30
YEARS
ANNIVERSARY
LOW VOLTAGE
MEDIUM VOLTAGE
HEATING CABLES
Raytech®
CABLE ACCESSORIES COMPANY

NEW
SOLARCOVER
64-65
SUPERBLOCK
48-49
Raytech
CABLE ACCESSORIES COMPANY

Ray tech

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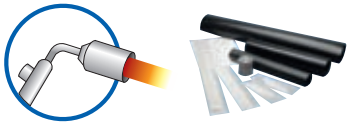

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SMART FACTORY OVERVIEW

CELEBRATING 30 YEARS OF EXCELLENCE

We are celebrating a significant anniversary this year: 30 years of innovation, quality and commitment to excellence. Since 1995, we have dedicated every day to improving our products and services, to meet the needs of our customers and contribute to a sustainable future.

Our Commitment to Quality, Safety and the Environment

We are proud to continue to maintain ISO certifications, which prove our continuous commitment in quality and reliability, respecting the environment and ensuring the safety of our stakeholders. These certifications 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.

Sustainability Award

Our focus on sustainability has been awarded the 2023 Silver Medal by EcoVadis, a leading provider of corporate social responsibility assessments. This recognition validates our efforts to reduce environmental impact, improve working conditions, and promote ethical practices throughout our supply chain.

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.

Looking to the Future

While celebrating 30 years of success, we look at the future with enthusiasm and determination. We'll keep on innovating, listening to our valuable customers and investing in our people, because they are definitely the real engine of our company.

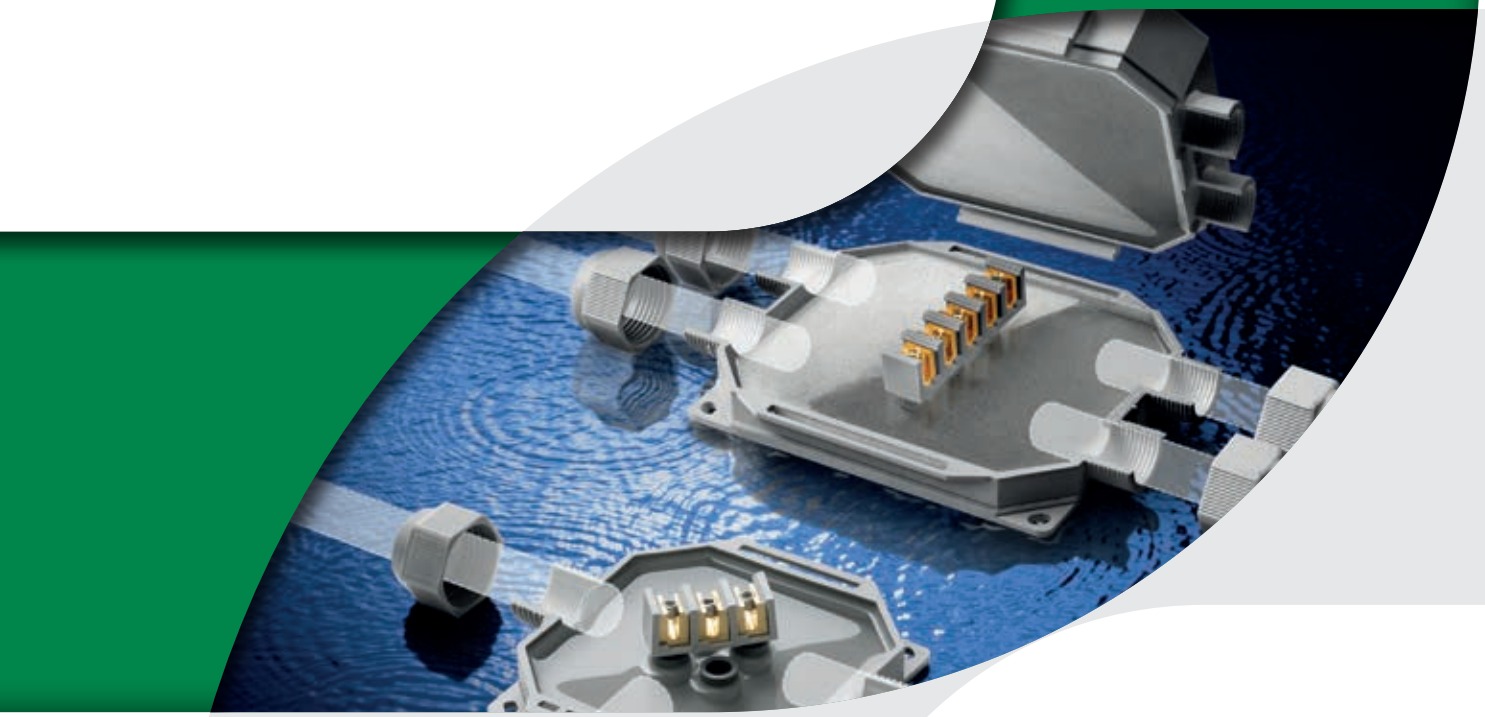
Thank you!

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

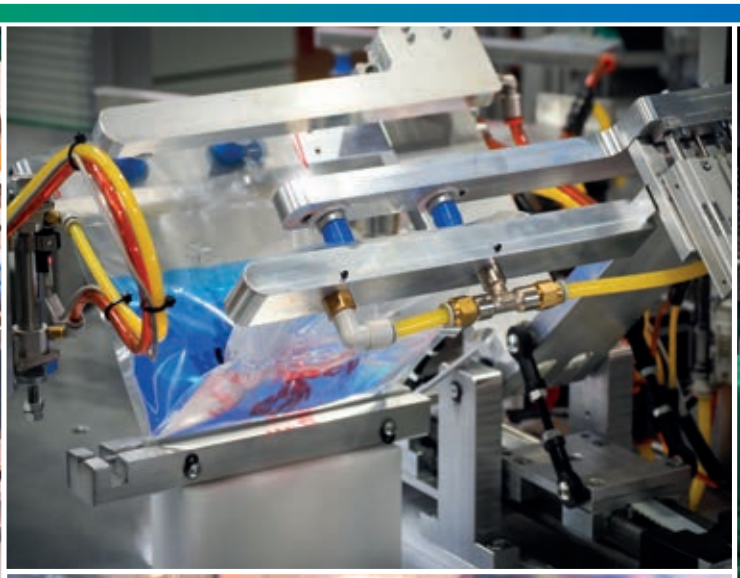
With gratitude and hope,

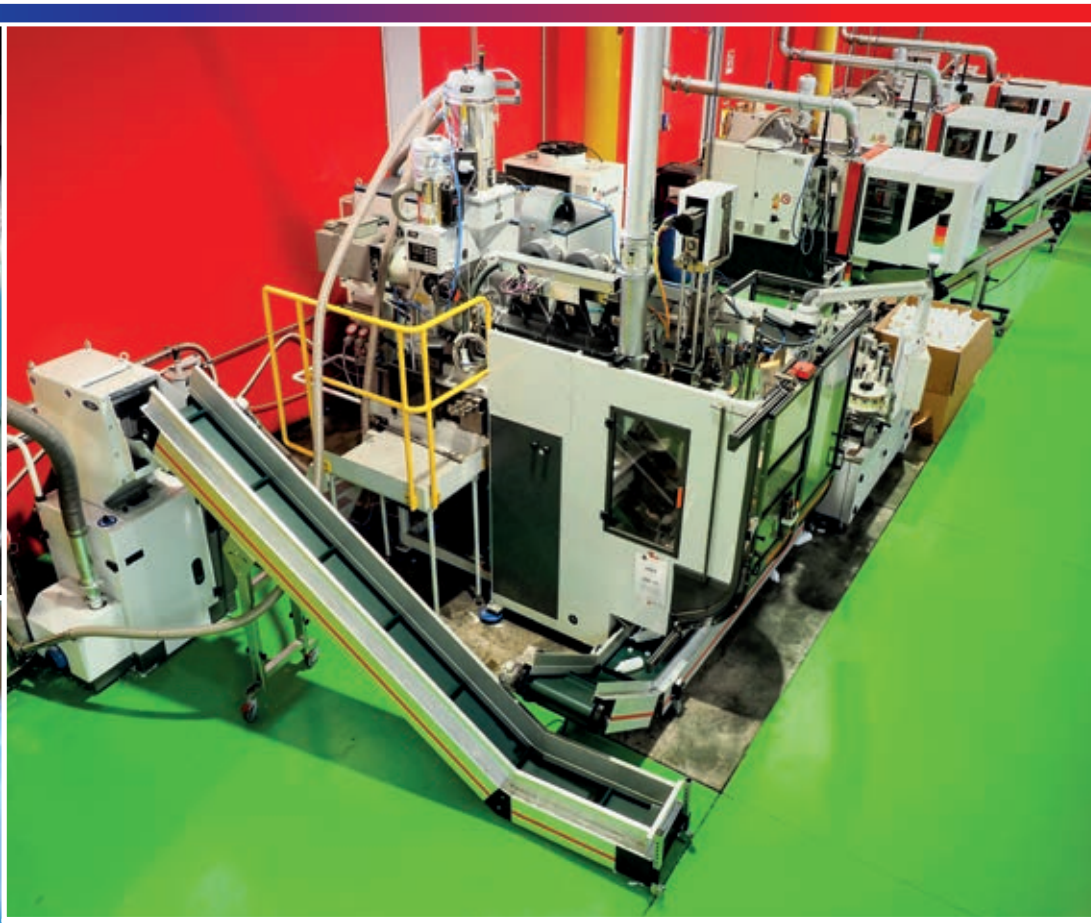
LOW VOLTAGE

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



OUR PRODUCTION





MAGIC POWER GEL 250
Ray tech
250 ml
MAGIC POWER GEL 250
Ray tech
250 ml
MAGIC POWER GEL 250
Ray tech
250 ml

Ray tech

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
RAY RESIN

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.**

eco friendly Gel

Gel: UL 94-HB

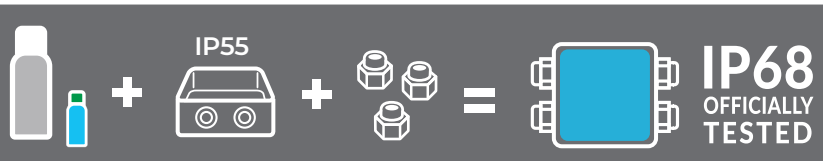
Dielectric strength:
>20 kV/mm
Cross linking time:
fast (about 7 min. at 23°C)
Volume resistivity:
$>2 \cdot 10^{15}\ \Omega$ cm
Working temperature:
-60°C / +200°C
Overload temperature for short periods:
up to 250°C
Stabilised for:
mould - UV
Degree of protection:
IP68 (in proper casings)

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

NSF Nonfood Compounds P1

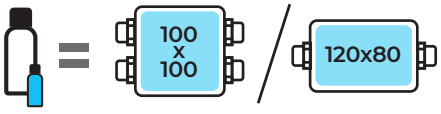
SUSTAINABLE SOLUTION



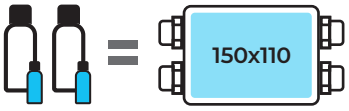
HOW IS IP68 DEGREE OF PROTECTION OBTAINED?

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.

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

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.**

eco friendly Gel

Gel: UL 94-HB

Dielectric strength:
>20 kV/mm
Cross linking time:
fast (about 10 min. at 23°C)
Volume resistivity
>2 . 10^{15} 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

NSF Nonfood Compounds

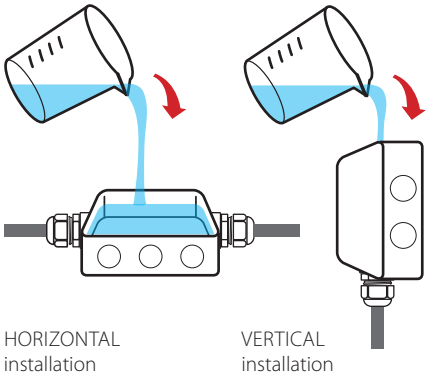
Problem ENERGY

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

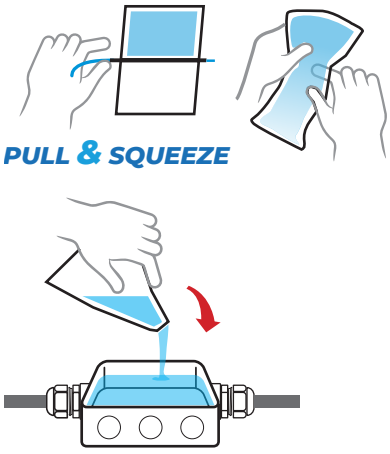
- **INSULATION:** Elevated voltages (1 kV operating, 4 kV testing)
- **THERMAL PERFORMANCE:** Operating temperature 90°C, overload temperature 130°C, short circuit temperature 250°C
- **SEALING:** Installations also possible in humid environments, flooded wells
- **DEGREE OF PROTECTION:** Must also work 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!

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-1000	●	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



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.**

eco friendly Gel

Gel: UL 94-HB

Dielectric strength:
>20 kV/mm
Cross linking time:
fast (about 15 min. at 25°C)
Volume resistivity:
>2 . 10^{15} 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

NSF
Nonfood Compounds P1

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.

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.

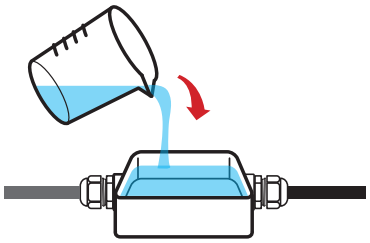
ZERO WASTE

- 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.

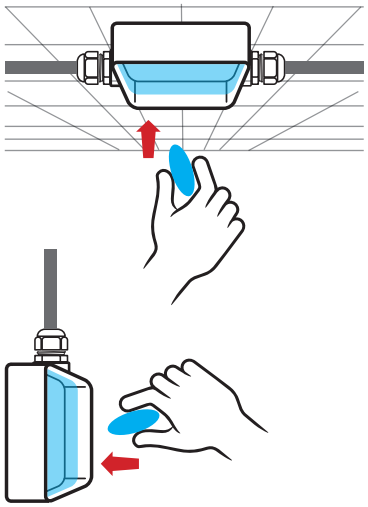
SINGLE BOTTLE

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

CASTING APPLICATION
HORIZONTAL installation



AFTER CURING MANUAL APPLICATION
CEILING or WALL application



PRODUCT / Item	Colour	Package type	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	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

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.**

eco friendly Gel

Gel: UL 94-HB

Dielectric strength:
>20 kV/mm
Cross linking time:
about 15 min. at 23°C
Volume resistivity:
>1,5 x 10^{15} Ω cm
Operating temperature:
-60°C / +180°C
Thermal conducitivity:
< 0,2 W/m°K
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.

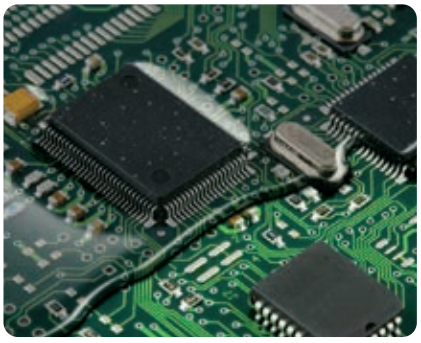
IP68 OFFICIALLY TESTED | IMQ

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

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!

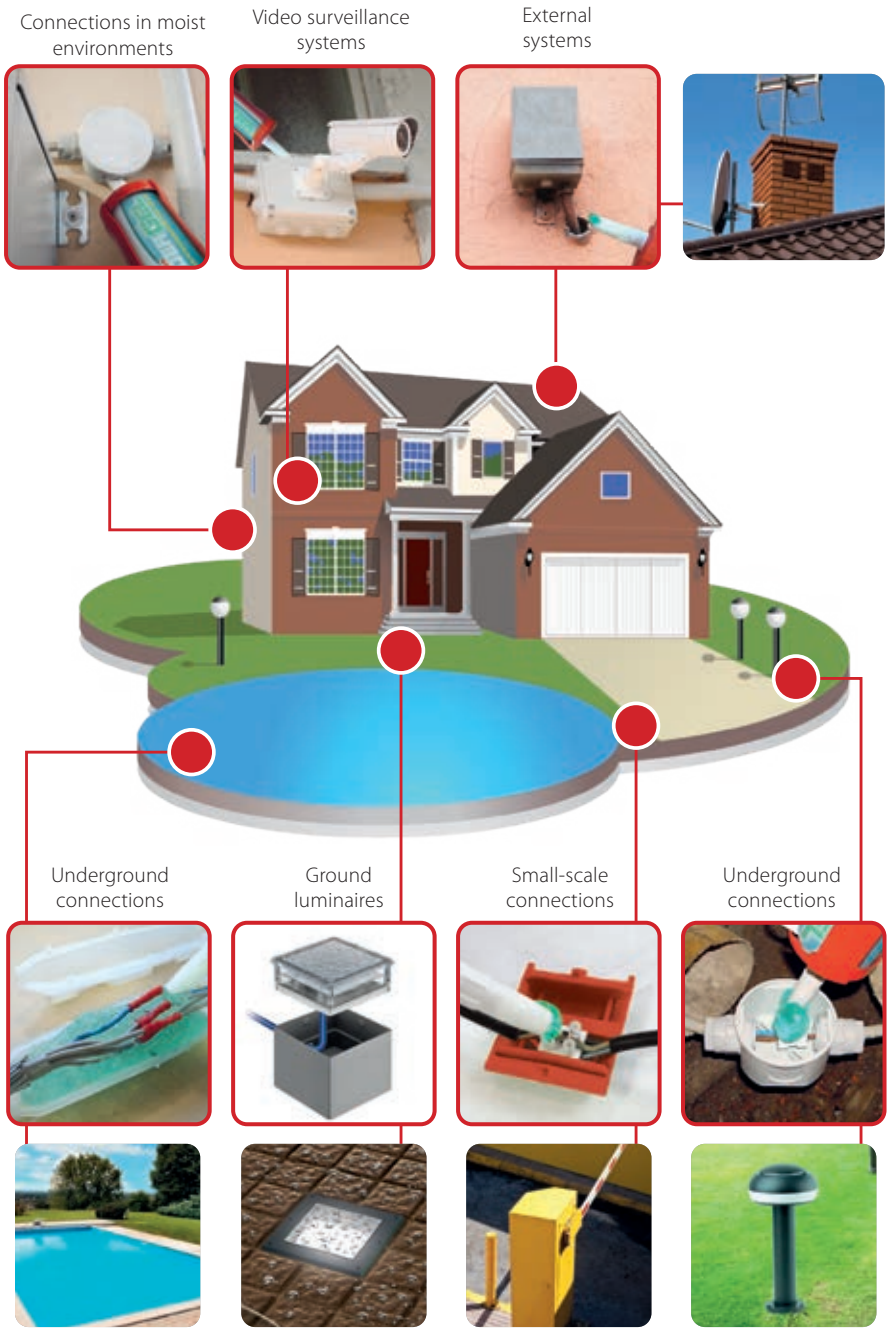
eco friendly Gel

Gel: UL 94-HB

Dielectric strength:
>20 kV/mm
Volume resistivity:
$>2 \cdot 10^{15}\ \Omega$ 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**



WHAT IS GEL WONDER?

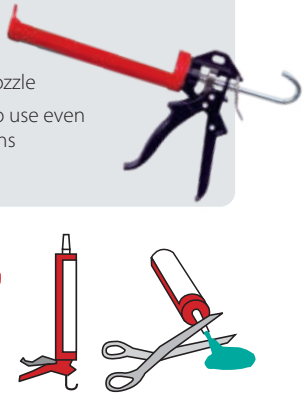
- A single component gel
- Extremely sticky
- Stays soft with time
- Never dries
- Non-toxic and safe
- No shelf life

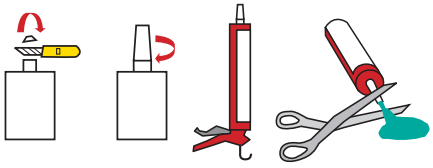
WHAT DOES GUARANTEE?

- 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

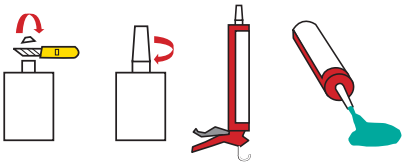
- The gel is not-classified as hazardous under the CLP Directive.
- Ready-to-use fluid gel.
- Suitable for box filling.
- Does not solidify when opened.
- No waste.
- No shelf life.

eco friendly Gel

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.



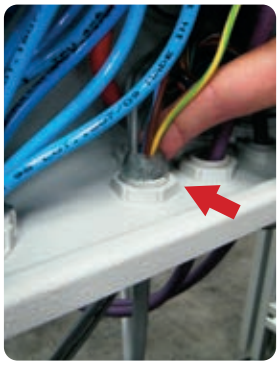
PRODUCT / Item	Colour	Package type	Total quantity
WONDER FLUID 280 WONDER-F280	●	Cartridge with dosing nozzle	280 ml

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.**

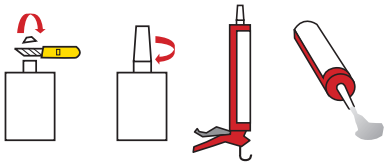


PRODUCT / Item	Colour	Package type	Total quantity
MONOGEL MONOGEL	○	Cartridge with dosing nozzle	300 ml

eco friendly Gel

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)



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.**

Dielectric strength:
>20 kV/mm
Specific weight:
~ 1.05
Cross linking time:
fast (about 10 min. at 25°C)
Volume resistivity:
>2 . 10^{14} 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

NSF

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 1 min. max.

Pour within 1 min. max.

In just 10 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 BECOMES RUBBER IN 5 MINUTES

SKY PLAST

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

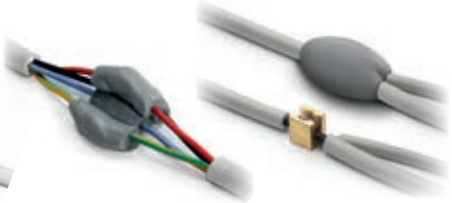
Sky Plast is ideal for covering, protecting, insulating, finishing and fireproofing any electrical and non-electrical component. Once the 2 components have been blended in a ratio of 1:1 (for max 2 min.) until uniform, it cross links quickly at room temperature in less than 5 minutes. After being wrapped 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 corrhosive 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

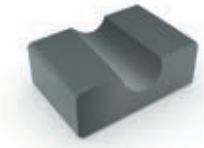
Preparation of bars, washers, round wire insulators

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

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

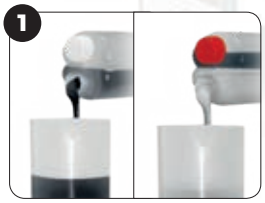
MAGIC RUBBER

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.**



1 Mix the 2 components in a ratio of 1:1.

2 Mix for max 30".

3 Pour the product into the casing to be filled.

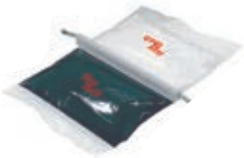
4 In just a few minutes, the product transforms into rubber.

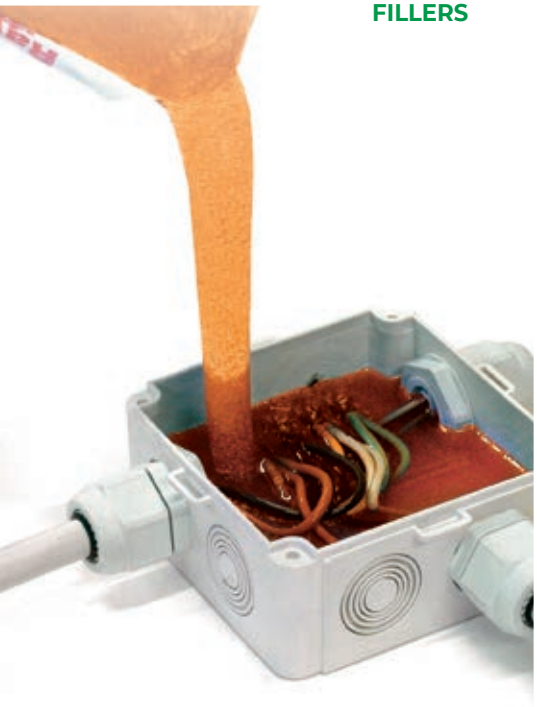
PRODUCT / Item	Colour	Package type	Total quantity
MAGIC RUBBER 500 MAGIC-RUBBER	●	1 single two-component bottle 1 jug - 1 spatula in wood	500 gr
MAGIC RUBBER 10 MAGICRUBBER-10	●	Two-component tanks 1 jug - 1 spatula in wood	10 kg

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

Cross linking time:
15 minutes at 23°C
Volume resistivity:
>2 10^{15} 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.



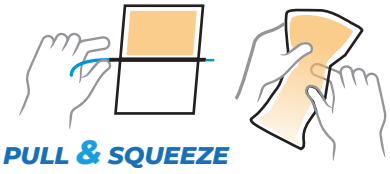


RAY RESIN

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

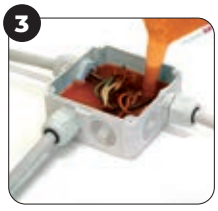
Resin for electrical insulation and for the protection of thermosetting LV and MV accessories. The two components, the base resin and hardener, are mixed in close contact to trigger the cross linking reaction. Excellent bonding to metal, plastic and rubber components.

Cross linking time:
20 minutes at 20°C
Hardness:
70 Shore D
Dielectric strength:
20 kV/mm
Specific weight:
1,07 kg/dm³
1,7 kg/dm³ per Rayresin Tan 3,8
Water absorption:
0,8% max



1 Remove the separator from the Rayresin bag.

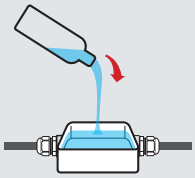
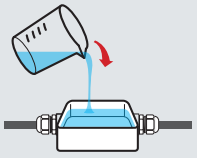
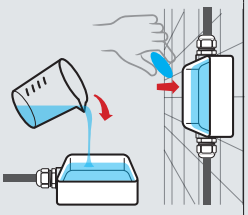
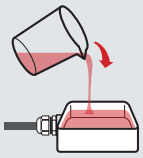
2 Mix the 2 components.

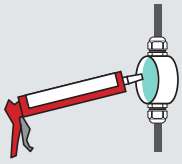
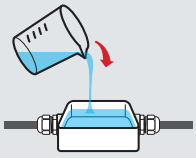
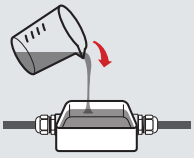
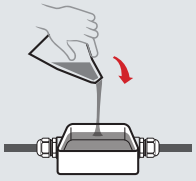
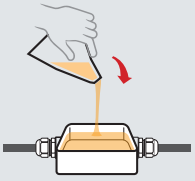

3 Pour Rayresin in the tray (1' max).

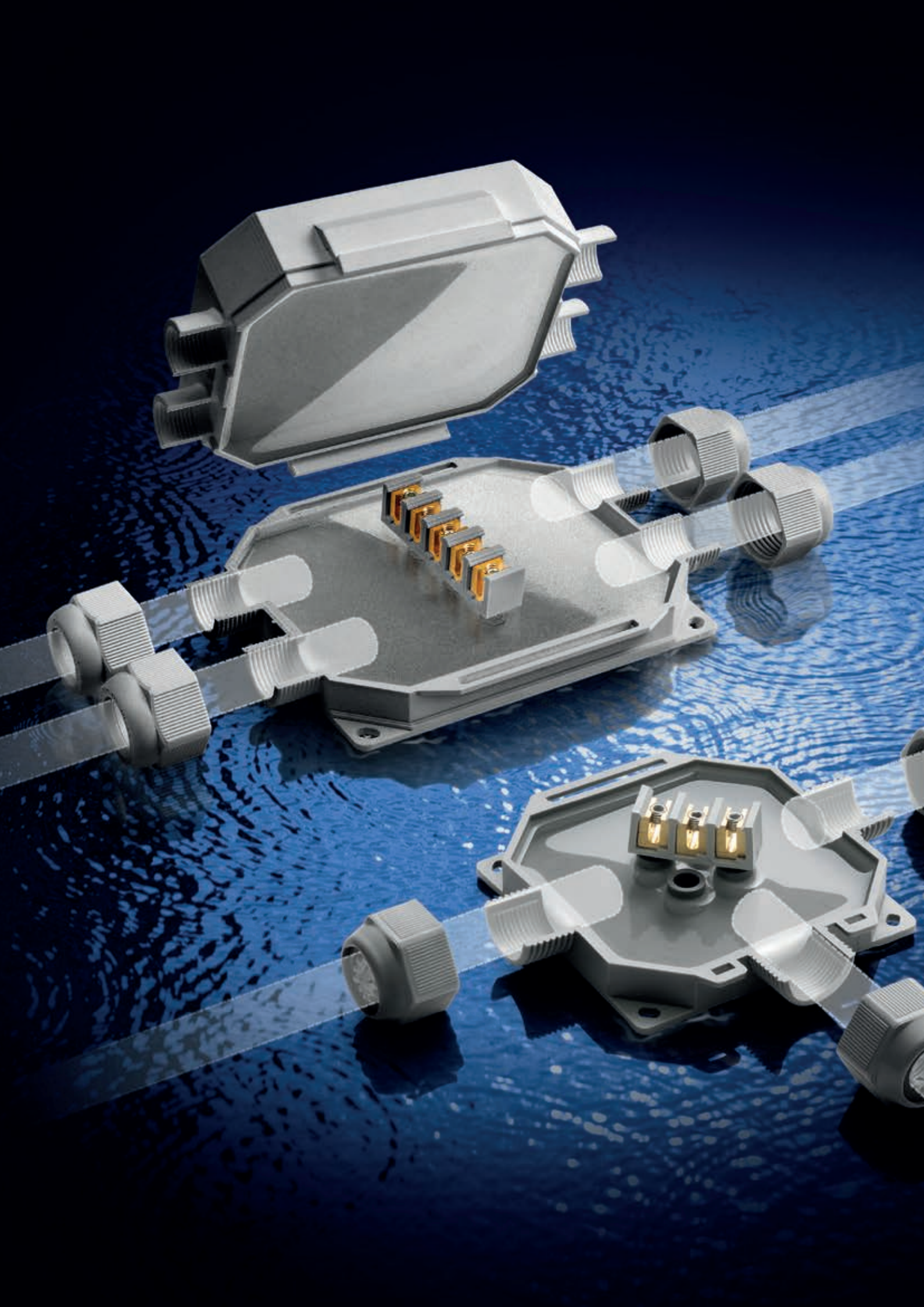
4 Installation completed.

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 sachet
MIXING RATIO	Predeterminate	Predeterminate	1:1 ratio with measuring Jug	1:1 ratio with measuring Jug	1:1 ratio
MIXING TIME	10 seconds	10 seconds	15 seconds	15 seconds	15 seconds
CURING TIME (at 23° C)	< 7 minutes	< 7 minutes	< 10 minutes	About 15 minutes	About 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	By pouring	By pouring	By pouring or "cure and stick"	By pouring
					
	ALL IN ONE Ready in 1 bottle!	**ALL IN ONE CLASSIC**	**CLASSIC**	**SELF AGGLOMERATING**	**INTERCOMS** Led display

	WONDER GEL / FLUID	TECHNO GEL GUM	MAGIC RUBBER	RUBBER FLUID	RAY RESIN
PACK CONTENTS	1 cartridge	One single 2 compartment bottle + jug + spatula	One single 2 compartment bottle + jug + spatula	1 sachet	1 sachet
MIXING RATIO	None	1:1 ratio with measuring Jug	1:1 ratio with measuring Jug	Predeterminate	Predeterminate
MIXING TIME	-	15 seconds	15 seconds	15 seconds	30 seconds
CURING TIME (at 23° C)	Already cross-linked	About 15 minutes	About 15 minutes	About 15 minutes	About 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
					



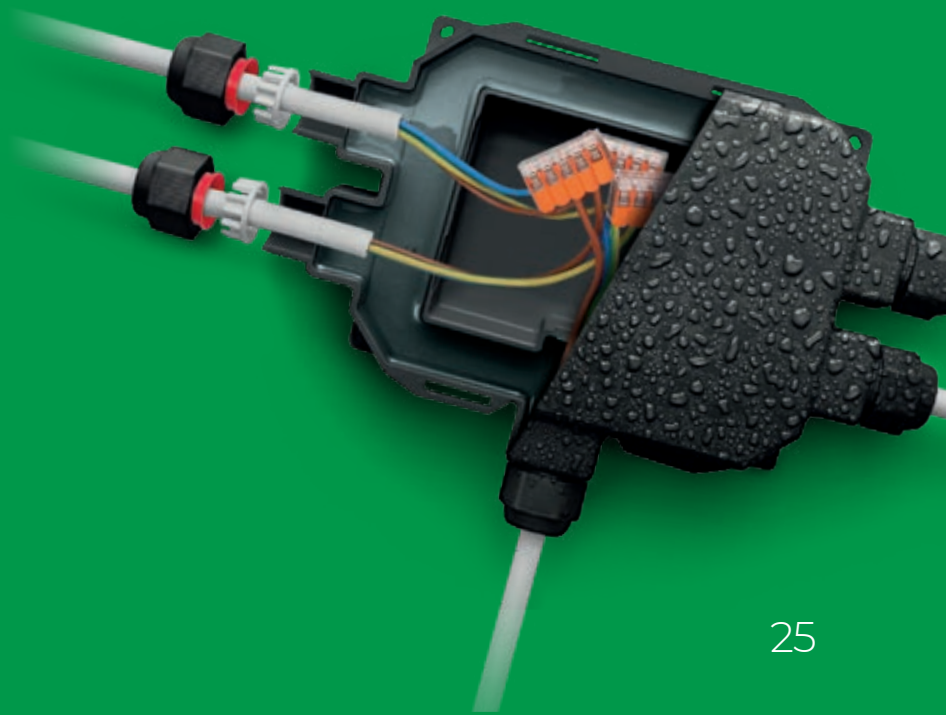
Ray tech

LOW VOLTAGE
JOINTING BOXES

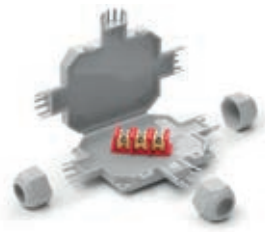
PRE-FILLED IP68
BOB
BABY BOX
READY BOX
FOX BOX

KIT IP68
MAGIC BOX
POWER KIT
MAGIC GEL SPRINT BOX 100

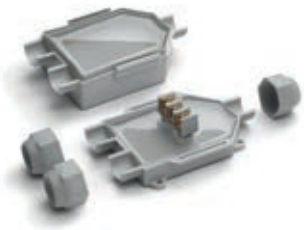
IP55
J-BOX



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 + adapters	Cables Ø mm 8-18 Tubes Ø mm 16/20	Colours	mm 95 x 80 x h 43
4 nuts + adapters	Cables Ø mm 8-18 Tubes Ø mm 16/20	Colours	mm 95 x 110 x h 43
3 nuts + adapters	Cables Ø mm 8-18 Tubes Ø mm 16/20/32	Colours	mm 90 x 90 x h 45
4 nuts + adapters	Cables Ø mm 8-18 Tubes Ø mm 16/20/32	Colours	mm 120 x 100 x h 45
3 nuts + adapters	Cables Ø mm 8-18 Tubes Ø mm 16/20/32	Colours	mm 180 x 135 x h 45
5 nuts + adapters	Cables 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°
- **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.

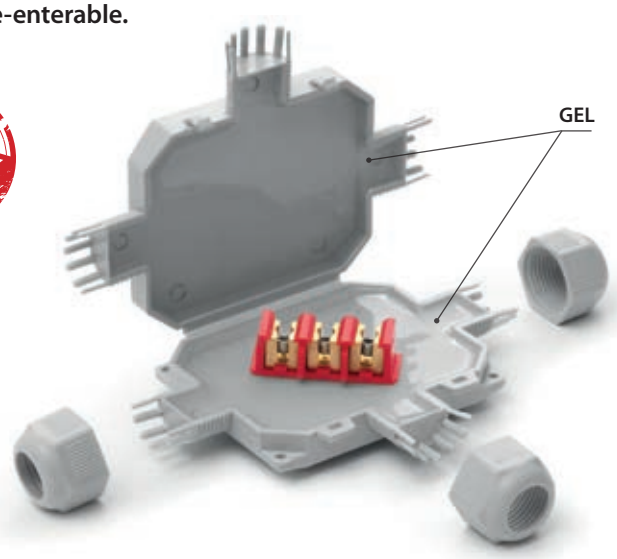
BOB

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

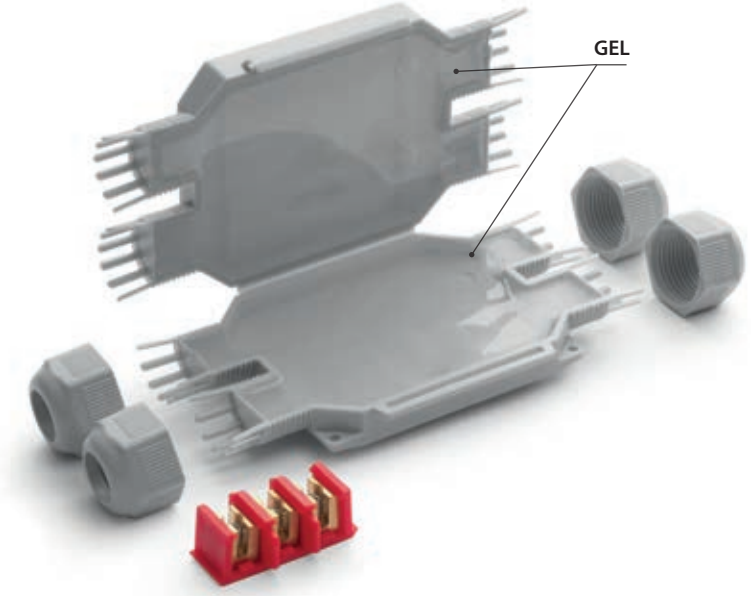
Extremely compact and space-saving, pre-filled with soft, highly conformable gel. With minimal aesthetic impact and visually pleasing. Equipped with integrated cable glands for IP68 and IP69K degree of ingress protection and cable retention.

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.**



BOB 3



BOB 4

Electrical performance:
- **CEI EN 50393** as applicable
- **Class 2** in accordance with **CEI 64-8.**

Gel: UL 94-HB

Working temperature: 90°

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

Fully submersible

Can be used underground

Halogen-free Gel

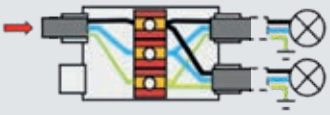
UV resistant

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

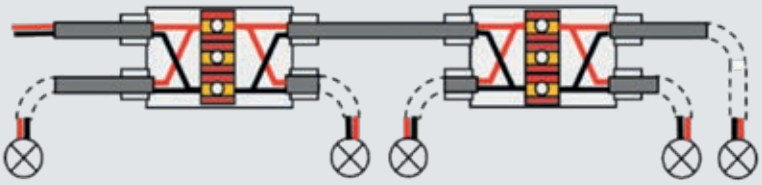
Some installation possibilities for BOB 4

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



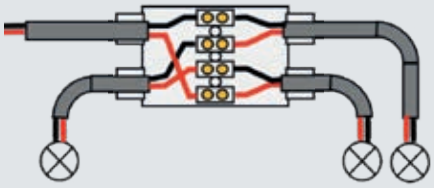
Parallel branch system with
4 three-core cables up to 3 x 2.5 mm²

Parallel 5-lamp connection system

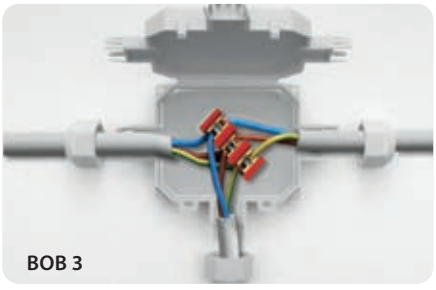


Can be installed with Mammut type connector (not included)

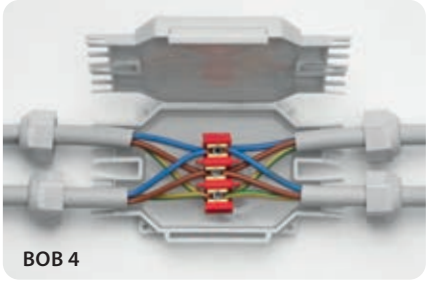
3-LED spotlight in-series system



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 mm²) Through	Max cable formation (N° x mm²) Branch	Cables Ø min - max (mm)	Pieces Pack	(mm)
BOB 3 BOB3	●	**1 cable** 3 x 4 3 x 2,5	**2 cables** 3 x 4	8 - 13	1 piece Blister	105 x 80 x 25
BOB 3 - N BOB3-N	●		**2 cables** 3 x 2,5		1 piece Blister	

PRODUCT / Item	Colour	Max cable formation (N° x mm²) Through	Max cable formation (N° x mm²) Branch	Cables Ø min - max (mm)	Pieces Pack	(mm)
BOB 4 BOB	●	**1 cables** 3 x 4 3 x 2,5	**2 cables** 3 x 4	8 - 13	1 piece Blister	105 x 65 x 25
BOB 4 - N BOB4-N	●		**3 cables** 3 x 2,5		1 piece Blister	

JOINT OR BOX?
CHOOSE BABY BOX!

