

CONNECTA SYSTEM

The fire performance tunnel lighting
and power system



Linking the Future

As the worldwide leader in the cable industry, Prysmian Group believes in the effective, efficient and sustainable supply of energy and information as a primary driver in the development of communities.

With this in mind, we provide major global organisations in many industries with best-in-class cable solutions, based on state-of-the-art technology.

Through two renowned commercial brands - Prysmian and Draka - based in almost 100 countries, we're constantly close to our customers, enabling them to further develop the world's energy and telecoms infrastructures, and achieve sustainable, profitable growth.

In our energy business, we design, produce, distribute and install cables and systems for the transmission and distribution of power at low, medium, high and extra-high voltage.

In telecoms, the Group is a leading manufacturer of all types of copper and fibre cables, systems and accessories - covering voice, video and data transmission.

Drawing on almost 140 years' experience and continuously investing in R&D, we apply excellence, understanding and integrity to everything we do, meeting and exceeding the precise needs of our customers across all continents, at the same time shaping the evolution of our industry.





What links global expertise to the wheels of industry?

High-performing cable solutions to keep the wheels of industry turning.

On every continent, in applications that range from rolling stock and vehicles for high-speed trains and urban mass transit lines, to all types of rail transport infrastructure, Prysmian Group's specialist cable solutions sit at the heart of significant international projects; supporting the work of major customers, with high-performing, durable and safe technology.

As the world leader in cabling, we draw on global expertise and local presence to work in close proximity with our customers, delivering products and service platforms built on easy contact, bespoke solutions and effective supply chain, meeting their specialised requirements, to help them drive the wheels of industry and achieve sustainable growth and profitability.

CONNECTA: delivering optimum power safety for tunnel environments

When it comes to specifying fire performance cables, zero halogen building wires and power cables, you have to choose products from a company you can trust.

Prysmian Group is the leading supplier of fire performance cables, zero halogen power cables and building wires in the UK.

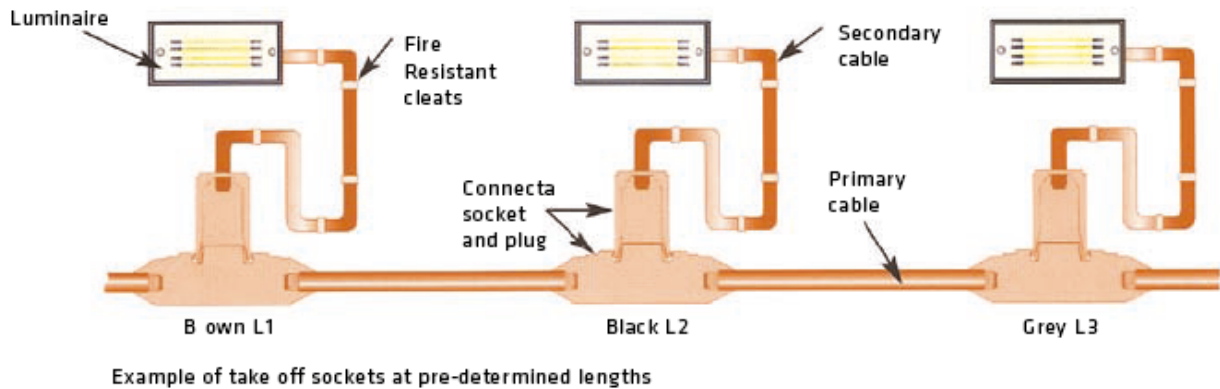
With decades of in-depth experience, our vast product range has been developed and manufactured with leading edge technology and is backed by the resources of the world leader in the energy and telecom cable systems industry.

The Group's expertise delivers a wide ranging product portfolio including communication, low voltage and special purpose cables. In addition we have the capability to manufacture customerspecific cable types.

Part of our continuing success is down to our commitment to ongoing product development through investment in innovation.

We are constantly working to improve our product range to meet your specific needs. Indeed, the development of our product range forms the cornerstone of our entire operation.





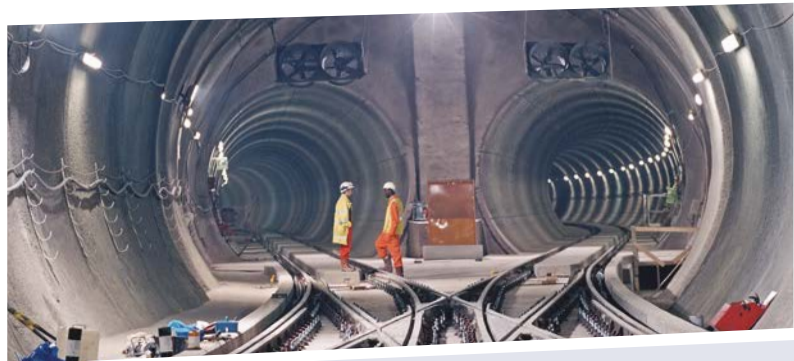
Connecta, part of our market-leading Firetuf range, is one such product.

