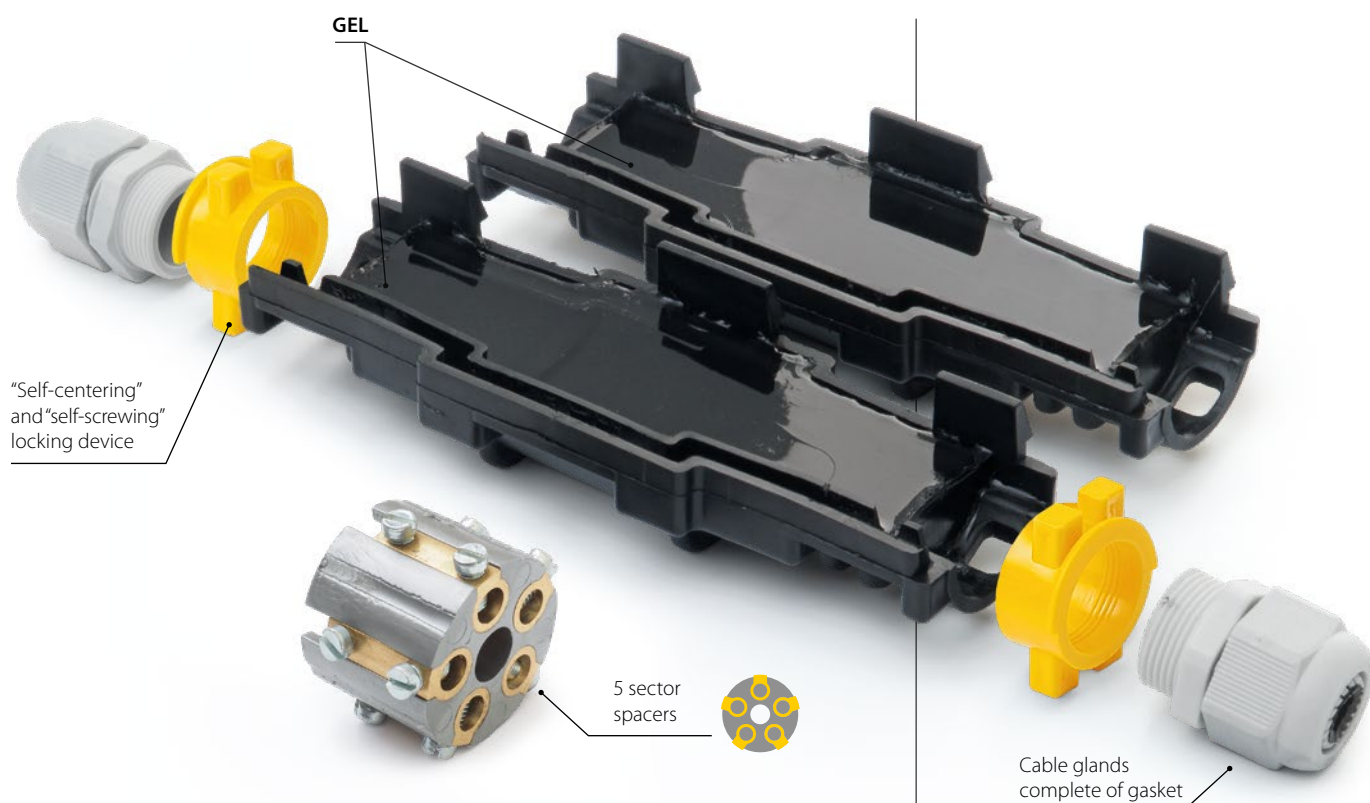
- Protected from permanent immersion in water.

IP68

- Totally protected against dust and solid objects over 1 mm (tools, wires, and small wires).
- Protected from permanent immersion in water.

IP69K

- Totally protected against dust and solid objects over 1 mm (tools, wires, and small wires).
- Protected against close-range high pressure, high temperature spray downs.



PRODUCT Item	Formation n°	Configuration IP68			Configuration IPX8		
		Section (mm ²)	Cable Ø (mm)	A x B (mm)	Section (mm ²)	Cable Ø (mm)	A x B (mm)
Rapid Joint L1,5-IP68 RAPIDJL1,5- IP68	•	4 - 25			1,5 - 50		
	⊕	1,5 - 4			1,5 - 6		
	⊕	1,5 - 2,5	8 - 13	155 x 55	1,5 - 6	20,5	105 x 55
	⊕	1,5			1,5 - 6		
Rapid Joint L6-IP68 RAPIDJL6- IP68	•	25 - 70			2,5 - 150		
	⊕	2,5 - 6			2,5 - 10		
	⊕	2,5 - 6	12 - 18	245 x 60	2,5 - 10	24	180 x 60
	⊕	2,5 - 6			2,5 - 10		
Rapid Joint L10-IP68 RAPIDJL10- IP68	•	70 - 95			120 - 240		
	⊕	10			10 - 25		
	⊕	10	16 - 20	275 x 65	10 - 25	31	210 x 65
	⊕	10			10 - 25		
Rapid Joint L25-IP68 RAPIDJL25- IP68	•	120 - 240			120 - 240		
	⊕	25			10 - 50		
	⊕	16 - 25	21 - 28	410 x 100	10 - 50	42	320 x 100
	⊕	16 - 25			10 - 50		



For single core cable: do not install the separator with screw connectors and connect with crimp connector.



READY CAST

The new pre-filled resin joint for extruded insulation cables up to 1 kV.

Thanks to its innovative pre-engraved and fracture-facilitated cable entry system, Ready Cast adapts itself quickly and extremely easily to any cable diameter, while respecting the minimum and maximum diameters that can be housed in the range. With the quick and safe connection block included in the pack or with commonly used connectors that can always be housed in the practical 4x separator, included in the kit. Ready Cast is equipped with an anti-traction system of the cable since it can be secured to the casing using the supplied cable ties.



READY
CAST L



READY
CAST Y



Electrical performance:

- CEI EN 50393 as applicable
- Class 2 in accordance with CEI 64-8.

💧 Resin: UL 94-HB

🌡️ Working temperature: 90°C

🌡️ Installation temperature: -40°C / +50°C

🌊 Fully submersible

🔑 Can be used underground

🌿 Halogen-free Resin

☀️ UV resistant

IP68
OFFICIALLY
TESTED



INNOVATIVE RESIN SOLUTIONS



► EASY!

Scissors and nothing more!



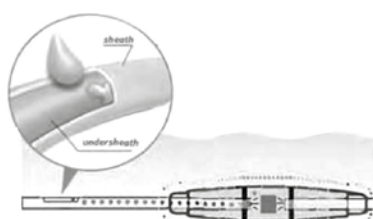
► MULTICONNECTION!

Ideal for many types of connection.



► INTEGRATED SOLUTIONS!

HOLE CASING technology - Anti-traction cable system using the supplied cable ties secured to the casing.

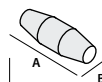


► RELIABILITY!

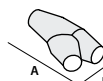
Range compliant with EN 50393

which consists in a test in air and of prolonged immersion for about 30 days, with repeated temperature changes, after the intentional removal of the cable sheath at the inlet and outlet with consequent infiltration of water between the cores of the cable.

PRODUCT Item	Cable Ø (mm)		Cable formation (N° x mm ²)					(mm)
			1 x	2 x	3 x	4 x	5 x	
READY CAST L4 READYCASTL4	8-18		6-25	2,5-4	2,5-4	2,5-4	-	160x45
			-	2,5-4	2,5-4	-	-	
READY CAST L10 READYCASTL10	8-23		16-50	4-10	4-10	4-10	-	180x50
			-	2,5-6	2,5-6	2,5-6	2,5-6	
READY CAST L 16/25 READYCASTL16/25	8-30		35-150	10-25	6-25	4-25	-	215x55
			-	6-25	6-25	6-16	6-16	



PRODUCT Item	Cable Ø (mm)		Cable formation (N° x mm ²)					(mm)
			1 x	2 x	3 x	4 x	5 x	
READY CAST Y6 READYCASTY6	T 8-20 B 8-20		T 16-50 B 6-35	T 4-10 B 2,5-4	T 2,5-6 B 1,5-4	T 2,5-6 B 1,5-2,5	-	180x100
			-	T 4-6 B 2,5-4	T 2,5-6 B 1,5-4	T 2,5-6 B 1,5-2,5	T 2,5-6 B 1,5-2,5	
READY CAST Y 16/25 READYCASTY16/25	T 8-30 B 8-30		T 70-150 B 50-150	T 10-25 B 6-25	T 6-25 B 6-16	T 6-25 B 6-10	-	220x105
			-	T 10-16 B 4	T 6-16 B 2,5-4	T 6-16 B 2,5-4	T 4-16 B 2,5-4	



Each kit contains:

- Enclosure, complete with filler
- Cable ties
- Screw connection system
- 4x separator
- Rayteam black insulating tape

T : Through cable - B : Branch cable

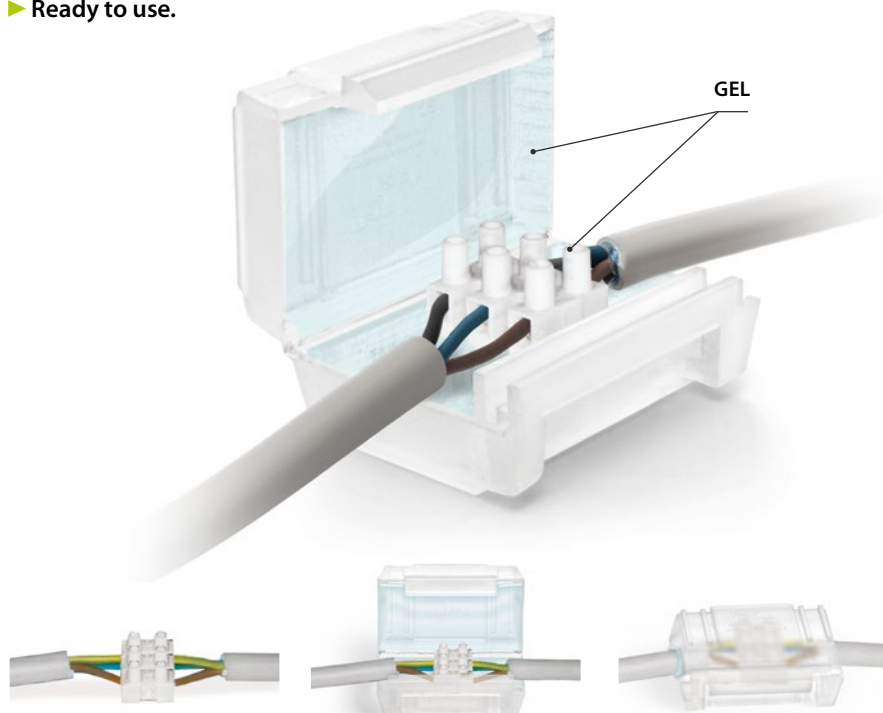


GEL COVER LINE

Gel pre-filled accessories for straight connections, for the protection, safety and covering of electrical connections using strip connectors or alternatives.

ADVANTAGES

- For 3 x 1 to 6 mm² cables or 3 insulated wires.
- For domestic and industrial connections.
- To put household systems in order.
- Also for underwater use.
- Pre-filled with a gel that is not-classified as hazardous under the CLP Directive and with no shelf life.
- Ready to use.



Electrical performance:

- CEI EN 50393 as applicable
- Class 2 in accordance with CEI 64-8.

🔧 **Gel:** UL 94-HB 

🌡️ **Working temperature:** 90°C

🌡️ **Installation temperature:** -40°C / +50°C

🌊 **Fully submersible**

🔑 **Can be used underground**

🌿 **Halogen-free Gel**

☀️ **UV resistant**

IPX8
OFFICIALLY
TESTED | **IMQ**





PRODUCT Item	Colour	Housed connectors type	N° pieces	Package type	Dimension (mm)
OHM OHM	○	2 from 4 mm ²	1	blister	61 x 35 x 28
OHM PACK 11 OHMPACK11			11	box	
BAR BAR	○	3 from 4 mm ² / 6 mm ²	1	blister	63 x 41 x 28
BAR PACK 9 BARPACK9			9	box	



PRODUCT Item	Colour	Housed connectors type	N° pieces	Package type	Dimension (mm)
GEL COVER 4 GELCOVER4	●	2 from 4 mm ²	1	blister	61 x 35 x 28
MAMMUT GEL COVER MAMMUTGELCOVER			8	box	
GEL COVER 6 GELCOVER6	●	3 from 4 mm ² / 6 mm ²	1	blister	63 x 41 x 28
MAMMUT GEL COVER 6 MAMMUTGELCOVER6			9	box	

No flame propagation. CEI 20-35 • IEC 60332-1 • HD405-1 (as applicable). **Casing mix:** UL 94-V2




Electrical performance:

- CEI EN 50393 as applicable
- Class 2 in accordance with CEI 64-8.

🔧 **Gel:** UL 94-HB  **US**

🔧 **Casing mix:** UL 94-V2

🔧 **Working temperature:** 90°C

🔧 **Installation temperature:** -40°C / +50°C

🌊 **Fully submersible**

🔧 **Can be used underground**

🌿 **Halogen-free Gel**

☀️ **UV resistant**

🔥 **No flame propagation:**
CEI 20-35 • IEC 60332-1 • HD405-1
(as applicable)

IPX8
OFFICIALLY
TESTED | **IMQ**



SUPER CLIK

Range of fast gel pre-filled straight or branch type joints for 0.6/1 kV multi core cables of up to 5 conductors.

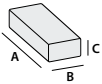
The combination of the primary insulation in a cross-linked polymer gel and the highly robust insulating plastic case makes this a Class 2 joint defined by CEI 64-8. The joint has been tested in accordance with the main international specifications, with repeated flexing and torsion tests and immersion in water, it has been declared as conforming to the mechanical, electrical and sealing specifications required for plastic cable accessories. The joint and its components have an unlimited shelf life, they are chemically inert and therefore completely safe; the connections are re-entrable even after long working periods. Made of self-extinguishing components the joint is flame retardant. For cables at 90°C working temperature.

ADVANTAGES

- ▶ Complete with insulated terminal blocks.
- ▶ For straight and branch connections.
- ▶ For all types of application, including submersible.
- ▶ Re-accessible.
- ▶ Flame retardant.
- ▶ Pre-filled with a gel that is not-classified as hazardous under the CLP Directive and with no shelf life.

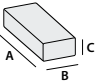


SUPER CLIK MINI

PRODUCT Item	Cable formation and conductor cross sections (n° x mm²)		max cables Ø (mm)	 (mm)
	Straight Connections In line	Branch connections T B		
SUPER CLIK MINI L SUPERCLIKMINI-L	3 x 0,5 - 1,5	- -	10	71 x 38 x 23
SUPER CLIK MINI Y SUPERCLIKMINI-Y	-	1 x 2,5 - 6 1 x 2,5	10	71 x 38 x 23

T : Through cable - B : Branch cable

SUPER CLIK

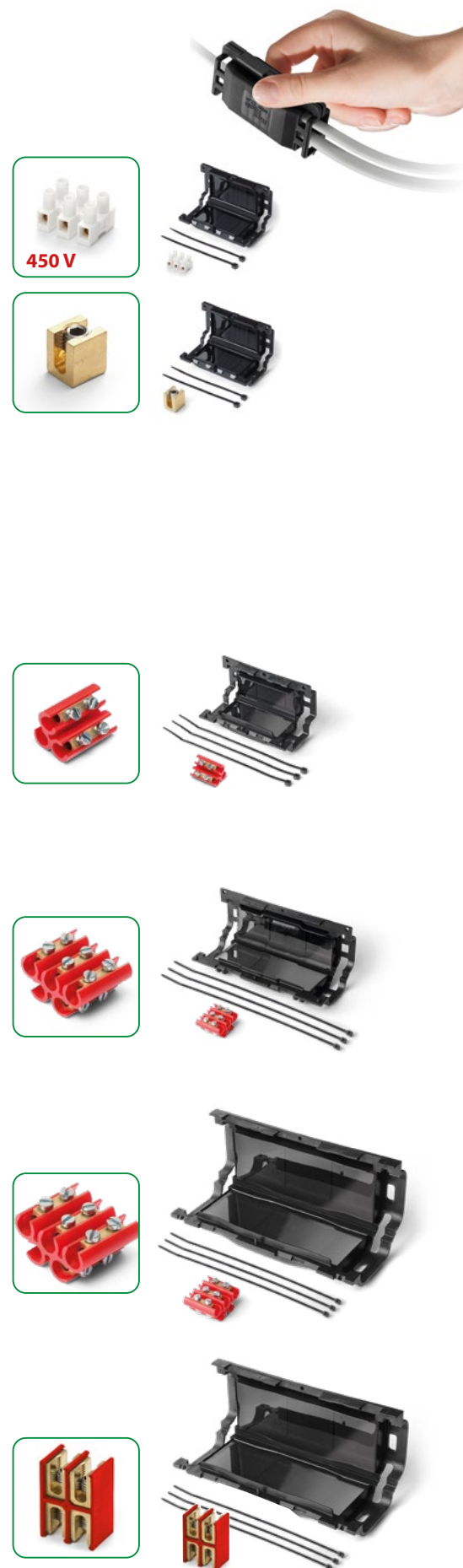
PRODUCT Item	Cable formation and conductor cross sections (n° x mm²)		max cables Ø (mm)	 (mm)
	Straight Connections In line	Branch connections T B		
SUPER CLIK 0 SUPERCLIK0	3 x 1,5 - 6	3 x 1,5 - 4 3 x 1,5 - 2,5	14	95 x 43 x 28

PRODUCT	In line	T	B	(mm)	(mm)
SUPER CLIK 1 SUPERCLIK1	2 x 1,5 - 6	2 x 4	2 x 2,5	20,5	150 x 56 x 30
	3 x 1,5 - 6	3 x 4	3 x 2,5		
	4 x 1,5 - 6	4 x 4	4 x 2,5		
	5 x 1,5 - 6	5 x 4	5 x 2,5		

PRODUCT	In line	T	B	(mm)	(mm)
SUPER CLIK 2 SUPERCLIK2	2 x 4 - 16	2 x 10	2 x 6	30	220 x 85 x 46
	3 x 4 - 16	3 x 10	3 x 6		
	4 x 4 - 16	4 x 10	4 x 6		
	5 x 4 - 16	5 x 10	5 x 6		

PRODUCT	In line	T	B	(mm)	(mm)
SUPER CLIK 3 SUPERCLIK3	-	2 x 4 - 25	2 x 1,5 - 16	30	220 x 85 x 46
		3 x 4 - 25	3 x 1,5 - 16		
		4 x 4 - 25	4 x 1,5 - 16		

T : Through cable - B : Branch cable

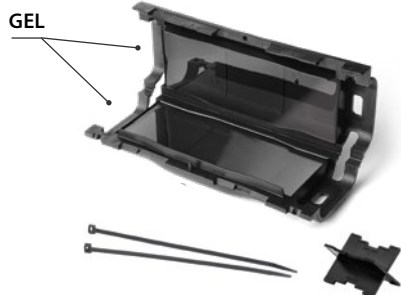


Electrical performance:

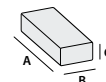
• CEI EN 50393

with connectors complying
with **EN 61238-1**• **Class 2** in accordance with **CEI 64-8**.Gel: UL 94-HB  US

Casing mix: UL 94-V2

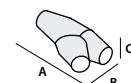
 Working temperature: 90°C Installation temperature: -40°C / +50°C Fully submersible Can be used underground Halogen-free Gel UV resistant **No flame propagation:**
CEI 20-35 • IEC 60332-1 • HD405-1
(as applicable)**IPX8**
OFFICIALLY
TESTEDSections based on
extruded 0,6/1 kV cable.

CLIK FIRE

Straight or branch gel pre-filled joint,
for multi core cables up to 4 cores.► Pre-filled with a gel that is not-classified as hazardous under the CLP Directive
and with no shelf life.**STRAIGHT OR BRANCH MULTI CORE JOINTS**

PRODUCT / Item	Cable formation and conductor cross sections (n° x mm²)		max cables Ø (mm)		Dimension (mm)
	Through or straight	1 or 2 branch cables	Through or straight	Branch	
CLIK 0 Fire * 214663-003	1 x 2,5 - 50 2 x 2,5 - 6	1 x 1,5 - 10 2 x 1,5	16	10	95 x 43 x 28
CLIK 1 Fire * 225449-001	1 x 6 - 95 2 x 1,5 - 16 3 x 1,5 - 10 4 x 1,5 - 10	1 x 1,5 - 35 2 x 1,5 - 6 3 x 1,5 - 6 4 x 1,5 - 4	20,5	15	150 x 56 x 30
CLIK 2 Fire 301096-001	1 x 50 - 185 2 x 10 - 35 3 x 6 - 35 4 x 6 - 35	1 x 16 - 185 2 x 1,5 - 35 3 x 1,5 - 35 4 x 1,5 - 16	30	29	220 x 85 x 46

* Available in hangable BLISTER with the following Codes. Art.: CLIK0FIRE-BL and CLIK1FIRE-BL

BRANCH JOINTS WITH 30° OUTPUT

PRODUCT / Item	Through	Branch	Through	Branch	(mm)
CLIK 2000 Fire 214663-004	1 x 2,5 - 25	1 x 1,5 - 16	14	12,5	75 x 40 x 21
CLIK 2001 Fire 225448-002	1 x 6 - 95 2 x 1,5 - 16 3 x 2,5 - 16 4 x 2,5 - 10	1 x 1,5 - 70 2 x 1,5 - 10 3 x 1,5 - 10 4 x 1,5 - 6	22,5	18,5	138 x 60 x 37
CLIK 2002 Fire 301096-005	1 x 50 - 150 2 x 1,5 - 25 3 x 4 - 25 4 x 4 - 16	1 x 1,5 - 70 2 x 1,5 - 10 3 x 1,5 - 10 4 x 1,5 - 6	26	18,5	194 x 74 x 43
CLIK 2003 Fire 301097-006	1 x 150 - 240 2 x 16 - 50 3 x 16 - 50 4 x 16 - 50	1 x 50 - 120 2 x 10 - 25 3 x 10 - 25 4 x 6 - 16	36	26	290 x 105 x 51

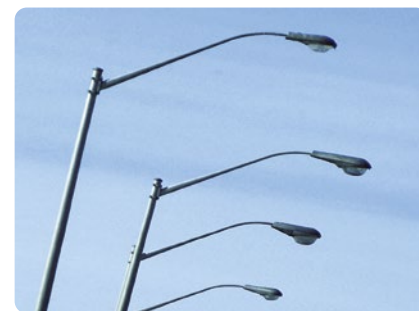
CLIK FIRE A2A

Main line branch joint for parallel type public lighting systems.

Branch joints from main to main cable, from main to pole rise, from overhead line to pole equipment, from pre-assembled cable to pole equipment, of a type certified by Azienda Elettrica Milanese (A2A, ex AEM). Accessories are complete with mantel-type, pre-insulated Allen screw connectors and, for installations with traps, with the specific protection monitor plate. Joints are non-toxic, with no shelf life and re-enterable.



PRODUCT Item	Approval code	Branch type	Through cable (n° x mm²)	Branch cable (n° x mm²)
CLIK 2 Fire Dor/Palo 301009-000	E 27.012	Main / Pole	RG7R 2 x 1 x 16	FG7OR 2 x 2,5
CLIK 1 Fire Dor/Dor 302009-000	E 27.013	Main / Main	RG7R 4 x 1 x 16	RG7R 4 x 1 x 16
CLIK 1 Fire Aer/Dap 302008-000	E 27.014	Overhead line / Equipment	UG7R 2 x 1 x 16	FG7R 2 x 1 x 4
CLIK 2 Fire Prec/Dap 301008-000	E 27.015	Pre-assembled / Equipment	RE4E4X 2 x 1 x 10	FG7OR 2 x 2,5



Electrical performance:

• CEI EN 50393 • CEI 20-33 • IP 0033 (A2A)

• Gel: UL 94-HB 

• Casing mix: UL 94-V2

• Working temperature: 90°

• Installation temperature: -40°C / +50°C

• Fully submersible

• Can be used underground

• No flame propagation:
CEI 20-35 • IEC 60332-1 • HD405-1
(as applicable)

• A2A Certified

IPX8
OFFICIALLY
TESTED

CLIK FIRE A2A (FUSE)

Branch joint from main to pole rise, with protection fuse.

Branch joints from main to pole rise complete with disconnectable fuse holder and fuse with signal indicating intervention. Accessories are complete with mantel-type, pre-insulated Allen screw connectors and, for installations with traps, with the specific protection monitor plate. Joints are non-toxic, with no shelf life and re-enterable and flame retardant.



PRODUCT / Item	Fuse inserted	Branch type	Through cable (n° x mm²)	Branch cable (n° x mm²)
CLIK 2 Fire Dor/Palo Fuse 301010-000	2 A	Main / Pole	RG7R 4 x 1 x 16	FG7OR 2 x 2,5



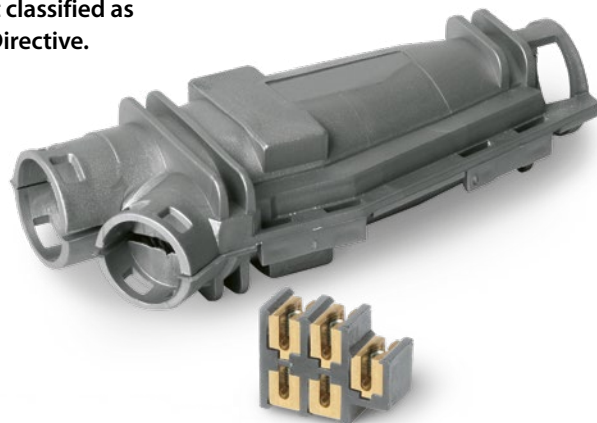
KING JOINT

Range of fast gel pre-filled straight or branch type joints for 0.6/1 kV multi core cables of up to 5 conductors.

The primary insulation, consisting of a cross-linked polymer gel and extremely strong plastic insulating housing, make the Class 2, in accordance with the definitions contained in CEI Regulation 64-8. The joint, tested in accordance with the most important international specifications with repeated bending and twisting cycles and immersion in water, was found to comply with the mechanical, electrical and sealing requirements necessary for accessories for plastic cables. The joint and its components have no self life, are chemically inert and therefore completely safe; the conductor connections are re-accessible even after long operating periods. Packaged with self-extinguishing material, it is flame retardant. Suitable for cables with a temperature of +90°C.

ADVANTAGES

- For multicore cables of up to 5 cores.
- 5 sector spacers for proper centring of five-core connection.
- Complete with screw connectors.
- For straight and branch connections, including armoured cable.
- For all types of application, including submersible.
- Non-toxic, safe and not classified as hazardous under CLP Directive.
- Re-accessible.
- Flame retardant.



KING
JOINT Y

Electrical performance:

- CEI EN 50393
- Class 2 in accordance with CEI 64-8.

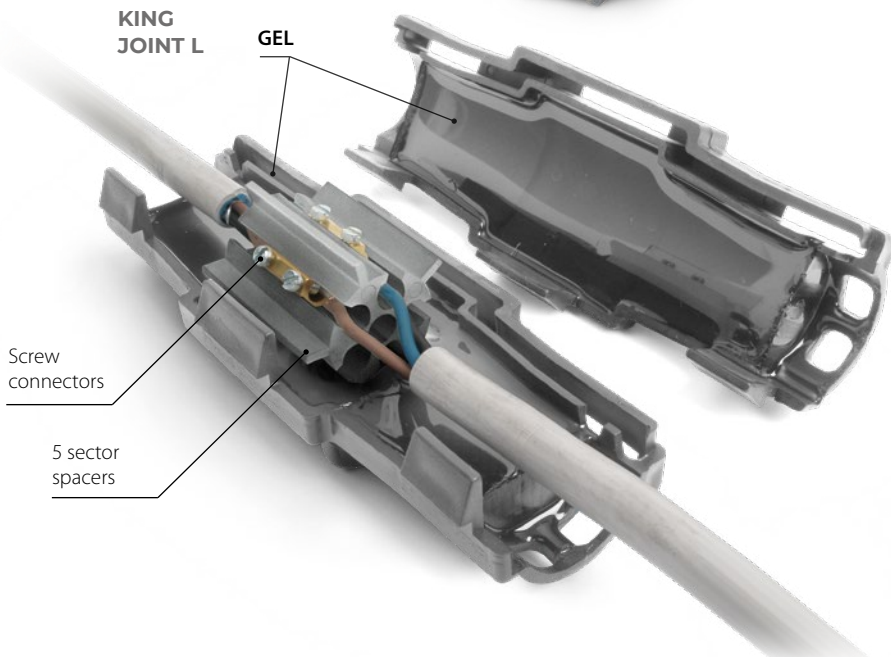
- Gel: UL 94-HB  us
- Casing mix: UL 94-V2
- Working temperature: 90°C
- Installation temperature: -40°C / +50°C
- Fully submersible
- Can be used underground
- Halogen-free Gel
- No flame propagation:
CEI 20-35 • IEC 60332-1 • HD405-1
(as applicable)
Low smoke and toxic and
corrosive gas emissions.
- Degree of protection: IPX8

KING
JOINT L

GEL

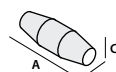
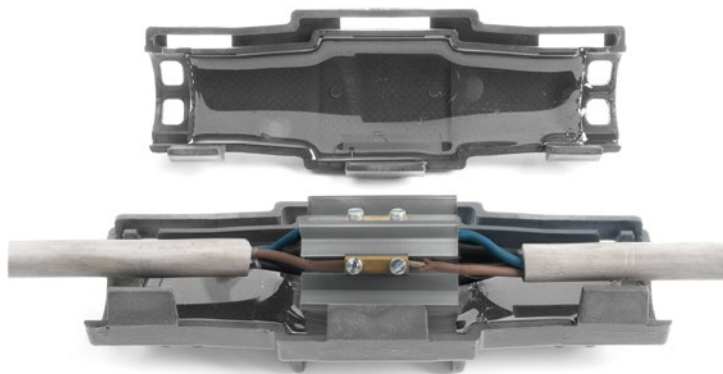
Screw
connectors

5 sector
spacers



KING JOINT L

Straight joints, including armoured cable.



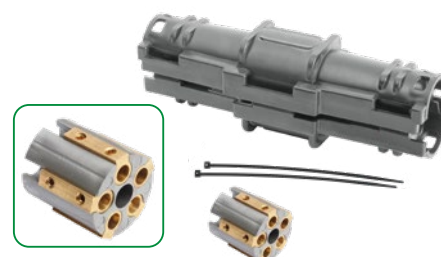
PRODUCT / Item	LINE CONNECTIONS Cable formation and conductor cross sections (n° x mm ²)	max cables Ø (mm)	Dimension (mm)
KING JOINT 0 blister RAYJOINT0	2 x 1,5 - 6	20,5	105 x 55 x 55
	3 x 1,5 - 6		
	4 x 1,5 - 6		
	5 x 1,5 - 6		
KING JOINT L6 box RAYJOINTL6	2 x 1,5 - 6	20,5	105 x 55 x 55
	3 x 1,5 - 6		
	4 x 1,5 - 6		
	5 x 1,5 - 6		



PRODUCT / Item	LINE CONNECTIONS Cable formation and conductor cross sections (n° x mm ²)	max cables Ø (mm)	Dimension (mm)
KING JOINT L10 RAYJOINTL10	2 x 2,5 - 10	24	180 x 60 x 60
	3 x 2,5 - 10		
KING JOINT L10 - ARM RAYJL10ARM	4 x 2,5 - 10		
	5 x 2,5 - 10		



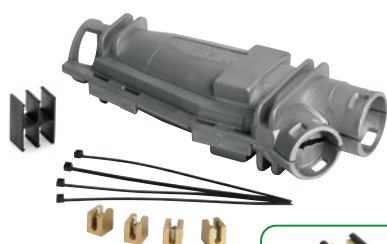
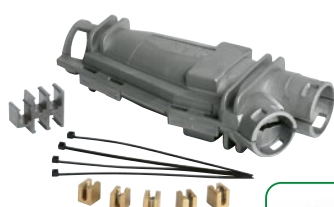
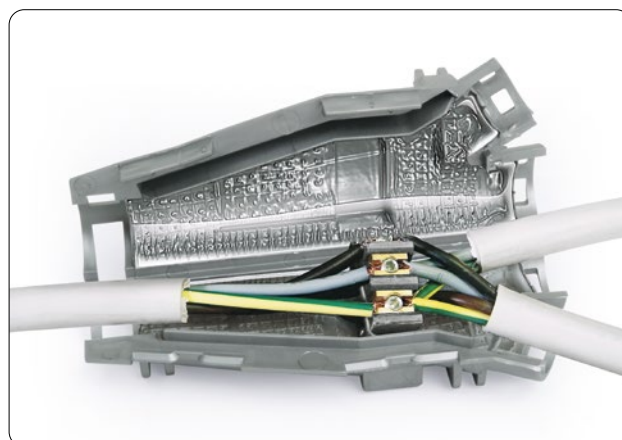
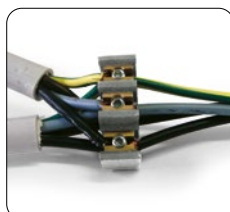
PRODUCT / Item	LINE CONNECTIONS Cable formation and conductor cross sections (n° x mm ²)	max cables Ø (mm)	Dimension (mm)
KING JOINT L25 RAYJOINTL25	2 x 10 - 25	31	210 x 65 x 65
	3 x 10 - 25		
KING JOINT L25 - ARM RAYJL25ARM	4 x 10 - 25		
	5 x 10 - 25		



ARM type joints complete with continuity device
suitable for connection to **armoured wire or steel tape cables**.

KING JOINT Y

Branch joints, including armoured cable.



PRODUCT / Item	BRANCH CONNECTIONS Cable formation and conductor cross sections (n° x mm²)		max cables Ø (mm)		Dimension (mm)
	T	B	T	B	
KING JOINT Y6 KINGJ-Y6	2 x 1,5 - 6	2 x 1,5 - 4			
	3 x 1,5 - 6	3 x 1,5 - 4			
KING JOINT Y6 - ARM KINGJ-Y6ARM	4 x 1,5 - 6	4 x 1,5 - 4	22,5	18,5	138 x 60 x 37
	5 x 1,5 - 6	5 x 1,5 - 4			

T: Through cable - B: Branch cable

PRODUCT / Item	BRANCH CONNECTIONS Cable formation and conductor cross sections (n° x mm²)		max cables Ø (mm)		Dimension (mm)
	T	B	T	B	
KING JOINT Y16 KINGJ-Y16	2 x 4 - 16	2 x 1,5 - 4			
	3 x 4 - 16	3 x 1,5 - 4			
KING JOINT Y16 - ARM KINGJ-Y16ARM	4 x 4 - 16*	4 x 1,5 - 4	26	18,5	194 x 74 x 43
	5 x 4 - 16*	5 x 1,5 - 4			

T: Through cable - B: Branch cable

* For armoured cables max conductor cross section 10 mm².

PRODUCT / Item	BRANCH CONNECTIONS Cable formation and conductor cross sections (n° x mm²)		max cables Ø (mm)		Dimension (mm)
	T	B	T	B	
KING JOINT Y35 KINGJ-Y35	2 x 10 - 35	2 x 1,5 - 6			
	3 x 10 - 35	3 x 1,5 - 6			
KING JOINT Y35 - ARM KINGJ-Y35ARM	4 x 10 - 35*	4 x 1,5 - 6	36	26	290 x 105 x 51

T: Through cable - B: Branch cable

* For armoured cables max conductor cross section 10 mm².

ARM type joints complete with continuity device suitable for connection to **armoured wire or steel tape cables**.

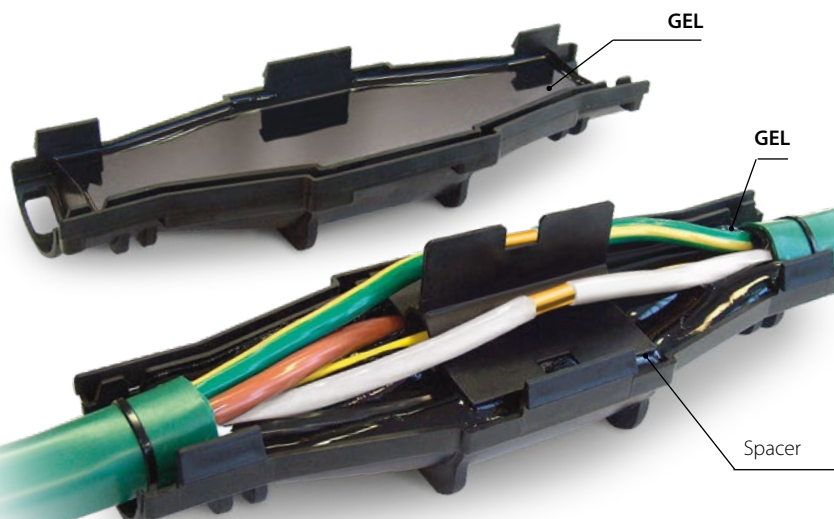
RAPID JOINT

Radial closing gel pre-filled joint for extruded insulation cables up to 1 kV.

Made with self-extinguishing material, flame retardant, for cables at 90°C working temperature. The radial closing system facilitates joint application, making them re-enterable only by means of a tool.

ADVANTAGES

- For straight connections (in line).
- With suitable spacers.
- For all types of application, including submersible.
- Wide range of cable formations.
- Pre-filled with a gel that is not-classified as hazardous under the CLP Directive and with no shelf life.

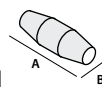


For **COPPER** cables

PRODUCT / Item	1x	2x	3x	4x	With fiber-optic separator 4x	Dimension (mm)
RAPID JOINT L6 301098-037	1,5 - 50	1,5 - 10	1,5 - 10	1,5 - 6	-	105 x 55
RAPID JOINT L10 301098-004	2,5 - 150	2,5 - 25	2,5 - 16	2,5 - 16	-	180 x 60
RAPID JOINT L25 301098-006	120 - 240	6 - 50	6 - 35	4 - 35	-	210 x 65
RAPID JOINT L95 301098-003	185 - 400	35 - 95	25 - 70	25 - 70	16 - 50	320 x 100

For **ALUMINIUM** cables

	1x	2x	3x	4x	4x	(mm)
RAPID JOINT L25 301098-006	120 - 150	16 - 35	10 - 25	10 - 25	-	210 x 65
RAPID JOINT L95 301098-003	185 - 400	35 - 95	25 - 70	25 - 70	16 - 50	320 x 100



Electrical performance:

- CEI EN 50393 with connectors complying with EN 61238-1
- Class 2 in accordance with CEI 64-8.

🔧 Gel: UL 94-HB 

🔧 Casing mix: UL 94-V2

🌡️ Working temperature: 90°C

🌡️ Installation temperature: -40°C / +50°C

🌊 Fully submersible

🔑 Can be used underground

🌿 Halogen-free Gel

🔥 No flame propagation:
CEI 20-35 • IEC 60332-1 • HD405-1
(as applicable)

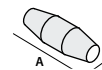
● Degree of protection: IPX8



Joint supplied with
armour continuity device

RAPID JOINT S/ARM

For screened or tape or wire armoured cables.

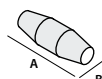


For copper wire SCREENED cables	Cable formation and conductor cross sections (n° x mm ²)				With fiber-optic separator 4x	Dimension (mm)
PRODUCT / Item	1x	2x	3x	4x		
RAPID JOINT L 10-S 301098-035	2,5 - 120	2,5 - 10	2,5 - 10	2,5 - 10	-	180 x 60
RAPID JOINT L 25-S 301098-036	120 - 185	16 - 25	10 - 25	10 - 25	-	210 x 65
RAPID JOINT L 95-S 301098-012	240 - 400	35 - 95	25 - 70	25 - 70	16 - 50	320 x 100

For ARMoured cables	1x	2x	3x	4x	(mm)
RAPID JOINT L 10-ARM 301098-10ARM	2,5 - 10	2,5 - 10	2,5 - 10	-	180 x 60
RAPID JOINT L 25-ARM 301098-25ARM	16 - 25	10 - 25	10 - 25	-	210 x 65
RAPID JOINT L 95-ARM 301098-016	35 - 95	25 - 70	25 - 70	16 - 50	320 x 100

RAPID JOINT LS

For signalling and control cables.

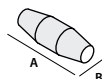


PRODUCT Item	Conductors (mm ²)	Cable formation (n° conduttori)										Dimension (mm)
		5x	7x	10x	12x	16x	19x	24x	40x	75x	100x	
RAPID JOINT-LS1 301098-018	1,5 2,5	•	•	•	•	•	•					180 x 60
RAPID JOINT-LS2 301098-019	1,5 2,5					•	•	•	•			210 x 65
RAPID JOINT-LS3 301098-020	1,5 2,5						•	•	•	•	•	320 x 100

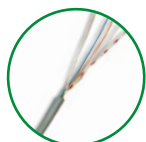


RAPID JOINT T

Straight joints for telephone cables.

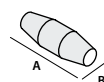


UNscreened	SCREENED	N° pairs for conductor cross sections (n° x mm ²)	Dimension (mm)
PRODUCT / Item	PRODUCT / Item		
RAPID JOINT-T26 301098-021	RAPID JOINT-TS26 301098-024	(1 - 26) x (0,5 - 0,6)	180 x 60
RAPID JOINT-T61 301098-022	RAPID JOINT-TS61 301098-025	(30 + 1 - 64 + 1) x (0,5 - 0,6)	210 x 65
RAPID JOINT-T101 301098-023	RAPID JOINT-TS101 301098-026	(60 + 1 - 100 + 1) x (0,5 - 0,6)	320 x 100



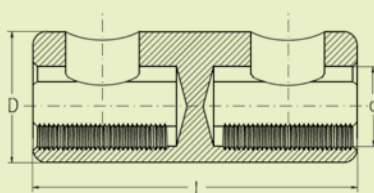
RAPID JOINT SYSTEM FAST RP

Straight joint + Shear bolt connectors.



PRODUCT / Item	Cable formation from 2x a 4x (n° x mm ²)	Dimension (mm)
RAPID JOINT L 10 RP RAPIDJL10RP	1,5 - 10	180 x 60
RAPID JOINT L 25 RP RAPIDJL25RP	10 - 25	210 x 65
RAPID JOINT L 95 RP RAPIDJL95RP	35 - 95	320 x 100

Shear bolt connectors



PRODUCT / Item	Aluminium cross sections* (mm ²)	Copper cross sections (mm ²)	Breakaway torque (Nm)	Dimension L D d (mm)		
RAY-TTF 1,5/16 RAY-TTF1,5/16	10 - 16	1,5 - 16	4	30	12	6,1
RAY-TTF 10/35 RAY-TTF10/35	10 - 35	10 - 35	10	36	16	9,0
RAY-TTF 25/50 RAY-TTF25/50	25 - 50	25 - 50	12	36	18	10,0
RAY-TTF 35/150 RAY-TTF35/150	35 - 150	35 - 150	30	70	28	17,0

* For round conductors.

**Electrical performance:**

- CEI EN 50393
with connectors complying
with EN 61238-1
- Class 2 in accordance with CEI 64-8.

💧 **Gel:** UL 94-HB

🌡️ **Working temperature:** 90°C

🌡️ **Installation temperature:** -15°C / +55°C

🌊 **Fully submersible**

🔑 **Can be used underground**

🌿 **Halogen-free Gel**

IP68
OFFICIALLY
TESTED

MAGIC POWER JOINT

Straight or branch joint with Magic Power Gel, for extruded insulation cables up to 1 kV.

Joints for extruded cables F(R)G7OR 0.6/1 kV. Easy installation, composed of two anti-fracture plastic shells, to be filled with non-toxic quick cross linking two-component insulation such as Magic Power Gel. Suitable for installation in traps, channels or directly underground or under water. Non-toxic, safe, light and re-enterable. Thanks to the softness of the insulation, they are able to absorb external shock without cracking or fracturing. The extreme stickiness of the insulation together with its softness allow it to transmit water pressure for installation even at high depths.

ADVANTAGES

- ▶ **Re-enterable and inspectable joint.**
- ▶ **Insulated with Magic Power Gel, the innovative self-amalgamating gel.**
- ▶ **For installations even in harsh conditions and high depths!**
- ▶ **Extremely adherent and tight sealing.**
- ▶ **The gel is not-classified as hazardous under the CLP Directive and it has no shelf life.**

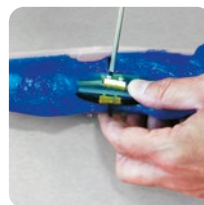
RE-ENTERABLE



REMOVABLE



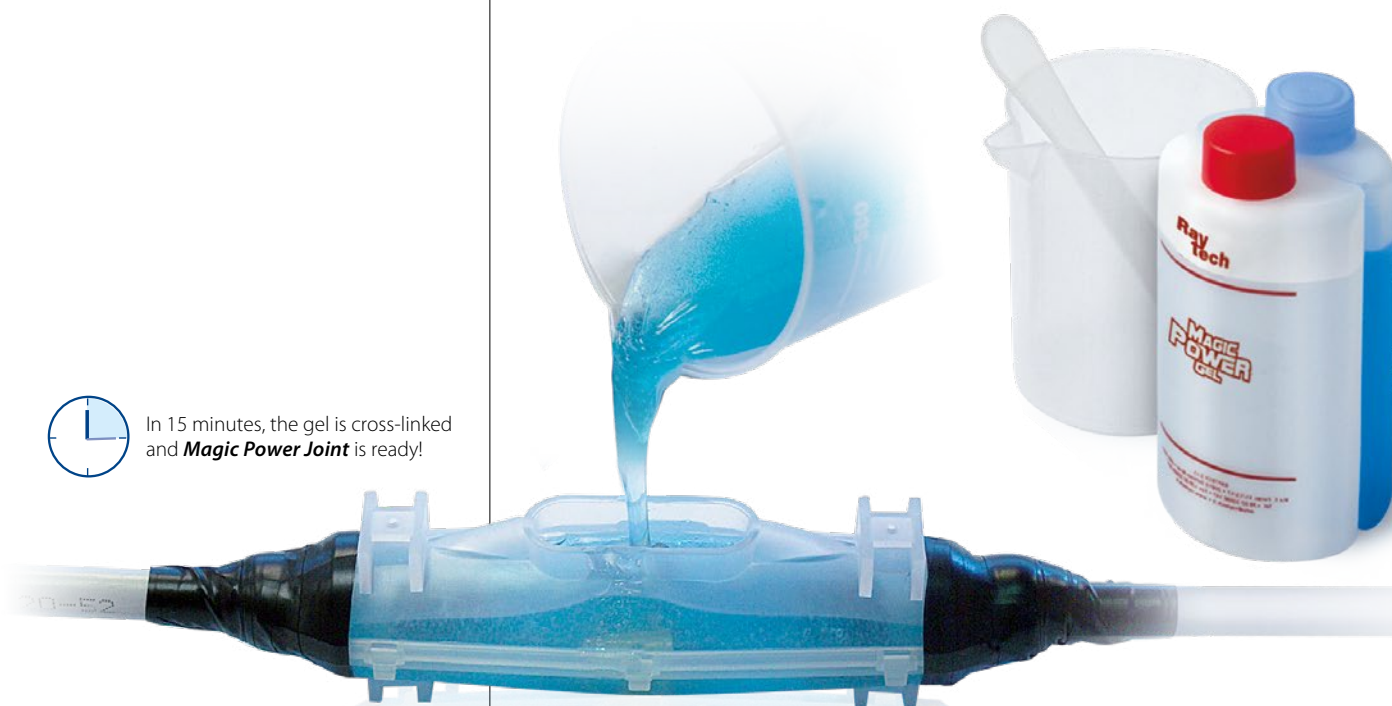
INSPECTIONABLE



REUSABLE

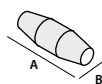


In 15 minutes, the gel is cross-linked and **Magic Power Joint** is ready!



MAGIC POWER JOINT L

Straight joint for 0.6/1 kV extruded cables.



For COPPER cables						
PRODUCT / Item	Cable formation and conductor cross sections (n° x mm ²)				max cable Ø (mm)	Dimension (mm)
	1x	2x	3x	4x		
MAGIC P JOINT L10 MPOWERJOINT-L10	2,5 - 50	1,5 - 10	1,5 - 10	1,5 - 10 *	8 - 27	180 x 50
MAGIC P JOINT L25 MPOWERJOINT-L25	16 - 150	4 - 25	4 - 25	2,5 - 25	8 - 32	215 x 55
MAGIC P JOINT L35 MPOWERJOINT-L35	16 - 185	16 - 35	16 - 35	16 - 35	12 - 33	232 x 70
MAGIC P JOINT L50 MPOWERJOINT-L50	50 - 300	16 - 50	16 - 50	16 - 50	14 - 34	266 x 72
MAGIC P JOINT L95 MPOWERJOINT-L95	120 - 400	25 - 95	25 - 95	25 - 95	15 - 42	330 x 95
MAGIC P JOINT L120 MPOWERJOINT-L120	240 - 500	70 - 120	70 - 120	50 - 120	25 - 50	365 x 95
MAGIC P JOINT L240 MPOWERJOINT-L240	400 - 1000	120 - 300	120 - 240	120 - 240	30 - 75	510 x 120
MAGIC P JOINT L300 MPOWERJOINT-L300	630 - 2000	240 - 400	240 - 300	240 - 300	41 - 78	760 x 180

For ALUMINIUM cables						
	1x	2x	3x	4x	(mm)	(mm)
MAGIC P JOINT L50 MPOWERJOINT-L50	16 - 150	16 - 25	16 - 25	16 - 25	14 - 34	266 x 72
MAGIC P JOINT L120 MPOWERJOINT-L120	185 - 400	25 - 95	25 - 95	25 - 95	25 - 50	365 x 95
MAGIC P JOINT L240 MPOWERJOINT-L240	400 - 630	95 - 185	95 - 185	95 - 185	30 - 75	510 x 120
MAGIC P JOINT L300 MPOWERJOINT-L300	630 - 2000	185 - 300	185 - 300	185 - 300	41 - 78	760 x 180

* Magic Power Joint L10 suggested for cable diameters smaller than 16 mm.

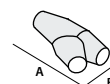


MAGIC POWER JOINT Y

Branch joint for 0.6/1 kV extruded cables.

Cable formation and conductor cross sections (n° x mm ²)											
For COPPER cables											
PRODUCT / Item	1x		2x		3x		4x		max cables Ø (mm)		Dimension (mm)
	T	B	T	B	T	B	T	B	T	B	
MAGIC P JOINT Y6 MPOWERJOINT-Y6	4 - 50	4 - 50	4 - 10	4 - 10	2,5 - 6	2,5 - 6	2,5 - 6	2,5 - 6	8 - 27	8 - 27	180 x 90
MAGIC P JOINT Y25 MPOWERJOINT-Y25	50 - 150	50 - 150	10 - 25	10 - 25	6 - 25	6 - 16	6 - 25	6 - 10	8 - 32	8 - 32	220 x 105
MAGIC P JOINT Y95 MPOWERJOINT-Y95	120 - 400	95 - 240	25 - 95	16 - 50	25 - 95	16 - 50	25 - 95	10 - 50	15 - 42	8 - 32	315 x 115
MAGIC P JOINT Y240* MPOWERJOINT-Y240	240 - 630	240 - 630	95 - 240	50 - 240	95 - 240	50 - 240	95 - 240	50 - 240	65 max		600 x 285

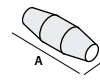
* also for aluminium cables. T: Through - B: Branch





MAGIC POWER JOINT L-S

Straight joint for 0.6/1 kV screened extruded cables.



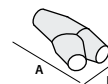
For COPPER cables		Cable formation and conductor cross sections (n° x mm ²)				max cable Ø (mm)	Dimension (mm)
PRODUCT / Item		1x	2x	3x	4x		
MAGIC P JOINT L10-S MPOWERJOINT-L10S		2,5 - 50	1,5 - 10	1,5 - 6	1,5 - 6	8 - 27	180 x 50
MAGIC P JOINT L25-S MPOWERJOINT-L25S		16 - 120	4 - 25	4 - 16	2,5 - 16	8 - 32	215 x 55
MAGIC P JOINT L35-S MPOWERJOINT-L35S		16 - 185	16 - 35	16 - 25	16 - 25	12 - 33	232 x 70
MAGIC P JOINT L50-S MPOWERJOINT-L50S		50 - 240	16 - 50	16 - 50	16 - 50	14 - 34	266 x 72
MAGIC P JOINT L120-S MPOWERJOINT-L120S		240 - 500	70 - 120	70 - 120	50 - 95	25 - 50	365 x 95
MAGIC P JOINT L240-S MPOWERJOINT-L240S		400 - 1000	120 - 300	120 - 185	120 - 185	30 - 75	510 x 120
MAGIC P JOINT L300-S MPOWERJOINT-L300S		630 - 2000	240 - 400	240 - 300	240 - 300	41 - 78	760 x 180

For ALUMINIUM cables		1x	2x	3x	4x	(mm)	(mm)
MAGIC P JOINT L50-S MPOWERJOINT-L50S		16 - 150	16 - 25	16 - 25	16 - 25	14 - 34	266 x 72
MAGIC P JOINT L120-S MPOWERJOINT-L120S		185 - 400	25 - 95	25 - 95	25 - 95	25 - 50	365 x 95
MAGIC P JOINT L240-S MPOWERJOINT-L240S		400 - 630	95 - 185	95 - 185	95 - 185	30 - 75	510 x 120
MAGIC P JOINT L300-S MPOWERJOINT-L300S		630 - 2000	185 - 300	185 - 300	185 - 300	41 - 78	760 x 180



MAGIC POWER JOINT Y-S

Branch joint for 0.6/1 kV screened extruded cables.

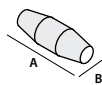


For COPPER cables		Cable formation and conductor cross sections (n° x mm ²)								max cables Ø (mm)		Dimension (mm)
PRODUCT	Item	1x		2x		3x		4x		T	B	
MAGIC P JOINT Y6-S	MPOWERJOINT-Y6S	4 - 35	4 - 35	4 - 10	4 - 10	2,5 - 6	2,5 - 6	2,5 - 6	2,5 - 6	8 - 27	8 - 27	180 x 90
MAGIC P JOINT Y25-S	MPOWERJOINT-Y25S	35 - 120	35 - 120	10 - 25	10 - 25	6 - 16	6 - 16	6 - 16	6 - 10	8 - 32	8 - 32	220 x 105
MAGIC P JOINT Y95-S	MPOWERJOINT-Y95S	95 - 300	70 - 150	25 - 95	16 - 50	16 - 70	16 - 35	16 - 50	10 - 35	15 - 42	8 - 32	315 x 115
MAGIC P JOINT Y240-S*	MPOWERJOINT-Y240S	240 - 630	150 - 630	95 - 240	50 - 240	70 - 240	35 - 240	50 - 240	35 - 240	65 max		600 x 285

* also for aluminium cables. T : Through - B : Branch

MAGIC POWER JOINT L-ARM

Straight joint for 0,6/1 kV extruded cables with tape, wire or plate armouring.



For COPPER cables		Cable formation and conductor cross sections (n° x mm²)			max cables Ø (mm)	Dimension (mm)
PRODUCT / Item		2x	3x	4x		
MAGIC P JOINT L10-ARM MPJOINTL10-ARM		1,5 - 10	1,5 - 6	1,5 - 6	8 - 27	180 x 50
MAGIC P JOINT L25-ARM MPJOINTL25-ARM		4 - 25	4 - 16	2,5 - 16	8 - 32	215 x 55
MAGIC P JOINT L35-ARM MPJOINTL35-ARM		16 - 35	16 - 25	16 - 25	12 - 33	232 x 70
MAGIC P JOINT L50-ARM MPJOINTL50-ARM		16 - 50	16 - 50	16 - 50	14 - 34	266 x 72
MAGIC P JOINT L120-ARM MPJOINTL120-ARM		70 - 120	70 - 120	50 - 95	25 - 50	365 x 95
MAGIC P JOINT L240-ARM MPJOINTL240-ARM		120 - 300	120 - 185	120 - 185	30 - 75	510 x 120
MAGIC P JOINT L300-ARM MPJOINTL300-ARM		240 - 400	240 - 300	240 - 300	41 - 78	760 x 180

For ALUMINIUM cables		2x	3x	4x	(mm)	(mm)
MAGIC P JOINT L50-ARM MPJOINTL50-ARM		16 - 25	16 - 25	16 - 25	14 - 34	266 x 72
MAGIC P JOINT L120-ARM MPJOINTL120-ARM		25 - 95	25 - 95	25 - 95	25 - 50	365 x 95
MAGIC P JOINT L240-ARM MPJOINTL240-ARM		95 - 185	95 - 185	95 - 185	30 - 75	510 x 120
MAGIC P JOINT L300-ARM MPJOINTL300-ARM		185 - 300	185 - 300	185 - 300	41 - 78	760 x 180



MAGIC POWER JOINT Y-ARM

Branch joint for 0,6/1 kV extruded cables with tape, wire or plate armouring.