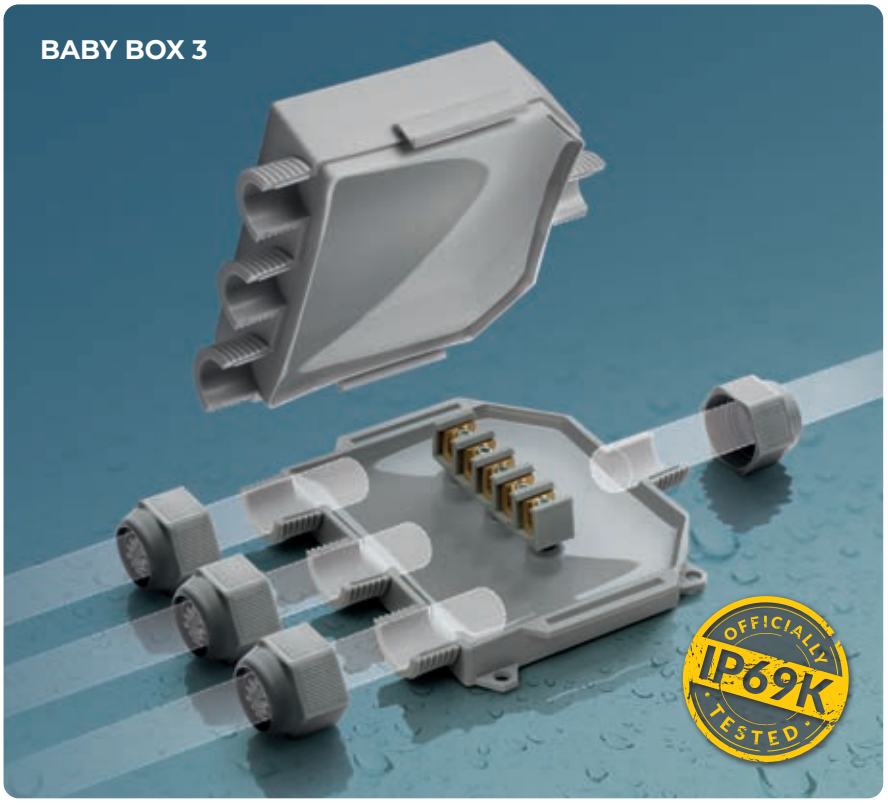
BABY BOX

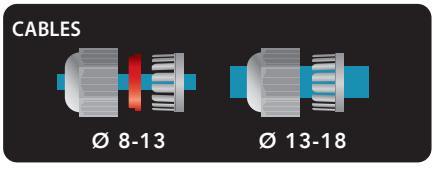
Pre-filled boxes (1 to 2) – (1 to 3) with integrated terminal block and clamping nuts.

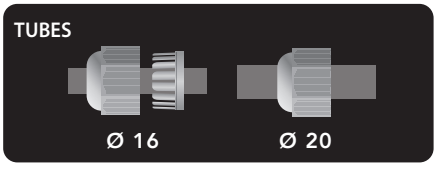
BABY BOX is the range of ready to use boxes/junction boxes, complete with terminal block and a kit of components that allow its use with cables from 8 to 18 mm in diameter and ducts from 16 to 20 mm in diameter. Nothing to pour and no waiting times as it is already pre-filled with a non-toxic gel, not 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.**







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°

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

Fully submersible

Can be used underground

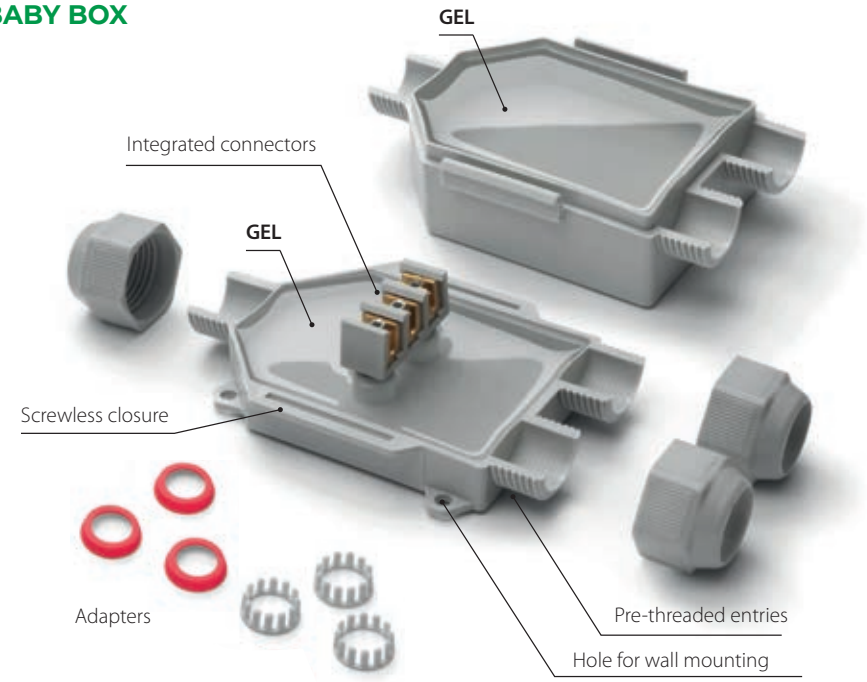
Halogen-free Gel

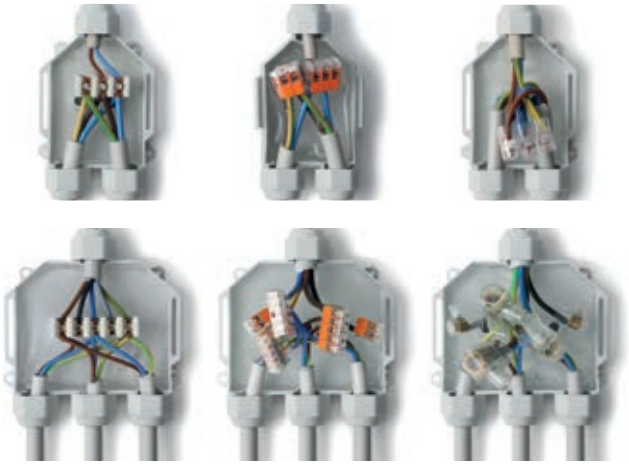
UV resistant

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

IP68 OFFICIALLY TESTED | IMQ | IP69K OFFICIALLY TESTED

BABY BOX





With integrated connectors.

Also suitable for extra-flat lever connectors.

Also suitable for screw terminals.

BABY BOX

BABY BOX 3

PRODUCT / Item	Colour		Connectors	Cables Ø min - max (mm)	Tubes Ø (mm)	A B C (mm)
BABY BOX BABYBOX	●	3	**3x** Max 12 mm²	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)	A B C (mm)
BABY BOX 3 BABYBOX3	●	4	**5x** Max 12 mm²	8 - 18	16 / 20	95 x 110 x 43
BABY BOX 3 - N BABYBOX3-N	●					

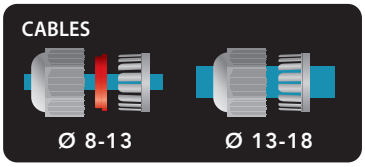
READY BOX

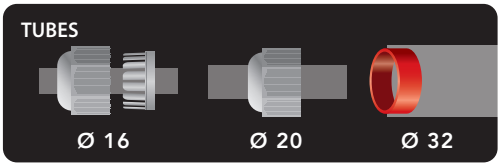
3 or 4 entrances junction boxes pre-filled with gel, complete with integrated terminal block and cable glands

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

Working temperature: 90°

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

Fully submersible

Can be used underground

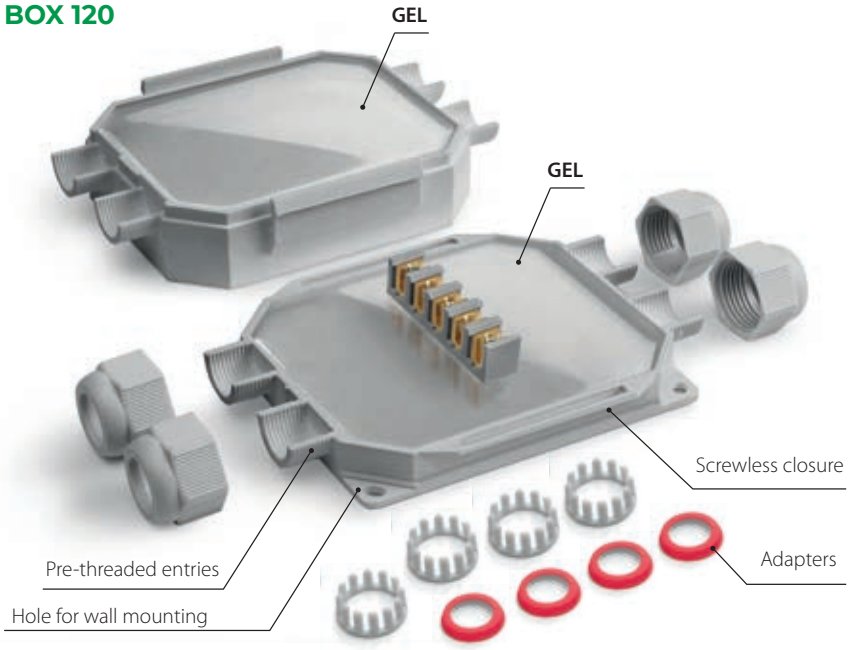
Halogen-free Gel

UV resistant

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

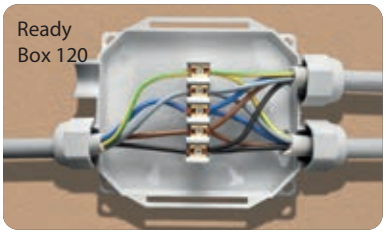
IP68 OFFICIALLY TESTED | IMQ | IP69K OFFICIALLY TESTED

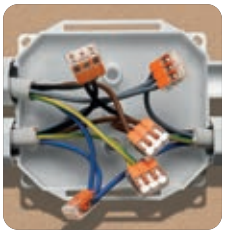
READY BOX 120

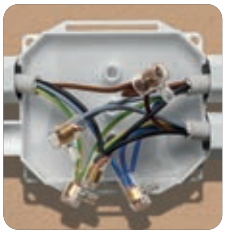


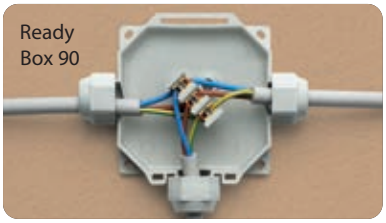
Installation with free cables.

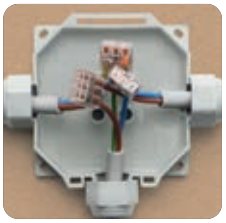
Installation with cable gland duct.

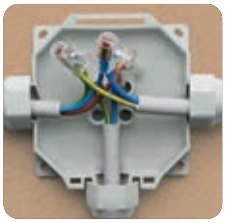












Thanks to its innovative design, unlike a standard box, there is no need to break through the walls of the box to insert the cable.

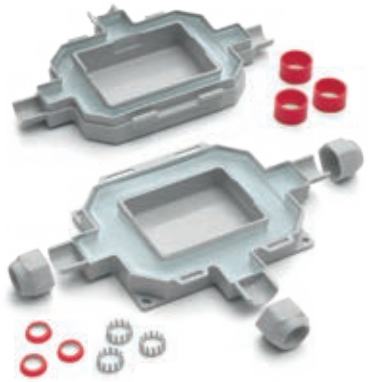
Also suitable for extra-flat lever connectors.

Also suitable for screw terminals.

READY BOX 90

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

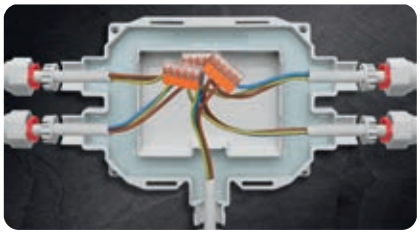
PRODUCT / Item	Colour		Cables Ø min-max (mm)	Tubes Ø (mm)	A B C (mm)
Ready Box IP68 120 READYBOX120	●	4	8 - 18	16 / 20 / 32	120 x 100 x 45
Ready Box IP68 120/N READYBOX120-N	●				

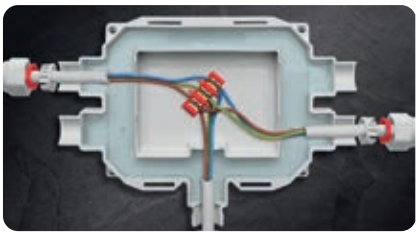


FOX BOX

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.**

Electrical performance:
- **CEI EN 50393** as applicable
- **Class 2** in accordance with **CEI 64-8.**

Gel: UL 94-HB

Working temperature: 90°

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

Fully submersible

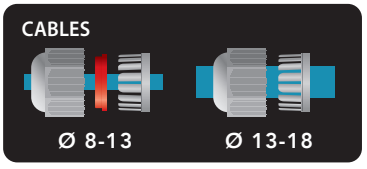
Can be used underground

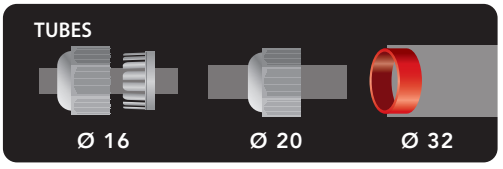
Halogen-free Gel

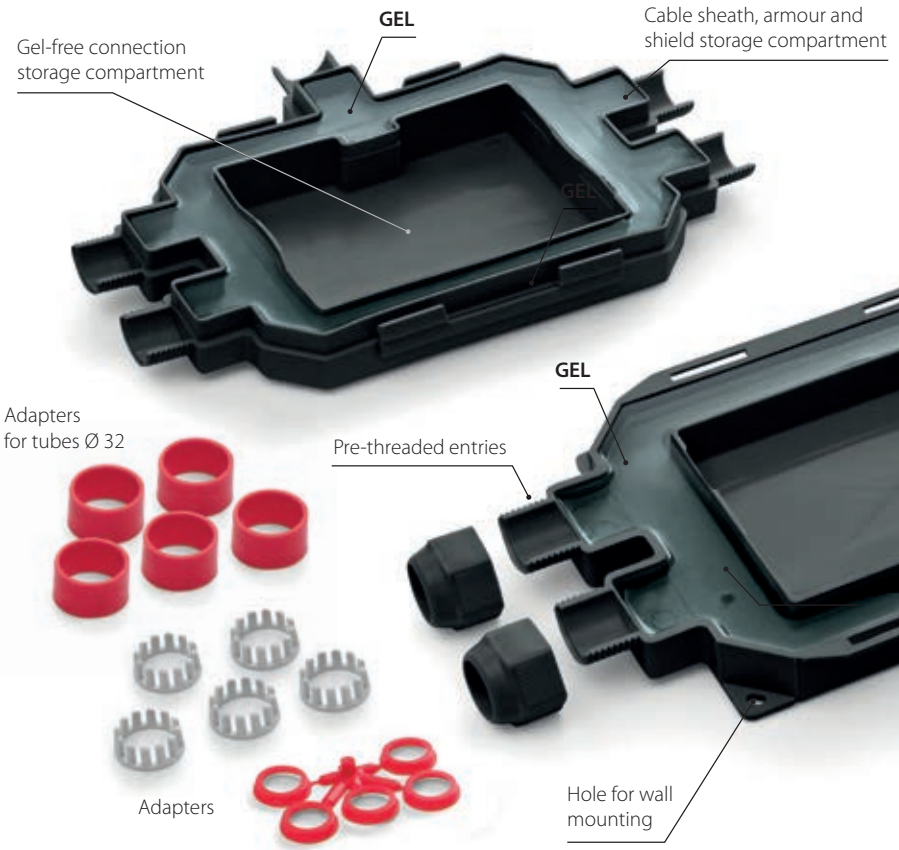
UV resistant

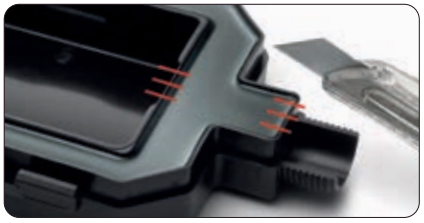
Self-extinguishing and resistant to abnormal heat and fire: Glow Wire Flammability Index at +960° C according to EN60695-2-12

IP68 OFFICIALLY TESTED | IMQ | IP69K OFFICIALLY TESTED









PRODUCT / Item	Colour	Cables Ø min-max (mm)	Tubes Ø (mm)	Inner capacity (mm)	Outer dimensions (mm)
FOX BOX 3 FOXBOX3	●	8 - 18	16 / 20 / 32	79 x 60 x 32	180 x 135 x 45
FOX BOX 3 - N FOXBOX3-N	●				
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	●	8 - 18	16 / 20 / 32	116 x 78 x 32	210 x 155 x 45
FOX BOX - N FOXBOX-N	●				
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°

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

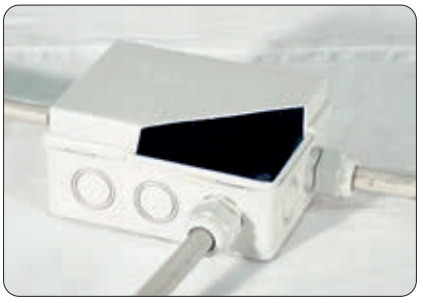
Fully submersible

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**



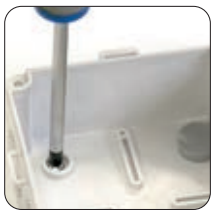
PUBLIC LIGHTING

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

Kit complete 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°

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

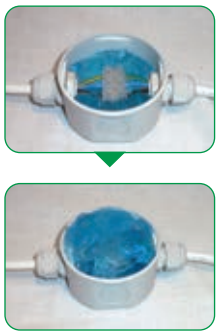
POUR

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

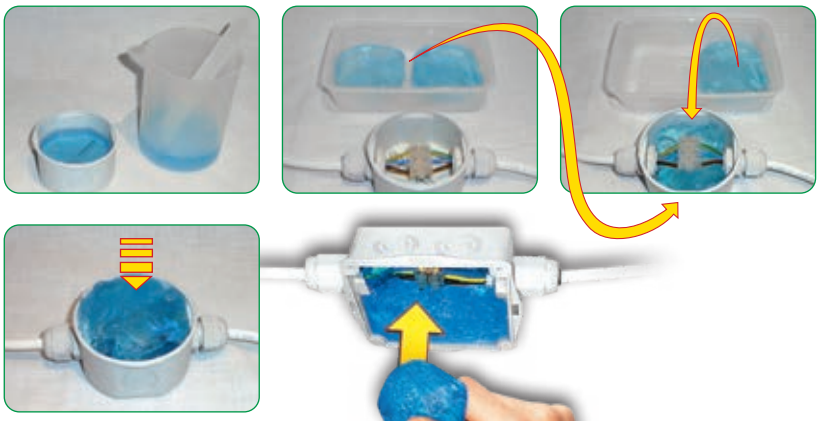
Thanks to Magic Power Gel, the box can be **re-opened, inspected** and **re-insulated** all using the original installed product.

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 themeasuring 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!* 7'

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°

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**

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.

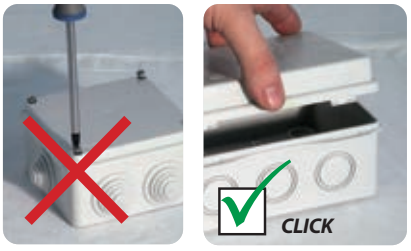
Electrical Performance:
CEI 23-48, IEC 60670

Degree of protection:
empty IP55
filled with Gel Raytech IP68

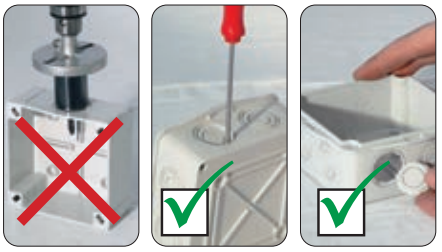
Self-extinguishing and resistant to abnormal heat and fire:
Glow Wire Flammability Index at +960° C according to EN60695-2-12

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) PG	METRIC	Dimension (mm)
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 PRODUCT / Item	Metric pict	Assembly hole Ø (mm)	Cable range Ø min (mm)	Cable range Ø max (mm)	Pack of (PCS)
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 PRODUCT / Item	PG pict	Assembly hole Ø (mm)	Cable range Ø min (mm)	Cable range Ø max (mm)	Pack of (PCS)
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

Ray tech

LOW VOLTAGE

CONNECTORS
TERMINAL BLOCKS
GEL COVER
GEL BOX

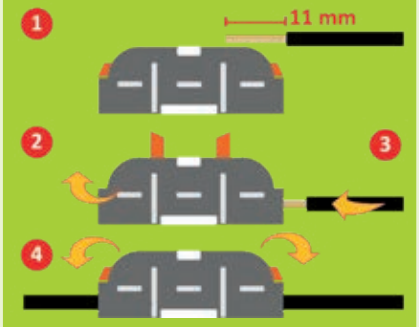
RAY BLOCK
SUPER BLOCK
HAPPY LINE
GEL BOX LINE
NANO LINE
BRAVO

NEW

LEVER CONNECTORS IN & OUT

CE UKCA
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

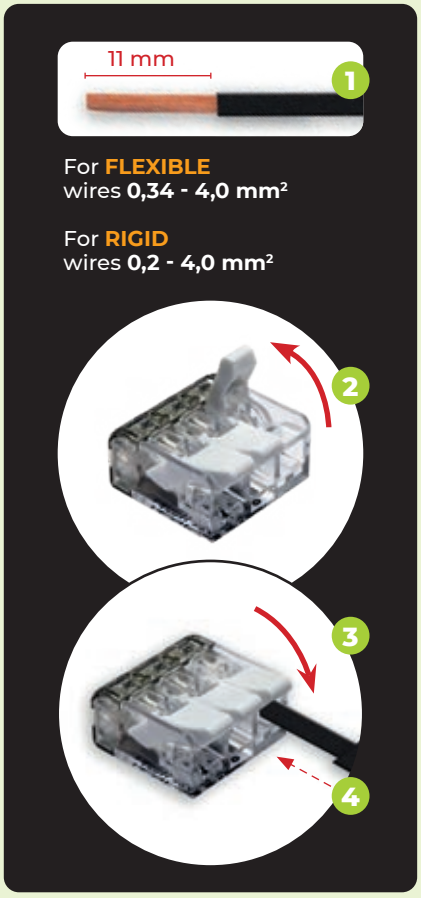
MINIMUM ORDER QUANTITY
1 DISPLAY
OF 20 BLISTER

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

x 40 **COD. ART.** RAYBLOCKB2

MINIMUM ORDER QUANTITY
1 DISPLAY
OF 20 BLISTER

x 30 **COD. ART.** RAYBLOCKB3

MINIMUM ORDER QUANTITY
1 DISPLAY
OF 20 BLISTER

x 18 **COD. ART.** RAYBLOCKB5

MINIMUM ORDER QUANTITY
1 DISPLAY
OF 20 BLISTER

COVERS FOR TERMINAL BLOCKS / CONNECTORS

NEW

SUPERBLOCK

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.

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°

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

Fully submersible

Can be used underground

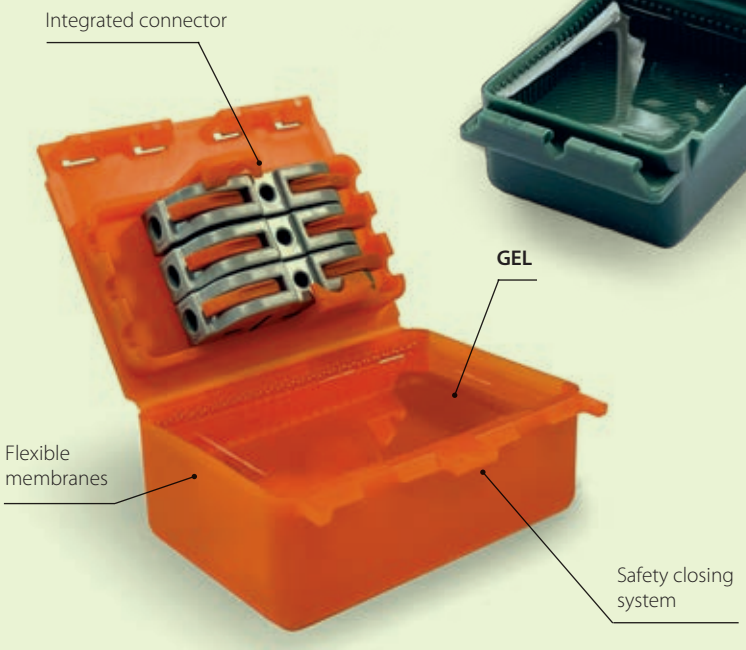
Halogen-free Gel

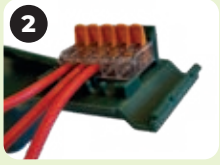
UV resistant

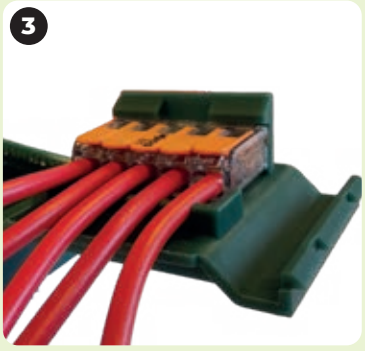
IP68 OFFICIALLY TESTED | IMQ

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.**







SUPER BLOCK IN-OUT M

Item
SUPERBLOCKINOUTM

Up to 3 x 4 mm²

Dimensions:
67 x 50 x28 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

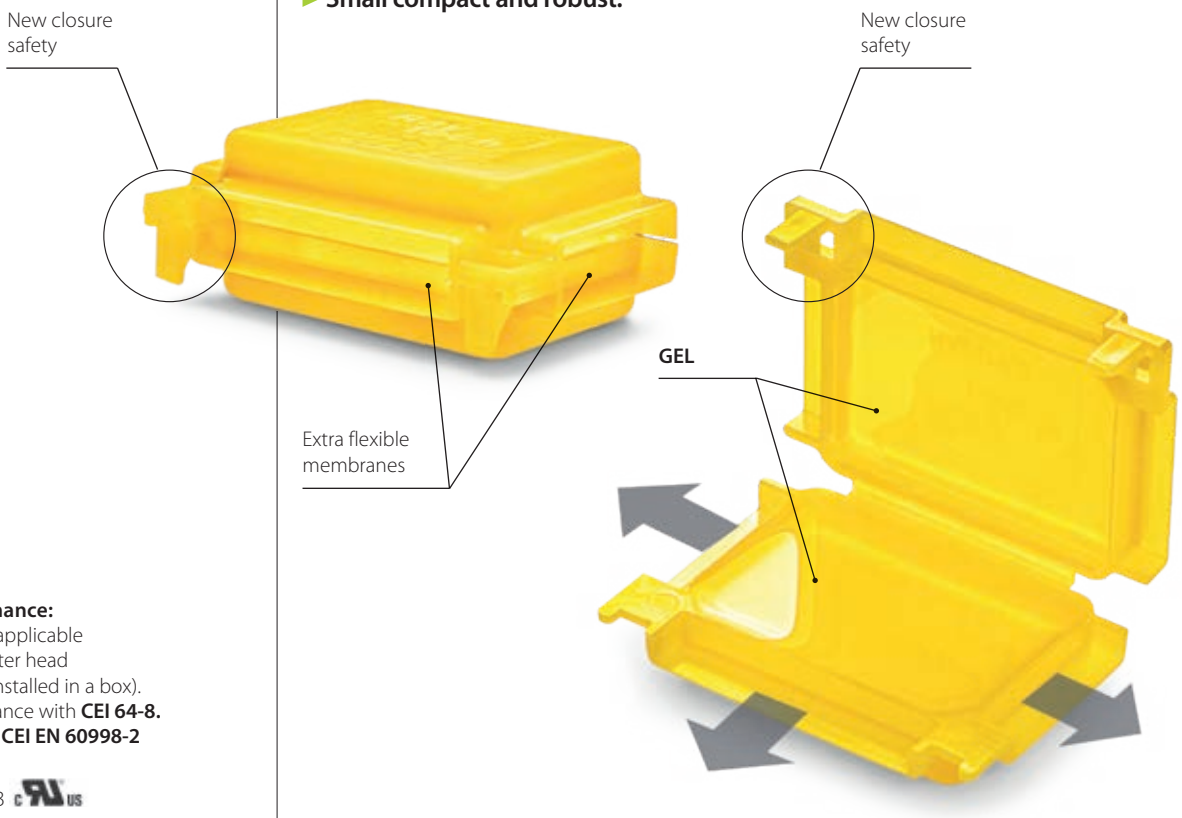
HAPPY LINE

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 of 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.**



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°

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

Fully submersible

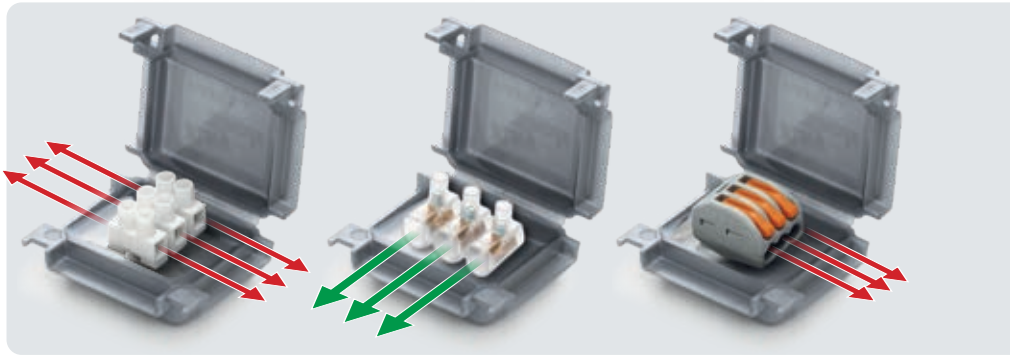
Can be used underground

Halogen-free Gel

UV resistant

IPX8 OFFICIALLY TESTED | IMQ

Configuration examples



HAPPY 0

PRODUCT	Item	Colour	Pack of (PCS)	Description	Dimension (mm)
HAPPY 0	HAPPY0	●	4	Blister	41 x 28 x 19
HAPPY 0 BOX12	HAPPY0BOX12	○	12	Box	
GEL BOX 0	GELBOX0	○	20	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 (PCS)	Description	Dimension (mm)
HAPPY 1	HAPPY1	●	2	Blister	45 x 37 x 24
HAPPY 1 BOX10	HAPPY1BOX10	○	10	Box	
GEL BOX 1	GELBOX1	○	15	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

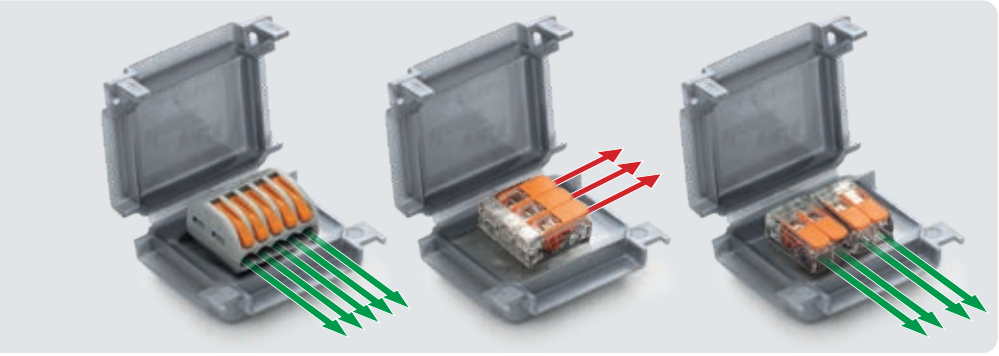
3x 2.5 mm² | 5x 2.5 mm² | 3x 4 mm² | 5x 4 mm² | 3x 6 mm² | 2x + 2x 6 mm²

HAPPY 2

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



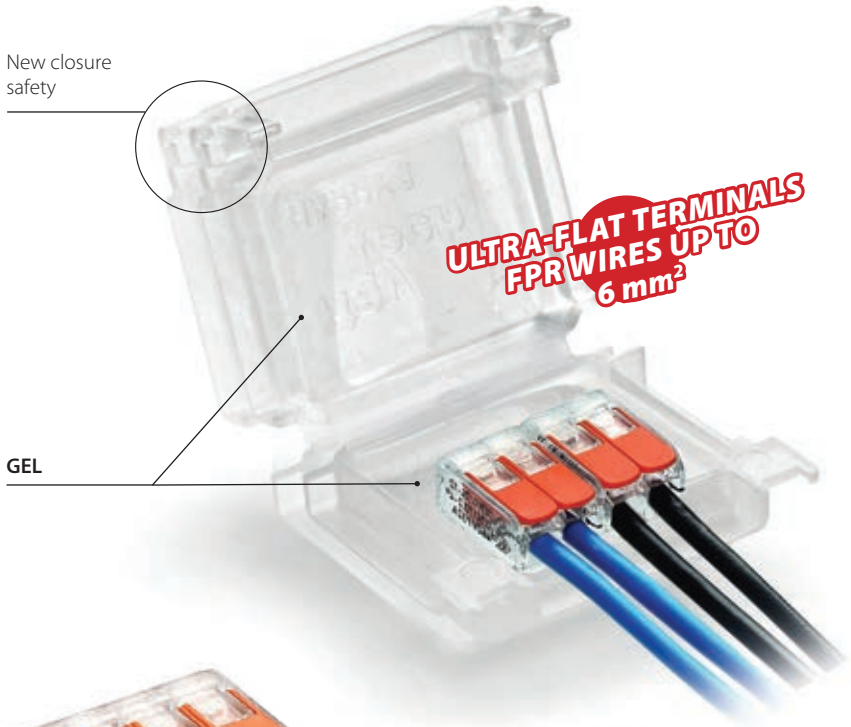
Coloured casings are self-extinguishing according to the **UL 94-V2** standard.

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

Working temperature: 90°

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

Fully submersible

Can be used underground

Halogen-free Gel

UV resistant

IPX8 OFFICIALLY TESTED | IMQ

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

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

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

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

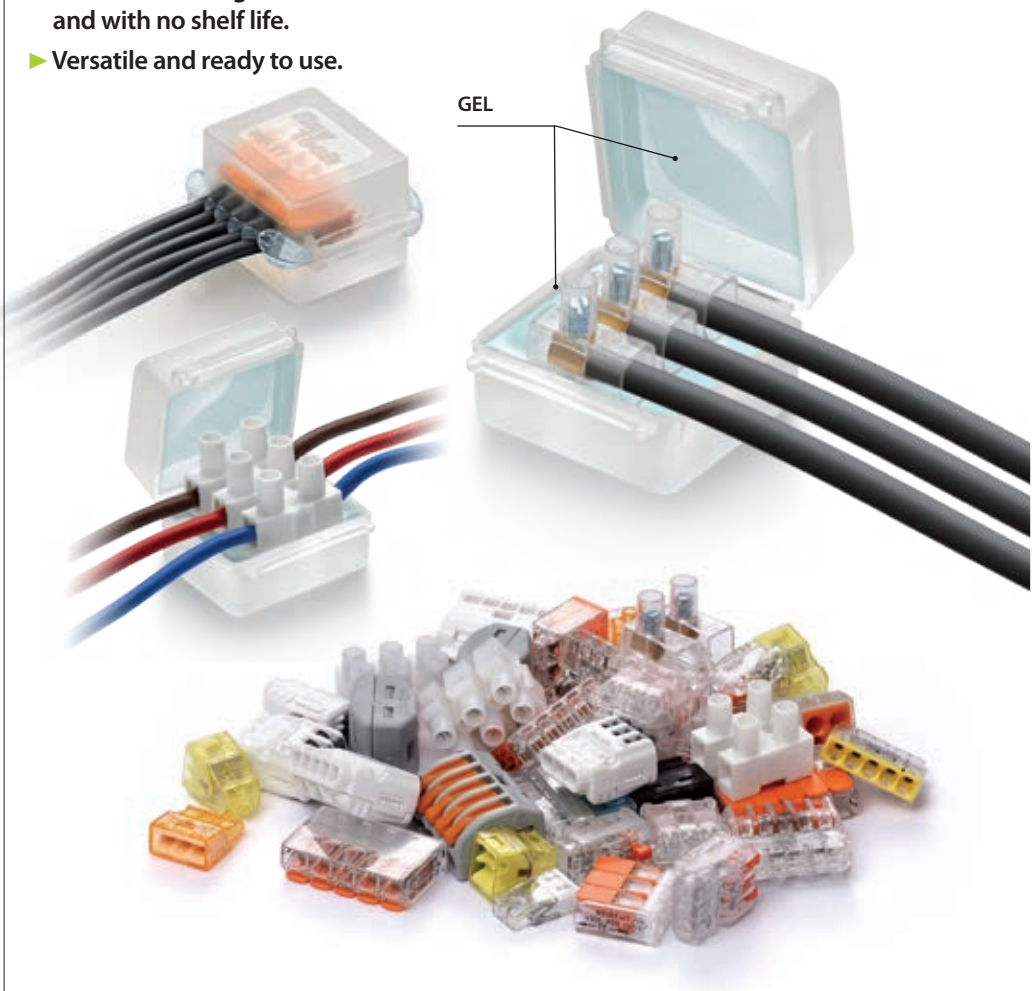
With three connectors included for each Happy

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.



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°

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

Fully submersible

Can be used underground

Halogen-free Gel

UV resistant

IPX8 OFFICIALLY TESTED | IMQ

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):

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

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):

2x 4 mm² 3x 2.5 mm² 3x 1.5 mm² 2x + 2x 2.5 mm² 5x 2.5 mm²

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):

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

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):

2x + 2x + 2x 2.5 mm² 2x + 2x + 2x 4 mm²

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):

3x 6 mm² 3x 6 mm²

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

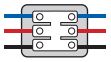
COVERS FOR TERMINAL BLOCKS / CONNECTORS

GEL BOX LINE KIT

Complete with connectors.