Connecta has been specifically developed to provide lighting and small power applications in tunnel environments such as sockets for transformers for portable tools.

In the event of a fire, Connecta maintains the integrity of the circuit even if a local device fails, allowing escape routes further up and down the line to remain illuminated.

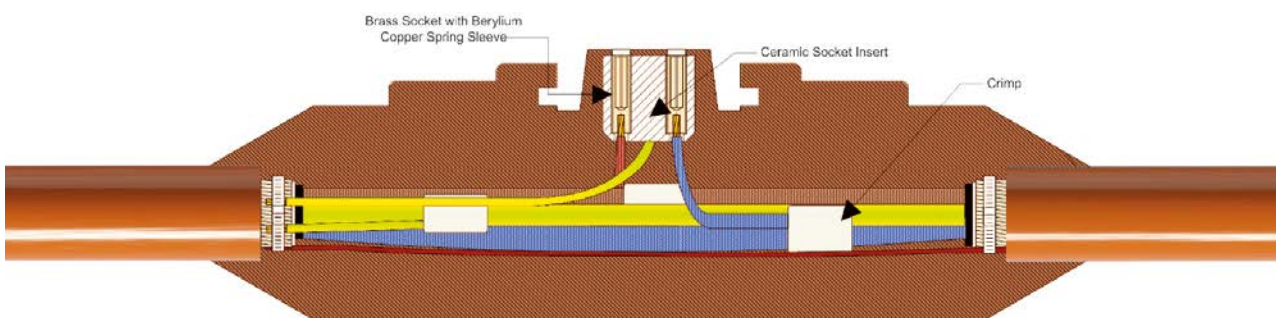


*Secondary cable connection to luminaire.
(length of flylead can be specified by client)*



CONNECTA: simple to install, easy to maintain.

At Prysmian Group, we fully understand the importance of fire performance cables. This is why we are deeply committed to a policy of ongoing product development through investment in innovation. This is not just because we want our products and range to be consistently improved, so that they are better able to satisfy your needs, but because we understand that lives are at stake and that the performance and effectiveness of our products can help prevent loss of life.



Sectional view of CONNECTA socket



Installation is quick and simple

Benefits

Fire performance cables for critical safety systems.

At Prysmian Group we know that the safety of occupants and passengers in mass transit systems, especially road and rail tunnels, is of paramount importance.

One factor that can play a key role in making these environments safer is the appropriate use of fire performance cables for critical safety systems.

In the event of a tunnel fire and smoke filled environment, it is vital that the emergency lighting remains secure, to ensure that escape routes are clearly illuminated.

Moreover, the correct selection and installation of these vital safety cables ensures that, in the event of an emergency, systems can continue to function and people will have time to evacuate safely, as well as helping the emergency services to operate effectively.

Optimum fire safety performance

The technical resources of Prysmian Group have combined to deliver a system that offers optimum fire safety performance in tunnels. **Connecta is manufactured with high quality injection moulded zero halogen, low smoke (OHLS®) components** and features a moulded female socket and shrouded male plug with an optional integral fuse and coupling nut. It is available in both fire resistant OHLS and Standard OHLS designs with a primary cable of:

- 2.5 mm² to 50.0 mm².
- in 3, 4 or 5 core variations,
- with a wiring loom length of approximately 700 metres.*

The inter socket distance and loom length required is entirely at the discretion of the client, to suit the bespoke nature of the project. This ensures the system is ideally suited to a wide variety of tunnel environments for the provision of emergency lighting and 3 phase power supplies for applications such as portable power tools working from transformers.

Easy to install

Another significant benefit of Connecta is the ease in which it can be installed and maintained. With project deadlines becoming tighter and tighter, Connecta offers both time and cost-saving benefits to a variety of applications.

With all of the lighting or power joints manufactured in a clean factory environment, rather than in-situ on site, installation times can be reduced by up to 70%. This can assist in meeting or bringing forward project milestones or deadlines.