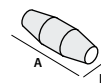
For WIRE armoured COPPER cables		Cable formation and conductor cross sections (n° x mm²)						max cables Ø (mm)		Dimension (mm)
PRODUCT	Item	2x		3x		4x		T	B	
MAGIC P JOINT Y6-ARM-F	MPJOINTY6-ARM-F	4 - 10	4 - 10	2,5 - 6	2,5 - 6	2,5 - 6	2,5 - 6	8 - 27	8 - 27	180 x 90
MAGIC P JOINT Y25-ARM-F	MPJOINTY25-ARM-F	10 - 25	10 - 25	6 - 16	6 - 16	6 - 16	6 - 10	8 - 32	8 - 32	220 x 105
MAGIC P JOINT Y95-ARM-F	MPJOINTY95-ARM-F	25 - 70	16 - 50	25 - 70	16 - 35	25 - 50	10 - 35	15 - 42	8 - 32	315 x 115
MAGIC P JOINT Y240-ARM-F*	MPJOINTY240ARM-F	70 - 240	50 - 240	70 - 240	35 - 240	50 - 240	35 - 240	65 max		600 x 285

For TAPE, WIRE OR PLATE armoured COPPER cables		Cable formation and conductor cross sections (n° x mm²)						max cables Ø (mm)		Dimension (mm)
PRODUCT	Item	2x		3x		4x		T	B	
MAGIC P JOINT Y6-ARM	MPJOINTY6-ARM	4 - 10	4 - 10	2,5 - 6	2,5 - 6	2,5 - 6	2,5 - 6	8 - 27	8 - 27	180 x 90
MAGIC P JOINT Y25-ARM	MPJOINTY25-ARM	10 - 25	10 - 25	6 - 16	6 - 16	6 - 16	6 - 10	8 - 32	8 - 32	220 x 105
MAGIC P JOINT Y95-ARM	MPJOINTY95-ARM	25 - 70	16 - 50	25 - 70	16 - 35	25 - 50	10 - 35	15 - 42	8 - 32	315 x 115
MAGIC P JOINT Y240-ARM*	MPJOINTY240ARM	70 - 240	50 - 240	70 - 240	35 - 240	50 - 240	35 - 240	65 max		600 x 285

* also for aluminium cables. T: Through - B: Branch

MAGIC POWER JOINT-SL

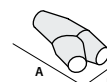
Straight joint for signaling and control multi core extruded 0,6/1 kV cables



PRODUCT	Item	Conductor (mm²)	Cable formation (n° conductors)												max cables Ø (mm)	Dimension (mm)
			5x	7x	10x	12x	16x	19x	24x	40x	75x	100x	250x	500x		
MAGIC P JOINT SL11	MPOWERJOINTSL11	1,5	•	•	•	•	•								8 - 27	180 x 50
		2,5	•	•	•											
MAGIC P JOINT SL12	MPOWERJOINTSL12	1,5			•	•	•	•	•						8 - 32	215 x 55
		2,5			•	•	•	•								
MAGIC P JOINT SL13	MPOWERJOINTSL13	1,5					•	•	•	•					14 - 34	266 x 72
		2,5					•	•	•							
MAGIC P JOINT SL14	MPOWERJOINTSL14	1,5							•	•	•				15 - 42	330 x 75
		2,5							•	•						
MAGIC P JOINT SL15	MPOWERJOINTSL15	1,5								•	•	•			25 - 50	365 x 95
		2,5								•	•					
MAGIC P JOINT SL16	MPOWERJOINTSL16	1,5									•	•	•		30 - 75	510 x 120
		2,5									•	•				
MAGIC P JOINT SL17	MPOWERJOINTSL17	1,5										•	•	•	41 - 78	760 x 180
		2,5										•	•			

MAGIC POWER JOINT-SY

Branch joint for signaling and control multi core extruded 0,6/1 kV cables.

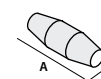


PRODUCT	Item	Conductor (mm²)	Cable formation (n° conductors)												max cables Ø (mm)		Dimension (mm)
			5x	7x	10x	12x	16x	19x	24x	40x	75x	100x	250x	500x	T	B	
MAGIC P JOINT SY1	MPOWERJOINTSY1	1,5	•	•	•	•	•	•							8 - 27	8 - 27	180 x 90
		2,5	•	•	•	•											
MAGIC P JOINT SY2	MPOWERJOINTSY2	1,5					•	•	•						8 - 32	8 - 32	220 x 105
		2,5			•	•	•	•									
MAGIC P JOINT SY3	MPOWERJOINTSY3	1,5						•	•	•	•				15 - 42	8 - 32	315 x 115
		2,5						•	•	•							
MAGIC P JOINT SY4	MPOWERJOINTSY4	1,5								•	•	•	•	•	65 max		600 x 285
		2,5								•	•	•	•				

T: Through - B: Branch

MAGIC POWER JOINT-T e TS

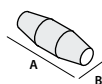
Straight joint for Telecom cables.



UNSCREENED		SCREENED		N° pairs per conductor cross sections (n° x mm²)	max cables Ø (mm)	Dimension (mm)
PRODUCT	Item	PRODUCT	Item			
MAGIC P JOINT T16	MPOWERJOINT-T16	MAGIC P JOINT TS16	MPOWERJOINT-TS16	1 - 16 x 0,5 - 0,6	8 - 27	180 x 50
MAGIC P JOINT T25	MPOWERJOINT-T25	MAGIC P JOINT TS25	MPOWERJOINT-TS25	16 - 25 x 0,5 - 0,6	8 - 32	215 x 55
MAGIC P JOINT T35	MPOWERJOINT-T35	MAGIC P JOINT TS35	MPOWERJOINT-TS35	25 - 35 x 0,5 - 0,6	12 - 33	266 x 72
MAGIC P JOINT T40	MPOWERJOINT-T40	MAGIC P JOINT TS40	MPOWERJOINT-TS40	35 - 40 x 0,5 - 0,6	15 - 42	330 x 75
MAGIC P JOINT T64	MPOWERJOINT-T64	MAGIC P JOINT TS64	MPOWERJOINT-TS64	40 - 64 x 0,5 - 0,6	25 - 50	365 x 95
MAGIC P JOINT T500	MPOWERJOINT-T500	MAGIC P JOINT TS500	MPOWERJOINT-TS500	60 - 500 x 0,5 - 0,6	30 - 75	510 x 120
MAGIC P JOINT T1000	MPOWERJOINT-T1000	MAGIC P JOINT TS1000	MPOWERJOINT-TS1000	450 - 1000 x 0,5 - 0,6	41 - 78	760 x 180

MAGIC POWER JOINT SYSTEM PLUS L

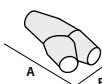
Straight joint + Five-core spacer + Screw connectors.



For COPPER cables	Cable formation and conductor cross sections (n° x mm²)				max cables Ø (mm)	Dimension (mm)
PRODUCT / Item	2x	3x	4x	5x		
MAGIC P JOINT SP L6 MPOWERJSPL6	1,5 - 6	1,5 - 6	1,5 - 6	1,5 - 6	8 - 27	180 x 50
MAGIC P JOINT SP L16 MPOWERJSPL16	4 - 16	4 - 16	4 - 16	4 - 16	8 - 32	215 x 55
MAGIC P JOINT SP L25 MPOWERJSPL25	4 - 25	4 - 25	4 - 25	4 - 25	8 - 32	215 x 65

MAGIC POWER JOINT SYSTEM PLUS Y

Y Branch joint + Five-core spacer + Screw connectors.

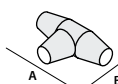


For COPPER cables	Cable formation and conductor cross sections (n° x mm²)								max cables Ø (mm)	Dimension (mm)
PRODUCT / Item	2x		3x		4x		5x			
	T	B	T	B	T	B	T	B		
MAGIC P JOINT SP Y6 MPOWERJSPY6	1,5-6	1,5-4	1,5-6	1,5-4	1,5-6	1,5-4	1,5-6	1,5-4	T 8 - 27 B 8 - 27	180 x 90
MAGIC P JOINT SP Y16 MPOWERJSPY16	4-16	1,5-4	4-16	1,5-4	4-16	1,5-4	4-16	1,5-4	T 8 - 32 B 8 - 32	220 x 105

T : Through - B : Branch

MAGIC POWER JOINT SYSTEM PLUS T

T Branch joint + Four-core spacer + Screw connectors.

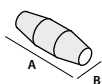


For COPPER cables	Cable formation and conductor cross sections (n° x mm²)						max cables Ø (mm)	Dimension (mm)
PRODUCT / Item	2x		3x		4x			
	T	B	T	B	T	B		
MAGIC P JOINT SP T35 MPOWERJSPT35	6 - 35	1,5 - 10	6 - 35	1,5 - 10	6 - 35	1,5 - 10	P 22 - 42 D 22 - 42	305 x 155

T : Through - B : Branch

MAGIC POWER JOINT SYSTEM FAST RP

Straight joint + Shear bolt connectors.



PRODUCT / Item	Cable formation from 2x to 4x (n° x mm²)		max cables Ø (mm)	Dimension (mm)
MAGIC P JOINT L 35- RP/16 MPOWERJL35RP16	Cu 1,5 - 16	Al 10 - 16	12 - 33	232 x 70
MAGIC P JOINT L 35- RP/35 MPOWERJL35RP35	10 - 35		12 - 33	232 x 70
MAGIC P JOINT L 50- RP/50 MPOWERJL50RP50	25 - 50		14 - 34	266 x 72
MAGIC P JOINT L 120- RP/120 MPOWERJL120RP120	35 - 120		25 - 50	365 x 95
MAGIC P JOINT L 240- RP/150 MPOWERJL240RP150	35 - 150		30 - 75	510 x 120





MAGIC JOINT

Straight or branch joint with Magic Gel filling gel for extruded insulation cables up to 1 kV.

Joints for extruded cables F(R)G7OR 0.6/1 kV. Easy installation, composed of two anti-fracture plastic shells, to be filled with non-toxic quick cross linking two-component insulation with no shelf life, Magic Gel type. Suitable for installation in traps, channels or directly underground or under water. Non-toxic, safe, light and re-enterable. Thanks to the softness of the insulation, they are able to absorb external shock without cracking or fracturing. The extreme stickiness of the insulation, together with its softness allow it to transmit water pressure for installation even at high depths. Thanks to the materials used, joints are completely non-toxic, safe, re-enterable even after long periods of operation.

ADVANTAGES

- ▶ Quick cross linking gel, (only 10 minutes at 23°C) .
- ▶ Extremely adherent and tight sealing.
- ▶ The gel is not-classified as hazardous under the CLP Directive and it has no shelf life.



Electrical performance:

- CEI EN 50393
with connectors complying
with EN 61238-1
- Class 2 in accordance with CEI 64-8.

🔹 Gel: UL 94-HB c  us

🌡 Working temperature: 90°C

🌡 Installation temperature: -15°C / +55°C

🌊 Fully submersible

🔑 Can be used underground

🌿 Halogen-free Gel

IP68



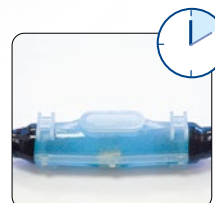
Slip off the separator.



Mix for 20 seconds maximum



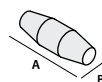
Pour within a minute.



After 10 minutes, Magic joint is ready.

MAGIC JOINT

Straight joint for 0.6/1 kV extruded cables.



For COPPER cables	Cable formation and conductor cross sections (n° x mm²)				max cables Ø (mm)	Dimension (mm)
PRODUCT / Item	1x	2x	3x	4x		
MAGIC JOINT 4 100004-002	1,5 - 25	1,5 - 4	1,5 - 4	1,5 - 4	10 - 18	160 x 45
MAGIC JOINT 10 100001-MAG	2,5 - 50	1,5 - 10	1,5 - 10	1,5 - 10 *	8 - 27	180 x 50
MAGIC JOINT 25 100002-MAG	16 - 150	4 - 25	4 - 25	2,5 - 25	8 - 32	215 x 55
MAGIC JOINT 35 100035-002	16 - 185	16 - 35	16 - 35	16 - 35	12 - 33	232 x 70
MAGIC JOINT 50 100005-MAG	50 - 300	16 - 50	16 - 50	16 - 50	14 - 34	266 x 72
MAGIC JOINT 95 100003-MAG	120 - 400	25 - 95	25 - 95	25 - 95	15 - 42	330 x 75
MAGIC JOINT 120 100007-MAG	240 - 500	70 - 120	70 - 120	50 - 120	25 - 50	365 x 95
MAGIC JOINT 240 100004-MAG	400 - 1000	120 - 300	120 - 240	120 - 240	30 - 75	510 x 120
MAGIC JOINT 300 100009-000	630 - 2000	240 - 400	240 - 300	240 - 300	41 - 78	760 x 180

For ALUMINIUM cables	1x	2x	3x	4x	(mm)	(mm)
MAGIC JOINT 50 100005-MAG	16 - 150	16 - 25	16 - 25	16 - 25	14 - 34	266 x 72
MAGIC JOINT 120 100007-MAG	185 - 400	25 - 95	25 - 95	25 - 95	25 - 50	365 x 95
MAGIC JOINT 240 100004-MAG	400 - 630	95 - 185	95 - 185	95 - 185	30 - 75	510 x 120
MAGIC JOINT 300 100009-000	630 - 2000	185 - 300	185 - 300	185 - 300	41 - 78	760 x 180

* Magic Joint 10 suggested for cable diameters smaller than 16 mm.

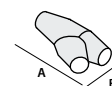


MAGIC JOINT Y

Branch joint for 0.6/1 kV extruded cables.

For COPPER cables	Cable formation and conductor cross sections (n° x mm²)								max cables Ø (mm)		Dimension (mm)
PRODUCT	1x		2x		3x		4x		T	B	
MAGIC JOINT Y6 100006-MAG	4 - 50	4 - 50	4 - 10	4 - 10	2,5 - 6	2,5 - 6	2,5 - 6	2,5 - 6	8 - 27	8 - 27	180 x 90
MAGIC JOINT Y25 100025-MAG	50 - 150	50 - 150	10 - 25	10 - 25	6 - 25	6 - 16	6 - 25	6 - 10	8 - 32	8 - 32	220 x 105
MAGIC JOINT Y95 100095-MAG	120 - 400	95 - 240	25 - 95	16 - 50	25 - 95	16 - 50	25 - 95	10 - 50	15 - 42	8 - 32	315 x 115
MAGIC JOINT Y240* 100240-MAG	240 - 630	240 - 630	95 - 240	50 - 240	95 - 240	50 - 240	95 - 240	50 - 240	65 max		600 x 285

* also for aluminium cables. T: Through - B: Branch



SEAL UP JOINT

NEW


Technical characteristics of shells:

Material:
PP – POLYPROPYLENE
Dielectric strength:
52 kV/mm
Volume resistivity:
10 16 Ω cm
Thermal conductivity:
0,2 W/mK
Operating Temperature:
Up to 120°C



Technical characteristics of the filler resin:

Dielectric strength:
20 kV/mm
Curing time:
15/20 min. at 25°C
Volume resistivity:
2.10 15 Ω cm
Cone penetration:
120 1/10 mm (ASTM D217/C)
Thermal conductivity:
0,2 W/mK
Operating Temperature:
-60/+200°C
Overload temperature for short periods of time:
Up to 250°C
Water absorption after 30 days of immersion:
<< 0,05%

Electrical performance:
• CEI EN 50393
with connectors complying with EN 61238-1
• Class 2 in accordance with CEI 64-8.



Working temperature: 90°C



Installation temperature: -15°C / +55°C

IP68
OFFICIALLY
TESTED | **IMQ**

SEAL UP JOINT

IP68 joint range, for splicing or branching 0.6/1 kV cables, with two-component solid-plastic resin sealant. Ideal for underground and submerged use.

Seal Up Joint is a range consisting of polypropylene shells/casings, a material characterized by excellent chemical resistance, resistant to many polar organic solvents and aqueous solutions containing inorganic salts, acids, strong alkalis, bases, alcohols, aldehydes, ketones, esters, weak acids and alkaline solutions, alcohol and some oils;

- ▶ Low permeability to gases such as carbon dioxide, hydrocarbons and chlorohydrocarbons at low boiling point.
- ▶ Long durability and resistant to abrasion and wear.
- ▶ High load/resistance to dynamic loads.
- ▶ Weather resistant.
- ▶ Good electrical insulator.
- ▶ Good thermal resistance.
- ▶ 100% recyclable.



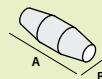
The joints are supplied complete with two-component solid-plastic resin sealant **Seal Up Resin**: a removable, tough resin with high mechanical resistance developed to prevent the penetration of moisture in both electrical and electronic fields.

- ▶ REACH compliant and free of substances classified as hazardous according to the current CLP regulation.
- ▶ Resistant to mold and UV rays.
- ▶ No shelf life.
- ▶ Isocyanate-free resin.



SEAL UP JOINT L

Straight joint for 0.6/1 kV extruded cables.



For COPPER cables	Cable formation and conductor cross sections (n° x mm ²)				max cables Ø (mm)	Dimension (mm)
PRODUCT / Item	1x	2x	3x	4x		
SEALUPJ L10 SEALUPJL10	2,5 - 50	1,5 - 10	1,5 - 10	1,5 - 10 *	8 - 27	180 x 50
SEALUPJ L16/25 SEALUPJL16/25	16 - 150	4 - 25	4 - 25	2,5 - 25	8 - 32	215 x 55
SEALUPJ L35 SEALUPJL35	16 - 185	16 - 35	16 - 35	16 - 35	12 - 33	232 x 70
SEALUPJ L50 SEALUPJL50	50 - 300	16 - 50	16 - 50	16 - 50	14 - 34	266 x 72
SEALUPJ L95 SEALUPJL95	120 - 400	25 - 95	25 - 95	25 - 95	15 - 42	330 x 75
SEALUPJ L120 SEALUPJL120	240 - 500	70 - 120	70 - 120	50 - 120	25 - 50	365 x 95
SEALUPJ L240 SEALUPJL240	400 - 1000	120 - 300	120 - 240	120 - 240	30 - 75	510 x 120

For ALUMINIUM cables	1x	2x	3x	4x	(mm)	(mm)
SEALUPJ L50 SEALUPJL50	16 - 150	16 - 25	16 - 25	16 - 25	14 - 34	266 x 72
SEALUPJ L120 SEALUPJL120	185 - 400	25 - 95	25 - 95	25 - 95	25 - 50	365 x 95
SEALUPJ L 240 SEALUPJL240	400 - 630	95 - 185	95 - 185	95 - 185	30 - 75	510 x 120

* Seal Up Joint L10 suggested for cable diameters smaller than 16 mm.



SEAL UP JOINT D

Branch joint for 0.6/1 kV extruded cables.

For COPPER cables	Cable formation and conductor cross sections (n° x mm²)								max cables Ø (mm)		 Dimension (mm)
PRODUCT / Item	1x		2x		3x		4x		T	B	
SEALUPJ D6 SEALUPJD6	4 - 50	4 - 50	4 - 10	4 - 10	2,5 - 6	2,5 - 6	2,5 - 6	2,5 - 6	8 - 27	8 - 27	180 x 90
SEALUPJ D16/D25 SEALUPJD16-D25	50 - 150	50 - 150	10 - 25	10 - 25	6 - 25	6 - 16	6 - 25	6 - 10	8 - 32	8 - 32	220 x 105
SEALUPJ D95 SEALUPJD95	120 - 400	95 - 240	25 - 95	16 - 50	25 - 95	16 - 50	25 - 95	10 - 50	15 - 42	8 - 32	315 x 115

T : Through - B : Branch



SEAL UP RESIN

PRODUCT / Item	Colour	Package type	Total quantity
SEAL UP RESIN 170 SEALUPRESIN170	●	Two-component single dose bag	170 gr
SEAL UP RESIN 210 SEALUPRESIN210	●	Two-component single dose bag	210 gr
SEAL UP RESIN 420 SEALUPRESIN420	●	Two-component single dose bag	420 gr
SEAL UP RESIN 500 SEALUPRESIN500	●	1 single, two-component bottle	500 gr
SEAL UP RESIN 10K SEALUPRESIN10K	●	5 liter tanks A+B	10 lt
SEAL UP RESIN 200K SEALUPRESIN200K	●	200 liter drums A+B	400 lt



Electrical performance:

- CEI EN 50393
with connectors complying with EN 61238-1
- Class 2 in accordance with CEI 64-8.

 **Working temperature:** 90°C

 **Installation temperature:** 0°C / +45°C

 **Can be used underground**



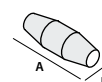
RAY CAST

Straight or branch joint with two-component epoxy resin insulation for 0.6/1 kV cables.

Straight or branch joints for 0.6/1 kV extruded cables: easily installed, composed of two anti-fracture plastic shells, to be filled with two-component epoxy resin such as Rayresin. For installation in traps, channels or directly underground.

RAYCAST L

Straight joint.



For COPPER cables		Cable formation and conductor cross sections (n° x mm²)				max cables Ø (mm)	Dimension (mm)
PRODUCT / Item		1x	2x	3x	4x		
RAYCAST L10 100001-000		2,5 - 50	1,5 - 10	1,5 - 10	1,5 - 10 *	8 - 27	180 x 50
RAYCAST L16/25 100002-000		16 - 150	4 - 25	4 - 25	2,5 - 25	8 - 32	215 x 55
RAYCAST L35 100035-001		16 - 185	16 - 35	16 - 35	16 - 35	12 - 33	232 x 70
RAYCAST L50 100500-000		50 - 300	16 - 50	16 - 50	16 - 50	14 - 34	266 x 72
RAYCAST L95 100095-000		120 - 400	25 - 95	25 - 95	25 - 95	15 - 42	330 x 75
RAYCAST L120 100120-000		240 - 500	70 - 120	70 - 120	50 - 120	25 - 50	365 x 95
RAYCAST L240 100240-000		400 - 1000	120 - 300	120 - 240	120 - 240	30 - 75	510 x 120

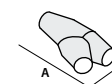
For ALUMINIUM cables		1x	2x	3x	4x	(mm)	(mm)
RAYCAST L50 100500-000		16 - 150	16 - 25	16 - 25	16 - 25	14 - 34	266 x 72
RAYCAST L120 100120-000		185 - 400	25 - 95	25 - 95	25 - 95	25 - 50	365 x 95
RAYCAST L240 100240-000		400 - 630	95 - 185	95 - 185	95 - 185	30 - 75	510 x 120

* Raycast L10 is suggested for cable diameters not exceeding 16 mm.



RAYCAST D

Branch joint.

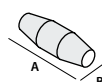


For COPPER cables		Cable formation and conductor cross sections (n° x mm²)								max cables Ø (mm)		Dimension (mm)
PRODUCT / Item		1x		2x		3x		4x		T	B	
RAYCAST D6 100006-000		4 - 50	4 - 50	4 - 10	4 - 10	2,5 - 6	2,5 - 6	2,5 - 6	2,5 - 6	8 - 27	8 - 27	180 x 90
RAYCAST D16/D25 100016-000		50 - 150	50 - 150	10 - 25	10 - 25	6 - 25	6 - 16	6 - 25	6 - 10	8 - 32	8 - 32	220 x 105
RAYCAST D95 100095-001		120 - 400	95 - 240	25 - 95	16 - 50	25 - 95	16 - 50	25 - 95	10 - 50	15 - 42	8 - 32	315 x 115

T : Through - B : Branch

RAYCAST L-S

Screened joint.



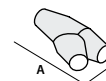
For COPPER cables		Cable formation and conductor cross sections (n° x mm²)				max cables Ø (mm)	Dimension (mm)
PRODUCT / Item		1x	2x	3x	4x		
RAYCAST L10-S 100001-005		2,5 - 50	1,5 - 10	1,5 - 6	1,5 - 6	8 - 27	180 x 50
RAYCAST L25-S 100025-005		16 - 120	4 - 25	4 - 16	2,5 - 16	8 - 32	215 x 55
RAYCAST L35-S 100035-005		16 - 185	16 - 35	16 - 25	16 - 25	12 - 33	232 x 70
RAYCAST L50-S 100050-005		50 - 240	16 - 50	16 - 50	16 - 50	14 - 34	266 x 72
RAYCAST L120-S 100120-005		240 - 500	70 - 120	70 - 120	50 - 95	25 - 50	365 x 95
RAYCAST L240-S 100240-055		400 - 1000	120 - 300	120 - 185	120 - 185	30 - 75	510 x 120

For ALUMINIUM cables		1x	2x	3x	4x	(mm)	(mm)
RAYCAST L50-S 100050-005		16 - 150	16 - 25	16 - 25	16 - 25	14 - 34	266 x 72
RAYCAST L120-S 100120-005		185 - 400	25 - 95	25 - 95	25 - 95	25 - 50	365 x 95
RAYCAST L240-S 100240-055		400 - 630	95 - 185	95 - 185	95 - 185	30 - 75	510 x 120



RAYCAST D-S

Screened joint.



For COPPER cables		Cable formation and conductor cross sections (n° x mm²)								max cables Ø (mm)		Dimension (mm)
PRODUCT / Item		1x		2x		3x		4x		T	B	
RAYCAST D6-S 100006-005		T	B	T	B	T	B	T	B	T	B	180 x 90
RAYCAST D25-S 100017-005		4 - 35	4 - 35	4 - 10	4 - 10	2,5 - 6	1,5 - 6	2,5 - 6	2,5 - 6	8 - 27	8 - 27	220 x 105
RAYCAST D95-S 100950-005		35 - 120	35 - 120	10 - 25	10 - 25	6 - 16	6 - 16	6 - 16	6 - 10	8 - 32	8 - 32	315 x 115
		95 - 300	70 - 150	25 - 95	16 - 50	16 - 70	16 - 35	16 - 50	10 - 35	15 - 42	8 - 32	



T : Through - B : Branch



RAYCAST L-ARM

Joint for tape, wire or plate armoured cables.



For COPPER cables		Cable formation and conductor cross sections (n° x mm²)			max cables	Dimension
PRODUCT / Item		2x	3x	4x	Ø (mm)	(mm)
RAYCAST L10-ARM 100001-001		1,5 - 10	1,5 - 6	1,5 - 6	8 - 27	180 x 50
RAYCAST L25-ARM 100002-002		4 - 25	4 - 16	2,5 - 16	8 - 32	215 x 55
RAYCAST L35-ARM 100035-ARM		16 - 35	16 - 25	16 - 25	12 - 33	232 x 70
RAYCAST L50-ARM 100003-001		16 - 50	16 - 50	16 - 50	14 - 34	266 x 72
RAYCAST L120-ARM 100120-002		70 - 120	70 - 120	50 - 95	25 - 50	365 x 95
RAYCAST L240-ARM 100240-LARM		120 - 300	120 - 185	120 - 185	30 - 75	510 x 120
For ALUMINIUM cables		2x	3x	4x	(mm)	(mm)
RAYCAST L50-ARM 100003-001		16 - 25	16 - 25	16 - 25	14 - 34	266 x 72
RAYCAST L120-ARM 100120-002		25 - 95	25 - 95	25 - 95	25 - 50	365 x 95
RAYCAST L240-ARM 100240-LARM		95 - 185	95 - 185	95 - 185	30 - 75	510 x 120



RAYCAST D-ARM

Joint for tape, wire or plate armoured cables.

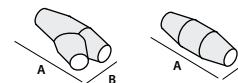


For COPPER cables		Cable formation and conductor cross sections (n° x mm²)						max cables Ø		
PRODUCT / Item		2x		3x		4x		(mm)		(mm)
		T	B	T	B	T	B	T	B	
RAYCAST D6-ARM-F 100006-002		4 - 10	4 - 10	2,5 - 6	2,5 - 6	2,5 - 6	2,5 - 6	8 - 27	8 - 27	180 x 90
RAYCAST D16-ARM-F 100016-002		10 - 25	10 - 25	6 - 16	6 - 16	6 - 16	6 - 10	8 - 32	8 - 32	220 x 105
RAYCAST D95-ARM-F 100095-003		25 - 70	16 - 50	25 - 70	16 - 35	25 - 50	10 - 35	15 - 42	8 - 32	315 x 115
For TAPE OR PLATE armoured		2x		3x		4x		(mm)		(mm)
		T	B	T	B	T	B	T	B	
RAYCAST D6-ARM 100006-001		4 - 10	4 - 10	2,5 - 6	2,5 - 6	2,5 - 6	2,5 - 6	8 - 27	8 - 27	180 x 90
RAYCAST D16-ARM 100016-001		10 - 25	10 - 25	6 - 16	6 - 16	6 - 16	6 - 10	8 - 32	8 - 32	220 x 105
RAYCAST D95-ARM 100095-004		25 - 70	16 - 50	25 - 70	16 - 35	25 - 50	10 - 35	15 - 42	8 - 32	315 x 115

T: Through - B: Branch

RAYCAST LPS / DPS

Joint for very deep submersible pumps.



For **COPPER** cables

PRODUCT	Item	Cable formation and conductor cross sections (n° x mm ²)				max cables Ø (mm)	 (mm)
		1x	2x	3x	4x		
RAYCAST LPS10	100010-LPS	2,5 - 50	1,5 - 10	1,5 - 10	1,5 - 10	8 - 27	180 x 50
RAYCAST LPS25	100025-LPS	16 - 150	4 - 25	4 - 25	2,5 - 25	8 - 32	215 x 55
RAYCAST LPS95	100095-LPS	120 - 400	25 - 95	25 - 95	25 - 95	15 - 42	330 x 75
RAYCAST LPS240	100240-LPS	400 - 1000	120 - 300	120 - 240	120 - 240	30 - 75	510 x 120

For **COPPER** cables

PRODUCT		1x		2x		3x		4x		(mm)		(mm)
	Item	T	B	T	B	T	B	T	B	T	B	
RAYCAST DPS6	100006-DPS	4- 50	4- 50	4- 10	4- 10	2,5- 6	2,5- 6	2,5- 6	2,5- 6	8- 27	8- 27	180 x 90
RAYCAST DPS25	100025-DPS	50- 150	50- 150	10- 25	10- 25	6- 25	6- 16	6- 16	6- 10	8- 32	8- 32	220 x 105
RAYCAST DPS95	100095-DPS	120- 400	95- 240	25- 95	16- 50	25- 95	16- 50	25- 95	10- 50	15- 42	8- 32	315 x 115

T: Through - B: Branch

RAYCAST SL /SD

Joint for signalling and control.

		Conductor (mm²)	Cable formation (n° conductors)												max cables Ø (mm)	
PRODUCT	Item		5x	7x	10x	12x	16x	19x	24x	40x	75x	100x	250x	(mm)		
RAYCAST SL11	100011-OSL	1,5 2,5	• •	• •	• •	• •	• •							8 - 27	180 x 50	
RAYCAST SL12	100012-OSL	1,5 2,5			• •	• •	• •	• •						8 - 32	215 x 55	
RAYCAST SL13	100013-OSL	1,5 2,5					• •	• •	• •	• •				14 - 34	266 x 72	
RAYCAST SL14	100014-OSL	1,5 2,5							• •	• •	• •			15 - 42	330 x 75	
RAYCAST SL15	100015-OSL	1,5 2,5								• •	• •	• •		25 - 50	365 x 95	
RAYCAST SL16	100016-OSL	1,5 2,5									• •	• •	• •	30 - 75	510 x 120	

		Conductor (mm²)	Cable formation (n° conductors)										max cables Ø (mm)		 (mm)
PRODUCT	Item		5x	7x	10x	12x	16x	19x	24x	40x	75x	T	B		
RAYCAST SD1	100001-OSD	1,5	•	•	•	•	•	•				8 - 27	8 - 27	180 x 90	
		2,5	•	•	•	•									
RAYCAST SD2	100002-OSD	1,5					•	•	•			8 - 32	8 - 32	220 x 105	
		2,5			•	•	•	•	•						
RAYCAST SD3	100003-OSD	1,5						•	•	•	•	15 - 42	8 - 32	315 x 115	
		2,5						•	•	•	•				

T: Through - B: Branch

RAYCAST TL AND TSL

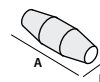
Straight joint for telephone cable.

UNSCREENED		SCREENED		N° pairs per conductor cross sections (n° x mm ²)	max cables Ø (mm)	 Dimension (mm)
PRODUCT	Item	PRODUCT	Item			
RAYCAST TL16	100016-OTL	RAYCAST TSL16	100016-TSL	1 - 16 x 0,5 - 0,6	8 - 27	180 x 50
RAYCAST TL25	100025-OTL	RAYCAST TSL25	100025-TSL	16 - 25 x 0,5 - 0,6	8 - 32	215 x 55
RAYCAST TL35	100035-OTL	RAYCAST TSL35	100035-TSL	25 - 35 x 0,5 - 0,6	12 - 33	266 x 72
RAYCAST TL40	100040-OTL	RAYCAST TSL40	100040-TSL	35 - 40 x 0,5 - 0,6	15 - 42	330 x 75
RAYCAST TL64	100064-OTL	RAYCAST TSL64	100064-TSL	40 - 64 x 0,5 - 0,6	25 - 50	365 x 95
RAYCAST TL500	100500-OTL	RAYCAST TSL500	100500-TSL	60 - 500 x 0,5 - 0,6	30 - 75	510 x 120



RAYCAST SYSTEM PLUS L

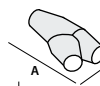
Straight joint + Five-core spacer + Screw connectors.



PRODUCT / Item	Cable formation and conductor cross sections (n° x mm²)				max cables Ø (mm)	Dimension (mm)
	2x	3x	4x	5x		
RAYCAST SP L6 RAYCASTSPL6	1,5 - 6	1,5 - 6	1,5 - 6	1,5 - 6	8 - 27	180 x 50
RAYCASTSP L16 RAYCASTSPL16	4 - 16	4 - 16	4 - 16	4 - 16	8 - 32	215 x 55
RAYCASTSP L25 RAYCASTSPL25	4 - 25	4 - 25	4 - 25	4 - 25	8 - 32	215 x 65

RAYCAST SYSTEM PLUS Y

Y Branch joint + Five-core spacer + Screw connectors.

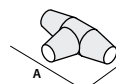


For COPPER cables	Cable formation and conductor cross sections (n° x mm²)								max cables Ø (mm)	 (mm)
PRODUCT / Item	2x		3x		4x		5x			
	T	B	T	B	T	B	T	B		
RAYCAST SP D6 RAYCASTSPD6	1,5-6	1,5-4	1,5-6	1,5-4	1,5-6	1,5-4	1,5-6	1,5-4	T 8 - 27 B 8 - 27	180 x 90
RAYCAST SP D16 RAYCASTSPD16	4-16	1,5-4	4-16	1,5-4	4-16	1,5-4	4-16	1,5-4	T 8 - 32 B 8 - 32	220 x 105

T : Through - B : Branch

RAYCAST SYSTEM PLUS T

T Branch joint + Four-core spacer + Screw connectors.

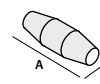


For COPPER cables	Cable formation and conductor cross sections (n° x mm²)						max cables Ø (mm)	
PRODUCT / Item	2x		3x		4x			
	T	B	T	B	T	B		
RAYCAST SP T 35 RAYCASTSPT35	6 - 35	1,5 - 10	6 - 35	1,5 - 10	6 - 35	1,5 - 10	T 22 - 42 B 22 - 42	305 x 155

T : Through - B : Branch

RAYCAST SYSTEM FAST RP

Straight joint + Shear bolt connectors.



PRODUCT / Item	Cable formation from 2x a 4x (n° x mm²)	max cables Ø (mm)	Dimension (mm)
RAYCAST L 35- RP/16 RAYCASTL35RP16	1,5 - 16	12 - 33	232 x 70
RAYCAST L 35- RP/35 RAYCASTL35RP35	10 - 35	12 - 33	232 x 70
RAYCAST L 50- RP/50 RAYCASTL50RP50	25 - 50	14 - 34	266 x 72
RAYCAST L 120- RP/120 RAYCASTL120RP120	35 - 120	25 - 50	365 x 95
RAYCAST L 240- RP/150 RAYCASTL240RP150	35 - 150	30 - 75	510 x 120

RUBBER JOINT

Straight or branch joint with two-component cast quick cross linking rubber insulation for 0.6/1 kV cables.

With Magic Rubber insulation, designed and developed by Raytech for 0.6/1 kV cables. A range of accessories with extremely high mechanical characteristics, as well as dielectric and thermal properties. The range is re-enterable even after long periods of operation, is free of exotherm during cross linking, is extremely fast-acting and has no shelf life. Significant also for its very low emission of toxic and corrosive gases and fumes. Thanks to its exceptional mechanical characteristics, these joints are especially suitable for placement in traps or channels where there is the possibility of handling even after the laying of cables or, however, in cases of heavy abrasion, or mechanical stress within the normal parameters of installation and operation.

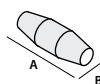
ADVANTAGES

- Quick cross linking rubber (only 15 minutes).
- Very high mechanical and elastic characteristics.
- For 0.6/1 kV extruded cables.
- No shelf life.



RUBBER JOINT

Straight joint for 0.6/1 kV extruded cables.



For COPPER cables	Cable formation and conductor cross sections (n° x mm²)				max cables	Dimension
PRODUCT / Item	1x	2x	3x	4x	Ø (mm)	(mm)
RUBBER JOINT 4 RUBBERJOINT4	1,5 - 25	1,5 - 4	1,5 - 4	1,5 - 4	10 - 18	160 x 45
RUBBER JOINT 10 RUBBERJOINT10	2,5 - 50	1,5 - 10	1,5 - 10	1,5 - 10 *	8 - 27	180 x 50
RUBBER JOINT 25 RUBBERJOINT25	16 - 150	4 - 25	4 - 25	2,5 - 25	8 - 32	215 x 55
RUBBER JOINT 35 RUBBERJOINT35	16 - 185	16 - 35	16 - 35	16 - 35	12 - 33	232 x 70
RUBBER JOINT 50 RUBBERJOINT50	50 - 300	16 - 50	16 - 50	16 - 50	14 - 34	266 x 72
RUBBER JOINT 95 RUBBERJOINT95	120 - 400	25 - 95	25 - 95	25 - 95	15 - 42	330 x 75
RUBBER JOINT 120 RUBBERJOINT120	240 - 500	70 - 120	70 - 120	50 - 120	25 - 50	365 x 95
RUBBER JOINT 240 RUBBERJOINT240	400 - 1000	120 - 300	120 - 240	120 - 240	30 - 75	510 x 120
RUBBER JOINT 300 RUBBERJOINT300	630 - 2000	240 - 400	240 - 300	240 - 300	41 - 78	760 x 180

* Rubber Joint 10 suggested for cable diameters smaller than 16 mm.



Electrical performance:

- CEI EN 50393
- with connectors complying with EN 61238-1
- Class 2 in accordance with CEI 64-8.

Working temperature: 90°C

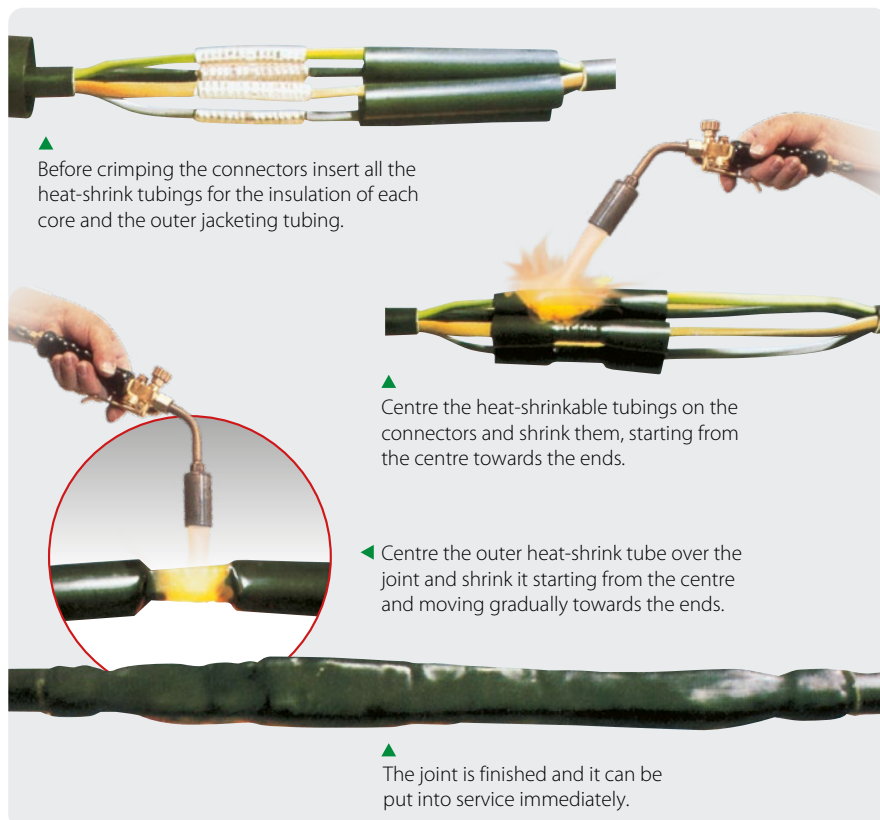
Installation temperature: -15°C / +55°C

Can be used underground

IP68

HEAT-SHRINK

Straight or branch heat-shrinkable joints for extruded insulation cables up to a 1 kV.



Electrical performance:

- CEI EN 50393
with connectors complying with EN 61238-1
- Class 2 in accordance with CEI 64-8.

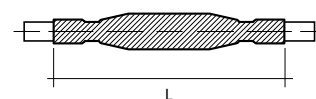
🔧 Working temperature: 90°C

🔧 Installation temperature: -15°C / +45°C

GDL

Joint for single core cables including concentric neutral.

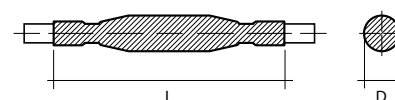
PRODUCT / Item	Conductor cross section mm ²		Dimension L (mm)
	from	to	
GDL 92 A1 224578-TEC	4	10	300
GDL 92 A2 945252-TEC	16	150	300
GDL 92 A3 935251-000	185	400	300
GDL 92 PA 210254-TEC	10	50	300



GLV

Joint for multi core cables (also for submersible pumps).

PRODUCT / Item	Conductor cross section mm ²		Number of phases	Dimension	
	from	to		L (mm)	D (mm)
GLV 0306 254656-TEC	1,5	6	3	250	18
GLV 0316 224477-TEC	10	16	3	400	37
GLV 0335 554268-TEC	25	35	3	550	43
GLV 0370 457896-TEC	50	70	3	650	52
GLV 3150 789992-000	95	150	3	800	65
GLV 3300 789994-000	185	300	3	900	82
GLV 0406 336598-TEC	1,5	6	4	250	20
GLV 0416 789890-000	10	16	4	400	40
GLV 0435 789891-000	25	35	4	650	45
GLV 0470 234477-TEC	50	70	4	650	54
GLV 4150 482979-000	95	150	4	800	67
GLV 4300 609695-000	185	300	4	900	84
GLV 2,5 - CP 411124-TEC	2,5 complete with connectors		4	300	15

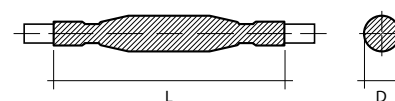


For both copper and aluminium cables. For aerial, underground, submerged installation.

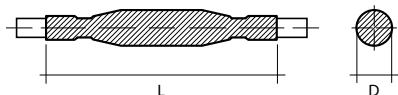
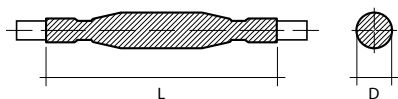
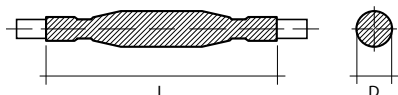
GLV-N

Joint for multi core cables with concentric neutral.

PRODUCT / Item	Conductor cross section mm ²		Number of phases	Dimension	
	from	to		L (mm)	D (mm)
GLV 0306 - N 788459-000	1,5	6	3	250	18
GLV 0316 - N 788429-000	10	16	3	400	37
GLV 0335 - N 788460-000	25	35	3	550	43
GLV 0370 - N 788461-000	50	70	3	650	52
GLV 3150 - N 788462-000	95	150	3	800	65
GLV 3300 - N 210054-TEC	185	300	3	900	82
GLV 0406 - N 789995-000	1,5	6	4	250	20
GLV 0416 - N 789996-000	10	16	4	400	40
GLV 0435 - N 789997-000	25	35	4	650	45
GLV 0470 - N 789998-000	50	70	4	650	54
GLV 4150 - N 405718-000	95	150	4	800	67
GLV 4300 - N 788463-000	185	300	4	900	84



These kits include components for the phase insulation, metallic braiding to replace the neutral and external self-sealing heat-shrinkable tube.



GLV-ARM

Joint for armoured multi core cables.

For armoured tape cables		Conductor cross section (mm ²)		Dimension	
PRODUCT / Item		from	to	L (mm)	D (mm)
GLV 0406-ARM	788969-000	1,5	6	300	25
GLV 0416-ARM	307689-000	6	16	400	40
GLV 0450-ARM	630855-000	25	50	800	60
GLV 4150-ARM	378703-000	70	150	1000	100
GLV 4300-ARM	152410-000	185	300	1000	120

BOPA

Joint for MV cables for public lighting.

PRODUCT / Item	Operating voltage kV	Number of phases	Section (mm ²)	Dimension	
				L (mm)	D (mm)
BOPA 3 BOPA3-TEC	3	1	1x10	300	50
BOPA 4 BOPA4-TEC	3	2	2x10	450	60
BOPA 5 BOPA5-TEC	3	3	3x10	450	70
BOPA 3/2 BOPA3/2-TEC	3,6	1 + concentric neutral	1 x 6 + 6 concentric	700	35
BOPA 4/T transition 784472-TEC	3	2	2,5 - 10 paper / 10 - 50 extruded	750	40

DJ

LV branch joint.

PRODUCT / Item	Single core cables cross section (mm ²)		Multi core cables cross section (mm ²)		Dimension	
	Through	Branch	Through	Branch	L (mm)	D (mm)
DJ01 416127-000	1 x 4 - 50	1 x 2,5 - 50	4 x 1,5 - 10	2 x 1,5	200	25
DJ02 396633-000	1 x 50 - 120	1 x 6 - 120	4 x 16 - 25 2 single core cables 1 x 6 - 50	2 x 1,5 1 two core cable 2 x 2,5	250	40
DJ03 396634-000	1 x 150 - 300	1 x 6 - 300	4 x 25 - 3,5 x 50	4 x 2,5 - 25	400	70

GLV SYSTEM FAST RP

Straight joint + Shear bolt connectors.

PRODUCT / Item		Cable formation 4x (n° x mm ²)	Dimension L x D (mm)
GLV 0435- RP/16	GLV0435RP16	6 - 16	650 x 50
GLV 0470- RP/35	GLV0470RP35	25 - 35	650 x 70
GLV 0470- RP/50	GLV0470RP50	25 - 50	650 x 75
GLV 4150- RP/150	GLV4150RP150	50 - 150	800 x 80

GLV F/R - GMP F/R

Joint for flame resistant cables (0,6/1 kV).

For NAVAL TYPE POWER cables

UNARMoured	Cable formation (n° x mm ²)	L (mm)	ARMoured	Cable formation (n° x mm ²)	L (mm)
PRODUCT / Item			PRODUCT / Item		
GLV 4004-F/R GLV4004-F/R	4 x 1,5 - 4	300	GLV 4004-ARM-F/R GLV4004-ARM-F/R	4 x 1,5 - 4	400
GLV 4016-F/R GLV4016-F/R	4 x 6 - 16	300	GLV 4016-ARM-F/R GLV4016-ARM-F/R	4 x 6 - 16	400
GLV 4050-F/R GLV4050-F/R	4 x 25 - 50	400	GLV 4050-ARM-F/R GLV4050-ARM-F/R	4 x 25 - 50	500
GLV 4150-F/R GLV4150-F/R	4 x 70 - 150	500	GLV 4150-ARM-F/R GLV4150-ARM-F/R	4 x 70 - 150	750

For NAVAL TYPE signalling and control cables

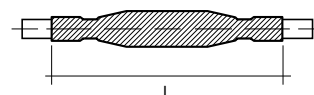
UNARMoured	Cable formation (n° x mm ²)	L (mm)	ARMoured	Cable formation (n° x mm ²)	L (mm)
PRODUCT / Item			PRODUCT / Item		
GMP 007-F/R GMP007-F/R	4 - 7 x 1,5 - 2,5	300	GMP 007-ARM-F/R GMP007-ARM-F/R	4 - 7 x 1,5 - 2,5	300
GMP 014-F/R GMP014-F/R	10 - 14 x 1,5 - 2,5	300	GMP 014-ARM-F/R GMP014-ARM-F/R	10 - 14 x 1,5 - 2,5	300
GMP 030-F/R GMP030-F/R	16 - 30 x 1,5 - 2,5	400	GMP 030-ARM-F/R GMP030-ARM-F/R	16 - 30 x 1,5 - 2,5	400

For UNDERGROUND POWER cables

UNARMoured	Cable formation (n° x mm ²)	L (mm)	ARMoured	Cable formation (n° x mm ²)	L (mm)
PRODUCT / Item			PRODUCT / Item		
GLV 4006-F/R-G7 GLV4006-F/R-G7	4 x 1,5 - 6	300	GLV 4006-ARM-F/R-G7 GLV4006-ARM-F/R-G7	4 x 1,5 - 6	400
GLV 4016-F/R-G7 GLV4016-F/R-G7	4 x 6 - 16	300	GLV 4016-ARM-F/R-G7 GLV4016-ARM-F/R-G7	4 x 6 - 16	400
GLV 4050-F/R-G7 GLV4050-F/R-G7	4 x 25 - 50	400	GLV 4050-ARM-F/R-G7 GLV4050-ARM-F/R-G7	4 x 25 - 50	500
GLV 4150-F/R-G7 GLV4150-F/R-G7	4 x 70 - 150	500	GLV 4150-ARM-F/R-G7 GLV4150-ARM-F/R-G7	4 x 70 - 150	750

For UNDERGROUND signalling and control cables

UNARMoured	Cable formation (n° x mm ²)	L (mm)	ARMoured	Cable formation (n° x mm ²)	L (mm)
PRODUCT / Item			PRODUCT / Item		
GMP 014-F/R-G7 GMP014-F/R-G7	Up to 14 x 1,5 - 2,5	300	GMP 014-ARM-F/R-G7 GMP014-ARM-F/R-G7	Up to 14 x 1,5 - 2,5	400
GMP 019-F/R-G7 GMP019-F/R-G7	Up to 19 x 1,5 - 2,5	400	GMP 019-ARM-F/R-G7 GMP019-ARM-F/R-G7	Up to 19 x 1,5 - 2,5	500



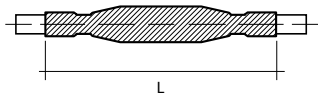
Electrical performance:

- **CEI EN 50393**
with connectors complying with **EN 61238-1**
- **Class 2** in accordance with **CEI 64-8**.

No flame propagation:

IEC 60331-21 • CEI 20-36/2-1
(as applicable).

For other formations and cable sections please contact Raytech.



DJ F/R

Branch joint for flame resistant cables (0,6/1 kV).

For POWER cables

UNARMoured		ARMoured		Cable formation (n° x mm²)		L (mm)
PRODUCT / Item		PRODUCT / Item		Through	Branch	
DJ 4016 - F/R DJ4016FR		DJ 4016 - ARM-F/R DJ4016-ARM-FR		3 - 4 x 1,5 - 16	3 - 4 x 1,5 - 16	300

GMP

Joining kits for multi conductor cables
for signalling, command and control.

NON ARMoured cable		N° of conductors		Section mm²		External Ø of cable	
PRODUCT / Item		from	to	from	to	min (mm)	max (mm)
GMP 007	786768-000	4	7	1,0	2,5	8	19
GMP 014	666635-TEC	8	14	1,0	2,5	12	22
GMP 021	786272-000	15	21	1,0	2,5	15	27
GMP 040	786684-000	22	40	1,0	2,5	20	35
GMP 075	786683-000	41	75	1,0	2,5	26	44
GMP 100	786688-000	76	100	1,0	2,5	26	60

ARMoured cable		N° of conductors		Section mm²		External Ø of cable	
PRODUCT / Item		from	to	from	to	min (mm)	max (mm)
GMP 007-A	786686-000	4	7	1,0	2,5	14	23
GMP 014-A	786687-000	8	14	1,0	2,5	15	26
GMP 021-A	786785-000	15	21	1,0	2,5	24	35
GMP 040-A	786356-000	22	40	1,0	2,5	30	45
GMP 075-A	786689-000	41	75	1,0	2,5	39	55

GMC

Joining kits for multi pair cables
for communication, command and control.

NON ARMoured cable		N° of pairs		Section mm²		External Ø of cable	
PRODUCT / Item		from	to	from	to	min (mm)	max (mm)
GMC 010	939629-000	5	10	2 x 0,6	2 x 1,0	9	14
GMC 020	786828-000	11	20	2 x 0,6	2 x 1,0	13	20
GMC 030	946619-000	21	30	2 x 0,6	2 x 1,0	16	24
GMC 050	934676-000	31	50	2 x 0,6	2 x 1,0	22	29
GMC 100	156732-000	51	100	2 x 0,6	2 x 1,0	30	40

ARMoured cable		N° of pairs		Section mm²		External Ø of cable	
PRODUCT / Item		from	to	from	to	min (mm)	max (mm)
GMC 004-A	802965-000	1	4	2 x 0,6	2 x 1,0	15	23
GMC 007-A	786769-000	5	7	2 x 0,6	2 x 1,0	15	26
GMC 019-A	803162-000	8	19	2 x 0,6	2 x 1,0	24	35
GMC 037-A	786412-000	20	37	2 x 0,6	2 x 1,0	30	45
GMC 061-A	786355-000	38	61	2 x 0,6	2 x 1,0	39	55

HEAT-SHRINK TERMINATIONS

TLV

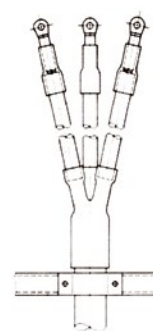
Terminations for armoured and non armoured extruded cables up to 1 kV.

NON ARMoured extruded cables

PRODUCT / Item	
TLV 0216	946613-000
TLV 0316	496973-000
TLV 0416	288775-000
TLV 0250	101526-000
TLV 0350	786134-000
TLV 0450	786200-000
TLV 3150	786220-000
TLV 4150	597107-000
TLV 3300	208159-000
TLV 4300	063097-000

Extruded cables with WIRE ARMOUR

PRODUCT / Item		Conductor section mm ²		Number of phases
		from	to	
TLV 0216 - AF	106391-000	4	16	2
TLV 0316 - AF	178316-000	4	16	3
TLV 0416 - AF	121775-000	4	16	4
TLV 0250 - AF	024865-000	25	50	2
TLV 0350 - AF	179335-000	25	50	3
TLV 0450 - AF	868777-000	25	50	4
TLV 3150 - AF	181196-000	70	150	3
TLV 4150 - AF	223409-000	70	150	4
TLV 3300 - AF	181097-000	185	300	3
TLV 4300 - AF	803719-000	185	300	4
TLV 4500 - AF	915556-000	500		4

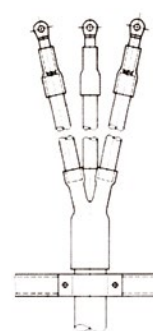


Include sheath to cover phases, sealing of the point of divergence of phases and sealing between phase and cable terminal.

TLV 500

Terminations for concentric neutral extruded cables up to 1 kV.

PRODUCT / Item		Conductor section mm ²		Number of phases
		from	to	
TLV 0116 - 500	181198-000	4	16	1
TLV 0216 - 500	181198-001	4	16	2
TLV 0316 - 500	816659-000	4	16	3
TLV 0150 - 500	181198-002	25	50	1
TLV 0250 - 500	181198-003	25	50	2
TLV 0350 - 500	828617-000	25	50	3
TLV 2150 - 500	179925-000	70	150	2
TLV 3150 - 500	181198-004	70	150	3
TLV 2300 - 500	181198-005	185	300	2
TLV 3300 - 500	909765-000	185	300	3

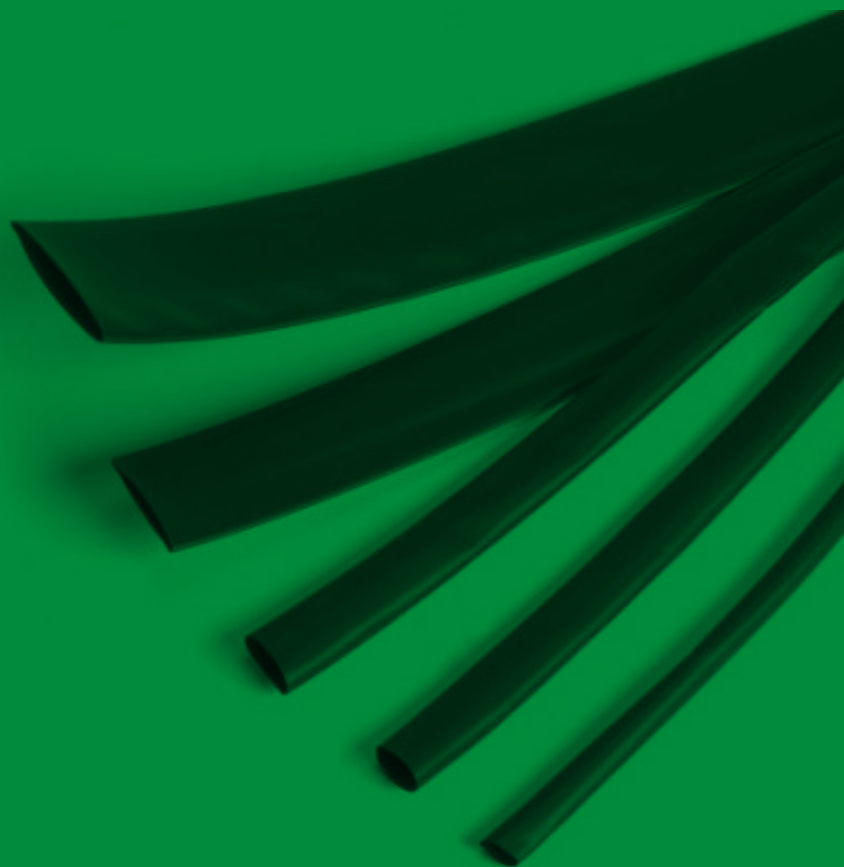


Include sheath to cover the concentric conductor.