PASCAL M2,5

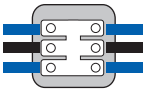
PRODUCT / Item	Pack content	Pack type	Dimension (mm)
PASCAL M2,5 PASCALM2.5	12 pieces + 36 terminal blocks (2.5 mm²)	Box	36 x 37 x 26



max 3 wires
max 2.5 mm²

KELVIN M4

PRODUCT / Item	Pack content	Pack type	Dimension (mm)
KELVIN M4 KELVINM4	6 pieces + 24 terminal blocks (4 mm²)	Box	52 x 53 x 29



max 3 wires
max 4 mm²

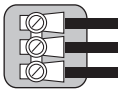
WATT +

PRODUCT / Item	Pack content	Pack type	Dimension (mm)
WATT + 1.5 WATT-1.5	10 pieces + 30 end connectors/ terminal blocks (1.5 mm²)	Box	30 x 42 x 26
WATT + 2.5 WATT-2.5	10 pieces + 30 end connectors/ terminal blocks (2.5 mm²)	Box	

max 3 wires
max 2.5 mm²

KELVIN +

PRODUCT / Item	Pack content	Pack type	Dimension (mm)
KELVIN + 4 KELVIN-4	10 pieces + 30 end connectors/ terminal blocks (4 mm²)	Box	52 x 53 x 29
KELVIN + 6 KELVIN-6	10 pieces + 30 end connectors/ terminal blocks (6 mm²)	Box	
KELVIN 6+4 KELVIN6-4	6 pieces + 20 end connectors/ terminal blocks (4 mm²)	Box	
KELVIN 6+6 KELVIN6-6	6 pieces + 20 end connectors/ terminal blocks (6 mm²)	Box	



max 3 wires
max 6 mm²

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°

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

Fully submersible

Can be used underground

Halogen-free Gel

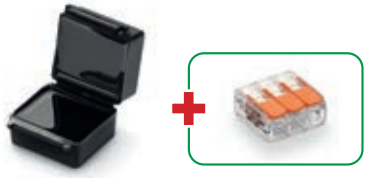
UV resistant

Self-extinguishing according to **UL 94-V2**

IPX8 OFFICIALLY TESTED | IMQ

COVERS FOR TERMINAL BLOCKS / CONNECTORS

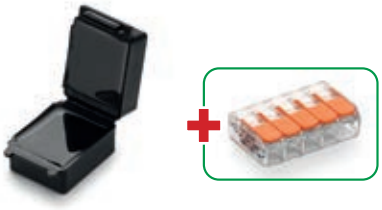
With extra flat connectors included



NANO 3

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

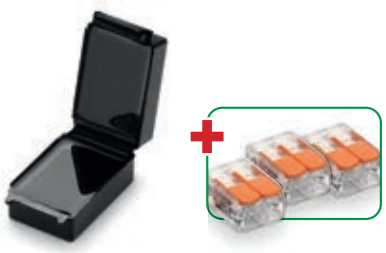
max 3 wires
max 4 mm²



NANO 5

PRODUCT / Item	Formation and wires cross section (Max N° x mm²)	Combination	Package	Dimension (mm)
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

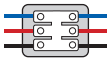
PRODUCT / Item	Formation and wires cross section (Max N° x mm²)	Combination	Package	Dimension (mm)
NANO 6 NANO6	6 x 1 - 4	3 through / In/Out	1 PC Blister	33 x 52 x 26

max 5 wires
max 4 mm²

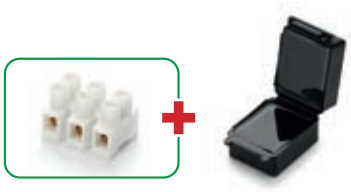
With one connector included

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

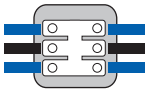


max 3 wires
max 2.5 mm²

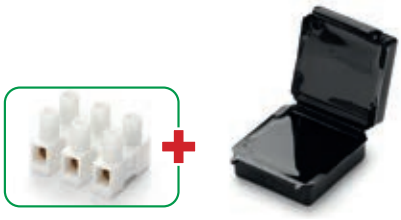


NANO MAM 4

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



max 3 wires
max 4 mm²



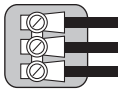
NANO FOR 2,5

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

max 3 fili
max 2.5 mm²

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



max 3 wires
max 4 mm²

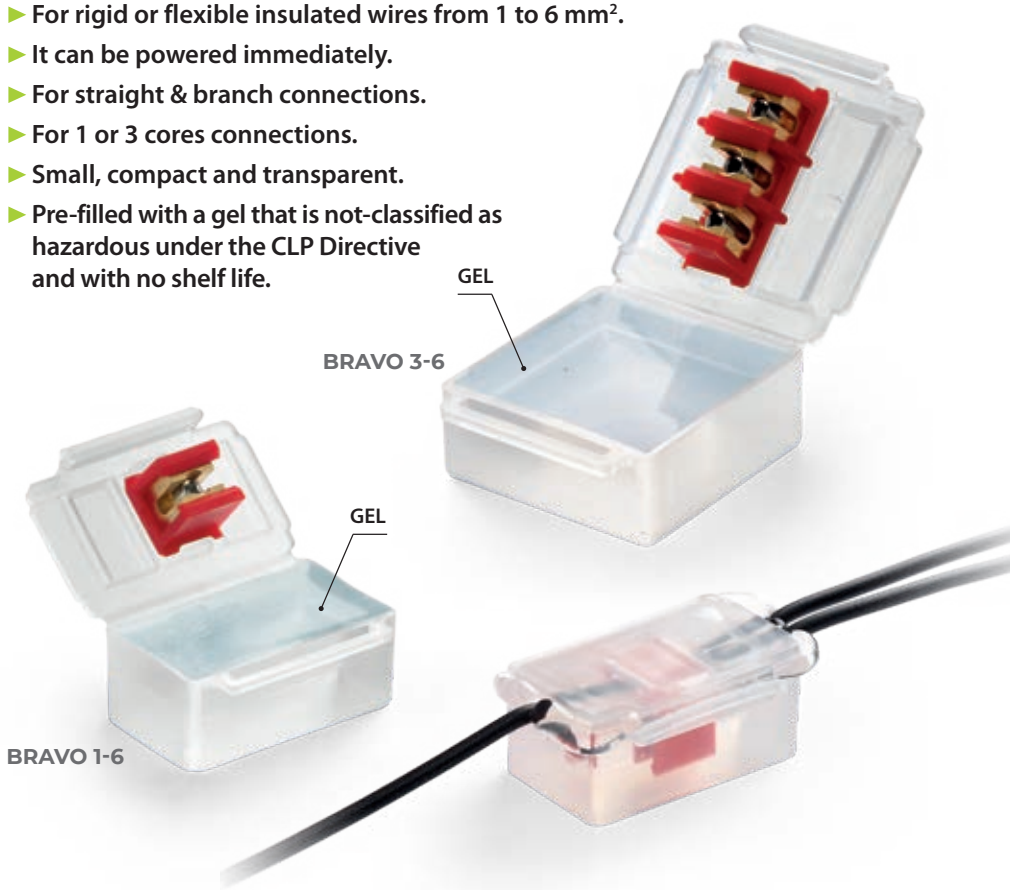
COVERS FOR TERMINAL BLOCKS / CONNECTORS

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°

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

Fully submersible

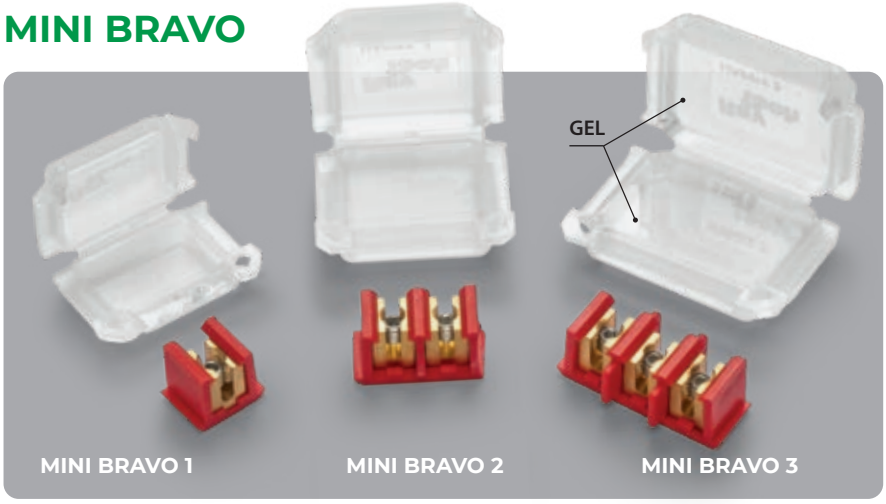
Can be used underground

Halogen-free Gel

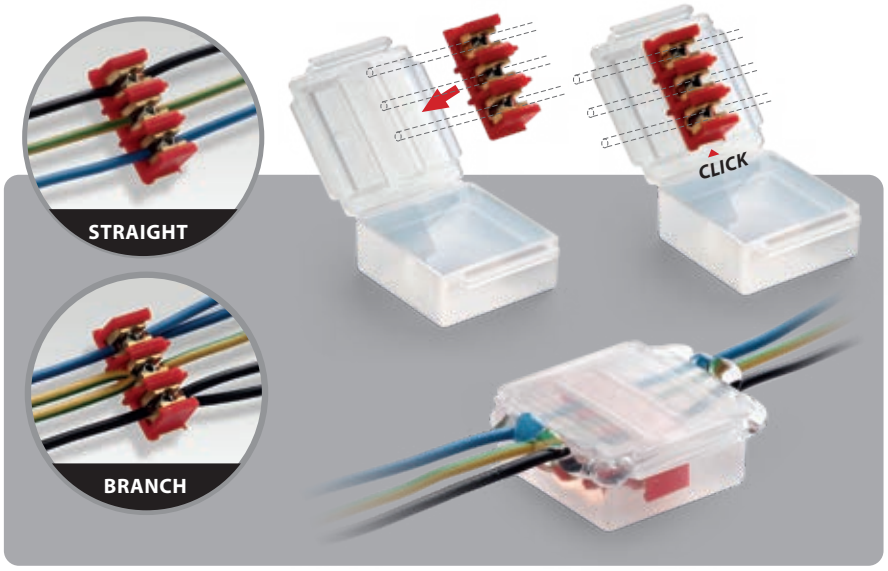
UV resistant

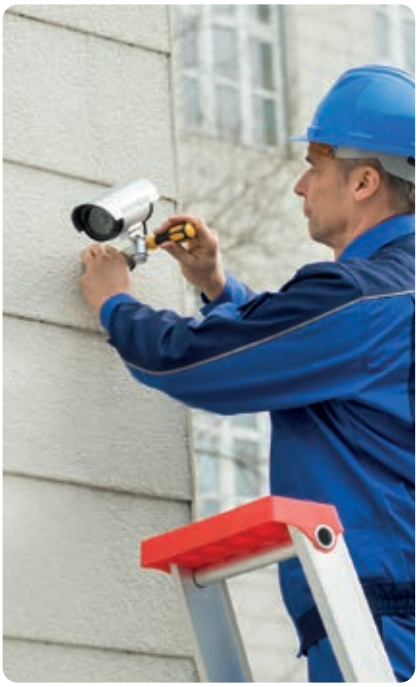
IPX8 OFFICIALLY TESTED | IMQ

MINI BRAVO



1 CONNECT 2 FIX 3 CLOSE





BRAVO

PRODUCT / Item	Formation and wires cross section: Straight or through (N° x mm²)	Branch (N° x mm²)	Package	Dimension (mm) (A, B, C)
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: Straight or through (N° x mm²)	Branch (N° x mm²)	Package	Dimension (mm) (A, B, C)
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
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
RUBBER JOINT
RAY CAST

HEAT-SHRINK
JOINTS / TERMINALS

NEW

Electrical performance:
- **CEI EN 50393** as applicable
- **Class 2** in accordance with **CEI 64-8.**

Gel: UL 94-HB

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**

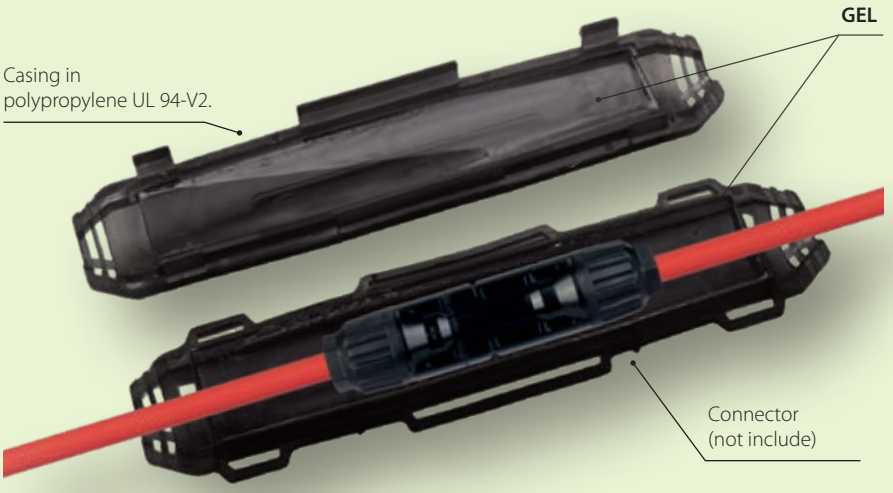
SOLARCOVER

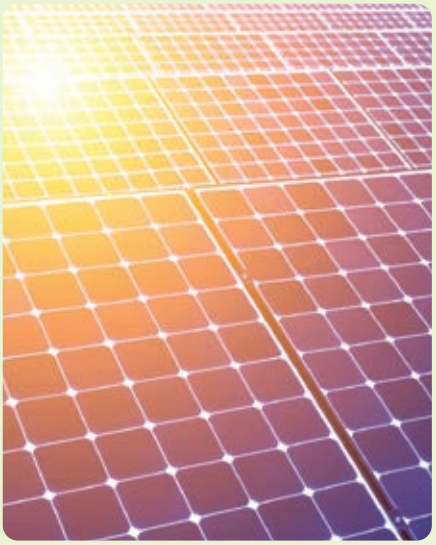
The extra dark cover with gel filler, for sealing connectors from 4 to 10 mm² for solar.

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

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

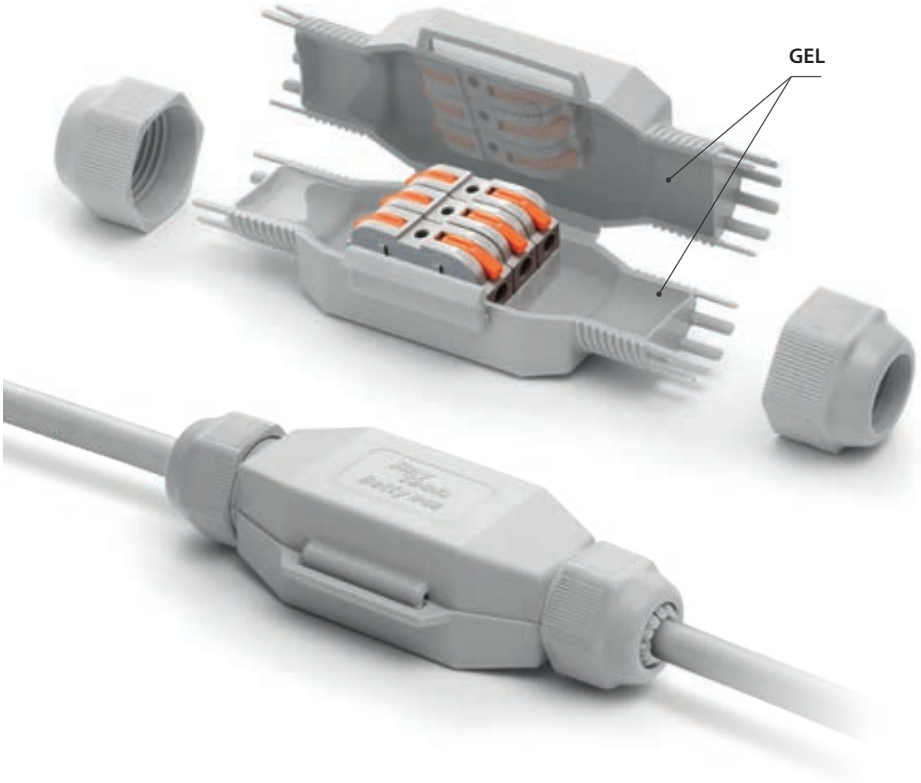
LITTLE JOINT EASY

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.**



Electrical performance:
- **CEI EN 50393** as applicable
- **Class 2** in accordance with **CEI 64-8.**

Gel: UL 94-HB

Working temperature: 90°

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

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

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

PRODUCT Item	Colour	Connector	Cable formation max (N° x mm²)	Cable Ø min - max (mm)	Pieces / Pack	A B C (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	A B C (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

LITTLE JOINT

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

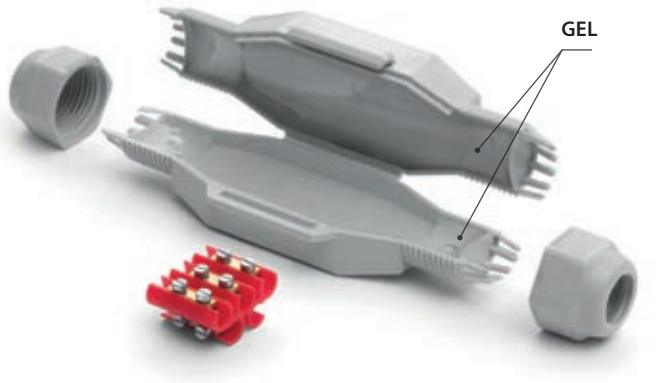
Extremely compact and space-saving, pre-filled with soft, highly conformable gel. With minimal aesthetic impact and visually pleasing. Equipped with integrated cable glands for IP68 and IP69K degree of ingress protection and cable retention.

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.**

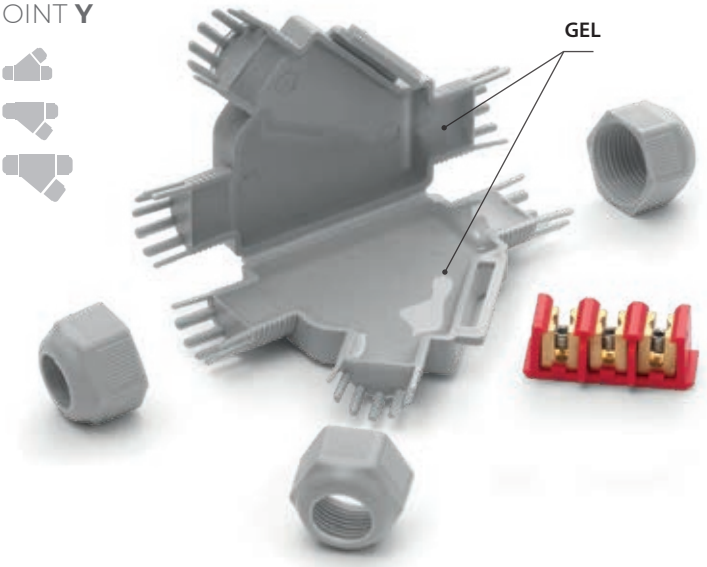
LITTLE JOINT L

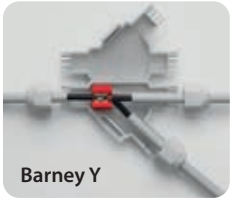
Barney
Fred
Dino
Betty
Tom

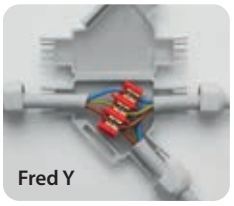


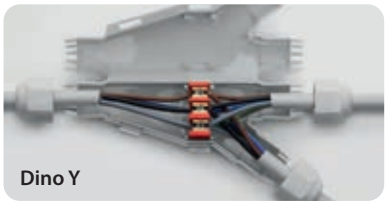
LITTLE JOINT Y

Barney Y
Fred Y
Dino Y









Electrical performance:
- **CEI EN 50393** as applicable
- **Class 2** in accordance with **CEI 64-8.**

Gel: UL 94-HB

Working temperature: 90°

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

Fully submersible

Can be used underground

Halogen-free Gel

UV resistant

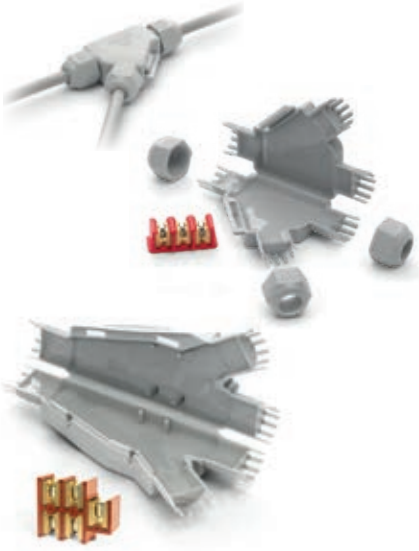
Self-extinguishing and resistant to abnormal heat and fire:
Glow Wire Flammability Index at +960° C according to EN60695-2-12

IP68 OFFICIALLY TESTED | IMQ | IP69K OFFICIALLY TESTED

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) Through	Max cable formation (N° x mm²) Branch	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



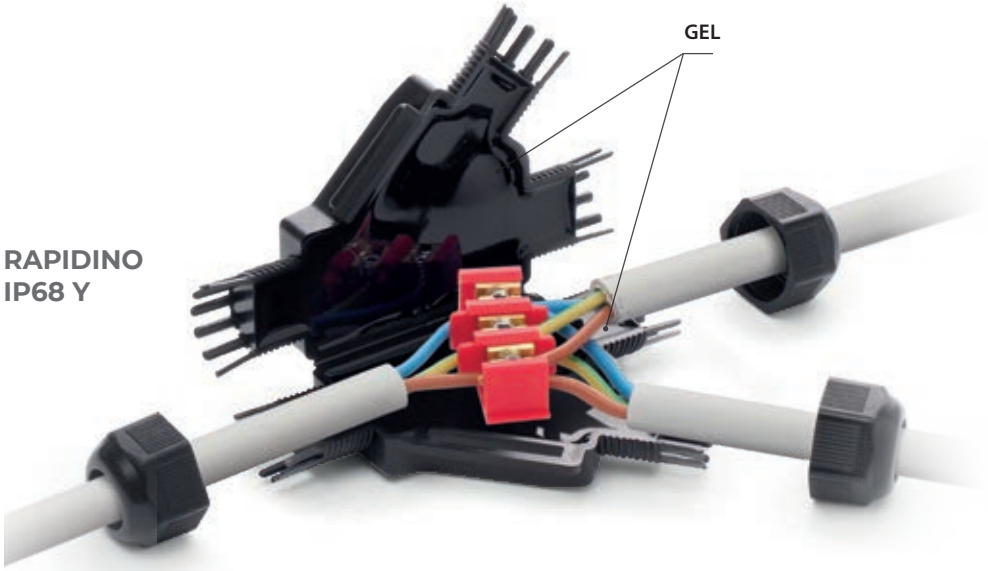
MINI RAPID JOINT IP68

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.**



RAPIDINO IP68 Y

Electrical performance:
- **CEI EN 50393** as applicable
- **Class 2** in accordance with **CEI 64-8.**

Gel: UL 94-HB

Working temperature: 90°

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

Fully submersible

Can be used underground

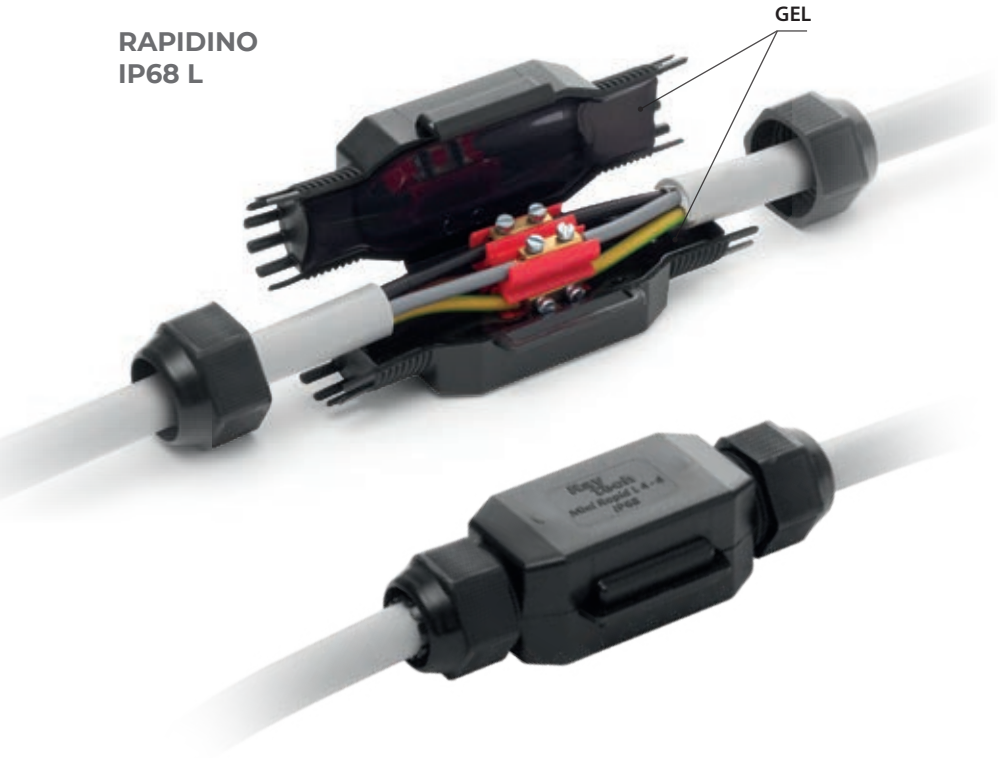
Halogen-free Gel

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 L



PRODUCT Item	Cable	Connector	Max cable formation (N° x mm²)	Cable Ø min - max (mm)	Pieces / Pack	A B C (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 PCS / Box	125 x 43 x 35

PRODUCT Item	Cable	Connector	Max cable formation (N° x mm²) Through	Branch	Cable Ø min - max (mm)	Pieces / Pack	A B C (mm)
RAPIDINO IP68 Y1 RAPIDINOY1			1 x 4 1 x 2,5	1 x 1,5 1 x 2,5	6 - 10	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	8 - 13	1 PCS / Box	110 x 72 x 25

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.

Electrical performance:
- **CEI EN 50393**
- **Class 2** in accordance with **CEI 64-8.**

Gel: UL 94-HB

Working temperature: 90°

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

Fully submersible

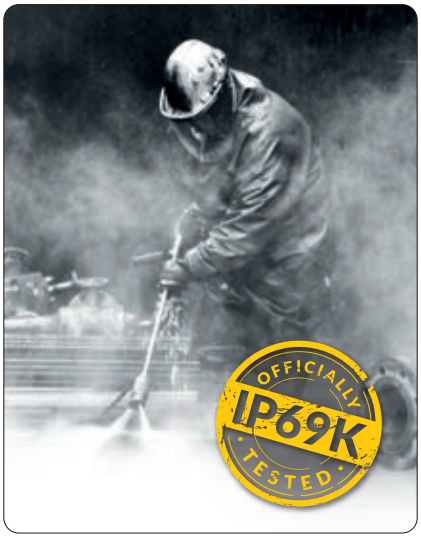
Can be used underground

Halogen-free Gel

UV resistant

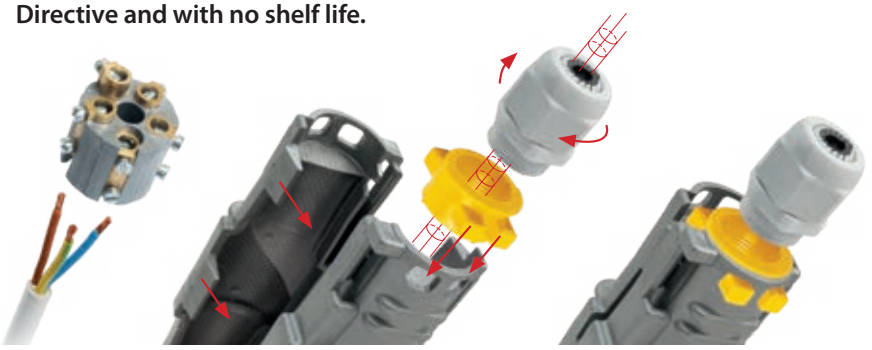
No flame propagation:
CEI 20-35 • IEC 60332-1 • HD405-1
(as applicable)

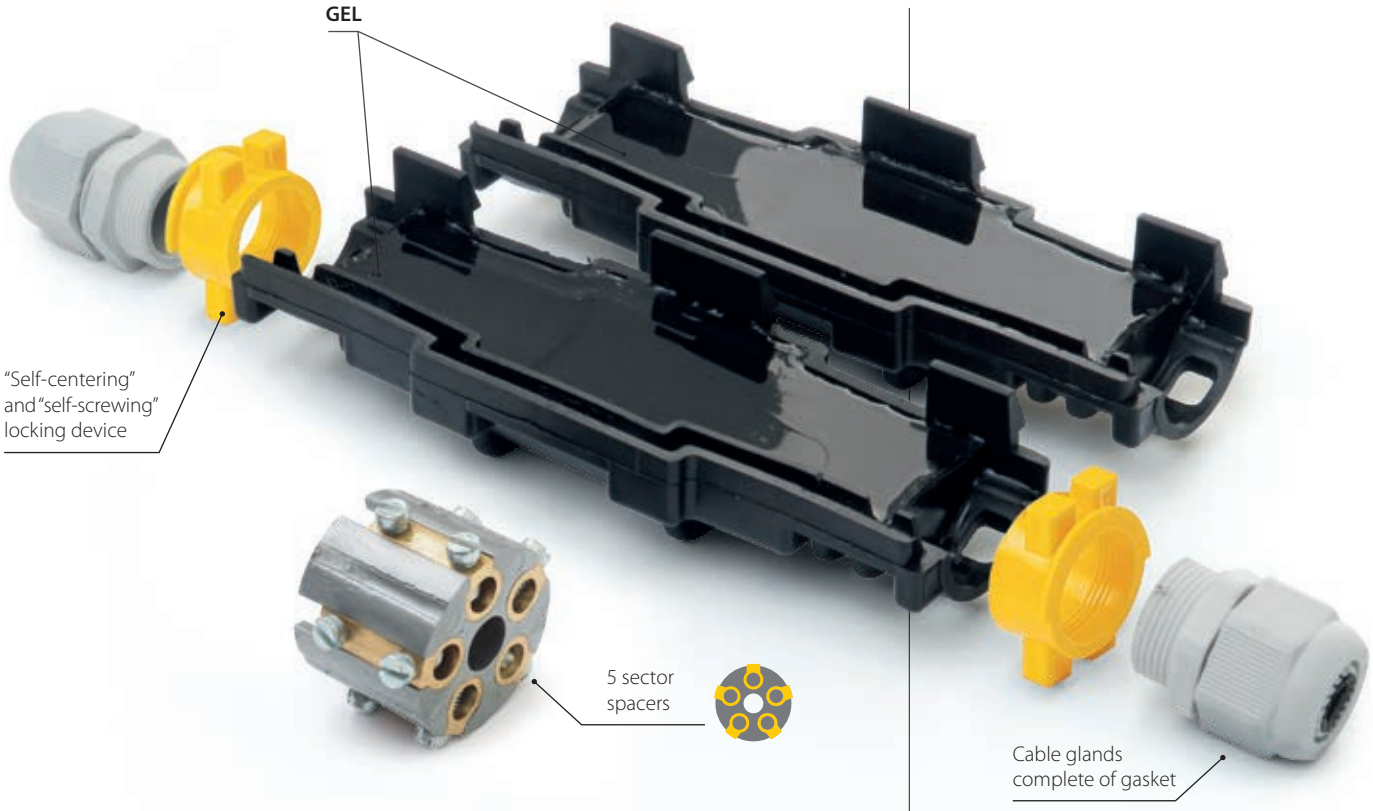
IP68 OFFICIALLY TESTED | IMQ IP69K OFFICIALLY TESTED



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.**





PRODUCT Item	Formation n°	Configuration IP68 Section (mm²)	Cable Ø (mm)	A x B (mm)	Configuration IPX8 Section (mm²)	Cable Ø (mm)	A x B (mm)
Rapid Joint L1,5-IP68 RAPIDJL1.5-IP68	•	4 - 25	8 - 13	155 x 55	1,5 - 50	20,5	105 x 55
		1,5 - 4			1,5 - 6		
		1,5 - 2,5			1,5 - 6		
		1,5			1,5 - 6		
		1,5			1,5 - 6		
Rapid Joint L6-IP68 RAPIDJL6-IP68	•	25 - 70	12 - 18	245 x 60	2,5 - 150	24	180 x 60
		2,5 - 6			2,5 - 10		
		2,5 - 6			2,5 - 10		
		2,5 - 6			2,5 - 10		
		2,5 - 6			2,5 - 10		
Rapid Joint L10-IP68 RAPIDJL10-IP68	•	70 - 95	16 - 20	275 x 65	120 - 240	31	210 x 65
		10			10 - 25		
		10			10 - 25		
		10			10 - 25		
		10			10 - 25		
Rapid Joint L25-IP68 RAPIDJL25-IP68	•	120 - 240	21 - 28	410 x 100	120 - 240	42	320 x 100
		25			10 - 50		
		16 - 25			10 - 50		
		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.

- **Pre-filled with a gel that is not-classified as hazardous under the CLP Directive and with no shelf life.**

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°

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

Fully submersible

Can be used underground

Halogen-free Resin

UV resistant

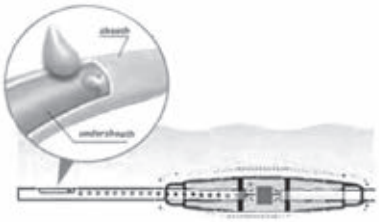
IP68
OFFICIALLY
TESTED

INNOVATIVE RESIN SOLUTIONS

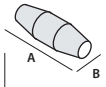
▶ EASY!
Scissors and nothing more!

▶ MULTICONNECTION!
Ideal for many types of connection

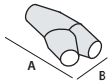
▶ INTEGRATED SOLUTIONS!
HOLE CASING technology - Anti-traction cable system using the supplied cable ties secured to the casing.



▶ 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 mm²) 1 x	2 x	3 x	4 x	5 x	(mm)
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 mm²) 1 x	2 x	3 x	4 x	5 x	(mm)
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	

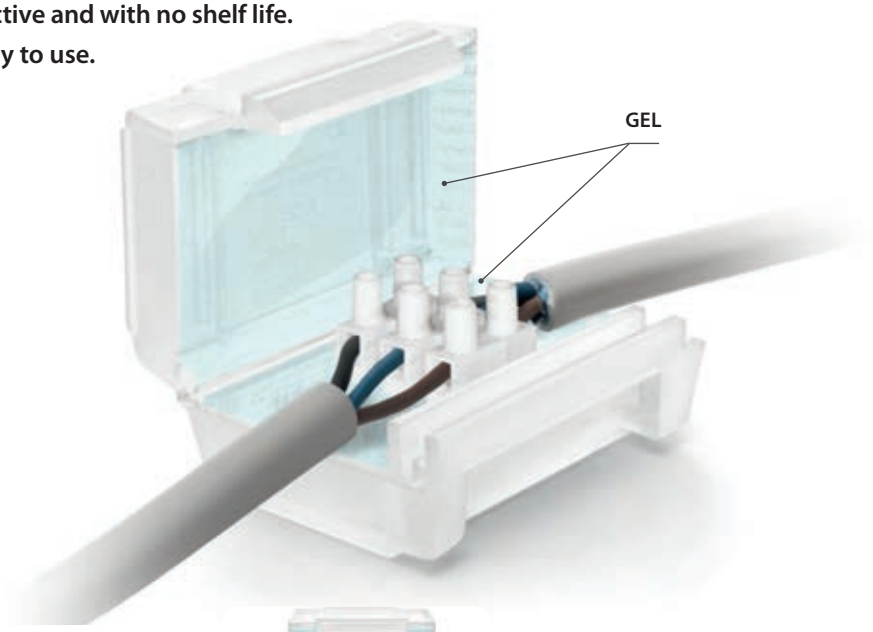
Each kit contains:
- Enclosure, complete with filler
- Cable ties
- Screw connection system
- 4x separator
- Rayteam black insulating tape

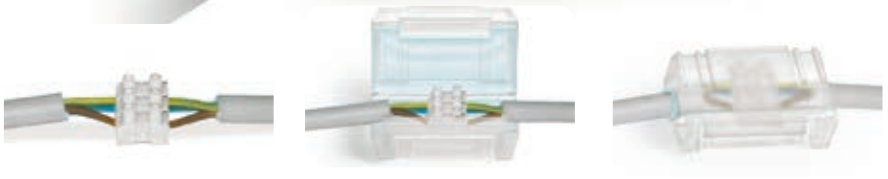
GEL COVER LINE

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°

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 mm²	1	blister	61 x 35 x 28
OHM PACK 11 OHMPACK11			11	box	
BAR BAR	○	3 from 4 mm² / 6 mm²	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 mm²	1	blister	61 x 35 x 28
MAMMUT GEL COVER MAMMUTGELCOVER			8	box	
GEL COVER 6 GELCOVER6	●	3 from 4 mm² / 6 mm²	1	blister	63 x 41 x 28
MAMMUT GEL COVER 6 MAMMUTGELCOVER6			6	box	

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

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 spécifications, with repeated flexing and torsion tests and immersion in water, it has been declared as conforming to the mechanical, electrical and sealing spécifications 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.**

Electrical performance:
- **CEI EN 50393** as applicable
- **Class 2** in accordance with **CEI 64-8.**

Gel: UL 94-HB

Casing mix: UL 94-V2

Working temperature: 90°

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

Fully submersible

Can be used underground

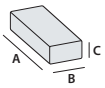
Halogen-free Gel

UV resistant

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

IPX8 OFFICIALLY TESTED | IMQ

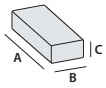
SUPER CLIK MINI



PRODUCT Item	Cable formation and conductor cross sections (n° x mm²) Straight Connections In line	Branch connections T	Branch connections B	max cables Ø (mm)	(mm)
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

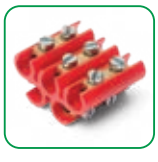


PRODUCT Item	Cable formation and conductor cross sections (n° x mm²) Straight Connections In line	Branch connections T	Branch connections B	max cables Ø (mm)	(mm)
SUPER CLIK 0 SUPERCLIK0	3 x 1,5 - 6	3 x 1,5 - 4	3 x 1,5 - 2,5	14	95 x 43 x 28

T : Through cable - **B** : Branch cable

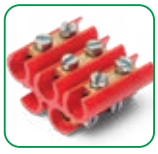
PRODUCT	In line	T	B	max cables Ø (mm)	(mm)
SUPER CLIK 1 SUPERCLIK1	2 x 1,5 - 6 3 x 1,5 - 6 4 x 1,5 - 6 5 x 1,5 - 6	2 x 4 3 x 4 4 x 4 5 x 4	2 x 2,5 3 x 2,5 4 x 2,5 5 x 2,5	20,5	150 x 56 x 30

T : Through cable - **B** : Branch cable



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

T : Through cable - **B** : Branch cable



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

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

Casing mix: UL 94-V2

Working temperature: 90°

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

Fully submersible

Can be used underground

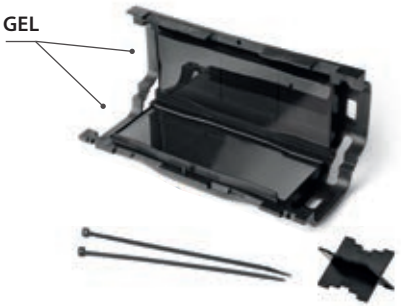
Halogen-free Gel

UV resistant

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

RINA

IPX8
OFFICIALLY TESTED



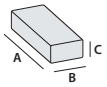
Sections based on extruded 0,6/1 kV cable.