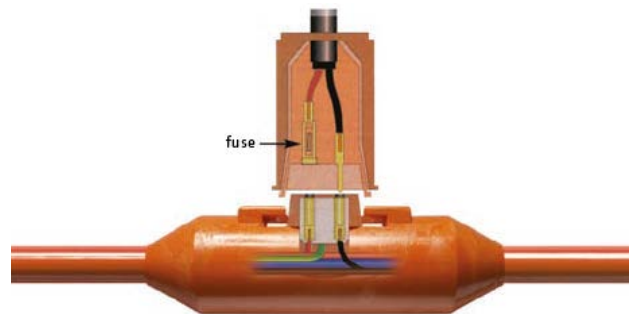
In addition, with the jointing pre-manufactured, the need for highly skilled electrical installers can be reduced, as the system can be installed by semi-skilled labour, again offering a cost-saving benefit.



CONNECTA:
components pre-assembly



CONNECTA:
fully assembled



View of joint retaining coupling nut

*Dependant on cable size and number of sockets



Easy to maintain

Each coupling system is specifically designed and manufactured to meet the clients needs with pre-set lengths between each moulded socket outlet unique to each installation.

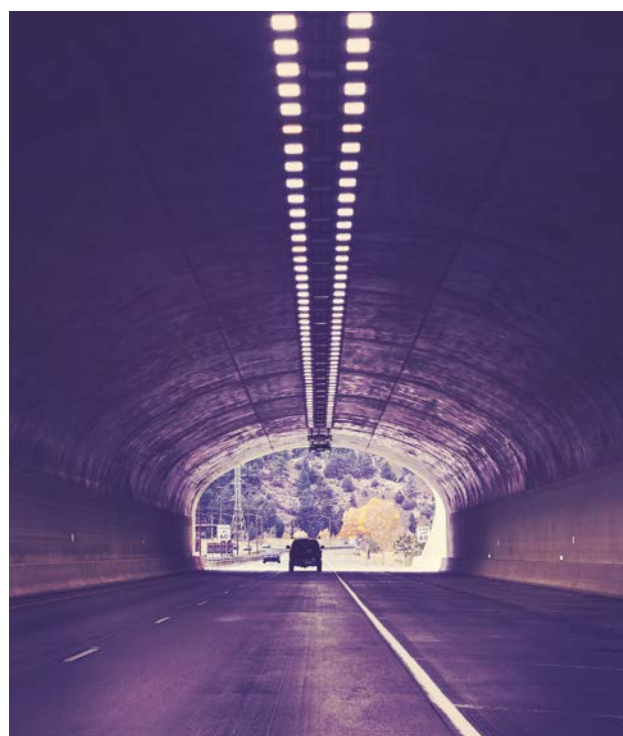
Secondary outputs are then taken from the primary cable via moulded plugs to prewired individual luminaires.

The flyleads are generally supplied to the client's chosen luminaire manufacturer for wiring prior to sending the lighting on to site.

Therefore not only is Connecta easy to install but because of its modular design, maintenance is also simple.

Zero halogen, low smoke system

Each Connecta is phase identified and circuit integrity meets the requirements of BS6387 Categories C, W and Z. Ingress protection meets IP 67 standards. As part of the Firetuf range of fire performance cables, Connecta also benefits from being a zero halogen, low smoke (OHLS®) system.



	Size 60	Size 70	Size 85
DIAMETER (mm)	60	70	85
LENGTH (mm)	148	234	174
WEIGHT (kg)	1.5	2	2.2