**LOW VOLTAGE
OTHERS**

**HEAT-SHRINK SHEATHS
INSULATION TAPES
CABLE PULLERS
FIRE STOP BARRIERS
SPECIALS**





🌡️ Operating temperature: -55°C / +125°C

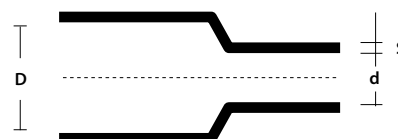
Tensile resistance	10,4 Min
Elongation	200 % Min
Tensile resistance after ageing	7,3 Min
Elongation after ageing	100 % Min
Dielectric strength	20 kV/mm
Flammability	VW1*
Minimum shrinkage temperature	110°C

* except transparent sheath.

THIN-WALL SHEATHS

Flexible heat-shrink modified polyolefin sheaths, cross linked by means of radiation. Longitudinal shortening up to 15%. Suitable for insulation and covering of conductors and their connections, bars. etc. Replace self-adhesive, self-amalgamating insulating tapes.

- Black
- Red
- Blue
- Yellow
- White
- ⊙ Transparent
- Yellow Green



D = min. Ø before shrinkage

d = max. Ø after free shrinkage

S = min. rated thickness after free shrinkage (+/- 20%)



LST-TEC

Heat-shrink sheaths in dispensers for commercial use.

PRODUCT	Item	Colour	D (mm)	d (mm)	S (mm)	Lenght (m)
LST-TEC 1,6 *	6635996003	●	1,6	0,8	0,50	10
LST-TEC 2,4 *	7284836003	●	2,4	1,2	0,55	10
LST-TEC 3,2 *	0316676003	●	3,2	1,6	0,55	10
LST-TEC 4,8 *	3876656003	●	4,8	2,4	0,55	9
LST-TEC 6,4 *	3363736003	●	6,4	3,2	0,65	8
LST-TEC 9,5 *	0915756003	●	9,5	4,8	0,65	6
LST-TEC 12,7 *	1963796004	●	12,7	6,4	0,65	6
LST-TEC 19,0 *	9601076004	●	19,0	9,5	0,80	5
LST-TEC 25,4 *	2348536003	●	25,4	12,7	0,95	3
LST-TEC-GV 3/1,5	5038106035	●	3	1,5	0,51	7
LST-TEC-GV 4,8/2,4	5038815824	●	4,8	2,4	0,55	10
LST-TEC-GV 6/3	5038606049	●	6	3	0,58	5
LST-TEC-GV 10/5	5038816019	●	10	5	0,64	4
LST-TEC-GV 12/6	5038812764	●	12	6	0,65	7
LST-TEC-GV 19/9	5038496027	●	19	9	0,74	3
LST-TEC-GV 26/13	5038186026	●	26	16	0,89	2,5

* Also available in blue colour ● in red colour ● - See codes on page 126



RAY ROLL

Heat-shrink sheaths in dispensers for industrial use.

PRODUCT	Item	Colour	D (mm)	d (mm)	S (mm)	Lenght (m)
RAY ROLL 1,6	RAYROLL-1.6	●	1,6	0,8	0,50	20
RAY ROLL 2,4	RAYROLL-2.4	●	2,4	1,2	0,55	20
RAY ROLL 3,2	RAYROLL-3.2	●	3,2	1,6	0,55	10
RAY ROLL 4,8	RAYROLL-4.8	●	4,8	2,4	0,55	10
RAY ROLL 6,4	RAYROLL-6.4	●	6,4	3,2	0,65	10
RAY ROLL 9,5	RAYROLL-9.5	●	9,5	4,8	0,65	10
RAY ROLL 12,7	RAYROLL-12.7	●	12,7	6,4	0,65	10
RAY ROLL 19,0	RAYROLL-19.0	●	19,0	9,5	0,80	5
RAY ROLL 25,4	RAYROLL-25.4	●	25,4	12,7	0,95	5

MAXI ROLL

Heat-shrink sheaths in maxi dispensers for industrial use.

PRODUCT	Item	Colour	D (mm)	d (mm)	S (mm)	Spool (m)
MAXI ROLL 1,6	MAXIROLL-1.6	●	1,6	0,8	0,50	300
MAXI ROLL 2,4	MAXIROLL-2.4	●	2,4	1,2	0,55	300
MAXI ROLL 3,2	MAXIROLL-3.2	●	3,2	1,6	0,55	300
MAXI ROLL 4,8	MAXIROLL-4.8	●	4,8	2,4	0,55	150
MAXI ROLL 6,4	MAXIROLL-6.4	●	6,4	3,2	0,65	75
MAXI ROLL 9,5	MAXIROLL-9.5	●	9,5	4,8	0,65	150
MAXI ROLL 12,7	MAXIROLL-12.7	●	12,7	6,4	0,65	150
MAXI ROLL 19,0	MAXIROLL-19.0	●	19,0	9,5	0,80	75
MAXI ROLL 25,4	MAXIROLL-25.4	●	25,4	12,7	0,95	60

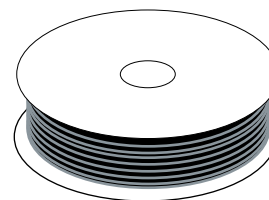


CGP-TEC

Heat-shrink sheaths for commercial use.

PRODUCT	Item	Colour	D (mm)	d (mm)	S (mm)	Spool (m)
CGP-TEC 1,2/0,6	5069794007	●	1,2	0,6	0,45	600
CGP-TEC 1,6/0,8	5069804009	●	1,6	0,8	0,45	300
CGP-TEC 2,4/1,2	5069814012	●	2,4	1,2	0,50	300
CGP-TEC 3,2/1,6	5069824023	●	3,2	1,6	0,50	300
CGP-TEC 4,8/2,4	5069834023	●	4,8	2,4	0,50	150
CGP-TEC 6,4/3,2	5069844021	●	6,4	3,2	0,65	75
CGP-TEC 9,5/4,8	5069854021	●	9,5	4,8	0,65	150
CGP-TEC 12,7/6,4	5069864018	●	12,7	6,4	0,65	150
CGP-TEC 19/9,5	5069874011	●	19,0	9,5	0,75	75
CGP-TEC 25,4/12,7	5069884015	●	25,4	12,7	0,90	60
CGP-TEC 38/19	5069894005	●	38,0	19,0	1,00	60
CGP-TEC 51/26	5069904003	●	51,0	26	1,15	30
CGP-TEC 76/38	5067104003	●	76,0	38,0	1,27	15
CGP-TEC 102/51	5067164001	●	102,0	51,0	1,40	15

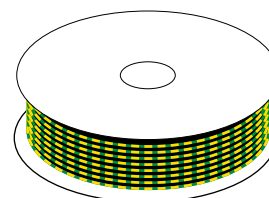
Also available in Red, Blue, Yellow, White, Transparent colours ●●●○Ⓢ - See codes on page 126



DCP-TEC

Heat-shrink sheaths suitable for coating grounding cables.

PRODUCT	Item	Colour	D (mm)	d (mm)	S (mm)	Spool (m)
DCP-TEC 3/1,5	5038104002	●	3,0	1,5	0,51	300
DCP-TEC 6/3	5038604008	●	6,0	3,0	0,58	75
DCP-TEC 10/5	5038814001	●	10,0	5,0	0,64	75
DCP-TEC 12/6	5038114002	●	12,0	6,0	0,64	75
DCP-TEC 19/9	5038494001	●	19,0	9,0	0,74	75
DCP-TEC 26/13	5038184001	●	26,0	13,0	0,89	30
DCP-TEC 38/19	5673904001	●	38,0	19,0	1,00	60



 **Operating temperature:** -55°C / +125°C

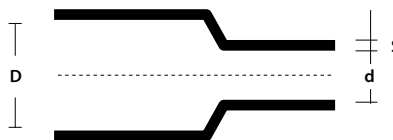
Tensile resistance	10,4 Min
Elongation	200 % Min
Tensile resistance after ageing	7,3 Min
Elongation after ageing	100 % Min
Dielectric strength	20 kV/mm
Flammability	VW1*
Minimum shrinkage temperature	110°C

* except transparent sheath.

SHEATHS IN BARS

Flexible heat-shrink modified polyolefin sheaths, cross linked by means of radiation. Longitudinal shortening up to 15%. Suitable for insulation and covering of conductors and their connections, bars. etc. Replace self-adhesive, self-amalgamating insulating tapes.

- Black
- Red
- Blue
- Yellow
- White
- ⊕ Transparent
- Yellow Green

 **Minimum shrinkage temperature:** 125°C


D = min. Ø before shrinkage

d = max. Ø. after free shrinkage

S = min. rated thickness after free shrinkage (+/- 20%)



RDCT-B

Yellow green tube for general use in bars.

Shrinkage ratio **2:1**

PRODUCT	Item	Colour	D (mm)	d (mm)	S (mm)	Bars (m)
RDCT-B 3/1,5	315002-BAR	●	3,0	1,5	0,51	1,2
RDCT-B 6/3	630045-BAR	●	6,0	3,0	0,58	1,2
RDCT-B 10/5	105004-BAR	●	10,0	5,0	0,64	1,2
RDCT-B 12/6	126040-BAR	●	12,0	6,0	0,64	1,2
RDCT-B 19/9	199550-BAR	●	19,0	9,0	0,74	1,2
RDCT-B 26/13	261345-BAR	●	26,0	13,0	0,89	1,2



RGPO-B

Tube for general use in bars.

Shrinkage ratio **2:1**

PRODUCT	Item	Colour	D (mm)	d (mm)	S (mm)	Bars (m)
RGPO-B 2,4/1,2	241200-BAR	●	2,4	1,2	0,50	1,2
RGPO-B 3,2/1,6	321600-BAR	●	3,2	1,6	0,50	1,2
RGPO-B 4,8/2,4	482400-BAR	●	4,8	2,4	0,50	1,2
RGPO-B 6,4/3,2	643200-BAR	●	6,4	3,2	0,65	1,2
RGPO-B 9,5/4,8	954800-BAR	●	9,5	4,8	0,65	1,2
RGPO-B 12,7/6,4	127640-BAR	●	12,7	6,4	0,65	1,2
RGPO-B 19/9,5	199500-BAR	●	19,0	9,5	0,75	1,2
RGPO-B 25,4/12,7	254120-BAR	●	25,4	12,7	0,90	1,2
RGPO-B 38/19	381900-BAR	●	38,0	19,0	1,00	1,2
RGPO-B 51/26	512600-BAR	●	51,0	26	1,15	1,2

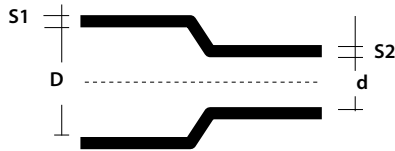
Shrinkage ratio **3:1**

RGPO-B-3/1-NERO	RGPOB-3/1-N	●	3,0	1,0	0,50	1,2
RGPO-B-4,5/1,5-NERO	RGPOB-4.5/1.5-N	●	4,5	1,5	0,60	1,2
RGPO-B-6/2-NERO	RGPOB-6/2-N	●	6,0	2,0	0,65	1,2
RGPO-B-9/3-NERO	RGPOB-9/3-N	●	9,0	3,0	0,75	1,2
RGPO-B-12/4-NERO	RGPOB-12/4-N	●	12,0	4,0	0,80	1,2
RGPO-B-18/6-NERO	RGPOB-18/6-N	●	18,0	6,0	0,90	1,2
RGPO-B-24/8-NERO	RGPOB-24/8-N	●	24,0	8,0	1,00	1,2
RGPO-B-39/13-NERO	RGPOB-39/13-N	●	39,0	13,0	1,20	1,2

Also available in Red, Blue, White, Transparent colours ● ● ○ ⊕ - See codes on page 126

RAY-TUM

Sheaths in bars with adhesive.



D = min. Ø before shrinkage
d = max. Ø after free shrinkage
S1 = rated thickness as supplied
S2 = min. rated thickness after free shrinkage

Shrinkage ratio **3:1**

PRODUCT	Item	Colour	D (mm)	d (mm)	S ₂ (mm)	S ₁ (mm)	Bars (m)
RAY-TUM-3/1-0	5504062059	●	3	1	1,00	0,5	1,2
RAY-TUM-6/2-0	5509092033	●	6	2	1,00	0,5	1,2
RAY-TUM-9/3-0	5507832055	●	9	3	1,40	0,6	1,2
RAY-TUM-12/4-0	5509102048	●	12	4	1,75	0,7	1,2
RAY-TUM-19/6-0	5067452035	●	19	6	2,25	0,8	1,2
RAY-TUM-24/8-0	5509112040	●	24	8	2,50	1,0	1,2
RAY-TUM-40/13-0	5509122053	●	40	13	2,50	1,0	1,2

Operating temperature: -55°C / +125°C

Tensile resistance	10,4 MPa min
Elongation	200 % min
Tensile resistance after ageing	7,3 MPa min
Elongation after ageing	100 % min
Thermal shock 4h a 250°C	No-drip No breaking
Flexibility at low temperature (1h a -30°C)	No breaking
Dielectric strength	Min 15,8 kV/mm
Resistance to fluids (lubricant oil, hydraulic fluid, diesel)	

THERMO MINI MIX

Pre-cut heat-shrink sheaths kit.

Ready-for-installation heat-shrink sheaths in a practical, multi-compartment box divided by diameter. Indispensable for Electrical systems, as a replacement for taped insulation, wiring of all types, switchboards, Hi-Fi, hobbies, DIY.

ADVANTAGES

- Wide range of diameters and colours.
- Always ready, quick application.
- Flexible.

BLACK COLOUR PRODUCT	MIXED COLOURS PRODUCT	Ø before and after shrinkage (mm)	Length of sheath (mm)	Pieces for box
THERMO MINI MIX-N THERMOMIN-N	THERMO MINI MIX-MC THERMOMIN-MC	1,0 / 0,5	97	60
		2,0 / 1,0	97	40
		3,0 / 1,5	97	30
		4,5 / 2,25	97	20
		6,0 / 3,0	97	10
		9,0 / 4,5	97	10





D = min. Ø before shrinkage
d = max. Ø after free shrinkage
S1 = rated thickness as supplied
S2 = min. rated thickness after free shrinkage

Operating temperature: -55°C / +125°C

Tensile resistance	12 MPa min
Elongation	350% min
Tensile resistance after ageing	12 MPa
Elongation after ageing	300% min
Dielectric strength	12 kV/mm min
Minimum shrinkage temperature	125°C

HF Halogen Free

MEDIUM-WALL SHEATHS

Heat-shrink modified polyolefin sheaths, cross linked by means of radiation for insulation, sealing and LV component protection. It is in fact used for restoring insulation and for the outer covering of LV cables and wherever optimal mechanical characteristics are required for resistance to impact, abrasion, general weathering including UV radiation, or for use in under water environments. Used for the insulation of bars or naked LV connections with optimal mechanical resistance for sealing, especially if used with hot-melt adhesive, and for anti-corrosion protection. Also replaces self-adhesive and self-amalgamating tapes.

MTR	WITH ADHESIVE	WITHOUT ADHESIVE	Applications by Ø		D (mm)	d (mm)	S ₁ (mm)	S ₂ (mm)
	Item	Item	from (mm)	to (mm)				
MTR 10/3*	488809-000	854745-000	3,5	9,0	10	3	0,3	1,0
MTR 16/5*	925679-000	411365-000	5,5	14,0	16	5	0,3	1,4
MTR 25/8*	717783-000	082743-000	8,5	22,0	25	8	0,4	2,0
MTR 35/12*	064641-000	089407-000	13,0	32,0	35	12	0,4	2,0
MTR 50/16*	046911-000	738765-000	17,5	45,0	50	16	0,5	2,0
MTR 63/19*	223993-000	644113-000	21,0	57,0	63	19	0,6	2,4
MTR 75/22*	237137-000	605711-000	24,0	68,0	75	22	0,6	2,7
MTR 85/25*	727282-000	917867-000	28,0	77,0	85	25	0,6	2,8
MTR 95/29*	498559-000	355919-000	32,0	86,0	95	29	0,7	3,1
MTR 115/34*	827835-000	036893-000	37,0	104,0	115	34	0,7	3,1
MTR 140/42*	891939-000	149759-000	46,0	126,0	140	42	0,7	3,1
MTR 160/55*	474381-000	938745-000	55,0	144,0	160	55	0,7	3,2
MTR 180/60*	323497-000	827643-000	66,0	162,0	180	60	0,7	3,2

* Complete the item code adding the length (in mm), adhesive (/172) or without adhesive (/U).

MTN

Suitable for submersible pumps

WITH ADHESIVE		Applications by Ø		D (mm)	d (mm)	S ₁ (mm)	S ₂ (mm)
PRODUCT	Item	from (mm)	to (mm)				
MTN 10/3*	MTN1031000172	3,5	9,0	10	3	0,3	1,0
MTN 16/5*	MTN1651000172	5,5	14,0	16	5	0,3	1,4
MTN 25/8*	MTN2581000172	8,5	22,0	25	8	0,4	2,0
MTN 35/12*	MTN35121000172	13,0	32,0	35	12	0,4	2,0
MTN 50/16*	MTN50161000172	17,5	45,0	50	16	0,5	2,0
MTN 63/19*	MTN63191000172	21,0	57,0	63	19	0,6	2,4
MTN 75/22*	MTN75221000172	24,0	68,0	75	22	0,6	2,7
MTN 85/25*	MTN85251000172	28,0	77,0	85	25	0,6	2,8
MTN 95/29*	MTN95291000172	32,0	86,0	95	29	0,7	3,1
MTN 115/34*	MTN115341000172	37,0	104,0	115	34	0,7	3,1

* Complete the item code adding the length (in mm).

HEAVY-WALL SHEATHS

RAY-CSM heat-shrink tubular sheath is very thick and has been designed for uses requiring exceptional mechanical characteristics. Its ideal field of application is in underwater or directly underground environments, or where exceptional resistance to abrasion and impact is required, but also outstanding resistance to weathering, including UV radiation, for sealing, especially if used with hot-melt adhesive, and for anti-corrosion protection.

RAY-CSM

PRODUCT	Item	Applications by Ø		D	d	S ₁	S ₂
		from (mm)	to (mm)	(mm)	(mm)	(mm)	(mm)
Ray-CSM 12/3*	672693-000	3,5	10	12	3	0,8	2,0
Ray-CSM 16/4*	542973-000	4,5	14	16	4	0,9	2,4
Ray-CSM 24/6*	050119-000	6,5	22	24	6	1,0	2,7
Ray-CSM 34/8*	453083-000	9	31	34	8	1,3	4,0
Ray-CSM 48/12*	582237-000	13	44	48	12	1,5	4,5
Ray-CSM 56/16*	898079-000	17,5	50	56	16	1,5	4,4
Ray-CSM 70/21*	862223-000	22	63	70	21	1,4	4,4
Ray-CSM 90/25*	862225-000	27	81	90	25	1,3	4,3
Ray-CSM 110/30*	934589-000	33	100	110	30	1,2	4,3
Ray-CSM 130/36*	833598-000	38	118	130	36	1,2	4,3
Ray-CSM 160/50*	430277-000	55	144	160	50	1,0	4,3
Ray-CSM 180/50*	237977-000	55	162	180	50	1,0	4,3

* Complete the item code adding the length (mm), adhesive (/172).

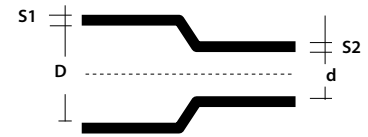
WRAP AROUND

Wrap around heat-shrink sheath for repairing plastic or metal cable sheaths. It combines the previously seen mechanical, protective and sealing properties of tubular junctions with easy of application and closing. Indispensable when cable cutting is not possible. Does not require pre-insertion, reducing the space necessary for its application.

RAY-RSM

	1000	1500	Ø Cable (mm)		D	d
PRODUCT	Item	Item	from	to	(mm)	(mm)
Ray-RSM 34/10*	406345-000	240699-000	12	21	34	10
Ray-RSM 53/13*	279727-000	505955-000	15	32	53	13
Ray-RSM 84/20*	953639-000	219483-000	23	50	84	20
Ray-RSM 107/29*	395359-000	546145-000	34	65	107	29
Ray-RSM 143/36*	002611-000	091525-000	42	86	143	36
Ray-RSM 198/55*	318575-000	247637-000	62	120	198	55
Ray-RSM 250/98*	595947-000	247698-000	111	150	250	98

* Complete the item code adding the length (mm) and adhesive (/232).

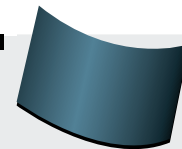


D = min. Ø before shrinkage
d = max. Ø after free shrinkage
S₁ = rated thickness as supplied
S₂ = min. rated thickness after free shrinkage

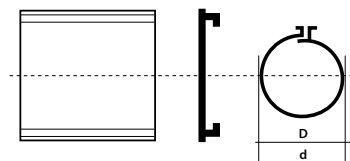
Operating temperature: -55°C / +125°C

Tensile resistance	12 MPa min
Elongation	350% min
Tensile resistance after ageing	12 MPa
Elongation after ageing	300% min
Dielectric strength	12 kV/mm min
Minimum shrinkage temperature	125°C

HF Halogen Free



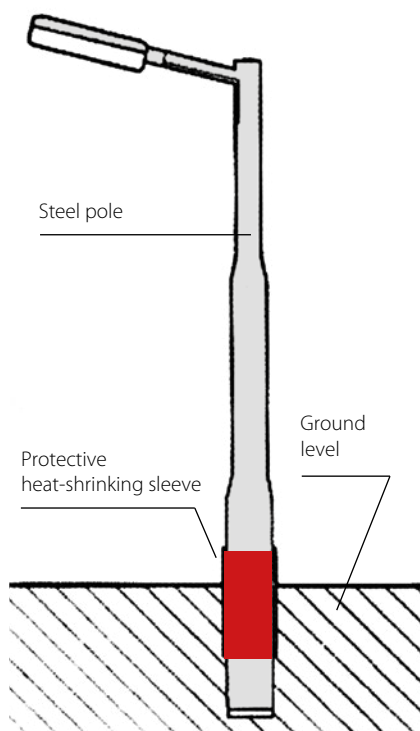
WRAP
AROUND



D = min. Ø before shrinkage
d = max. Ø after free shrinkage

Tensile resistance	17 MPa (min)
Elongation	350 % (min)
Density	1,0-1,2 g/cm ³
Hardness	50-70 Shore D
Thermal duration	120°C
Flexibility at low temperature	4h a -40°C Non-crackin
Dielectric strength	Wall 1 mm 180 kV/cm Wall 3,5 mm 120 kV/cm

HF Halogen Free



ANTI-CORROSION POLE PROTECTION

On installed poles, the section most vulnerable to corrosion is right above and below ground. This section is attacked by corrosive agents that cause a rapid decay of the metal with a significant reduction of the operating life of the pole. Special heat-shrinking sheaths are suitable for the rust protection of public lighting and electric traction poles, traffic lights and traffic signs. They are composed of very thick cross linked polyolefin. The inside of the tubes and the ends are covered in a suitable thermal fuse adhesive that ensures perfect sealing without allowing moisture to enter.

ADVANTAGES

- ▶ Ultra adhesive.
- ▶ Excellent electrical properties.
- ▶ Good chemical resistance.
- ▶ Resistant to mould and micro-organisms.
- ▶ Constant protection against stray electrical currents.
- ▶ Easy application.
- ▶ Long-term stability of all properties.



WPCT

Open ends complete with closing pieces for already installed poles.

PRODUCT / Item	End height (mm)	Package roll (m)	Code for closing piece for pole diameter	
			Up to 450 mm	Over 450 mm
WPCT-17X100-RL WPCT17X100-RL	450	30	WPCP-IV-4X17 WPCP-IV-4X17	WPCP-IV-6X17 WPCP-IV-6X17
WPCT-24X100-RL WPCT24X100-RL	600	30	WPCP-IV-4X24 WPCP-IV-4X24	WPCP-IV-6X24 WPCP-IV-6X24

Closing pieces sold separately



LTPSM

Tubular sleeve for poles for installation.

PRODUCT / Item	Diameter before/after shrinkage (mm)	Sleeve length (mm)
LTPSM 180/58-500 LTPSM180/58-500	180/58	500
LTPSM 245/80-500 LTPSM245/80-500	245/80	500

SELF-SEALING CAP

Self-sealing heat-shrink cap with adhesive for sealing cable heads.

D = Ø min. before shrinkage
d = Ø max. after free shrinkage
S / L1 = min. rated size after free shrinkage



PRODUCT	Item	Ø Cable from (mm) to (mm)		D (mm)	d (mm)	S (±20% mm)	L1 (±10% mm)
RAYL011	334969-000	4	8	12	4,0	2,0	40
RAYL022	821617-000	8	17	20	6	2,3	55
RAYL033	692333-000	17	30	35	16	3,0	83
RAYL044	547889-000	30	45	55	26	3,3	103
RAYL048	068743-000	45	65	75	36	3,3	120
RAYL055	190805-000	65	95	100	52	3,8	140
RAYL066	855203-000	95	115	120	60	3,8	150



HF Halogen Free

Tensile resistance		12 MPa (min)
Elongation		200 % (min)
Density		0,9-1,2 g/cm³
Hardness		50-70 Shore D
Accelerated ageing (7 days at 150°C)	Tensile resistance	12 Mpa (min)
	Ultimate elongation	200% (min)
Flexibility at low temperature		4h a -40°C Non-cracking
Water absorption		0,5% max after 24h a 23°C

SELF-SEALING TERMINATION



PRODUCT	LV cable conductor (mm²)		D1 (mm)	d1 (mm)	S1 ±20% (mm)	D2 (mm)	d2 (mm)	S2 ±20% (mm)	L1 ±10% (mm)	L2 ±10% (mm)
	from	to								
RayK333 324253-000	4	16	22	8	2	9	3,5	2	55	18
RayK224 522347-000	25	70	40	16	2	15	7,5	2	125	35
RayK466 556514-001	95	185	60	23	2,5	25	7,5	2,5	155	45



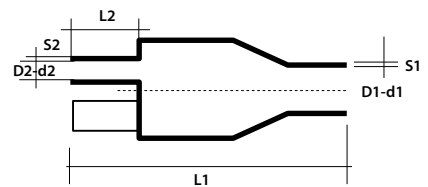
PRODUCT	LV cable conductor (mm²)		D1 (mm)	d1 (mm)	S1 ±20% (mm)	D2 (mm)	d2 (mm)	S2 ±20% (mm)	L1 ±10% (mm)	L2 ±10% (mm)
	from	to								
RayW533 443425-000	4	35	38	17	2,7	14	4,5	2,5	98	23
RayW516 519411-000	50	150	60	25	3	25	8	2,5	165	50
RayW526 395067-000	185	300	80	38	3,5	35	11	3,5	185	55
RayW248 102022-TEC	185	500	110	50	4,0	46	17,5	3,5	250	65



PRODUCT	LV cable conductor (mm²)		D1 (mm)	d1 (mm)	S1 ±20% (mm)	D2 (mm)	d2 (mm)	S2 ±20% (mm)	L1 ±10% (mm)	L2 ±10% (mm)
	from	to								
RayK033 645763-000	4	35	42	15	2,3	14	3,5	1,9	105	26
RayK046 747267-000	50	70	55	21	3,1	20	5	2,5	150	40
RayK016 119983-000	95	150	65	26	3,5	26	7	2,9	175	45
RayK026 017847-000	185	300	102	47	3,9	38	12	3	198	58

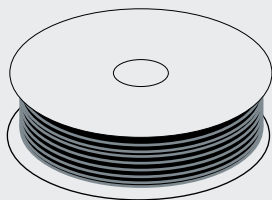


HF Halogen Free



D = min. Ø before shrinkage
d = max. Ø after free shrinkage
S1 / S2 = min. rated size after free shrinkage
L1 / L2 = min. rated size after free shrinkage

Tensile resistance		10,5 MPa (min)
Elongation		300 % (min)
Density		1,0-1,3 g/cm³
Hardness		50-70 Shore D
Accelerated ageing (7 days at 150°C)	Tensile resistance	8,5 Mpa (min)
	Ultimate elongation	100% (min)
Flexibility at low temperature		4h a -40°C Nessuna cricca
Water absorption		0,5% max after 14 days at 23°C

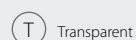
OTHER AVAILABLE
COLOURS

LST-TEC



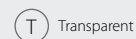
PRODUCT	Item	Item
LST-TEC 1,6	5068276019	LSTTEC16-ROS
LST-TEC 2,4	5068286021	LSTTEC24-ROS
LST-TEC 3,2	5068296023	LSTTEC32-ROS
LST-TEC 4,8	5068306020	LSTTEC48-ROS
LST-TEC 6,4	5068316033	LSTTEC64-ROS
LST-TEC 9,5	5068326022	LSTTEC95-ROS
LST-TEC 12,7	5068336020	LSTTEC127-ROS
LST-TEC 19,0	5068346012	LSTTEC190-ROS
LST-TEC 25,4	5068356017	LSTTEC254-ROS

CGP-TEC



PRODUCT	Item	Item	Item	Item	Item
CGP-TEC 1,2/0,6	5069674009	5069674010	5069674011	5069914004	5069674008
CGP-TEC 1,6/0,8	5068034005	5068274004	5068154005	5069924005	5069684005
CGP-TEC 2,4/1,2	5068044005	5068284006	5068164005	5069934006	5069694007
CGP-TEC 3,2/1,6	5068054008	5068294010	5068174005	5069944006	5069704005
CGP-TEC 4,8/2,4	5068064006	5068304007	5068184005	5069954004	5069714007
CGP-TEC 6,4/3,2	5068074011	5068314009	5068194012	5069964007	5069724010
CGP-TEC 9,5/4,8	5068084007	5068324006	5068204006	5069974006	5069734006
CGP-TEC 12,7/6,4	5068094006	5068334005	5068214005	5069984005	5069744004
CGP-TEC 19/9,5	5068104006	5068344005	5068224005	5069944004	5069754005
CGP-TEC 25,4/12,7	5068114005	5068354006	5068234005	5068384005	5069764008
CGP-TEC 38/19	5068124001	5068364001	5068244001	5068004001	5068364005
CGP-TEC 51/26	5068134001	5068374001	5068254001	226598-TEC	5069784002
CGP-TEC 76/38	5067104002	889754-TEC	5067144001	230701-000	763800-TEC
CGP-TEC 102/51	5067204002	5068204003	5067204001	254199-TEC	5067214001

RGPO-B



PRODUCT	Item	Item	Item	Item
RGPO-B 2,4/1,2	241202-BAR	241206-BAR	241209-BAR	241201-BAR
RGPO-B 3,2/1,6	321602-BAR	321606-BAR	321609-BAR	321601-BAR
RGPO-B 4,8/2,4	482402-BAR	482806-BAR	482009-BAR	482401-BAR
RGPO-B 6,4/3,2	643202-BAR	643206-BAR	643209-BAR	643201-BAR
RGPO-B 9,5/4,8	954802-BAR	954806-BAR	954809-BAR	954801-BAR
RGPO-B 12,7/6,4	127642-BAR	127646-BAR	127649-BAR	127641-BAR
RGPO-B 19/9,5	199502-BAR	199506-BAR	199509-BAR	199501-BAR
RGPO-B 25,4/12,7	254722-BAR	254726-BAR	254129-BAR	254721-BAR
RGPO-B 38/19	381902-BAR	381906-BAR	381909-BAR	381901-BAR
RGPO-B 51/26	-	-	512609-BAR	-
RGPO-B-3/1	RGPOB-3/1-R	RGPOB-3/1-B	RGPOB-3/1-W	RGPOB-3/1-T
RGPO-B-4,5/1,5	RGPOB-4.5/1.5-R	RGPOB-4.5/1.5-B	RGPOB-4.5/1.5-W	RGPOB-4.5/1.5-T
RGPO-B-6/2	RGPOB-6/2-R	RGPOB-6/2-B	RGPOB-6/2-W	RGPOB-6/2-T
RGPO-B-9/3	RGPOB-9/3-R	RGPOB-9/3-B	RGPOB-9/3-W	RGPOB-9/3-T
RGPO-B-12/4	RGPOB-12/4-R	RGPOB-12/4-B	RGPOB-12/4-W	RGPOB-12/4-T
RGPO-B-18/6	RGPOB-18/6-R	RGPOB-18/6-B	RGPOB-18/6-W	RGPOB-18/6-T
RGPO-B-24/8	RGPOB-24/8-R	RGPOB-24/8-B	RGPOB-24/8-W	RGPOB-24/8-T
RGPO-B-39/13	RGPOB-39/13-R	RGPOB-39/13-B	RGPOB-39/13-W	RGPOB-39/13-T

INSULATION TAPES



SELF-ADHESIVE TAPES IN PVC

RAYTEAM

Self-adhesive for general use



RAYTECH SUPER 3-3

Self-adhesive for low and high temperatures



SELF-AMALGAMATING

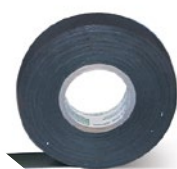
RAYTECH 2.3

EPR insulation tape



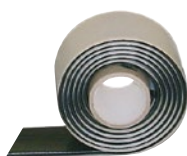
RAYTECH 23 BT

LV insulation tape



RAYTEFILL

Heavy duty insulation tape



RAYTECH 7-0

Silicone insulation tape



SPECIAL TAPES

RAYCOPPER

Copper braid tape



MCA-FV

Self-adhesive fibreglass tape



MCA-ALL

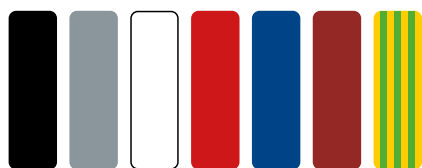
Self-adhesive aluminium tape





VDE marking

Complies with standards CEI 60454 (EN60454)



Available colours: black, grey, white, red, blue, brown, yellow/green.
Contact Raytech for other sizes and thicknesses.

Property	Typical values
Breaking Strength (tensile)	30 N/cm min
Elongation at break	> 170 %
Adhesion to steel	1,8 N/cm
Adhesion to backing	1,8 N/cm
Self-extinguishing	Self-extinguishing
Operating temperature	-10°C / +90°C
Electric strength after exposure to damp environment	40 kV/mm min

RAYTEAM

Self-adhesive tape for general use.

PVC adhesive tape for electrical applications and mechanical protection for general use. Recommended for insulating low-voltage joints and for covering cables, accessories and products in general. It is self-extinguishing and does not propagate fire. Excellent resistance to ageing, exposure to weather conditions, hydrocarbons and chemical solvents in general.

PRODUCT	Item	Item	Thickness	Width	Length
RAYTEAM 1925/13	270913-000	270913-008	0,13 mm	19 mm	25 m
RAYTEAM 1510/13	021513-000	021513-008		15 mm	10 m
RAYTEAM 1925	012141-000	012141-004	0,15 mm	19 mm	25 m
RAYTEAM 1510	021514-000	021514-006		15 mm	10 m
RAYTEAM 1525	270999-000	270999-008		15 mm	25 m
RAYTEAM 2525	280999-000	280997-000		25 mm	25 m

PRODUCT	Item	Item	Item	Item	Item
RAYTEAM 1925/13	270913-005	270913-002	270913-006	270913-001	270913-045
RAYTEAM 1510/13	021513-009	021513-002	021513-006	-	021513-045
RAYTEAM 1925	012141-007	012141-001	012141-002	012141-005	012141-003
RAYTEAM 1510	021514-004	021514-001	021514-002	021514-007	021514-003
RAYTEAM 1525	270999-009	270999-002	270999-006	-	270999-045
RAYTEAM 2525	280998-000	-	-	-	-

RAYTEAM K20

20 RAYTEAM TAPES
+ 3 MT MEASURING TAPE
INCLUDED



PRODUCT / Item

RAYTEAM K20
RAYTEAM-K20

Description

20 RAYTEAM 1925 PVC adhesive tapes dimension: 0,15 mm x 19 mm x 25 m + measuring tape in ABS with retractable belt clip and lanyard.

RAYTECH SUPER 3-3

Self-adhesive tape for use at low and high temperatures.

PVC adhesive tape with excellent electrical and mechanical properties for a wide range of working temperatures. This tape is particularly suitable for use at low temperatures and in all weather conditions, including the most extreme. The tape is flame retardant and self-extinguishing. It is recommended as the primary insulation for joints up to 0.6/1 kV, and as the outer covering for joints and other products, and for all applications at low temperatures.

PRODUCT / Item	Colour	Width	Thickness	Length
RAYTECH SUPER 3-3 3-3061-00-13	●	19 mm	0,18 mm	20 m

Complies with standards
CEI 60454 (EN60454)



Property	Typical values
Breaking Strength (tensile)	35 N/cm min
Elongation at break	180 %
Adhesion to steel	> 1,8 N/cm
Adhesion to backing	> 1,8 N/cm
Self-extinguishing	Self-extinguishing
Temperatura d'esercizio	-18°C / 105°C
Electric Strength after exposure to damp environment	40 kV/mm min

RAYTECH 2.3

EPR Self-amalgamating tape low and high voltage tape.

This ethylene-propylene (EPR) self-amalgamating tape is used for insulating and sealing high voltage electrical joints for voltages up to Um 72 kV. It amalgamates rapidly, adapting itself to the product underneath, forming a solid unit without air bubbles. It is particularly resistant to partial discharges (corona), with the characteristics remaining unchanged with time. Joints must be protected with a PVC tape or similar.

PRODUCT / Item	Colour	Width	Thickness	Length
RAYTECH 2.3 3-2001-00-13	●	19 mm	0,76 mm	9 m



Property	Typical values
Breaking Strength (tensile)	2.2 MPa min
Elongation at break	800% min
Overload temperature	130°C
Operating temperature	90°C
Dielectric strength	38 kV/mm min
Volume resistivity	10 ¹⁵ Ω cm min
Resistance to ozone	Positive
Resistance to U.V.	Positive

RAYTECH 23 BT

Low voltage Self-amalgamating tape.

This rubber self-amalgamating low voltage tape (0.6/1 kV) is used for insulating and sealing low voltage electrical joints. It amalgamates rapidly, adapting itself to the product underneath, forming a solid unit. The joints must be protected with a PVC tape. The characteristics remain unchanged with time.

PRODUCT / Item	Colour	Width	Thickness	Length
RAYTECH 23 BT 3-2002-96-13	●	19 mm	0,76 mm	6,7 m



Property	Typical values
Breaking Strength (tensile)	3 MPa min
Elongation at break	500% min
Operating temperature	80°C
Dielectric strength	20 kV/mm min



RAYTEFILL

Thick low voltage Self-amalgamating tape.

This self-amalgamating thick-wall (3.2mm) has been specially designed for the rapid reconstruction of low-voltage cable insulation, to cover complex shapes (insulating and covering joints between busbars and relative bolts, clamps, etc.) and to seal against possible penetration of humidity. Once applied it becomes a solid, absolutely non-porous mass, with first class electrical qualities and ageing resistance, perfectly suited to the product it is covering.

Property	Typical values
Breaking Strength (tensile)	0,1 MPa
Operating temperature: Continuous	From -30°C to 80°C
Dielectric strength	23,0 kV/mm

PRODUCT / Item	Colour	Width	Thickness	Length
RAYTEFILL 3-2140-00-13	●	38 mm	3,2 mm	1,5 m



Complies with standards
ASTM-D-2148

RAYTECH 7-0

Self-amalgamating silicone rubber tape.

This self-amalgamating silicone rubber tape is used for covering medium and high voltage terminations on extruded cables up to Um 72 kV, because of its first-rate performance for electrical installations in damp or polluted environments, against corrosion, corona and against ageing. It is used as an insulation up to 180°C due to its excellent heat properties. It can be perfectly adapted to all the shapes to be covered.

Property	Typical values
Elongation at break	300%
Resistance to U.V.	Positive
Resistance to ozone	Positive
Working temperature maximum	180°C
Dielectric strength	24 kV/mm

PRODUCT / Item	Colour	Width	Thickness	Length
RAYTECH 7-0 3-2042-00-13	●	25 mm	0,51 mm	9,1 m

RAYCOPPER

Tinned copper mesh tape for electrical screening.

Property	Typical values
Material	Tinned copper mesh tape with high flexibility
Elongation at break	70% min
Breaking Strength (tensile)	35 N/10 mm
Volume resistivity	0,3 cm

PRODUCT	Item	Colour	Width	Thickness	Length
RAYCOPPER 1000	COPPER-100	Silver	60 mm	0,3 mm	1 m
RAYCOPPER 2000	COPPER-200	Silver	60 mm	0,3 mm	2 m
RAYCOPPER 3000	COPPER-300	Silver	60 mm	0,3 mm	3 m
RAYCOPPER 5000	COPPER-500	Silver	60 mm	0,3 mm	5 m
RAYCOPPER 6000	COPPER-600	Silver	60 mm	0,3 mm	6 m

MCA-FV

Fiberglass adhesive tape.

Self-adhesive mono-directional fibreglass tape with polypropylene support. Suitable for cable fixing on pipes (i.e.: Raytech MCA... cables for electrical tracing), and for any kind of strong fixing. Inextensible, it is suitable for temperatures up to 130°C.

Property	Typical values
Breaking Strength (tensile)	300 N/cm min
Ultimate elongation	8%
Adhesion to steel	2 N/cm min

PRODUCT / Item	Colour	Width	Thickness	Length
MCA-FV 012521-000	White	12 mm	0,13 mm	50 m

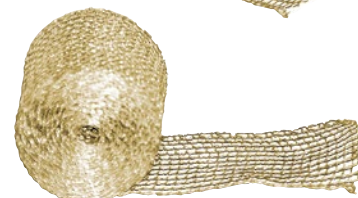
MCA-ALL

Self-adhesive aluminium tape.

Self-adhesive aluminium tape suitable for fixing on flat surfaces (i.e.: for heating cable fixing on tanks outer surfaces); used also for holes or abrasion repairs on metallic or plastic surfaces. Strong adhesion.

Property	Typical values
Breaking Strength (tensile)	1,2 da N/cm min
Elongation at break	5% min
Adhesion to steel	4 N/cm min
Adhesion to backing	4,5 N/cm min
Flame resistance BS476-7	Class 1

PRODUCT / Item	Colour	Width	Thickness	Length
MCA-ALL 75 R42562	Aluminium	75 mm	0,06 mm	50 m



SPEEDY LINE

Raytech, leader in the field of cable accessories, has always based its research and product line on the quality. This is why Raytech offers in the field of pulling tapes and lubricants too, systems of extremely high reliability and quality, always over the conventional types offered by the market:

- These fixed head, interchangeable nylon fishtapes are constructed with very high mechanical characteristic, long-lasting materials. Speedy Sonda tapes are made of PERLON, a practically non-deformable nylon, protecting the installer from unexpected elongation or breakage of the probe in ducts.
- "Twisted" polyester tapes, self-lubricated, extremely flexible and light, with exceptional mechanical characteristics, able to be inserted into long cable ducts, avoid the need of intermediate cable boxes; allowable bending radius is very small and, once bent, they do not break and released they come back to their original shape.
- Fibreglass tapes, thanks to their "nervous" elasticity together with their strength, are easy to use in any type of conduit.
- Nylon-steel tapes, when an exceptional strength is required.
- The widest range of accessories for all the types.
- Raytech offers the widest range of high sliding, non-toxic lubricants that are easily removable from cables. Choose from lubricant oil, lubricant gel (non-drip, allowing for a savings of up to 3 times compared to conventional types) or lubricant spray (easy application directly into the cable ducts, non-drip and dramatically reducing friction and traction force).



PRODUCT

Speedy Nylon and Speedy Sonda
Polyester Speedy Helix
Fibreglass Speedy Glass
Nylon-Steel Speedy Steel



Positioning



Ease of bending



Pulling resistance

Good

Good

Very good

Very good

Very good

Very good

Excellent

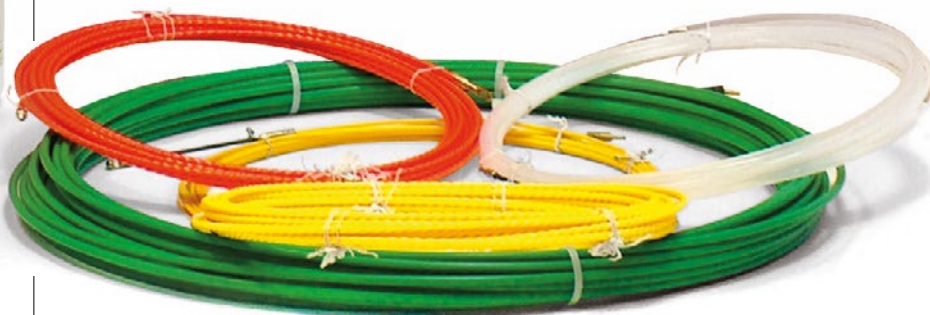
Good

Good

Very good

Excellent

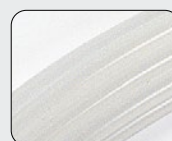
Excellent



Speedy Nylon
Fixed head Nylon probes



Speedy Sonda 3
Fixed head or interchangeable Nylon Perlon® Ø 3 mm



Speedy Sonda 4
Fixed head or interchangeable Nylon Perlon® Ø 4 mm



Speedy Helix 5
Polyester Ø 5 mm with eyelet and fixed flexible head

SPEEDY WIRE OIL - SPEEDY WIRE GEL

Lubricants for threading any kind of cable, power, telecom and optical fibre in ducts, smooth or corrugated piping, etc. With a very high lubrication power, especially when compared to products for similar uses, these are easily removable from cables, and require very low installation strength, even in the case of bent conduits.

Speedy Wire Oil is a standard, fluid and low viscosity lubricant.

Speedy Wire Gel, thanks to its consistency, allows for savings of up to 3 times the amount used compared to other solutions.

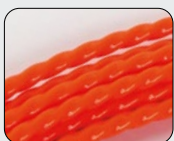
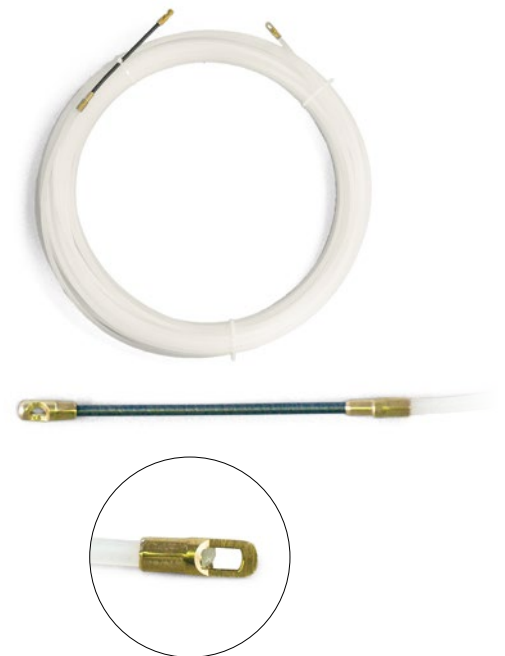
PRODUCT / Item	Package	Wrapping	Appearance	PH	Density
SPEEDY WIRE OIL 900000-003	1 L bottle	12-piece pack	Transparent gel	6 - 8	About 1
SPEEDY WIRE GEL 900000-001	1 L bottle	12-piece pack	Milky liquid	6 - 8	About 1
SPEEDY WIRE GEL 500 SPEEDYWG500	0,5 L bottle	12-piece pack	Milky liquid	6 - 8	About 1


NEW

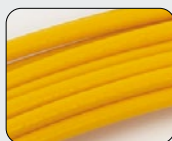
SPEEDY NYLON

Fixed head Nylon transparent cable pullers.

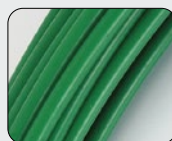
PRODUCT	Item	Ø (mm)	Length (m)	Pack of (PCS)
SPEEDY NYLON 3/5-F	SPEEDYNYLON3/5F	3	5	50
SPEEDY NYLON 3/10-F	SPEEDYNYLON3/10F	3	10	40
SPEEDY NYLON 3/15-F	SPEEDYNYLON3/15F	3	15	30
SPEEDY NYLON 3/20-F	SPEEDYNYLON3/20F	3	20	20
SPEEDY NYLON 3/25-F	SPEEDYNYLON3/25F	3	25	15
SPEEDY NYLON 4/5-F	SPEEDYNYLON4/5F	4	5	50
SPEEDY NYLON 4/10-F	SPEEDYNYLON4/10F	4	10	25
SPEEDY NYLON 4/15-F	SPEEDYNYLON4/15F	4	15	20
SPEEDY NYLON 4/20-F	SPEEDYNYLON4/20F	4	20	15
SPEEDY NYLON 4/25-F	SPEEDYNYLON4/25F	4	25	12



Speedy Helix 4
Polyester Ø 4 mm
with eyelet and fixed
flexible head



Speedy Glass
Interchangeable
head fibreglass
probe Ø 3 mm



Speedy Steel
Nylon-steel
probe Ø 6 mm



Accessories



SPEEDY SONDA 3

Nylon tape PERLON® Ø 3 mm with fixed or interchangeable head*.

FIXED head

PRODUCT	Item	Colour	Ø (mm)	Length (m)	Pack of (PCS)
SPEEDY SONDA 3/5-F	7139-0001	Transparent	3	5	50
SPEEDY SONDA 3/10-F	7139-0002		3	10	40
SPEEDY SONDA 3/15-F	7139-0003		3	15	30
SPEEDY SONDA 3/20-F	7139-0004		3	20	20

INTERC. head*

SPEEDY SONDA 3/5-I	7139-0005	Transparent	3	5	50
SPEEDY SONDA 3/15-I	7139-0007		3	15	30
SPEEDY SONDA 3/20-I	7139-0008		3	20	20

Other dimensions available on request

* Supplied with flexible head curve guide and pulling eyelet.

SPEEDY SONDA 4

Nylon tape PERLON® Ø 4 mm with fixed or interchangeable head*.

FIXED head

PRODUCT	Item	Colour	Ø (mm)	Length (m)	Pack of (PCS)
SPEEDY SONDA 4/5-F	7139-0009	Transparent	4	5	35
SPEEDY SONDA 4/10-F	7139-0010		4	10	25
SPEEDY SONDA 4/15-F	7139-0015		4	15	20
SPEEDY SONDA 4/20-F	7139-0012		4	20	18
SPEEDY SONDA 4/25-F	7139-0059		4	25	15

INTERC. head*

SPEEDY SONDA 4/5-I	7139-0017	Transparent	4	5	35
SPEEDY SONDA 4/10-I	7139-0018		4	10	25
SPEEDY SONDA 4/15-I	7139-0019		4	15	20
SPEEDY SONDA 4/20-I	7139-0020		4	20	18
SPEEDY SONDA 4/25-I	7139-0058		4	25	15

FIXED head

PRODUCT	Item	Colour	Ø (mm)	Length (m)	Pack of (PCS)
SPEEDY SONDA 4/5-F-N	7139-0013	Black	4	5	35
SPEEDY SONDA 4/10-F-N	7139-0014		4	10	25
SPEEDY SONDA 4/15-F-N	7139-0011		4	15	20
SPEEDY SONDA 4/20-F-N	7139-0016		4	20	18
SPEEDY SONDA 4/25-F-N	7139-0065		4	25	15

INTERC. head*

SPEEDY SONDA 4/5-I-N	7139-0021	Black	4	5	35
SPEEDY SONDA 4/10-I-N	7139-0022		4	10	25
SPEEDY SONDA 4/15-I-N	7139-0023		4	15	20
SPEEDY SONDA 4/20-I-N	7139-0024		4	20	18
SPEEDY SONDA 4/25-I-N	7139-0066		4	25	15

Other dimensions available on request

* Supplied with flexible head curve guide and pulling eyelet.

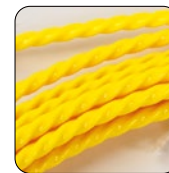
SPEEDY HELIX 5

Polyester tape Ø 5 mm with fixed eyelet and flexible interchangeable head.

Twisted tapes, very strong, extremely flexible and light. They pass the "4 curves test" on both rigid and corrugated pipes, but they can also avoid to have an intermediate box, and even if bent on themselves they do not break.

PRODUCT / Item	Colour	Ø (mm)	Length (m)	Pack of (PCS)
SPEEDY HELIX 5/10 7139-0025	 Yellow	5	10	1
SPEEDY HELIX 5/15 7139-0026		5	15	1
SPEEDY HELIX 5/20 7139-0027		5	20	1
SPEEDY HELIX 5/25 7139-0064		5	25	1
SPEEDY HELIX 5/30 7139-0028		5	30	1
SPEEDY HELIX 5/50 7139-0029		5	50	1
SPEEDY HELIX 5/60 7139-0030		5	60	1

Other dimensions available on request



SPEEDY HELIX 4

Polyester tape Ø 4 mm with interchangeable eyelet and head*.

Twisted tapes, very strong, extremely flexible and light. They pass the "4 curves test" on both rigid and corrugated pipes, but they can also avoid to have an intermediate box, and even if bent on themselves they do not break.

PRODUCT / Item	Colour	Ø (mm)	Length (m)	Pack of (PCS)
SPEEDY HELIX 4/10 7139-0031	 Orange	4	10	1
SPEEDY HELIX 4/15 7139-0032		4	15	1
SPEEDY HELIX 4/20 7139-0033		4	20	1
SPEEDY HELIX 4/30 7139-0034		4	30	1

Other dimensions available on request * Supplied with flexible head curve guide and pulling eyelet



Accessories for Speedy Helix 4

PRODUCT	Item	Description	Pack of (PCS)	
TGF SPEEDY HELIX 4	TGF-SPEEDYHELIX4	Flexible head curve guide	1	
OTL SPEEDY HELIX 4	OTL-SPEEDYHELIX4	Long pulling eyelet	1	
PN SPEEDY HELIX 4	PN-SPEEDYHELIX4	Pin M4 (for tape Ø 4 mm)	1	

Accessories for Speedy Helix 5

PRODUCT	Item	Description	Pack of (PCS)	
TGF SPEEDY HELIX 5	TGF-SPEEDYHELIX5	Flexible head curve guide	1	
OTL SPEEDY HELIX 5	OTL-SPEEDYHELIX5	Long pulling eyelet	1	
PN SPEEDY HELIX 5	PN-SPEEDYHELIX5	Pin M4 (for tape Ø 5 mm)	1	



The tape is complete of repairing kit.



SPEEDY GLASS

Interchangeable head "self-starting" fibreglass Ø 3 mm cable pullers*.

Suitable for light use, even on long lengths, easy to use thanks to their "nervous" elasticity which makes easier their positioning in pipes and conduits.

INTERC. head

PRODUCT / Item	Colour	Ø (mm)	Length (m)	Pack of (PCS)
SPEEDY GLASS 3/10 7139-0035	Yellow	3	10	10
SPEEDY GLASS 3/15 7139-0036		3	15	10
SPEEDY GLASS 3/20 7139-0037		3	20	10
SPEEDY GLASS 3/25 7139-0060		3	25	10
SPEEDY GLASS 3/30 7139-0038		3	30	10

Other dimensions available on request

* Supplied with flexible head curve guide and pulling eyelet

SPEEDY STEEL

Nylon-steel tape Ø 6 mm complete of all accessories.

Nylon-steel tapes are extremely robust, and are made of an internal core 4 x 1,5 mm steel made, coated with a nylon layer. Particularly suitable for industrial use with heavy duty. Use in installations without voltage.

PRODUCT / Item	Colour	Ø (mm)	Length (m)	Pack of (PCS)
SPEEDY STEEL 6/20 7139-0039	Green	6	20	1
SPEEDY STEEL 6/25 7139-0061		6	25	1
SPEEDY STEEL 6/30 7139-0040		6	30	1
SPEEDY STEEL 6/40 7139-0041		6	40	1
SPEEDY STEEL 6/50 7139-0062		6	50	1
SPEEDY STEEL 6/60 7139-0063		6	60	1

Other dimensions available on request

ACCESSORIES

For Speedy Sonda cable pullers.

PRODUCT	Item	Description	Pack of (PCS)	
Speedy TFG	7139-0042	Flexible head curve guide	3	
Speedy TFC	7139-0043	Flexible head with sheave	3	
Speedy OTL	7139-0047	Long pulling eyelet	3	
Speedy OTC	7139-0044	Short pulling eyelet	3	
Speedy BU	7139-0045	Joint bush for fishtapes	3	
Speedy PN	7139-0050	Pin M4 (for tape Ø 4 mm)	3	
Speedy AT	7139-0048	Pulling slot	3	
Speedy CA	7139-0049	Accessories kit	1	

For Speedy Glass cable pullers.

PRODUCT	Item	Description	Pack of (PCS)	
Speedy REP	7139-0051	Repairing kit	3	
Speedy TFG	7139-0042	Flexible head curve guide	3	
Speedy TFC	7139-0043	Flexible head with sheave	3	
Speedy OTL	7139-0047	Long pulling eyelet	3	
Speedy OTC	7139-0044	Short pulling eyelet	3	
Speedy BU	7139-0045	Joint bush for fishtapes	3	
Speedy PNG	7139-0046	Pin for Speedy Glass tape	3	
Speedy AT	7139-0048	Pulling slot	3	
Speedy CA	7139-0049	Accessories kit	1	

For Speedy Steel cable pullers.

PRODUCT	Item	Description	Pack of (PCS)	
Speedy MO	7139-0072	Snap link	3	
Speedy TS	7139-0069	Flexible head curve guide	3	
Speedy OL	7139-0071	Clamping device	3	
Speedy RS	7139-0070	Sliding wheel device	3	

Accessories available upon request
for Speedy Helix and:

PRODUCT	Item	Description	Pack of (PCS)	
Speedy AS	7139-0054	Reels with support	1	(see A)
Speedy AF	7139-0053	Reels on frame	1	(see B)
Speedy AFS	7139-0055	Steel reels on frame	1	(see C)
Speedy PR Glass	7139-0052	Repairing pliers for Speedy Glass tapes	1	(see D)



(A)



(B)



(C)



(D)



FIRE STOP BARRIERS

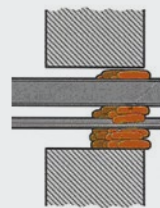
FIRE STOP BAG

Fire stop barrier in an intumescent bag.