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.**

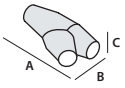
STRAIGHT OR BRANCH MULTI CORE JOINTS



PRODUCT / Item	Cable formation and conductor cross sections (n° x mm²) Through or straight	1 or 2 branch cables	max cables Ø (mm) Through or straight	Branch	Dimension (mm)
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

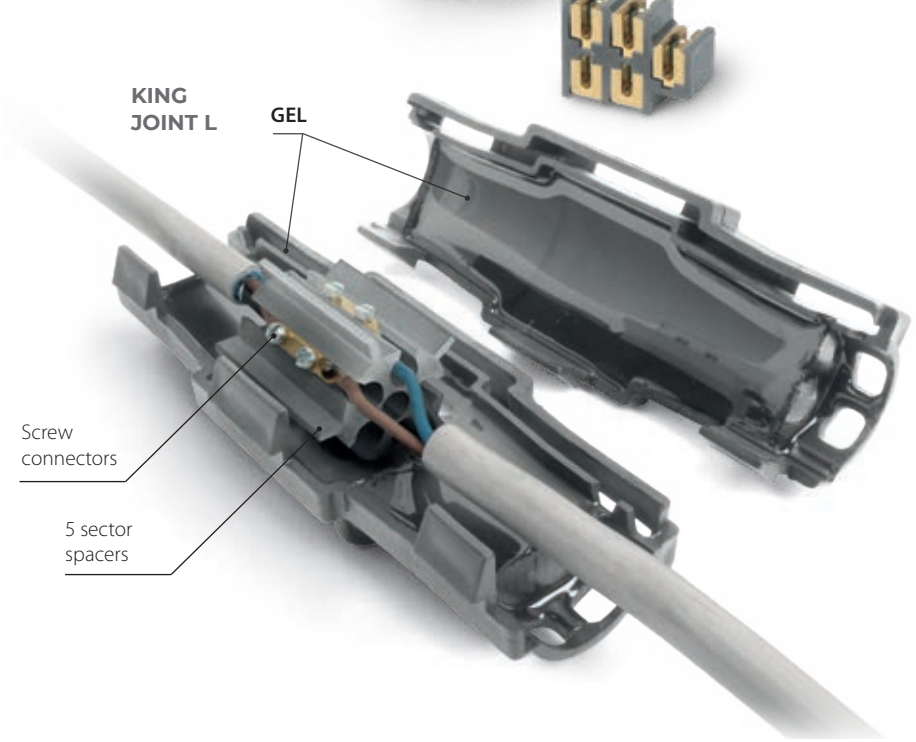
KING JOINT

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.**
- **Re-accessible.**
- **Flame retardant.**
- **Non-toxic, safe and not classified as hazardous under CLP Directive.**



Electrical performance:
- **CEI EN 50393**
- **Class 2** in accordance with **CEI 64-8.**

Gel: UL 94-HB

Casing mix: UL 94-V2

Working temperature: 90°

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

Fully submersible

Can be used underground

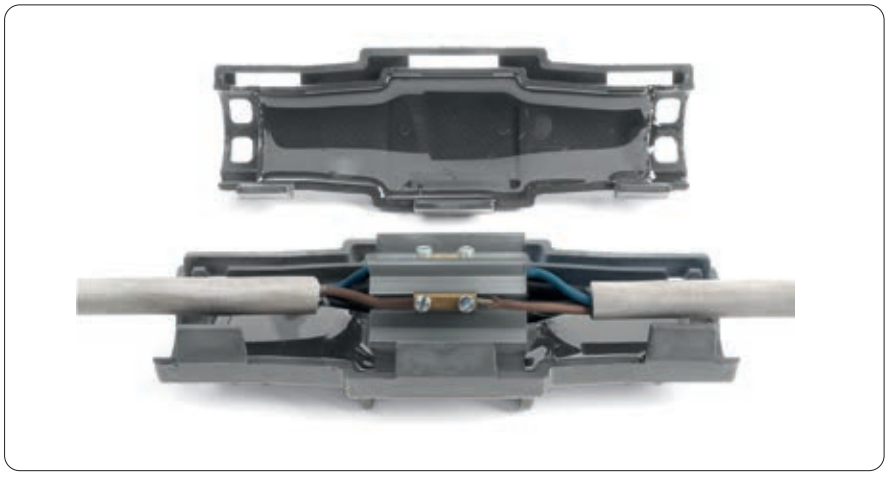
Halogen-free Gel

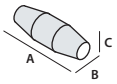
No flame propagation:
CEI 20-35 • IEC 60332-1 • HD405-1
(as applicable)
Low smoke and toxic and corrosive gas emissions.

Degree of protection: IPX8

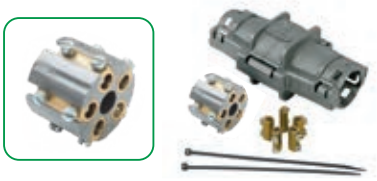
KING JOINT L

Straight joints, including armoured cable.





PRODUCT / Item	LINE CONNECTIONS Cable formation and conductor cross sections (n° x mm²)	max cables Ø (mm)	Dimension (mm)
KING JOINT 0 blister RAYKJOINT0	2 x 1,5 - 6 3 x 1,5 - 6 4 x 1,5 - 6 5 x 1,5 - 6	20,5	105 x 55 x 55
KING JOINT L6 box RAYKJOINTL6	2 x 1,5 - 6 3 x 1,5 - 6 4 x 1,5 - 6 5 x 1,5 - 6	20,5	105 x 55 x 55



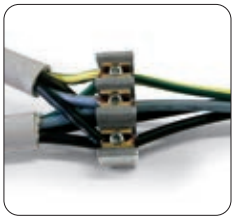
PRODUCT / Item	LINE CONNECTIONS Cable formation and conductor cross sections (n° x mm²)	max cables Ø (mm)	Dimension (mm)
KING JOINT L10 RAYKJOINTL10 **KING JOINT L10 - ARM** RAYKJL10ARM	2 x 2,5 - 10 3 x 2,5 - 10 4 x 2,5 - 10 5 x 2,5 - 10	24	180 x 60 x 60

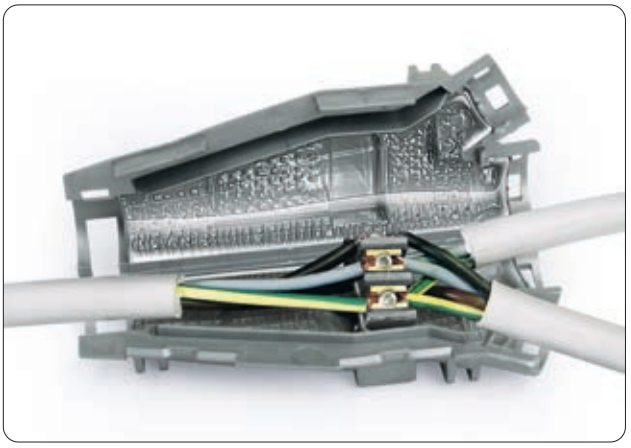
PRODUCT / Item	LINE CONNECTIONS Cable formation and conductor cross sections (n° x mm²)	max cables Ø (mm)	Dimension (mm)
KING JOINT L25 RAYKJOINTL25 **KING JOINT L25 - ARM** RAYKJL25ARM	2 x 10 - 25 3 x 10 - 25 4 x 10 - 25 5 x 10 - 25	31	210 x 65 x 65

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

KING JOINT Y

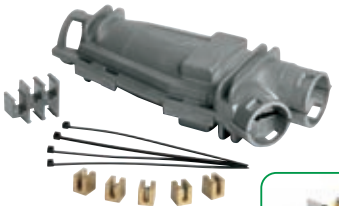
Branch joints, including armoured cable.





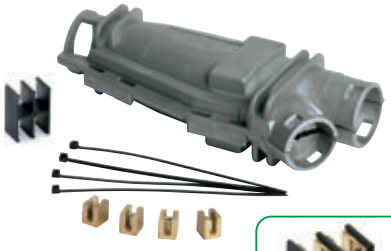
PRODUCT / Item	BRANCH CONNECTIONS Cable formation and conductor cross sections (n° x mm²) T	B	max cables Ø (mm) T	B	Dimension (mm)
KING JOINT Y6 KINGJ-Y6 **KING JOINT Y6 - ARM** KINGJ-Y6ARM	2 x 1,5 - 6 3 x 1,5 - 6 4 x 1,5 - 6 5 x 1,5 - 6	2 x 1,5 - 4 3 x 1,5 - 4 4 x 1,5 - 4 5 x 1,5 - 4	22,5	18,5	138 x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

T : Through cable - **B** : Branch cable



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

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) T	B	max cables Ø (mm) T	B	Dimension (mm)
KING JOINT Y35 KINGJ-Y35 **KING JOINT Y35 - ARM** KINGJ-Y35ARM	2 x 10 - 35 3 x 10 - 35 4 x 10 - 35*	2 x 1,5 - 6 3 x 1,5 - 6 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**.

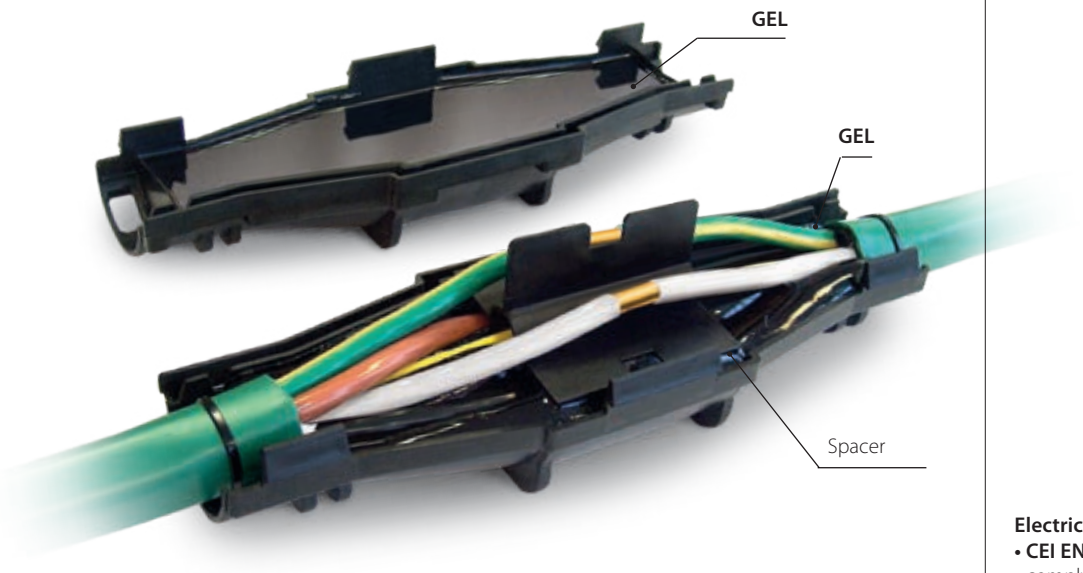
RAPID JOINT

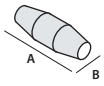
Radial closing gel pre-filled joint for extruded insulation cables up to 1 kV.

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**	Cable formation and conductor cross sections (n° x mm²) 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°

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

Fully submersible

Can be used underground

Halogen-free Gel

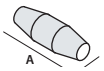
No flame propagation:
CEI 20-35 • IEC 60332-1 • HD405-1 (as applicable)

Degree of protection: IPX8

Joint supplied with
armour continuity device

RAPID JOINT S/ARM

For screened or tape or wire armoured cables.

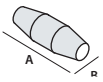


For **copper wire** SCREENED cables **PRODUCT / Item**	Cable formation and conductor cross sections (n° x mm²) 1x	2x	3x	4x	With fiber-optic separator 4x	Dimension (mm)
RAPID JOINT L 10-S 301098-035	2,5 - 120	2,5 - 10	2,5 - 10	2,5 - 10	-	180 x 60
RAPID JOINT L 25-S 301098-036	120 - 185	16 - 25	10 - 25	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

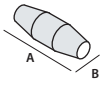
For signalling and control cables.



PRODUCT Item	Conductors (mm²)	Cable formation (n° conduttori) 5x	7x	10x	12x	16x	19x	24x	40x	75x	100x	Dimension (mm)
RAPID JOINT-LS1 301098-018	1,5	•	•	•	•	•	•					180 x 60
	2,5	•	•	•	•							
RAPID JOINT-LS2 301098-019	1,5					•	•	•	•			210 x 65
	2,5			•	•	•	•	•				
RAPID JOINT-LS3 301098-020	1,5						•	•	•	•	•	320 x 100
	2,5						•	•	•	•	•	

RAPID JOINT T

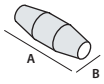
Straight joints for telephone cables.



UNscreened **PRODUCT / Item**	SCREENED **PRODUCT / Item**	N° pairs for conductor cross sections (n° x mm²)	Dimension (mm)
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

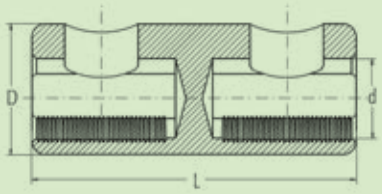
RAPID JOINT SYSTEM FAST RP

Straight joint + Shear bolt connectors.



PRODUCT / Item	Cable formation from 2x a 4x (n° x mm²)	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* (mm²)	Copper cross sections (mm²)	Breakaway torque (Nm)	Dimension L (mm)	D (mm)	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.

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.

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°

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

Fully submersible

Can be used underground

Halogen-free Gel

IP68
OFFICIALLY
TESTED

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.**

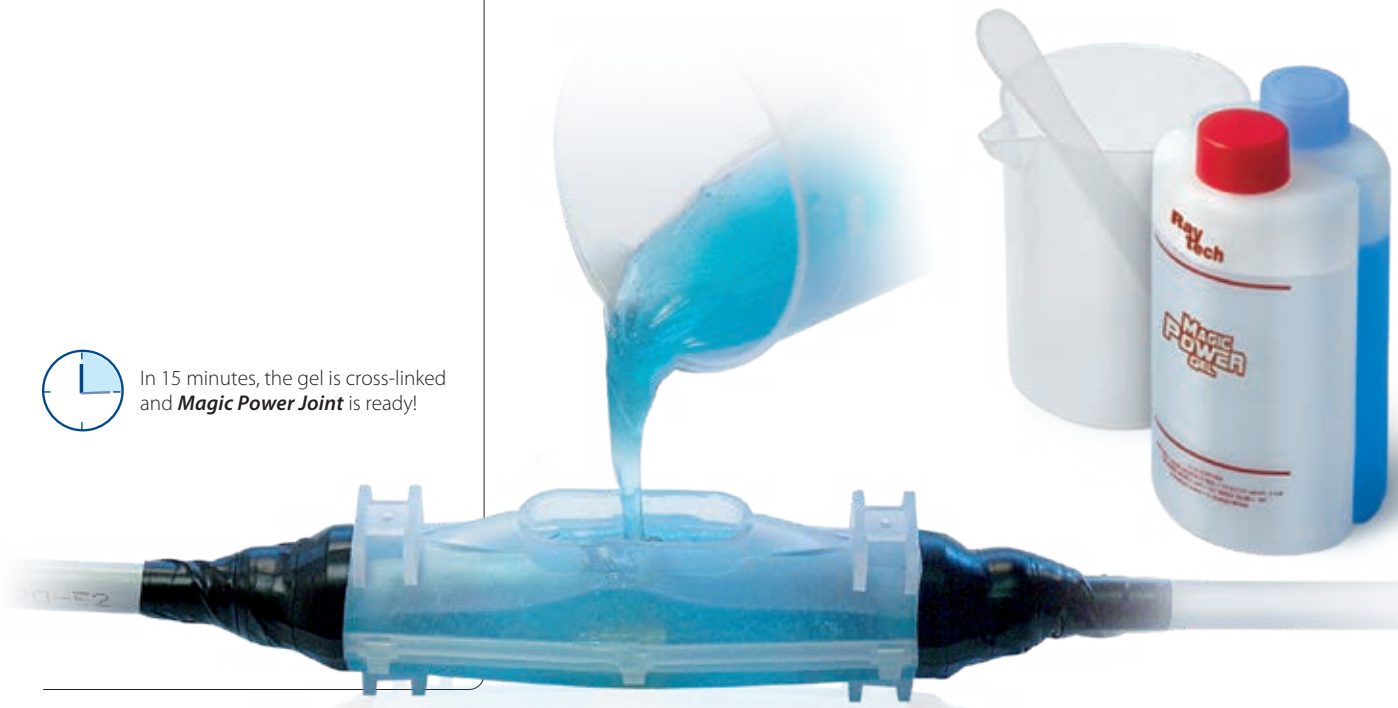
RE-ENTERABLE

REMOVABLE

INSPECTIONABLE

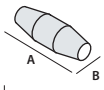
REUSABLE

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.



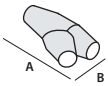
For **COPPER** cables **PRODUCT / Item**	Cable formation and conductor cross sections (n° x mm²) 1x	2x	3x	4x	max cable Ø (mm)	Dimension (mm)
MAGIC P JOINT L10 MPOWERJOINT-L10	2,5 - 50	1,5 - 10	1,5 - 10	1,5 - 10 *	8 - 16	180 x 50
MAGIC P JOINT L25 MPOWERJOINT-L25	16 - 150	4 - 25	4 - 25	2,5 - 25	8 - 32	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 10 suggested for cable diameters smaller than 16 mm.

MAGIC POWER JOINT Y

Branch joint for 0.6/1 kV extruded cables.

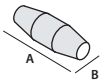


For **COPPER** cables **PRODUCT / Item**	Cable formation and conductor cross sections (n° x mm²) 1x **T**	**B**	2x **T**	**B**	3x **T**	**B**	4x **T**	**B**	max cables Ø (mm) **T**	**B**	Dimension (mm)
MAGIC P JOINT Y6 MPOWERJOINT-Y6	4 - 50	4 - 50	4 - 10	4 - 10	2,5 - 6	2,5 - 6	2,5 - 6	2,5 - 6	8 - 27	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.

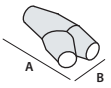


For **COPPER** cables **PRODUCT / Item**	Cable formation and conductor cross sections (n° x mm²) 1x	2x	3x	4x	max cable Ø (mm)	Dimension (mm)
MAGIC P JOINT L10-S MPOWERJOINT-L10S	2,5 - 50	1,5 - 10	1,5 - 6	1,5 - 6	8 - 16	180 x 50
MAGIC P JOINT L25-S MPOWERJOINT-L25S	16 - 120	4 - 25	4 - 16	2,5- 16	8 - 32	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 MPOWERJOINTL120S	240 - 500	70 - 120	70 - 120	50 - 95	25 - 50	365 x 95
MAGIC P JOINT L240-S MPOWERJOINTL240S	400 - 1000	120 - 300	120 - 185	120 - 185	30 - 75	510 x 120
MAGIC P JOINT L300-S MPOWERJOINTL300S	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 MPOWERJOINTL120S	185 - 400	25 - 95	25 - 95	25 - 95	25 - 50	365 x 95
MAGIC P JOINT L240-S MPOWERJOINTL240S	400 - 630	95 - 185	95 - 185	95 - 185	30 - 75	510 x 120
MAGIC P JOINT L300-S MPOWERJOINTL300S	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.



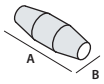
For **COPPER** cables

PRODUCT	**Item**	Cable formation and conductor cross sections (n° x mm²) 1x **T**	1x **B**	2x **T**	2x **B**	3x **T**	3x **B**	4x **T**	4x **B**	max cables Ø (mm) **T**	max cables Ø (mm) **B**	Dimension (mm)
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*	MPOWERJOINTY240S	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.

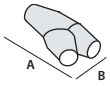


For **COPPER** cables **PRODUCT / Item**	Cable formation and conductor cross sections (n° x mm²) 2x	3x	4x	max cables Ø (mm)	Dimension (mm)
MAGIC P JOINT L10-ARM MPJOINTL10-ARM	1,5 - 10	1,5 - 6	1,5 - 6	8 - 16	180 x 50
MAGIC P JOINT L25-ARM MPJOINTL25-ARM	4 - 25	4 - 16	2,5 - 16	8 - 32	215 x 55
MAGIC P 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.



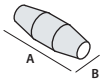
For WIRE armoured **COPPER** cables		Cable formation and conductor cross sections (n° x mm²) 2x		3x		4x		max cables Ø (mm)		Dimension (mm)
PRODUCT	**Item**	**T**	**B**	**T**	**B**	**T**	**B**	**T**	**B**	
MAGIC P JOINT Y6-ARM-F	MPJOINTY6-ARM-F	4 - 10	4 - 10	2,5 - 6	2,5 - 6	2,5 - 6	2,5 - 6	8 - 27	8 - 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) 2x		3x		4x		max cables Ø (mm)		Dimension (mm)
PRODUCT	**Item**	**T**	**B**	**T**	**B**	**T**	**B**	**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

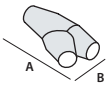
Straight joint for signaling and control multi core extruded 0,6/1 kV cables



PRODUCT	Item	Conductor (mm²)	Cable formation (n° conductors) 5x	7x	10x	12x	16x	19x	24x	40x	75x	100x	250x	500x	max cables Ø (mm)	Dimension (mm)
MAGIC P JOINT SL11	MPOWERJOINTSL11	1,5	•	•	•	•	•								8 - 16	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.

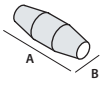


PRODUCT	Item	Conductor (mm²)	Cable formation (n° conductors) 5x	7x	10x	12x	16x	19x	24x	40x	75x	100x	250x	500x	max cables Ø (mm) T	max cables Ø (mm) B	Dimension (mm)
MAGIC P JOINT SY1	MPOWERJOINTSY1	1,5	•	•	•	•	•	•							8 - 27	8 - 27	180 x 90
		2,5	•	•	•	•											
MAGIC P JOINT SY2	MPOWERJOINTSY2	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

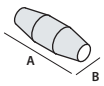
Straight joint for Telecom cables.



UNSCREENED PRODUCT	Item	SCREENED PRODUCT	Item	N° pairs per conductor cross sections (n° x mm²)	max cables Ø (mm)	Dimension (mm)
MAGIC P JOINT T16	MPOWERJOINT-T16	**MAGIC P JOINT TS16**	MPOWERJOINT-TS16	1 - 16 x 0,5 - 0,6	8 - 16	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**	MPOWERJOINTTS500	60 - 500 x 0,5 - 0,6	30 - 75	510 x 120
MAGIC P JOINT T1000	MPOWERJOINTT1000	**MAGIC P JOINT TS1000**	MPOWERJ-TS1000	450 - 1000 x 0,5 - 0,6	41 - 78	760 x 180

MAGIC POWER JOINT SYSTEM PLUS L

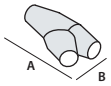
Straight joint + Five-core spacer + Screw connectors.



For **COPPER** cables **PRODUCT / Item**	Cable formation and conductor cross sections (n° x mm²) 2x	3x	4x	5x	max cables Ø (mm)	Dimension (mm)
MAGIC P JOINT SP L6 MPOWERJSPL6	1,5 - 6	1,5 - 6	1,5 - 6	1,5 - 6	8 - 16	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.

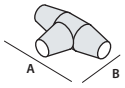


For **COPPER** cables **PRODUCT / Item**	Cable formation and conductor cross sections (n° x mm²) 2x T	B	3x T	B	4x T	B	5x T	B	max cables Ø (mm)	(mm)
MAGIC P JOINT SP Y6 MPOWERJSPY6	1,5-6	1,5-4	1,5-6	1,5-4	1,5-6	1,5-4	1,5-6	1,5-4	**T** 8 - 27 **B** 8 - 27	180 x 90
MAGIC P JOINT SP Y16 MPOWERJSPY16	4-16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

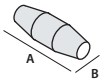


For **COPPER** cables **PRODUCT / Item**	Cable formation and conductor cross sections (n° x mm²) 2x T	B	3x T	B	4x T	B	max cables Ø (mm)	(mm)
MAGIC P JOINT SP T35 MPOWERJSPT35	6 - 35	1,5 - 10	6 - 35	1,5 - 10	6 - 35	1,5 - 10	**P** 22 - 42 **D** 22 - 42	305 x 155

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

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°

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

Fully submersible

Can be used underground

Halogen-free Gel

IP68

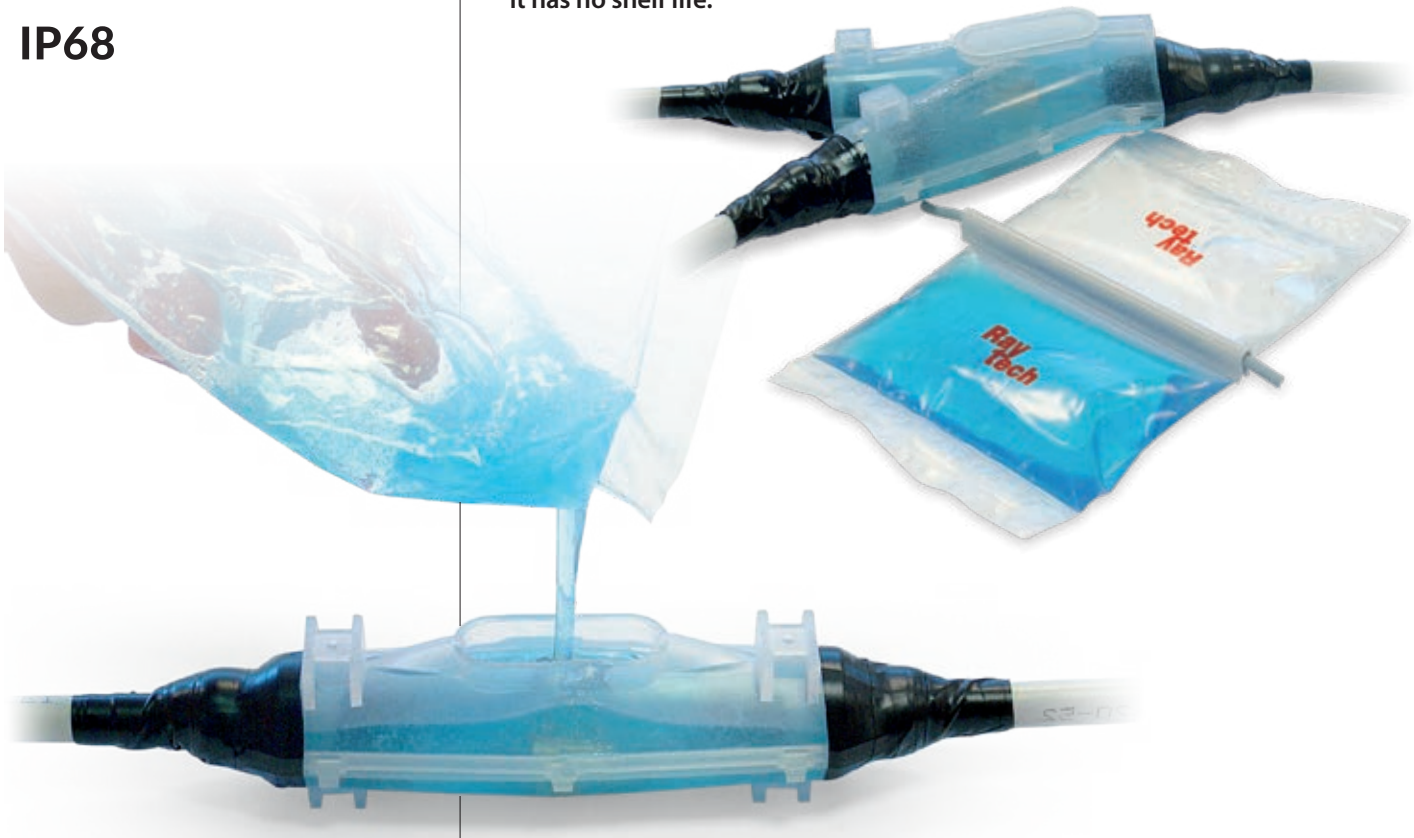
MAGIC JOINT

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

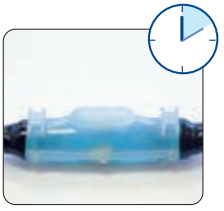
- **Quick cross linking gel, (only 10 minutes at 23°C) .**
- **Extremely adherent and tight sealing.**
- **The gel is not-classified as hazardous under the CLP Directive and it has no shelf life.**



Slip off the separator.

Mix for a minute.

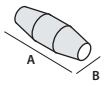
Pour within a minute.



After 10 minutes,
Magic joint is ready.

MAGIC JOINT

Straight joint for 0.6/1 kV extruded cables.



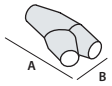
For **COPPER** cables **PRODUCT / Item**	Cable formation and conductor cross sections (n° x mm²) 1x	2x	3x	4x	max cables Ø (mm)	Dimension (mm)
MAGIC JOINT 4 100004-002	1,5 - 25	1,5 - 4	1,5 - 4	1,5 - 4	10 - 18	160 x 45
MAGIC JOINT 10 100001-MAG	2,5 - 50	1,5 - 10	1,5 - 10	1,5 - 10 *	8 - 16	180 x 50
MAGIC 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.

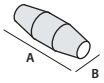


For **COPPER** cables **PRODUCT**	Cable formation and conductor cross sections (n° x mm²) 1x T	1x B	2x T	2x B	3x T	3x B	4x T	4x B	max cables Ø (mm) T	max cables Ø (mm) B	Dimension (mm)
MAGIC JOINT Y6 100006-MAG	4 - 50	4 - 50	4 - 10	4 - 10	2,5 - 6	2,5 - 6	2,5 - 6	2,5 - 6	8 - 27	8 - 27	180 x 90
MAGIC JOINT 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

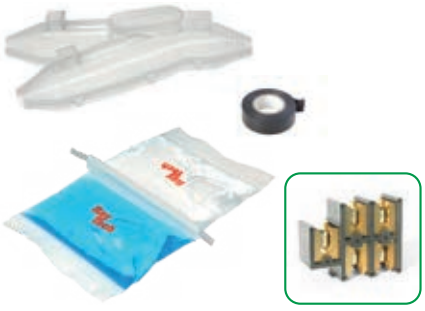
* also for aluminium cables. **T** : Through - **B** : Branch

MAGIC JOINT SYSTEM PLUS L

Straight joint + Five-core spacer + Screw connectors.

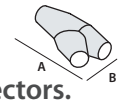


For **COPPER** cables **PRODUCT / Item**	Cable formation and conductor cross sections (n° x mm²) 2x	3x	4x	5x	max cables Ø (mm)	Dimension (mm)
Magic Joint SP L6 MAGICJSPL6	1,5 - 6	1,5 - 6	1,5 - 6	1,5 - 6	8 - 16	180 x 50
Magic Joint SP L16 MAGICJSPL16	4 - 16	4 - 16	4 - 16	4 - 16	8 - 32	215 x 55
Magic Joint SP L25 MAGICJSPL25	4 - 25	4 - 25	4 - 25	4 - 25	8 - 32	215 x 65



MAGIC JOINT SYSTEM PLUS Y

Y branch joint with cast gel + Five-core spacer + Screw connectors.

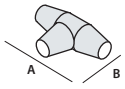


For **COPPER** cables **PRODUCT / Item**	Cable formation and conductor cross sections (n° x mm²) 2x T	B	3x T	B	4x T	B	5x T	B	max cables Ø (mm)	(mm)
MAGIC JOINT SP Y6 MAGICJSPY6	1,5-6	1,5-4	1,5-6	1,5-4	1,5-6	1,5-4	1,5-6	1,5-4	**T** 8 - 27 **B** 8 - 27	180 x 90
MAGIC JOINT SP Y16 MAGICJSPY16	4-16	1,5-4	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 JOINT SYSTEM PLUS T

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

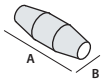


For **COPPER** cables **PRODUCT / Item**	Cable formation and conductor cross sections (n° x mm²) 2x T	B	3x T	B	4x T	B	max cables Ø (mm)	(mm)
MAGIC JOINT SP T35 MAGICJSPT35	6 - 35	1,5 - 10	6 - 35	1,5 - 10	6 - 35	1,5 - 10	**T** 22 - 42 **B** 22 - 42	305 x 155

T : Through - **B** : Branch

MAGIC JOINT 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)
MAGIC JOINT L 35- RP/16 MAGICJL35RP16	1,5 - 16	12 - 33	232 x 70
MAGIC JOINT L 35- RP/35 MAGICJL35RP35	10 - 35	12 - 33	232 x 70
MAGIC JOINT L 50- RP/50 MAGICJL50RP50	25 - 50	14 - 34	266 x 72
MAGIC JOINT L 120- RP/120 MAGICJL120RP120	35 - 120	25 - 50	365 x 95
MAGIC JOINT L 240- RP/150 MAGICJL240RP150	35 - 150	30 - 75	510 x 120

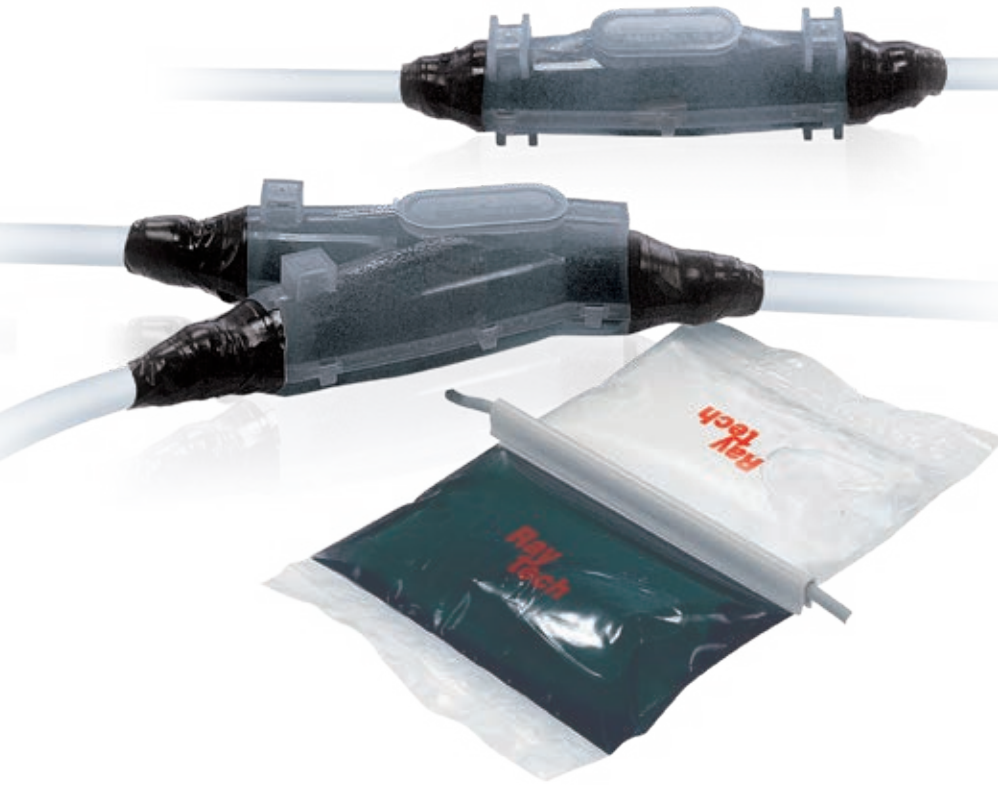
RUBBER JOINT

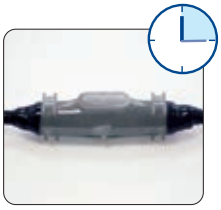
Straight or branch joint with two-component cast quick cross linking rubber insulation for 0.6/1 kW cables.

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.**





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

Working temperature: 90°

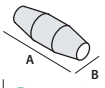
Installation temperature: -15°C / +55°C

Can be used underground

IP68

RUBBER JOINT

Straight joint for 0.6/1 kV extruded cables.



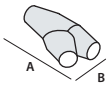
For **COPPER** cables

PRODUCT / Item	Cable formation and conductor cross sections (n° x mm²) 1x	2x	3x	4x	max cables Ø (mm)	Dimension (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 - 16	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.

RUBBER JOINT Y

Branch joint for 0.6/1 kV extruded cables.



For **COPPER** cables

PRODUCT	Item	Cable formation and conductor cross sections (n° x mm²) 1x T	1x B	2x T	2x B	3x T	3x B	4x T	4x B	max cables Ø (mm) T	max cables Ø (mm) B	Dimension (mm)
RUBBER JOINT Y6	RUBBERJOINTY6	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
RUBBER JOINT Y25	RUBBERJOINTY25	50 - 150	50 - 150	10 - 25	10 - 25	6 - 25	6 - 16	6 - 25	6 - 10	8 - 32	8 - 32	220 x 105
RUBBER JOINT Y95	RUBBERJOINTY95	120 - 400	95 - 240	25 - 95	16 - 50	25 - 95	16 - 50	25 - 95	10 - 50	15 - 42	8 - 32	315 x 115
RUBBER JOINT Y240*	RUBBERJOINTY240	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

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.

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

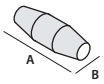
Working temperature: 90°

Installation temperature: 0°C / +45°C

Can be used underground

RAYCAST L

Straight joint.

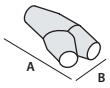


For **COPPER** cables **PRODUCT / Item**	Cable formation and conductor cross sections (n° x mm²) 1x	2x	3x	4x	max cables Ø (mm)	Dimension (mm)
RAYCAST L10 100001-000	2,5 - 50	1,5 - 10	1,5 - 10	1,5 - 10 *	8 - 16	180 x 50
RAYCAST L16/25 100002-000	16 - 150	4 - 25	4 - 25	2,5 - 25	8 - 32	215 x 55
RAYCAST 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.

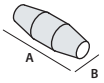


For **COPPER** cables **PRODUCT**	Cable formation and conductor cross sections (n° x mm²) 1x T	B	2x T	B	3x T	B	4x T	B	max cables Ø (mm) T	B	Dimension (mm)
RAYCAST D6 100006-000	4 - 50	4 - 50	4 - 10	4 - 10	2,5 - 6	2,5 - 6	2,5 - 6	2,5 - 6	8 - 27	8 - 27	180 x 90
RAYCAST D16/D25 100016-000	50 - 150	50 - 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

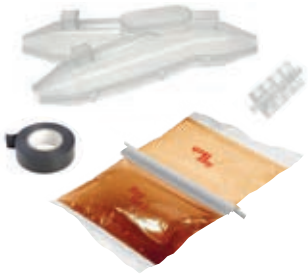
RAYCAST L-S

Screened joint.



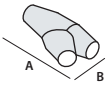
For **COPPER** cables **PRODUCT / Item**	Cable formation and conductor cross sections (n° x mm²) 1x	2x	3x	4x	max cables Ø (mm)	Dimension (mm)
RAYCAST L10-S 100001-00S	2,5 - 50	1,5 - 10	1,5 - 6	1,5 - 6	8 - 16	180 x 50
RAYCAST L25-S 100025-00S	16 - 120	4 - 25	4 - 16	2,5- 16	8 - 32	215 x 55
RAYCAST L35-S 100035-00S	16 - 185	16 - 35	16 - 25	16 - 25	12 - 33	232 x 70
RAYCAST L50-S 100050-00S	50 - 240	16 - 50	16 - 50	16 - 50	14 - 34	266 x 72
RAYCAST L120-S 100120-00S	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 100050-00S	16 - 150	16 - 25	16 - 25	16 - 25	14 - 34	266 x 72
RAYCAST L120-S 100120-00S	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.



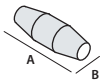
For **COPPER** cables

PRODUCT	**Item**	Cable formation and conductor cross sections (n° x mm²) 1x **T**	**B**	2x **T**	**B**	3x **T**	**B**	4x **T**	**B**	max cables Ø (mm) **T**	**B**	Dimension (mm)
RAYCAST D6-S	100006-00S	4 - 35	4 - 35	4 - 10	4 - 10	2,5 - 6	1,5 - 6	2,5 - 6	2,5 - 6	8 - 27	8 - 27	180 x 90
RAYCAST D25-S	100017-00S	35 - 120	35 - 120	10 - 25	10 - 25	6 - 16	6 - 16	6 - 16	6 - 10	8 - 32	8 - 32	220 x 105
RAYCAST D95-S	100950-00S	95 - 300	70 - 150	25 - 95	16 - 50	16 - 70	16 - 35	16 - 50	10 - 35	15 - 42	8 - 32	315 x 115

T : Through - **B** : Branch

RAYCAST L-ARM

Joint for tape, wire or plate armoured cables.

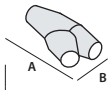


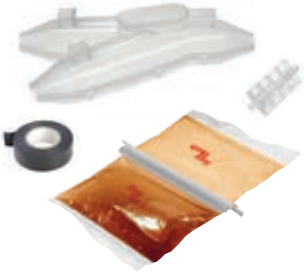
For **COPPER** cables **PRODUCT / Item**	Cable formation and conductor cross sections (n° x mm²) 2x	3x	4x	max cables Ø (mm)	Dimension (mm)
RAYCAST L10-ARM 100001-001	1,5 - 10	1,5 - 6	1,5 - 6	8 - 16	180 x 50
RAYCAST L25-ARM 100002-002	4 - 25	4 - 16	2,5 - 16	8 - 32	215 x 55
RAYCAST L35-ARM 100035-ARM	16 - 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.





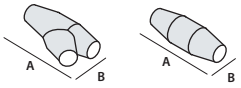
For **COPPER** cables **PRODUCT / Item**	Cable formation and conductor cross sections (n° x mm²) 2x **T**	**B**	3x **T**	**B**	4x **T**	**B**	max cables Ø (mm) **T**	**B**	(mm)
RAYCAST D6-ARM-F 100006-002	4 - 10	4 - 10	2,5 - 6	2,5 - 6	2,5 - 6	2,5 - 6	8 - 27	8 - 27	180 x 90
RAYCAST D16-ARM-F 100016-002	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 **T**	**B**	3x **T**	**B**	4x **T**	**B**	(mm) **T**	**B**	(mm)
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 mm²) 1x	2x	3x	4x	max cables Ø (mm)	(mm)
RAYCAST LPS10	100010-LPS	2,5 - 50	1,5 - 10	1,5 - 10	1,5 - 10	8 - 16	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	Item	Cable formation and conductor cross sections (n° x mm²) 1x T	1x B	2x T	2x B	3x T	3x B	4x T	4x B	Ø max cables (mm) T	Ø max cables (mm) B	(mm)
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.