Project	Contractor	Client	Application	Length of Cable	No. of CONNECTA's
Changi Airport Extension	AMEC	Singapore MRT	Rail Tunnel Lighting	7 km	220
North Eastern Line	AMEC	Singapore MRT	Rail Tunnel Lighting	32 km	3400
HS1 (previously CTRL)	EMCOR rail	RLE (Rail Link Engineering)	Rail Tunnel Lighting	97 km	4800
Dublin Port Tunnel	Mercury Engineering	Dublin Port Authority	Rail Tunnel Lighting	14.7 km	1620
Piccadilly Line extension (Heathrow Terminal 5)	Balfour Beatty Rail	Tubelines (LU)	Rail Tunnel Lighting	12.6 km	710
Heathrow Express extension (Heathrow Terminal 5)	Balfour Beatty Rail Projects	Network Rail	Rail Tunnel Lighting	11.6 km	715
Airside Road Tunnels (Heathrow Terminal 5)	Crown House Engineering	BAA	Rail Tunnel Lighting	4.3 km	1180
Waterloo and City Line	Giffen Group	Metronet Rail (LU)	Rail Tunnel Lighting	4.5 km	610
Waterloo and City Line	Giffen Group	Metronet Rail (LU)	Rail Tunnel Power	4.4 km	87
Brisbane Inner Northern Busway Tunnel	Stowe Australia	Queensland Transport	Rail Tunnel Lighting	2.8 km	510
Holmesdale Tunnel (M25)	Costain	Highways Agency	Rail Tunnel Lighting	15.7 km	1095
Trawsfynydd Nuclear Power Station Decommissioning	Crown House Engineering	Magnox	Restricted Access Emergency Lighting	2 km	270
Dockland Light Railway Woolwich Arsenal Extension	Colas Rail	TFL	Rail Tunnel Lighting	9 km	711
Bell Common Tunnel (M25)	Costain	Highways Agency	Rail Tunnel Lighting	12.7 km	1608
Woodhead Cable Tunnel	AMCO	National Grid	HV Cable Tunnel Lighting	5 km	264
Cuilfail Tunnel (A27)	VVB	East Sussex	Road Tunnel Lighting	3 km	147
Hindhead Tunnel (A3)	Balfour Beatty Engineering Services	Highways Agency	Road Tunnel Lighting	17.8 km	1198
Hatfield Tunnel (A1M)	Balfour Beatty Engineering Services	Highways Agency	Road Tunnel Lighting	21 km	2028
Severn Tunnel (Sudbrook pumping station)	Network Rail	Network Rail	Tunnel Lighting	0.8 km	107
Channel Tunnel- repairs to fire damaged section	OpteorMaintenance	Eurotunnel	Tunnel Lighting	2 km	210
Blackwall Tunnel	VVB Engineering		Road Tunnel Lighting	7.7 km	618

CONNECTA: tried and tested.

No-one does more to ensure their products deliver optimum performance than Prysmian Group. As you would expect, Connecta has been tested to the highest possible standards and meets BS 7671, I.E.E. Wiring Regulations.

Our testing and commissioning programme ensures all components are tested individually then again as a complete system with luminaires energised.

Fire, Fire with Water and Fire with Mechanical Shock tests are all rigorously completed by our specialists and as a result Connecta is fully approved to BS 6387: 1994 and SS299 Pt1: 1998 (Singapore Standard).

Furthermore the BS 6387 category "C, W and Z" is the internationally recognised UK test, used to determine if a cable is capable of maintaining circuit integrity under different fire conditions, as the illustrated tests show. Connecta from Prysmian Group: tried, tested and

trusted by specifiers and contractors throughout the world. The Connecta system has been installed in:

- Channel Tunnel Rail Link (CTRL), London
- Underground, Heathrow Terminal 5
- Tunnels, Dublin Port Tunnel and the
- Singapore Mass Transit Network (MRT)
- amongst many others (see table on previous page).



First characteristic numeral	Degree of protection from foreign particles	
	Brief description	Definition
0	Non-protected	
1	Protected against solid foreign objects of 50 mm \varnothing and greater	The object probe, sphere of 50 mm \varnothing shall not fully penetrate
2	Protected against solid foreign objects of 12.5 mm \varnothing and greater	The object probe, sphere of 12.5 mm \varnothing shall not fully penetrate
3	Protected against solid foreign objects of 2.5 mm \varnothing and greater	The object probe, sphere of 2.5 mm \varnothing shall not penetrate at all
4	Protected against solid foreign objects of 1.0 mm \varnothing and greater	The object probe, sphere of 1.0 mm \varnothing shall not penetrate at all
5	Dust-protected	Ingress of dust is not totally prevented, but dust shall not penetrate in a quantity to interfere with satisfactory operation of the apparatus or to impair safety
6	Dust-tight	No ingress of dust

Second characteristic numeral	Degree of protection from water	
	Brief description	Definition
0	Non-protected	
1	Protected against vertically falling water drops	Vertically falling drops shall have no harmful effects
2	Protected against vertically falling water drops when enclosure tilted up to 15°	Vertically falling drops shall have no harmful effects when the enclosure is tilted at any angle up to 15° on either side of the vertical
3	Protected against spraying water	Water sprayed at an angle up to 60° on either side of the vertical shall have no harmful effects
4	Protected against splashing water	Water splashed against the enclosure from any direction shall have no harmful effects
5	Protected against water jets	Water projected in jets against the enclosure from any direction shall have no harmful effects
6	Protected against powerful water jets	Water projected in powerful jets against the enclosure from any direction shall have no harmful effects
7	Protected against the effects of temporary immersion in water	Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is temporarily immersed in water under standardised conditions of pressure and time
8	Protected against the effects of continuous immersion in water	Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is continuously immersed in water under conditions which shall be agreed between manufacturer and user but which are more severe