Intumescent incombustible bags which stop the passage of fire through openings in walls. They are available in different sizes and they have to be placed to seal the openings, both in walls and floor slabs. At a temperature of 200°C the material starts to compact sealing the gaps thus avoiding the passage of the flames.

- Made from a fireproof fabric.
- Contains intumescent putty seal inside.

PRODUCT / Item	Bag dimensions
FSB-11 FSB-11	mm 250 x 100 x 25
FSB-12 FSB-12	mm 250 x 200 x 35
FSB-13 FSB-13	mm 250 x 300 x 35



INSTALLATION

Finish and opening then lay, the bags as bricks, staggered and overlapped.

For the application on plasterboard walls please contact Raytech.

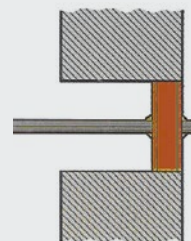
FIRE STOP PANEL

Fire stop barriers in panels.

Incombustible panels treated on the surface with putty to stop the passage of fire through openings in walls. This product allows for the sealing of cavities in walls safely and cost effectively.

- Manufactured from Rockwool.
- Coated with putty.
- Resistant to mould and bacteria .

PRODUCT / Item	Dimension (mm)
FSP-11 FSP-11	600 x 600 x 51



INSTALLATION

Finish and clean the opening edges then cut the panels with a cutters and position them in the opening. The edges and the jointing lines, as well as the interstices among the cables, are sealed and covered with FIRE STOP SEAL FSS sealant..

For the application on plasterboard walls please contact Raytech.



APPROVAL

Class EI 120 Non toxic and asbestos free.
In compliance with standard EN 1366-3.



APPROVAL

Class EI 120 Non toxic, asbestos and solvent free.
In compliance with standard EN 1366-3.

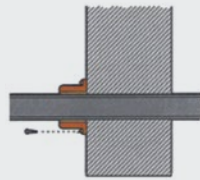
FIRE STOP COLLAR

Fire stop transit collar for plastic pipes.

Fire stop barrier transit collar for plastic pipes (minimum wall thickness 200mm). Available in a wide range of dimensions to surround pipes that pass through walls.

- Stainless steel outer band.
- Contains intumescent putty seal inside.

PRODUCT / Item		Ø (mm)
FSC 11	FSC-11	from 63 to 110
FSC 12	FSC-12	from 110 to 160
FSC 13	FSC-13	200
FSC 14	FSC-14	250



INSTALLATION

No special care is required: the collar, when opened, is positioned around the duct, closed and fastened by means of inserts.

For other dimensions and installation please contact Raytech.



APPROVAL

Class EI 120 non toxic and asbestos free.
In compliance with standard EN 1366-3.

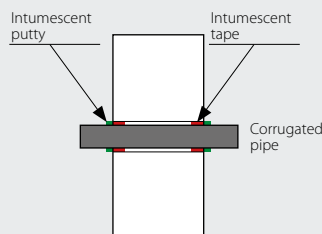
FIRE STOP TAPE

Fire stop barrier in an intumescent tape for plastic corrugated pipes.

Fire stop barrier in an intumescent tape for the crossing closure of single corrugated pipes. Highly heat-sensitive, intumescent graphite tape with high expansion properties for the protection of corrugated electrical pipes containing cables. Applied on both sides of the pipe crossing through the wall so as to surround the pipe. The heat from a fire causes the tape to expand and fill all possible voids.

RECOMMENDATION

The solution is 10m long, and it can be cut at the required length, saving the remaining parts for a future application. Can also be used in conjunction with FSCI, FSSE, FSCC box covering protections.



INSTALLATION

Wrap the tape twice around the corrugation, on both sides of the wall, fitting it in the through hole. Seal with FIRE STOP SEAL (FSS) sealant putty. Let dry.

PRODUCT / Item	Application corrugated pipe diameter range (mm)	Width (mm)	Thickness (mm)	Length (m)
FST-E-25/32 FST-E-25/32	da 25 a 32 *	20	2	10

*containing cables up to 10 mm²



APPROVAL

Class EI 120 non toxic and asbestos free.
In compliance with standard EN 1366-3.



APPROVAL

Class EI 120

Non toxic and asbestos free.

Does not emit toxic gases and dense fumes.

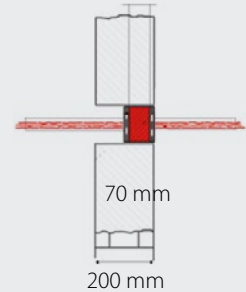
In compliance with standard EN 1366-3.

FIRE STOP SEAL

Fire stop barrier in intumescent sealing mastic.

Intumescent mastic to seal and close small voids in walls, also in addition to other types of barriers. It is applied to seal a void or to provide a barrier in a cable duct.

- ▶ **A polymer compound with fireproof fibres and intumescent in an aqueous solution.**
- ▶ **Non-hygroscopic and thixotropic.**
- ▶ **Can be applied with a spatula.**



INSTALLATION

Once the edges of the opening have been finished and cleaned, the sealant putty is put in place with a spatula in the case of product in bucket.

For the application on plasterboard walls please contact Raytech.

PRODUCT / Item	Package
FSS 10 FSS-10	Spatula type, 10 kg drum



APPROVAL

Class EI 120

Non toxic and asbestos free.

Does not emit toxic gases and dense fumes.

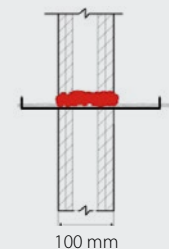
In compliance with standard EN 1366-3.

FIRE STOP FOAM

Fire stop barriers in expanding foam.

Single-component expandable sealant foam for filling and fire sealing of small crossing gates on cable duct channels that have been previously compartmented with FSB bags and small gaps. Each canister covers a volume of approximately 20 L.

- ▶ **Made from a fire resistant polyurethane based foam.**
- ▶ **Graphite fortified.**
- ▶ **Hardens upon contact with air.**
- ▶ **Suitable for the protection of plasterboard walls or slabs.**



INSTALLATION

After the edges of the openings have been cleaned, shake the can for at least 30 seconds, then turn upside down and spray the product.

PRODUCT / Item	Package
FSF 700 FSF-700	Spray can of 750 ml

FSC-TPC

Fire stop barrier for plastic and/or corrugated pipes with cables.

Protection designed to be built into the wall after pipes have been installed. Can be installed in locations where the construction support is damaged and there is an annular space around the services. It is possible to protect mixed corrugated plastic pipes in the same crossing.

- For PE/PP, PVC, Abs pipes containing electrical cables or other services.
- Pipes can be grouped and protected in bundles.

PRODUCT / Item		For pipes with Ø (mm)
FSC-TPC 050	FSC-TPC-050	50
FSC-TPC 060	FSC-TPC-060	60
FSC-TPC 090	FSC-TPC-090	90
FSC-TPC 120	FSC-TPC-120	125

INSTALLATION

Clean the pipe. Open the sleeve longitudinally, place it around the pipe and clamp it on it using special metal tabs. Push the collar towards the centre of the wall.

Fix with FSS putty in the event of installation on a special crossover pipe.

Contact Raytech regarding through openings or installation on inclined piping.



APPROVAL

Class EI 120

Non toxic and asbestos free.

Does not emit toxic gases and dense fumes.

In compliance with standard EN 1366-3.

FSM

Fire stop barriers in incombustible plaster.

Protective coating to seal and prevent fire propagation in wall cavities; it can be applied manually or sprayed. It can be easily mixed in big quantities with suitable mixer (e.g. concrete mixer).

- Made from mineral fibres.
- Simply mix with water and with or without cement mixes.
- For gates on walls or slabs.

PRODUCT / Item		Package
FSM 20	FSM-20	20 kg bag

INSTALLATION

After the edges of the openings have been finished and cleaned, the incombustible plaster is mixed with water, then applied manually, with a trowel or a pump, and left to dry in air. Water quantity: about 0,85 lt/kg (volume 1 kg = about 2,5 dm³).

For other applications please contact Raytech.



APPROVAL

Class EI 120

Non toxic and asbestos free.

Does not emit toxic gases and dense fumes.

In compliance with standard EN 1366-3.

FSCP

Fire stop barriers for ceiling lights.

Fireproof barriers for fluorescent lights in suspended ceilings. Maintains conditions of fire resistance of ceilings and suspended ceilings. Slightly reduces the temperature in the space between the ceiling and the ceiling panel.

- Made from non-toxic mineral fibres.
- Prevents propagation.
- Flexible, light and self-supporting, easy to install and to remove.

PRODUCT / Item		Dimension (mm)	Weight (kg)
FSCP 600	FSCP-600	720 x 750 x 150	1,7 circa
FSCP 1200	FSCP-1200	1330 x 720 x 140	3,5 circa



INSTALLATION

No special care is required. The protection must be placed on the ceiling light grid adhering to the panel.



APPROVAL

Class EI 120

Non toxic and in compliance with standard

EN 1365-2 • 1363-1.



APPROVAL

Class EI 120 Non toxic.
It expands up to 5 times.
In compliance with standard
EN 1365-2 • 1363-1

FSCF

Fire stop hoods for downlighters.

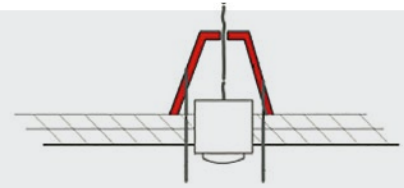
Fireproof dome shaped hood for downlighters in suspended ceilings. Maintains conditions of fire resistance of ceilings and suspended ceilings. Prevents fire propagation and slightly reduces the temperature in the void between the ceiling and the suspended ceiling.

- **Made from non-toxic mineral fibres.**
- **Resistant to fire and expandable compounds.**
- **Prevents lamp overheating.**
- **Flexible, light and self-supporting.**
- **Easy to install and to remove.**

INSTALLATION

No special care is required.
The protection must be placed on the spotlight, adhering to the panel.

For other dimensions please contact Raytech.



PRODUCT / Item	Dimension (mm)	Type
FSCF 250 FSCF-250	250 x 280	Cone-shaped
FSCF 350 FSCF-350	350 x 230	Dome-shaped



FSSE

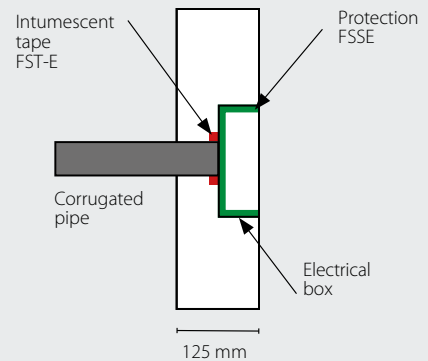
Intumescent fire stop barrier for electrical boxes.

Intumescent barrier for the fire protection of electrical system components built into walls.

- **Inserted in electrical boxes.**
- **Protection with high expansion properties.**
- **Guarantees wall conditions in the event of a fire.**

INSTALLATION

The protections are inserted inside the box before the insertion of modules. Protect corrugated pipes crossing walls with FST-E-25/32



PRODUCT / Item	For electric boxes
FSSE 01 FSSE01	Up to three modules (type 503)
FSSE 02 FSSE02	Up to six modules (type 506)

APPROVAL

Class EI 120 Non toxic.
In compliance with standard EN 1364-1

FSCC

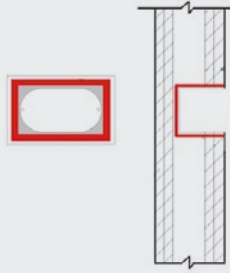
Fire stop barriers for covering enclosures.

Fire protection system for electrical enclosures and junction boxes. These protect plasterboard wall compartments from heat and fire propagation.

- Made from calcium silicate.
- Contains enclosure.

INSTALLATION

After the opening edges have been finished and cleaned, the protection is properly placed and fixed to the wall by means of screws and putty.



PRODUCT / Item	External dimension (mm)	Internal dimension (mm)
FSCC 150 FSCC-150	150 x 120 x 75	110 x 80 x 55



APPROVAL

Class EI 120 Non toxic and asbestos free.
Does not emit toxic gases and dense fumes.
In compliance with standard EN 1364-1.

FSCO T110

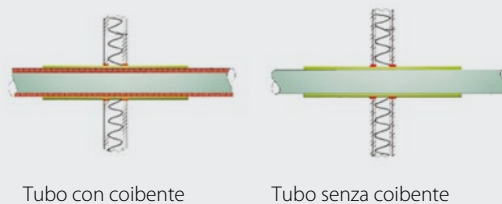
Metal pipe insulating mat protective barrier.

The FSCO T110 barrier is made up a flexible and easily conformable, highly fire resistant insulating mat. It is clad with an aluminium sheet and protects insulated or non-insulated metal piping in wall crossings. The product is cut and modelled with ease, wrapped in a single layer around the pipe, and then closed with aluminised tape. Protects metal piping crossing walls or slabs, preventing longitudinal transmission of heat and fusion of any insulating material.

- Composed of fibres free of any resins or organic binders.
- For wall thicknesses of at least 125 mm.

INSTALLATION

The product is laid in a single layer around the pipe, matching the edges and fastening them with aluminised tape. The installation is then reinforced with wrapped steel wire pulled with pliers. It is positioned letting at least 430 mm come out from each side.



PRODUCT / Item	Colour	Width	Thickness	Length
FSCO T110 FSCO-T110	Aluminium	1 m	20 mm	5 m



APPROVAL

Class EI 120 Non toxic and asbestos free.
In compliance with standard
EN 1366-1 • EN 1366-3 • EN 1366-5



GALACTIC MAMMUT SECURITY

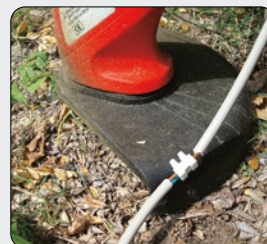
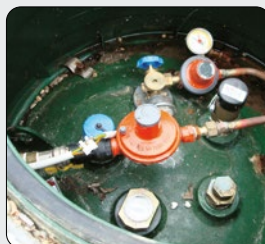
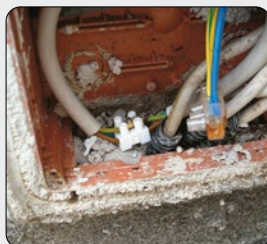
Straight joint pre-filled with gel.

Galactic Mammut Security is an extremely compact accessory that is suitable for resolving insulation and sealing problems. Make reliable strip connector connections using the components found within the kit. Supplied with connectors for up to 3 core 4mm cables. Suitable for all types of domestic and industrial uses. Make safe temporary or uninsulated connections already in place. For quick repairs of damaged cable and extension cords. Suitable for outdoor use, in panels, within the kitchen etc. Non-toxic, no shelf life, easily re-enterable. Once closed the internal connectors are immediately protected. Galactic Mammut is essential in any area where water is present.

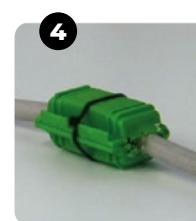
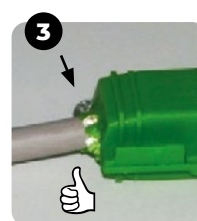
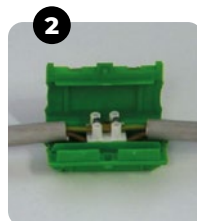
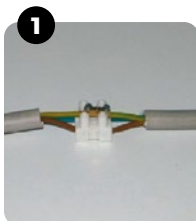
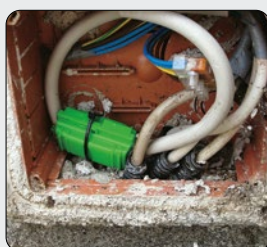
ADVANTAGES

- No more tangled wires or uncovered connectors!
- A safe, reliable and quick solution *Galactic Mammut Security*.

BEFORE



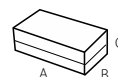
AFTER



Package:
3-piece blister pack

Electrical performance:
CEI EN 50393 as applicable
(testing under water head
of the accessory installed in a box)

PRODUCT / Item	Cable formation	Dimension (mm)
GALACTIC MAMMUT SECURITY GALACTIC-MAM	Cables 3 x 1 to 4 mm ² 3 insulated conductors with ground from 1 to 4 mm ²	61 x 35 x 28



SHINY SOLAR

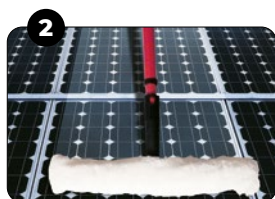
Solution for solar and photovoltaic panel maintenance.

Shiny Solar is a product for photovoltaic and solar module maintenance, for easy removal of grease, limestone and crystallised deposits, dust, smog, excrement, etc. A photovoltaic panel can reduce generated power by up to 15% for non-polluted areas and 25% for highly polluted areas, Regular use of Solar Shiny keeps systems running efficiently. Extremely effective and easy to apply, with no shelf life. To maintain system efficiency, proceed with 2-3 applications/year for medium-polluted areas. The degreasing and anti-static protection contained in the product allows excellent results even with rinsing with hard water (even higher than 30°F). Rapid application: treatment of a 6 kW system (approximately 50 m²), thanks to the fact that degreasing, cleaning and application of the anti-static protection are all part of one single operation, requires less than 20 minutes. Shiny Solar respects panel components, the aluminium frame, gaskets and protective glass. A single package of Shiny Solar can treat installed photovoltaic panel power from 10 to 15 kW, equal to a surface of about 80-120 m². The order data table shows the power and surfaces which can be treated with different packages.

- For easy removal of grease, limestone and crystallised deposits, dust, smog, excrement, etc.
- Contains anti-static protection.



Spray the product evenly on the solar or photovoltaic panel or on the surface to be cleaned and protected.



Let stand for a few minutes, depending on the level of dirt to be cleaned, then wipe with a soft, non-abrasive, slightly damp pad or sponge.



Rinse with water or remove product with a paper towel. Repeat for especially dirty surfaces.



Advantages:

The 750 ml and 5 lt kits are supplied together with a professional sprayer, with an adjustable spray jet nozzle with a range in the latter case of up to 3 m.

For proper application of the product even in hard to reach areas, a microfiber brush mounted on a telescopic arm which projects up to 4 m is available.

PRODUCT / Item	Product contents	Efficiency (kW/ surfaces treated per package)	
		Power in kW	Surfaces (m ²)
Shiny Solar SHINYSOLAR	750 ml	10 - 15	80 - 120
Shiny Solar 5 SHINYSOLAR5	5 lt	70 - 100	530 - 800
Shiny Solar 1000 SHINYSOLAR-1000	1000 lt	14.000 - 20.000	106.000 - 160.000
Shiny Brush SB4 SHINYBRUSCH4	brush microfiber		



Shiny Brush
SB4



Kit composition:
1 can for component (A+B)

GALACTIC ANIMAL BARRIER

Mouldable two-component rubber paste to prevent animal intrusion.

Galactic Animal Barrier is a two-component paste with no shelf life that can be easily moulded before cross linking is complete. It can be applied to entries to protect against intrusion (conduits, cable ducts and pipes etc). It cross links quickly to form an effective barrier against small insects however it is easily removable. Ideal for electric gate type installations.

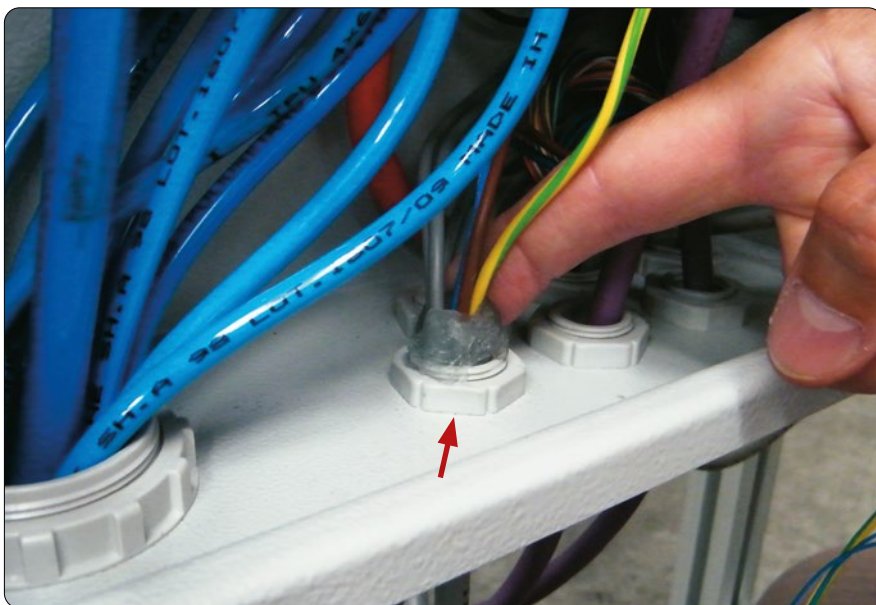


PRODUCT / Item	Description	Rubber colour	Total quantity (g)
GALACTIC ANIMAL BARRIER GALACTIC-ANIBAR	two-component rubber	●	250

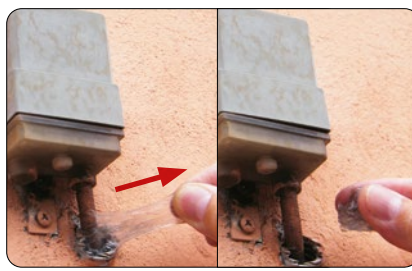
GALACTIC WATER STOP

Ready to use single component gel.

The Galactic Water Stop single component gel is a soft, extremely sticky product supplied in convenient, ready to use packages: just tear open the quantity needed and place it at the entry point to protect from infiltration. Thanks to its stickiness, it provides stable and effective sealing over time. Easily removable and re-enterable, allowing repeated access to the protected component without leaving traces. Non-drip so it can also be installed vertically or on the ceiling. Highly sealant, lends itself to the insulation of small connections, or for the protection of particularly exposed connections (connections to external car battery terminals, etc.). This product can be applied wherever there may be leakages from pipes, corrugated pipes, channels, etc., or where there is a need for rapid and efficient insulation.



Corrugated pipe entry protection



Removal



Kit composition: 2 cans, 100 g each

PRODUCT / Item	Description	Gel colour	Package (g)
GALACTIC WATER STOP GALAWATERSTOP	single component gel	transparent	2 x 100



RAY RTV

Fast cross linking two-component silicone rubber with high mechanical, thermal and elastic characteristics.

Ray-RTV cross links quickly at room temperature, transforming into a rubber with high mechanical, thermal and elastic characteristics. Available in single dose bags, bottles, tanks and boxes, in standard 30 Shore A hardness for black. Fast cross linking (less than 8 minutes at 30°C) and easily re-enterable.

ADVANTAGES

- Highly resistant, non-stick, insulating and sealing.
- No shelf life.



In 15 minutes
Ray RTV is ready!

Density: about 1.24 gr/cm³
Cross linking: (pot life) at + 30°C: <8 minutes
Viscosity: 4000-6000 max MPa
Elongation at break: 350 %
Tensile strength: 2,8 MPa
Operating temperature: -60°C / +200°C
Overload temperature: +250°C
Thermal conductivity: 0,2 W/m°K
Dielectric strength: >21 kV/mm
Volume resistivity: >1,5 x 10 exp 15 Ω cm

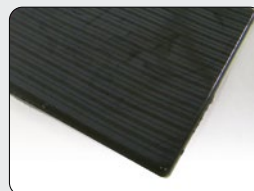
Applications Examples



Glass sealing



Pit sealing



Rubber mats



Extruded profiles



Rubber gaskets



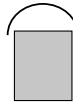
Profile reliefs



Anti-corrosion protection



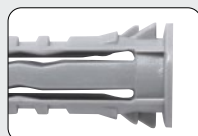
Moulds for making models and for industry

PRODUCT / Item	Colour	Shore A hardness	Weight	Package type
BAG-RTV 200-N BAGRTV200-N	●	30	200 g	Single dose bag 
BAG-RTV 350-N BAGRTV350-N	●	30	350 g	
RAY-RTV 10K-N RAYRTV10K-N	●	30	10 kg	Boxes
RAY-RTV 20K-N RAYRTV20K-N	●	30	20 kg	 
RAY-RTV 400K-N RAYRTV400K-N	●	30	400 kg	

Other colours, hardness and cross linking times (pot life) are available upon request for tanks of 400 Kg. Ray-RTV is available in bags up to 600 g.

RAY FIX

Universal multi-expansion nylon dowels complete with DIN 7505/a chipboard screw.



The 10 opposing wings, 2 of which are along the body, 4 near the collar and 4 connecting the body and the edge, prevent rotation during installation even in friable materials.



The particular shape of the inside of the dowel allows for 40% greater expansion than all other existing dowels.



The expansion on 4 sides allows total and uniform adhesion. The longitudinal grooves along the body facilitate anchoring inside the dowel installation hole, facilitating anchoring.



The flared edge with the 4 connecting wings prevents the dowel from penetrating inside the installation hole.



Ellipsoidal screw guide that accompanies the screw without slipping.



Reduced insertion part to facilitate penetration into the hole.



The two guides on the edge of the dowel allow locking during screwing.



Expansion by winding in perforated brick materials, panels and slabs.

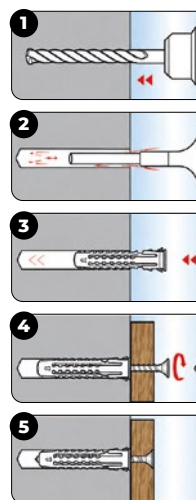


NEW

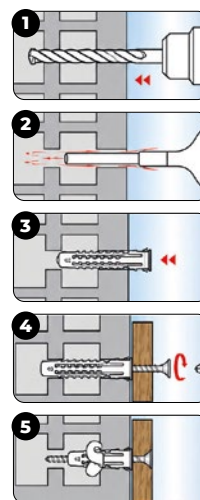
Ideal for secure and versatile fixings



Solid bricks



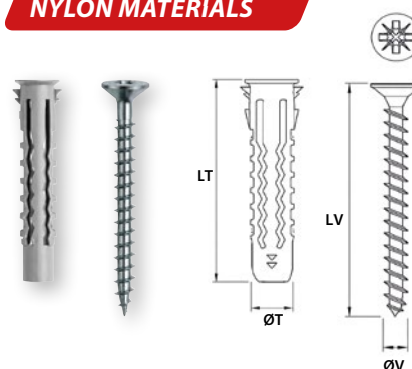
Perforated bricks



CAN BE USED WITH

- Drywall sheets
- Concrete
- Natural stone
- Solid bricks
- Perforated bricks
- CLS solid bricks
- CLS perforated bricks

**HIGH-QUALITY
NYLON MATERIALS**



PRODUCT / Item	Pieces	Description	ØT (mm)	LT (mm)	ØV (mm)	LV (mm)
RAYFIX 5x25 300 RAYFIX5x25-300	Bucket 300 pieces	Dowels + screw 4 x 30 mm	5	25	4,0	30
RAYFIX 6x30 100 RAYFIX6x30-100	Bucket 100 pieces	Dowels + screw 4,5 x 40 mm	6	30	4,5	40
RAYFIX 6x30 600 RAYFIX6x30-600	Bucket 600 pieces	Dowels + screw 4,5 x 40 mm	6	30	4,5	40



Self extinguishing: according to UL94.

Halogen free.

Excellent resistance to basis, oils, fats, hydrocarbons, chemicals, chlorinated solvents.

 **Operating temperature:** -40°C / +85°C

 **Installation temperature:** -10°C / +60°C



100-piece pack.



100-piece pack.

CABLE TIES

Tilted tip for easy insertion into clamping head. Rounded corners for greater safety. Quick sliding thanks to a low material friction coefficient. Good UV resistance thanks to it's black colour.

ESSENTIAL FOR:

- **Electrical installations.**
- **Industrial applications.**
- **Panels.**
- **Special applications.**

Colour Black		Width	Length	Appl. diameter		Strength	
PRODUCT	Item	(mm)	(mm)	min	max	(Kg)	(n)
Ray-fasc N 22/75	700000-050	2,2	75	0.75	15	6.12	60
Ray-fasc N 25/98	700000-026	2,5	98	1	21	8.16	80
Ray-fasc N 25/135	700000-027	2,5	135	1	32	8.16	80
Ray-fasc N 26/160	700000-028	2,6	160	1	40	8.16	80
Ray-fasc N 26/200	700000-029	2,6	200	2	52	8.16	80
Ray-fasc N 36/140	700000-030	3,6	140	2	35	13.26	130
Ray-fasc N 36/200	700000-031	3,6	200	2	50	13.26	130
Ray-fasc N 36/290	700000-032	3,6	290	2	80	13.26	130
Ray-fasc N 36/370	700000-033	3,6	370	2	103	13.26	130
Ray-fasc N 48/178	700000-035	4,8	178	2	45	22.44	220
Ray-fasc N 48/200	700000-036	4,8	200	3	50	22.44	220
Ray-fasc N 48/250	700000-037	4,8	250	3	68	22.44	220
Ray-fasc N 48/290	700000-038	4,8	290	3.5	79	22.44	220
Ray-fasc N 48/360	700000-039	4,8	360	3.5	103	22.44	220
Ray-fasc N 48/430	700000-041	4,8	430	3.5	115	22.44	220
Ray-fasc N 78/180	700000-051	7,8	180	3.5	45	55.08	540
Ray-fasc N 78/240	700000-043	7,8	240	3.5	63	55.08	540
Ray-fasc N 78/300	700000-044	7,8	300	4	80	55.08	540
Ray-fasc N 78/365	700000-045	7,8	365	8	100	55.08	540
Ray-fasc N 78/450	700000-046	7,8	450	35	130	55.08	540
Ray-fasc N 78/540	700000-047	7,8	540	35	158	55.08	540
Ray-fasc N 78/750	700000-048	7,8	750	35	220	55.08	540

Colour White		Width	Length	Appl. diameter		Strength	
PRODUCT	Item	(mm)	(mm)	min	max	(Kg)	(n)
Ray-fasc B 22/75	700000-049	2,2	75	0.75	15	6.12	60
Ray-fasc B 25/98	700000-002	2,5	98	1	21	8.16	80
Ray-fasc B 25/135	700000-003	2,5	135	1	32	8.16	80
Ray-fasc B 26/160	700000-004	2,6	160	1	40	8.16	80
Ray-fasc B 26/200	700000-005	2,6	200	2	52	8.16	80
Ray-fasc B 36/140	700000-006	3,6	140	2	35	13.26	130
Ray-fasc B 36/200	700000-007	3,6	200	2	50	13.26	130

Ray-fasc B 36/290	700000-008	3,6	290	2	80	13.26	130
Ray-fasc B 36/370	700000-009	3,6	370	2	103	13.26	130
Ray-fasc B 48/178	700000-011	4,8	178	2	45	22.44	220
Ray-fasc B 48/200	700000-012	4,8	200	3	50	22.44	220
Ray-fasc B 48/250	700000-013	4,8	250	3	68	22.44	220
Ray-fasc B 48/290	700000-014	4,8	290	3.5	79	22.44	220
Ray-fasc B 48/360	700000-015	4,8	360	3.5	103	22.44	220
Ray-fasc B 48/430	700000-017	4,8	430	3.5	115	22.44	220
Ray-fasc B 78/180	700000-052	7,8	180	3.5	45	55.08	540
Ray-fasc B 78/240	700000-019	7,8	240	3.5	63	55.08	540
Ray-fasc B 78/300	700000-020	7,8	300	4	80	55.08	540
Ray-fasc B 78/365	700000-021	7,8	365	8	100	55.08	540
Ray-fasc B 78/450	700000-022	7,8	450	35	130	55.08	540
Ray-fasc B 78/540	700000-023	7,8	540	35	158	55.08	540
Ray-fasc B 78/750	700000-024	7,8	750	35	220	55.08	540

CABLE TIE SUPPORT

Fastening with standard inserts for cable ties with widths up to 9 mm. UV resistant.

PRODUCT / Item	Dimension (mm)			
	A	B	C	D
Ray-fasc S 700001-000	9,4	5	23	17,6

BI-DIRECTIONAL ADHESIVE FIXING DEVICE

Self adhesive, can be used on all materials. Suitable for cable ties up to 4.8 mm. Made from ABS with rubber based adhesive foam. UV resistant.

Colour Black	Colour White	Tie width (mm)	Dimension (mm)				
PRODUCT / Item	PRODUCT / Item		A	B	C	F	H
Ray-fasc NBA36 700003-000	Ray-fasc BBA36 700002-000	3,6	19	4,1	19	4	5
Ray-fasc NBA48 700005-000	Ray-fasc BBA48 700004-000	4,8	27	4,8	27	6	6,5

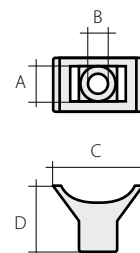
BAYONET-JOINT SUPPORT

Push fit support for cable ties up to 7.8mm. Can be used on sheet surfaces with up to 3.2 mm thick. 6.2mm O/D hole required. Polyamide 6.6.

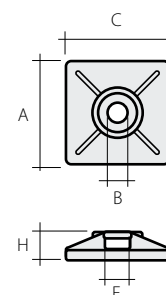
PRODUCT / Item	Dimension (mm)						Ø Hole (mm)
	A	B	C	D	E	F	
Ray-fasc SI 700006-000	10	10,6	8,1	3,2	8	7,1	6,2



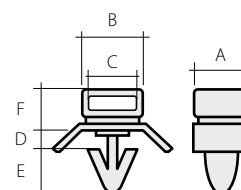
100-piece pack.



100-piece pack.



100-piece pack.



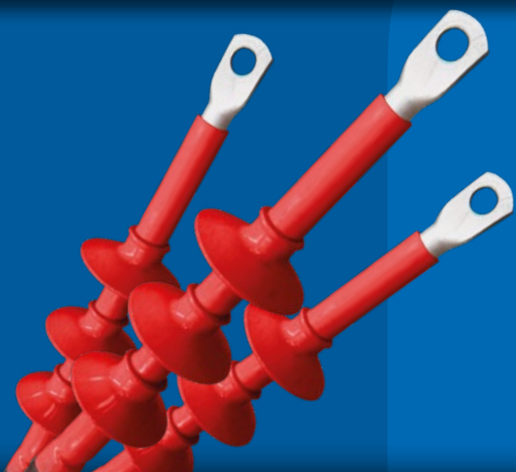


MEDIUM VOLTAGE

CABLE LUGS AND
CONNECTORS.

TERMINATIONS AND JOINTS
COLD-SHRINK AND
HEAT-SHRINK.

SEPARABLE CONNECTORS.
TAPES AND SHEATHS.

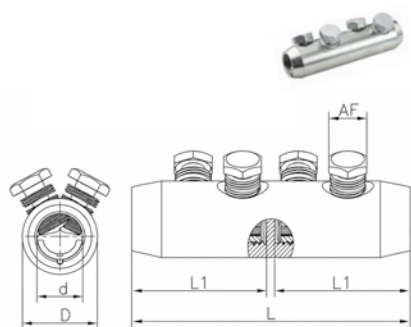
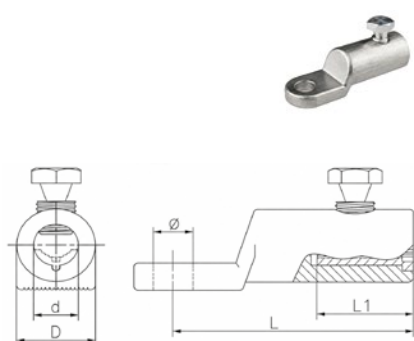


**NEW**

MECHANICAL CABLE LUGS AND CONNECTORS WITH SHEAR BOLTS

To the peculiarities and typical characteristics of the type of accessory, they add the extreme versatility and ease of application of the cable lugs and mechanical connectors:

- **They avoid presses and dies** for compression, the latter suitable for the compression of a single section and a single type of conductor, copper or aluminium.
- They are suitable for both **copper** and **aluminium conductors**.
- **They ensure** in all conditions the exact clamping torque, calibrated by the fuse screw.
- **Designed for applications up to 36 kV**, they are made of high-quality aluminium alloy, to ensure excellent electrical conductivity, mechanical and corrosion resistance.
- **Multi section**, wide range of sections.



Cable lugs with shear bolts

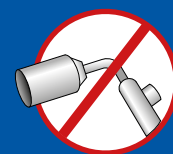
Product / Item	Sections (mm ²)	Ø hole (mm)	L (mm)	L1 (mm)	D (mm)	d (mm)	Number of screws
RAY-CF-25/95-13	25-95	13	60	30	24	12,8	1
RAY-CF-35/150-13	35-150	13	86	35	28	15,8	1
RAY-CF-35/150-17	35-150	17	86	35	28	15,8	1
RAY-CF-95/240-13	95-240	13	112	60	33	20	2
RAY-CF-95/240-17	95-240	17	112	60	33	20	2
RAY-CF-120/300-17	120-300	17	115	65	37	24	2

Connectors with shear bolts

Product / Item	Sections (mm ²)	L (mm)	L1 (mm)	D (mm)	d (mm)	Number of screws	Clamping key (AF)
RAY-TFM-25/95	25-95	65	30	24	12,8	2	13
RAY-TFM-35/150	35-150	80	35	28	15,8	2	17
RAY-TFM-120/300	120-300	140	60	37	24	4	22
RAY-TFM-400/630	400-630	200	95	50	33	6	27
RAY-TFM-630/1000	630-1000	220	120	60	40,6	8	22

★ ADVANTAGES

- **Quick installation benefiting labor costs.**
- **Only a socket wrench or a spanner is required.**
- **Pre-supplied with sealing compound.**
- **The solid structure prevents moisture from entering.**
- **Electrolytically tinned surface.**



MEDIUM VOLTAGE COLD-SHRINK



**Electrical performance:**

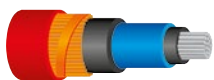
CEI 20-24 • CEI 20-62/1 • HD 629-1

Kit composition:

Three single core terminations

RANGES OF APPLICATION

For single core cables type:

**Extruded cable
copper wire screened****Extruded cable
copper tape screened****TEMPERATURE****105°C**

Working temperature

**140°C**

Max overload temperature

**300°C**

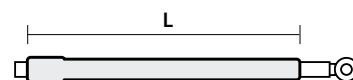
Short circuit temperature

To select the right termination:Cable code, section in mm², nominal voltage, indoor or outdoor installation.

COLD-SHRINK TERMINATIONS FOR INDOOR USE

Silicone rubber terminations with electric field control.
For extruded cables up to **18/30 kV (Um 36 kV)**.

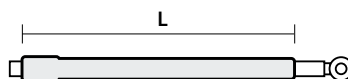
Cold-shrink technology is based on pre-dilated insulating sheaths on a removable spiral support, which is removed without tools during installation to allow for complete covering of the cable insulation. The Raytech silicone sheath, supplied pre-expanded, is flame retardant, is highly anti-tracking, has very high elastic characteristics, is able to maintain pressure on the cable during operation, is water-repellent and is extremely sturdy. Raytech terminations are suitable for indoor, very compact applications, with a smooth structure and complete with all components. Each kit contains 3 single core indoor terminations. The components are cold-installed without tools, unwinding the pigtail wire.

**For cables****(A)RG16H1R12 and (A)RG7H1R insulation thickness FULL**

Product	Item	U _{max} (kV)	Ø on insulation (mm)	Ø on external sheath (mm)	Conductor cross section (mm ²)	L (mm)
AUTO 10/120-I	10120-I-AUTO	12	15,3 - 20,2	24,6 - 29,6	50 - 120	320
AUTO 10/240-I	10240-I-AUTO		18,7 - 25,6	28,0 - 35,8	95 - 240	
AUTO 10/630-I	10630-I-AUTO		28,2 - 37,8	38,5 - 49,4	300 - 630	
AUTO 15/70-I	1570-I-AUTO	17,5	16,3 - 19,2	25,6 - 28,7	35 - 95	
AUTO 15/240-I	15240-I-AUTO		19,2 - 27,8	28,7 - 38,1	70 - 240	
AUTO 15/630-I	15630-I-AUTO		27,8 - 40,0	38,1 - 52,1	240 - 630	
AUTO 20/50-I	2050-I-AUTO	24	17,3 - 19,5	27,8 - 29,0	25 - 50	410
AUTO 20/185-I	20185-I-AUTO		19,5 - 30,0	29,0 - 37,8	50 - 240	
AUTO 20/630-I	20630-I-AUTO		29,8 - 42,0	40,2 - 54,2	240 - 630	
AUTO 30/95-I	3095-I-AUTO	36	22,3 - 29,4	33,5 - 38,5	25 - 120	
AUTO 30/120-I	30120-I-AUTO		29,4 - 31,0	37,3 - 41,2	120 - 150	
AUTO 30/400-I	30400-I-AUTO		30,6 - 40,3	39,0 - 51,3	150 - 500	
AUTO 30/630-I	30630-I-AUTO		43,0 - 48,0	51,5 - 59,8	500 - 630	

For cables RG7H1M1 insulation thickness LOW

Product	Item	U _{max} (kV)	Ø on insulation (mm)	Ø on external sheath (mm)	Conductor cross section (mm ²)	L (mm)
AUTO 20/50-I	2050-I-AUTO	24	17,0 - 19,0	23,3 - 25,3	25 - 70	320
AUTO 20/185-I	20185-I-AUTO		21,0 - 28,0	26,7 - 34,5	95 - 240	
AUTO 20/630-I	20630-I-AUTO		28,0 - 41,0	34,6 - 48,3	240 - 630	
AUTO 30/95-I	3095-I-AUTO	36	25,0 - 27,0	31,2 - 33,4	50 - 120	410
AUTO 30/120-I	30120-I-AUTO		28,0 - 29,0	32,3 - 35,0	150 - 240	
AUTO 30/400-I	30400-I-AUTO		28,0 - 40,0	34,6 - 47,9	150 - 500	
AUTO 30/630-I	30630-I-AUTO		35,0 - 46,0	42,0 - 53,0	500 - 630	



For cables CPR RG26H1M16 12/20 kV (U_{max} 24 kV)

Product Item	Nominal voltage U _{max} (kV)	Ø on insulation (mm)	Ø on external sheath (mm)	Conductor cross section (mm ²)	L (mm)
AUTO 20/50-I 2050-I-AUTO	24	17	26	25	320
		17	27	35	
		18	28	50	
AUTO 20/185-I 20185-I-AUTO	24	19	29	70	320
		20,6	30	95	
		22	32	120	
		23,7	34	150	
		25 - 27,8	36	185 - 240	
AUTO 20/630-I 20630-I-AUTO	24	27,8	39	240	320
		30,8	43	300	
		33	46	400	
		37	49	500	
		40	51	630	

For cables CPR RG26H1M16 18/30 kV (U_{max} 36 kV)

Product Item	Nominal voltage U _{max} (kV)	Ø on insulation (mm)	Ø on external sheath (mm)	Conductor cross section (mm ²)	L (mm)
AUTO 30/95-I 3095-I-AUTO	36	25,6	32	35	410
		25	35	50	
		25	36	70	
		26	37	95	
		27	38	120	
AUTO 30/120-I 30120-I-AUTO	36	28,2	39	150	410
		29,2	41	185	
		31,5	43	240	
AUTO 30/400-I 30400-I-AUTO	410	34,5	46	300	410
		37	48	400	
		41	52	500	
		45	61,7	630	

The accessories for cables in accordance with CPR, type RG26H1M16 (Italian designation), are suitable for

- Cables with copper conductors
- Special thermoplastic sheath
- Red copper wire screen
- High modulus rubber insulation

★ ADVANTAGES

- Rapid installation for lower labour cost
- Highly reliable and safe for operators
- Installation without heating and without tools



**Electrical performance:**

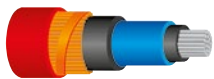
CEI 20-24 • CEI 20-62/1 • HD 629-1

Kit composition:

Three single core terminations

RANGES OF APPLICATION

For single core cables type:

**Extruded cable
copper wire screened****Extruded cable
copper tape screened****TEMPERATURES****105°C**

Working temperature

**140°C**

Max overload temperature

**300°C**

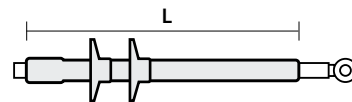
Short circuit temperature

To select the right termination:Cable code, section in mm², nominal voltage, indoor or outdoor installation.

COLD-SHRINK TERMINATIONS FOR OUTDOOR USE

Silicone rubber outdoor terminations with electric field control and bell-shaped insulators. For extruded cables up to **18/30 kV (Um 36 kV)**.

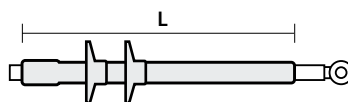
The Raytech silicone sheath, supplied pre-expanded, is flame retardant, is highly anti-tracking, has very high elastic characteristics, is able to maintain pressure on the cable during operation, is water-repellent and is extremely sturdy. With pre-dilated silicone fins on a spiral support for modular installation of the outdoor accessory for upside-down installation. Raytech terminations are suitable for external, very compact applications, complete with all components. Each kit contains 3 single core outdoor terminations. The components are cold-installed without tools, unwinding the pigtail wire.

**For cables****(A)RG16HIR12 and (A)RG7HIR insulation thickness FULL**

Product	Item	U _{max} (kV)	Ø on insulation (mm)	Ø on external sheath (mm)	Conductor cross section (mm ²)	L (mm)
AUTO 10/120-E	10120-E-AUTO	12	15,3 - 20,2	24,6 - 29,6	50 - 120	410
AUTO 10/240-E	10240-E-AUTO		18,7 - 25,6	28,0 - 35,8	95 - 240	410
AUTO 10/300-E	10300-E-AUTO		28,0 - 29,0	35,5 - 39,0	300	410
AUTO 10/630-E	10630-E-AUTO		28,3 - 37,8	38,5 - 49,4	300 - 630	420
AUTO 15/70-E	1570-E-AUTO	17,5	16,3 - 19,2	25,6 - 28,7	35 - 95	410
AUTO 15/240-E	15240-E-AUTO		19,2 - 27,8	28,7 - 38,1	70 - 240	410
AUTO 15/300-E	15300-E-AUTO		30,0 - 31,0	38,0 - 41,0	300	410
AUTO 15/630-E	15630-E-AUTO		30,4 - 40,0	40,2 - 52,1	300 - 630	420
AUTO 20/50-E	2050-E-AUTO	24	17,3 - 19,5	27,8 - 29,0	25 - 50	410
AUTO 20/185-E	20185-E-AUTO		19,5 - 30,0	29,0 - 37,8	50 - 240	410
AUTO 20/240-E	20240-E-AUTO		27,5 - 31,0	35,7 - 41,0	185 - 240	410
AUTO 20/630-E	20630-E-AUTO		29,8 - 42,0	40,2 - 54,2	240 - 630	420
AUTO 30/95-E	3095-E-AUTO	36	22,3 - 29,4	33,5 - 38,5	25 - 120	680
AUTO 30/120-E	30120-E-AUTO		29,4 - 31,0	37,3 - 41,2	120 - 185	680
AUTO 30/400-E	30400-E-AUTO		30,6 - 40,3	39,0 - 51,3	150 - 500	680
AUTO 30/630-E	30630-E-AUTO		43,0 - 48,0	51,5 - 59,8	500 - 630	680

For cables RG7HIM1 insulation thickness LOW

Product	Item	U _{max} (kV)	Ø on insulation (mm)	Ø on external sheath (mm)	Conductor cross section (mm ²)	L (mm)
AUTO 20/50-E	2050-E-AUTO	24	17,0 - 19,0	23,3 - 25,3	25 - 70	410
AUTO 20/185-E	20185-E-AUTO		21,0 - 28,0	26,7 - 34,5	95 - 240	410
AUTO 20/240-E	20240-E-AUTO		28,0 - 31,5	34,6 - 42,0	240 - 300	410
AUTO 20/630-E	20630-E-AUTO		31,0 - 41,0	37,4 - 48,3	300 - 630	420
AUTO 30/95-E	3095-E-AUTO	36	25,0 - 27,0	31,2 - 33,4	50 - 120	680
AUTO 30/120-E	30120-E-AUTO		28,0 - 29,0	32,3 - 35,0	150 - 240	680
AUTO 30/400-E	30400-E-AUTO		28,0 - 40,0	34,6 - 47,9	150 - 500	680
AUTO 30/630-E	30630-E-AUTO		35,0 - 46,0	42,0 - 53,0	500 - 630	680



For cables CPR RG26H1M16 12/20 kV (U_{max} 24 kV)

Product Item	Nominal voltage U _{max} (kV)	Ø on insulation (mm)	Ø on external sheath (mm)	Conductor cross section (mm ²)	L (mm)
AUTO 20/50-E 2050-E-AUTO	24	17	26	25	410
		17	27	35	
		18	28	50	
AUTO 20/185-E 20185-E-AUTO	24	19	29	70	410
		20,6	30	95	
		22	32	120	
		23,7	34	150	
AUTO 20/240-E 20240-E-AUTO	24	25 - 27,8	36	185 - 240	410
		27,8	39	240	
		30,8	43	300	
AUTO 20/630-E 20630-E-AUTO	24	33	46	400	420
		37	49	500	
		40	51	630	

For cables CPR RG26H1M16 18/30 kV (U_{max} 36 kV)

Product Item	Nominal voltage U _{max} (kV)	Ø on insulation (mm)	Ø on external sheath (mm)	Conductor cross section (mm ²)	L (mm)
AUTO 30/95-E 3095-E-AUTO	36	25,6	32	35	680
		25	35	50	
		25	36	70	
		26	37	95	
		27	38	120	
AUTO 30/120-E 30120-E-AUTO	36	28,2	39	150	680
		29,2	41	185	
		31,5	43	240	
AUTO 30/400-E 30400-E-AUTO	36	34,4	46	300	680
		37	48	400	
		41	52	500	
		45	61,7	630	

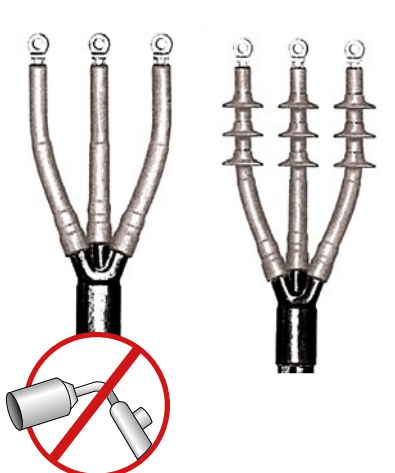
The accessories for cables in accordance with CPR, type RG26H1M16 (Italian designation), are suitable for

- Cables with copper conductors
- Special thermoplastic sheath
- Red copper wire screen
- High modulus rubber insulation

★ ADVANTAGES

- Rapid installation for lower labour cost
- Highly reliable and safe for operators
- Installation without heating and without tools



**Electrical performance:**

CEI 20-24 • CEI 20-62/1 • HD 629-1

RANGES OF APPLICATION

For single core cables type:

**Three-core extruded cable, wire screened****Three-core extruded cable, tape screened, armoured****Note:** for three-core cables, low thickness insulation, please contact Raytech.**★ ADVANTAGES**

- Rapid installation for lower labour cost
- Highly reliable and safe for operators
- Installing without heating and without tools

THREE-CORE COLD-SHRINK TERMINATIONS FOR INDOOR/OUTDOOR USE

Terminations for armoured and non armoured extruded cables up to **36 kV**

Hybrid technology that provides heat-shrink trifurcation and cold-shrink termination.

For INDOOR use**For NON ARMoured cables**

Product	Item	U _{max} 12 kV	U _{max} 17,5 kV	U _{max} 24 kV	U _{max} 36 kV
		sect. (mm ²)	sect. (mm ²)	sect. (mm ²)	sect. (mm ²)
AUTO 20/50-I-3	2050-I-3-AUTO	50 - 120	35 - 70	25 - 50	-
AUTO 20/185-I-3	20185-I-3-AUTO	95 - 240	70 - 240	50 - 185	-
AUTO 20/630-I-3	20630-I-3-AUTO	300 - 500	240 - 400	240 - 300	-
AUTO 30/95-I-3	3095-I-3-AUTO	-	-	-	25 - 95
AUTO 30/240-I-3	30240-I-3-AUTO	-	-	-	120 - 240

For ARMoured cables

Product	Item	U _{max} 12 kV	U _{max} 17,5 kV	U _{max} 24 kV	U _{max} 36 kV
		sect. (mm ²)	sect. (mm ²)	sect. (mm ²)	sect. (mm ²)
AUTO 20/50-I-3ARM	2050-I-3ARM-AUTO	50 - 120	35 - 70	25 - 50	-
AUTO 20/185-I-3ARM	20185-I-3ARM-AUTO	95 - 240	70 - 240	50 - 185	-
AUTO 20/630-I-3ARM	20630-I-3ARM-AUTO	300 - 500	240 - 400	240 - 300	-
AUTO 30/95-I-3ARM	3095-I-3ARM-AUTO	-	-	-	25 - 95
AUTO 30/240-I-3ARM	30240-I-3ARM-AUTO	-	-	-	120 - 240

For OUTDOOR use**For NON ARMoured cables**

Product	Item	U _{max} 12 kV	U _{max} 17,5 kV	U _{max} 24 kV	U _{max} 36 kV
		sect. (mm ²)	sect. (mm ²)	sect. (mm ²)	sect. (mm ²)
AUTO 20/50-E-3	2050-E-3-AUTO	50 - 120	35 - 70	25 - 50	-
AUTO 20/185-E-3	20185-E-3-AUTO	95 - 240	70 - 240	50 - 185	-
AUTO 20/630-E-3	20630-E-3-AUTO	300 - 500	240 - 400	240 - 300	-
AUTO 30/95-E-3	3095-E-3-AUTO	-	-	-	25 - 95
AUTO 30/240-E-3	30240-E-3-AUTO	-	-	-	120 - 240

For ARMoured cables

Product	Item	U _{max} 12 kV	U _{max} 17,5 kV	U _{max} 24 kV	U _{max} 36 kV
		sect. (mm ²)	sect. (mm ²)	sect. (mm ²)	sect. (mm ²)
AUTO 20/50-E-3ARM	2050-E-3ARM-AUTO	50 - 120	35 - 70	25 - 50	-
AUTO 20/185-E-3ARM	20185-E-3ARM-AUTO	95 - 240	70 - 240	50 - 185	-
AUTO 20/630-E-3ARM	20630-E-3ARM-AUTO	300 - 500	240 - 400	240 - 300	-
AUTO 30/95-E-3ARM	3095-E-3ARM-AUTO	-	-	-	25 - 95
AUTO 30/240-E-3ARM	30240-E-3ARM-AUTO	-	-	-	120 - 240

MEDIUM VOLTAGE TESTING DETAILS FOR TERMINALS AND JOINTS UP TO 36 kV.

TEST	TEST METHOD (VOLTAGES IN kV)	MAXIMUM VOLTAGE PER CABLE UM (kV)					RESULTS
		7,2	12	17,5	24	36	
INDUSTRIAL FREQUENCY AC	a) 1 min. (dry)	27	35	45	55	75	Neither perforations nor discharges
	b) 1 min. (in the rain)	27	35	45	55	75	
	c) 4 h.	14	24	36	48	73	
PARTIAL DISCHARGES	PE, XLPE, EPR, PVC (voltages in kV)	4,5	7,5	10,9	15	22,5	< 3 pC
		7,2	12	17,5	24	-	< 20 pC
IMPULSE	a) 10 positive 10 negative 1,2/50 μ s (voltages in kV)	60	75	95	125	170	Neither perforations nor discharges
	b) 10 positive 10 negative 1,2/50 μ s (voltages in kV)	70	95	110	150	200	
THERMAL CYCLES WITH APPLIED VOLTAGE	a) 63 cycles of 5 h. of heating, 3 h. of air cooling	-	-	-	-	-	
	b) 63 cycles of 5 h. of heating, 3 h. of water cooling (1m of water head)	-	-	-	-	-	
	Extruded cable and non-migrant mixture paper cable	9	15	22	30	45	Neither perforations nor discharges
	Migrant mixture paper cable	6,5	11	15	22	32	
THERMAL SHORT-CIRCUIT TEST	a) short-circuit of 1s f/t at maximum temperature specified for the cable	-	-	-	-	-	No visible damage
	b) short-circuit of 1s f/t at maximum temperature specified for the cable	-	-	-	-	-	
DIRECT CURRENT	30 min	28	48	72	96	144	Neither perforations nor discharges
HUMIDITY TEST WITH APPLIED VOLTAGE	a) 100 h. in saturated air	4,5	7,5	10,9	15	22,5	Neither perforations nor discharges, nor visible carbonisation nor erosion
	b) 1000 h. in saturated air	4,5	7,5	10,9	15	22,5	
DYNAMIC SHORT-CIRCUIT TEST	63 kA - Standard	-	-	-	-	-	No visible damage
	125 kA - High Current	-	-	-	-	-	
IMPACT	Fall from a height of 2 m at a weight of 4 kg, 6 times (only reinforced joints)	-	-	-	-	-	
SALTY FOG TEST WITH APPLIED VOLTAGE	1h of sealing salinity 224 kg/m ³ (voltages in kV)	4,5	7,5	10,9	15	22,5	No discharge

TESTING SEQUENCE

Indoor terminations 1a,2,3a, 4a,2,5, 4a, 1c, 3a,6,7a, 8

Outdoor terminations 1b, 2, 3b, 4a,2, 5,4a, 2, 1c,3b, 6,7b, 8, 10

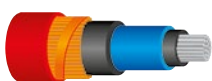
Joints 9, 1a,2,3b,4a,2,5, 4b,2,5, 4b,2,1c,3b, 6,8

**Electrical performance:**

CEI 20-24 • CEI 20-62/1 • HD 629-1

RANGES OF APPLICATION

For single core cables type:

**Extruded cable
copper wire screened****Extruded cable
copper tape screened****TEMPERATURES****105°C**

Working temperature

**140°C**

Max overload temperature

**300°C**

Short circuit temperature

SINGLE CORE COLD-SHRINK JOINTS

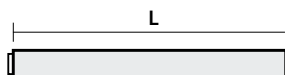
Monoblock joints for extruded cables
up to **18/30 kV (Um 36 kV)**.