PRODUCT	Item	Conductor (mm²)	5x	7x	10x	12x	16x	19x	24x	40x	75x	100x	250x	max cables Ø (mm)	(mm)
RAYCAST SL11	100011-0SL	1,5	•	•	•	•	•							8 - 16	180 x 50
		2,5	•	•	•										
RAYCAST SL12	100012-0SL	1,5			•	•	•	•	•					8 - 32	215 x 55
		2,5			•	•	•	•							
RAYCAST SL13	100013-0SL	1,5					•	•	•	•				14 - 34	266 x 72
		2,5					•	•	•						
RAYCAST SL14	100014-0SL	1,5							•	•	•			15 - 42	330 x 75
		2,5							•	•					
RAYCAST SL15	100015-0SL	1,5								•	•	•		25 - 50	365 x 95
		2,5								•	•				
RAYCAST SL16	100016-0SL	1,5									•	•	•	30 - 75	510 x 120
		2,5									•	•	•		

PRODUCT	Item	Conductor (mm²)	5x	7x	10x	12x	16x	19x	24x	40x	75x	max cables Ø (mm) T	max cables Ø (mm) B	(mm)
RAYCAST SD1	100001-0SD	1,5	•	•	•	•	•	•				8 - 27	8 - 27	180 x 90
		2,5	•	•	•	•								
RAYCAST SD2	100002-0SD	1,5					•	•	•			8 - 32	8 - 32	220 x 105
		2,5			•	•	•	•	•					
RAYCAST SD3	100003-0SD	1,5						•	•	•	•	15 - 42	8 - 32	315 x 115
		2,5						•	•	•	•			

T : Through - **B** : Branch

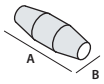
RAYCAST TL AND TSL

Straight joint for telephone cable.

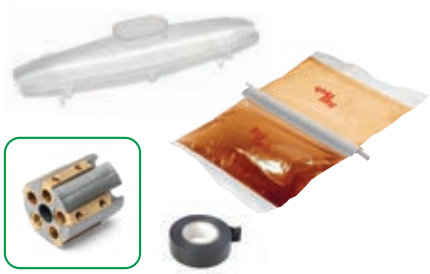
UNSCREENED PRODUCT	Item	SCREENED PRODUCT	Item	N° pairs per conductor cross sections (n° x mm²)	max cables Ø (mm)	Dimension (mm)
RAYCAST TL16	100016-0TL	**RAYCAST TSL16**	100016-TSL	1 - 16 x 0,5 - 0,6	8 - 16	180 x 50
RAYCAST TL25	100025-0TL	**RAYCAST TSL25**	100025-TSL	16 - 25 x 0,5 - 0,6	8 - 32	215 x 55
RAYCAST TL35	100035-0TL	**RAYCAST TSL35**	100035-TSL	25 - 35 x 0,5 - 0,6	12 - 33	266 x 72
RAYCAST TL40	100040-0TL	**RAYCAST TSL40**	100040-TSL	35 - 40 x 0,5 - 0,6	15 - 42	330 x 75
RAYCAST TL64	100064-0TL	**RAYCAST TSL64**	100064-TSL	40 - 64 x 0,5 - 0,6	25 - 50	365 x 95
RAYCAST TL500	100500-0TL	**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.

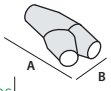


For **COPPER** cables **PRODUCT / Item**	Cable formation and conductor cross sections (n° x mm²) 2x	3x	4x	5x	max cables Ø (mm)	Dimension (mm)
RAYCAST SP L6 RAYCASTSPL6	1,5 - 6	1,5 - 6	1,5 - 6	1,5 - 6	8 - 16	180 x 50
RAYCASTSP L16 RAYCASTSPL16	4 - 16	4 - 16	4 - 16	4 - 16	8 - 32	215 x 55
RAYCASTSP L25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



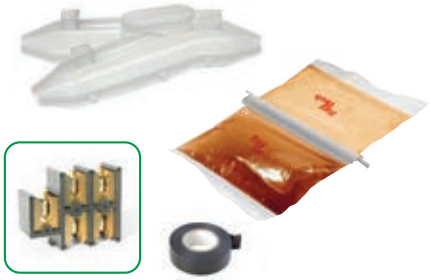
RAYCAST SYSTEM PLUS Y

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



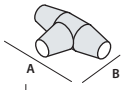
For **COPPER** cables **PRODUCT / Item**	Cable formation and conductor cross sections (n° x mm²) 2x **T**	**B**	3x **T**	**B**	4x **T**	**B**	5x **T**	**B**	max cables Ø (mm)	(mm)
RAYCAST SP D6 RAYCASTSPD6	1,5-6	1,5-4	1,5-6	1,5-4	1,5-6	1,5-4	1,5-6	1,5-4	**T** 8 - 27 **B** 8 - 27	180 x 90
RAYCAST SP D16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

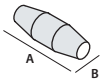


For **COPPER** cables **PRODUCT / Item**	Cable formation and conductor cross sections (n° x mm²) 2x **T**	**B**	3x **T**	**B**	4x **T**	**B**	max cables Ø (mm)	(mm)
RAYCAST SP T 35 RAYCASTSPT35	6 - 35	1,5 - 10	6 - 35	1,5 - 10	6 - 35	1,5 - 10	**T** 22 - 42 **B** 22 - 42	305 x 155

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

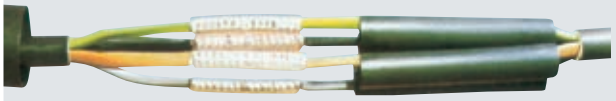
HEAT-SHRINK

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

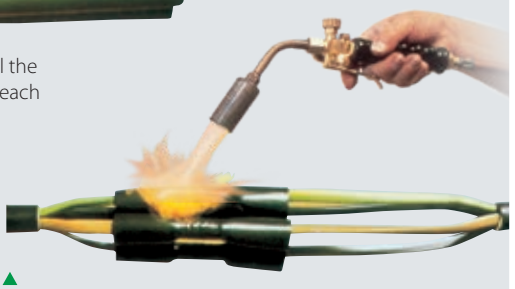
Electrical performance:
- **CEI EN 50393**
  with connectors complying
  with **EN 61238-1**
- **Class 2** in accordance with **CEI 64-8.**

Working temperature: 90°

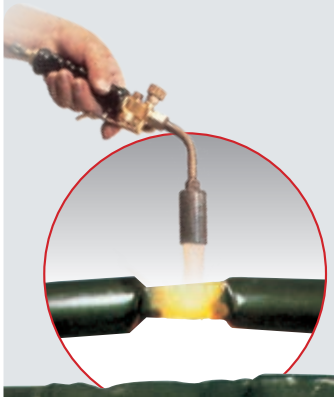
Installation temperature: -15°C / +45°C



Before crimping the connectors insert all the heat-shrink tubings for the insulation of each core and the outer jacketing tubing.

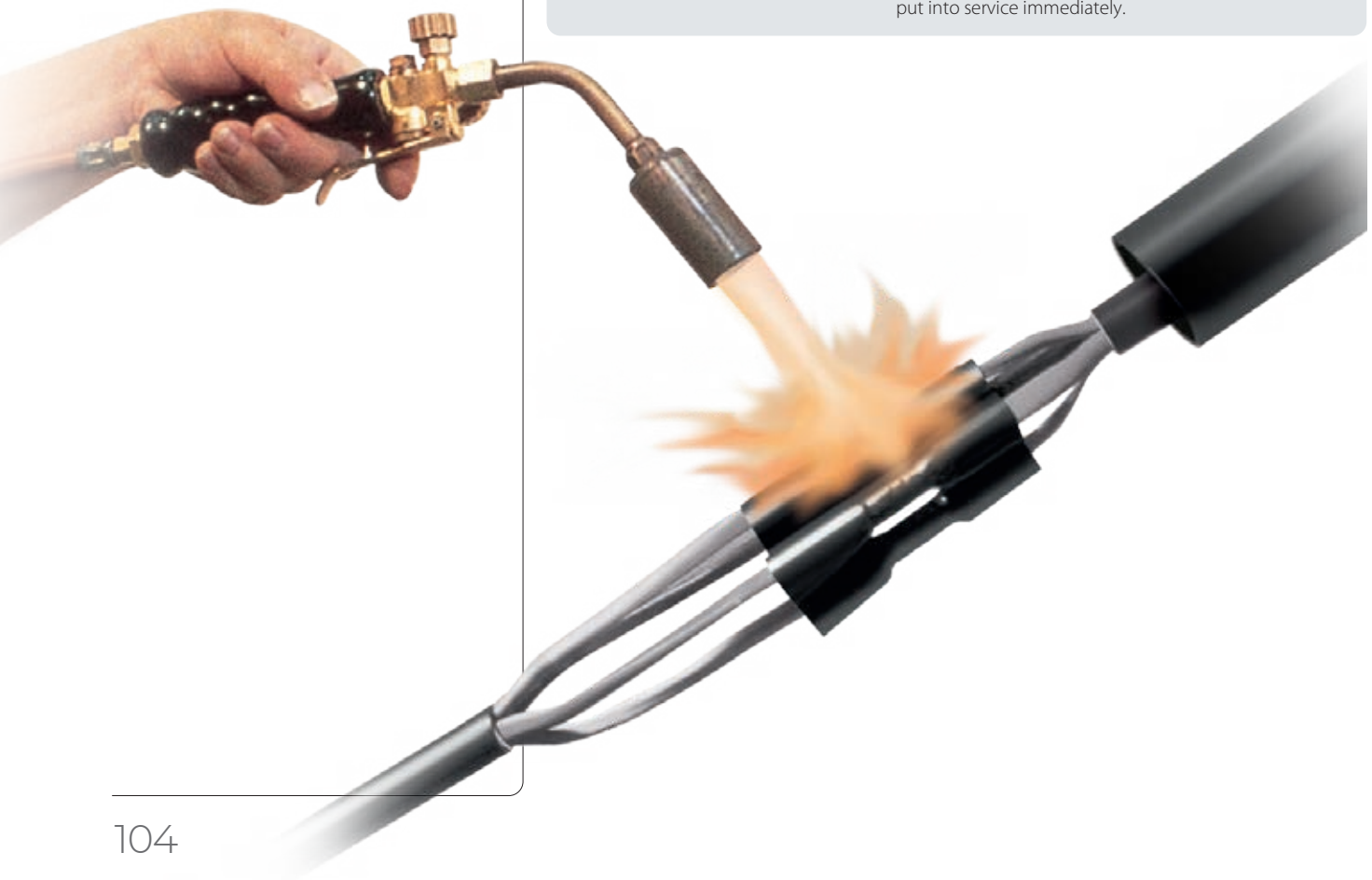


Centre the heat-shrinkable tubings on the connectors and shrink them, starting from the centre towards the ends.



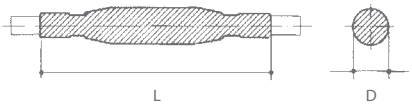
Centre the outer heat-shrink tube over the joint and shrink it starting from the centre and moving gradually towards the ends.

The joint is finished and it can be put into service immediately.



GDL

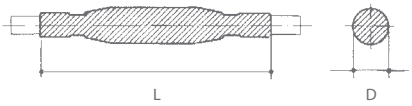
Joint for single core cables including concentric neutral.



PRODUCT / Item		Conductor cross section mm² from	to	Dimension L (mm)
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).

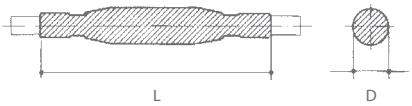


PRODUCT / Item		Conductor cross section mm² from	to	Number of phases	Dimension L (mm)	D (mm)
GLV 0306	254656-TEC	1,5	6	3	250	18
GLV 0316	224477-TEC	10	16	3	400	37
GLV 0335	554268-TEC	25	35	3	550	43
GLV 0370	457896-TEC	50	70	3	650	52
GLV 3150	789992-000	95	150	3	800	65
GLV 3300	789994-000	185	300	3	900	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.

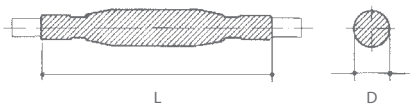
GLV-N

Joint for multi core cables with concentric neutral.



PRODUCT / Item		Conductor cross section mm² from	to	Number of phases	Dimension 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

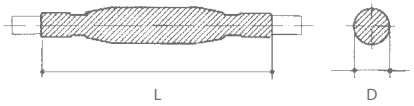
These kits include components for the phase insulation, metallic braiding to replace the neutral and external self-sealing heat-shrinkable tube.



GLV-ARM

Joint for armoured multi core cables.

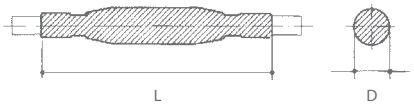
For armoured **tape** cables PRODUCT / Item		Conductor cross section (mm²) from	to	Dimension L (mm)	D (mm)
GLV 0406-ARM	788969-000	1,5	6	300	25
GLV 0416-ARM	307689-000	6	16	400	40
GLV 0450-ARM	630855-000	25	50	800	60
GLV 4150-ARM	378703-000	70	150	1000	100
GLV 4300-ARM	152410-000	185	300	1000	120



BOPA

Joint for MV cables for public lighting.

PRODUCT / Item	Operating voltage kV	Number of phases	Section (mm²)	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 (mm²) Through	Branch	Multi core cables cross section (mm²) Through	Branch	Dimension 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

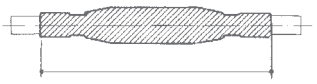
GLV SYSTEM FAST RP

Straight joint + Shear bolt connectors.

PRODUCT / Item		Cable formation 4x (n° x mm²)	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 PRODUCT / Item	Cable formation (n° x mm²)	L (mm)	ARMOURED PRODUCT / Item	Cable formation (n° x mm²)	L (mm)
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 PRODUCT / Item	Cable formation (n° x mm²)	L (mm)	ARMOURED PRODUCT / Item	Cable formation (n° x mm²)	L (mm)
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 PRODUCT / Item	Cable formation (n° x mm²)	L (mm)	ARMOURED PRODUCT / Item	Cable formation (n° x mm²)	L (mm)
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

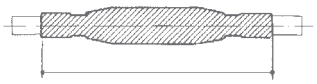
For UNDERGROUND signalling and control cables

UNARMOURED PRODUCT / Item	Cable formation (n° x mm²)	L (mm)	ARMOURED PRODUCT / Item	Cable formation (n° x mm²)	L (mm)
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).

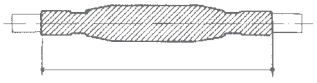
For other formations and cable sections please contact Raytech.



DJ F/R

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

UNARMOURED PRODUCT / Item	ARMOURED PRODUCT / Item	Cable formation (n° x mm²) Through	Branch	L (mm)
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

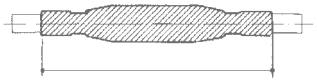


GMP

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

NON ARMOURED cable PRODUCT / Item		N° of conductors from	to	Section mm² from	to	External ∅ of cable 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 PRODUCT / Item		N° of conductors from	to	Section mm² from	to	External ∅ of cable 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

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

NON ARMOURED cable PRODUCT / Item		N° of pairs from	to	Section mm² from	to	External ∅ of cable 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

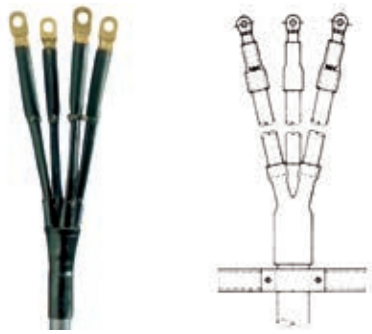
ARMOURED cable PRODUCT / Item		N° of pairs from	to	Section mm² from	to	External ∅ of cable min (mm)	max (mm)
GMC 004-A	802965-000	1	4	2 x 0,6	2 x 1,0	15	23
GMC 007-A	786769-000	5	7	2 x 0,6	2 x 1,0	15	26
GMC 019-A	803162-000	8	19	2 x 0,6	2 x 1,0	24	35
GMC 037-A	786412-000	20	37	2 x 0,6	2 x 1,0	30	45
GMC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

TERMINATIONS HEAT-SHRINK

TLV

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

NON ARMOURED extruded cables		Extruded cables with WIRE ARMOUR		Conductor section mm²		Number of phases
PRODUCT / Item		PRODUCT / Item		from	to	
TLV 0216	946613-000	TLV 0216 - AF	106391-000	4	16	2
TLV 0316	496973-000	TLV 0316 - AF	178316-000	4	16	3
TLV 0416	288775-000	TLV 0416 - AF	121775-000	4	16	4
TLV 0250	101526-000	TLV 0250 - AF	024865-000	25	50	2
TLV 0350	786134-000	TLV 0350 - AF	179335-000	25	50	3
TLV 0450	786200-000	TLV 0450 - AF	868777-000	25	50	4
TLV 3150	786220-000	TLV 3150 - AF	181196-000	70	150	3
TLV 4150	597107-000	TLV 4150 - AF	223409-000	70	150	4
TLV 3300	208159-000	TLV 3300 - AF	181097-000	185	300	3
TLV 4300	063097-000	TLV 4300 - AF	803719-000	185	300	4
		TLV 4500 - AF	915556-000	500		4

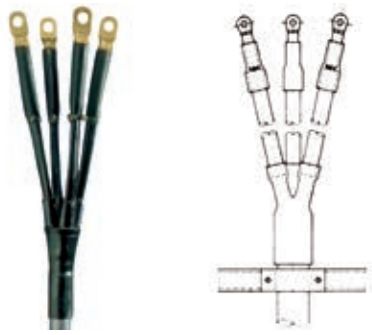


Include sheath to cover phases, sealing of the point of divergence of phases and sealing between phase and cable terminal.

TLV 500

Terminations for concentric neutral extruded cables up to 1 kV.

PRODUCT / Item		Conductor section mm² from	to	Number of phases
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



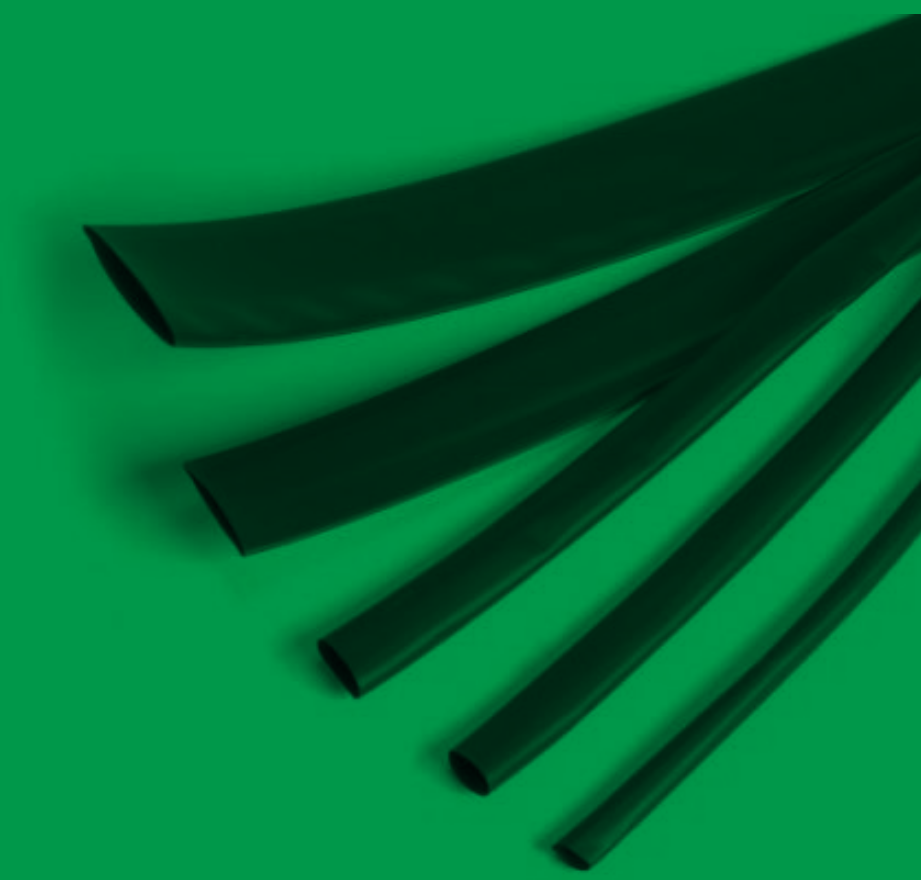
Include sheath to cover the concentric conductor.

Raytech

LOW VOLTAGE

OTHERS

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



Operating temperature: -55°C / +125°C

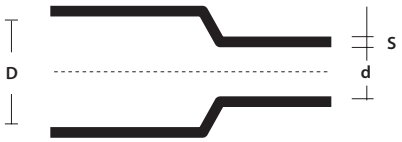
Tensile resistance	10,4 Min
Elongation	200 % Min
Tensile resistance after ageing	7,3 Min
Elongation after ageing	100 % Min
Dielectric strength	20 kV/mm
Flammability	VW1*
Minimum shrinkage temperature	110°C

* 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 120

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.

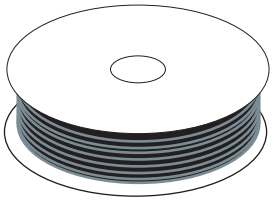
PRODUCT	Item	Colour	D (mm)	d (mm)	S (mm)	Spool (m)
MAXI ROLL 1,6	MAXIROLL-1.6	●	1,6	0,8	0,50	300
MAXI ROLL 2,4	MAXIROLL-2.4	●	2,4	1,2	0,55	300
MAXI ROLL 3,2	MAXIROLL-3.2	●	3,2	1,6	0,55	300
MAXI ROLL 4,8	MAXIROLL-4.8	●	4,8	2,4	0,55	150
MAXI ROLL 6,4	MAXIROLL-6.4	●	6,4	3,2	0,65	75
MAXI ROLL 9,5	MAXIROLL-9.5	●	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

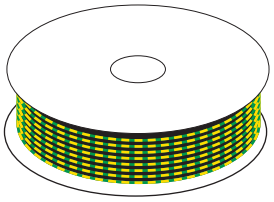
Also available in Red, Blue, Yellow, White, Transparent colours ● ● ● ○ Ⓣ - See codes on page 116



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



SHEATHS IN BARS

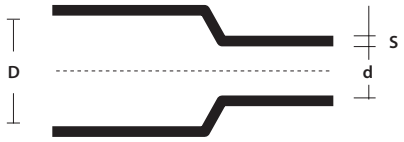
Flexible heat-shrink modified polyolefin sheaths, cross linked by means of radiation. Longitudinal shortening up to 15%. Suitable for insulation and covering of conductors and their connections, bars. etc. Replace self-adhesive, self-amalgamating insulating tapes.

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.

- 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%)

Minimum shrinkage temperature: 125°C

Operating temperature: -55°C / +120°C

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-B10/5	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

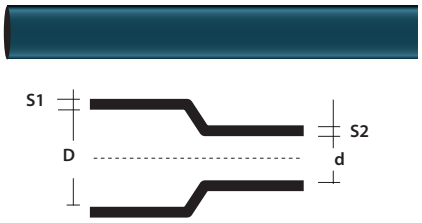
PRODUCT	Item	Colour	D (mm)	d (mm)	S (mm)	Lenght (m)
RGPO-B 2,4/1,2	241200-BAR	●	2,4	1,2	0,50	1,2
RGPO-B 3,2/1,6	321600-BAR	●	3,2	1,6	0,50	1,2
RGPO-B 4,8/2,4	482400-BAR	●	4,8	2,4	0,50	1,2
RGPO-B 6,4/3,2	643200-BAR	●	6,4	3,2	0,65	1,2
RGPO-B 9,5/4,8	954800-BAR	●	9,5	4,8	0,65	1,2
RGPO-B 12,7/6,4	127640-BAR	●	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

Also available in Red, Blue, White, Transparent colours ● ● ○Ⓣ - See codes on page 116

RAY-TUM

Sheaths in bars with adhesive.

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
Shrinkage ratio **4:1**		Colour	(mm)	(mm)	(mm)	(mm)	(m)
RAY-TUM-4/1-0	550406260	●	4	1	1,00	0,5	1,2
RAY-TUM-8/2-0	5110554007	●	8	2	1,00	0,5	1,2
RAY-TUM-12/3-0	5634732003	●	12	3	1,40	0,6	1,2
RAY-TUM-16/4-0	8014642003	●	16	4	1,75	0,7	1,2
RAY-TUM-24/6-0	4177512003	●	24	6	2,25	0,8	1,2
RAY-TUM-32/8-0	4951522003	●	32	8	2,50	1,0	1,2
RAY-TUM-52/13-0	7024702003	●	52	13	2,50	1,0	1,2



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	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

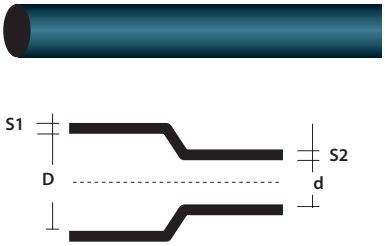
Pre-cut heat-shrink sheaths kit.

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

PRODUCT	WITH ADHESIVE Item	WITHOUT ADHESIVE Item	Applications by Ø from (mm)	to (mm)	D (mm)	d (mm)	S_1 (mm)	S_2 (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 PRODUCT	Item	Applications by Ø from (mm)	to (mm)	D (mm)	d (mm)	S_1 (mm)	S_2 (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).

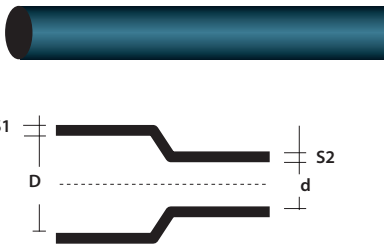
HEAVY-WALL SHEATHS

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 from (mm)	to (mm)	D (mm)	d (mm)	S_1 (mm)	S_2 (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).



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*

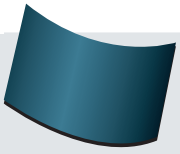
WRAP AROUND

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.

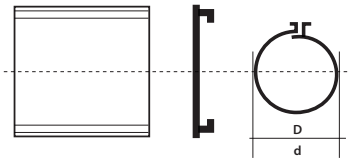
RAY-RSM

PRODUCT	1000 Item	1500 Item	Ø Cable (mm) from	to	D (mm)	d (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).



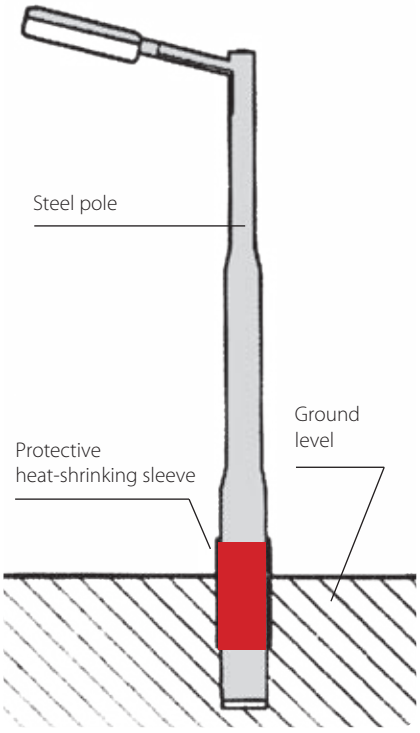
WRAP AROUND



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/cm³
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 most section 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

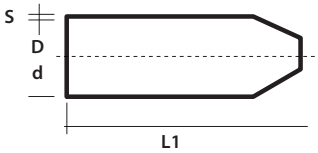
Tubular sleeve for poles for installation.

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)	Ø Cable 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

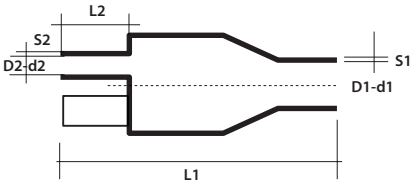
SELF-SEALING TERMINATION

PRODUCT	LV cable conductor (mm²) from	LV cable conductor (mm²) to	D1 (mm)	d1 (mm)	S1 ±20% (mm)	D2 (mm)	d2 (mm)	S2 ±20% (mm)	L1 ±10% (mm)	L2 ±10% (mm)
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) from	LV cable conductor (mm²) to	D1 (mm)	d1 (mm)	S1 ±20% (mm)	D2 (mm)	d2 (mm)	S2 ±20% (mm)	L1 ±10% (mm)	L2 ±10% (mm)
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) from	LV cable conductor (mm²) to	D1 (mm)	d1 (mm)	S1 ±20% (mm)	D2 (mm)	d2 (mm)	S2 ±20% (mm)	L1 ±10% (mm)	L2 ±10% (mm)
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

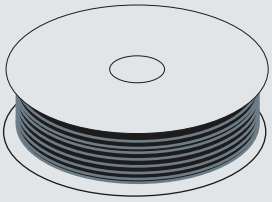
Tensile resistance		10,5 MPa (min)
Elongation		300 % (min)
Density		1,0-1,3 g/cm³
Hardness		50-70 Shore D
Accelerated ageing (7 days at 150°C)	Tensile resistance	8,5 Mpa (min)
	Ultimate elongation	100% (min)
Flexibility at low temperature		4h a -40°C Nessuna cricca
Water absorption		0,5% max after 14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

OTHER AVAILABLE COLOURS

LST-TEC

Blue · Red

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

Red · Blue · Yellow · White · T Transparent

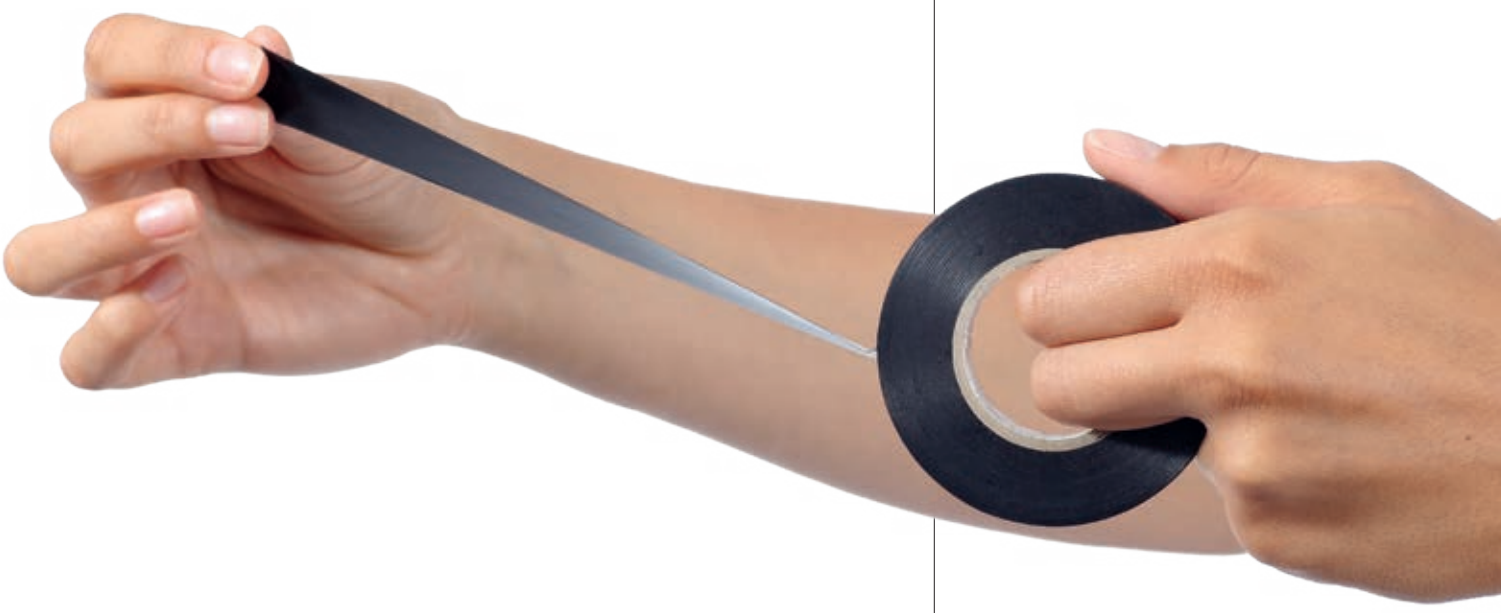
PRODUCT	Item	Item	Item	Item	Item
CGP-TEC 1,2/0,6	5069674009	5069674010	5069674011	5069914004	5069674008
CGP-TEC 1,6/0,8	5068034005	5068274004	5068154005	5069924005	5069684005
CGP-TEC 2,4/1,2	5068044005	5068284006	5068164005	5069934006	5069694007
CGP-TEC 3,2/1,6	5068054008	5068294010	5068174005	5069944006	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

Red · Blue · White · T Transparent

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	-

TAPES



SELF-ADHESIVE TAPES IN PVC

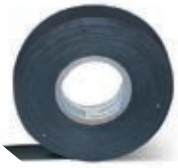
RAYTEAM
Self-adhesive for general use

RAYTECH SUPER 3-3
Self-adhesive for low and high temperatures

SELF-AMALGAMATING

RAYTECH 2.3
Insulation tape EPR

RAYTECH 23 BT
LV insulation tape



RAYTEFILL
Heavy duty insulation tape

RAYTECH 7-0
Silicone insulation tape

SPECIAL TAPES

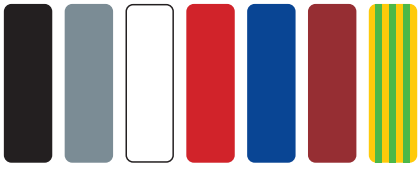
RAYCOPPER
Copper braid tape

MCA-FV
Fibreglass self-adhesive 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	-5°C / 85°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

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	-	-	-	-

NEW

RAYTEAM K20

20 RAYTEAM TAPES
+ 3 MT MEASURING TAPE
INCLUDED

PRODUCT / Item	Description
RAYTEAM K20 RAYTEAM-K20	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.

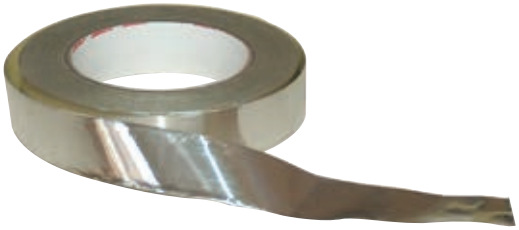
Self-adhesive mono-directional fibreglass tape with polypropylene support. Suitable for cable fixing on pipes (i.e.: Raytech MCA... cables for electrical tracing), and for any kind of strong fixing. Inextensible, it is suitable for temperatures up to 130°C.

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 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

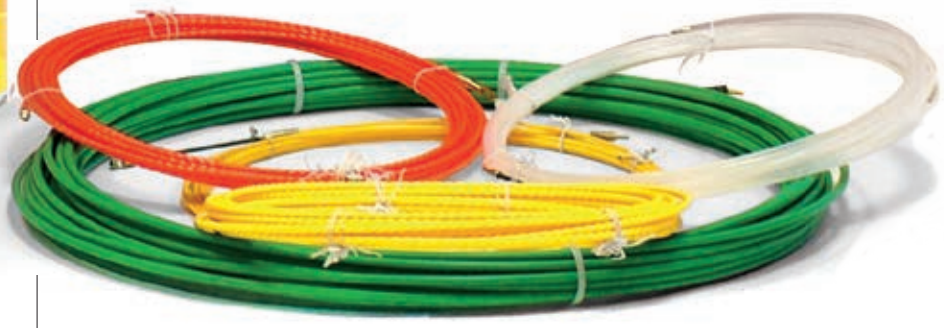
PRODUCT / Item	Colour	Width	Thickness	Length
MCA-ALL 75 R42562	Aluminium	75 mm	0,06 mm	50 m

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	Positioning	Ease of bending	Pulling resistance
Speedy Nylon and Speedy Sonda	Good	Good	Very good
Polyester Speedy Helix	Very good	Very good	Very good
Fibreglass Speedy Glass	Excellent	Good	Good
Nylon-Steel Speedy Steel	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 SPEEDY WIRE SPRAY

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 strenght, even in the case of bent conduits.

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

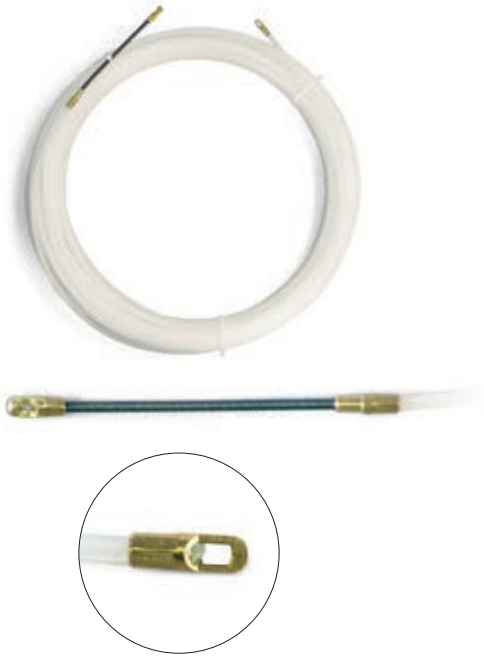
Speedy Wire Gel, thanks to its consistency, allows for savings of up to 3 times the amount used compared to other solutions.

Speedy Wire Spray, thanks to its canister and dispensing nozzle, allows for suitable guiding of the lubricant, including inside piping and ducts, greatly facilitating application.

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 SPRAY SPEEDYWSPRAY	400 ml can	12-piece pack	White foam	8,5 - 9	About 1,04

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 3/10-I	7139-0006		3	10	40
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

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

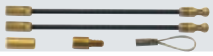
Other dimensions available on request

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

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

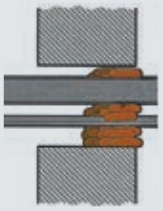
FIRE STOP BAG

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.

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

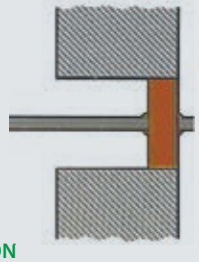
FIRE STOP PANEL

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.

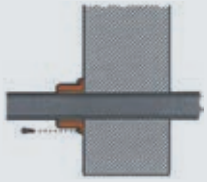
FIRE STOP COLLAR

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.

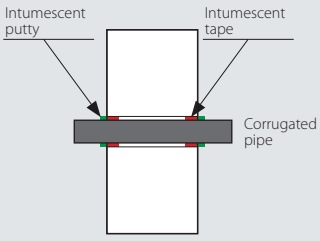
APPROVAL
Class EI 120 non toxic and asbestos free.
In compliance with standard EN 1366-3.

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.

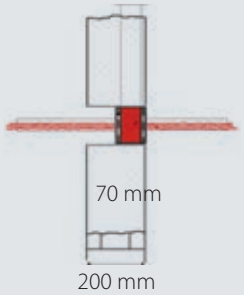
APPROVAL
Class EI 120
Non toxic and asbestos free.
Does not emit toxis gases and dense fumes.
In compliance with standard EN 1366-3.

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 boxed product, or with a spatula or silicone gun for cartridge product.

For other dimensions or the application on plasterboard walls please contact Raytech.

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

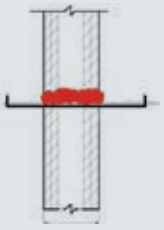
APPROVAL
Class EI 120
Non toxic and asbestos free.
Does not emit toxis gases and dense fumes.
In compliance with standard EN 1366-3.

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 toxis 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, than 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 dm^3).

For other applications please contact Raytech.

APPROVAL
Class EI 120
Non toxic and asbestos free.
Does not emit toxis gases and dense fumes.
In compliance with standard EN 1366-3.

FSCP

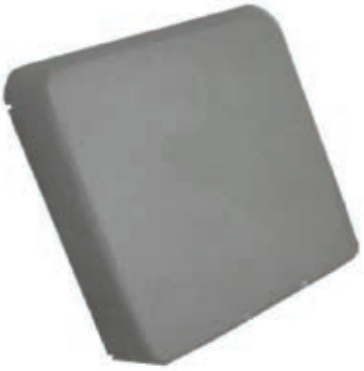
Fire stop barriers for ceiling lights.

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

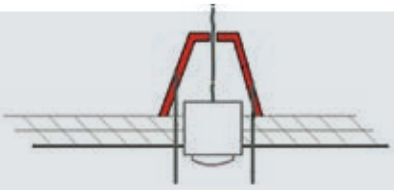
Fire stop hoods for downlighters.

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

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

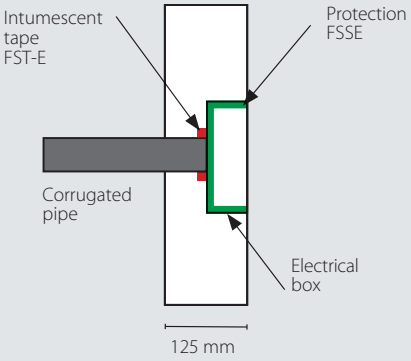
FSSE

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)

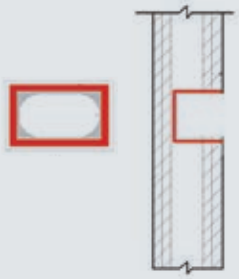
FSCC

Fire stop barriers for covering enclosures.

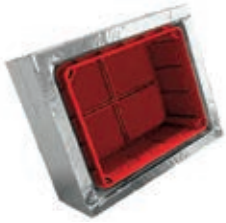
Fire protection system for electrical enclosures and junction boxes. These protect plasterboard wall compartments from heat and fire propagation.

- **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 toxis 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.

Pipe with insulation Pipe without insulation

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

SPECIALS

Kits for the connection, maintenance and protection of electrical systems.

Kit composition:
One bottle for component (A+B)

GALACTIC PROTECTION

Two-component rubber for printed circuit protection including against animal intrusion.

Protection for printed circuits which are especially exposed to dust, animal intrusion (insects, snails, snakes, etc., e.g. in automatic gate trays). Opaque but slightly translucent allows cover forming a protective film. It can be removed (adheres without sticking) even on a small area to access the underlying component. The replaced component is then covered with new filler material which adheres perfectly to the previous material. Composed of two-component rubber with no shelf life and insulating and resistant to UV rays and ageing.

PRODUCT / Item	Description	Rubber colour	Total quantity (ml)
GALACTIC PROTECTION GALACTIC-PROT	two-component rubber	●	300

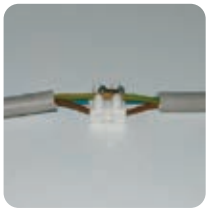
GALACTIC MAMMUT SECURITY

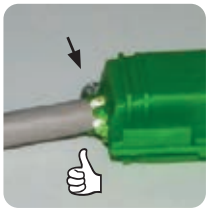
Straight joint pre-filled with gel.

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.***



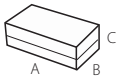


Package:
3-piece blister pack

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

BEFORE

AFTER



PRODUCT / Item	Cable formation	Dimension (mm)
GALACTIC MAMMUT SECURITY GALACTIC-MAM	Cables 3 x 1 to 4 mm² 3 insulated conductors with ground from 1 to 4 mm²	61 x 35 x 28

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

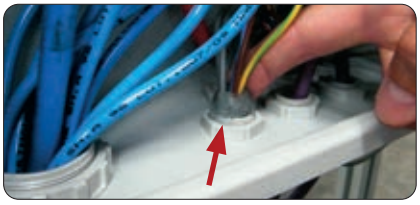
GALACTIC ANIMAL BARRIER

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 be 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

Kit composition: 2 cans, 100 g each



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

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.

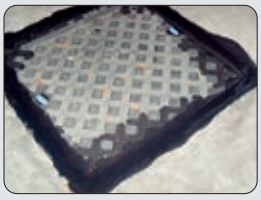
Ray-RTV cross links quickly at room temperature, transforming into a rubber with high mechanical, thermal and elastic characteristics. Available in single dose bags, bottles, tanks and boxes, in standard 30 Shore A hardness for black and 15 Shore A for pink. Fast cross linking (less than 8 minutes at 30°C) and easily re-enterable.

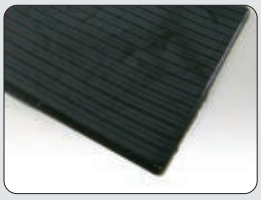
ADVANTAGES

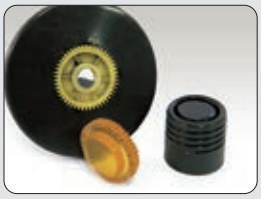
- **Highly resistant, non-stick, insulating and sealing.**
- **No shelf life.**

Applications Examples

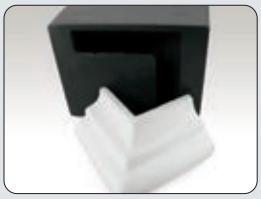
Glass sealing


Pit sealing


Rubber mats

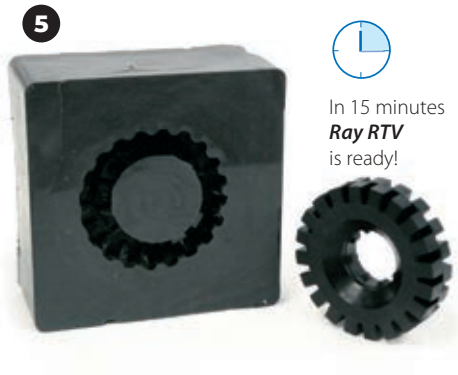

Extruded profiles

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 avaliable in bags up to 600 g.

Density: about 1.24 gr/cm³ (black)
1.05 gr/cm³ (pink)
Cross linking: (pot life) at + 30°C: <8 minutes
Viscosity: 4000-6000 max MPas
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

Kit composition:
1 mould for elastic washers, insulating gaskets and rubber profiles.

1 bottle for component (A+B).

Advantages:
Use directly on site, usable in all weather conditions, easy installation, easy separation from the moulds.

Note: max thickness: 3 mm.

Side A

Side B

GASKET KIT

Kit to produce rubber gaskets and profiles.

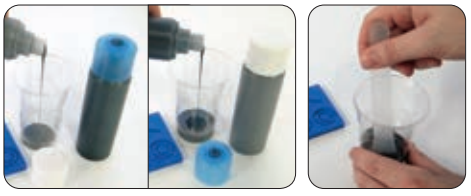
Kit for the assembly of elastic washers, insulating gaskets and rubber profiles, UV resistant and anti-aging, with working temperature up to 200°C and 30 Shore A hardness, suitable for any electrical, plumbing, or sealing work. The articles produced are suitable for the sealing of outdoor lamps, for the sealing and insulation of screwed and bolted components, for any maintenance, replacement or shimming work. Easy to use, the liquid component is poured and the pieces are ready in minutes, at room temperature and with no exothermic reaction. Easily removed from the mould. Rapid cross-linking at room temperature (<15 min). Elevated dielectric, mechanical, elastic and thermal properties.

- **Without shelf life and re-enterable.**
- **Low emission of smoke and toxic and corrosive gases.**
- **Flexible and elastic over time.**

FLAT GASKETS		RODS	PROFILES
External Ø (mm)	Internal Ø (mm)	Ø (mm)	L x L (mm)
30	22	30	130 x 6
25,5	17	25	130 x 5
24	18	20	130 x 4
22	16,5	15	130 x 3
21	15	10	130 x 2
18	12		
14	8		
11	6		
10	7		
8	4		

GASKETS FOR TAPS		ANTISLIP	CORRUGATED
External Ø (mm)	Internal Ø (mm)	L x L (mm)	L x L - Ø foro (mm)
22	4,5	30 x 30	30 x 30 - Ø foro 4,5
15,8	4,5	25 x 25	
14	4,5	20 x 20	
		15 x 15	
		10 x 10	

Installation sequence



Pour the 2 components in a 1:1 ratio in a jug and mix.

Pour the product into the desired mould (30 sec max).

< 15 minutes at 23°C

Remove the object from the mould.

PRODUCT / Item	Description	Rubber colour	Package (g)
Gasket Kit RAYGASKIT	Mould + Two-component liquid rubber	●	360

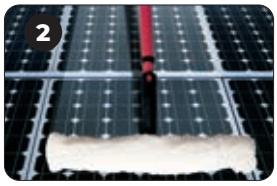
SHINY SOLAR

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 m^2), 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 m^2. 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.

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		

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.

Shiny Brush SB4

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.

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

ESSENTIAL FOR:

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

100-piece pack.

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

100-piece pack.

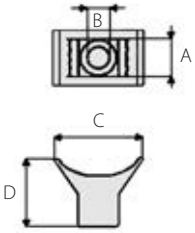
Colour **White**		Width	Length	Appl. diameter		Strength	
PRODUCT	**Item**	(mm)	(mm)	min	max	(Kg)	(n)
Ray-fasc B 22/75	700000-049	2,2	75	0.75	15	6.12	60
Ray-fasc B 25/98	700000-002	2,5	98	1	21	8.16	80
Ray-fasc B 25/135	700000-003	2,5	135	1	32	8.16	80
Ray-fasc B 26/160	700000-004	2,6	160	1	40	8.16	80
Ray-fasc 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

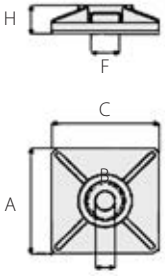


100-piece pack.

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** PRODUCT / Item	Colour **White** PRODUCT / Item	Tie width (mm)	Dimension (mm) 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

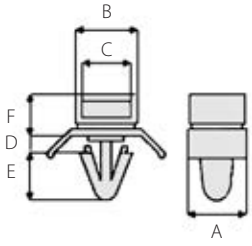


100-piece pack.

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.

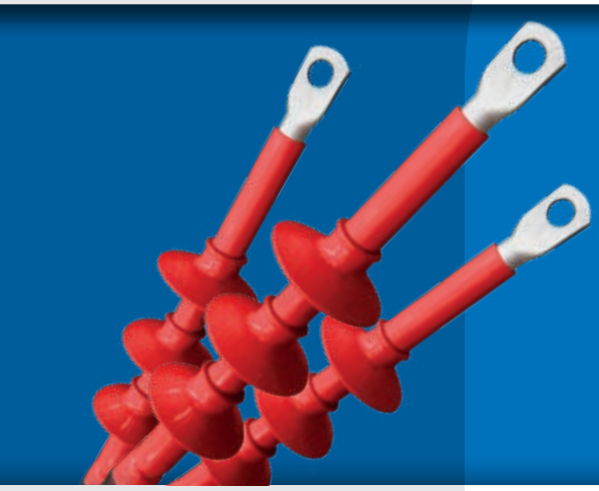
PRODUCT / Item		Dimension (mm) A	B	C	D	E	F	Ø Hole (mm)
Ray-fasc SI	700006-000	10	10,6	8,1	3,2	8	7,1	6,2



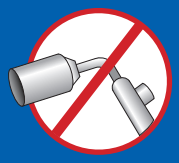
100-piece pack.

MEDIUM VOLTAGE

HEAT-SHRINK
COLD-SHRINK
TERMINATIONS
AND JOINTS.
SEPARABLE
CONNECTORS,
SHEATHS AND TAPES.



Raytech



MEDIUM VOLTAGE

COLD-SHRINK

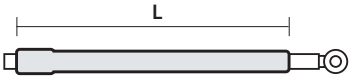
COLD-SHRINK TERMINATIONS FOR **INDOOR USE**

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.

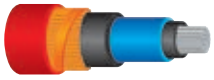
Electrical performance:
CEI 20-24 • CEI 20-62/1 • HD 629-1

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.

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

Product	Item	Umax (kV)	∅ on insulation (mm)	∅ on external sheath (mm)	Conductor cross section (mm²)	L (mm)
AUTO 10/120-I	10120-I-AUTO		15,3 - 20,2	24,6 - 29,6	50 - 120	
AUTO 10/240-I	10240-I-AUTO	12	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		16,3 - 19,2	25,6 - 28,7	35 - 70	
AUTO 15/240-I	15240-I-AUTO	17,5	19,2 - 27,8	28,7 - 38,1	70 - 240	320
AUTO 15/630-I	15630-I-AUTO		27,8 - 40,0	38,1 - 52,1	240 - 630	
AUTO 20/50-I	2050-I-AUTO		17,3 - 19,5	27,8 - 29,0	25 - 50	
AUTO 20/185-I	20185-I-AUTO	24	19,5 - 27,4	29,0 - 37,8	50 - 185	
AUTO 20/630-I	20630-I-AUTO		29,8 - 42,0	40,2 - 54,2	240 - 630	
AUTO 30/95-I	3095-I-AUTO		22,3 - 27,9	33,5 - 38,5	22 - 95	
AUTO 30/120-I	30120-I-AUTO	36	29,4 - 31,0	37,3 - 41,2	120 - 150	410
AUTO 30/400-I	30400-I-AUTO		30,6 - 40,3	39,0 - 51,3	150 - 400	

For cables RG7H1M1 insulation thickness LOW

Product	Item	Umax (kV)	∅ on insulation (mm)	∅ on external sheath (mm)	Conductor cross section (mm²)	L (mm)
AUTO 20/50-I	2050-I-AUTO		17,0 - 19,0	23,3 - 25,3	25 - 70	
AUTO 20/185-I	20185-I-AUTO	24	21,0 - 28,0	26,7 - 34,5	95 - 240	320
AUTO 20/630-I	20630-I-AUTO		28,0 - 41,0	34,6 - 48,3	240 - 630	
AUTO 30/95-I	3095-I-AUTO		25,0 - 27,0	31,2 - 33,4	50 - 120	
AUTO 30/120-I	30120-I-AUTO	36	28,0 - 29,0	32,3 - 35,0	150 -185	410
AUTO 30/400-I	30400-I-AUTO		28,0 - 40,0	34,6 - 47,9	150 -500	

For cables CPR RG26H1M16 12/20 kV (Umax 24 kV)

Product Item	Nominal voltage Umax (kV)	∅ on insulation (mm)	∅ on external sheath (mm)	Conductor cross section (mm²)	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	36	185	
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	600	

For cables CPR RG26H1M16 18/30 kV (Umax 36 kV)

Product Item	Nominal voltage Umax (kV)	∅ on insulation (mm)	∅ on external sheath (mm)	Conductor cross section (mm²)	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	
AUTO 30/400-I 30400-I-AUTO	36	31,5	43	240	410
		34,5	46	300	
		37	48	400	
		41	52	500	

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

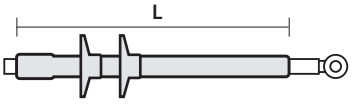
★ ADVANTAGES

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

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.

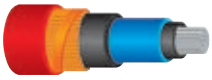


Electrical performance:
CEI 20-24 • CEI 20-62/1 • HD 629-1

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

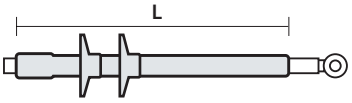
To select the right termination:
Cable code, section in mm², nominal voltage, indoor or outdoor installation.

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

Product	Item	Umax (kV)	∅ on insulation (mm)	∅ on external sheath (mm)	Conductor cross section (mm²)	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 - 70	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 - 27,4	29,0 - 37,8	50 - 185	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 - 27,9	33,5 - 38,5	25 - 95	680
AUTO 30/120-E	30120-E-AUTO		29,4 - 31,0	37,3 - 41,2	120 - 150	680
AUTO 30/400-E	30400-E-AUTO		30,6 - 40,3	39,0 - 51,3	150 - 400	680

For cables RG7H1M1 insulation thickness LOW

Product	Item	Umax (kV)	∅ on insulation (mm)	∅ on external sheath (mm)	Conductor cross section (mm²)	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 - 185	680
AUTO 30/400-E	30400-E-AUTO		28,0 - 40,0	34,6 - 47,9	150 - 500	680



For cables CPR RG26H1M16 12/20 kV (Umax 24 kV)

Product Item	Nominal voltage Umax (kV)	∅ on insulation (mm)	∅ on external sheath (mm)	Conductor cross section (mm²)	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	
		25	36	185	
AUTO 20/240-E 20240-E-AUTO	24	27,8	39	240	410
		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 (Umax 36 kV)

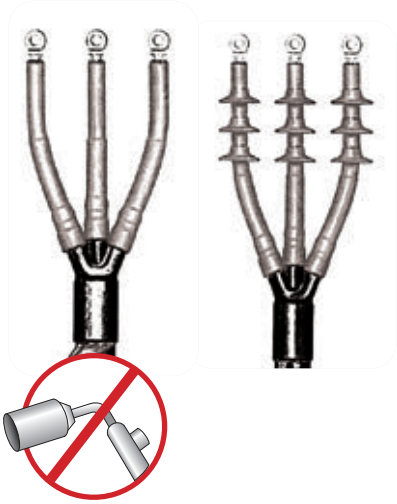
Product Item	Nominal voltage Umax (kV)	∅ on insulation (mm)	∅ on external sheath (mm)	Conductor cross section (mm²)	L (mm)
AUTO 30/95-E 3095-E-AUTO	36	25,6	32	35	680
		25	35	50	
		25	36	70	
		26	37	95	
		27	38	120	
AUTO 30/120-E 30120-E-AUTO	36	28,2	39	150	680
		29,2	41	185	
AUTO 30/400-E 30400-E-AUTO	36	31,5	43	240	680
		34,4	46	300	
		37	48	400	
		41	52	500	

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**



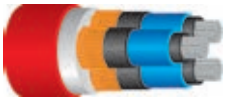
THREE-CORE COLD-SHRINK TERMINATIONS FOR **INDOOR/ OUTDOOR** USE

Termations for armoured and non armoured extruded cables up to **36 kV**

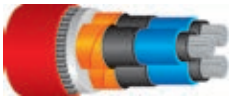
Hybrid technology that provides heat-shrink trifurcation and cold-shrink termination.

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**

For INDOOR use

For NON ARMOURED cables

Product	Item	Umax 12 kV sez. (mm²)	Umax 17,5 kV sez. (mm²)	Umax 24 kV sez. (mm²)	Umax 36 kV sez. (mm²)
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	Umax 12 kV sez. (mm²)	Umax 17,5 kV sez. (mm²)	Umax 24 kV sez. (mm²)	Umax 36 kV sez. (mm²)
AUTO 20/50-I-3ARM	2050-I-3ARM-AUTO	50 - 120	35 - 70	25 - 50	-
AUTO 20/185-I-3ARM	20185-I3ARM-AUTO	95 - 240	70 - 240	50 - 185	-
AUTO 20/630-I-3ARM	20630-I3ARM-AUTO	300 - 500	240 - 400	240 - 300	-
AUTO 30/95-I-3ARM	3095-I-3ARM-AUTO	-	-	-	25 - 95
AUTO 30/240-I-3ARM	30240-I3ARM-AUTO	-	-	-	120 - 240

For OUTDOOR use

For NON ARMOURED cables

Product	Item	Umax 12 kV sez. (mm²)	Umax 17,5 kV sez. (mm²)	Umax 24 kV sez. (mm²)	Umax 36 kV sez. (mm²)
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	Umax 12 kV sez. (mm²)	Umax 17,5 kV sez. (mm²)	Umax 24 kV sez. (mm²)	Umax 36 kV sez. (mm²)
AUTO 20/50-E-3ARM	2050-E-3ARM-AUTO	50 - 120	35 - 70	25 - 50	-
AUTO 20/185-E-3ARM	20185-E3ARM-AUTO	95 - 240	70 - 240	50 - 185	-
AUTO 20/630-E-3ARM	20630-E3ARM-AUTO	300 - 500	240 - 400	240 - 300	-
AUTO 30/95-E-3ARM	3095-E-3ARM-AUTO	-	-	-	25 - 95
AUTO 30/240-E-3ARM	30240-E3ARM-AUTO	-	-	-	120 - 240

MEDIUM VOLTAGE TESTING DETAILS FOR TERMINALS AND JOINTS UP TO 36 KV.

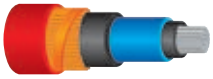
TEST	TEST METHOD (VOLTAGES IN kV)	MAXIMUM VOLTAGE PER CABLE UM (kV)					RESULTS
		7,2	12	17,5	24	36	
INDUSTRIAL FREQUENCY AC	a) 1 min. (dry)	27	35	45	55	75	Neither perforations nor discharges
	b) 1 min. (in the rain)	27	35	45	55	75	
	c) 4 h.	14	24	36	48	73	
PARTIAL DISCHARGES	PE, XLPE, EPR, PVC (voltages 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/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/m³ (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

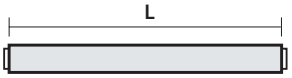
140°C
Max overload temperature

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.



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

Product	Item	Umax (kV)	∅ on insulation (mm)	∅ on external sheath (mm)	Conductor cross section (mm²)	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 30/95-1	JMAUTO 30/95-1	36	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

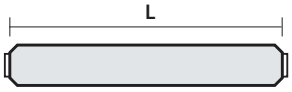
Product	Item	Umax (kV)	∅ on insulation (mm)	∅ on external sheath (mm)	Conductor cross section (mm²)	L (mm)
JMAUTO 20/95-1	JM-2095-1-AUTO	24	17 - 23	26 - 33	25 - 120	550
JMAUTO 20/240-1	JM-20240-1-AUTO		22 - 32	33 - 39	120 - 300	600
JMAUTO 20/400-1	JM-20400-1-AUTO		32 - 36	42 - 48	300 - 500	600

★ 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 CPR RG26H1M16 12/20 kV (Umax 24 kV)

Product Item	Nominal voltage Umax (kV	∅ on insulation (mm)	∅ 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 (Umax 36 kV)

Product Item	Nominal voltage Umax (kV	∅ on insulation (mm)	∅ 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

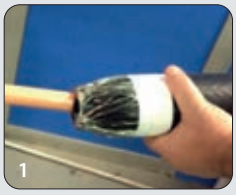
Single core cold-shrink joints
(Umax 24 kV)

Single core cold-shrink singleblock joints
(Umax 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

Installation sequence

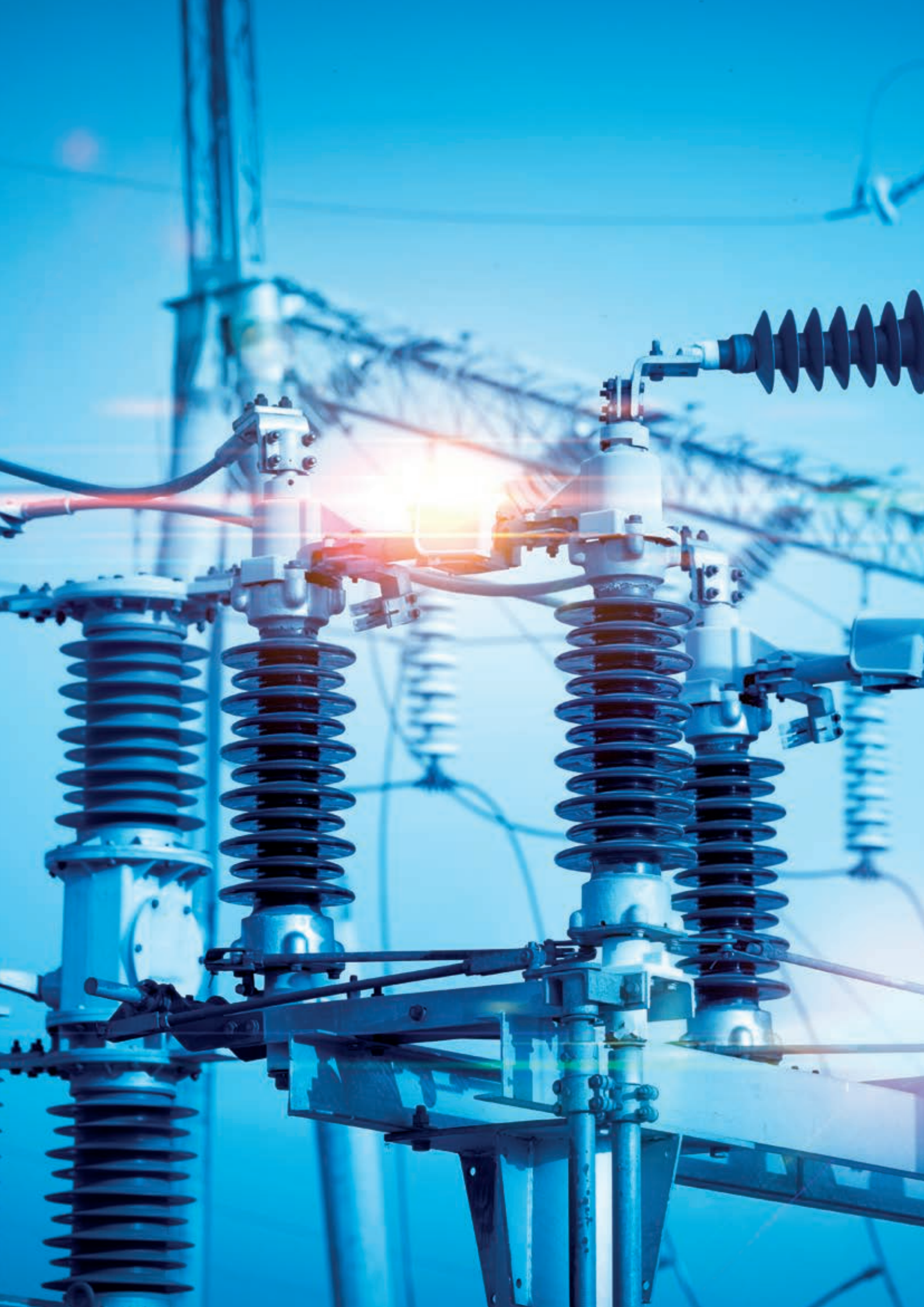


The body of the joint carries the integrated shield and outer sheath.

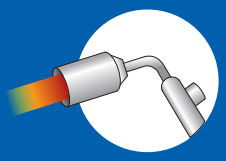
The joint is fitted on the connected cable.

Position at the centre of the connection and collapsed on the cable removing the inner support.

The joint is completed and can be used immediately.



Raytech



MEDIUM VOLTAGE

HEAT-SHRINK

TERMINATIONS AND JOINTS
HEAT-SHRINK

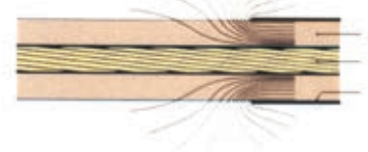
- QUICK PREPARATION
- THEY DO NOT REQUIRE A PARTICULAR MANPOWER
- LOW NUMBER OF COMPONENTS
- WITH NO SHELF LIFE
- CAN BE INSTALLED IN ALL ENVIRONMENTAL CONDITIONS
- HIGH FLEXIBILITY OF USE
- EXTREMELY COMPACT
- EASY CUSTOMIZATION

ACCESSORIES
HEAT-SHRINK

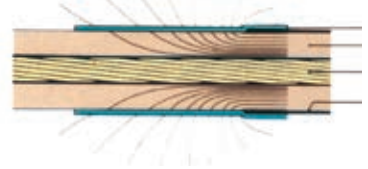
ELECTRIC FIELD CONTROL

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



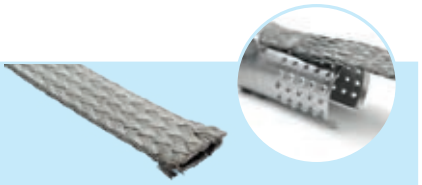
WITH FIELD CONTROL TUBE

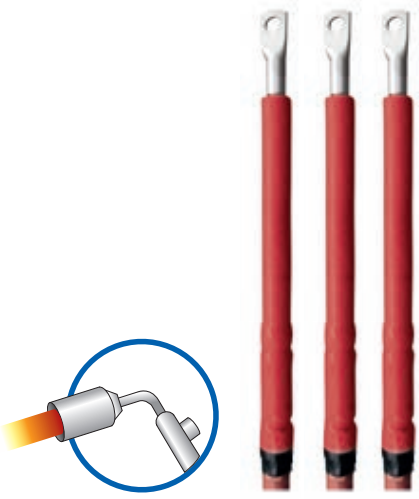


IDENTIFICTION OF COMPLEMENTARY ACCESSORIES

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)		For cables (mm²)	∅ on the shield (mm)		
	/24	up to 25	12 - 20	THVE 20/A-RC/24	
	/25	from 35 to 95	17 - 28	THVE 20/B-RC/25	
	/26	from 120 to 300	25 - 40	THVE 20/C-RC/26	
	/27	from 400 to 630	36 - 60	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	



HEAT-SHRINK TERMINATIONS FOR **INDOOR USE** FOR **NON ARMOURED** CABLES

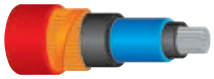
Terminations for **SINGLE CORE** extruded cables up to **36 kV**.

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 161

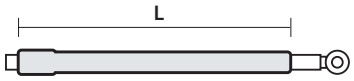
For cables (A)RG16H1R12 and (A)RG7H1R insulation thickness FULL

Product	Item	Voltage Umax (kV)	Conductor cross section (mm²)	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		70 - 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 Umax (kV)	Conductor cross section (mm²)	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	



For cables CPR RG26H1M16 12/20 kV (Umax 24 kV)

Product Item	Nominal voltage Umax (kV)	∅ on insulation (mm)	∅ on external sheath (mm)	Conductor cross section (mm²)	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 (Umax 36 kV)

Product Item	Nominal voltage Umax (kV)	∅ on insulation (mm)	∅ on external sheath (mm)	Conductor cross section (mm²)	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

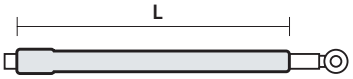
- Cables with copper conductors
- Special thermoplastic sheath
- Red copper wire screen
- High modulus rubber insulation

★ 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

HEAT-SHRINK TERMINATIONS FOR **INDOOR USE** FOR **ARMOURED** CABLES

Terminations for **SINGLE CORE** extruded cables up to **36 kV**.



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

For cables armoured with wires or aluminium tape

For Umax cables **7,2 kV** Product	Item	Voltage Umax (kV)	Conductor cross section (mm²)	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 sect. (mm²)	Umax 17,5 kV sect. (mm²)	Thickness **FULL** Umax 24 kV sect. (mm²)	Thickness **LOW** Umax 24 kV sect. (mm²)	L (mm)
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 (mm²)	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	

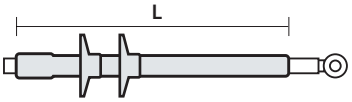
★ ADVANTAGES

- 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 161

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 Umax (kV)	Conductor cross section (mm²)	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		70 - 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	

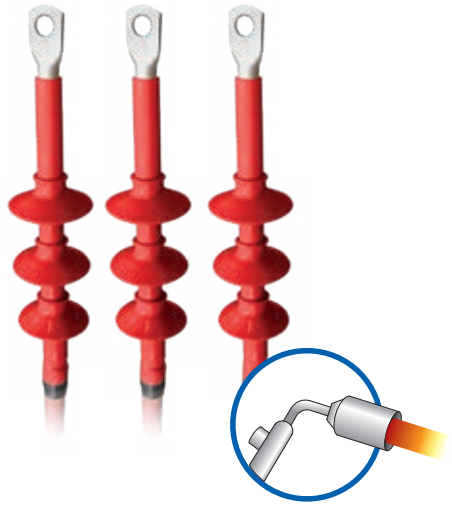
For shielded aluminium tube cables, add terminal abbreviation **H5.**

For cables RG7H1M1 Afumex insulation thickness LOW

Product	Item	Voltage Umax (kV)	Conductor cross section (mm²)	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	

★ 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, copper wire screen

Extruded cable, copper tape screen

Extruded cable, aluminium tube screen

TEMPERATURES

105°C
Working temperature

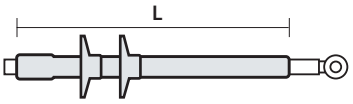
140°C
Max overload temperature

300°C
Short circuit temperature

For complementary accessories see page 161

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 cables CPR RG26H1M16 12/20 kV (Umax 24 kV)

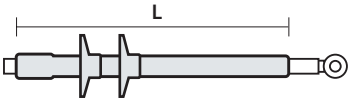
Product Item	Voltage Umax (kV)	∅ on insulation (mm)	∅ on external sheath (mm)	Conductor cross section (mm²)	L (mm)
THVE 20/25-E 231047-TEC	24	17	26	25	520
		17	27	35	
THVE 20/240-E 255098-TEC	24	18	28	50	520
		19	29	70	
		20,6	30	95	
		22	32	120	
		23,7	34	150	
		25	36	185	
THVE 20/630-E 792760-000	24	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 (Umax 36 kV)

Product Item	Voltage Umax (kV)	∅ on insulation (mm)	∅ on external sheath (mm)	Conductor cross section (mm²)	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	

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

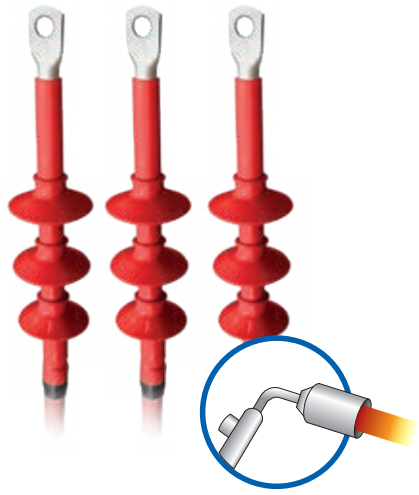
For Umax cables **7,2 kV** Product	Item	Voltage Umax (kV)	Conductor cross section (mm²)	L (mm)
THVO 6/70-ARM	THVO6/70-ARM	7,2	25 - 70	600
THVO 6/120-ARM	THVO6/120-ARM		95 - 120	
THVO 6/400-ARM	THVO6/400-ARM		150 - 400	
THVO 6/630-ARM	THVO6/630-ARM		500 - 630	

For Umax cables from **12** to **24 kV** Product	Item	Umax 12 kV sect. (mm²)	Umax 17,5 kV sect. (mm²)	Thickness **FULL** Umax 24 kV sect. (mm²)	Thickness **LOW** Umax 24 kV sect. (mm²)	L (mm)
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 (mm²)	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**



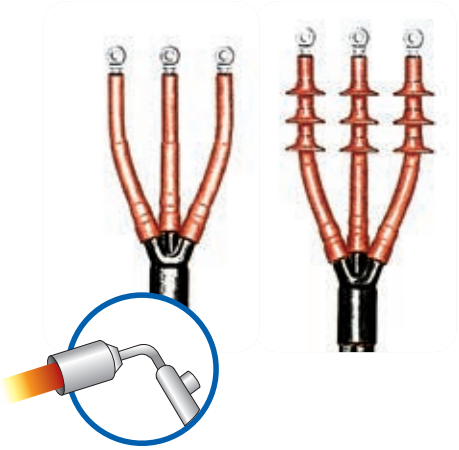
Electrical performance:
CEI 20-24 • CEI 20-62/1 • HD 629-1

Kit composition:
Three single core terminations

Extruded cable, wire or tape screened, aluminium wire armoured

Extruded cable, wire or tape screened, aluminium tape armoured

For complementary accessories see page 161



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 Umax (kV)	Conductor cross section (mm²)
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	Umax **12 kV** sect. (mm²)	Umax **17,5 kV** sect. (mm²)	Umax **24 kV** sect. (mm²)
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 Umax (kV)	Conductor cross section (mm²)
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

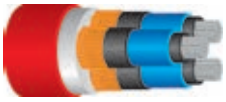
Product	Item	Voltage Umax (kV)	Conductor cross section (mm²)
THVI 6/0-3-ARM	THVI6/0-3-ARM	7,2	25 - 35
THVI 6/A-3-ARM	THVI6/A-3-ARM		50 - 120
THVI 6/B-3-ARM	THVI6/B-3-ARM		150 - 400
THVI 6/C-3-ARM	THVI6/C-3-ARM		500

Product	Item	Umax **12 kV** sect. (mm²)	Umax **17,5 kV** sect. (mm²)	Umax **24 kV** sect. (mm²)
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 Umax (kV)	Conductor cross section (mm²)
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

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**

For OUTDOOR USE

For NON ARMOURED cables

Product	Item	Voltage Umax (kV)	Conductor cross section (mm²)
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	Umax **12 kV** sect. (mm²)	Umax **17,5 kV** sect. (mm²)	Umax **24 kV** sect. (mm²)
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 Umax (kV)	Conductor cross section (mm²)
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 Umax (kV)	Conductor cross section (mm²)
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

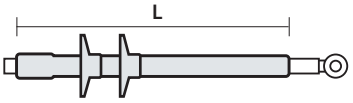
Product	Item	Umax **12 kV** sect. (mm²)	Umax **17,5 kV** sect. (mm²)	Umax **24 kV** sect. (mm²)
THVO 20/25-3-ARM	231051-TEC	25 - 95	25 - 50	25 - 50
THVO 20/240-3-ARM	255102-TEC	120 - 300	70 - 300	70 - 240
THVO 20/630-3-ARM	792764-000	400 - 500	400	300

Product	Item	Voltage Umax (kV)	Conductor cross section (mm²)
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 CERTIFIED HEAT-SHRINK **TERMINATIONS**

For single core type indoor and outdoor use.



ENEL tables: DJ 4456/3 • DJ 4476/2
ENEL certification: DJ 4853 • DJ 4854
Single core cable AL tube screen

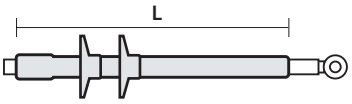
ELICORD TYPE EXTRUDED CABLE (ARG7H5EXY 12/20 KV)

Product Item	Type	ENEL serial number	Conductor cross section (mm²)	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
THVE 20/150-E/U 123021-000	With 2 EXTERNAL sheaths	273066	35 ÷ 150	450
OXSU-F-5131-IT02 123020-000	Single EXTERNAL tube	273066	35 ÷ 150	450

ENEL tables: DJ 4456
ENEL certification: DJ 4853 • DJ 4854
Single core cable extruded wires screen

EXTRUDED CABLE FOR UNDERGROUND INSTALLATION ([A] RG7H1R 12/20 KV)

Product Item	Type	ENEL serial number	Conductor cross section (mm²)	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 (mm²)	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 (mm²)	∅ (mm) insulation min	∅ (mm) insulation max	L (mm)
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

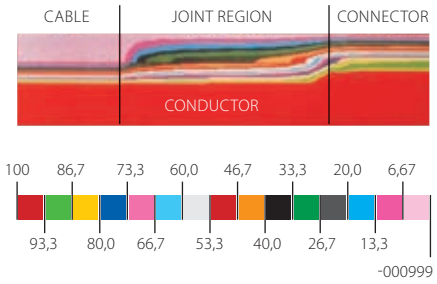
★ ADVANTAGES

- 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.

VOLTAGE DISTRIBUTION (PERCENT)
HEAT-SHRINKABLE JOINT



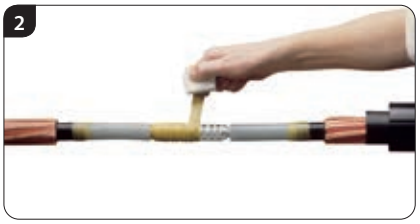
ELECTRICAL FIELD DISTRIBUTION

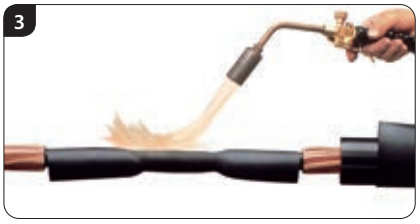
When the cable shield is cut, the electrical field is controlled by a material that has already been experimented in terminations: the electrical gradient control tube. This tube is made of non-linear impedance insulating material that is able to control the electrical field both at the end of the cable 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.

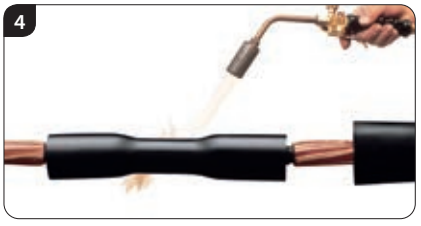
HOW TO IDENTIFY AND ORDER COMPLEMENTARY ACCESSORIES

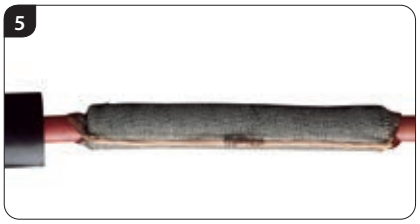
Accessory	Abbreviation to add to the product code	Example
Copper connectors	**-C** + Conductor cross section	GHVE 20/185-C95
Aluminium connectors	**-CA** + Conductor cross section	GHVE 20/185-CA95
Shear bolt connectors	**-CPR** + conductor cross section	GHVE 20/185-CPR95

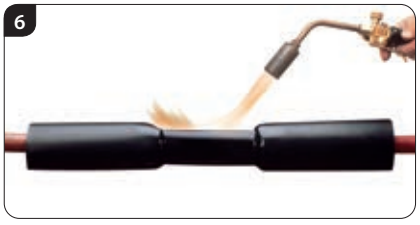
INSTALLATION SEQUENCE







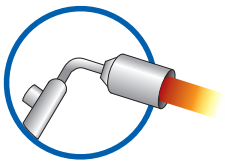


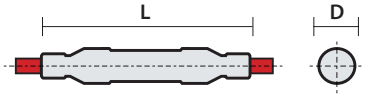


SINGLE CORE HEAT-SHRINK JOINTS

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.