Suitable for outdoor, underground and even underwater applications. Very compact and complete with all components. Each kit contains 1 single core joint. Each joint component is pre-dilated on a spiral support and is extremely easy to remove for fast, safe installation without the use of any tools or heating.



★ ADVANTAGES

- Rapid installation for lower labour cost
- Highly reliable and safe for operators
- Installing without heating and without tools
- Reduced size of the joint and joint bay dimensions
- Minimized possibility of error



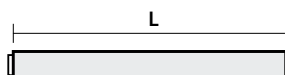
For cables

(A)RG16H1R12 and (A)RG7H1R insulation thickness FULL

Product	Item	U _{max} (kV)	Ø on insulation (mm)	Ø on external sheath (mm)	Conductor cross section (mm ²)	L (mm)
JMAUTO 20/95-1	JM-2095-1-AUTO	12	17 - 23	26 - 33	70 - 150	550
JMAUTO 20/240-1	JM-20240-1-AUTO		22 - 32	33 - 39	185 - 400	600
JMAUTO 20/400-1	JM-20400-1-AUTO		32 - 36	42 - 48	400 - 630	600
JMAUTO 20/95-1	JM-2095-1-AUTO	17,5	17 - 23	26 - 33	50 - 150	550
JMAUTO 20/240-1	JM-20240-1-AUTO		22 - 32	33 - 39	150 - 300	600
JMAUTO 20/400-1	JM-20400-1-AUTO		32 - 36	42 - 48	400 - 500	600
JMAUTO 20/95-1	JM-2095-1-AUTO	24	17 - 23	26 - 33	25 - 95	550
JMAUTO 20/240-1	JM-20240-1-AUTO		22 - 32	33 - 39	120 - 240	600
JMAUTO 20/400-1	JM-20400-1-AUTO		32 - 36	42 - 48	300 - 400	600
JMAUTO 20/500-1	JM-20500-1-AUTO	36	36 - 40	43 - 47	400 - 500	600
JMAUTO 30/95-1	JMAUTO 30/95-1		25 - 29	31,2 - 38,3	50 - 95	750
JMAUTO 30/185-1	JMAUTO 30/185-1		27 - 31	33,4 - 42	120 - 185	750
JMAUTO 30/300-1	JMAUTO 30/300-1		31 - 36	max 43	240 - 300	750

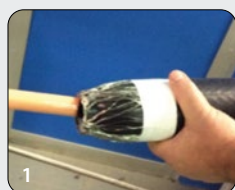
For cables

RG7H1M1 insulation thickness LOW



Product	Item	U _{max} (kV)	Ø on insulation (mm)	Ø on external sheath (mm)	Conductor cross section (mm ²)	L (mm)
JMAUTO 20/95-1	JM-2095-1-AUTO	24	17 - 23	26 - 33	25 - 120	550
JMAUTO 20/240-1	JM-20240-1-AUTO		22 - 32	33 - 39	120 - 300	600
JMAUTO 20/400-1	JM-20400-1-AUTO		32 - 36	42 - 48	300 - 500	600

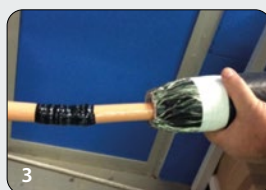
Installation sequence



1
The body of the joint carries the integrated shield and outer sheath.



2
The joint is fitted on the connected cable.



3
Position at the centre of the connection and collapsed on the cable removing the inner support.



4
The joint is completed and can be used immediately.



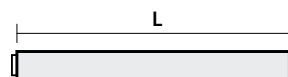
Single core cold-shrink joints
(U_{max} 24 kV)



Single core cold-shrink singleblock joints
(U_{max} 36 kV)

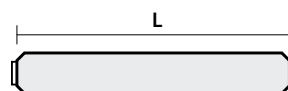
The accessories for cables in accordance with CPR, type RG26H1M16 (Italian designation), are suitable for

- Cables with copper conductors
- Special thermoplastic sheath
- Red copper wire screen
- High modulus rubber insulation



For cables CPR RG26H1M16 12/20 kV (U_{max} 24 kV)

Product Item	Nominal voltage U _{max} (kV)	Ø on insulation (mm)	Ø on external sheath (mm)	Conductor cross section (mm²)	L (mm)
JMAUTO 20/95-1 JM-2095-1-AUTO	24	17	26	25	550
		17	27	35	
		18	28	50	
		19	29	70	
		20,6	30	95	
JMAUTO 20/240-1 JM-20240-1-AUTO	24	22	32	120	600
		23,7	34	150	
		25	36	185	
JMAUTO 20/400-1 JM-20400-1-AUTO	24	27,8	39	240	600
		30,8	43	300	



For cables CPR RG26H1M16 18/30 kV (U_{max} 36 kV)

Product Item	Nominal voltage U _{max} (kV)	Ø on insulation (mm)	Ø on external sheath (mm)	Conductor cross section (mm²)	L (mm)
JMAUTO 30 / 95-1 JMAUTO 30/95-1	36	25,6	32	35	750
		25	35	50	
		25	36	70	
JMAUTO 30 / 185-1 JMAUTO 30/185-1	36	26	37	95	750
		27	38	120	
		28,5	39	150	
		29,5	41	185	
JMAUTO 30 / 300-1 JMAUTO 30/300-1	36	31 - 36	max 43	240 - 300	750

SINGLE CORE COLD-SHRINK JOINTS

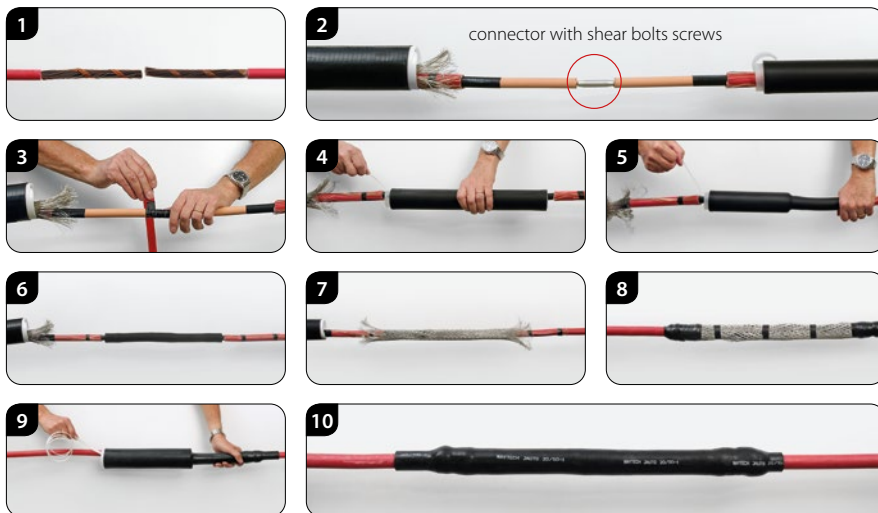
COMPLETE OF MECHANICAL CONNECTORS WITH SHEAR BOLTS SCREWS.

Monoblock joints for extruded cables up to 18/30 kV (U_{max} 36 kV), complete of connectors with shear bolts screws, in addition to the typical features and characteristics of this type of accessory, offer exceptional versatility and ease of installation thanks to the use of mechanical connectors.

For cables

(A) RG16H1R12, (A) RG7H1R, RG7H1M1 e RG26H1M16

Product / Item	U _{max} (kV)	Ø insulating (mm)	Ø External sheath (mm)	Conductor cross section (mm ²)	L (mm)
JMAUTO 20/95-1-CF95 JAUTO20/95-95	24	17-23	26-33	25-95	550
JMAUTO 20/240-1-CF150 JAUTO20/240-150		22-32	33-39	120-150	600
JMAUTO 20/400-1-CF300 JAUTO20/400-300		26-36	38-48	150-300	600
JMAUTO 30/95-1-CF95 JAUTO30/95-95	36	25-29	31,2-38,3	50-95	750
JMAUTO 30/185-1-CF185 JAUTO30/185-185		27-31	33,4-42	120-185	750
JMAUTO 30/300-1-CF300 JAUTO30/300-300		31-36	Max 43	240-300	750



★ ADVANTAGES

- Rapid installation for lower labour cost
- Highly reliable and safe for operators
- Installing without heating and without tools
- Reduced size of the joint and joint bay dimensions
- Minimized possibility of error

NEW



In compliance with standards
IEC 61238-1

RANGES OF APPLICATION

For single core cables type:



Extruded cable
copper wire screened



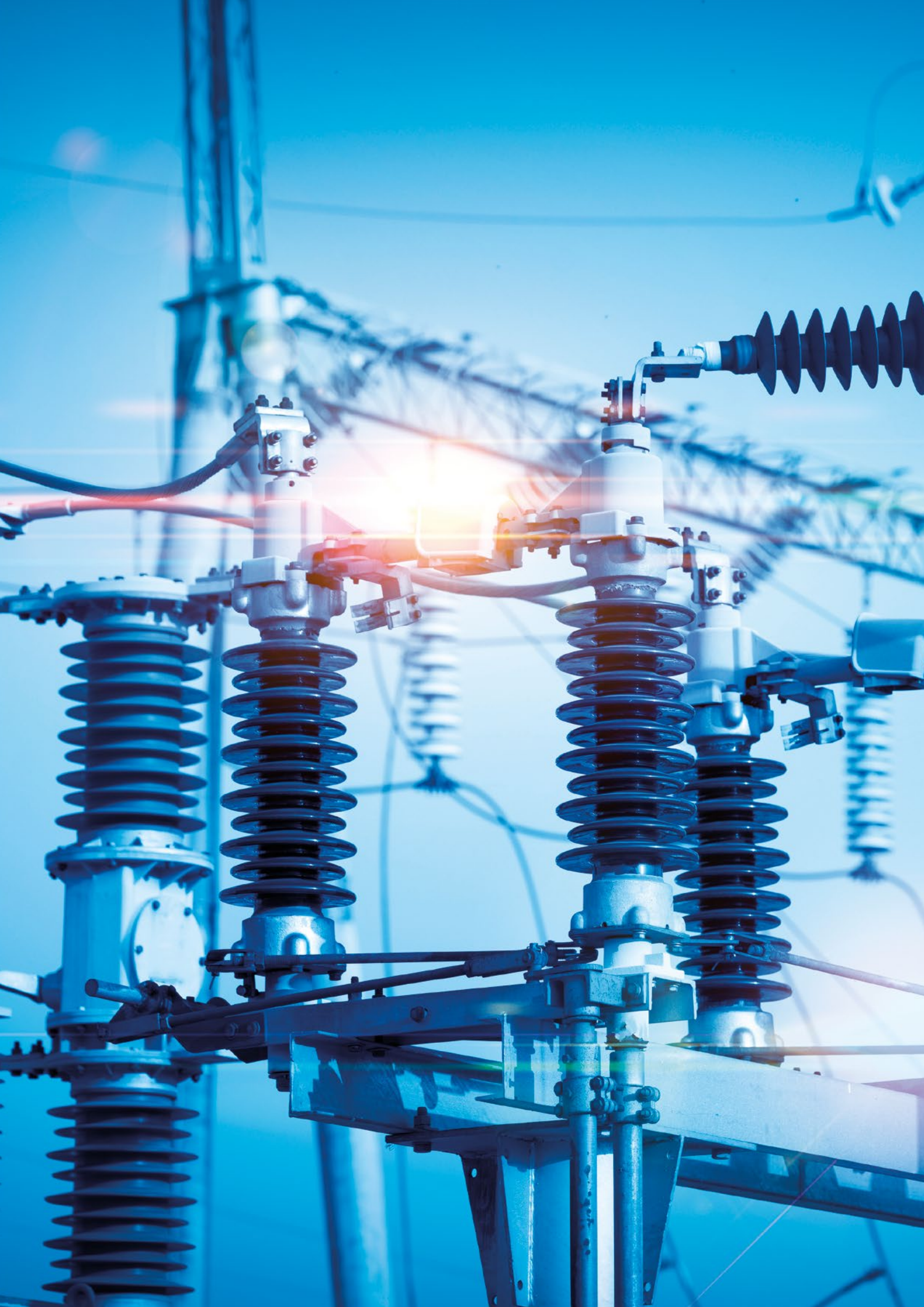
Extruded cable
copper tape screened

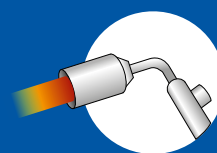
TEMPERATURES

105°C
Working temperature

140°C
Max overload temperature

300°C
Short circuit temperature





MEDIUM VOLTAGE HEAT-SHRINK





TERMINATIONS AND JOINTS HEAT-SHRINK



QUICK PREPARATION



THEY DO NOT REQUIRE A PARTICULAR MANPOWER



LOW NUMBER OF COMPONENTS



WITH NO SHELF LIFE



CAN BE INSTALLED IN ALL ENVIRONMENTAL CONDITIONS



HIGH FLEXIBILITY OF USE



EXTREMELY COMPACT



EASY CUSTOMIZATION



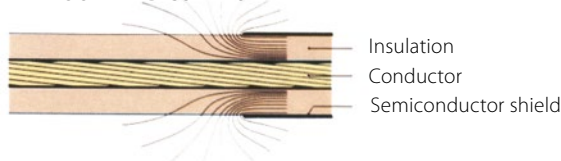
ACCESSORIES

HEAT-SHRINK

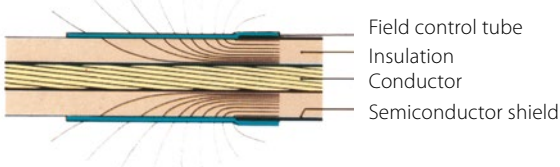
ELECTRIC FIELD CONTROL

The control of the electric field is achieved by means of polymers charged with metal oxides with a non-linear characteristic; in the terminations the outer sheaths, designed to get a higher resistance to UV radiation and to electrical tracking, completely cover the cable insulation.

WITHOUT FIELD CONTROL



WITH FIELD CONTROL TUBE

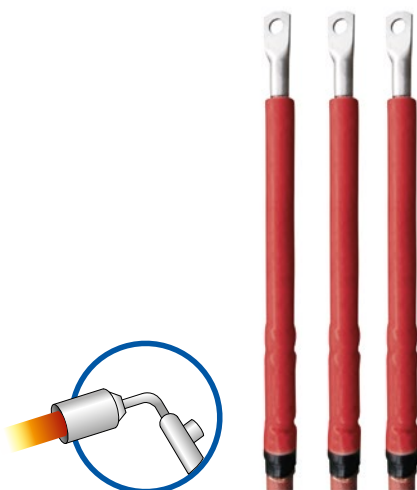


IDENTIFICATION OF COMPLEMENTARY ACCESSORIES

With a few complementary accessories the terminations are suitable for all types of cable:

MV Terminations how to identify and order complementary accessories

Accessory	Abbreviation to add to the product code		Example	
Grounding braid for aluminium tube shields	/H5		THVE 20/A-RC/H5	
Grounding braid with roll spring (only for single core)	/24	For cables (mm ²) up to 25	THVE 20/A-RC/24	
	/25	from 35 to 95	THVE 20/B-RC/25	
	/26	from 120 to 300	THVE 20/C-RC/26	
	/27	from 400 to 630	THVE 20/C-RC/27	
Copper cable terminal	-C	+ Conductor cross section	THVE 20/A-RC-C50	
Aluminium cable terminal	-CA	+ Conductor cross section	THVE 20/A-RC-CA50	
Shear bolt lug	-CPR	+ Conductor cross section	THVE 20/A-RC-CPR50	
Multiple choice	With cable lug and grounding accessory, add codes		THVE 20/A-RC/24-C50	

**Electrical performance:**

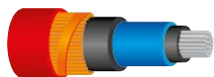
CEI 20-24 • CEI 20-62/1 • HD 629-1

Kit composition:

Three single core terminations

RANGES OF APPLICATION

For single core cables type:

**Extruded cable, copper wire screen****Extruded cable, copper tape screen****Extruded cable, aluminium tube screen****TEMPERATURES****105°C**

Working temperature

**140°C**

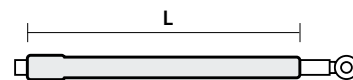
Max overload temperature

**300°C**

Short circuit temperature

For complementary accessories see page 169

HEAT-SHRINK TERMINATIONS FOR **INDOOR USE** FOR **NON ARMoured** CABLES

Terminations for **SINGLE CORE** extruded cables up to **36 kV**.

For cables

(A)RG16H1R12 and **(A)RG7H1R** insulation thickness **FULL**

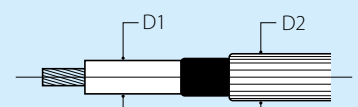
Product	Item	Voltage U _{max} (kV)	Conductor cross section (mm ²)	L (mm)
THVE 6/A-RC	369608-000	7,2	25 - 120	210
THVE 6/B-RC	034189-000		150 - 400	
THVE 6/C-RC	882065-000		500 - 630	
THVE 15/A-RC	906848-000	12	25 - 95	320
THVE 15/B-RC	500365-000		120 - 300	
THVE 15/C-RC	068756-000		400 - 630	
THVE 15/A-RC	906848-000	17,5	25 - 50	320
THVE 15/B-RC	500365-000		70 - 300	
THVE 15/C-RC	068756-000		400 - 800	
THVE 20/A-RC	507698-000	24	25 - 50	320
THVE 20/B-RC	190360-000		50 - 240	
THVE 20/C-RC	485361-000		240 - 630	
THVE 30/A-RC	454523-000	36	35 - 95	430
THVE 30/B-RC	308359-000		120 - 185	
THVE 30/C-RC	651264-000		240 - 500	

For shielded aluminium tube cables, add terminal abbreviation **H5**.

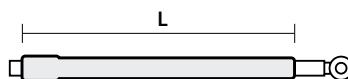
For cables **RG7H1M1 Afumex** insulation thickness **LOW**

Product	Item	Voltage U _{max} (kV)	Conductor cross section (mm ²)	L (mm)
THVE 20/A-RC	507698-000	24	25 - 120	320
THVE 20/B-RC	190360-000		95 - 300	
THVE 20/C-RC	485361-000		240 - 630	
THVE 30/A-RC	454523-000	36	50 - 185	430
THVE 30/B-RC	308359-000		120 - 240	
THVE 30/C-RC	651264-000		240 - 630	

HIGH VOLTAGE



Product	Item	Voltage U _{max} (kV)	Ø D1 insulation (mm)	Ø D2 max. external (mm)
THVE 45/A-I	THVE45/A-I	42 - 52	30 - 45	60
THVE 45/B-I	THVE45/B-I	42 - 52	38 - 52	70



For cables CPR RG26H1M16 12/20 kV (U_{max} 24 kV)

Product Item	Nominal voltage U _{max} (kV)	Ø on insulation (mm)	Ø on external sheath (mm)	Conductor cross section (mm ²)	L (mm)
THVE 20/A-RC 507698-000	24	17	26	25	320
		17	27	35	
THVE 20/B-RC 190360-000	24	18	28	50	320
		19	29	70	
		20,6	30	95	
		22	32	120	
		23,7	34	150	
		25	36	185	
THVE 20/C-RC 485361-000	24	27,8	39	240	320
		30,8	43	300	
		33	46	400	
		37	49	500	
		40	51	630	

For cables CPR RG26H1M16 18/30 kV (U_{max} 36 kV)

Product Item	Nominal voltage U _{max} (kV)	Ø on insulation (mm)	Ø on external sheath (mm)	Conductor cross section (mm ²)	L (mm)
THVE 30/B-RC 308359-000	36	25,6	32	35	430
		25	35	50	
		25	36	70	
		26	37	95	
		27	38	120	
		28,2	39	150	
		29,2	41	185	
THVE 30/C-RC 651264-000	36	31,5	43	240	430
		34,4	46	300	
		37	48	400	
THVE 30/D-RC 700320-000	36	41	52	500	430
		45	55	630	

The heat shrink terminations for cables in accordance with CPR, type RG26H1M16 (Italian designation), are suitable for

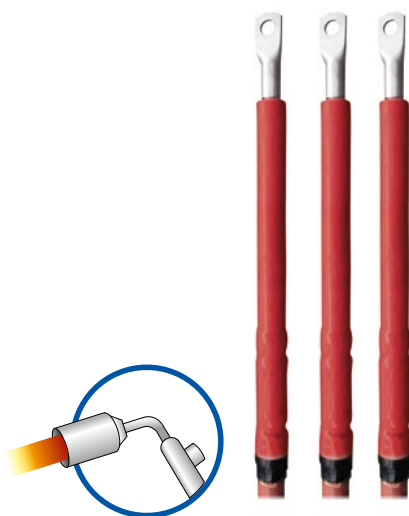
- Cables with copper conductors
- Special thermoplastic sheath
- Red copper wire screen
- High modulus rubber insulation

★ ADVANTAGES

- Immediately energizable
- Quick in installation
- Simple and reliable they do not require a special skilling
- Optimal distribution of the electric field
- Can be installed in all environmental conditions
- No shelf life



For higher voltages, please fill out the request form and send it to info@raytech.it

**Electrical performance:**

CEI 20-24 • CEI 20-62/1 • HD 629-1

Kit composition:

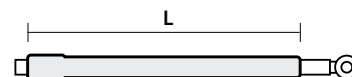
Three single core terminations

RANGES OF APPLICATION

For single core cables type:

Extruded cable, wire or tape screened, aluminium wire armoured**Extruded cable, wire or tape screened, aluminium tape armoured**

HEAT-SHRINK TERMINATIONS FOR INDOOR USE FOR ARMoured CABLES

Terminations for **SINGLE CORE** extruded cables up to **36 kV**.**For cables armoured with wires or aluminium tape**

For Umax cables

7,2 kV

Product	Item	Voltage Umax (kV)	Conductor cross section (mm ²)	L (mm)
THVI 6/0-ARM	THVI6/0-ARM	7,2	25 - 70	460
THVI 6/A-ARM	THVI6/A-ARM		95 - 120	
THVI 6/B-ARM	THVI6/B-ARM		150 - 400	
THVI 6/C-ARM	THVI6/C-ARM		500 - 630	

For Umax cables from **12 to 24 kV**

Product	Item	Umax 12 kV	Umax 17,5 kV	Thickness FULL	Thickness LOW	L (mm)
		sect. (mm ²)	sect. (mm ²)	Umax 24 kV sect. (mm ²)	Umax 24 kV sect. (mm ²)	
THVI 20/A-ARM	507698-002	25 - 95	25 - 50	25 - 50	25 - 120	600
THVI 20/B-ARM	190360-002	120 - 300	70 - 300	70 - 240	95 - 300	
THVI 20/C-ARM	485361-002	400 - 800	400 - 800	240 - 630	240 - 630	

For Umax cables

36 kV

Product	Item	Voltage Umax (kV)	Conductor cross section (mm ²)	L (mm)
THVI 30/A-ARM	THVI30/A-ARM	36	35 - 95	730
THVI 30/B-ARM	THVI30/B-ARM		120 - 185	
THVI 30/C-ARM	THVI30/C-ARM		240 - 500	

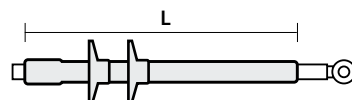
★ ADVANTAGES

- Immediately energizable
- Quick in installation
- Simple and reliable they do not require a special skilling
- Optimal distribution of the electric field
- Can be installed in all environmental conditions
- No shelf life

For complementary accessories see page 169

HEAT-SHRINK TERMINATIONS FOR **OUTDOOR USE** FOR **NON ARMoured** CABLES

Terminations for **SINGLE CORE** extruded cables up to **36 kV**.



For cables

(A)RG16H1R12 and **(A)RG7H1R** insulation thickness **FULL**

Product	Item	Voltage U _{max} (kV)	Conductor cross section (mm ²)	L (mm)
THVE 6/120-E	THVE6/120-E	7,2	25 - 120	340
THVE 6/400-E	164000-000		150 - 400	
THVE 6/630-E	606630-TEC		500 - 630	
THVE 15/50-E	120036-TEC	12	25 - 95	450
THVE 15/300-E	206772-000		120 - 300	
THVE 15/800-E	125336-TEC		400 - 630	
THVE 15/50-E	120036-TEC	17,5	25 - 50	450
THVE 15/300-E	206772-000		70 - 300	
THVE 15/800-E	125336-TEC		400 - 800	
THVE 20/25-E	231047-TEC	24	25 - 50	520
THVE 20/240-E	255098-TEC		50 - 240	
THVE 20/630-E	792760-000		240 - 630	
THVE 30/95-E	900926-000	36	35 - 95	720
THVE 30/185-E	120057-TEC		120 - 185	
THVE 30/500-E	372083-000		240 - 500	

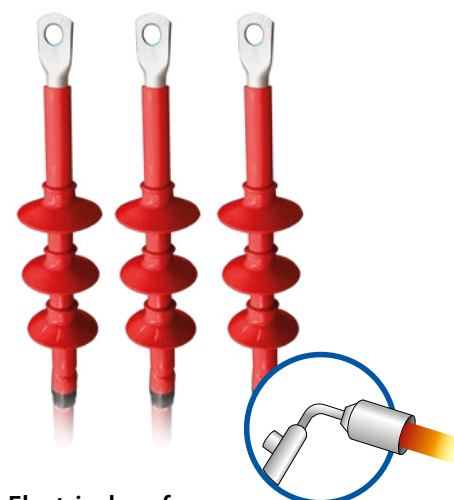
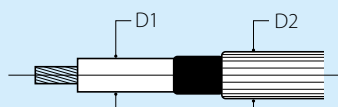
For shielded aluminium tube cables, add terminal abbreviation **H5**.

For cables **RG7H1M1 Afumex** insulation thickness **LOW**

Product	Item	Voltage U _{max} (kV)	Conductor cross section (mm ²)	L (mm)
THVE 20/25-E	231047-TEC	24	25 - 120	520
THVE 20/240-E	255098-TEC		95 - 300	
THVE 20/630-E	792760-000		240 - 630	
THVE 30/95-E	900926-000	36	50 - 185	720
THVE 30/185-E	120057-TEC		120 - 240	
THVE 30/500-E	372083-000		240 - 630	

HIGH VOLTAGE

Product	Item	Voltage U _{max} (kV)	Ø D1 insulation (mm)	Ø D2 max. external (mm)
THVE 45/A-E	THVE45/A-E	42 - 52	30 - 45	60
THVE 45/B-E	THVE45/B-E	42 - 52	38 - 52	70



Electrical performance:

CEI 20-24 • CEI 20-62/1 • HD 629-1

Kit composition:

Three single core terminations

RANGES OF APPLICATION

For single core cables type:



Extruded cable, copper wire screen



Extruded cable, copper tape screen



Extruded cable, aluminium
tube screen

TEMPERATURES



105°C

Working temperature



140°C

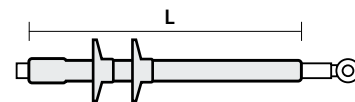
Max overload temperature



300°C

Short circuit temperature

For complementary accessories see page 169



For cables CPR RG26H1M16 12/20 kV (U_{max} 24 kV)

Product Item	Voltage U _{max} (kV)	Ø on insulation (mm)	Ø on external sheath (mm)	Conductor cross section (mm ²)	L (mm)
THVE 20/25-E 231047-TEC	24	17	26	25	520
		17	27	35	
THVE 20/240-E 255098-TEC	24	18	28	50	520
		19	29	70	
		20,6	30	95	
		22	32	120	
		23,7	34	150	
		25	36	185	
THVE 20/630-E 792760-000	24	27,8	39	240	520
		30,8	43	300	
		33	46	400	
		37	49	500	
		40	51	630	

For cables CPR RG26H1M16 18/30 kV (U_{max} 36 kV)

Product Item	Voltage U _{max} (kV)	Ø on insulation (mm)	Ø on external sheath (mm)	Conductor cross section (mm ²)	L (mm)
THVE 30/185-E 120057-TEC	36	25,6	32	35	720
		25	35	50	
		25	36	70	
		26	37	95	
		27	38	120	
		28,2	39	150	
		29,2	41	185	
THVE 30/500-E 372083-000	36	31,5	43	240	720
		34,4	46	300	
		37	48	400	

The heat shrink terminations for cables in accordance with CPR, type RG26H1M16 (Italian designation), are suitable for

- Cables with copper conductors
- Special thermoplastic sheath
- Red copper wire screen
- High modulus rubber insulation



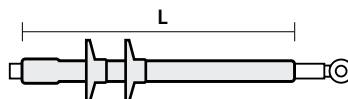
For higher voltages, please fill out the request form and send it to info@raytech.it

★ ADVANTAGES

- Immediately energizable
- Quick in installation
- Simple and reliable they do not require a special skilling
- Optimal distribution of the electric field
- Can be installed in all environmental conditions
- No shelf life

HEAT-SHRINK TERMINATIONS FOR **OUTDOOR USE** FOR **ARMOURED CABLES**

Terminations for **SINGLE CORE** extruded cables up to **36 kV**.



For cables armoured with wires or aluminium tape

For Umax cables
7,2 kV

Product	Item	Voltage Umax (kV)	Conductor cross section (mm ²)	L (mm)
THVO 6/70-ARM	THVO6/70-ARM	7,2	25 - 70	600
THVO 6/120-ARM	THVO6/120-ARM		95 - 120	
THVO 6/400-ARM	THVO6/400-ARM		150 - 400	
THVO 6/630-ARM	THVO6/630-ARM		500 - 630	

For Umax cables
from **12 to 24 kV**

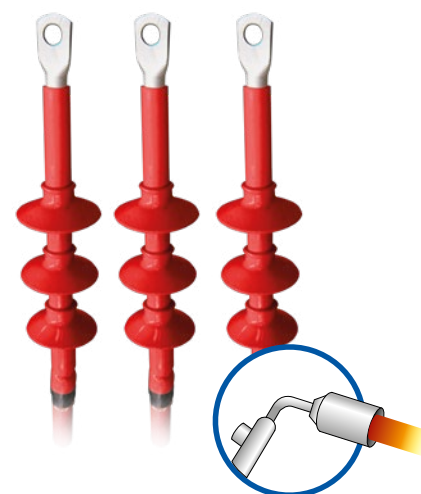
Product	Item	Umax 12 kV	Umax 17,5 kV	Thickness FULL Umax 24 kV	Thickness LOW Umax 24 kV	L (mm)
		sect. (mm ²)	sect. (mm ²)	sect. (mm ²)	sect. (mm ²)	
THVO 20/25-ARM	231049-TEC	25 - 95	25 - 50	25 - 50	25 - 120	800
THVO 20/240-ARM	255100-TEC	120 - 300	70 - 300	70 - 240	95 - 300	
THVO 20/630-ARM	792762-000	400 - 800	400 - 800	240 - 630	240 - 630	

For Umax cables
36 kV

Product	Item	Voltage Umax (kV)	Conductor cross section (mm ²)	L (mm)
THVO 30/95-ARM	THVO30/95-ARM	36	35 - 95	1020
THVO 30/185-ARM	THVO30/185-ARM		120 - 185	
THVO 30/500-ARM	THVO30/500-ARM		240 - 500	

★ **ADVANTAGES**

- Immediately energizable
- Quick in installation
- Simple and reliable they do not require a special skilling
- Optimal distribution of the electric field
- Can be installed in all environmental conditions
- No shelf life



Electrical performance:

CEI 20-24 • CEI 20-62/1 • HD 629-1

Kit composition:

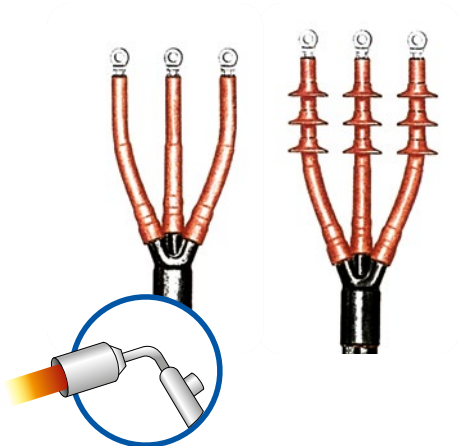
Three single core terminations

RANGES OF APPLICATION

For single core cables type:

**Extruded cable, wire or tape
screened, aluminium wire
armoured**

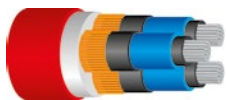
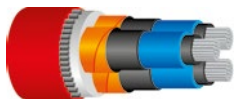
**Extruded cable, wire or tape
screened, aluminium tape
armoured**

**Electrical performance:**

CEI 20-24 • CEI 20-62/1 • HD 629-1

RANGES OF APPLICATION

For three-core cable cables type:

**Three-core cable extruded, unarmoured****Three-core cable extruded, wire or tape armoured****★ ADVANTAGES**

- Immediately energizable
- Quick in installation
- Simple and reliable they do not require a special skilling
- Optimal distribution of the electric field
- Can be installed in all environmental conditions
- No shelf life

THREE-CORE HEAT-SHRINK TERMINATIONS FOR INDOOR/OUTDOOR USE

Terminations for armoured and non armoured extruded cables up to **36 kV**.

For INDOOR USE**For NON ARMoured cables**

Product	Item	Voltage U _{max} (kV)	Conductor cross section (mm ²)
THVI 6/0-3	THVI6/0-3	7,2	25 - 35
THVI 6/A-3	THVI6/A-3		50 - 120
THVI 6/B-3	THVI6/B-3		150 - 400
THVI 6/C-3	THVI6/C-3		500

Product	Item	U _{max} 12 kV sect. (mm ²)	U _{max} 17,5 kV sect. (mm ²)	U _{max} 24 kV sect. (mm ²)
THVI 20/A-3	507698-003	25 - 95	25 - 50	25 - 50
THVI 20/B-3	190360-003	120 - 300	70 - 300	70 - 240
THVI 20/C-3	485361-003	400 - 500	400	300

Product	Item	Voltage U _{max} (kV)	Conductor cross section (mm ²)
THVI 30/A-3	507702-TTEC	36	35 - 95
THVI 30/B-3	507701-002		120 - 185
THVI 30/C-3	THVI30/C-3		240

For ARMoured cables

Product	Item	Voltage U _{max} (kV)	Conductor cross section (mm ²)
THVI 6/0-3-ARM	THVI6/0-3-ARM	7,2	25 - 35
THVI 6/A-3-ARM	THVI6/A-3-ARM		50 - 120
THVI 6/B-3-ARM	THVI6/B-3-ARM		150 - 400
THVI 6/C-3-ARM	THVI6/C-3-ARM		500

Product	Item	U _{max} 12 kV sect. (mm ²)	U _{max} 17,5 kV sect. (mm ²)	U _{max} 24 kV sect. (mm ²)
THVI 20/A-3-ARM	507698-004	25 - 95	25 - 50	25 - 50
THVI 20/B-3-ARM	190360-004	120 - 300	70 - 300	70 - 240
THVI 20/C-3-ARM	485361-004	400 - 500	400	300

Product	Item	Voltage U _{max} (kV)	Conductor cross section (mm ²)
THVI 30/A-3-ARM	THVI30/A-3-ARM	36	35 - 95
THVI 30/B-3-ARM	507701-001		120 - 185
THVI 30/C-3-ARM	THVI30/C-3-ARM		240

For OUTDOOR USE

For NON ARMOURED cables

Product	Item	Voltage U _{max} (kV)	Conductor cross section (mm ²)
THVO 6/35-3	THVO6/35-3	7,2	25 - 35
THVO 6/120-3	THVO6/120-3		50 - 120
THVO 6/400-3	THVO6/400-3		150 - 400
THVO 6/500-3	THVO6/500-3		500

Product	Item	U _{max} 12 kV sect. (mm ²)	U _{max} 17,5 kV sect. (mm ²)	U _{max} 24 kV sect. (mm ²)
THVO 20/25-3	231050-TEC	25 - 95	25 - 50	25 - 50
THVO 20/240-3	255101-TEC	120 - 300	70 - 300	70 - 240
THVO 20/630-3	792763-000	400 - 500	400	300

Product	Item	Voltage U _{max} (kV)	Conductor cross section (mm ²)
THVO 30/95-3	231054-TEC	36	35 - 95
THVO 30/185-3	THVO30/185-3		120 - 185
THVO 30/240-3	THVO30/240-3		240

For ARMOURED cables

Product	Item	Voltage U _{max} (kV)	Conductor cross section (mm ²)
THVO 6/35-3-ARM	THVO6/35-3-ARM	7,2	25 - 35
THVO 6/120-3-ARM	THVO6/120-3-ARM		50 - 120
THVO 6/400-3-ARM	THVO6/400-3-ARM		150 - 400
THVO 6/500-3-ARM	THVO6/500-3-ARM		500

Product	Item	U _{max} 12 kV sect. (mm ²)	U _{max} 17,5 kV sect. (mm ²)	U _{max} 24 kV sect. (mm ²)
THVO 20/25-3-ARM	231051-TEC	25 - 95	25 - 50	25 - 50
THVO 20/240-3-ARM	255102-TEC	120 - 300	70 - 300	70 - 240
THVO 20/630-3-ARM	792764-000	400 - 500	400	300

Product	Item	Voltage U _{max} (kV)	Conductor cross section (mm ²)
THVO 30/95-3-ARM	THVO30/95-3-ARM	36	35 - 95
THVO 30/185-3-ARM	THVO30/185-3-ARM		120 - 185
THVO 30/240-3-ARM	THVO30/240-3-ARM		240

Electrical performance:

CEI 20-24 • CEI 20-62/1 • HD629-1

ENEL tables: DJ 4456/3 • DJ 4476/2**ENEL certification:** DJ 4853 • DJ 4854

Single core cable AL tube screen

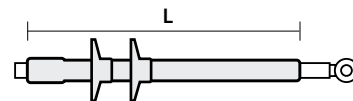
**ENEL tables:** DJ 4456**ENEL certification:** DJ 4853 • DJ 4854

Single core cable extruded wires screen



ENEL CERTIFIED HEAT-SHRINK TERMINATIONS

For single core type indoor and outdoor use.

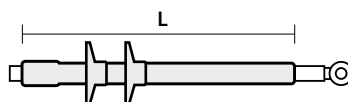


ELICORD TYPE EXTRUDED CABLE (ARG7H5EXY 12/20 KV)

Product Item	Type	ENEL serial number	Conductor cross section (mm ²)	L (mm)
THVE 20/150-I/U 364179-000	With 2 INTERNAL sheaths	273047	35 ÷ 150	365
IXSU-F-5131-IT02 364180-000	Single INTERNAL tube	273047	35 ÷ 150	365
OXSU-F-5131-IT04 123020-000	Single INTERNAL tube	273067	35 ÷ 150	450

EXTRUDED CABLE FOR UNDERGROUND INSTALLATION ([A] RG7H1R 12/20 KV)

Product Item	Type	ENEL serial number	Conductor cross section (mm ²)	L (mm)
IXSU-F-5121-IT01 200315-000	Single INTERNAL tube	273045	25	360
THVE 20/185-I/U 618430-000	With 2 INTERNAL sheaths	273046	50 - 185	360
IXSU-F-5131-IT01 618429-000	Single INTERNAL tube	273046	50 - 185	360
THVE 20/240-I/U 521413-000	With 2 INTERNAL sheaths	273048	240	360
IXSU-F-5151-IT01 897524-000	Single INTERNAL tube	273049	400 - 630	360
THVE 20/185-E/U 365891-000	With 2 EXTERNAL sheaths	273065	50 - 185	450
OXSU-F-5131-IT01 365890-000	Single EXTERNAL tube	273065	50 - 185	450



INSULATED CABLE MADE OF IMPREGNATED PAPER ([A] RC1HLRX 12/20 KV)

Product Item	Type	ENEL serial number	Conductor cross section (mm ²)	L (mm)
THVP 20/240-I/U 252214-000	INTERNAL	273042	50 - 240	370
THVP 20/240-E/U-N1 145110-000	EXTERNAL	273083	50 - 240	600

ENEL tables: DJ 4453 • DJ 4473

ENEL certification: DJ 4854 • DJ 4851
Single core cable paper lead sheathed



EXTRUDED CABLE FOR UNDERGROUND INSTALLATION WITH ALUMINIUM TUBE SHIELD (ARE4H5EX 12/20 KV)

Product Item	Type	ENEL serial number	Conductor cross section (mm ²)	Ø (mm) insulation		L (mm)
				min	max	
IXSU-F-5131-IT04 124400-TEC	INTERNAL	273040	70 - 185	19	27	350
OXSU-F-5131-IT03 124500-TEC	EXTERNAL	273064	70 - 185	19	27	450

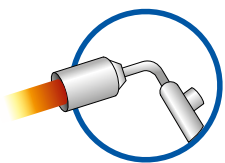
ENEL tables: DJ4456/6 • DJ4476/7

ENEL certification: DJ4853
Single core cable AL tube



★ ADVANTAGES

- Immediately energizable
- Quick in installation
- Simple and reliable they do not require a special skilling
- Optimal distribution of the electric field
- Can be installed in all environmental conditions
- No shelf life



HEAT-SHRINK JOINTS

The preparation of cables and the installation techniques for medium voltage joints are identical to those for terminations. Even cable made with paper impregnated with non-migrant oil up to 36 kV uses the same basic design. In this way, the heat-shrink system sets new standards regarding the effectiveness, reliability and simplicity of cable installation. The performance and ease of installation of heat-shrink materials are not affected by stocking, even if long and in adverse environmental conditions. A low number of "kits" per cable type covers the entire range of sections, allowing use with any type of connector, regardless of the type of conductor (round or sectoral) and different shields.

ELECTRICAL FIELD DISTRIBUTION

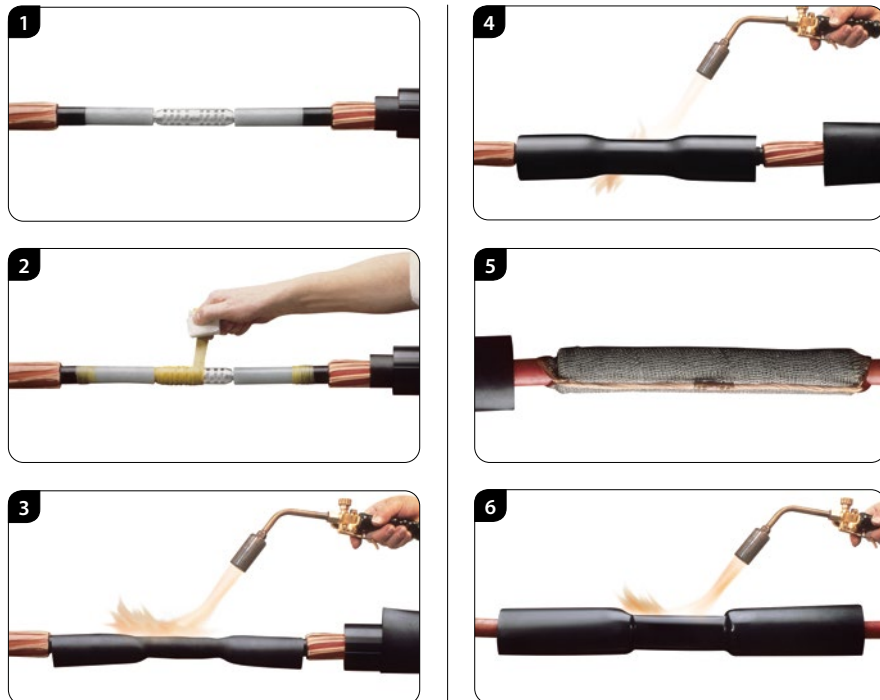
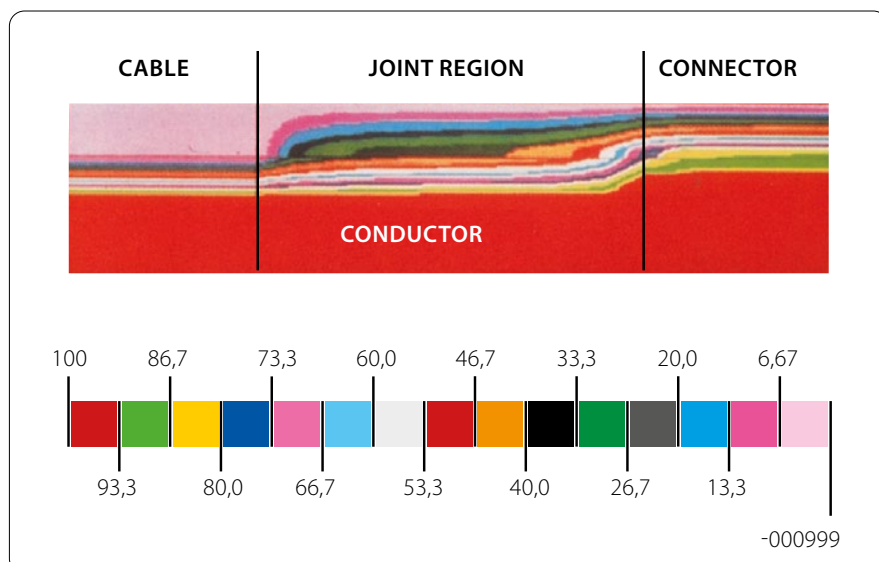
When the cable shield is cut, the electrical field is controlled by a material that has already been experimented in terminations: the electrical gradient control tube. This tube is made of non-linear impedance insulating material that is able to control the electrical field both at the end of the cable shield and on the metal connector. As with the terminations, thanks to the heat-shrink components, the range of joints includes practically all the configurations of the existing cables, as well as the joints mixed between different types of cable. The kit references that appear on the selection tables are those that are most used by national installers for cable applications up to 36 kV. In the described cases, please contact Raytech regardless of the type of cable.



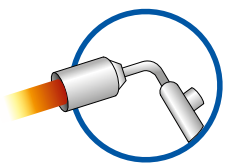
HOW TO IDENTIFY AND ORDER COMPLEMENTARY ACCESSORIES

Accessory	Abbreviation to add to the product code	Example
Copper connectors	-C + Conductor cross section	GHVE 20/185-C95
Aluminium connectors	-CA + Conductor cross section	GHVE 20/185-CA95
Shear bolt connectors	-CPR + conductor cross section	GHVE 20/185-CPR95

INSTALLATION SEQUENCE

VOLTAGE DISTRIBUTION (PERCENT)
HEAT-SHRINKABLE JOINT

For higher voltages,
please fill out the
request form and send
it to info@raytech.it

**Electrical performance:**

CEI 20-24 • HD 629-1 • HD 629-2



SINGLE CORE HEAT-SHRINK JOINTS

For extruded and impregnated paper insulated cables.

High reliability and superior electrical, mechanical and sealing properties make these joints the ideal solution for all types of cables and installation.

FOR EXTRUDED INSULATION CABLES WITH COPPER WIRE SHIELD ([A]RG7H1R[X], [A]RE4H1E[X], [A]RG7H1M1[X])

Product	Item	U _{max} (kV)	Conductor cross section from (mm ²) to (mm ²)		L max (mm)	D max (mm)
GHVE 15/50-1	153003-000	7,2 - 17,5	25	50	700	75
GHVE 15/300-1	442803-000		70	300	700	80
GHVE 15/630-1	357174-000		400	630	1000	100
GHVE 20/240-1	623051-000	24	25	240	700	80
GHVE 20/630-1	GHVE20/630-1		240	630	1000	100
GHVE 30/240-1	GHVE30/240-1	36	35	240	1000	90
GHVE 30/500-1	GHVE30/500-1		300	500	1000	100

FOR EXTRUDED INSULATION CABLES WITH ALUMINIUM TUBE SHIELD ([A]RG7H1R[X], [A]RE4H1E[X], [A]RG7H1M1[X])

Product	Item	U _{max} (kV)	Conductor cross section from (mm ²) to (mm ²)		L max (mm)	D max (mm)
GHVE 15/50-1-H5	GHVE15/50-1-H5	7,2 - 17,5	25	50	700	75
GHVE 15/300-1-H5	GHVE15/300-1-H5		50	300	700	80
GHVE 15/630-1-H5	GHVE15/630-1-H5		400	630	1000	100
GHVE 20/240-1-H5	GHVE20/240-1-H5	24	25	240	700	80
GHVE 20/630-1-H5	GHVE20/630-1-H5		240	630	1000	100
GHVE 30/240-1-H5	GHVE30/240-1-H5	36	35	240	1000	90
GHVE 30/500-1-H5	GHVE30/500-1-H5		300	500	1000	100

FOR SINGLE CORE EXTRUDED INSULATION CABLES ARMoured WITH ALUMINIUM WIRES ([A]RG7H1RFR[X], [A]RE4H1EFE[X])

Product	Item	U _{max} (kV)	Conductor cross section from (mm ²) to (mm ²)		L max (mm)	D max (mm)
GHVE 20/240-1-ARM	623052-000	24	25	240	1700	80
GHVE 20/630-1-ARM	GHVE20/630-1-ARM		240	630	1700	100
GHVE 30/240-1-ARM	GHVE30/240-1-ARM	36	35	240	1850	100
GHVE 30/500-1-ARM	GHVE30/500-1-ARM		300	500	1850	110

FOR INSULATED CABLES MADE OF PAPER IMPREGNATED WITH MIXTURE ([A]RC1HLR[X])

Product	Item	U _{max} (kV)	Conductor cross section from (mm ²) to (mm ²)		L max (mm)	D max (mm)
GHVP 20/70-1	190901-000	24	35	70	1000	75
GHVP 20/240-1	GHVP20/240-1		50	240	1000	75
GHVP 20/400-1	861101-000		300	400	1000	80

For complementary accessories see page 181

Supplies do not include connectors which must be requested separately.

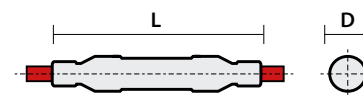
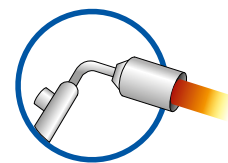
SINGLE CORE HEAT-SHRINK JOINTS

For cables CPR RG26H1M16 12/20 kV (U_{max} 24 kV)

Product Item	U _{max} (kV)	Ø on insulation (mm)	Ø on external sheath (mm)	Conductor cross section (mm ²)	L max (mm)	D max (mm)
GHVE 20/240-1 623051-000	24	17	26	25	700	80
		17	27	35	700	80
		18	28	50	700	80
		19	29	70	700	80
		20,6	30	95	700	80
		22	32	120	700	80
		23,7	34	150	700	80
		25	36	185	700	80
GHVE 20/630-1 GHVE20/630-1	24	27,8	39	240	1000	100
		30,8	43	300	1000	100
		33	46	400	1000	100
		37	49	500	1000	100

For cables CPR RG26H1M16 18/30 kV (U_{max} 36 kV)

Product Item	U _{max} (kV)	Ø on insulation (mm)	Ø on external sheath (mm)	Conductor cross section (mm ²)	L max (mm)	D max (mm)
GHVE 30/240-1 GHVE30/240-1	36	25,6	32	35	1000	90
		25	35	50	1000	90
		25	36	70	1000	90
		26	37	95	1000	90
		27	38	120	1000	90
		28,2	39	150	1000	90
		29,2	41	185	1000	90
		31,5	43	240	1000	90
GHVE 30/500-1 GHVE30/500-1	36	34,4	46	300	1000	100
		37	48	400	1000	100
		41	52	500	1000	100



Electrical performance:

CEI 20-24 • HD 629-1 • HD 629-2

Accessories for cables in accordance with CPR, type RG26H1M16 (Italian designation), are suitable for

- Cables with copper conductors
- Special thermoplastic sheath
- Red copper wire screen
- High modulus rubber insulation

TEMPERATURES



105°C

Working temperature



140°C

Max overload temperature

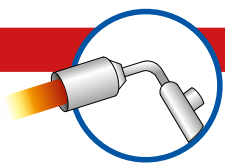


300°C

Short circuit temperature

★ ADVANTAGES

- Immediately energizable
- Quick in installation
- Simple and reliable they do not require a special skilling
- Optimal distribution of the electric field
- Can be installed in all environmental conditions
- No shelf life

**NEW****Electrical performance:**

CEI 20-24 • HD 629-1 • HD 629-2

Compliance with standards
IEC 61238-1**Extruded cable, wire screen****Extruded cable, aluminium
tube screen****TEMPERATURES****105°C**

Working temperature

**140°C**

Max overload temperature

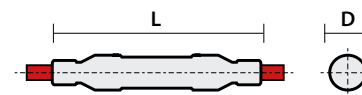
**300°C**

Short circuit temperature

SINGLE CORE HEAT-SHRINK JOINTS

COMPLETE OF MECHANICAL CONNECTORS WITH FRACTURE SCREWS

Heat-shrink joints for extruded cables up to 18/30 kV (U_{max} 36 kV), complete with shear-bolt screws, in addition to the typical features and characteristics of this type of accessory, offer exceptional versatility and ease of installation thanks to the use of mechanical connectors.

**FOR INSULATED CABLES WITH COPPER WIRE OR TAPE SCREEN****(A) RG16H1R12, (A) RG7H1R, RG7H1M1, RG26H1M16**

Product	Item	U_{max} (kV)	Conductor cross section (mm ²)	L max (mm)	D max (mm)
GHVE 20/240-1 CF95	GHVE20/240-95	24	25-95	700	80
GHVE 20/240-1 CF240	GHVE20/240-240		120-240	700	80
GHVE 20/630-1 CF300	GHVE20/630-300		300	1000	100
GHVE 20/630-1 CF630	GHVE20/240-630		400-630	1000	105
GHVE 20/630-1 CF800	GHVE20/630-800		800-1000	1400	110
GHVE 30/240-1 CF95	GHVE30/240-95	36	35-95	1000	90
GHVE 30/240-1 CF240	GHVE30/240-240		120-240	1000	90
GHVE 30/500-1 CF300	GHVE30/500-300		300	1000	100
GHVE 30/500-1 CF500	GHVE30/500-500		400-500	1000	105
GHVE 30/800-1 CF800	GHVE30/800-800		630-800	1400	110

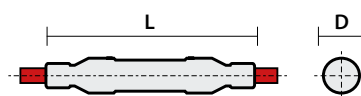
FOR INSULATED CABLES WITH ALUMINIUM TUBE SCREEN**ARE4H5E, ARP1H5E**

Product	Item	U_{max} (kV)	Conductor cross section (mm ²)	L max (mm)	D max (mm)
GHVE 20/240-1 H5 CF95	GHVE20/240H-95	24	25-95	700	80
GHVE 20/240-1 H5 CF240	GHVE20/240H-240		120-240	700	80
GHVE 20/630-1 H5 CF300	GHVE20/630H-300		300	1000	100
GHVE 20/630-1 H5 CF630	GHVE20/240H-630		400-630	1000	105
GHVE 20/630-1 H5 CF800	GHVE20/630H-800		800-1000	1400	110
GHVE 30/240-1 H5 CF95	GHVE30/240H-95	36	35-95	1000	90
GHVE 30/240-1 H5 CF240	GHVE30/240H-240		120-240	1000	90
GHVE 30/500-1 H5 CF300	GHVE30/500H-300		300	1000	100
GHVE 30/500-1 H5 CF 500	GHVE30/500H-500		400-500	1000	105
GHVE 30/800-1 H5 CF800	GHVE30/800H-800		630-800	1400	110

THREE CORE HEAT-SHRINK JOINTS

For extruded insulation cables and insulated cables.

High reliability and superior electrical, mechanical and sealing properties make these joints the ideal solution for all types of cables and installation.



FOR EXTRUDED INSULATION CABLES ([A]RG7H1OR, [A]RE4H1OR)

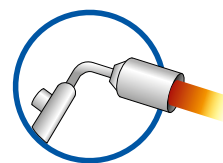
Product	Item	U _{max} (kV)	Conductor cross section from (mm ²) to (mm ²)		L max (mm)	D max (mm)
GHVE 15/50-3	545116-000	7,2 - 17,5	25	50	1500	105
GHVE 15/300-3	251291-000	7,2 - 17,5	70	300	1500	110
GHVE 15/630-3	GHVE15/630-3	7,2 - 17,5	400	630	1600	130
GHVE 20/240-3	708732-000	24	25	240	1500	110
GHVE 20/630-3	GHVE20/630-3	24	300	630	1600	140
GHVE 30/240-3	GHVE30/240-3	36	50	240	1800	120
GHVE 30/300-3	GHVE30/300-3	36	300		1900	150

FOR INSULATED ARMoured CABLES WITH GALVANIC CONTINUITY OF ARMOUR

Product	Item	U _{max} (kV)	Conductor cross section from (mm ²) to (mm ²)		L max (mm)	D max (mm)
GHVE 15/50-ARM	155000-001	7,2 - 17,5	25	50	1500	75
GHVE 15/300-ARM	153000-001	7,2 - 17,5	70	300	1500	110
GHVE 15/630-ARM	GHVE15/630-ARM	7,2 - 17,5	400	630	1600	130
GHVE 20/240-ARM	202400-001	24	25	240	1500	110
GHVE 20/630-ARM	GHVE20/630-ARM	24	300	630	1600	140
GHVE 30/240-ARM	GHVE30/240-ARM	36	50	240	1800	120
GHVE 30/300-ARM	GHVE30/300-ARM	36	300		1900	150

FOR INSULATED CABLES MADE OF IMPREGNATED PAPER ([A]RC1HLOR LEAD SHEATH OVER EACHCORE))

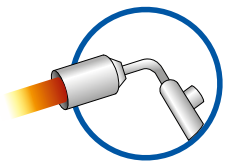
Product	Item	U _{max} (kV)	Conductor cross section from (mm ²) to (mm ²)		L max (mm)	D max (mm)
GHVP 20/70-3	056242-000	24	35	70	1600	130
GHVP 20/240-3	843918-000	24	95	240	1600	140
GHVP 20/400-3	741685-000	24	300	400	1600	150



Electrical performance:

CEI 20-24 • CEI 20-62/2 • HD 629-1

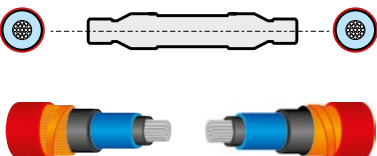
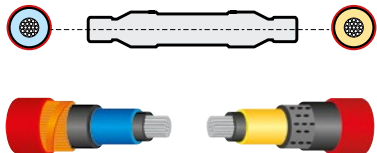
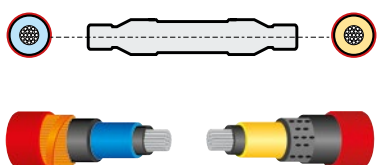




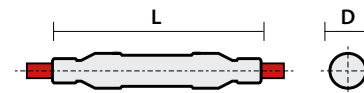
Electrical performance:

CEI 20-24 • CEI 20-62/2

HD 629-1 • HD 629-2



TRANSITION JOINTS BETWEEN SINGLE CORE CABLES



BETWEEN SINGLE CORE PAPER INSULATED CABLE AND EXTRUDED CABLE (RESPECTIVELY [A]RG7H1R[X] AND [A]RC1HLRX)

Product Item	U _{max} (kV)	Conductor cross section (mm ²)		ENEL serial number
		paper cable	extruded cable	
GHVE 20/25-1-T 202500-000	24		25	-
GHVE 20/240-1-T GHVE20/240-1-T		50 - 240	35 - 185	271074
GHVE 20/400-1-T 250499-000			240 - 400	-

BETWEEN SINGLE CORE PAPER INSULATED CABLE AND EXTRUDED CABLE WITH ALUMINIUM SHEET SCREEN (RESPECTIVELY [A]RC1HLRX AND ARG7H5EXY)

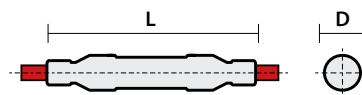
Product Item	U _{max} (kV)	Conductor cross section (mm ²)		ENEL serial number
		paper cable	extruded cable	
GHVE 20/240-1-TE GHVE20/240-1-TE	24	50 - 240	35 - 150	270118

BETWEEN SINGLE CORE EXTRUDED CABLE WITH WIRE SCREEN AND EXTRUDED CABLE WITH ALUMINIUM FOIL SCREEN (RESPECTIVELY [ARG7H1R[X] OR [A]RG7H1M1 AND ARG7H5EXY)

Product Item	U _{max} (kV)	Conductor cross section		L max (mm)	D max (mm)
		from (mm ²)	to (mm ²)		
GHVE 20/240-1X-TE GHVE20/240-1X-TE	24	25	240	1000	75

TRANSITION JOINTS BETWEEN MULTI CORE CABLES

The three core transition joints kits are composed of one three core joint and do not contain the connectors.