Electrical performance:
CEI 20-24 • HD 629-1 • HD 629-2

FOR EXTRUDED INSULATION CABLES WITH COPPER WIRE SHIELD ([A]RG7H1R[X], [A]RE4H1E[X], [A]RG7H1M1[X])

Product	Item	Umax (kV)	Conductor cross section from (mm²)	to (mm²)	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	7,2 - 17,5	70	300	700	80
GHVE 15/630-1	357174-000	7,2 - 17,5	400	630	1000	100
GHVE 20/240-1	623051-000	24	25	240	700	80
GHVE 20/630-1	GHVE20/630-1	24	240	630	1000	100
GHVE 30/240-1	GHVE30/240-1	36	35	240	1000	90
GHVE 30/500-1	GHVE30/500-1	36	300	500	1000	100

FOR EXTRUDED INSULATION CABLES WITH ALUMINIUM TUBE SHIELD ([A]RG7H1R[X], [A]RE4H1E[X], [A]RG7H1M1[X])

Product	Item	Umax (kV)	Conductor cross section from (mm²)	to (mm²)	L max (mm)	D max (mm)
GHVE 15/50-1-H5	GHVE15/50-1-H5	17,5	25	50	700	75
GHVE 15/300-1-H5	GHVE15/300-1-H5	17,5	50	300	700	80
GHVE 15/630-1-H5	GHVE15/630-1-H5	17,5	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	24	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	36	300	500	1000	100

FOR SINGLE CORE EXTRUDED INSULATION CABLES ARMOURED WITH ALUMINIUM WIRES ([A]RG7H1RFR[X], [A]RE4H1EFE[X])

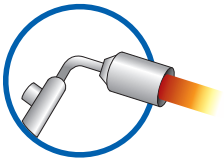
Product	Item	Umax (kV)	Conductor cross section from (mm²)	to (mm²)	L max (mm)	D max (mm)
GHVE 20/240-1-ARM	623052-000	24	25	240	1700	80
GHVE 20/630-1-ARM	GHVE20/630-1-ARM	24	240	630	1700	100
GHVE 30/240-1-ARM	GHVE30/240-1-ARM	36	35	240	1850	100
GHVE 30/500-1-ARM	GHVE30/500-1-ARM	36	300	500	1850	110

FOR INSULATED CABLES MADE OF PAPER IMPREGNATED WITH MIXTURE ([A]RC1HLR[X])

Product	Item	Umax (kV)	Conductor cross section from (mm²)	to (mm²)	L max (mm)	D max (mm)
GHVP 20/70-1	190901-000	24	35	70	1000	75
GHVP 20/240-1	GHVP20/240-1	24	50	240	1000	75
GHVP 20/400-1	861101-000	24	300	400	1000	80

Supplies do not include connectors which must be requested separately.

For complementary accessories see page 172

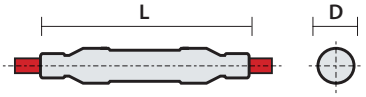


Electrical performance:
CEI 20-24 • HD 629-1 • HD 629-2

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

SINGLE CORE HEAT-SHRINK JOINTS



For cables CPR RG26H1M16 12/20 kV (Umax 24 kV)

Product Item	Umax (kV)	∅ on insulation (mm)	∅ on external sheath (mm)	Conductor cross section (mm²)	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 (Umax 36 kV)

Product Item	Umax (kV)	∅ on insulation (mm)	∅ on external sheath (mm)	Conductor cross section (mm²)	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

TEMPERATURES

105°C
Working temperature

140°C
Max overload temperature

300°C
Short circuit temperature

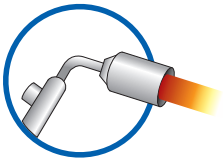
★ ADVANTAGES

- 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

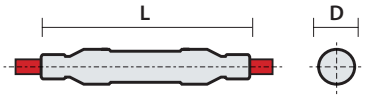
THREE CORE HEAT-SHRINK JOINTS

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.



Electrical performance:
CEI 20-24 • CEI 20-62/2 • HD 629-1



FOR EXTRUDED INSULATION CABLES ([A]RG7H1OR, [A]RE4H1OR)

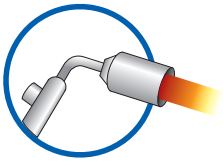
Product	Item	Umax (kV)	Conductor cross section from (mm²)	to (mm²)	L max (mm)	D max (mm)
GHVE 15/50-3	545116-000	7,2 - 17,5	25	50	1500	105
GHVE 15/300-3	251291-000	7,2 - 17,5	70	300	1500	110
GHVE 15/630-3	GHVE15/630-3	7,2 - 17,5	400	630	1600	130
GHVE 20/240-3	708732-000	24	25	240	1500	110
GHVE 20/630-3	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	Umax (kV)	Conductor cross section from (mm²)	to (mm²)	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

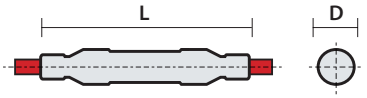
FOR INSULATED CABLES MADE OF IMPREGNATED PAPER ([A]RC1HLOR LEAD SHEATH OVER EACHCORE))

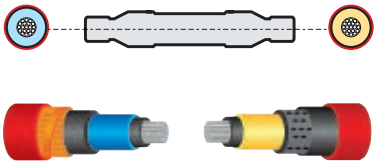
Product	Item	Umax (kV)	Conductor cross section from (mm²)	to (mm²)	L max (mm)	D max (mm)
GHVP 20/70-3	056242-000	24	35	70	1600	130
GHVP 20/240-3	843918-000	24	95	240	1600	140
GHVP 20/400-3	741685-000	24	300	400	1600	150



Electrical performance:
CEI 20-24 • CEI 20-62/2
HD 629-1 • HD 629-2

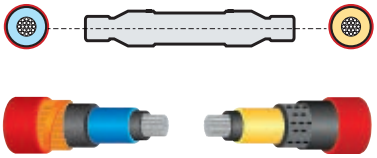
TRANSITION JOINTS BETWEEN **SINGLE CORE** CABLES





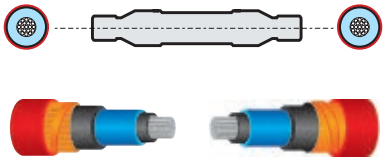
BETWEEN SINGLE CORE PAPER INSULATED CABLE AND EXTRUDED CABLE (RESPECTIVELY [A]RG7H1R[X] AND [A]RC1HLRX)

Product Item	Umax (kV)	Conductor cross section (mm²) paper cable	extruded cable	ENEL serial number
GHVE 20/25-1-T 202500-000	24	25		-
GHVE 20/240-1-T GHVE20/240-1-T	24	50 - 240	35 - 185	271074
GHVE 20/400-1-T 250499-000	24	240 - 400		-



BETWEEN SINGLE CORE PAPER INSULATED CABLE AND EXTRUDED CABLE WITH ALUMINIUM SHEET SCREEN (RESPECTIVELY [A]RC1HLRX AND ARG7H5EXY)

Product Item	Umax (kV)	Conductor cross section (mm²) paper cable	extruded cable	ENEL serial number
GHVE 20/240-1-TE GHVE20/240-1-TE	24	50 - 240	35 - 150	270118

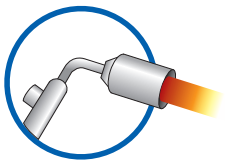


BETWEEN SINGLE CORE EXTRUDED CABLE WITH WIRE SCREEN AND EXTRUDED CABLE WITH ALUMINIUM FOIL SCREEN (RESPECTIVELY [ARG7H1R[X] OR [A]RG7H1M1 AND ARG7H5EXY)

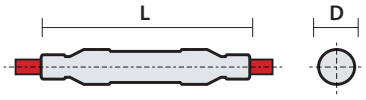
Product Item	Umax (kV)	Conductor cross section from (mm²)	to (mm²)	L max (mm)	D max (mm)
GHVE 20/240-1X-TE GHVE20/240-1X-TE	24	25	240	1000	75

TRANSITION JOINTS BETWEEN **MULTI CORE** CABLES

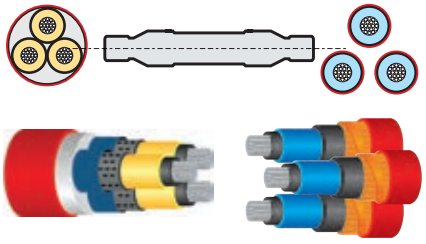
The three core transition joints kits are composed of one three core joint and do not contain the connectors.



Electrical performance:
CEI 20-24 • CEI 20-62/2
HD 629-1 • HD 629-2

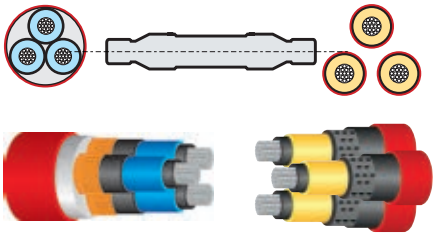


BETWEEN 3-CORE PAPER INSULATED CABLE AND 3 SINGLE CORE EXTRUDED CABLES (RESPECTIVELY [A]RC1HLOR AND [A]RG7H1R[X])



Product Item	Umax (kV)	Conductor cross section (mm²)	
		paper cable	extruded cable
GHVT 20/25-1X-3H 202020-000	24	25	25
GHVT 20/240-1X-3H 202019-000	24	50 - 240	35 - 185
GHVT 20/400-1X-3H 202021-000	24	300 - 400	240 - 400

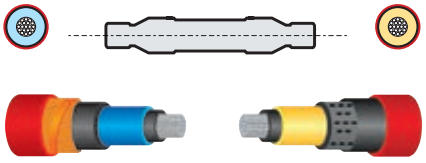
BETWEEN 3-CORE EXTRUDED CABLE AND 3 SINGLE CORE PAPER INSULATED CABLES (RESPECTIVELY [A]RG7H10R AND [A]RC1HLRX)



Product Item	Umax (kV)	Conductor cross section	
		from (mm²)	to (mm²)
GHVT 20/70-3X-1H on request 1	24	25	70
GHVT 20/240-3X-1H on request 2	24	95	240
GHVT 20/400-3X-1H on request 3	24	300	400

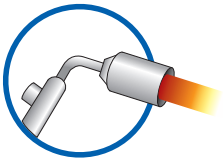
SINGLE CORE PLASTIC OR PAPER INSULATED CABLE JOINT WITH SCREEN INTERRUPTION

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.



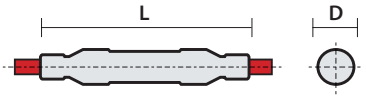
Product Item	Type of cable	Umax (kV)	Conductor cross section from (mm²)	to (mm²)	L max (mm)	D max (mm)
GHVP 20/240-1-IS 159852-INT	(A)RC4HLR(X)	24	50	240	1000	75
GHVE 20/240-1-IS 20GHIS-TEC	(A)GR7H1R(X)	24	50	240	1000	75
GHVE 20/150-1-IS 080799-TEC	ARG7H5EXY	24	35	150	1000	75

For complementary accessories see page 172



Electrical performance:
CEI 20-24 • CEI 20-62/2
HD 629-1 • HD 629-2

ENEL CERTIFIED
HEAT-SHRINK JOINTS



ENEL tables: DJ 4376
ENEL certification: DJ 4853 • DJ 4854

FOR EXTRUDED INSULATION CABLES ([A]RG7H1RX 12/20 KV COPPER WIRE SHIELD - EXTERNAL PVC SHEATH)

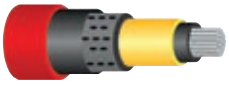
Product Item	Umax (kV)	Conductor cross section from (mm²)	to (mm²)	L max (mm)	ENEL serial number
GHVE 20/185 - 1/U 512605-000	24	50	185	700	271071

ENEL tables: DJ 4376
ENEL certification: DJ 4853 • DJ 4854

FOR WIRE CARRYING OVERHEAD CABLES (ARG7H5EXY 12/20 KV ALUMINIUM TUBE SHIELD - EXTERNAL PE SHEATH)

Product Item	Umax (kV)	Conductor cross section from (mm²)	to (mm²)	L max (mm)	ENEL serial number
GHVE 20/150 - 1/U 478596-000	24	35	150	700	271072

ENEL tables: DJ 4373
ENEL certification: DJ 4851 • DJ 4854

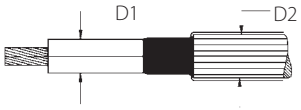


FOR INSULATED CABLES WITH IMPREGNATED PAPER (RC4HLRX WITH COPPER CONDUCTORS from 50 to 150 mm² and ARC4HLRX WITH ALUMINIUM CONDUCTORS from 95 to 240 mm²)

Product Item	Umax (kV)	Conductor cross section from (mm²)	to (mm²)	L max (mm)	ENEL serial number
GHVP 20/150 - 1/U 085563-000	17,5 e 24	50	150	1000	-
GHVP 20/240 - 1/U 573299-000	17,5 e 24	95	240	1000	271042

HEAT-SHRINK **TERMINATIONS** FOR **HIGH VOLTAGE** (UMAX 52 KV)

Kit contains a limited number of components with unlimited shelf life at normal storage conditions. Three basic kits cover all possible cable sections, with the advantage of keeping a reduced and effective stock. The lightness and limited volume of the kits facilitate their handling and transport. No special additional training is required. Simple installation for reliable results.



FOR INDOOR				
Product	**Item**	Voltage Umax (kV)	∅ D1 insulation (mm)	∅ D2 max. external (mm)
THVE 45/A-I	THVE45/A-I	52	30 - 45	60

FOR OUTDOOR				
Product	**Item**	Voltage Umax (kV)	∅ D1 insulation (mm)	∅ D2 max. external (mm)
THVE 45/A-E	THVE45/A-E	52	30 - 45	60

In the request, always indicate the cable section, its formation and the diameter on the insulation.
Contact Raytech to choose the most suitable termination.

★ ADVANTAGES

- **No shelf life under normal storage conditions**
- **Reduced and efficient stock**
- **Easy handling and transport**
- **No special additional training required**
- **Easy installation with safe results**

Raytech

MEDIUM VOLTAGE

SEPARABLE CONNECTORS TAPES SHEATHS

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**.

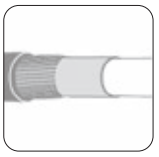
Single core separable connectors with contact plug In=250 A, elbow or straight for extruded cables. External coating in semi-conductive rubber protects personnel from electrocution. Each termination is factory tested before delivery with dielectric strength testing and measurements of partial discharges.

Complies with standards
CEI 20-62/1 - Cenelec HD 629.1 S2

Kit composition:
Three single core terminations

Contact Raytech for aluminium shield cables.

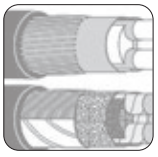
Kit available for tape screen. Add "A" to the end of the "Product code".



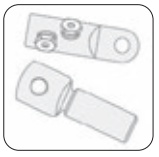
Connection kit for wire shield included.

Contact Raytech for information regarding other types of cable.

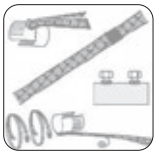
Kit available for three core cables. Order kit "TK.." See table.



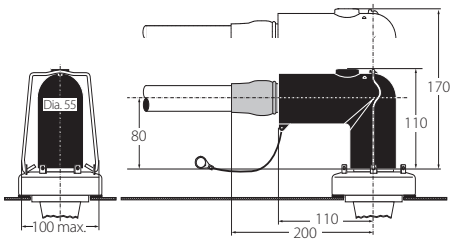
Contact Raytech for different armour grounding systems available.

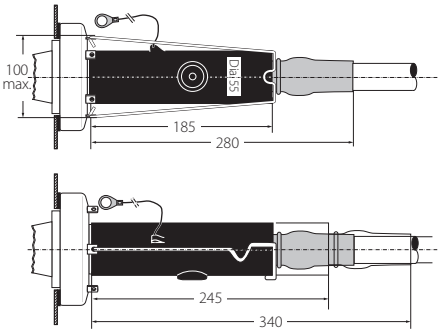


Different types of cable lugs available.



Contact Raytech about different shield grounding systems available.





SEPARABLE INTERFACE "A" TERMINATION 24KV - 250 A

ELBOW		Voltage Umax (kV)	Cable insulation diameter range (mm)	Copper/aluminium mechanical conductor cross section range (mm²)
Product	**Item**			
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

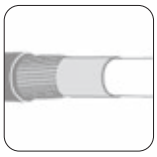
STRAIGHT		Voltage Umax (kV)	Cable insulation diameter range (mm)	Copper/aluminium mechanical conductor cross section range (mm²)
Product	**Item**			
250 RTD-20/A-3	250RTD20/A-3	24	13,0 - 21,0	25 - 95
250 RTD-20/B-3	250RTD20/B-3		17,5 - 25,0	25 - 95
250 RTD-20/C-3	250RTD20/C-3		21,5 - 28,5	95 - 150

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.

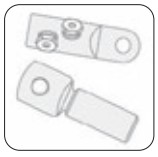
Kit available for tape screen. Add "A" to the end of the "Product code".



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.

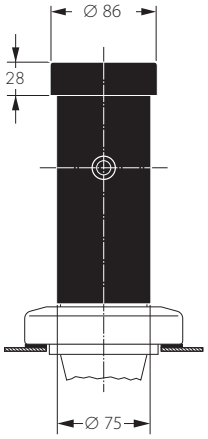


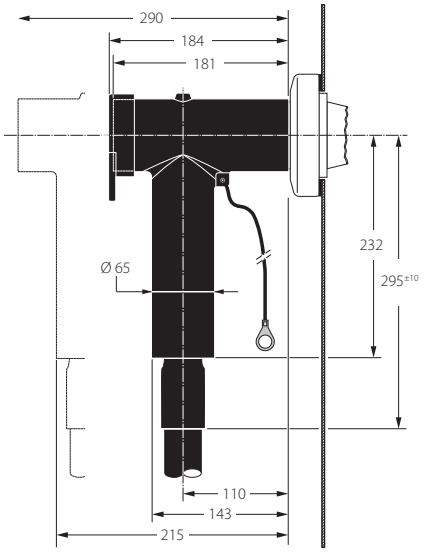
Different types of cable lugs available.

Contact Raytech for different shield grounding systems available.

Complies with standards
CEI 20-62/1 - Cenelec HD 629 .1 S2

Kit composition:
Three single core terminations





SEPARABLE TEE INTERFACE "C" TERMINATION 24/36KV - 630 A

Product	Item	Voltage Umax (kV)	Cable insulation Ø range (mm)	Copper/aluminium mechanical conductor cross section range (mm²)
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

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 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.

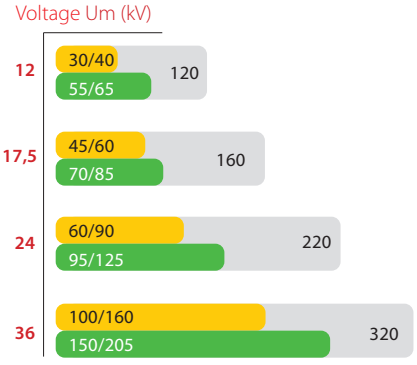
Installation

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.

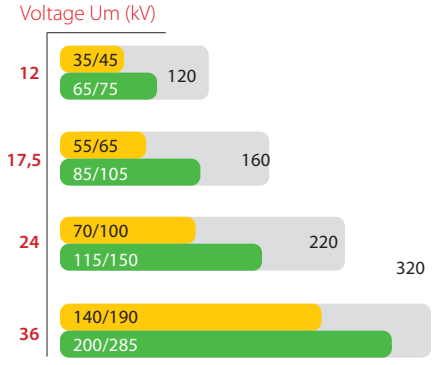
DISTANCES ALLOWED IN BAR SYSTEMS

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



Rectangular bus bars



Spacing in air according to IEC 71-2
phase / phase (mm)
phase / bus bars (mm)

Insulation
with BBT

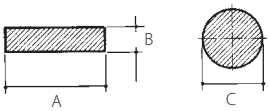
Insulation with BPM or HVBT
with overlap of 2/3

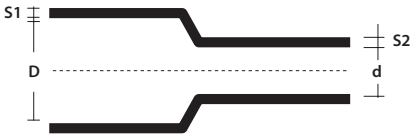
For more information on different possible applications please contact Raytech.

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





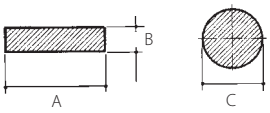
D = ∅ minimum before shrinkage
d = ∅ maximum after free shrinkage
S1 = nominal thickness as supplied
S2 = minimum nominal thickness after free shrinkage

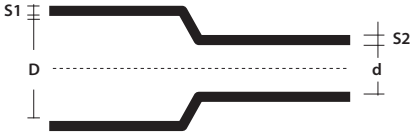
Product Item	Size of bus bars (mm) A+B from	A+B to	C from	C to	Heat-shrink sheath (mm) D	d	S_1	S_2
BBT 40/16-A/U BBT40/16-AU	28	45	18	32	40	16	1,6	3,8
BBT 65/25-A/U BBT65/25-AU	44	69	28	47	65	25	1,6	3,9
BBT 100/40-A/U BBT100/40-AU	69	102	44	72	100	40	1,6	4,0
BBT 150/60-A/U BBT150/60-AU	102	148	65	105	150	60	1,6	4,0

BPM

Flexible, **medium wall** heat-shrink sheath.

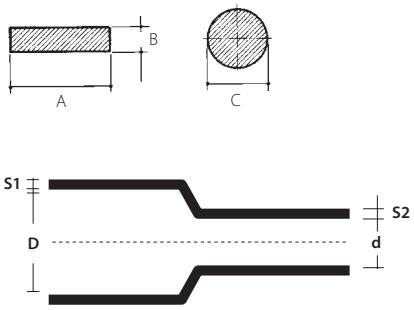
Suitable for optimising space in MV panels and for protection from discharges and accidental contact for systems up to 24 kV. Phase-to-phase distance reduced to approximately 1/2





D = ∅ minimum before shrinkage
d = ∅ maximum after free shrinkage
S1 = nominal thickness as supplied
S2 = minimum nominal thickness after free shrinkage

Product Item	Size of bus bars (mm) A+B from	A+B to	C from	C to	Heat-shrink sheath (mm) 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



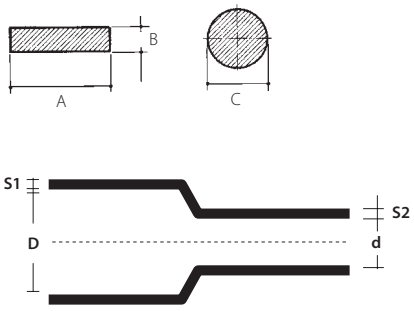
D = ∅ minimum before shrinkage
d = ∅ maximum after free shrinkage
S1 = nominal thickness as supplied
S2 = minimum nominal thickness after free shrinkage

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) A+B from	A+B to	C from	C to	Heat-shrink sheath (mm) 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



D = ∅ minimum before shrinkage
d = ∅ maximum after free shrinkage
S1 = nominal thickness as supplied
S2 = minimum nominal thickness after free shrinkage

BBIT

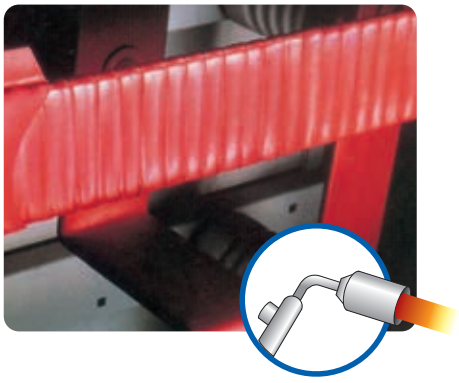
Flexible, **heavy duty** heat-shrink sheath.

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) A+B from	A+B to	C from	C to	Heat-shrink sheath (mm) 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

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 on page 179 (BPM values) to determine the distances between the bars and toward grounding. HVBT tape is sold in 4 different widths and is coated with adhesive on the outer part. Fibreglass tape used to stop taping is provided with each roll.

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

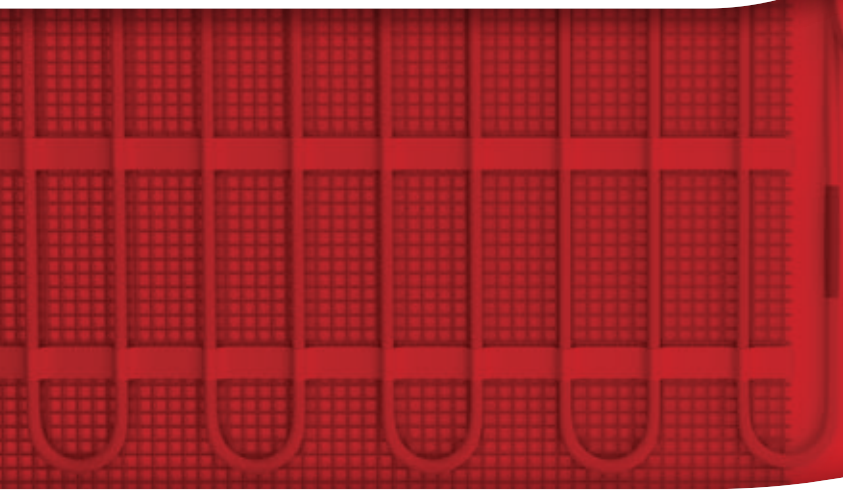
MEDIUM VOLTAGE TESTING DETAILS FOR **TERMINALS** AND **JOINTS** UP TO 36 KV.

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	-	-	-	-	-	
	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/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/m³ (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

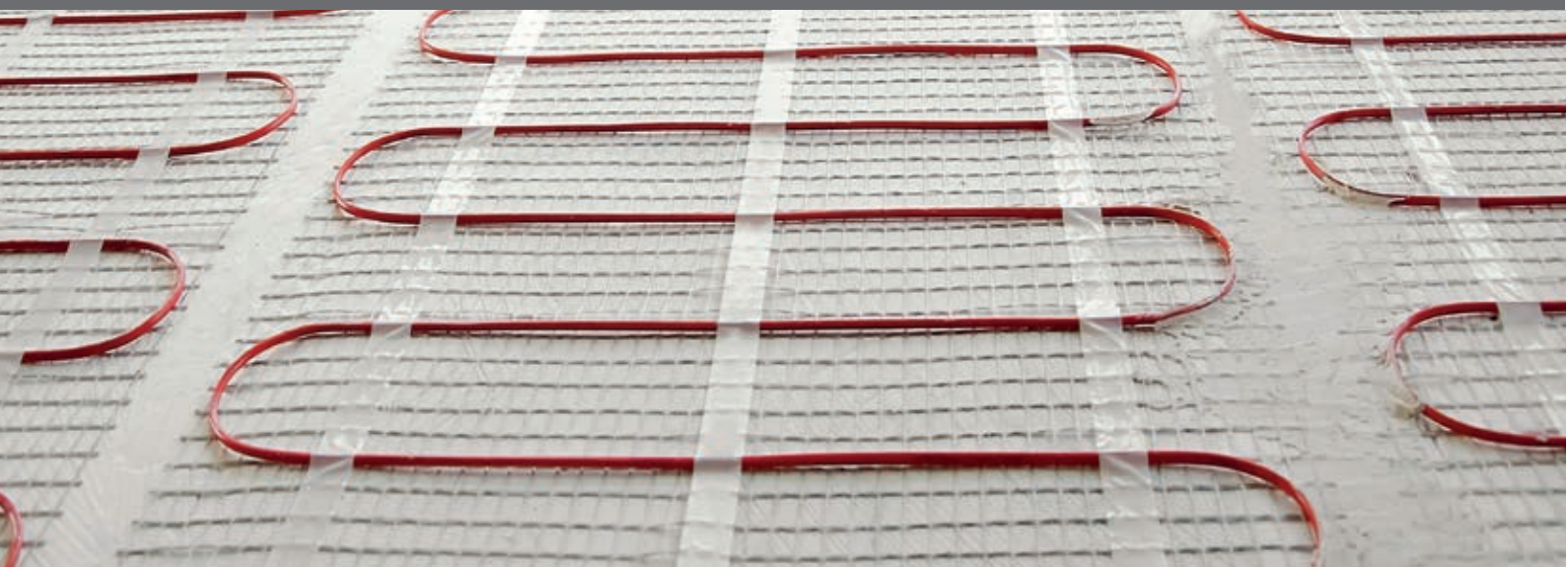
INDUSTRIAL USE.
DOMESTIC USE.
COMFORT HOUSE.



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.

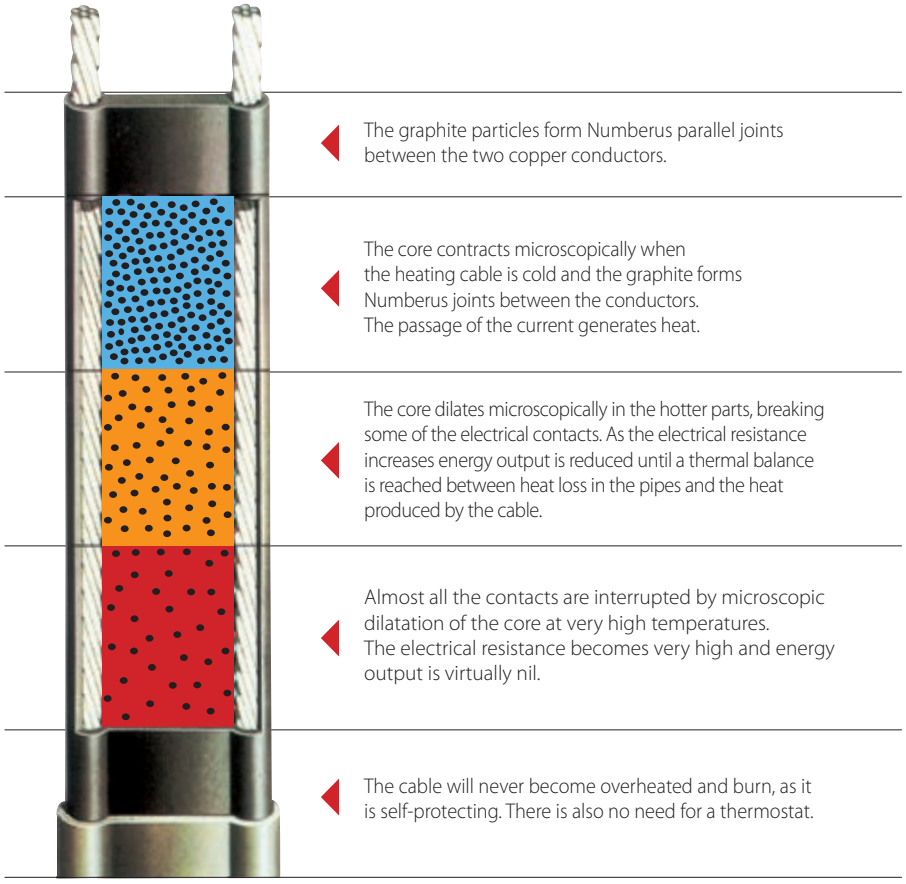
★ ADVANTAGES
CONSTANT POWER CABLES

- **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**

Raytech

HEATING CABLES

INDUSTRIAL USE

MCA / MCA-I-PF

CABLE POWERED
From -55°C to +65°C

CABLE NOT POWERED
From -55°C to +80°C

MCA-I-GF

CABLE POWERED
From -60°C to +120°C

CABLE NOT POWERED
From -60°C to +120°C

MCA-I-FF

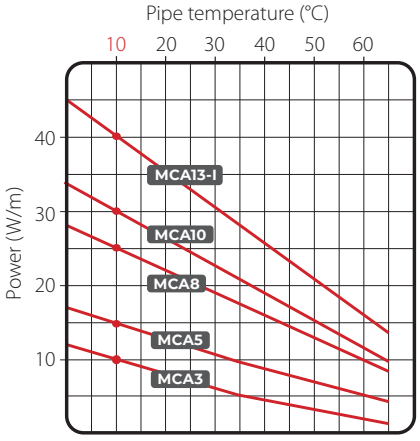
CABLE POWERED
From -60°C to +110°C

CABLE NOT POWERED
From -60°C to +130°C

MCA

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
- 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

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.

For other accessories see page 219

MCA-I-PF

Self-regulating heating cables for anti-freeze or temperature maintenance use with exposure to **inorganic solutions**.

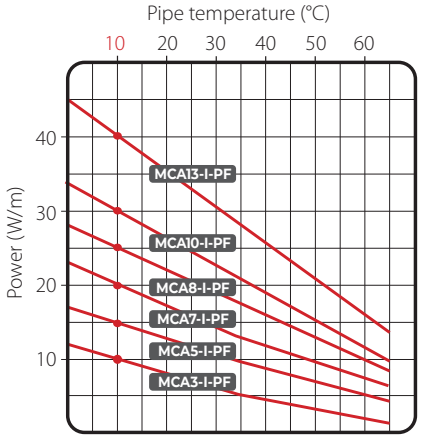
Suitable for anti-freeze and process temperature maintenance use **up to 65°C** on piping and tanks. Cannot be used when washing with steam or continuous exposure to strong corrosive and organic acids.

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 **Starting temperature** (°C)		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**		
		+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

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.

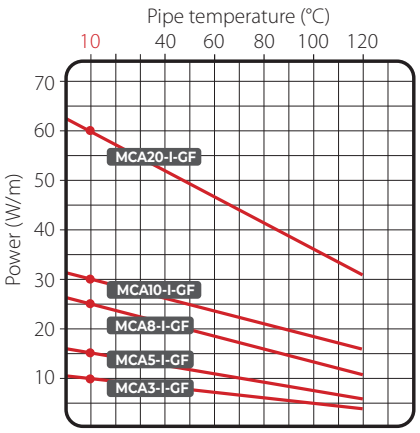
MCA-ALL
Aluminium self adhesive tape 25 or 75 mm.

For other accessories see page 219

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 **Starting temperature** (°C)		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**		
		+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.

For other accessories see page 219

MCA-I-FF

Self-regulating heating cables for anti-freeze or temperature maintenance use with exposure to **corrosives and acids and high temperatures**.

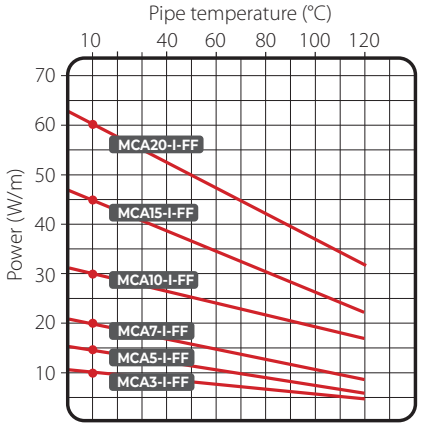
Suitable for maintaining process temperatures **up to 110°C** on piping and tanks, even in the presence of acids and corrosives, or for anti-freeze use even in the presence of acids and corrosives and where high temperature thermal treatment is foreseen, like steam washing.

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 **Starting temperature** (°C)		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**		
		+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

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.

For other accessories see page 219

Raytech

HEATING CABLES
DOMESTIC USE

PIPING

CONSTANT POWER

STOP ICE

SELF-REGULATING

ICE KILLER
MCA

RAMPS

CONSTANT POWER

EASY CABLE
EASY RAMP

SELF-REGULATING

MCA RAMP

GUTTERS

CONSTANT POWER

EASY FROST

SELF-REGULATING

MCA 8

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.

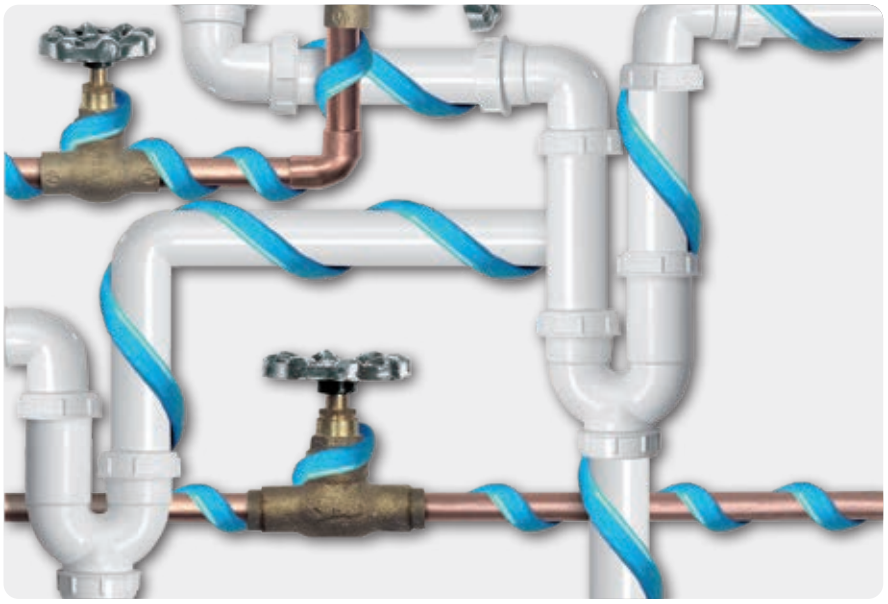
- Easy and quick to install
- No need for any external temperature control system, thanks to its built-in thermostat
- Low energy consumption

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

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: CE

Integrated Bimetal Thermostat
(ON + 3°C - OFF +10°C)

Complete Connections and power cord
(1,5 m - 3 x 0,75 mm²)



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

50 mm

3 mm

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 mm^2 - 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

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

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

	Maximum circuit length (m)			
	Ice Killer 2		Ice Killer 6	
Starting temperature	0°C	-20°C	0°C	-20°C
10 A electrical protection, characteristic C switch with differential 30 mA protection	95	77	58	41

MCA

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)
MCA3	220-240	-30	10	65	80
MCA5	220-240	-30	15	65	80
MCA8	220-240	-30	25	65	80

ELECTRICAL SIZING		MAXIMUM LENGTH OF THE CIRCUITS IN THE HEATING CABLE (m)								
		MCA3			**MCA5**			**MCA8**		
Starting temperature (°C)		+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
	16 A	177	144	125	160	114	99	103	75	60
	20 A	-	149	139	-	133	124	126	94	75
	25 A	-	-	-	-	-	-	-	107	94

* Suggested where protection of people is requested; installations with no personnel admittance can be performed with 100 to 300 mA.

Pipe Ø		Thermal insulation thickness									
		10 mm		20 mm		30 mm		40 mm		50 mm	
		Outer temperature (°C)									
inch	mm	-10	-20	-10	-20	-10	-20	-10	-20	-10	-20
1/2"	15	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**
3/4"	20	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**
1"	25	1-**3**	1-**8**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**
1¼"	32	1-**3**	1-**8**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**
1½"	40	1-**3**	1-**8**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**
2"	50	1-**8**	1-**8**	1-**3**	1-**8**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**
2½"	65	1-**8**	1-**8**	1-**3**	1-**8**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**	1-**3**
3"	80	1-**8**	2-**8**	1-**3**	1-**8**	1-**3**	1-**5**	1-**3**	1-**3**	1-**3**	1-**3**
4"	100	1-**8**	2-**8**	1-**5**	1-**8**	1-**3**	1-**5**	1-**3**	1-**5**	1-**3**	1-**3**
6"	150	2-**8**	2-**8**	1-**8**	2-**8**	1-**8**	1-**8**	1-**3**	1-**8**	1-**3**	1-**8**
8"	200	2-**8**	-	1-**8**	2-**8**	1-**8**	1-**8**	1-**8**	1-**8**	1-**3**	1-**8**
10"	250	2-**8**	-	2-**8**	-	1-**8**	2-**8**	1-**8**	1-**8**	1-**8**	1-**8**

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 rockwod) and min outer temperature.

For uses other than anti-freeze, request design from Raytech technical direction.

MCA 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.