BETWEEN 3-CORE PAPER INSULATED CABLE AND 3 SINGLE CORE EXTRUDED CABLES (RESPECTIVELY [A]RC1HLOR AND [A]RG7H1R[X])

Product Item	U _{max} (kV)	Conductor cross section (mm ²) paper cable	Conductor cross section (mm ²) extruded cable
GHVT 20/25-1X-3H 202020-000	24	25	25
GHVT 20/240-1X-3H 202019-000		50 - 240	35 - 185
GHVT 20/400-1X-3H 202021-000		300 - 400	240 - 400

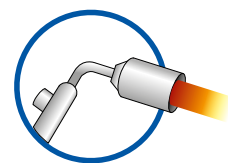
BETWEEN 3-CORE EXTRUDED CABLE AND 3 SINGLE CORE PAPER INSULATED CABLES (RESPECTIVELY [A]RG7H10R AND [A]RC1HLRX)

Product Item	U _{max} (kV)	Conductor cross section from (mm ²)	Conductor cross section to (mm ²)
GHVT 20/70-3X-1H on request 1	24	25	70
GHVT 20/240-3X-1H on request 2		95	240
GHVT 20/400-3X-1H on request 3		300	400

SINGLE CORE PLASTIC OR PAPER INSULATED CABLE JOINT WITH SCREEN INTERRUPTION

Single and three core joints are available, both on extruded cable and on impregnated paper insulated cable, also belted and for transition joint, which allow galvanic separation between the screens when the spliced cables are connected to two different earth networks.

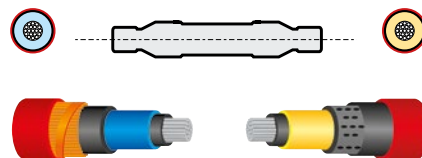
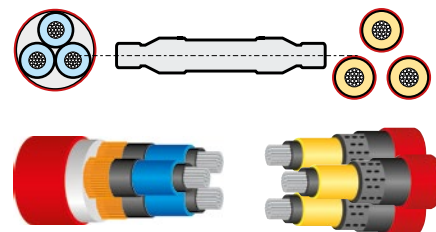
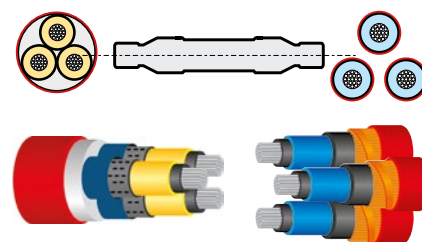
Product Item	Type of cable	U _{max} (kV)	Conductor cross section from (mm ²)	Conductor cross section to (mm ²)	L max (mm)	D max (mm)
GHVP 20/240-1-IS 159852-INT	(A)RC4HLR(X)	24	50	240	1000	75
GHVE 20/240-1-IS 20GHIS-TEC	(A)GR7H1R(X)		50	240	1000	75
GHVE 20/150-1-IS 080799-TEC	ARG7H5EXY		35	150	1000	75



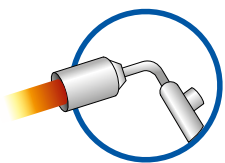
Electrical performance:

CEI 20-24 • CEI 20-62/2

HD 629-1 • HD 629-2



For complementary accessories see page 181

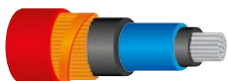
**Electrical performance:**

CEI 20-24 • CEI 20-62/2

HD 629-1 • HD 629-2

ENEL tables: DJ 4376

ENEL certification: DJ 4853 • DJ 4854



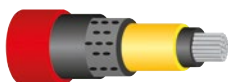
ENEL tables: DJ 4376

ENEL certification: DJ 4853 • DJ 4854

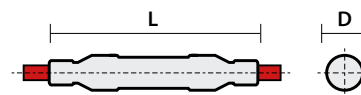


ENEL tables: DJ 4373

ENEL certification: DJ 4851 • DJ 4854



ENEL CERTIFIED HEAT-SHRINK JOINTS



FOR EXTRUDED INSULATION CABLES ([A]RG7H1RX 12/20 KV COPPER WIRE SHIELD - EXTERNAL PVC SHEATH)

Product Item	U _{max} (kV)	Conductor cross section from (mm ²) to (mm ²)		L max (mm)	ENEL serial number
GHVE 20/185 - 1/U 512605-000	24	50	185	700	271071

FOR WIRE CARRYING OVERHEAD CABLES (ARG7H5EXY 12/20 KV ALUMINIUM TUBE SHIELD - EXTERNAL PE SHEATH)

Product Item	U _{max} (kV)	Conductor cross section from (mm ²) to (mm ²)		L max (mm)	ENEL serial number
GHVE 20/150 - 1/U 478596-000	24	35	150	700	271072

FOR INSULATED CABLES WITH IMPREGNATED PAPER (RC4HLRX WITH COPPER CONDUCTORS from 50 to 150 mm² and ARC4HLRX WITH ALUMINIUM CONDUCTORS from 95 to 240 mm²)

Product Item	U _{max} (kV)	Conductor cross section from (mm ²) to (mm ²)		L max (mm)	ENEL serial number
GHVP 20/240 - 1/U 573299-000	17,5 e 24	95	240	1000	271042

RAY FRUST

MV SINGLE-CORE CABLE SETS WITH INDOOR AND SEPARABLE TERMINATIONS WITH ENEL APPROVAL

Made with combinations of indoor terminals, separable connectors with external cone and plug-in with internal cone for 250A.

SET WITH COLD-SHRINKING SLIP-ON TERMINALS

Product Item	Voltage U _{max} (kV)	Number of cables	Length (mt)	Section (mm ²)
FRUST-AUTO-50/6	24	3	6	50
FRUST-AUTO-50/11		3	11	50
FRUST-AUTO-95/6		3	6	95
FRUST-AUTO-95/11		3	11	95

Other lengths available on request, voltage at **36 kV**, for outdoor use or with separable connectors.

SET WITH HEAT SHRINKING TERMINALS

Product Item	Voltage U _{max} (kV)	Number of cables	Length (mt)	Section (mm ²)
FRUST-TERM-50/6	24	3	6	50
FRUST-TERM-50/11		3	11	50
FRUST-TERM-95/6		3	6	95
FRUST-TERM-95/11		3	11	95

Other lengths available on request, voltage at **36 kV**, for outdoor use or with separable connectors.

SET WITH SEPARABLE CONNECTORS WITH ENEL APPROVAL

Product Item	Voltage U _{max} (kV)	Number of cables	Length (mt)	Section (mm ²)	ENEL serial number
FRUST-CI/CE-6	24	3	6	35	270024
FRUST-SL/CI-11		3	11	35	270025
FRUST-SL/CI-6		3	6	35	270026
FRUST-SL/CE-11		3	11	35	270022
FRUST-SL/CE-6		3	6	35	270023

Other lengths available on request, voltage at **36 kV**, for outdoor use or with separable connectors.

CI: Separable connector with internal cone
CE: Separable connector with external cone
SL: Slip-on terminal

NEW




MEDIUM VOLTAGE
SEPARABLE
CONNECTORS
TAPES
SHEATHS





Complies with standards

CEI 20-62/1 - Cenelec HD 629.1 S2

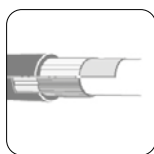
Kit composition:

Three single core terminations

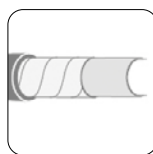
SINGLE CORE SEPARABLE CONNECTORS WITH EXTERNAL CONE WITH CONTACT PLUG IN=250 A

Separable connectors for MV cables with extruded radial field for voltages up to **12/20 (24) kV**.

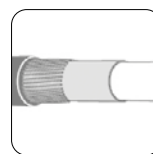
Single core separable connectors with contact plug In=250 A, elbow or straight for extruded cables. External coating in semi-conductive rubber protects personnel from electrocution. Each termination is factory tested before delivery with dielectric strength testing and measurements of partial discharges.



Contact Raytech for aluminium shield cables.



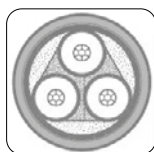
Kit available for tape screen. Add "A" to the end of the "Product code".



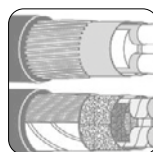
Connection kit for wire shield included.



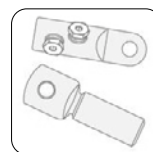
Contact Raytech for information regarding other types of cable.



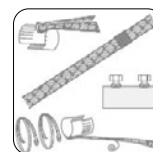
Kit available for three core cables. Order kit "TK." See table.



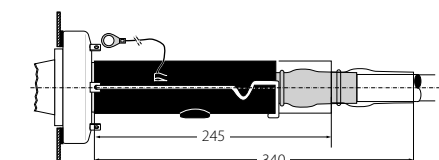
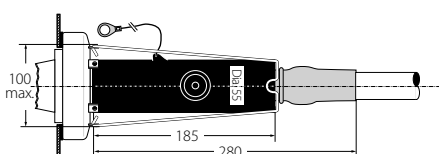
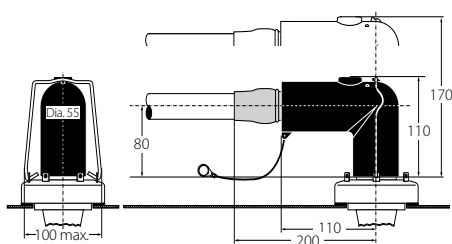
Contact Raytech for different armour grounding systems available.



Different types of cable lugs available.



Contact Raytech about different shield grounding systems available.



SEPARABLE INTERFACE "A" TERMINATION 24 kV - 250 A

ELBOW

Product	Item	Voltage U _{max} (kV)	Cable insulation diameter range (mm)	Copper/aluminium mechanical conductor cross section range (mm ²)
250 RTS-20/A-3	250RTS20/A-3	24	13,0 - 21,0	25 - 95
250 RTS-20/B-3	250RTS20/B-3		17,5 - 25,0	25 - 95
250 RTS-20/C-3	250RTS20/C-3		21,5 - 28,5	95 - 150

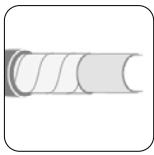
STRAIGHT

Product	Item	Voltage U _{max} (kV)	Cable insulation diameter range (mm)	Copper/aluminium mechanical conductor cross section range (mm ²)
250 RTD-20/A-3	250RTD20/A-3	24	13,0 - 21,0	25 - 95
250 RTD-20/B-3	250RTD20/B-3		17,5 - 25,0	25 - 95
250 RTD-20/C-3	250RTD20/C-3		21,5 - 28,5	95 - 150

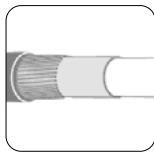
SINGLE CORE SEPARABLE CONNECTORS WITH EXTERNAL CONE WITH CONTACT SCREW IN=630 A

Separable connectors for MV cables with extruded radial field, for voltages up to **19/33 (36) kV**.

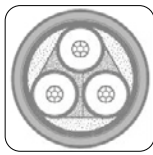
Single core separable connectors with contact screw, for extruded cables. External coating in semi-conductive rubber protects personnel from electrocution. Each termination is factory tested before delivery with dielectric strength testing and measurements of partial discharges.



Kit available for tape screen. Add "A" to the end of the "Product code".



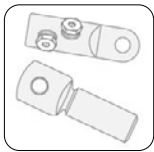
Connection kit for wire shield included.



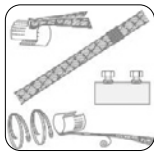
Kit available for three core cables. Order kit "TK." See table.



For use in potentially explosive areas (12kV max.) Order: -/ATEX.



Different types of cable lugs available.



Contact Raytech for different shield grounding systems available.

SEPARABLE TEE INTERFACE "C" TERMINATION 24/36 kV - 630 A

Product	Item	Voltage U _{max} (kV)	Cable insulation Ø range (mm)	Copper/aluminium mechanical conductor cross section range (mm ²)
630 RTT-20/A-3-C95	630RTT20/A-3-C95	24	12,0 - 19,0	16 - 95
630 RTT-20/B-3-C95	630RTT20/B-3-C95		16,0 - 26,5	16 - 95
630 RTT-20/C-3-C240	630RTT20/C3-C240		19,0 - 32,6	95 - 240
630 RTT-20/D-3-C300	630RTT20/D3-C300		28,5 - 37,5	120 - 300
630 RTO-20/A-3-C400	630RTO20/A3-C400		28,5 - 37,5	185 - 400
630 RTO-20/B-3-C400	630RTO20/B3-C400		34,0 - 42,5	185 - 400
630 RTO-20/C-3-C630	630RTO20/C3-C630		39,0 - 48,5	400 - 630
630 RTO-20/D-3-C630	630RTO20/D3-C630		45,5 - 56,0	400 - 630
630 RTT-30/A-3-C95	630RTT30/A-3-C95	36	19,0 - 32,6	16 - 95
630 RTT-30/B-3-C240	630RTT30/B3-C240		22,0 - 34,6	95 - 240
630 RTT-30/C-3-C300	630RTT30/C3-C300		28,5 - 37,5	120 - 300
630 RTO-30/A-3-C400	630RTO30/A3-C400		28,5 - 37,5	185 - 400
630 RTO-30/B-3-C400	630RTO30/B3-C400		34,0 - 42,5	185 - 400
630 RTO-30/C-3-C630	630RTO30/C3-C630		39,0 - 48,5	400 - 630
630 RTO-30/D-3-C630	630RTO30/D3-C630		45,5 - 56,0	400 - 630

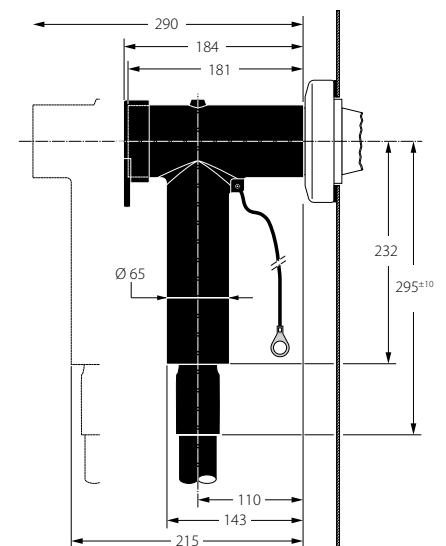
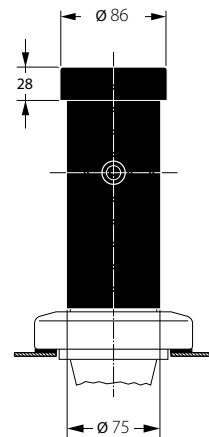


Complies with standards

CEI 20-62/1 - Cenelec HD 629 .1 S2

Kit composition:

Three single core terminations



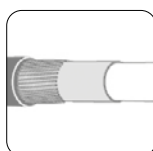
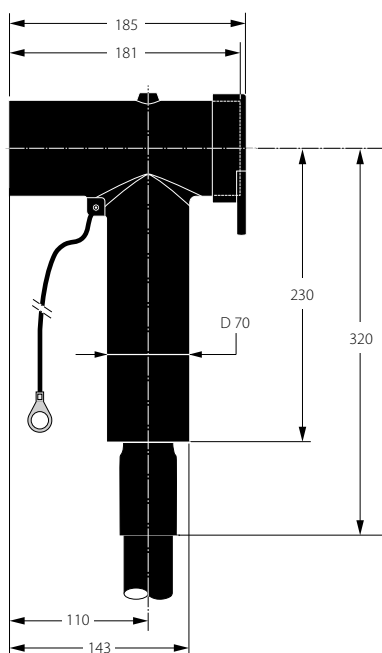
NEW

SINGLE CORE SEPARABLE CONNECTORS WITH EXTERNAL CORE WITH "C" INTERFACE, COMPLIANT WITH ENEL SPECIFICATIONS

Separable connectors for MT cables with extruded radial field. For voltages up to 24 kV, compliant with **Enel** specifications.

Separable connectors $I_n=630$ A for extruded cables with external cone, compact and asymmetrical, suitable for both wire-screen cables and aluminum tape-screen cables (both solutions included in the kit).

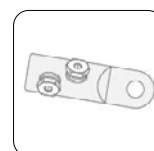
They also include the mechanical lug with shear bolts, suitable for both copper and aluminum conductors. The semiconductive rubber covering forms the outer screen of the termination and protects operator from the risk of electric shock.



Connection kit for wire-screen included.



Connection kit for aluminum tape-screen included.



Mechanical lug with screw tightening included.

COMPACT "C" INTERFACE SEPARABLE CONNECTOR 24 KV – 630 A – ENEL SPECIFICATION

Product / Item	Technical specification ENEL GLOBAL	Serial number ENEL	Range section mechanical lug copper/aluminum (mm ²)
630 RTT-20/B-1-C120/UE 630RTT-20B1C120	GSCC006/28 Rev.4	273226	70 - 120
630 RTT-20/C-1-C185/UE 630RTT-20C1C185	GSCC006/29 Rev.4	273247	150 - 185

HEAT-SHRINK SHEATHS

Sheaths for insulating bars inside electrical cabinets or outdoors in primary or secondary cabinets.

Application

Primary (HV-MV) and secondary (MV-LV) electrical up to 36 kV today come in very compact sizes. Bars need to be insulated to prevent surface discharges and accidental short-circuits that are essentially caused by animal intrusion.

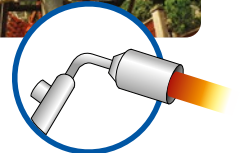
Heat-shrink sheaths for MV can be used on round and rectangular copper or aluminium bars. They are flexible and elastic, can be installed on previously bent bars without any risks of tearing or rippling.

Description

Sheaths utilise a special elastomer cross-linked by irradiation, with an exceptional insulating power and excellent seal over time, even in case of continuous use at high temperature. They do not contain halogens and therefore there is no risk of emission of toxic or corrosive substances in case of fire. They are resistant to solvents, UV radiation, exposure to weather, impact and tear, and therefore are fully suitable for use outdoors.

Installation

Sheaths for MV can be easily factory installed, when dealing with mass production, using an oven for heat-shrink. In situ, shrinking can be carried out with the aid of a torch or a hot air torch. Heat the sheath to over 120°C and it will shrink on the bar without risk of damage because the material is cross-linked and very resistant to high temperatures. The great elasticity of the sheaths allows, if necessary, for being of the bars during assembly of the electric cabinet with the sheath already installed.

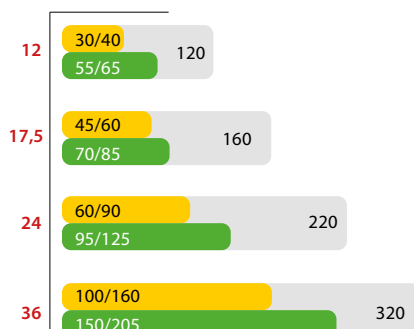


DISTANCES ALLOWED IN BAR SYSTEMS

Phase/phase and phase/bus bars distances recommended with insulated bars with sheaths for MV. Studies and testing carried out on insulated bars have shown that it is possible to significantly reduce space with respect to those used in the case of air insulation. The minimum permitted space is defined by the absence of partial discharges at the time of testing in alternating current and by the seal upon impulse. The values shown can be applied to round or rectangular bars installed inside standard cabinets. Shapes with sharp edges or bar parallels of more than 5 m require larger spaces.

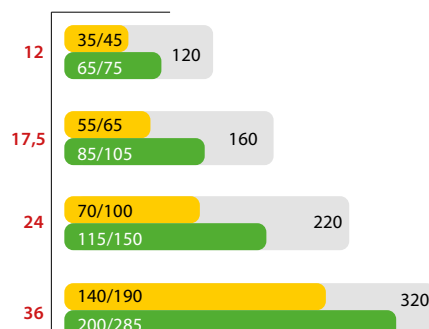
Round bus bars

Voltage Um (kV)



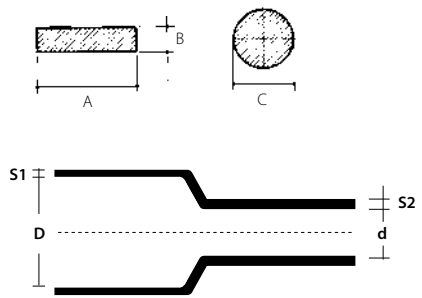
Rectangular bus bars

Voltage Um (kV)

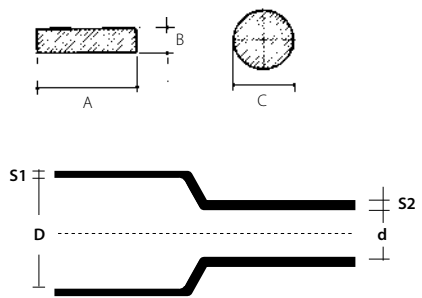


- Spacing in air according to IEC 71-2 phase / phase (mm)
phase / bus bars (mm)
- Insulation with BBT
- Insulation with BPM or HVBT with overlap of 2/3

For more information on different possible applications please contact Raytech.



D = Ø minimum before shrinkage
d = Ø maximum after free shrinkage
S1 = nominal thickness as supplied
S2 = minimum nominal thickness after free shrinkage



D = Ø minimum before shrinkage
d = Ø maximum after free shrinkage
S1 = nominal thickness as supplied
S2 = minimum nominal thickness after free shrinkage

BPM

Flexible, **medium wall** heat-shrink sheath.

Suitable for optimising space in MV panels and for protection from discharges and accidental contact for systems up to **24 kV**. Phase-to-phase distance reduced to approximately 1/2

Product Item	Size of bus bars (mm)				Heat-shrink sheath (mm)			
	A+B		C		D	d	S ₁	S ₂
BPM 15/6-A/U BPM15/6-AU	12	20	6,5	12	15	6	1,1	2
BPM 30/12-A/U BPM30/12-AU	20	38	13,5	25	30	12	1,1	2,2
BPM 50/20-A/U BPM50/20-AU	36	65	22	43	50	20	1,1	2,4
BPM 75/30-A/U BPM75/30-AU	55	95	33	63	75	30	1,1	2,4
BPM 120/50-A/U BPM120/50-AU	90	165	55	105	120	50	1,3	2,8

BBT

Flexible, **heavy duty** heat-shrink sheath.

Suitable for reducing overhead distances in MV panels up to **36 kV**. Phase-to-phase distance reduced to approximately 1/3

Product Item	Size of bus bars (mm)				Heat-shrink sheath (mm)			
	A+B		C		D	d	S ₁	S ₂
BBT 40/16-A/U BBT40/16-AU	28	45	18	32	40	16	1,6	3,8
BBT 65/25-A/U BBT65/25-AU	44	69	28	47	65	25	1,6	3,9
BBT 100/40-A/U BBT100/40-AU	69	102	44	72	100	40	1,6	4,0
BBT 150/60-A/U BBT150/60-AU	102	148	65	105	150	60	1,6	4,0

BPTM

Flexible, **medium wall** heat-shrink sheath.

Suitable for optimising space in MV panels and for protection from discharges and accidental contact for systems up to **24 kV**. Phase-to-phase distance reduced to approximately 1/2

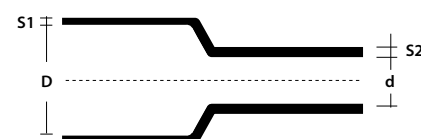
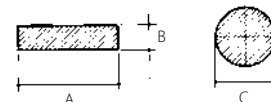
Product Item	Size of bus bars (mm)				Heat-shrink sheath (mm)			
	A+B from to		C from to		D	d	S ₁	S ₂
BPTM 15/6-A/U 5904284002	12	20	6,5	12	15	6	1,1	1,9
BPTM 30/12-A/U 723955-000	20	38	13,5	25	30	12	1,1	2,2
BPTM 50/20-A/U 2246244002	36	65	22	43	50	20	1,1	2,35
BPTM 75/30-A/U 6129164002	55	95	33	63	75	30	1,1	2,35
BPTM 100/40-A/U 178238-000	70	130	44	86	100	40	1,1	2,35
BPTM 120/50-A/U 412147-000	90	165	55	105	120	50	1,3	2,8
BPTM 175/70-A/U 920423-000	125	235	80	150	175	70	1,3	2,8
BPTM 205/110-A/U 499685-000	200	276	127	190	205	110	1,3	2,8

BBIT

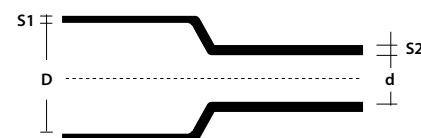
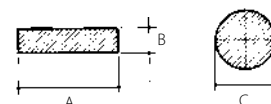
Flexible, **heavy duty** heat-shrink sheath.

Suitable for reducing overhead distances in MV panels up to **36 kV**.
Phase-to-phase distance reduced to approximately 1/3

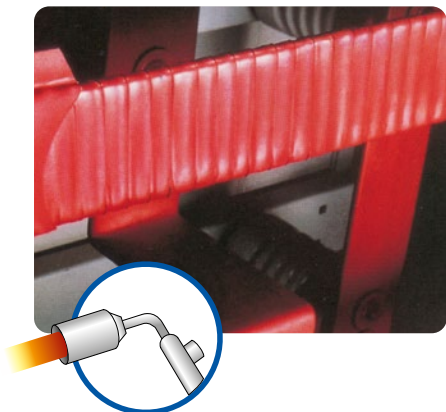
Product Item	Size of bus bars (mm)				Heat-shrink sheath (mm)			
	A+B from to		C from to		D	d	S ₁	S ₂
BBIT 25/10-A/U 5609274001	17	28	11	20	25	10	1,6	3,6
BBIT 40/16-A/U 560931-000	28	45	18	32	40	16	1,6	3,6
BBIT 65/25-A/U 5609364001	44	69	28	47	65	25	1,6	3,6
BBIT 100/40-A/U 560981-000	69	102	44	72	100	40	1,6	3,6
BBIT 150/60-A/U 560982-000	102	148	65	105	150	60	1,6	3,6
BBIT 175/80-A/U 426377-000	133	196	85	125	175	80	1,6	3,6



D = Ø minimum before shrinkage
d = Ø maximum after free shrinkage
S1 = nominal thickness as supplied
S2 = minimum nominal thickness after free shrinkage



D = Ø minimum before shrinkage
d = Ø maximum after free shrinkage
S1 = nominal thickness as supplied
S2 = minimum nominal thickness after free shrinkage



HEAT-SHRINK TAPES

HVBT heat-shrink tape coated in hot melt adhesive for MV.

Application

HVBT tape is part of the bar insulation product range. It is a heat-shrink tape coated with a hot melt adhesive on one side.

Installation

HVBT is installed wrapping it moderately taut on the bar with overlap equal to 2/3. When heated, it shrinks and adheres to the underlying layer. At the same time, the layers of this tape amalgamate to create a continuous insulation sheath.

Insulation distance

Refer to the table of PERMISSIBLE CLEARANCES IN BUSBAR SYSTEMS (BPM values on previous pages) to determine the distances between busbars and to ground. HVBT tape is available in four different widths and features adhesive on the outer side. A fiberglass tape is supplied with each roll to secure the end of the wrapping.

HVBT

Self-sealing heat-shrink tape for MV bar insulation.

Product	Item	Width (mm)	Length (m)
HVBT 12-A	364471-000	25	10
HVBT 14-A	475743-000	50	10
HVBT 15-A	736143-000	75	10
HVBT 16-A	215370-000	100	10

MEDIUM VOLTAGE TESTING DETAILS FOR TERMINALS AND JOINTS UP TO 36 KV.

TEST	TEST METHOD (VOLTAGES IN kV)	MAXIMUM VOLTAGE PER CABLE UM (kV)					RESULTS
		7,2	12	17,5	24	36	
INDUSTRIAL FREQUENCY AC	a) 1 min. (dry)	27	35	45	55	75	Neither perforations nor discharges
	b) 1 min. (in the rain)	27	35	45	55	75	
	c) 4 h.	14	24	36	48	73	
PARTIAL DISCHARGES	PE, XLPE, EPR, PVC (voltages in kV)	4,5	7,5	10,9	15	22,5	< 3 pC
		7,2	12	17,5	24	-	< 20 pC
IMPULSE	a) 10 positive 10 negative 1,2/50 μ s (voltages in kV)	60	75	95	125	170	Neither perforations nor discharges
	b) 10 positive 10 negative 1,2/50 μ s (voltages in kV)	70	95	110	150	200	
THERMAL CYCLES WITH APPLIED VOLTAGE	a) 63 cycles of 5 h. of heating, 3 h. of air cooling	-	-	-	-	-	Neither perforations nor discharges
	b) 63 cycles of 5 h. of heating, 3 h. of water cooling (1m of water head)	-	-	-	-	-	
	Extruded cable and non-migrant mixture paper cable	9	15	22	30	45	
	Migrant mixture paper cable	6,5	11	15	22	32	
THERMAL SHORT-CIRCUIT TEST	a) short-circuit of 1s f/f at maximum temperature specified for the cable	-	-	-	-	-	No visible damage
	b) short-circuit of 1s f/t at maximum temperature specified for the cable	-	-	-	-	-	
DIRECT CURRENT	30 min	28	48	72	96	144	Neither perforations nor discharges
HUMIDITY TEST WITH APPLIED VOLTAGE	a) 100 h. in saturated air	4,5	7,5	10,9	15	22,5	Neither perforations nor discharges, nor visible carbonisation nor erosion
	b) 1000 h. in saturated air	4,5	7,5	10,9	15	22,5	
DYNAMIC SHORT-CIRCUIT TEST	63 kA - Standard	-	-	-	-	-	No visible damage
	125 kA - High Current	-	-	-	-	-	
IMPACT	Fall from a height of 2 m at a weight of 4 kg, 6 times (only reinforced joints)	-	-	-	-	-	
SALTY FOG TEST WITH APPLIED VOLTAGE	1h of sealing salinity 224 kg/m ³ (voltages in kV)	4,5	7,5	10,9	15	22,5	No discharge

TESTING SEQUENCE

Indoor terminations 1a,2,3a, 4a,2,5, 4a, 1c, 3a,6,7a, 8

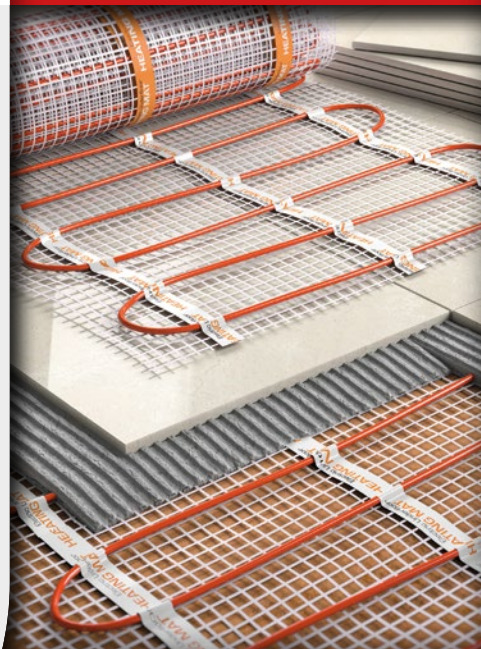
Outdoor terminations 1b, 2, 3b, 4a,2, 5,4a, 2, 1c,3b, 6,7b, 8, 10

Joints 9, 1a,2,3b,4a,2,5, 4b,2,5, 4b,2,1c,3b, 6,8



HEATING CABLES

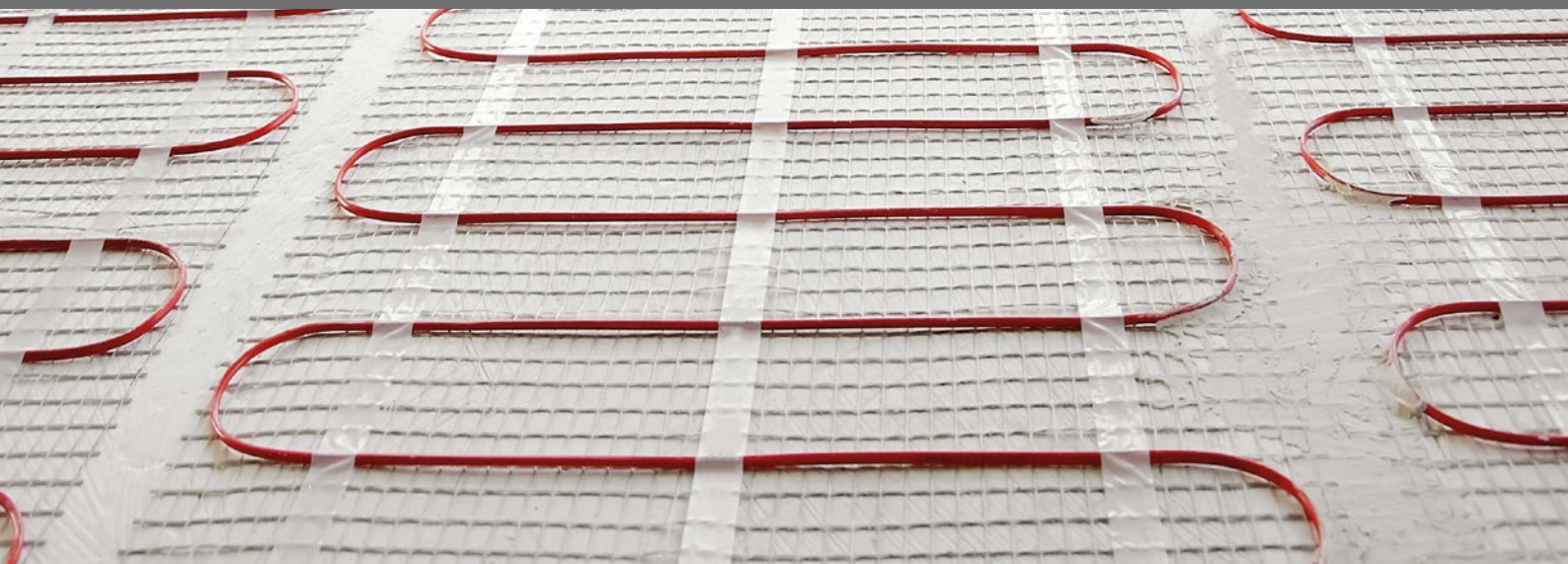
INDUSTRIAL USE.
DOMESTIC USE.
COMFORT HOUSE.



Heating Cables

Heating cables are used for frost protection of pipes, tanks, ramps and walkways, gutters, etc., or for maintaining process temperatures, especially in industrial environments.

- **CONSTANT POWER CABLES**
- **SELF-REGULATING CABLES**



CONSTANT POWER CABLES

Raytech cables are composed of 2 conductors that are shielded and in the case of Stop Ice are supplied with a suitable thermostat for anti-freeze maintenance.



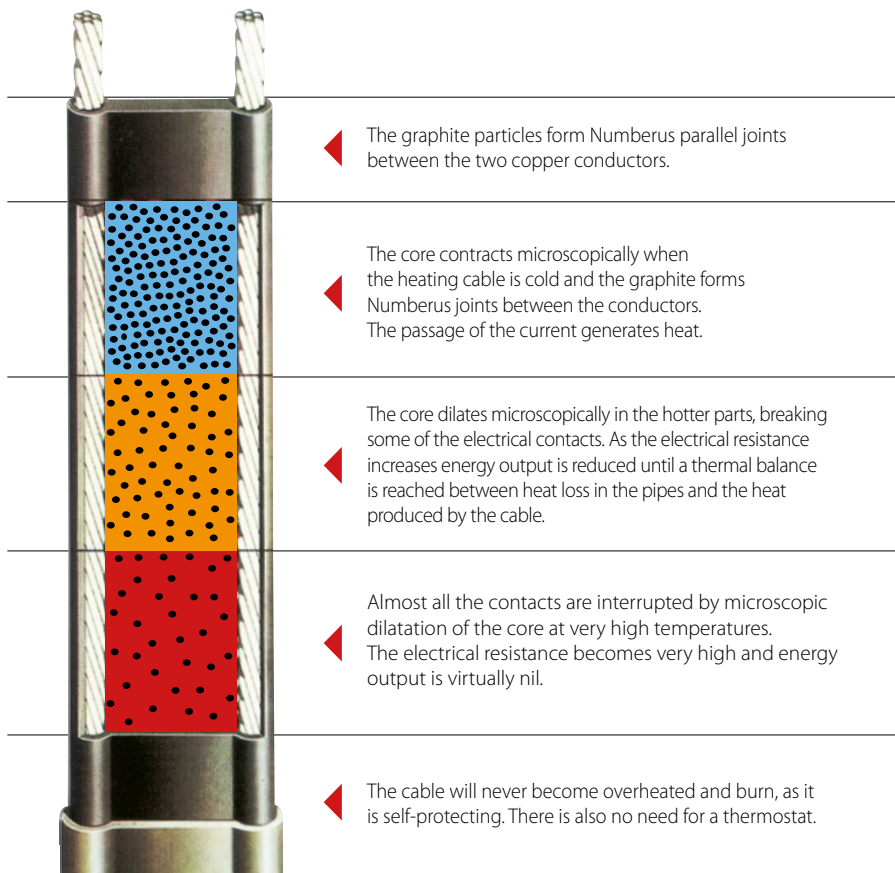
★ ADVANTAGES CONSTANT POWER CABLES

- **Ready for use**, without requiring the installation of accessories.
- **Already equipped with a thermostat**, in the case of Stop Ice.
- **Completely reliable.**

SELF-REGULATING CABLES

The self-regulation technology and the parallel circuit present the following advantages:

- The heating cables can be cut at the desired length, jointed and terminated on site.
- They can be supplied at 230 V without transformers.
- They can be overlapped without over heating risks.
- They reduce automatically their power output as the required temperature is reached.
- They are easy designed and can be easily handled on site.



★ ADVANTAGES SELF-REGULATING CABLES

- **A reduction in overall installation costs**
- **Reduction in operating cost**
- **Very easy to install**
- **Simple design**
- **Uniform temperature**
- **Complete reliability**



HEATING CABLES INDUSTRIAL USE

CLASSIFIED AREAS

MCA

CABLE POWERED
From -55°C to +65°C
CABLE NOT POWERED
From -55°C to +80°C



MCA-I-PF

CABLE POWERED
From -55°C to +65°C
CABLE NOT POWERED
From -55°C to +80°C



MCA-I-FF

CABLE POWERED
From -60°C to +110°C
CABLE NOT POWERED
From -60°C to +130°C



SAFE AREAS

MCA 33/55/88/1010

CABLE POWERED
From -60°C to +65°C
CABLE NOT POWERED
From -60°C to +85°C



MCA-I-GF

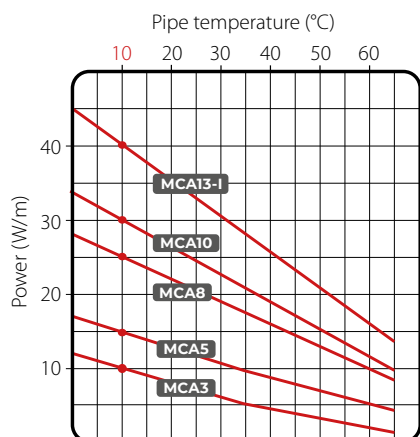
CABLE POWERED
From -60°C to +120°C
CABLE NOT POWERED
From -60°C to +120°C



MCA

Self-regulating heating cables for anti-freeze or temperature maintenance use with exposure to **mild a solutions**.

Suitable for anti-freeze and process temperature maintenance use **up to 65°C** on piping and tanks. Cannot be used when washing with steam or continuous exposure to strong corrosive and organic acids.



CONSTITUTION OF THE CABLE

Copper conductors

Self regulating conductive core

Modified polyolefine insulation

Copper screen

Modified polyolefine outer sheath

Cables certified for classified zones

Ex II 2G Ex 60079-30-1 IIC Gb
Ex II 2D Ex 60079-30-1 IIIC Db
In accordance: EN IEC 60079-0:2018
EN IEC 60079-30-1:2017



Type of surface to be tracked:

Steel - Painted - Stainless Steel - Plastic.

Chemical resistance:

Suitable for exposure to mild inorganic solutions.

Product	Power voltage (V)	Power at 10°C (W/m)	Minimum installation temperature (°C)	MAX Temperature Continuous with powered cable (°C)	MAX Temperature with no powered cable (°C)	Bending radius MIN (mm)	Temperature classification
MCA3	230	10	-55	65	80	25	T6
MCA5		15					
MCA8		25					
MCA10		30					
MCA13-I		40					

ELECTRICAL SIZING

Starting temperature (°C)

		MAXIMUM LENGTH OF THE CIRCUITS IN THE HEATING CABLE (m)														
		MCA3			MCA5			MCA8			MCA10			MCA13-I		
		+10°	-10°	-20°	+10°	-10°	-20°	+10°	-10°	-20°	+10°	-10°	-20°	+10°	-10°	-20°
Switchgear protection (A), with C curve and 30mA* differential protection*	10 A	-	-	-	103	71	62	64	47	37	49	38	33	-	-	-
	16 A	177	144	125	160	114	99	103	75	60	78	61	53	57	44	40
	20 A	-	149	139	-	133	124	126	94	75	97	76	66	71	55	50
	25 A	-	-	-	-	-	-	-	107	94	112	95	83	89	69	62

* Suggested where protection of people is requested; installations with no personnel admittance can be performed with 100 to 300 mA.

MCA connection accessories



GUAT 26
Connection kit for installations in classified areas.



ATEX TERMINAL KIT
MCA-PM-EL-ECL / OX81EN1 for installations in classified areas.



MCA-FV
Glass fiber tape.



MCA-ALL
Aluminium self adhesive tape 25 or 75 mm.

NOTE: To find out in detail the type and installation of the self-regulating heating cable suitable for your use, fill out the request forms at the end of the chapter or in the **Projects Online** area on www.raytech.it; in 24 hours you will be provided with the project and its economic offer.

MCA-I-PF

Self-regulating heating cables for anti-freeze or temperature maintenance use with exposure to **inorganic solutions**.

Suitable for anti-freeze and process temperature maintenance use **up to 65°C** on piping and tanks. Cannot be used when washing with steam or continuous exposure to strong corrosive and organic acids.



CONSTITUTION OF THE CABLE

Copper conductors

Self regulating conductive core

Modified polyolefine insulation

Copper screen

Fluoropolymer outer sheath

Cables certified for classified zones

Ex II 2G Ex 60079-30-1 IIC Gb
Ex II 2D Ex 60079-30-1 IIIC Db
In accordance: EN IEC 60079-0:2018
EN IEC 60079-30-1:2017

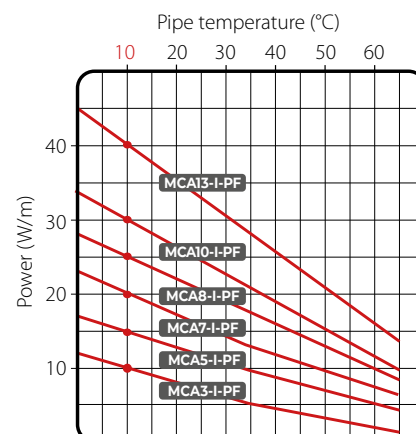


Type of surface to be tracked:

Steel - Painted - Stainless Steel - Plastic.

Chemical resistance:

Suitable for exposure to mild inorganic solutions.



Product	Power voltage (V)	Power at 10°C (W/m)	Minimum installation temperature (°C)	MAX Temperature Continuous with powered cable (°C)	MAX Temperature with no powered cable (°C)	Bending radius MIN (mm)	Temperature classification
MCA3-I-PF	230	10	-55	65	80	25	T6
MCA5-I-PF		15					T6
MCA7-I-PF		20					T6
MCA8-I-PF		25					T5
MCA10-I-PF		30					T5
MCA13-I-PF		40					T6

ELECTRICAL SIZING		MAXIMUM LENGTH OF THE CIRCUITS IN THE HEATING CABLE (m)																	
		MCA3-I-PF			MCA5-I-PF			MCA7-I-PF			MCA8-I-PF			MCA10-I-PF			MCA13-I-PF		
Starting temperature (°C)		+10°	-10°	-20°	+10°	-10°	-20°	+10°	-10°	-20°	+10°	-10°	-20°	+10°	-10°	-20°	+10°	-10°	-20°
Switchgear protection (A), with C curve and 30mA* differential protection*	10 A	202	202	163	153	144	115	109	79	70	91	86	70	57	54	44	57	44	40
	16 A	202	202	202	165	165	144	129	99	87	120	107	87	76	67	55	71	55	50
	20 A	202	202	202	165	165	165	-	111	104	128	128	109	95	84	69	89	69	62
	25 A	202	202	202	165	165	165	-	-	-	128	128	128	97	97	88	-	-	-

* Suggested where protection of people is requested; installations with no personnel admittance can be performed with 100 to 300 mA.

MCA-I-PF connection accessories



GUAT 26

Connection kit for installations in classified areas.



ATEX TERMINAL KIT

MCA-PM-EL-ECL / OX81EN1 for installations in classified areas.



MCA-FV

Glass fiber tape.



MCA-ALL

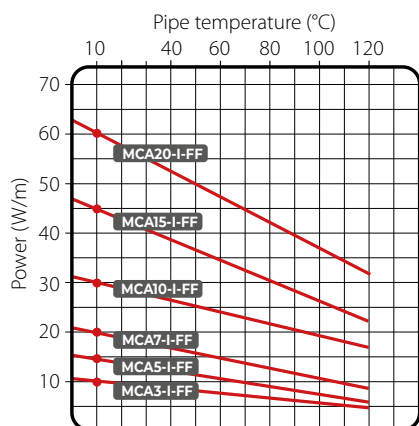
Aluminium self adhesive tape 25 or 75 mm.

NOTE: To find out in detail the type and installation of the self-regulating heating cable suitable for your use, fill out the request forms at the end of the chapter or in the **Projects Online** area on www.raytech.it; in 24 hours you will be provided with the project and its economic offer.

MCA-I-FF

Self-regulating heating cables for anti-freeze or temperature maintenance use with exposure to **corrosives and acids and high temperatures**.

Suitable for maintaining process temperatures **up to 110°C** on piping and tanks, even in the presence of acids and corrosives, or for anti-freeze use even in the presence of acids and corrosives and where high temperature thermal treatment is foreseen, like steam washing.



CONSTITUTION OF THE CABLE

Copper conductors

Self regulating conductive core

Fluoropolymer insulation

Copper screen

Fluoropolymer outer sheath

Cables certified for classified zones

Ex II 2G Ex 60079-30-1 IIC Gb
Ex II 2D Ex 60079-30-1 IIIC Db
In accordance: EN IEC 60079-0:2018
EN IEC 60079-30-1:2017



Type of surface to be tracked:

Steel - Painted - Stainless Steel - Plastic.

Chemical resistance:

Suitable for exposure to corrosives and acids and high temperatures.

Product	Power voltage (V)	Power at 10°C (W/m)	Minimum installation temperature (°C)	MAX Temperature Continuous with powered cable (°C)	MAX Temperature with no powered cable (°C)	Bending radius MIN (mm)	Temperature classification
MCA3-I-FF	230	10	-60	110	130	25	T4
MCA5-I-FF		15					T4
MCA7-I-FF		20					T3
MCA10-I-FF		30					T3
MCA15-I-FF		45					T3
MCA20-I-FF		60					T3

ELECTRICAL SIZING		MAXIMUM LENGTH OF THE CIRCUITS IN THE HEATING CABLE (m)																	
		MCA3-I-FF			MCA5-I-FF			MCA7-I-FF			MCA10-I-FF			MCA15-I-FF			MCA20-I-FF		
Starting temperature (°C)		+10°	0°	-20°	+10°	0°	-20°	+10°	-15°	-25°	+10°	0°	-20°	+10°	-15°	-25°	+10°	-0°	-20°
Switchgear protection (A), with C curve and 30mA* differential protection*	16 A	230	217	195	164	155	141	122	107	102	92	87	79	55	48	36	52	49	45
	20 A	231	231	231	188	188	177	136	127	124	115	109	98	68	60	57	65	61	56
	25 A	231	231	231	188	188	188	-	-	-	133	133	123	-	-	-	75	75	70
	32 A	231	231	231	188	188	188	-	-	-	133	133	133	91	83	82	75	75	75

* Suggested where protection of people is requested; installations with no personnel admittance can be performed with 100 to 300 mA.

MCA-I-FF connection accessories



GUAT 26
Connection kit for installations in classified areas.



ATEX TERMINAL KIT
MCA-PM-EL-ECL / OX81EN1 for installations in classified areas.



MCA-FV
Glass fiber tape.



MCA-ALL
Aluminium self adhesive tape 25 or 75 mm.

NOTE: To find out in detail the type and installation of the self-regulating heating cable suitable for your use, fill out the request forms at the end of the chapter or in the **Projects Online** area on www.raytech.it; in 24 hours you will be provided with the project and its economic offer.

MCA 33/55/88/1010

Self-regulating heating cables for anti-freeze or temperature maintenance use with exposure to mild inorganic solutions.

Suitable for anti-freeze and process temperature maintenance use **up to 65°C** on piping and tanks. Cannot be used when washing with steam or continuous exposure to strong corrosive and organic acids.



CONSTITUTION OF THE CABLE

Copper conductors

Self regulating conductive core

Fluoropolymer insulation

Copper screen

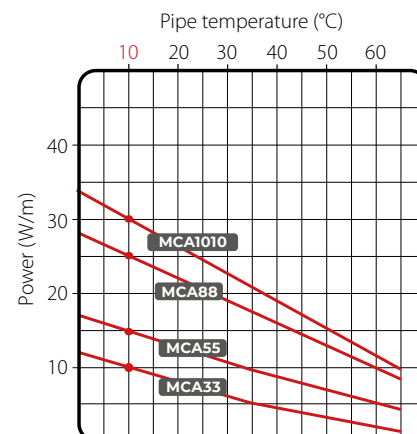
Fluoropolymer outer sheath

Type of surface to be tracked:

Steel - Painted - Stainless Steel - Plastic.

Chemical resistance:

Suitable for exposure to corrosives and acids and high temperatures.



Product	Power voltage (V)	Power at 10°C (W/m)	Minimum installation temperature (°C)	MAX Temperature Continuous with powered cable (°C)	MAX Temperature with no powered cable (°C)	Bending radius MIN (mm)
MCA33	230	10	-60	65	85	30
MCA55		17				
MCA88		25				
MCA1010		31				

ELECTRICAL SIZING		MAXIMUM LENGTH OF THE CIRCUITS IN THE HEATING CABLE (m)											
		MCA33			MCA55			MCA88			MCA1010		
Starting temperature (°C)		+10°	-10°	-20°	+10°	-10°	-20°	+10°	-10°	-20°	+10°	-10°	-20°
Switchgear protection (A), with C curve and 30mA* differential protection*	16 A	150	120	90	120	90	70	100	75	60	85	65	55
	30 A	220	180	140	170	130	100	140	105	85	120	95	75

* Suggested where protection of people is requested; installations with no personnel admittance can be performed with 100 to 300 mA.

MCA 33/55/88/1010 connection accessories

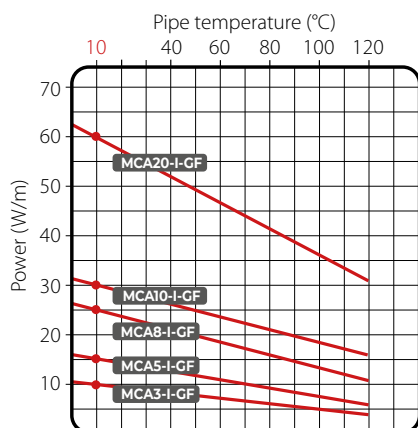
MCA Universal IP68 - Connection kit integrated with the terminal box. - Termination Kit. - Joint Kit.	MCA-Y Branch Kit.	MCA-BOX3 / 4 Connection boxes between heating cables or heating and power cables.	MCA-AL Thermal insulation pass-through kit.	MCA-PRESS Cable gland.	MCA-EA Warning label.	MCA-FV Glass fiber tape.	MCA-ALL Aluminium self adhesive tape 25 or 75 mm.
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NOTE: To find out in detail the type and installation of the self-regulating heating cable suitable for your use, fill out the request forms at the end of the chapter or in the **Projects Online** area on www.raytech.it; in 24 hours you will be provided with the project and its economic offer.

MCA-I-GF

Self-regulating heating cables for anti-freeze or temperature maintenance use with exposure to **corrosives and acids**.

Suitable for maintaining process temperatures **up to 120°C** on piping and tanks, even in the presence of acids and corrosives, or for anti-freeze use where acids and corrosives are present, in safe areas. Not suitable for use in the presence of steam washing.



CONSTITUTION OF THE CABLE

Copper conductors

Self regulating conductive core

Fluoropolymer insulation

Copper screen

Modified polyolefine outer sheath

Type of surface to be tracked:

Steel - Painted - Stainless Steel.

Chemical resistance:

Suitable for exposure to corrosive and organic acids.

Product	Power voltage (V)	Power at 10°C (W/m)	Minimum installation temperature (°C)	MAX Temperature Continuous with powered cable (°C)	MAX Temperature with no powered cable (°C)	Bending radius MIN (mm)
MCA3-I-GF	230	10	-60	120	120	25
MCA5-I-GF		15				
MCA8-I-GF		25				
MCA10-I-GF		30				
MCA20-I-GF		60				

ELECTRICAL SIZING		MAXIMUM LENGTH OF THE CIRCUITS IN THE HEATING CABLE (m)														
		MCA3-I-GF			MCA5-I-GF			MCA8-I-GF			MCA10-I-GF			MCA20-I-GF		
Starting temperature (°C)		+10°	-15°	-25°	+10°	-15°	-25°	+10°	-15°	-25°	+10°	-15°	-25°	+10°	-15°	-25°
Switchgear protection (A), with C curve and 30mA* differential protection*	16 A	200	180	175	165	130	117	120	97	88	85	73	69	50	41	38
	20 A	235	235	235	189	162	152	140	125	120	114	98	92	64	55	52
	30 A	-	-	-	-	-	189	-	-	140	-	-	114	-	-	64

* Suggested where protection of people is requested; installations with no personnel admittance can be performed with 100 to 300 mA.

MCA-I-GF connection accessories

MCA Universal IP68 - Connection kit integrated with the terminal box. - Termination Kit. - Joint Kit.	MCA-Y Branch Kit.	MCA-BOX3 / 4 Connection boxes between heating cables or heating and power cables.	MCA-AL Thermal insulation pass-through kit.	MCA-PRESS Cable gland.	MCA-EA Warning label.	MCA-FV Glass fiber tape.	MCA-ALL Aluminium self adhesive tape 25 or 75 mm.
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NOTE: To find out in detail the type and installation of the self-regulating heating cable suitable for your use, fill out the request forms at the end of the chapter or in the **Projects Online** area on www.raytech.it; in 24 hours you will be provided with the project and its economic offer.

MCA

INSTALLATION ON PIPES

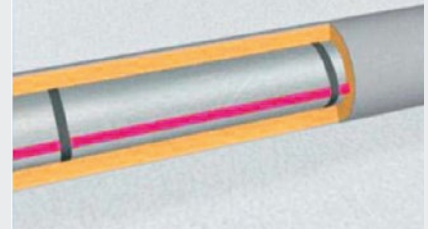
THE CABLE IS POSITIONED AND FIXED TO THE PIPELINE IN THE FOLLOWING WAYS:

- **Longitudinally**, under the pipes, at 45° with respect to the vertical (see laying diagrams on the following pages), 1 meter of cable for each meter of pipe;
- **Longitudinally**, under the pipes, 2 or more meters of cable for each meter of pipe for pipes of large diameters or for maintaining high process temperatures or for possible heating (up to +65°C / 120°C depending on the type of cable);
- **Coiled around the pipes** to maintain high process temperatures or possibly heat up (up to +65°C / 120°C depending on the type of cable).

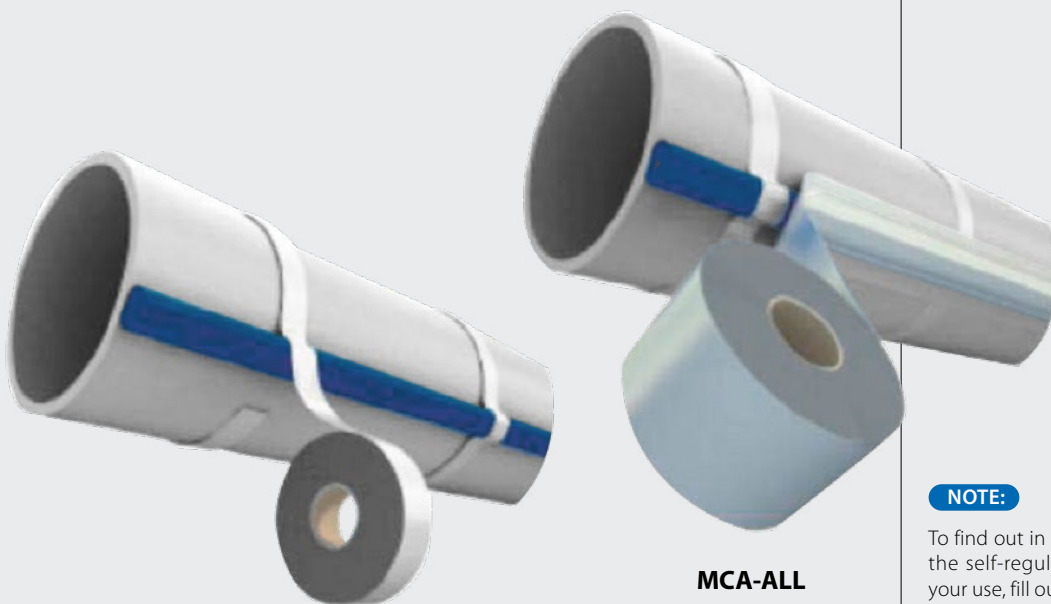
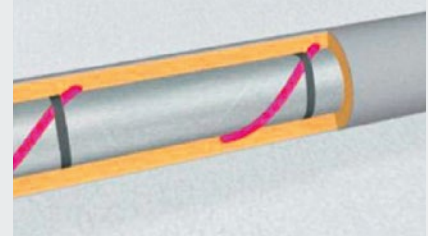
THE HEATING CABLE IS FIXED IN THE PIPES:

- **With MCA-PV adhesive fiberglass tape**, making 3 overlapping turns of tape every 0.3 meters of pipe.
- **With MCA-ALL75 adhesive aluminium tape**, laying the tape lengthwise on the heating cable; this solution is particularly suitable for improving thermal distribution in the following cases:
 - plastic pipes
 - insulation of reduced thickness or poor thermal insulation

Linear installation



Coiled

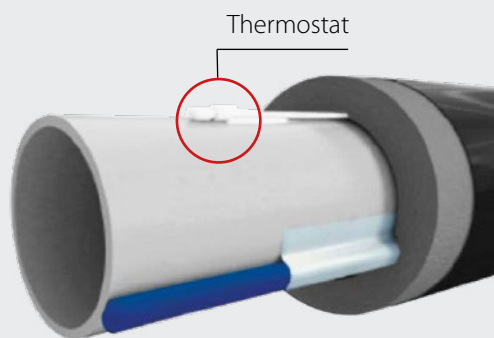


MCA-FV

MCA-ALL

NOTE:

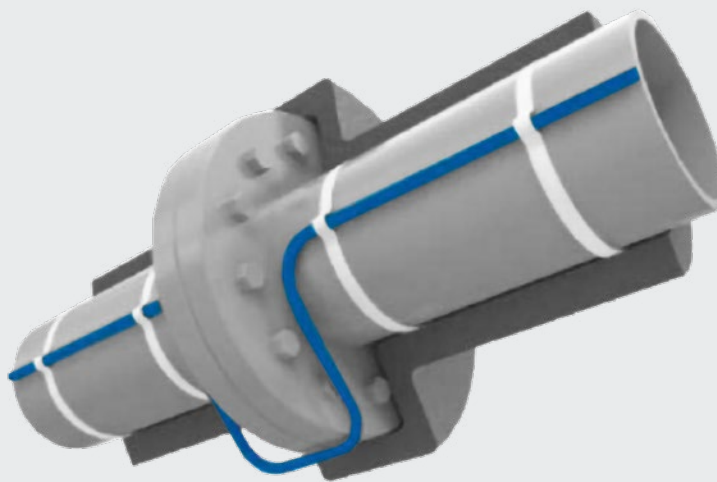
To find out in detail the type and installation of the self-regulating heating cable suitable for your use, fill out the request forms at **the end of the chapter** or in the **Projects Online** area on www.raytech.it; in 24 hours you will be provided with the project and its economic offer.



In some cases, it may be necessary to avoid exceeding threshold temperatures and, therefore, it is necessary to install a **thermostat** (preferably bulb or capillary) whose probe must be positioned on the pipe, away from the cable.

ONCE THE CABLE IS ATTACHED TO THE PIPING THE FOLLOWING CHECKS MUST BE CARRIED OUT:

- **Measurement of the insulation resistance** between conductors and shield, which must be greater than 20 MOhm.
- **Verification of the functionality of the cable**, powering the sections (insulated with MCA Universal IP68 accessories) at the nominal voltage to verify the suitability of the connection.



IMPORTANT:

Once the cable has been secured and tested, insulation must be installed across the entire line (including, if present, valves, flanges, supports, brackets and pumps).



IMPORTANT:

always ask the electrician who laid and connected the heating cable for the **SIGNED CERTIFICATE** proving that the insulation resistance measurement test and verification of the functionality of the system have been carried out for each section of heating cable (facsimile of the registration form at the bottom of the catalogue).

Warnings

1. During installation and until the accessories are installed, the free cable heads must be protected against the ingress of moisture.
2. Do not insert the self-regulating heating cable inside cable ducts (pipes, corrugated, etc.) as this could damage the cable as a result of its overheating.
3. **MCA Universal IP68 kit**: when closing the accessory, always check that the hook is firmly fastened, and that the gel has come out of the ends of the joint and is clearly visible around the cables. If the gel does not come out, reopen the joint and add the spacer to the kit. Close the joint again.
4. To connect the self-regulating heating cable, use multi-core power cables so as to allow the gels to escape correctly from the ends of the **MCA Universal IP68 accessory** (see assembly instructions contained in the kit).
5. Do not short-circuit the ends of the self-regulating heating cables.
6. Always check the actual power available; in case of insufficient power:
 - Request a power increase from the distributor.
 - Partialize start-ups by dividing the system into multiple lines.

MCA

INSTALLATION ON TANKS

THE CABLE IS POSITIONED AND FIXED TO SILOS OR TANKS IN THE FOLLOWING WAYS:

■ **Coiled** (fig. 1)
for small tanks.

■ **Vertically** (fig. 2)
for large tanks.

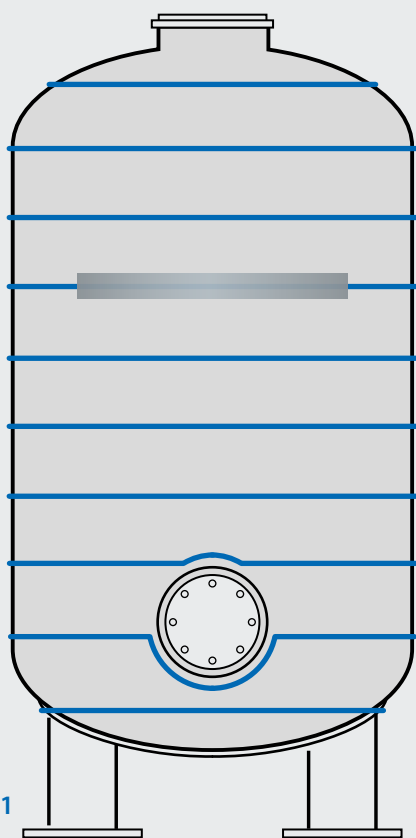


Fig. 1

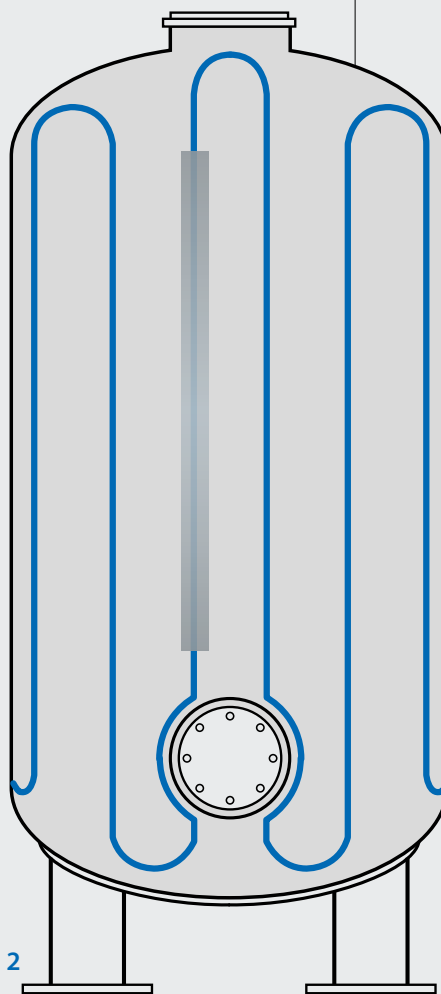


Fig. 2

MCA: Heating cable

MCA-ALL75: ALUMINIUM tape

The heating cable is fixed to the tanks with **MCA-ALL75** adhesive aluminium tape, laid longitudinally on the heating cable. In some cases, it may be necessary to avoid exceeding threshold temperatures and, therefore, it is necessary to install a thermostat (preferably bulb or capillary) whose probe must be positioned on the tank, away from the cable.

ONCE THE CABLE HAS BEEN FIXED TO THE TANK, THE FOLLOWING CHECKS MUST BE CARRIED OUT:

- **Measurement of the insulation resistance** between conductors and shield, which must be greater than 20 MOhm;
- **Verification of the functionality of the cable**, powering the sections (insulated with MCA Universal IP68 accessories) at the nominal voltage to verify the suitability of the connection.

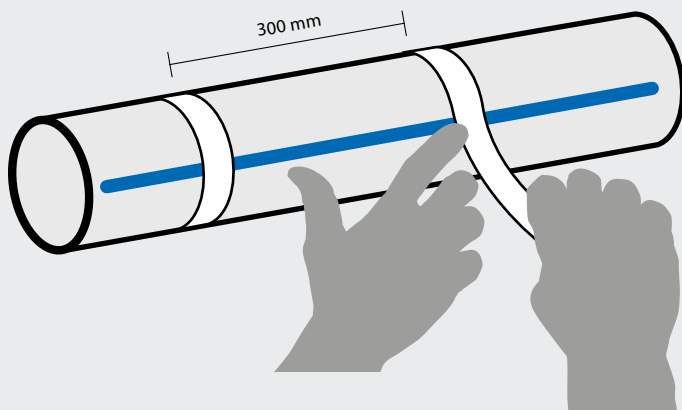
NOTE:

To find out in detail the type and installation of the self-regulating heating cable suitable for your use, fill out the request forms at **the end of the chapter** or in the **Projects Online** area on www.raytech.it; in 24 hours you will be provided with the project and its economic offer.

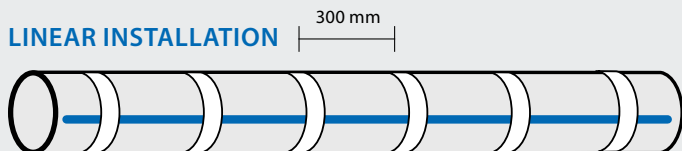
MCA

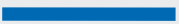
LAYING SCHEMES FOR PIPES

FIXING THE HEATING CABLE

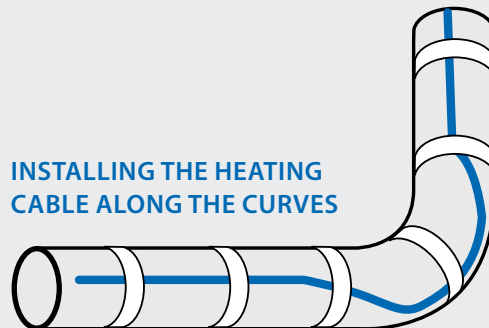


LINEAR INSTALLATION



 MCA: Heating cable
 MCA-VF: Fiberglass tape

INSTALLING THE HEATING CABLE ALONG THE CURVES

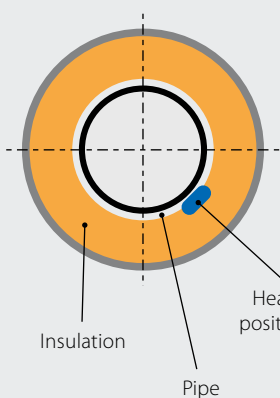


COILED INSTALLATION

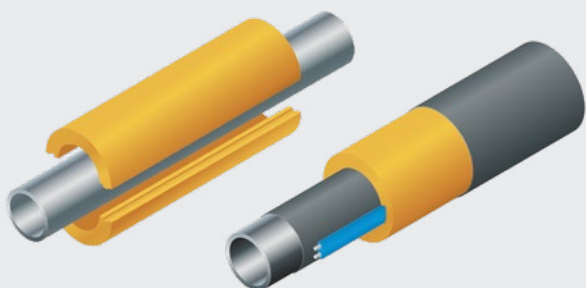
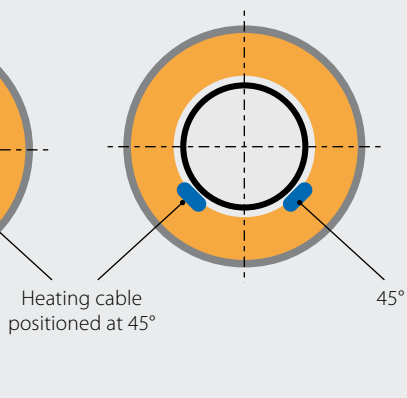


POSITIONING THE HEATING CABLE

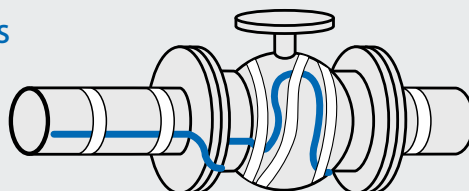
1 HEATING CABLE



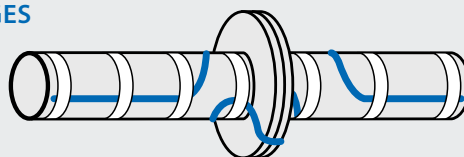
2 HEATING CABLES



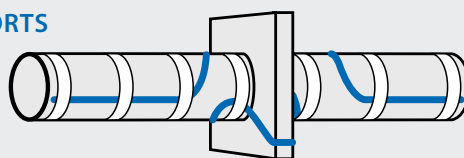
VALVES



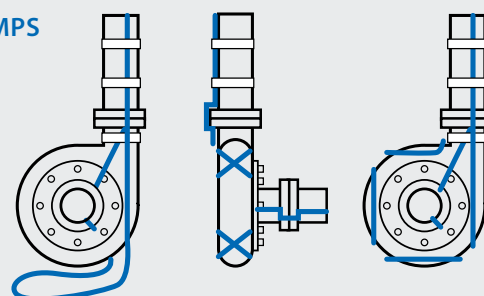
FLANGES



SUPPORTS



PUMPS





HEATING CABLES DOMESTIC USE

PIPING

CONSTANT POWER

SELF-REGULATING



STOP ICE



ICE KILLER
MCA

RAMPAS

CONSTANT POWER

SELF-REGULATING



EASY CABLE
EASY RAMP



MCA RAMP

GUTTERS

CONSTANT POWER

SELF-REGULATING



EASY FROST



MCA 88

**CHARACTERISTICS****Power:** 12 W/m**Power supply:** 230 V – 50 Hz**Cable dimensions:** ~ 5x7 mm**Min. installation temperature:** +5°C**Max. working temperature:** +70°C**Heating cable type:**

2 conductors, screened cable

Insulation: XLPE**External sheath:** PVC**Min. bending radius:** 3,5 D**Protection degree:** IP X7**Marking:** CEIntegrated Bimetal Thermostat
(ON + 3°C - OFF +10°C)Complete Connections and power cord
(1,5 m - 3 x 0,75 mm²)

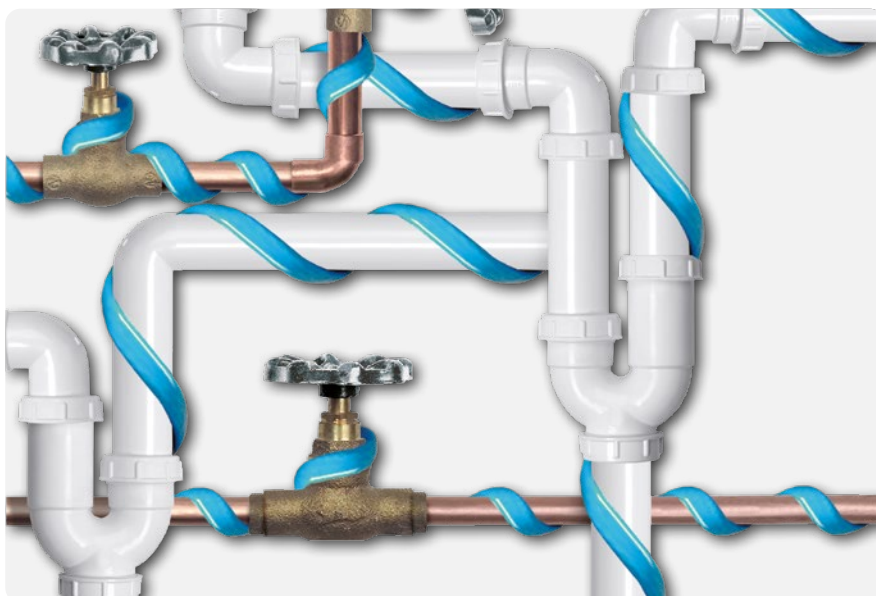
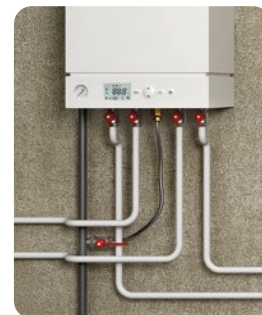
STOP ICE

Constant power anti-freeze kit complete with thermostat and plug.

Raytech Stop Ice is a pre-assembled kit consisting of a constant wattage heating cable of 12 W/m, complete with contact thermostat (installed on the end of the heating cable) and power cable with plug. Stop-Ice is particularly suitable for frost protection, and prevention of possible damages caused by low temperatures on pipes, valves, faucets, water meters, troughs, bowls and small tanks.

- Easy and quick to install
- No need for any external temperature control system, thanks to its built-in thermostat
- Low energy consumption

Product	Power (W/kit)	Specific power (W/m)	Length (m)
Stop Ice 2/12	24	12	2
Stop Ice 5/12	60	12	5
Stop Ice 10/12	120	12	10
Stop Ice 18/12	216	12	18



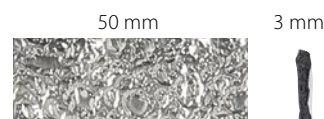
LINUS

Self-adhesive thermal insulating tape.

To offer a complete solution in the field of electrical tracking, Raytech has developed, LINUS, an insulation tape to maintain temperature. The product is a closed-cell expanded synthetic rubber, low thermal conductivity and extremely flexible tape. The rubber tape is coupled with an aluminium sheet to protect against tearing, for greater resistance to perforation and higher tensile resistance. It also protects very well against UV radiation. The tape is self-adhesive for easy application on traced pipes. The closed cells and the special material type give the tape very high insulating properties and optimal behaviour in the presence of condensation.

Product	Width (mm)	Thickness (mm)	Length (m)
LINUS	50	3	10

	pipe Ø ¾" (DN 20)	pipe Ø 1" (DN 25)	pipe Ø 1 ¼" (DN 32)
LENGTH PIPE I can insulate with 1 LINUS tape 50% overlapped	2,2 m	1,9 m	1,6 m



CHARACTERISTICS

Density: 0,7
Temperature range: -50°C -105°C
Coefficient of thermal conductivity (λ):
 0,039 W/mK a 50°C
Flame resistance: Bs3-dO
 (DIN EN 13501-1)

STOP ICE PLUS

Constant power anti-freeze kit complete with thermostat, connection plug and insulation tape.

STOP ICE + LINUS

- Stop Ice 12 W/m constant power cable, complete with connection plug and thermostat
- 3 mm LINUS insulation tape, for application on already traced pipe with a cable, to apply with 50% overlap

As an example, with a 10 m long LINUS tape, about 2.2 m of ¾", traced with the Stop Ice cable, can be insulated.

HEATING CABLE
BUILT-IN THERMOSTAT
BUILT-IN PLUG



TAPE INSULATION
TO MAINTAIN T
EMPERATURE



Product	Power (W/kit)	Length cable (m)
Stop Ice Plus 2	24	2
Stop Ice Plus 5	60	5



CABLE

Specific power: 12 W/m
Power supply: 230 V- 50Hz
Cold cable: 3 x 0,75 mm² - L = 1,5 m
Temperature control: integrated
 bimetallic thermostat
ON / OFF: +3°C / +10°C

INSULATION TAPE

Temperature range: -50 / +105°C
Coefficient of thermal conductivity (λ):
 0,039 W/mK a 50°C
Dimensions: 50 mm x 3 mm x L10 m

STOP ICE

FOR THE CORRECT SELECTION OF THE STOP-ICE KIT
THE FOLLOWING DATA IS REQUIRED:

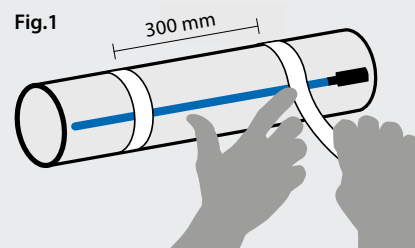
- **Length** (m) of the pipe to be heated
- **Pipe diameter** (mm)
- **Insulation thickness** (mm) Minimum ambient temperature (°C)
- Once data is completed, use the table below for the correct selection of the calculation coefficient.

Heating Cable Length = Pipe Length by Coefficient

Ø Pipes		Insulation thickness 10 mm			Insulation thickness 20 mm		
Interior (mm)	Inches (")	Temperature MIN. Environment Coefficient			Temperature MIN. Environment Coefficient		
		-10°	-15°	-25°	-10°	-15°	-25°
8	1/4	1	1	1	1	1	1
15	1/2	1	1	1.2	1	1	1
20	3/4	1	1	1.3	1	1	1
25	1	1	1.2	1.6	1	1	1
32	1 1/4	1.1	1.3	1.8	1	1	1.1
40	1 1/2	1.2	1.5	2.2	1	1	1.3
50	2	1.4	1.6	2.5	1.2	1	1.6

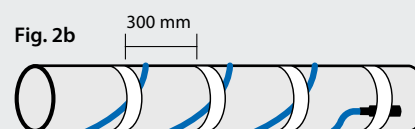
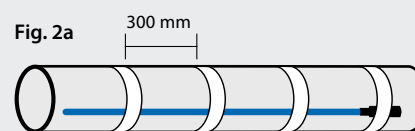
STEP 1:

Start fixing the heating cable to the pipe starting from the installation of the thermostat, positioned on the end side, as shown in figure 1. It is advisable to install the thermostat at the end of the pipe as it is the most exposed area. Do not overlap the cables!

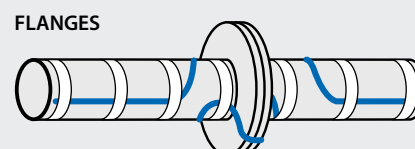
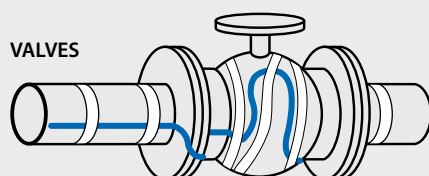


STEP 2:

Fix the heating cable longitudinally under the pipe, at 45° with respect to the vertical (fig. 2a), 1 metre of cable for each metre of pipe, or spiralled around it (fig. 2b). **Secure the cable to the pipes with inextensible tape.**



LAYING PATTERNS:



ATTENTION: since it is a constant power cable, the *STOP ICE* cable can not be cut, jointed or overlapped.

ICE KILLER

Cut and install **self-regulating** cable kit, complete with connection side and termination kit.

The Ice Killer kit is composed of a 30 m self-regulating cable coil, complete with connection side and termination accessories. The cable can be cut to the desired length, installed on the pipe or tank, connected to the mains and terminated at the opposite end. The economic and compact Ice Killer kit is sold in an attractive, easy to carry, easy to handle on-site package, is small in size, very flexible and can be easily adapted to bends in the pipe.

The Ice Killer cable is laid linearly or wound around the pipe, depending on the specific necessary power. It is then fastened to the same by means of inextensible tape (Raytech MCA-FV or MCA-ALL75 type tapes), terminated with accessories contained in the kit and then clad with the insulation. Operating temperature is reached very quickly and is maintained almost constant even with room temperature variations.

Product	Specific power a 10°C (W/m)	Kit composition			
Ice Killer 2	10	30 m cable Connection accessory Termination accessory			
Ice Killer 6	18	30 m cable Connection accessory Termination accessory			
Starting temperature		Maximum circuit length (m)			
		Ice Killer 2		Ice Killer 6	
		0°C	-20°C	0°C	-20°C
10 A electrical protection, characteristic C switch with differential 30 mA protection		95	77	58	41



Supply voltage: 230 V
Min installation temperature: -30°C
Cable dimensions: 7,7 x 5,3 mm
Max temperature with powered cable: 65°C
Max exposure temperature with non-powered cable: 65°C





MCA 33/55/88/1010

Self-regulating cable for anti-freeze use or for maintaining temperatures for general use.

For anti-freeze use on pipes or tanks or for maintaining process temperatures under 65°C, even in hazardous areas. Maintenance-free, reliable, easy to install. Suitable even in the presence of mild inorganic solutions.

Product	Power voltage (V)	Minimum installation temperature (°C)	Power at 10°C (W/m)	Temperature MAX	
				Continuous cable powered (°C)	Intermittent cable not powered (°C)
MCA 33	220-240	-30	10	65	85
MCA 55	220-240	-30	17	65	85
MCA 88	220-240	-30	25	65	85
MCA 1010	220-240	-30	31	65	85

ELECTRICAL SIZING

Starting temperature (°C)

Switchgear protection (A),
with C curve and 30mA*
differential protection*

16 A

30 A

MAXIMUM LENGTH OF THE CIRCUITS IN THE HEATING CABLE (m)

MCA33			MCA55			MCA88			MCA1010		
+10°	-10°	-20°	+10°	-10°	-20°	+10°	-10°	-20°	+10°	-10°	-20°
150	120	90	120	90	70	100	75	60	85	65	55
220	180	140	170	130	100	140	105	85	120	95	75

* Suggested where protection of people is requested; installations with no personnel admittance can be performed with 100 to 300 mA.

HOW TO CHOOSE MCA CABLE FOR ANTIFREEZE PROTECTION

The table gives the cable quantity for tube lenght unit (1st number) and the MCA cable code number (2nd number) versus tube diameter, thermal insulation thickness (for rockwool) and min outer temperature.

For uses other than anti-freeze, request design from Raytech technical direction.

Pipe Ø		Thermal insulation thickness											
		10 mm		20 mm		30 mm		40 mm		50 mm			
inch	mm	Outer temperature (°C)											
		-10	-20	-10	-20	-10	-20	-10	-20	-10	-20	-10	-20
1/2"	15	1-33	1-33	1-33	1-33	1-33	1-33	1-33	1-33	1-33	1-33	1-33	1-33
3/4"	20	1-33	1-33	1-33	1-33	1-33	1-33	1-33	1-33	1-33	1-33	1-33	1-33
1"	25	1-33	1-88	1-33	1-33	1-33	1-33	1-33	1-33	1-33	1-33	1-33	1-33
1¼"	32	1-33	1-88	1-33	1-33	1-33	1-33	1-33	1-33	1-33	1-33	1-33	1-33
1½"	40	1-33	1-88	1-33	1-33	1-33	1-33	1-33	1-33	1-33	1-33	1-33	1-33
2"	50	1-88	1-88	1-33	1-88	1-33	1-33	1-33	1-33	1-33	1-33	1-33	1-33
2½"	65	1-88	1-88	1-33	1-88	1-33	1-33	1-33	1-33	1-33	1-33	1-33	1-33
3"	80	1-88	2-88	1-33	1-88	1-33	1-55	1-33	1-33	1-33	1-33	1-33	1-33
4"	100	1-88	2-88	1-55	1-88	1-33	1-55	1-33	1-55	1-33	1-55	1-33	1-33
6"	150	2-88	2-88	1-88	2-88	1-88	1-88	1-33	1-88	1-33	1-88	1-33	1-88
8"	200	2-88	-	1-88	2-88	1-88	1-88	1-88	1-88	1-33	1-88	1-33	1-88
10"	250	2-88	-	2-88	-	1-88	2-88	1-88	1-88	1-88	1-88	1-88	1-88

MCA 33/55/88/1010 connection accessories



MCA Universal IP68

- Connection kit integrated with the terminal box.
- Termination Kit.
- Joint Kit.



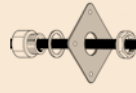
MCA-Y

Branch Kit.



MCA-BOX3 / 4

Connection boxes between heating cables or heating and power cables.



MCA-AL

Thermal insulation pass-through kit.



MCA-PRESS

Cable gland.



MCA-EA

Warning label.



MCA-FV

Glass fiber tape.



MCA-ALL

Aluminium self adhesive tape 25 or 75 mm.

NOTE: To find out in detail the type and installation of the self-regulating heating cable suitable for your use, fill out the request forms at the end of the chapter or in the **Projects Online** area on www.raytech.it; in 24 hours you will be provided with the project and its economic offer.

MCA / MCA-I-GF

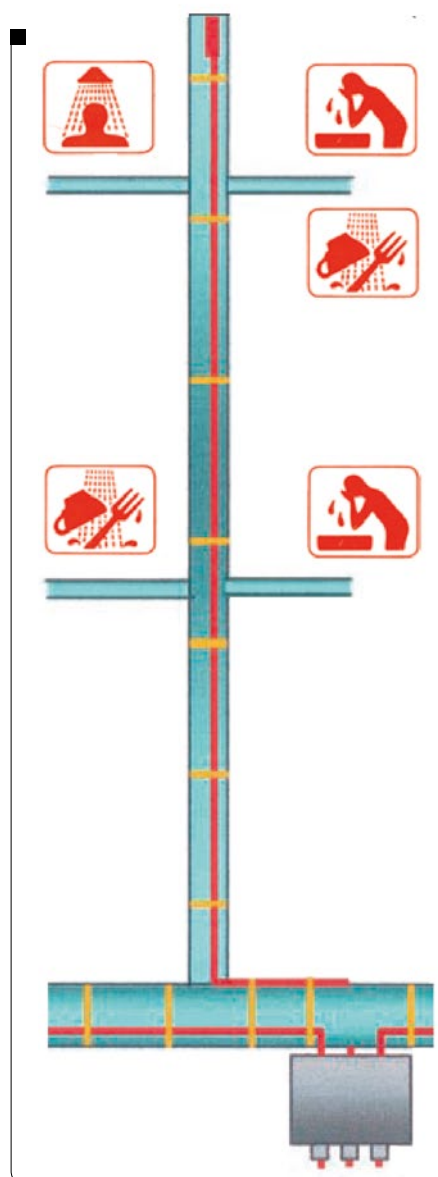
Self-regulating cable for pipe tracing for domestic hot water.

The tracing of domestic hot water systems allows you to always have the water at the ideal temperature available at each pick up point: this allows an energy saving (approximately up to 70%) also for the elimination of thermal losses in recirculation pipes. The pipes must always be insulated with suitable thermal insulation; for the choice and the project, please contact Raytech.

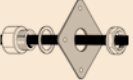
		MCA3	MCA5	MCA8	MCA10-I GF
TEMPERATURE (°C)	max operating	65°	65°	65°	120°
	max exposure*	80°	80°	80°	120°
	maintenance**	45°	55°	60°	80°
Available power	a 40°C (W/m)	6	8	14	25
Max length to be supplied with starting at 10°C through a switchgear	16 A	177	160	103	85
	20 A	-	-	126	114
	30 A	-	-	126	-
RECOMMENDED FOR		Small villas	Blocks of flats Buildings	Blocks of flats Buildings	Hotels Hospitals

*Circuit breakers with "C" curve, with a 30 mA differential.

**The indicated data is the limit maintenance temperature for which the cable can be used; for insulation sizing, please contact Raytech.



MCA / MCA-I-GF connection accessories

 MCA Universal IP68 - Connection kit integrated with the terminal box. - Termination Kit. - Joint Kit.	 MCA-Y Branch Kit.	 MCA-BOX3 / 4 Connection boxes between heating cables or heating and power cables.	 MCA-AL Thermal insulation pass-through kit.	 MCA-PRESS Cable gland.	 MCA-EA Warning label.	 MCA-FV Glass fiber tape.	 MCA-ALL Aluminium self adhesive tape 25 or 75 mm.
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NOTE: To find out in detail the type and installation of the self-regulating heating cable suitable for your use, fill out the request forms at the end of the chapter or in the **Projects Online** area on www.raytech.it; in 24 hours you will be provided with the project and its economic offer.



CHARACTERISTICS

Power supply: 230 V, 50/60 Hz

Cable dimensions: ~ 5x7 mm

Min. installation temperature: +5°C

Max. working temperature: +80°C

Heating cable type:

2 conductors, screened cable

Specific power: 25 W/m

Insulation: XLPE

External sheath: PVC

Marking: CE

Control unit for Easy Cable for ramps.



C2000

The **C 2000** control unit, to be completed with the **C2000-SR** temperature, snow and humidity sensor (sensor to be placed flush with the ramp and

to be ordered separately from the control unit), activating the power contactor, gives consent to start the system only when low temperature and snow or ice are present simultaneously, optimising energy consumption.



C2000-SR

Temperature, snow and humidity sensor.

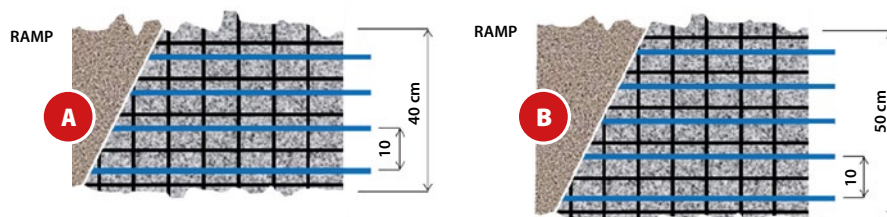
EASY CABLE

Constant, versatile power heating cable complete with termination accessory and power cable.

Especially suitable for solving anti-freeze problems: snow or ice accumulation on access ramps, walkways and stairs, or for frost protection of pipes or tanks, under adequate insulation. 3 standard lengths are available, with a specific power of 25 W/m, covering all possible tracking types. Complete with termination accessory and power cable, Easy cable is a shielded heating cable under a protective sheath with two conductors, with extremely simple and quick installation and connection. Please note that the cable should never be cut, spliced or overlapped.

FOR RAMPS

Product	Specific power (W/m)	Rated power (W)	Maximum length for each individual wheel passage	
			40 cm (A) 4 passages	50 cm (B) 5 passages
Easy Cable 26/25 Length 26,5 m	25	655	6 m	5 m
Easy Cable 44/25 Length 44 m	25	1120	10,5 m	8,5 m
Easy Cable 92/25 Length 92 m	25	2270	22,5 m	18 m

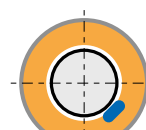


Depth of installation about 50 mm with respect to the surface.

FOR PIPING

Product	Specific power (W/m)	Rated power (W)	Anti-freeze for pipes up to 2 1/2" (Dn 65 mm), for minimum temperatures up to -15°C, with rock wool thickness	Anti-freeze for pipes from 3" (Dn 80) up to 6" (Dn 200 mm), for minimum temperatures up to -15°C, with rock wool thickness
			10 mm	20 mm
Easy Cable 26/25 Length 26,5 m	25	655	10 mm	20 mm
Easy Cable 44/25 Length 44 m	25	1120	10 mm	20 mm
Easy Cable 92/25 Length 92 m	25	2270	10 mm	20 mm

Anti-freeze tracking for piping, longitudinal linear installation 1 m cable/m pipe.



ATTENTION: since it is a constant power cable, the **EASY CABLE** can not be cut, jointed or overlapped.

EASY RAMP

Constant wattage heating mat.

Raytech Easy Ramp consists of a constant wattage heating cable assembled with tape to form a heating mat, which is easily and quickly spread on the surfaces to be protected. Easy Ramp is ideal for solving the problems caused by ice formation and the accumulation of snow on the access ramps to garages, pathways, outdoor parking areas, footpaths, etc. It can be installed in concrete, asphalt, and interlocking bricks or under porphyry paving or other paving materials blocked with cement and sand. The standard width of Easy Ramp pads is 60 cm; a sufficient width to free the track of vehicle wheels from ice and snow or to create an extremely safe pedestrian pathway.

The power density developed by Easy Ramp is 300 W/m². The mat is available in various lengths which are easily adaptable to the size of the area to track and where the size of the mat is larger than that of the ramp, the excess part of mat can be easily folded 90 degrees. The mat is supplied completely finished and ready for installation, complete with 4 meters of cold cable (3x1.5 mm² or 3x2.5 mm²) for connection to the power supply. The constant wattage heating cable, which constitutes the mat, is a 2 conductor heating cable, which is shielded; this allows one end only to be powered, making installation even faster and easier.

Product	Power (W)	Specific power (W/m ²)	Width (m)	Length (m)
Easy Ramp 4/300	670	300	0,6	4
Easy Ramp 7/300	1140	300	0,6	7
Easy Ramp 13/300	2560	300	0,6	13
Easy Ramp 21/300	3730	300	0,6	21



CHARACTERISTICS

Mat specific power: 300 W/m²

Power supply: 230 V ~ 50/60 Hz

Mat thickness: 7,5 mm

Min. installation temperature: + 5°C

Max. working temperature: + 80°C

Cold cable (supply):

length 4 meters - 3 x 1,5 mm² or 3x2,5 mm²

Heating cable type:

2 conductors, screened cable

Heating cable dimensions: ~ 5 x 7 mm

Heating cable power: 25 W/m

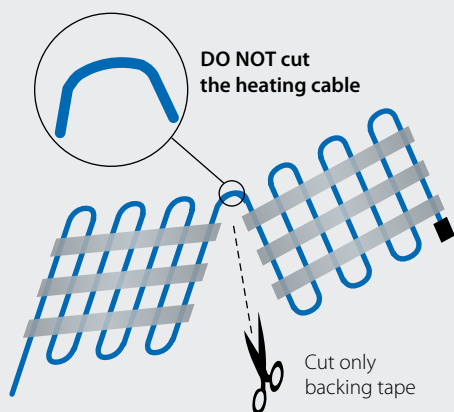
Insulation: XLPE

External sheath: PVC

Marking: CE



ATTENTION: since it is a constant power cable, the EASY RAMP can not be cut, jointed or overlapped.



EASY RAMP INSTALLATION INSTRUCTIONS

INSTALLATION:

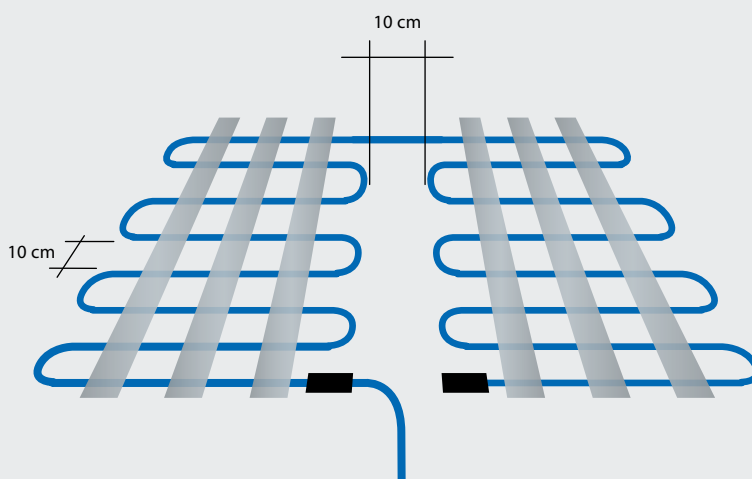
1. Unroll the mat along the ramp (possibly at the wheel steps).
 2. Attach the first strip of mat to the welded mesh using plastic ties, possibly near the support tapes.
 3. Lightly stretch the mat approximately every 0.5 meters and secure it to the welded wire mesh.
 4. Any excess parts of the mat must be folded at 90° by cutting the support tape (see figure).
 5. The excess parts, once rotated, must also be fixed to the electro-welded mesh after having properly fixed the first part of the mat.
- The steps described in steps 4 and 5 are also valid for making any type of curve along the alignment.

Warnings

When installing, carefully avoid:

1. Pull, cut, or overlap the cable.
2. Pass the mat through expansion joints.
3. Place the mat directly on the asphalt.
4. Cross/overlap the heating elements.
5. Place the mat directly in the molten asphalt; asphalt with a maximum thickness of 50 mm is allowed, provided that the mat is covered with at least 20 mm of concrete.

**Maintain a distance between mats
(even the excess parts rotated) by 10 cm.**



IMPORTANT:

always ask the electrician who laid and connected the heating cable for the SIGNED CERTIFICATE proving that the insulation resistance measurement test and verification of the functionality of the system have been carried out for each section of heating cable (facsimile of the registration form at the bottom of the catalogue).

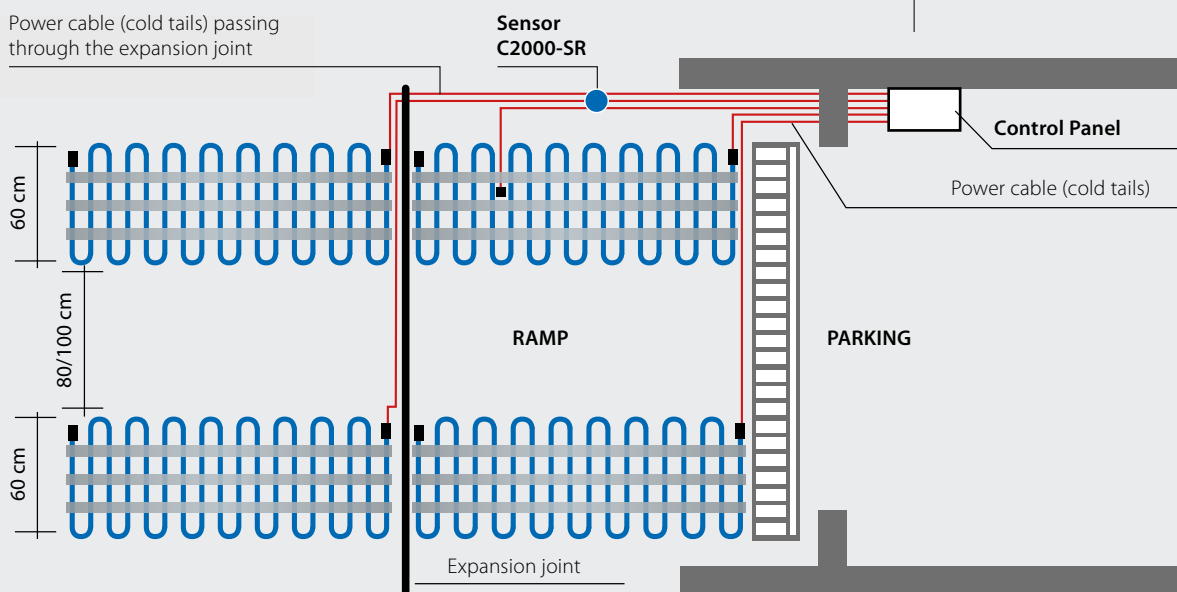
BEFORE CASTING THE COVER, THE FOLLOWING TESTS MUST BE CARRIED OUT:

- **Checking the functionality of the cable**, powering the mat at the rated voltage to check the suitability of the connection.
- **Carry out insulation tests**, between conductor and ground, (with a 500 V dc instrument) and circuit absorption.

EASY RAMP LAYING SCHEMES

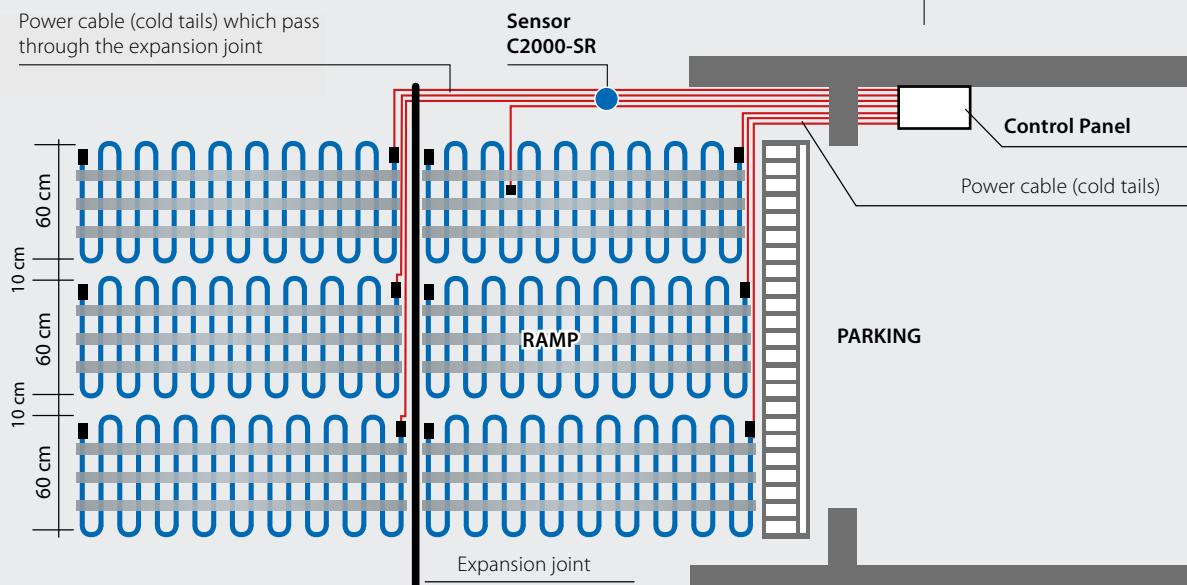
TRACKING OF WHEEL STEPS ONLY

Avoid crossing expansion joints; if present, it is necessary to provide **4 Easy Ramp kits** (2 for each wheel pitch) suitably sized, so that the expansion joint is crossed only by the power cable (cold tail) suitably protected inside a duct (e.g. metal pipe).



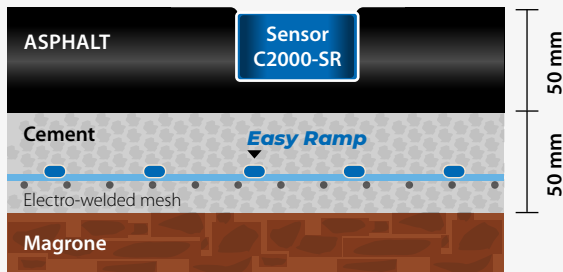
FULL TRACKING

Avoid crossing expansion joints; if present, a quantity of suitably sized Easy Ramp kits must be provided, so that the expansion joint must be crossed only by the power cable (cold tail) suitably protected inside a duct (e.g. metal pipe).

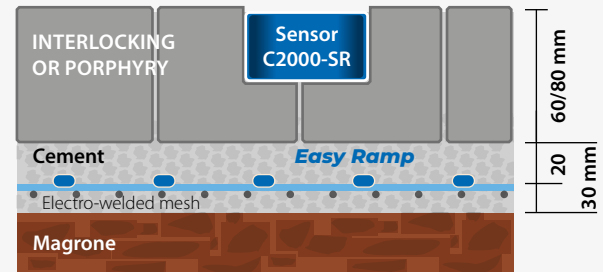


EASY RAMP LAYING SCHEMES

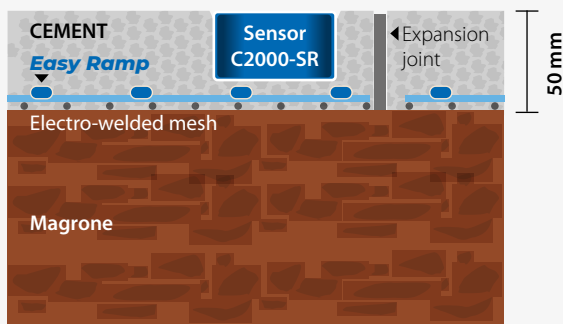
ASPHALT RAMP



RAMP INTERLOCKING BRICKS / PORPHYRY

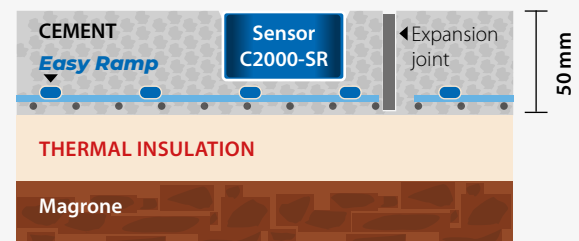


RAMP AND CEMENT

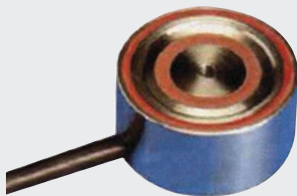


CONCRETE RAMP + THERMAL INSULATION

recommended solution to reduce energy consumption

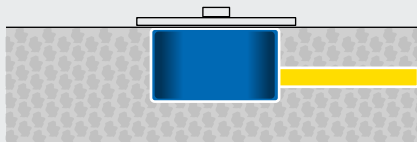


Recommended thermal insulation: Extruded polystyrene (thermal conductivity $0.027 \div 0.036 \text{ W/m}^\circ\text{C}$ - mechanical strength $200 \div 700 \text{ kN/m}^2$ - low water absorption $0.04 \div 0.10\%$)

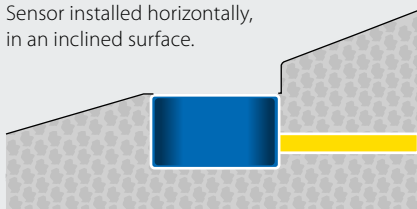


Sensor C2000-SR

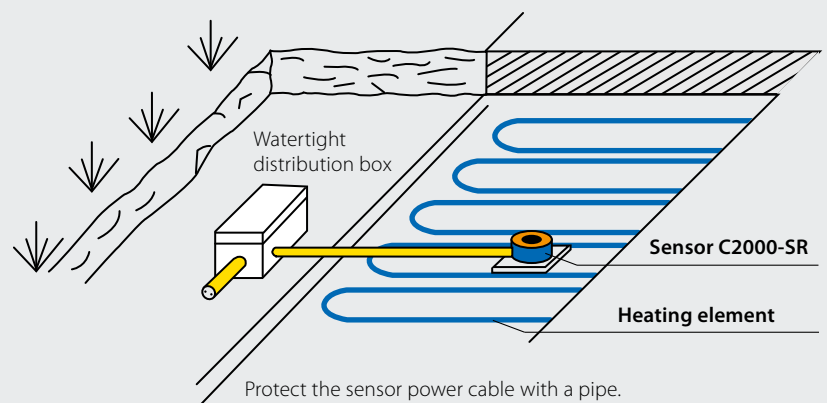
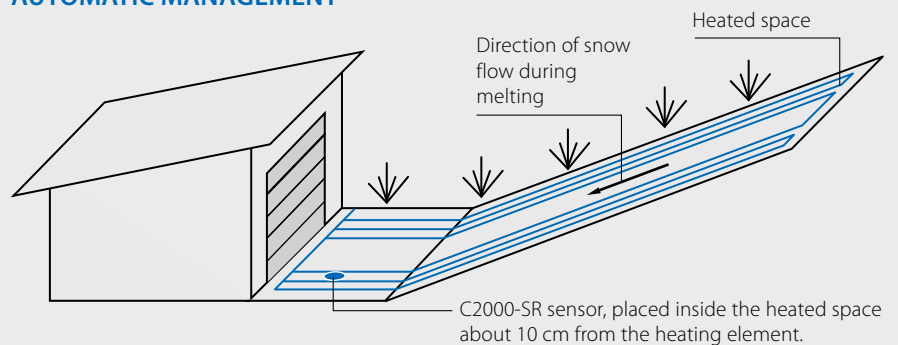
Sensor installed horizontally, use the slat supplied to position it flush with the finished table.



Sensor installed horizontally, in an inclined surface.



POSITIONING SENSOR FOR CONTROL UNIT CONTROL AUTOMATIC MANAGEMENT



MCA RAMP

Self-regulating heating cable.

The cable is used, buried in concrete, to prevent the accumulation of ice and its formation on access ramps, stairs, sidewalks, parking lots, walkways, etc. Suitable for ramps covered in concrete, interlocking brick or asphalt, both for light and heavy traffic. The cable can be installed on ramps under construction, securing the electrowelded mesh prior to pouring of the concrete, or else on already completed ramps by cutting the concrete surfaces to then fill with plastic cement after installation of the cable, or simply by laying the cable on the surface of the ramp and throwing another layer of cement. Contact Raytech for tracing designs and estimates.

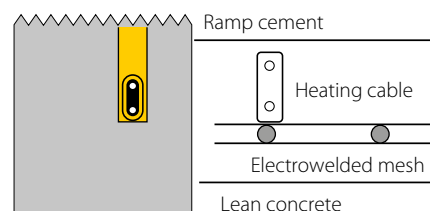
Cable roofing cement or interlocking, asphalt, gneiss, and any other material

Product	Power at 0°C in concrete (W/m)	Max working temperature (°C)	Cable length	
			Switchgear*	Maximum length (m)
MCA 20-I-GF	90	120	40 A	64
MCA 10**	50	65	40 A	90

* Differential protection 30 mA

**For ramps, stairs etc. with ambient temperature not lower than -15°C; for lower temperatures use only MCA 20-I-GF cable. For draining trenches tracing MCA8 cable shall be used. For other information contact Raytech.

Notes: to trace drain outlets, use the MCA8 cable installed on the bottom of the outlets under the grate.



Control unit for Easy Ramp and MCA Ramp



C2000

The C 2000 control unit, to be completed with the C2000-SR temperature, snow and humidity sensor (sensor to be placed flush with the ramp and to be ordered separately from the control unit), activating the power contactor, gives consent to start the system only when low temperature and snow or ice are present simultaneously, optimising energy consumption.



C2000-SR

Temperature, snow and humidity sensor.

MCA Ramp connection accessories



MCA Universal IP68

- Connection kit integrated with the terminal box.
- Non-powered side terminal kit.
- Joint Kit.



MCA-BOX3 / 4

Connection boxes between heating cables or heating and power cables.



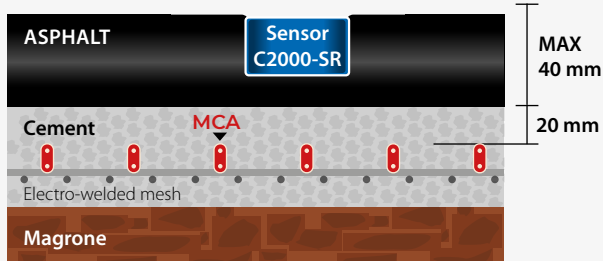
MCA-PRESS

Cable gland.

NOTE: To find out in detail the type and installation of the self-regulating heating cable suitable for your use, fill out the request forms at the end of the chapter or in the **Projects Online** area on www.raytech.it; in 24 hours you will be provided with the project and its economic offer.

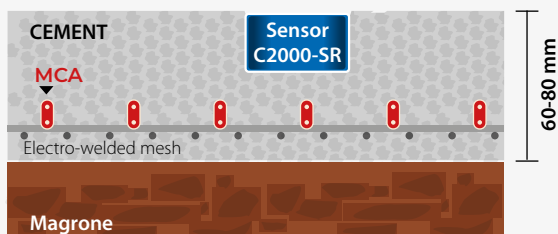
MCA RAMP LAYING SCHEMES

ASPHALT RAMP

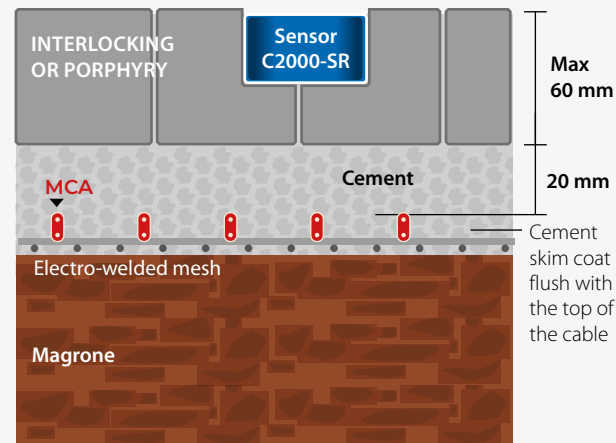


NOTE: The cable is not suitable for direct laying on molten asphalt. Asphalt with a maximum thickness of 40 mm and a laying temperature of max. 200° C is permitted, provided that the cable is covered with at least 20 mm of concrete.

RAMP AND CEMENT



RAMP INTERLOCKING BRICKS / PORPHYRY



Note: Before fastening material, the cable must be locked in place with shaved concrete flush with the top of the cable.
Suggestions: In the presence of expansion joints, it is advisable to avoid crossing them with heating cables or, if impossible, to reduce the number of them to the minimum necessary.
Terminate the non-powered side of the heating cable in a junction box

MCA10 o MCA-I-GF the cable must always be fixed to the electro-welded mesh in a vertical position using plastic ties.