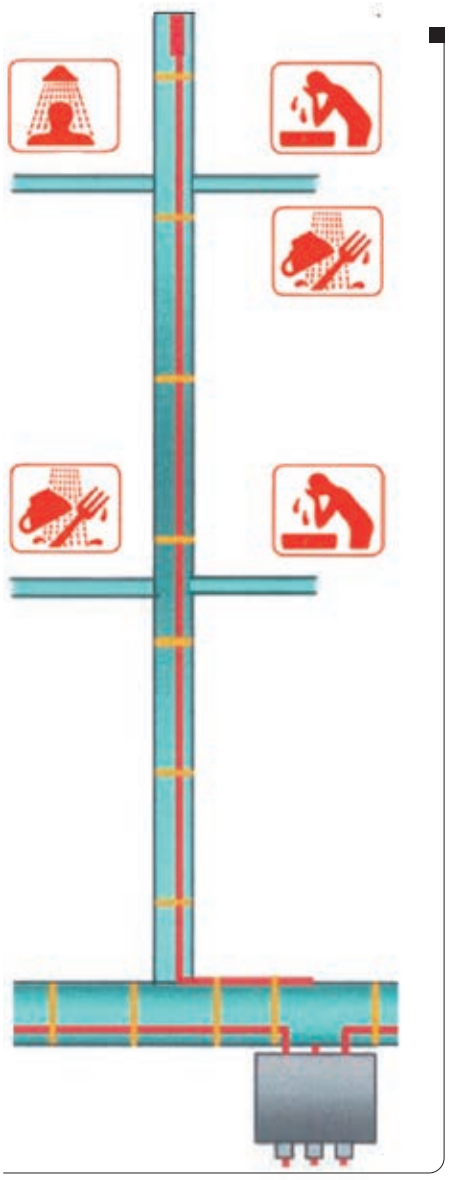
MCA-PRESS
Cable gland.

MCA-EA
Warning label.

MCA-FV
Glass fiber tape.

MCA-ALL
Aluminium self adhesive tape 25 or 75 mm.

For other accessories see page 219



MCA

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 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.

For other accessories see page 219

EASY CABLE

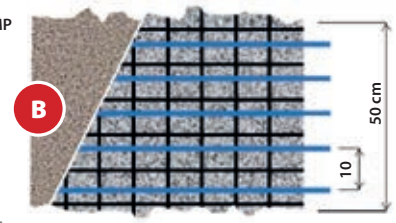
Constant, versatile power heating cable complete with termination accessory and power cable.

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

RAMP

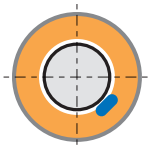
RAMP



Depth of installation about 50 mm with respect to the surface.

PER PIPING Product	Specific power (W/m)	Rated power (W)	Anti-freeze for pipes up to 2 ½" (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
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.



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
he 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

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.

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

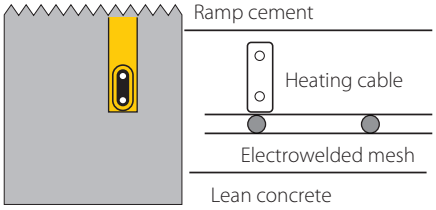
Product	Power (W)	Specific power (W/m²)	Width (m)	Length (m)
Easy Ramp 4/300	670	300	0,6	4
Easy Ramp 7/300	1140	300	0,6	7
Easy Ramp 13/300	2560	300	0,6	13
Easy Ramp 21/300	3730	300	0,6	21

ATTENTION: since it is a constant power cable, the *EASY RAMP* can not be cut, jointed or overlapped.

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 Switgear*	Cable length 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.
- Kit terminale lato non alimentato.
- Joint Kit.

MCA-BOX3 / 4
Connection boxes between heating cables or heating and power cables.

MCA-PRESS
Cable gland.

For other accessories see page 219

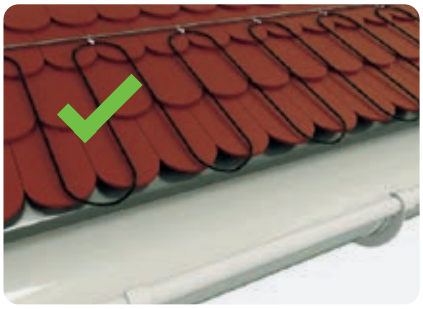
EASY FROST

Constant power heating cable for roofs, gutters and downpipes.

Raytech Easy Frost is a 20 W/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 x 1,0 mm² o 3 x 1,5 mm²) for supply connection.

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 x 1,0 mm² or 3 x 1,5 mm²
Heating cable type:
2 conductors, screened cable
Insulation: XLPE
External sheath: PVC
Min. bending radius: 3,5 D
Marking: CE

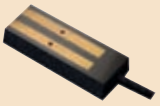
Product	Power (W)	Specific power (W/m)	Resistance (Ω)	Length (m)
Easy Frost 50/20	1000	20	52,9	50
Easy Frost 102/20	2040	20	29,9	102



ATTENTION: since it is a constant power cable, the *EASY FROST* can not be cut, jointed or overlapped.

Control unit for EASY FROST

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-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 8

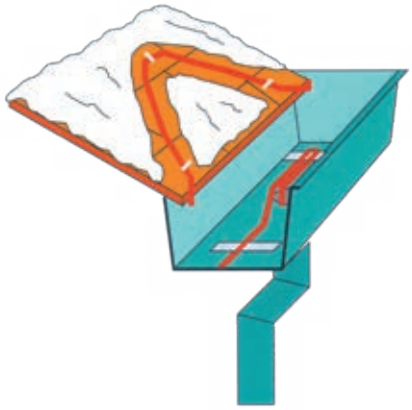
Self-regulating cable for tracing roofs, gutters and/or downpipes.

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.



The image shows gutter installation, the input of cable in a downpipe and tracking of a roof pitch.

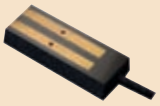
Product	In air 0°C Power (W/m)	In chilly water Power (W/m)	Maximum cable lenght with starting temperature of -10°C through a switchgear (*) of		
			16 A	20 A	30 A
MCA8	24	40	40 m	50 m	90 m

*Switchgear with "C" characteristic, having a diffferential 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 8 connection accessories

C2000
The C 2000 con**trol** 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.
- Kit terminale lato non alimentato.
- Joint Kit.

MCA-Y
Branch Kit.

MCA-BOX3 / 4
Connection boxes between heating cables or heating and power cables.

MCA-SUP
Support device.

For other accessories see page 219

埃利亚斯

Ray tech

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.

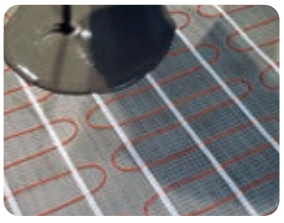
EASY FLOOR

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.

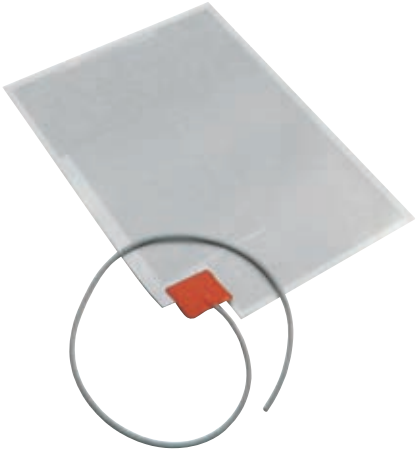
The RID (Raytech Intelligent Display) microprocessor room timed thermostat is simple to use, thanks to its step-by-step programming guide. The easy to read display supplies a complete explanation of set parameters after 10 seconds.

The RID autonomously controls all room functions, with no need for extra operations. Weekly programming makes it possible to 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



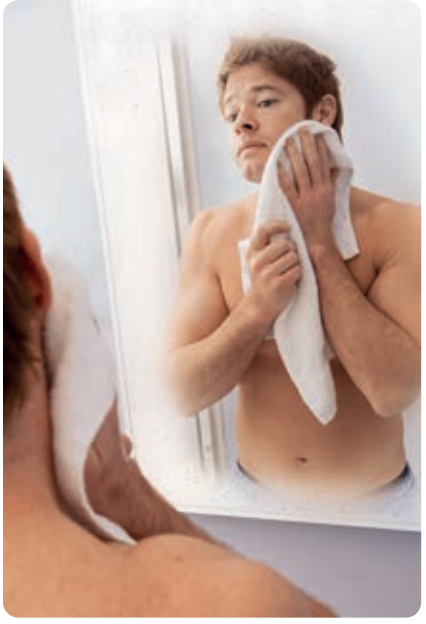
EASY MIRROR

Self-adhesive heating sheet.

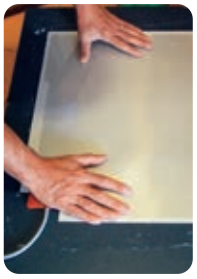
No more fogged mirrors after a shower or bath! Easy Mirror, the self-adhering heating sheet to be applied on the back of the mirror and connected to the mains, eliminates this problem! Powered 230V, double insulated in accordance with safety regulations. Brings the surface of the mirror to 30°C in about 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.

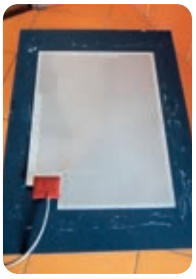
- Ideal for bathrooms, saunas, kitchens, private homes, Hotels, gyms and sports facilities

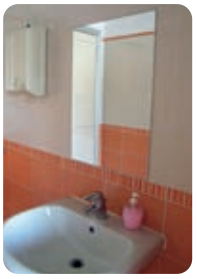
Product	Sheet dimensions (cm)	Power (W)
Easy Mirror 35	Ø 35	50
Easy Mirror 36/50	36 x 50	50



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 unharmful, 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 unistalled 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.

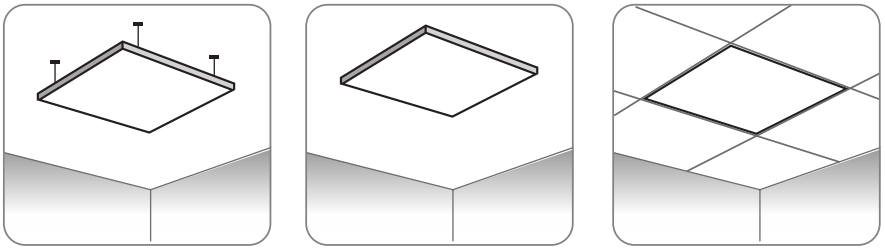
An ideally integrated invisible system that can also be decorative!

VERANDAS

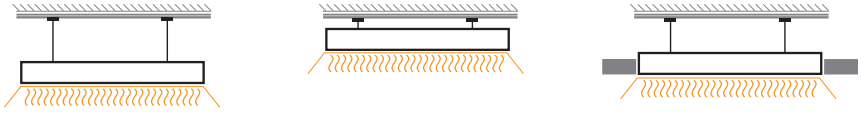
PREFABRICATED BUILDINGS

EXHIBITION SPACES

GAZEBOS



SUSPENDED FIXED ENCASED



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

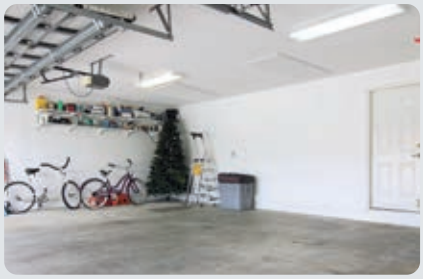
Product	Colour	Power	Dimensions (mm)
Warm Up 1	White, Paintable	300 W	590 x 590 x 40
Warm Up 2		600 W	1190 x 590 x 40

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

WARM UP ACCESSORIES

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

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

Raytech

HEATING CABLES SELF-REGULATING

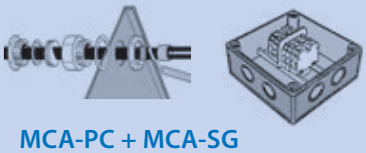
ACCESSORIES

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

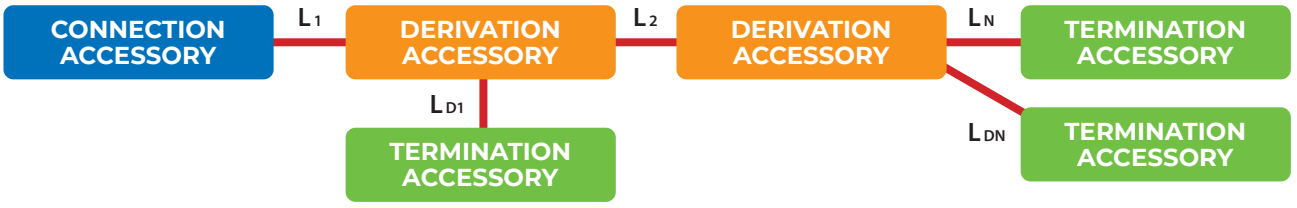
MCA UNIVERSAL IP68
Pre-filled gel joint

MCA PM
Termination kit.

AT LEAST ONE CONNECTION ACCESSORY AND ONE TERMINATION ACCESSORY ARE REQUIRED FOR EACH SECTION OF HEATING CABLE

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.



The sum of the lengths of the sections under a single power supply must be less than Lmax
(please refer to the ELECTRIC DIMENSIONING table on catalogue or project)

$L_1 + L_2 + L_{D1} + ... + L_{DN} + L_N = < L\ max$

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.

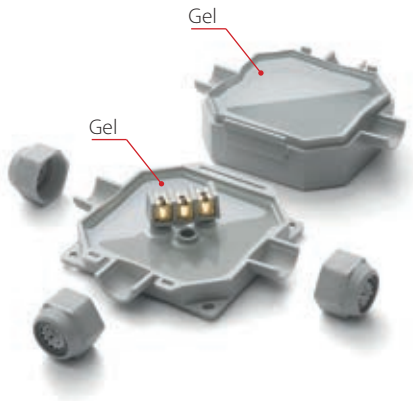
Product	Kit Composition	A x B x C (mm)
MCA Universal IP68	3 screw connectors to connect to the power cable or another heating cable	125 x 43 x 35
MCA-Y	3 screw connectors for branch connections between heating cables	160 x 75 x 37

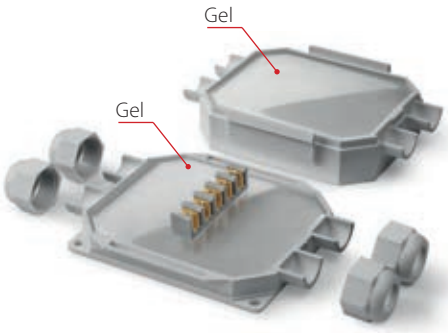
MCA-BOX

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 mm² + adaptors	90 x 90 x 45
MCA BOX 4	Gel-prefilled box Terminal block 4 x 6 mm² + adaptors	120 x 100 x 45

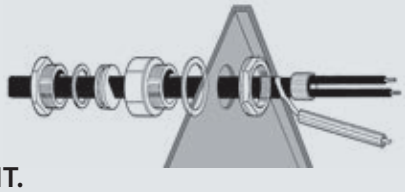




MCA BOX 3

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.

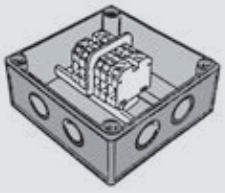
It allows the cable to pass through the metallic covering of the thermal insulation, avoiding abrasions and the moisture or water entry under the covering. It contains cable gland and fixing plate. One kit for each cable.

MCA-PRESS

CABLE GLAND.

To allow the cable to enter in boxes, to pass through walls etc. One kit per cable.

MCA-SG

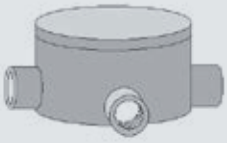


BOX.

Box with IP55 degree of protection, complete of terminals. It alllows 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.

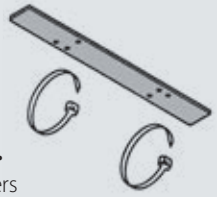
For insulating and matching the cable ends. Made from cold-shrink components. One kit for each termination.

MCA-GL

JOINT KIT.

To joint cable ends or to repair damaged cables. It containes 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

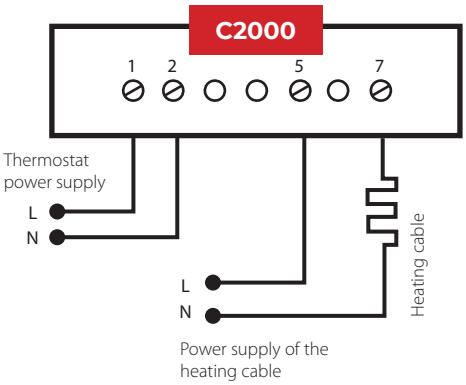
ALUMINIUM SELF ADHESIVE TAPE 75 MM WIDTH.

For cable fixing, in 50 m rolls.

MCA-EA

WARNING LABEL.

To be applied for warning over traced items.



CONTROL UNIT C2000

C 2000 CONTROL UNIT FOR TEMPERATURE AND HUMIDITY.

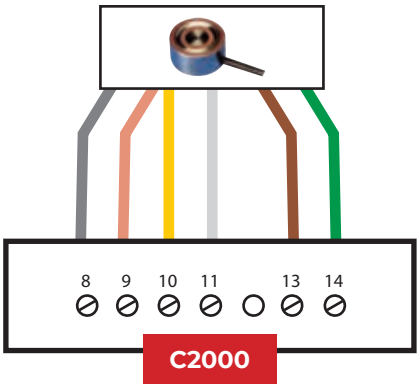
The C2000 control unit and relative sensors are suitable for the tracing with both self-regulating cables and constant power cables. The unit allows you to power the system only when low temperatures and humid surfaces (snow - ice, etc.) are present simultaneously.

Segnalling lamps

- **ON** voltage
- **RELAY** cable on power
- **MOIST** humidity presence
- **TEMP** the temperature is lower than the fixed

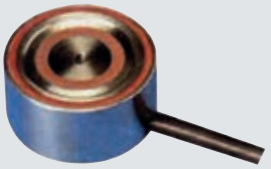
Voltage: 230V c.a. +/- 10% 50/60Hz
Output: N° 1 relays
Switching capacity: 16A (3600 W)
Differential ON/OFF: 0,4°C
Temperature Range: 0-10°C
After run time: 1-6 hours
Protection degree: IP20
Dimensions: 85 x 42 x 48,8 mm
Weight: 252 gr
Room temperature: 0/50°C

C2000-SR



C2000-SR

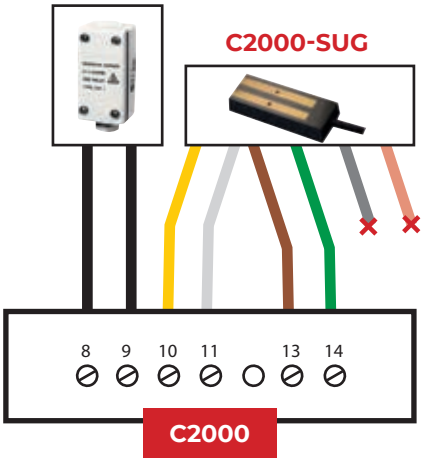
HUMIDITY AND TEMPERATURE SENSOR FOR RAMPS AND STAIRS.



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)

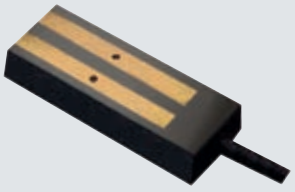
C2000-STG

C2000-SUG



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

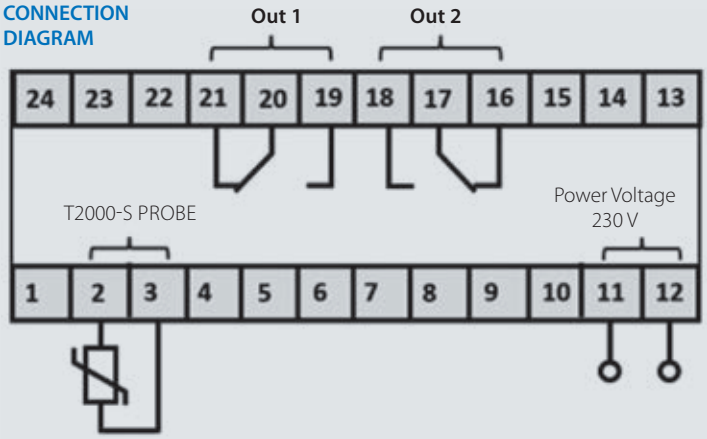
ON/OFF THERMOSTAT – P.I.D. 2 OUTPUTS WITH TEMPERATURE ALARM MANAGEMENT.

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. ± 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** ± 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

REQUEST FORMS TO BE SENT TO *info@raytech.it*
OR FILL IN ON-LINE USING THE QRcode ▶

Data request form for the **heating tracing design** of

STEPS AND WALKWAYS

Company/Customer data: _____

Address: _____

E-mail: _____

Contact person: _____ Tel.: _____

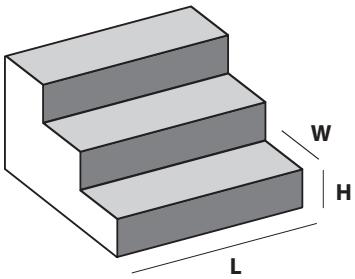
STEPS

Number Steps _____

L step (cm) _____

H step (cm) _____

W step (cm) _____



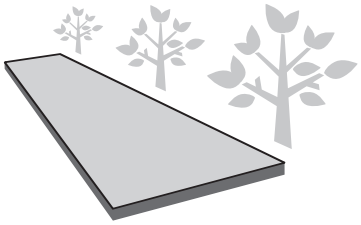
Minimum environmetal temperature ☐ **-10°C** ☐ **-15°C** ☐ **-20°C**

Availability of 3 phase supply ☐ **Yes** ☐ **No**

Available power (kW) _____ (Supply voltage 230V)

Notes: _____

WALKWAYS



Width Walkways (m) _____

Length Walkways (m) _____

Type of covering ☐ **Concrete/Asphalt** ☐ **Self Locking/Porphyry**

Total thickness ☐ **Up to 6 cm** ☐ **Over 6 cm** (max 10 cm)

Tracing type ☐ **Complete** ☐ **Partial**

Minimum environmental temp. ☐ **-10°C** ☐ **-15°C** ☐ **-20°C** ☐ **Other** _____ **°C**

Availability of 3 phase supply ☐ **Yes** ☐ **No**

Available power (kW) _____ (Supply voltage 230V)

Notes: _____

The applicant is reminded to enter in this form all data in his/her possession. The evaluation is carried out by Raytech on a free basis, to provide the customer with a rough list of Raytech Material suitable for the execution of the required tracement.

Data request form for the **heating tracing design** of

GUTTERS AND DOWNSPOUTS

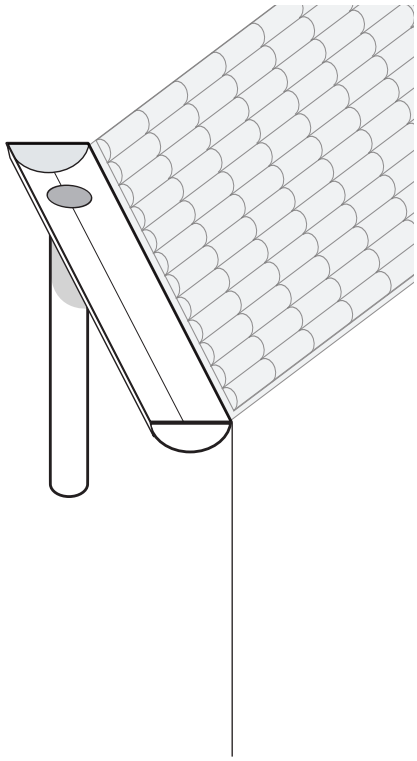
Company/Customer data:

Address:

E-mail:

Contact person: Tel.:

GUTTERS AND DOWNSPOUTS



Total number of gutters _____

Gutter width (cm) _____

Length of gutter n° 1 (m) _____

Length of gutter n° 2 (m) _____

Length of gutter n° 3 (m) _____

Length of gutter n° 4 (m) _____

Total number of downpipes _____

Downpipes average high (m) _____

Downpipes diameter (cm) _____

Is the gutter bitumen coated ☐ **Yes** ☐ **No**

Minimum environmental temp. ☐ **-10°C** ☐ **-15°C** ☐ **-20°C** ☐ **Other** _____ **°C**

Availability of 3 phase supply ☐ **Yes** ☐ **No**

Available power (kW) _____ (Supply voltage 230V)

Notes:

The applicant is reminded to enter in this form all data in his/her possession. The evaluation is carried out by Raytech on a free basis, to provide the customer with a rough list of Raytech Material suitable for the execution of the required tracement.

REQUEST FORMS TO BE SENT TO *info@raytech.it*
OR FILL IN ON-LINE USING THE QRcode ▶

Data request form for the **heating tracing design** of

RAMPS

Company/Customer data: _____

Address: _____

E-mail: _____

Contact person: _____ Tel.: _____

TYPE OF TRACING

MCA SELF-REGULATING

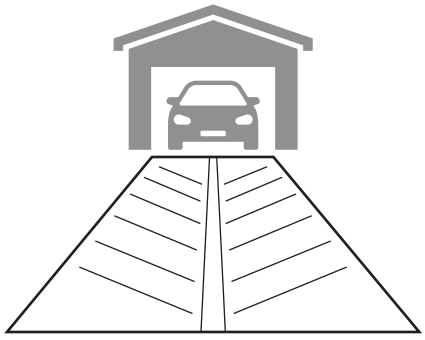
☐ Complete

☐ Only wheel paths

EASY RAMP CONSTANT POWER

☐ Complete

☐ Only wheel paths



RAMP

Ramp width (m) _____ Ramp lenght (m) _____

Presence of:	Width (mm)	Length (m)	Grids distance from the upper end (m)
☐ Water collection grids			
☐ Grids			
☐ Expansion joints			
☐ Traps			

Type of covering ☐ **Concrete/Asphalt** ☐ **Self Locking/Porphyry**

Total thickness ☐ **Up to 6 cm** ☐ **Over 6 cm** (max 10 cm)

Type of traffic ☐ **One way** ☐ **Two ways simoultaneously**

Minimum environmental temp. ☐ **Up to -15°C** ☐ **Severe < -15°C**

Availability of 3 phase supply ☐ **Yes** ☐ **No**

Available power (kW) _____ (Supply voltage 230V)

Notes: _____

The applicant is reminded to enter in this form all data in his/her possession. The evaluation is carried out by Raytech on a free basis, to provide the customer with a rough list of Raytech Material suitable for the execution of the required tracement.

Data request form for the **heating tracing design** of

TERRACE/BALCONY AND ROOFS

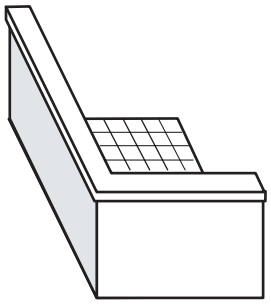
Company/Customer data:

Address:

E-mail:

Contact person: Tel.:

TERRACE/BALCONY



Width (m) _____

Length (m) _____

Type of covering ☐ **Concrete** ☐ **Tarry**

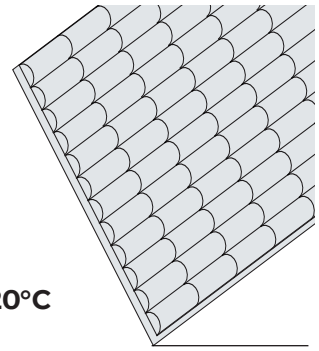
Minimum environmental temp. ☐ **-10°C** ☐ **-15°C** ☐ **-20°C**

Availability of 3 phase supply ☐ **Si** ☐ **No**

Available power (kW) _____ (Supply voltage 230V)

Notes:

ROOFS



Width (m) _____

Length (m) _____

Covering Tar/bitumen ☐ **Yes** ☐ **No**

Minimum environmental temp. ☐ **-10°C** ☐ **-15°C** ☐ **-20°C**

Availability of 3 phase supply ☐ **Si** ☐ **No**

Available power (kW) _____ (Supply voltage 230V)

Notes:

The applicant is reminded to enter in this form all data in his/her possession. The evaluation is carried out by Raytech on a free basis, to provide the customer with a rough list of Raytech Material suitable for the execution of the required tracement.

REQUEST FORMS TO BE SENT TO *info@raytech.it*
OR FILL IN ON-LINE USING THE QRcode ▶

Data request form for the **heating tracing design** of

PIPING

Company/Customer data: _____

Address: _____

E-mail: _____

Contact person: _____ Tel.: _____

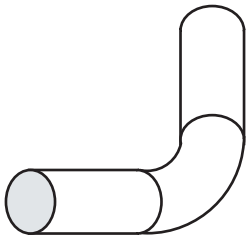
PIPE DATA

(please send us the isometric drawing, if available)

Outer pipe diameter (cm) _____

Pipe lenght (m) _____

Material ☐ **PVC/multilayer** ☐ **Steel or similar**



TEMPERATURE DATA

Minimum environmental temp. ☐ **-10°C** ☐ **-15°C** ☐ **-20°C** ☐ **Other** _____ **°C**

Maximum exposition temperature ☐ **up to 60°C** ☐ **>60°C**

Maintenance temperature ☐ **5°C Antifreeze** ☐ **Other** _____ **°C**

INSULATION

Material

☐ **Elastomer**

☐ **Glass fiber**

☐ **Mineral fiber**

☐ **Expanded Perlite**

☐ **Cellular polyurethane**

☐ **Rock wool**

☐ **Expanded polystyrene**

☐ **Calcium Silicate**

☐ **Other**_____

_____

Thickness (mm) _____

ACIDS OR CORROSIVES

☐ **Yes** ☐ **No**

Specify the type

_____

Notes:

The applicant is reminded to enter in this form all data in his/her possession. The evaluation is carried out by Raytech on a free basis, to provide the customer with a rough list of Raytech Material suitable for the execution of the required tracement.

AREA CLASSIFICATION

Zone with risk of explosion:	☐ Yes	☐ No

IF THE AREA IS ATEX:

AREA CLASSIFICATION						
Dangerous zone GAS	☐ zone 0		☐ zone 1		☐ zone 2	
Dangerous zone DUST	☐ zone 20		☐ zone 21		☐ zone 22	
GAS GROUP CLASSIFICATION	☐ I	☐ IIA	☐ IIB	☐ IIC		
DUST GROUP CLASSIFICATION	☐ IIIA	☐ IIIB	☐ IIIC			
TEMP. CLASS CLASSIFICATION	☐ T1	☐ T2	☐ T3	☐ T4	☐ T5	☐ T6
CATEGORY (ATEX 94/9/EC) Group II:	☐ 1G	☐ 2G	☐ 3G	☐ 1D	☐ 2D	☐ 3D
EPL CLASSIFICATION	☐ Ga	☐ Gb	☐ Gc	☐ Da	☐ Db	☐ Dc

VALVES – FLANGES – SUPPORTS – PUMPS (Number)

Valves _____ Flanges _____ Supports _____ Pumps _____

FLUID TO BE HEATED (maintenance/heating)

☐ **Nitric acid**	☐ **Sulfur dioxide**	☐ **Ash (on average)**
☐ **Sulfuric Acid**	☐ **Air**	☐ **Ethane**
☐ **Water**	☐ **Nitrogen**	☐ **Hydrogen**
☐ **Water (100°)**	☐ **Liquid Nitrogen**	☐ **Methane**
☐ **Ethyl alcohol at 20°C**	☐ **Benzene and gasoline**	☐ **Olive oil (1,674 to 1,893)**
☐ **Carbon Dioxide**	☐ **Butane**	☐ **Petroleum (on average)**

☐ **Other**_____

_____ Specific weight Kg/dm³

_____ Specific heat KJ/Kg °C

_____ Speed of the fluid in the pipe m/sec

_____ % of tank filling

_____ Required time to get the final temperature (h)

_____ Min. fluid temperature at the heating start (°C)

_____ Required final temperature (°C)

REQUEST FORMS TO BE SENT TO *info@raytech.it*
OR FILL IN ON-LINE USING THE QRcode ▶

Data request form for the **heating tracing design** of

SILOS AND TANKS

Company/Customer data: _____

Address: _____

E-mail: _____

Contact person: _____ Tel.: _____

TYPES OF TANKS AND SILOS

☐ **CYLINDRICAL**

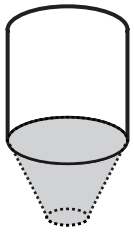
Ø cylinder (m) _____

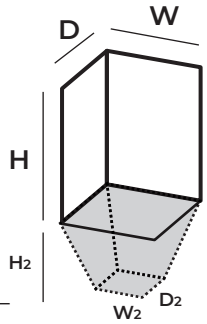
Height (m) _____

CONICAL HOPPER (if present)

Ø coupling pipe (m) _____

Height (m) _____





☐ **PARALLELEPIPED**

W x D x H (m) _____

PYRAMIDAL HOPPER (if present)

W2 x D2 filler-neck x H2 (m) _____

Material ☐ **PVC/multilayer** ☐ **Steel or similar** Thickness (mm) _____

TEMPERATURE DATA

Minimum environmental temp. ☐ **-10°C** ☐ **-15°C** ☐ **-20°C** ☐ **Other** _____ **°C**

Maximum exposition temperature ☐ **Fino a 60°C** ☐ **>60°C**

Maintenance temperature ☐ **5°C Antifreeze** ☐ **Other** _____ **°C**

INSULATION

Material

☐ **Elastomer**
☐ **Glass fiber**
☐ **Mineral fiber**
☐ **Expanded Perlite**
☐ **Cellular polyurethane**
☐ **Rock wool**
☐ **Expanded polystyrene**
☐ **Calcium Silicate**
☐ **Other** _____

Thickness (mm) _____

ACIDS OR CORROSIVES

☐ **Yes** ☐ **No**

Specify the type _____

Notes:

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AREA CLASSIFICATION

Zone with risk of explosion:	☐ Yes	☐ No

IF THE AREA IS ATEX:

AREA CLASSIFICATION						
Dangerous zone GAS	☐ zone 0		☐ zone 1		☐ zone 2	
Dangerous zone DUST	☐ zone 20		☐ zone 21		☐ zone 22	
GAS GROUP CLASSIFICATION	☐ I	☐ IIA	☐ IIB	☐ IIC		
DUST GROUP CLASSIFICATION	☐ IIIA	☐ IIIB	☐ IIIC			
TEMP. CLASS CLASSIFICATION	☐ T1	☐ T2	☐ T3	☐ T4	☐ T5	☐ T6
CATEGORY (ATEX 94/9/EC) Group II:	☐ 1G	☐ 2G	☐ 3G	☐ 1D	☐ 2D	☐ 3D
EPL CLASSIFICATION	☐ Ga	☐ Gb	☐ Gc	☐ Da	☐ Db	☐ Dc

VALVES – FLANGES – SUPPORTS – PUMPS (Number)

Valves _____ Flanges _____ Supports _____ Pumps _____

FLUID TO BE HEATED (maintenance/heating)

☐ **Nitric acid**	☐ **Sulfur dioxide**	☐ **Ash (on average)**
☐ **Sulfuric Acid**	☐ **Air**	☐ **Ethane**
☐ **Water**	☐ **Nitrogen**	☐ **Hydrogen**
☐ **Water (100°)**	☐ **Liquid Nitrogen**	☐ **Methane**
☐ **Ethyl alcohol at 20°C**	☐ **Benzene and gasoline**	☐ **Olive oil (1,674 to 1,893)**
☐ **Carbon Dioxide**	☐ **Butane**	☐ **Petroleum (on average)**

☐ **Other**_____

_____ Specific weight Kg/dm³

_____ Specific heat KJ/Kg °C

_____ Speed of the fluid in the pipe m/sec

_____ % of tank filling

_____ Required time to get the final temperature (h)

_____ Min. fluid temperature at the heating start (°C)

_____ Required final temperature (°C)

REQUEST FORMS TO BE SENT TO *info@raytech.it*
OR FILL IN ON-LINE USING THE QRcode ▶

Data request form for the **heating tracing design** of

COMFORT - INDOOR FLOORS

Company/Customer data: _____

Address: _____

E-mail: _____

Contact person: _____ Tel.: _____

IMPORTANT:
Indoor floor tracings (ex. offices, homes) is usually considered as secondary/comfort heating system.
It can be considered as primary heating system, only in presence of well insulated environments.
For further information, please contact our technical office.

ROOM DATA

Is the floor well insulated? ☐ **No** ☐ **Yes** Thickness (mm) _____

Are walls well insulated? ☐ **No** ☐ **Yes** Thickness (mm) _____

Is the ceiling well insulated? ☐ **No** ☐ **Yes** Thickness (mm) _____

Is there a primary heating system? ☐ **No** ☐ **Yes**

Availability of 3 phase supply ☐ **No** ☐ **Yes**

Available power (kW) _____ (Supply voltage 230V)

Room 1 Length x Width (m) _____ surface (m^2) _____

Room 2 Length x Width (m) _____ surface (m^2) _____

Room 3 Length x Width (m) _____ surface (m^2) _____

Room 4 Length x Width (m) _____ surface (m^2) _____

Room 5 Length x Width (m) _____ surface (m^2) _____

PLEASE ATTACH AT THE FORM A PLANIMETRY OF THE TRACING AREA

The applicant is reminded to enter in this form all data in his/her possession. The evaluation is carried out by Raytech on a free basis, to provide the customer with a rough list of Raytech Material suitable for the execution of the required tracement.

Raytech

CERTIFICATE OF CORRECT EXECUTION OF INSULATION RESISTANCE MEASUREMENT TESTS AND VERIFICATION OF SYSTEM FUNCTIONALITY, FOR EACH SECTION OF SELF-REGULATING HEATING CABLE.

To be filled in by the electrician installer

Customer:

Place of installation:

Tracing number:

Tracing type: ☐ **Ramps** ☐ **Walkways** ☐ **Terrace** ☐ **Steps** ☐ **Gutter** ☐ **Roofs** ☐ **Piping** ☐ **Silos**

WARNING: during cable laying and accessories installation, cable free ends must be protected against moisture ingress

Heating cable INSTALLED BY

Company: Operator: Date:

Fill in the table for each heating cable section

Heating cable section n. _____ **Heating cable or mat type** (code) _____

Heating cable section length (m) _____

Power connection ACCESSORY* (e.g. MCA UNIVERSAL IP68) _____

Termination ACCESSORY* (e.g. MCA UNIVERSAL IP68) _____

Straight or branch ACCESSORY* _____

*example MCA UNIVERSAL IP68

MEASUREMENT OF INSULATION RESISTANCE (must exceed 20 MOhm)	AFTER CABLE LAYING **Measure A**	AFTER APPLICATION OF THE COVERING LAYER OR THERMAL INSULATION **Measure B**
Between conductor 1 and screen (MOhm)		
Between conductor 2 and screen (MOhm)		

VERIFICATION OF CABLE FUNCTIONALITY, feeding the cable section to the nominal voltage to verify the suitability of the connection	AFTER CABLE LAYING		AFTER APPLICATION OF THE COVERING LAYER OR THERMAL INSULATION	
	Measure A1 IN RUSH CURRENT	**Measure A2** In Regimen Conditions (after 15')	**Measure B1** IN RUSH CURRENT	**Measure B2** In Regimen Conditions (after 15')
Current absorption (A)				

CABLE INSTALLED AND TESTED BY:

Company	Operator	Date

Stamp end Signature

Keep carefully the control certificate. If necessary, repeat the measurements during the periodic maintenance checks.

CERTIFICATE OF CORRECT EXECUTION OF INSULATION RESISTANCE MEASUREMENT TESTS AND VERIFICATION OF SYSTEM FUNCTIONALITY, FOR EACH SECTION OF CONSTANT POWER HEATING CABLE.

To be filled in by the electrician installer

Customer:

Place of installation:

Tracing number:

Tracing type: ☐ **Ramps** ☐ **Walkways** ☐ **Terrace** ☐ **Steps** ☐ **Gutter** ☐ **Roofs** ☐ **Piping** ☐ **Silos**

Heating cable INSTALLED BY

Company: Operator: Date:

Fill in the table for each heating cable section

Heating cable section n. _____

Heating cable or mat type (code) _____

Heating cable / mat length (m) _____

RESISTANCE AND INSULATION TESTS (with 500 Vcc instrument)	JUST EXTRACTED THE CABLE FROM THE PACKAGE **Measure A**	AFTER CABLE LAYING ON THE SCREED OR PIPE **Measure B**	AFTER APPLICATION OF THE COVERING LAYER OR THERMAL INSULATION **Measure C**
Between resistance wires 1 and 2 (Ohm)			
Between wire 1 and ground (must be infinite)			
Between wire 2 and ground (must be infinite)			

VERIFICATION OF CABLE FUNCTIONALITY, feeding the cable section to the nominal voltage to verify the suitability of the connection	AFTER CABLE LAYING **Measure B**	AFTER APPLICATION OF THE COVERING LAYER OR THERMAL INSULATION **Measure C**
Current absorption (A)		

CABLE INSTALLED AND TESTED BY:

Company	Operator	Date

Stamp end Signature

Keep carefully the control certificate. If necessary, repeat the measurements during the periodic maintenance checks.

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