IMPORTANT:

always ask the electrician who laid and connected the heating cable for the **SIGNED CERTIFICATE** proving that the insulation resistance measurement test and verification of the functionality of the system have been carried out for each section of heating cable (facsimile of the registration form at the bottom of the catalogue).

BEFORE POURING THE COVERING LAYER, THE FOLLOWING CHECKS MUST BE CARRIED OUT:

- **measurement of the insulation resistance between conductors and shield**, which must be greater than 20 MOhm;
- **verification of the functionality of the cable**, powering the sections (insulated with MCA Universal IP68 accessories) at the nominal voltage to verify the suitability of the connection, verifying, measuring and recording its absorption.

If there are drainage channels, use the MCA8 self-regulating heating cable, installing it on the bottom of the channels, under the grids.

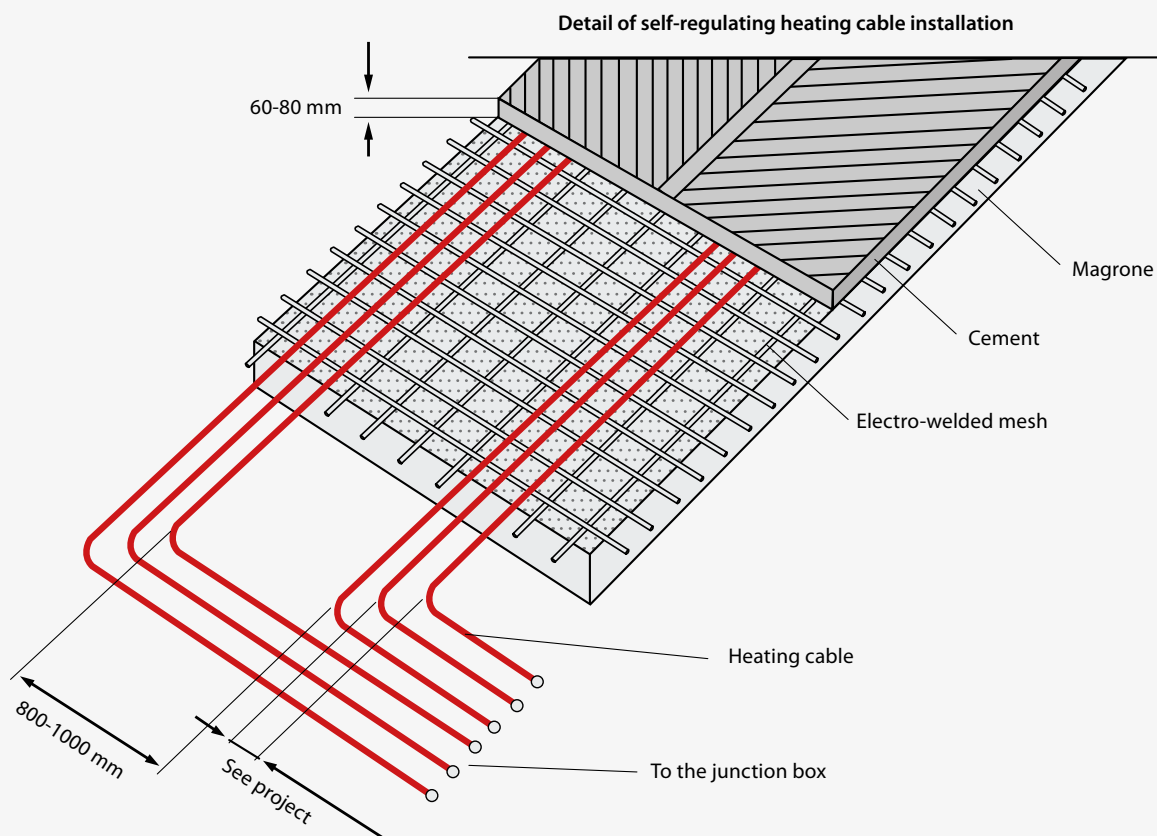
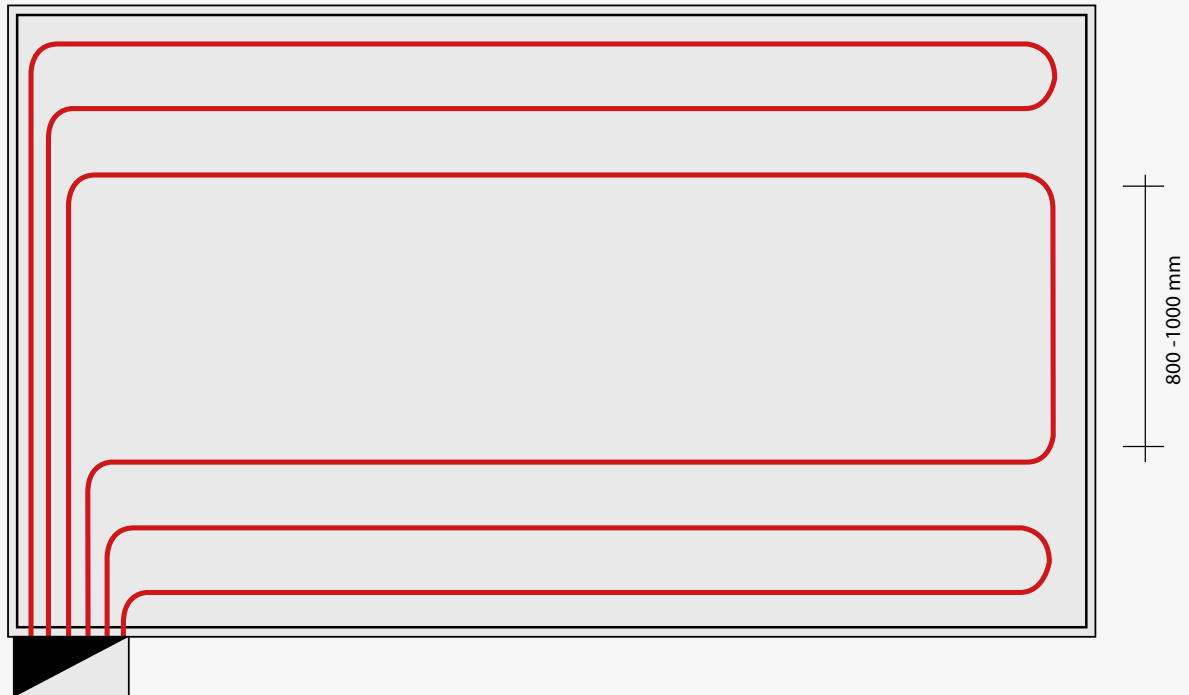


To make the heating system automatic and optimize energy consumption, it is advisable to use the **C2000 control unit** with the **C2000-SR temperature, snow and humidity sensor** (sensor to be positioned flush with the ramp and which must be ordered separately from the control unit) which, by driving the power contactor, gives consent to start the system only when low temperature, snow or ice are present at the same time.

Note: The C2000 control unit only works when connected to the C2000-SR sensor.

Whenever possible, a three-phase power supply is recommended, which best balances the loads.

EXAMPLE OF A RAMP TRACED ALONG THE WHEEL PASSAGES ONLY,
LIGHT TRAFFIC, ONE-WAY TRAFFIC, THREE-PHASE POWER SUPPLY

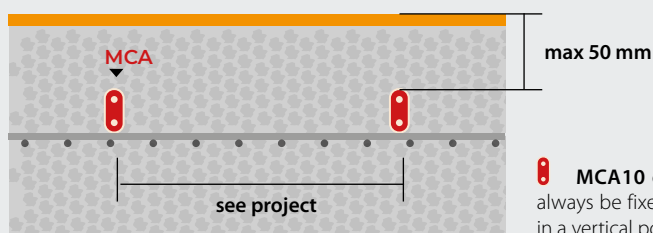
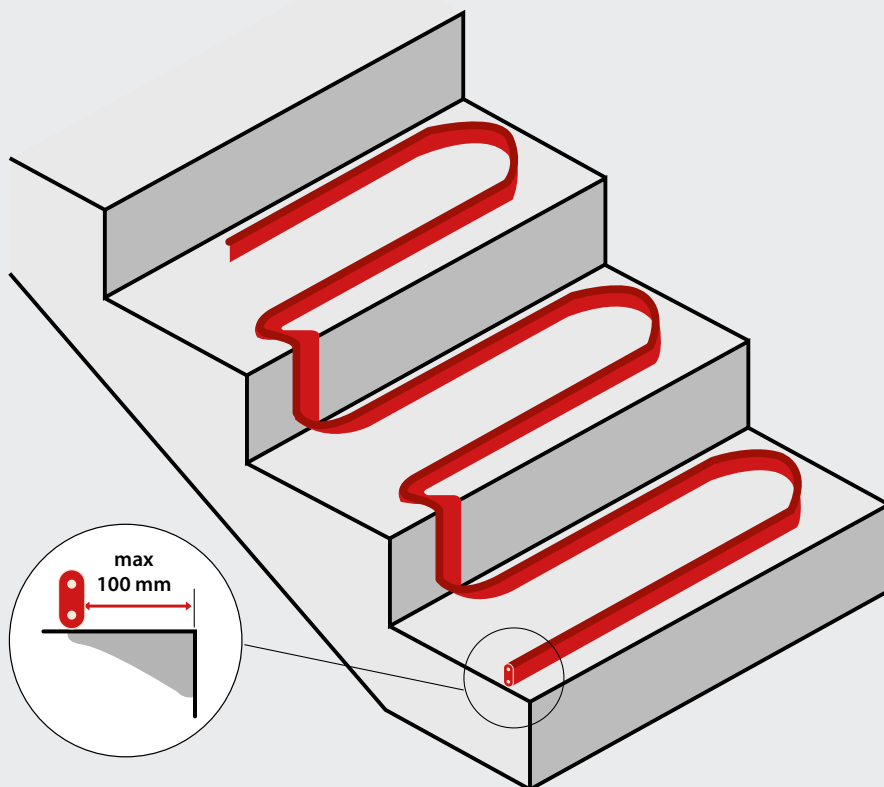




MCA RAMP

LAYING SCHEMES

STEP TRACEMENT



MCA10 or MCA-I-GF the cable must always be fixed to the electro-welded mesh in a vertical position using plastic ties.

IMPORTANT:

always ask the electrician who laid and connected the heating cable for the **SIGNED CERTIFICATE** proving that the insulation resistance measurement test and verification of the functionality of the system have been carried out for each section of heating cable (facsimile of the registration form at the bottom of the catalogue).

The cable is to be laid vertically (in cable passes for each step), fixed, if present, to the electro-welded mesh (see drawing). Keep a distance of xxx mm between one pass of heating cable and the other (see projects).

The non-powered terminals should not be abandoned in concrete but possibly housed in a box (not supplied), using the **MCA-PRESS** cable glands. Connect the heating cable to the power cable (e.g. FG70R multicore under sheath) using the **MCA Universal IP68 universal kit** (see assembly instructions contained in the kit). Terminate the heating cable on the non-powered end side with the **MCA Universal IP68** accessory (see assembly instructions in the kit).

For other suggestions, warnings, and miscellaneous notes, follow the instructions on the previous pages.

EASY FROST

Constant power heating cable for roofs, gutters and downpipes.

Raytech Easy Frost is a 20W/m constant power cable especially designed for roofs, gutters and downpipe protection from damage due to snow accumulation and ice formation. Easy Frost is supplied terminated and ready for installation, with 4 metres of cold cable ($3 \times 1,0 \text{ mm}^2$ or $3 \times 1,5 \text{ mm}^2$) for supply connection.

Product	Power (W)	Specific power (W/m)	Resistance (Ω)	Length (m)
Easy Frost 50/20	1000	20	52,9	50
Easy Frost 102/20	2040	20	29,9	102



Power: 20 W/m

Power supply: 230 V ~ 50/60 Hz

Heating cable dimensions: ~ 5 x 7 mm

Min. installation temperature: + 5°C

Max. working temperature: + 80°C

Cold cable (power supply):

length 4 meters - $3 \times 1,0 \text{ mm}^2$ or $3 \times 1,5 \text{ mm}^2$

Heating cable type:

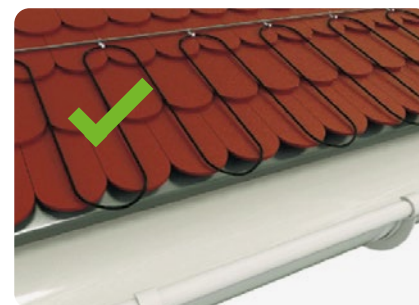
2 conductors, screened cable

Insulation: XLPE

External sheath: PVC

Min. bending radius: 3,5 D

Marking: CE



Control unit for EASY FROST



C2000

The C2000 control unit, to be completed with the C2000-SR temperature, snow and humidity sensor (sensor to be placed flush with the ramp and to be ordered separately from the control unit), activating the power contactor, gives consent to start the system only when low temperature and snow or ice are present simultaneously, optimising energy consumption.



C2000-SUG

Ice and snow sensor.



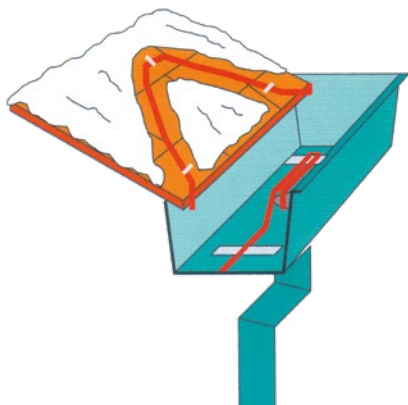
C2000-STG

Temperature sensor.



ATTENTION: since it is a constant power cable, the **EASY FROST** can not be cut, jointed or overlapped.

Notes: control unit C2000 works only when connected to both the C2000-SUG and C2000-STG sensors.



The image shows gutter installation, the input of cable in a downpipe and tracking of a roof pitch.



MCA 88

Self-regulating cable for tracing roofs, gutters and/or downpipes.

Prevents

The formation of ice inside gutters and downspouts, snow accumulation and ice on roofs, the development of infiltrations along façades, the development of ice sticks along gutters and roof ends.

Avoiding

Gutter breaking under the weight of snow, bursting and fracturing of drainpipes due to water freezing, damaged caused by a lack of draining caused by drain clogging, damage to persons or property caused by falling ice sticks, damage to persons or property caused by possible snow slides off rooves from roof edges.

Product	In air 0°C Power (W/m)	In chilly water Power (W/m)	Maximum cable length with starting temperature of -10°C through a switchgear (*) of		
			16 A	20 A	30 A
MCA8	24	40	40 m	50 m	90 m

*Switchgear with "C" characteristic, having a differential protection of 30 mA

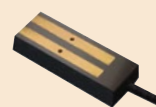
Notes: the gutter cable is suspended along the down side of the drain pipes with accessory MCA-SUP. The cable is self-supporting up to 25 m vertical sections; in addition, an extra MCA-SUP accessory is provided for every 25 m, to which the cable is secured.

MCA 88 connection accessories



C2000

The C2000 control unit, to be completed with the C2000-SR temperature, snow and humidity sensor (sensor to be placed flush with the ramp and to be ordered separately from the control unit), activating the power contactor, gives consent to start the system only when low temperature and snow or ice are present simultaneously, optimising energy consumption.



C2000-SUG

Ice and snow sensor.



C2000-STG

Temperature sensor.

Notes: control unit C2000 works only when connected to both the C2000-SUG and C2000-STG sensors.



MCA Universal IP68

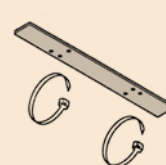
- Connection kit integrated with the terminal box.
- Non-powered side terminal kit.
- Joint Kit.



MCA-Y Branch Kit.



MCA-BOX3 / 4
Connection boxes between heating cables or heating and power cables.



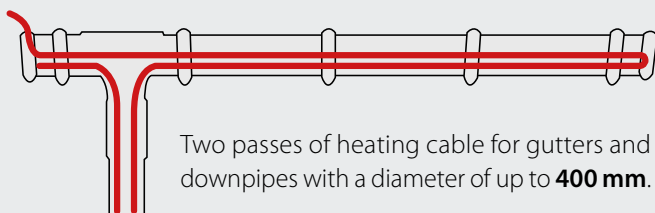
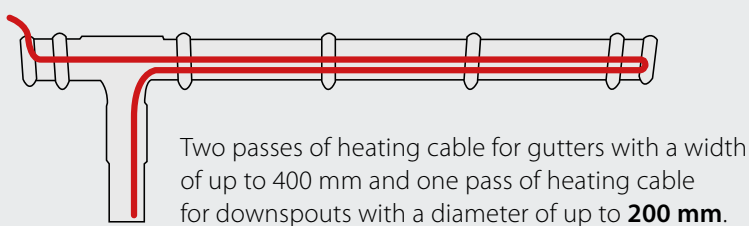
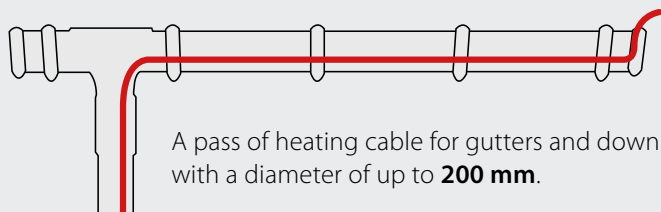
MCA-SUP
Support device.

NOTE: To find out in detail the type and installation of the self-regulating heating cable suitable for your use, fill out the request forms at the end of the chapter or in the **Projects Online** area on www.raytech.it; in 24 hours you will be provided with the project and its economic offer.

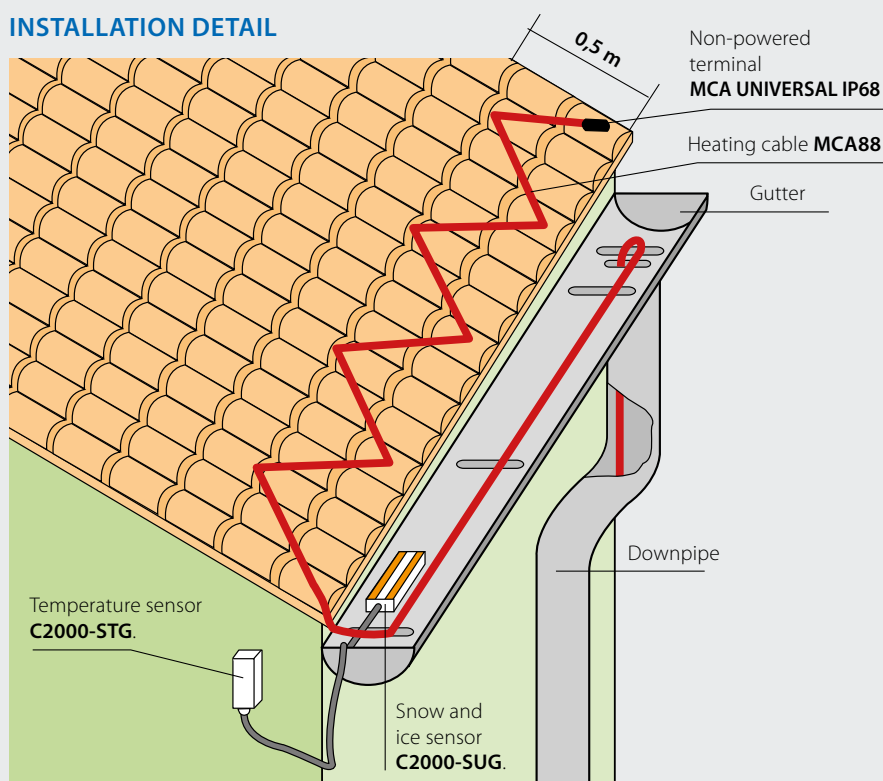
MCA 88

LAYING SCHEMES

INSTALLATION OF THE SELF-REGULATING CABLE ON GUTTERS AND DOWNPIPES IN TEMPERATE CLIMATE ZONES



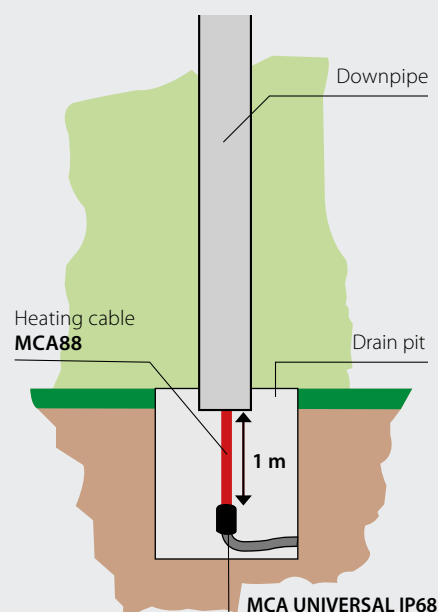
INSTALLATION DETAIL



NOTE: Place the C2000-STG Temperature Sensor on the NORTH side.
Place the C2000-SUG Ice and Snow Sensor on the bottom of the gutter.



For each section of heating cable, there must be an **MCA universal IP68** power connection accessory and termination accessory, which can be positioned as desired (for example, connection on the roof and termination in the sump pit or vice versa).





HEATING CABLES COMFORT HOUSE

FLOORING



EASY FLOOR

MIRROR



EASY MIRROR

CEILING



WARM-UP

COMFORT HOUSE

PRIMARY, SECONDARY
OR FLOORING COMFORT HEATING SYSTEMS.

Heating mats and intelligent timed thermostat: Raytech intelligent systems for primary, secondary and flooring heating comfort for homes, offices, kindergartens, schools and hospitals.

Combining the total reliability of the Raytech mat system with the RID microprocessor intelligent thermostat, it is possible to autonomously control all space heating parameters, as a primary means in less cold months and as a secondary means together with a more traditional system, and for comfort heating in bathrooms, kitchens, living rooms and children's bedrooms. After the first programming of the RID timed thermostat, you are free to forget about the system, which will run itself, ensuring optimal conditions.

**EASY FLOOR**

The kit is composed of:

- Heating mat complete with cold tail
- RID microprocessor intelligent room timed thermostat complete with sensor
- Corrugated pipe for positioning

Notes: -ST type kits are supplied without a RID room timed thermostat

CHARACTERISTICS

- **Mat power:** 150 W m²
- **Power supply:** 230 V ~ 50Hz
- **Thickness of the mat:** 5 mm
- **Min. temperature of installation:** + 5°C
- **Max. working temperature:** + 70°C
- **Cold cable (power supply):**
length : ~ 3,50 meters
- **Type of heating cable:**
2 conductors, shielded
- **Heating cable dimensions:** ~ Ø 5 mm
- **Heating cable power:** ~ 10 W/m
- **Insulation:** XLPE
- **Outer sheath:** PVC
- **Marking:** CE



ATTENTION: since it is a constant power cable, the *EASY FLOOR* can not be cut, jointed or overlapped.

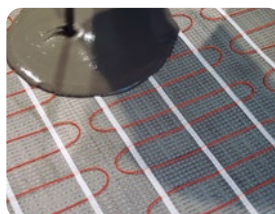
EASY FLOOR

Heating mat for the intelligent tracing of tile, marble, floors, etc.

The Easy Floor mat is laid directly on a layer of thermal insulation that coats the floor finished with concrete, and then buried in self-levelling concrete and covered with tiles. The flooring tracing mats are supplied in standard widths of 50 cm, power 150 W/m².

Product	Width (m)	Length (m)	Power (W)
Easy Floor 2	0,5	2	150
Easy Floor 3	0,5	3	225
Easy Floor 4	0,5	4	300
Easy Floor 2-ST	0,5	2	150
Easy Floor 3-ST	0,5	3	225
Easy Floor 4-ST	0,5	4	300

Other sizes available upon request.



RID RAYTECH INTELLIGENT DISPLAY

Intelligent room timed thermostat.

The RID (Raytech Intelligent Display) microprocessor room timed thermostat is simple to use, thanks to its step-by-step programming guide. The easy to read display supplies a complete explanation of set parameters after 10 seconds.

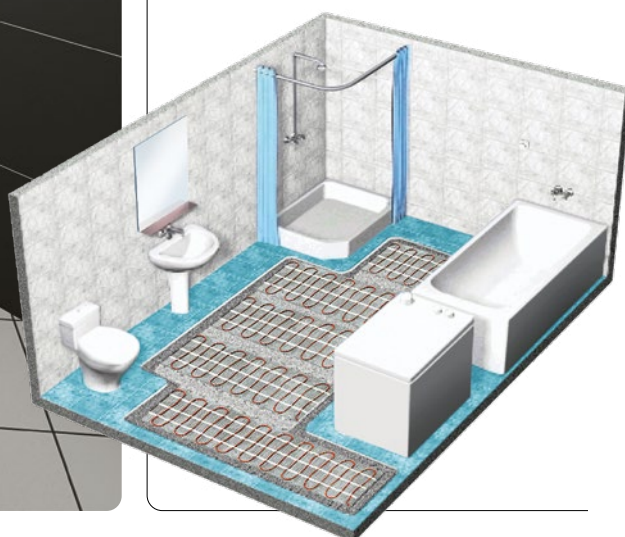
The RID autonomously controls all room functions, with no need for extra operations. Weekly programming makes it possible to take into account the set temperature to be maintained, the type and thickness of the flooring, temperature limits not to be exceeded, modes for increasing temperature, etc.

This device is equipped with an anti-freeze function when the house is not inhabited, a block for untimely interventions (for example children) and communicates any operating failures to the appropriate alarms.



Sensor	Included with the kit
Temperature range	+5 / +50°C
Temperature limit	+5 / +55°C
Start Up Programme	Automatic, self learning
Manual	0,1-10°C
Room temperature	0 / +40°C
Differential On/Off	Standard 0,4°C Adjustable 0,1-1°C
Power supply	230 V / 50-60 Hz
Self-consumption	5 W
Max output current	16 A (3400 W/220 V)

Product	(mm)
RID room thermostat	85 x 85 x 45





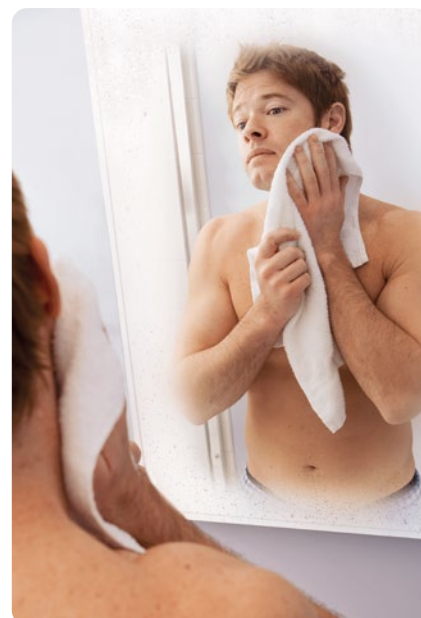
EASY MIRROR

Self-adhesive heating sheet.

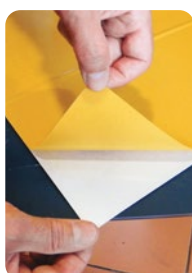
No more fogged mirrors after a shower or bath! Easy Mirror, the self-adhering heating sheet to be applied on the back of the mirror and connected to the mains, eliminates this problem! Powered 230V, double insulated in accordance with safety regulations. Brings the surface of the mirror to 30°C in about 3-5 minutes, removing the film of moisture. Easy Mirror sheets are packaged with a sheet of laminated aluminium on polyester, with double insulation made with 4 more sheets of vulcanised polyester, completely sealed against water.

- Ideal for bathrooms, saunas, kitchens, private homes, Hotels, gyms and sports facilities

Product	Sheet dimensions (cm)	Power (W)
Easy Mirror 35	Ø 35	50
Easy Mirror 36/50	36 x 50	50



Installation Sequence



warm  up
Ceiling heating panels



Heat where you want it, when you want it



The ideal solution for all low thermal comfort environments.



WARM UP

Ceiling heating panels.

WARM-UP ceiling heating panels by Raytech can be installed invisibly and built into the ceiling of any home, office, showroom, workshop, greenhouse, camper vans etc., maximising space and freeing up wall space. Their positioning does not require any invasive procedures on the walls of the room, and their electrical connection is extremely simple. They can be installed, possibly placing them at the points where maximum thermal efficiency is required, with any mounting system: hung with chains, flush mounted, or recessed in false ceilings, always easily and quickly. The type of heating, based on infrared radiation, which makes it similar to solar radiation, is safe and unharmed, quick, efficient and extremely comfortable.

Why choose the Warm-Up System?

- It is installed without requiring any invasive procedures to be carried out on the structures of the house.
- It is easily uninstalled for re-use in another context.
- Its radiated heat is safe, with no air movement, and does not dirty the walls and room.
- It is used for primary heating and for secondary heating as an integrative system, and optimises and reduces heating costs thanks to the RID-WL thermostat.

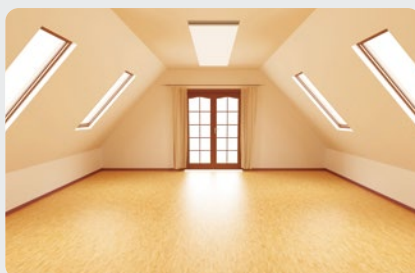
An ideally integrated invisible system that can also be decorative!



VERANDAS



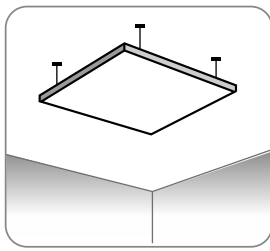
PREFABRICATED BUILDINGS



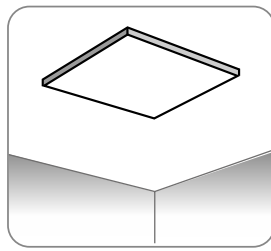
EXHIBITION SPACES



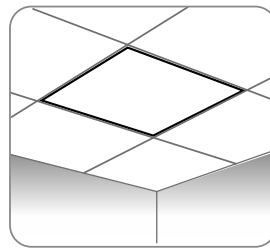
GAZEBOS



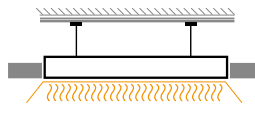
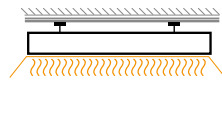
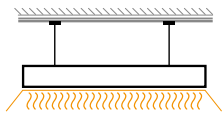
SUSPENDED



FIXED



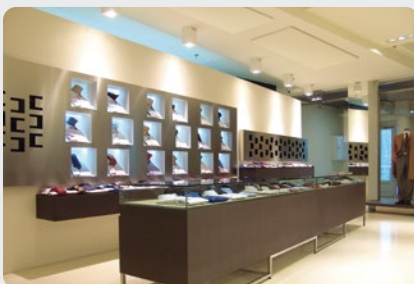
ENCASED



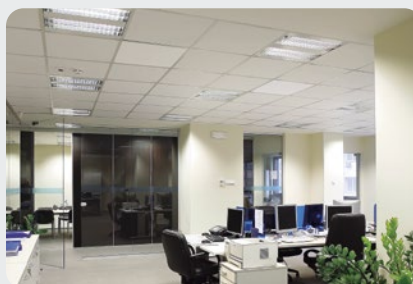
Product	Colour	Power	Dimensions (mm)
Warm Up 1	White, Paintable	300 W	590 x 590 x 40
Warm Up 2		600 W	1190 x 590 x 40

What Are the Benefits to the System compared to others?

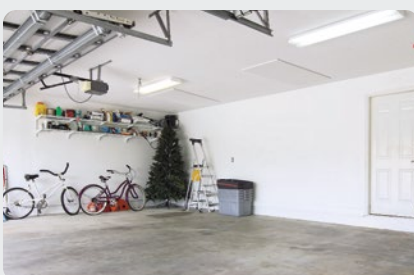
- Heating is immediate, in just a few minutes.
- It leaves room walls free because it is installed on the ceiling, flush mounted or recessed in false ceilings.
- It does not pollute, as it does not use gas or hydrocarbons.
- It optimises heating and reduces costs.
- Unlike other types of heating systems, it does not require maintenance!
- It uses the energy produced by photovoltaic systems, reducing heating costs.
- It can be coloured, and is therefore easily camouflaged or used as a decorative element.



STORES



OFFICES



WAREHOUSES - GARAGES



HOMES



Controlled by a timed thermostat or a power regulator, they reduce consumption to a minimum.

Class 2
degree of protection IP44

Power required for comfort heating:
about 60W/m²

(one Warm Up 1 panel every 5m²)

For primary heating with well-insulated walls:
about 150W/m²





Temperature accuracy: 0,1°C
Field of operation: from 0°C to +40°C
Field of temperature: from 5°C to +35°C
Power supply: 2 AAA 1.5 V batteries
Degree of protection: IP30
Frequency: 868 MHz
Powered receiver: 230 V, 50 Hz
Relay range: 8 A
Range in distance:
 100 m outdoors, 30 m indoors

Programmable in 30 minute blocks
 9 pre-installed programmes and
 4 user-set programmes
 "Self-learning" temperature control
 Child lock
 Low battery alarm
 Unlimited programme memory
 in the case of discharged batteries

WARM UP ACCESSORIES

RID-WL

Digital wireless timed thermostat.

Raytech has established the innovative WIRELESS RID-WL TIMED ROOM THERMOSTAT for maximum efficiency and speed and ease of installation. This system combines well-known reliability and control of environmental parameters of the system RID with a wireless connection.

The RID-WL, which operates in radio frequency, allows non-invasive installation in any environment, both for new installations and those related to renovations, or to reinforce an existing primary system.

The RID-WL is coupled with its own receiver, tuned to the frequency of its own thermostat (exclusive signal), which is able to control an ampacity of 8 A.

RID-WL, since it is not wired, it can be moved within the range of use and positioned where controlling the parameters is important.

It is equipped with an easy to read backlit LCD screen and is programmable and provided with a built-in internal sensor, but can be connected to a separate sensor, for example on the floor.

Product	Description
RID-WL	Timed thermostat including receiver



Degree of protection: IP30
Frequency: 868 MHz
Powered receiver: 230 V, 50 Hz
Relay range: 8 A
Range in distance:
 100 m outdoors, 30 m indoors

ADDITIONAL RELAY DEVICE

Additional relay device, with a maximum of 6 devices which can be controlled by the same RID-WL timed thermostat.

Product	Description
RID-WL-R	Additional receiver for loads greater than 8 A

**HEATING CABLES
SELF-REGULATING
ACCESSORIES**



ACCESSORIES FOR SELF-REGULATING HEATING CABLES

(MCA, MCA-I-PF, MCA-I-GF, MCA-I-FF)

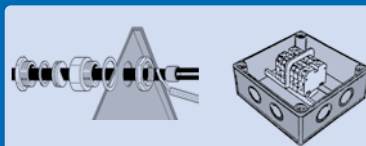
CONNECTION ACCESSORY



MCA UNIVERSAL IP68
Pre-filled gel joint



MCA BOX
Pre-filled gel boxes



MCA-PC + MCA-SG
Connection kit + Box
with terminal strip

DERIVATION ACCESSORY



MCA Y
Branch joint

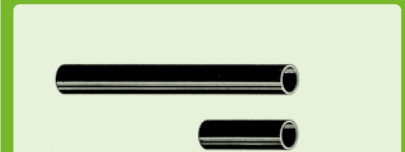


MCA BOX
Pre-filled gel boxes

TERMINATION ACCESSORY



MCA UNIVERSAL IP68
Pre-filled gel joint



MCA PM
Termination kit.

AT LEAST ONE CONNECTION ACCESSORY AND ONE TERMINATION ACCESSORY ARE REQUIRED FOR EACH SECTION OF HEATING CABLE

CONNECTION
ACCESSORY

TERMINATION
ACCESSORY

L_{max} : maximum length for each section
Refer to the ELECTRIC DIMENSIONING table on catalogue or project

IN CASE OF NEED TO MAKE DERIVATIONS, IT IS POSSIBLE TO USE THE RELEVANT ACCESSORIES;
A TERMINATION ACCESSORY IS THEN NEEDED FOR EACH BRANCH.

CONNECTION
ACCESSORY

DERIVATION
ACCESSORY

DERIVATION
ACCESSORY

TERMINATION
ACCESSORY

TERMINATION
ACCESSORY

TERMINATION
ACCESSORY

The sum of the lengths of the sections under a single power supply must be less than L_{max}
(please refer to the ELECTRIC DIMENSIONING table on catalogue or project)

$$L_1 + L_2 + L_{D1} + \dots + L_{DN} + L_N < L_{max}$$

MCA UNIVERSAL IP68 MCA-Y

Universal accessory for heating cable.

A revolutionary accessory is now available that is suitable for any type of self regulating heating cable either with or without screening. Its versatility provides a reliable unique solution unavailable elsewhere in the market. It has no shelf life and no tools are required during installation (including blow torches).



MCA UNIVERSAL IP68

Straight joint between Heating cables



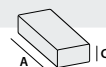
Connection
termination to
the power cable



Pot end

MCA Y

Branch joint



Electrical:

CEI EN 50393 e CEI 20-33
(Notes: with testing under water head
and water between the cable cores),
in Class 2

Flame non propagation:

CEI 20-35, IEC 60332-1 and HD 405-1
(as applicable)

- Versatile and ready to use
- No need for tools
- Without heating
- Can be installed at any temperature
- Can be used directly underground
- Very compact
- Re-enterable
- Flame retardant
- The connections are automatically blocked when the joint is closed
- Screw connectors available with the kit
- Can be used underwater
- Pre-filled with a gel that is not-classified as hazardous under the CLP Directive and with no shelf life.

Product	Kit Composition	A x B x C (mm)
MCA Universal IP68	3 screw connectors to connect to the power cable or another heating cable	125 x 43 x 35
MCA-Y	3 screw connectors for branch connections between heating cables	160 x 75 x 37

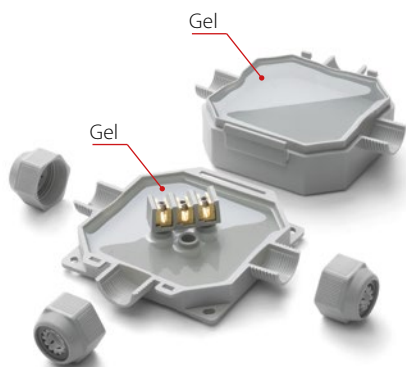
MCA-BOX

PRE-FILLED GEL CONNECTION BOXES FOR HEATING CABLES.

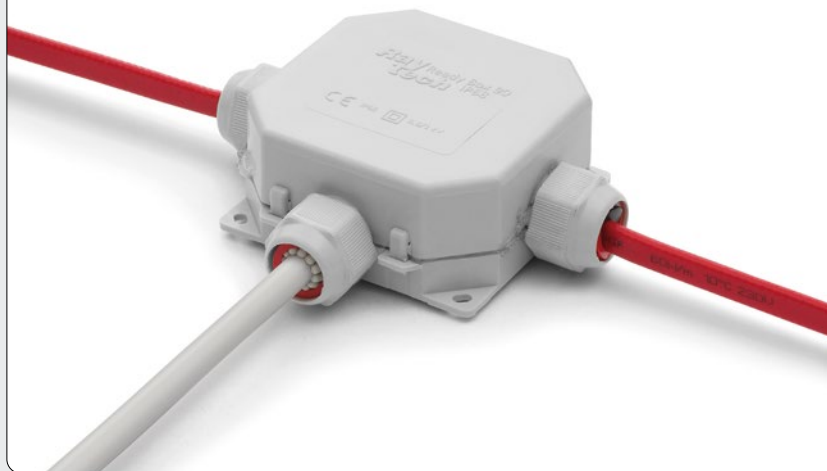
Boxes for single or multiple connections either between heating cables or heating and power cables. Ready to use, pre-filled with gel, complete with terminal block and screws, they allow the connection between heating cables and between heating cables and power cables, ensuring IP68 and IP69K degree of protection. They are suitable for power cables from 8 to 18 mm diameter and/or for power supplies with insulated wires in conduits of 16, 20, 25 and 32 mm diameter. MCA BOX is essential in damp environments and in areas subject to condensation or flooding. Available as either 3 or 4 entry in order to satisfy any installation requirement.



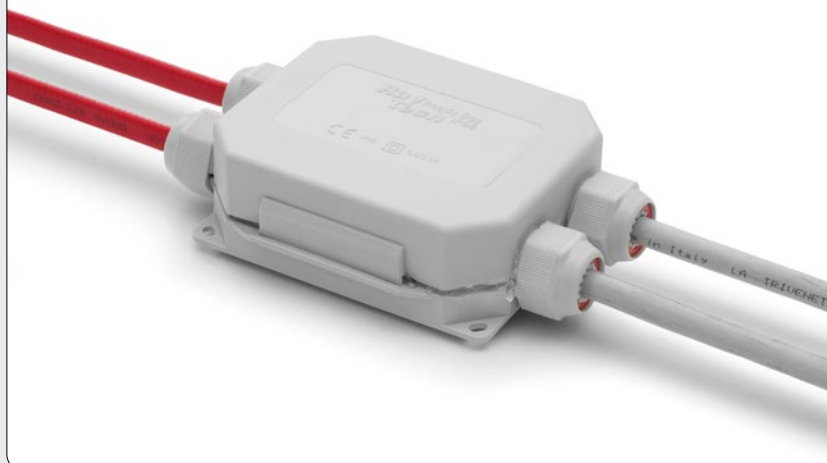
Product	Kit composition	A x B x C (mm)
MCA BOX 3	Gel-prefilled box Terminal block 3 x 6 mm ² + adaptors	90 x 90 x 45
MCA BOX 4	Gel-prefilled box Terminal block 4 x 6 mm ² + adaptors	120 x 100 x 45



MCA BOX 3

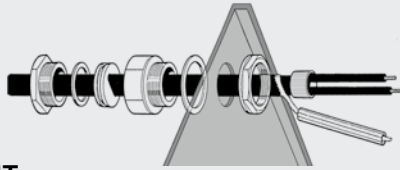


MCA BOX 4

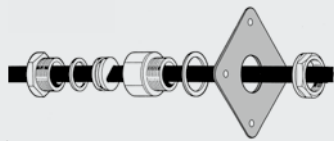


MCA-PC**CONNECTION KIT.**

Supply side termination allowing connections to a terminal box.
Made of cold-shrink components and also a dedicated cable gland.
One for each cable.

**MCA-AL****THERMAL INSULATION PASS-THROUGH.**

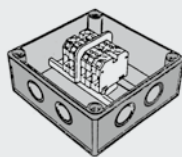
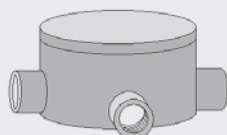
It allows the cable to pass through the metallic covering of the thermal insulation, avoiding abrasions and the moisture or water entry under the covering.
It contains cable gland and fixing plate.
One kit for each cable.

**MCA-PRESS****CABLE GLAND.**

To allow the cable to enter in boxes, to pass through walls etc.
One kit per cable.

**MCA-SG****BOX.**

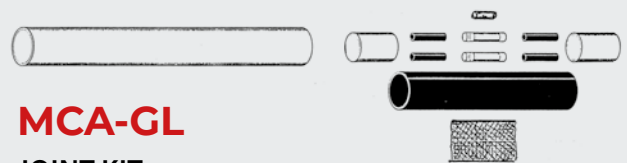
Box with IP55 degree of protection, complete of terminals. It allows the entry of 1 or more heating cables, or to branch a cable from a main tracing, or to joint cable lengths. Cables inside the box shall be MCA-PC terminated.

**GUAT 26****CONNECTION KIT FOR CLASSIFIED AREA.****MCA-PM****TERMINATION KIT.**

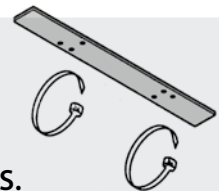
For insulating and matching the cable ends. Made from cold-shrink components.
One kit for each termination.

**MCA-GL****JOINT KIT.**

To joint cable ends or to repair damaged cables.
It contains all the components required, including connectors.
One kit for each cable.

**MCA-SUP****SUPPORT DEVICE FOR GUTTERS AND DOWN PIPES.**

It supports and fixes the cable in gutters and downpipes. In large gutters, requiring 2 cables laid longitudinally, it maintains the cable at the right distance.

**MCA-FV****GLASS FIBER TAPE.**

To fix the cable to the pipe, 3 turns every 0,3 m of pipe.
Self adhesive, in 50 m rolls.

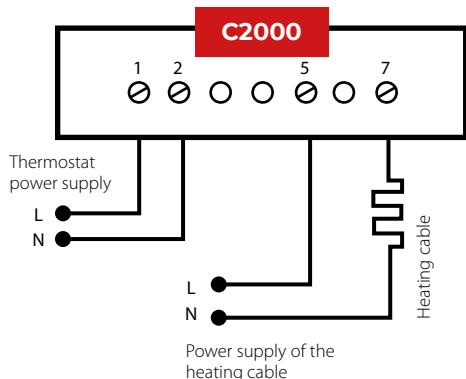
**MCA-ALL75****ALUMINIUM SELF ADHESIVE TAPE 75 MM WIDTH.**

For cable fixing, in 50 m rolls.

**MCA-EA****WARNING LABEL.**

To be applied for warning over traced items.

WARNING
ELECTRIC
TRANCING



CONTROL UNIT C2000

C 2000 CONTROL UNIT FOR TEMPERATURE AND HUMIDITY.

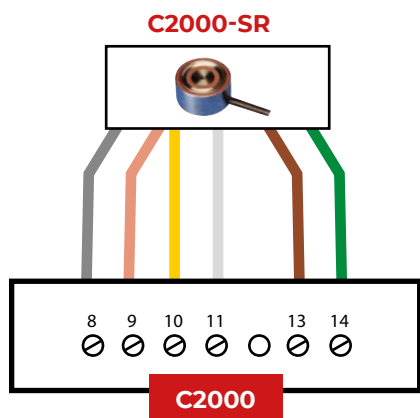
The C2000 control unit and relative sensors are suitable for the tracing with both self-regulating cables and constant power cables. The unit allows you to power the system only when low temperatures and humid surfaces (snow - ice, etc.) are present simultaneously.



Signalling lamps

- ON voltage
- RELAY cable on power
- MOIST humidity presence
- TEMP the temperature is lower than the fixed

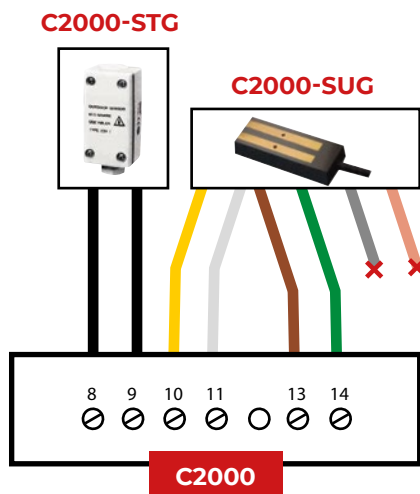
Voltage: 230V c.a. +/- 10% 50/60Hz
Output: N° 1 relays
Switching capacity: 16A (3600 W)
Differential ON/OFF: 0,4°C
Temperature Range: 0-10°C
After run time: 1-6 hours
Protection degree: IP20
Dimensions: 85 x 42 x 48,8 mm
Weight: 252 gr
Room temperature: 0/50°C



C2000-SR

HUMIDITY AND TEMPERATURE SENSOR FOR RAMPS AND STAIRS.

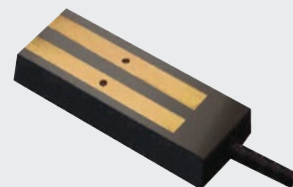
Dimensions: h 32 mm - Ø 60 mm
Protection degree: IP68
Ambient temperature: -20°C / +70°C
Connecting cable: 6x1,5 mm², lenght. 10 m (possible increase up to 200 m)



C2000-SUG

ICE AND SNOW SENSOR FOR GUTTERS.

Dimensions: 105 x 30 x 10mm
Protection degree: IP68
Ambient temperature: -20°C / +70°C
Connecting cable: 4x1,5 mm², lenght 10 m (possible increase up to 200 m)



C2000-STG

TEMPERATURE SENSOR FOR GUTTERS.

Dimensions: 86 x 45 x 35 mm
Protection degree: IP55
Ambient temperature: -20°C / 70°C
Connecting cable: not included



T2000 THERMOSTAT

ON/OFF THERMOSTAT – P.I.D. 2 OUTPUTS WITH TEMPERATURE ALARM MANAGEMENT.

T2000 digital thermostats, complete with probe included in the kit, are suitable for control both in heating, maintenance and refrigeration.

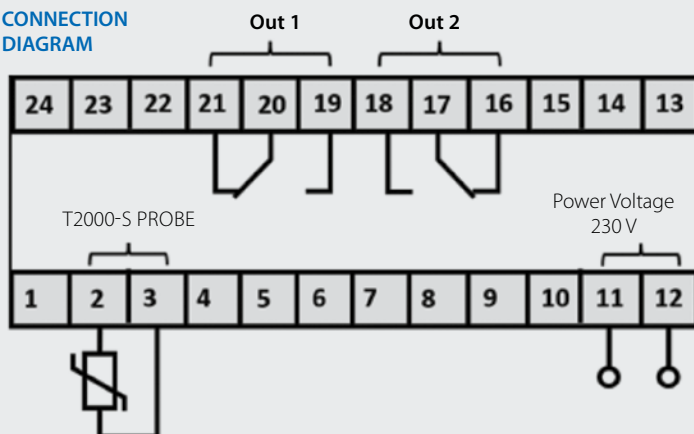
Suitable for rear panel installation, on DIN guide, they are compact and they have controls and displays arranged frontally.



Characteristics T2000 thermostat

- **Measuring Range:** -40 a +105°C
- **Degree of protection:** IP40 (front)
- **2 outputs** with unipolar relay in deviation
- **Power supply:** 230 V a.c. $\pm 10\%$
- **Contact capacity:** 240 Vac, 16 A (resistive); 4 A (inductive),
- **Self-consumption:** 3 W
- **Control:** ON/OFF or PID - Output ON or OFF depending on the incoming temperature, set point and hysteresis values set. The hysteresis is the value of the deviation from the set point that determines the reactivation of the output.
- **Alarm management:** output 2
- **Proportional control and integrative proportional**
- **Minimum or maximum set point limits**
- **Operating temperature:** -10 a +50°C
- **Dimensions:** L 71 x H 98 x W 61

CONNECTION DIAGRAM



T2000-S PROBE

(in thermostat kit included)

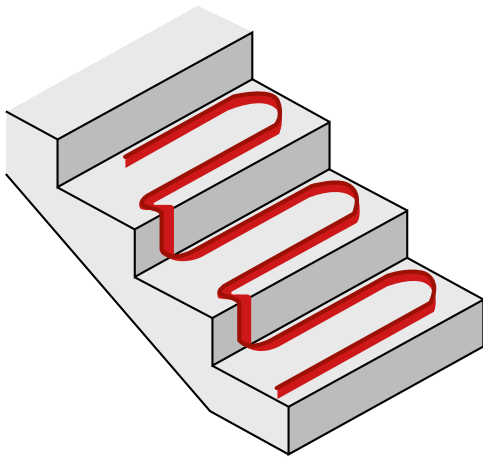
T2000 probe features

- **Type:** NTC10k
- **Measuring Range:** -40 a +105 °C
- **Precision** $\pm 1,5$ K a 25 °C
- **Probe length:** 2 m
- **Connection cable:** bipolar (2 x 0.4 mm²)
- **Tip Dimensions:** Ø 6 x 34 mm
- **Degree of protection:** IP67



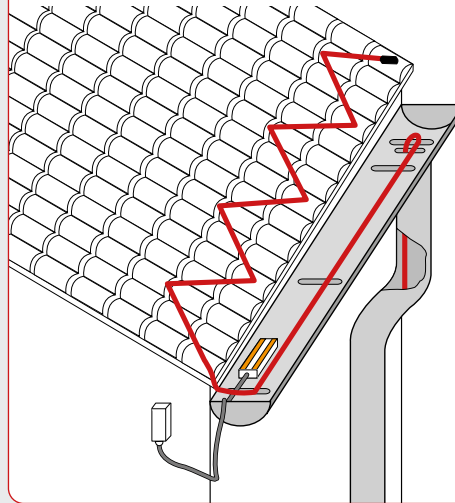
STEPS AND WALKWAYS

Data request form for the **heating tracing design**



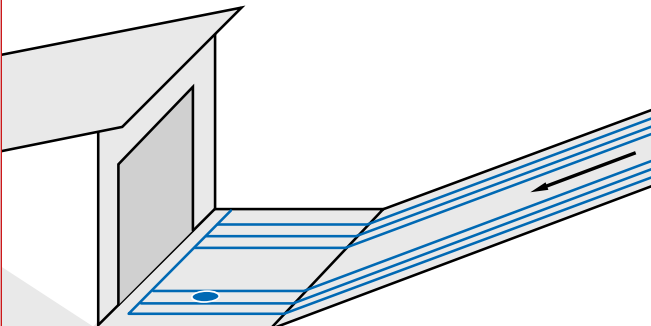
GUTTERS AND DOWNSPOUTS

Data request form for the **heating tracing design**



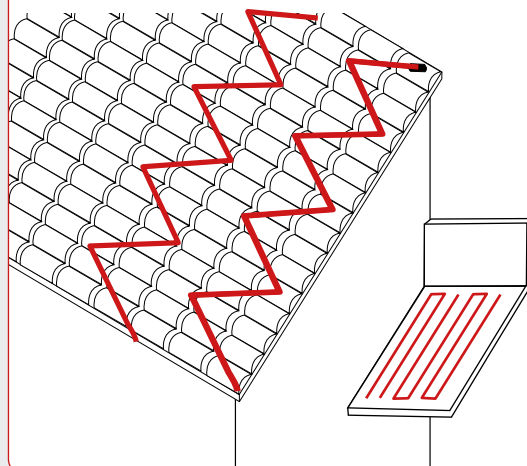
RAMP

Data request form for the **heating tracing design**



TERRACE BALCONY AND ROOFS

Data request form for the **heating tracing design**

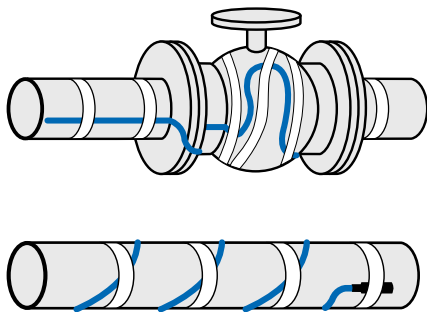


PIPING

Data request form for the **heating tracing design**



[CLICK HERE
FORM
REQUEST](#)

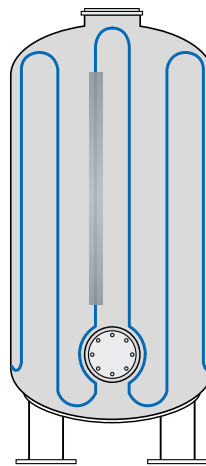


SILOS AND TANKS

Data request form for the **heating tracing design**

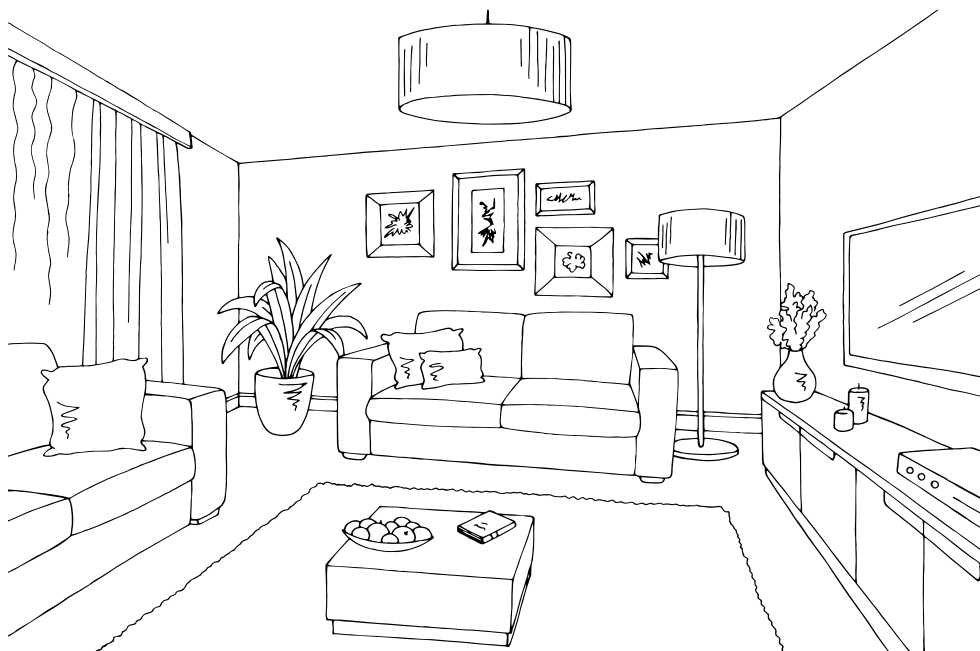


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FORM
REQUEST](#)



COMFORT - INDOOR FLOORS

Data request form for the **heating tracing design**



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FORM
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CODES

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KELVIN 6+6	KELVIN6-6	Gel Cover	56
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LST-TEC-12.7-6 Blue	5068336020	Heat-shrink LV	126
LST-TEC-12.7-Red	LSTTEC127-ROS	Heat-shrink LV	126
LST-TEC-19.0-0 Black	9601076004	Heat-shrink LV	118
LST-TEC-19.0-6 Blue	5068346012	Heat-shrink LV	126
LST-TEC-19.0-Red	LSTTEC190-ROS	Heat-shrink LV	126
LST-TEC-2.4-0 Black	7284836003	Heat-shrink LV	118
LST-TEC-2.4-6 Blue	5068286021	Heat-shrink LV	126
LST-TEC-2.4-Red	LSTTEC24-ROS	Heat-shrink LV	126
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