Draka

A brand of the Prysmian Group

Connecta System

The fire performance tunnel lighting and power system

FT CONNECTA FIRETUF BS6387

Developed in partnership with cdg Custom Design Group

Connecta. Delivering safety for tunnel envi

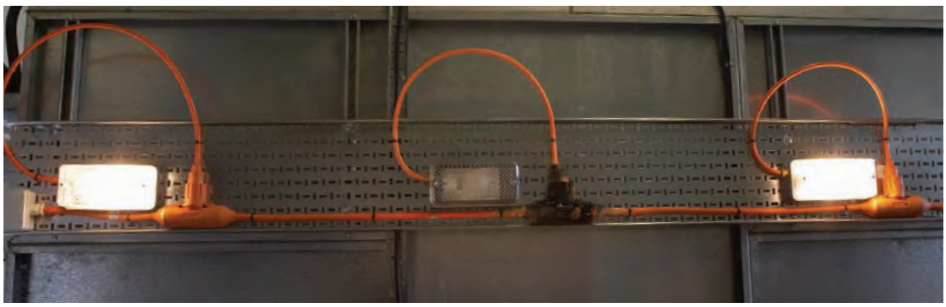
When it comes to specifying fire performance cables, zero halogen building wires and power cables, you have to choose products from a company you can trust.

Draka is that company, an international cable manufacturer with a turnover of €2 billion and over 9,000 employees worldwide. As part of Draka Energy and Infrastructure Europe, a division of Draka Holding NV, we are the leading supplier of fire performance cables, zero halogen power cables and building wires in the UK.

With over 80 years of in-depth experience, our vast product range has been developed and manufactured with leading-edge technology and is backed by the resources of one of the world's major specialist cable companies.

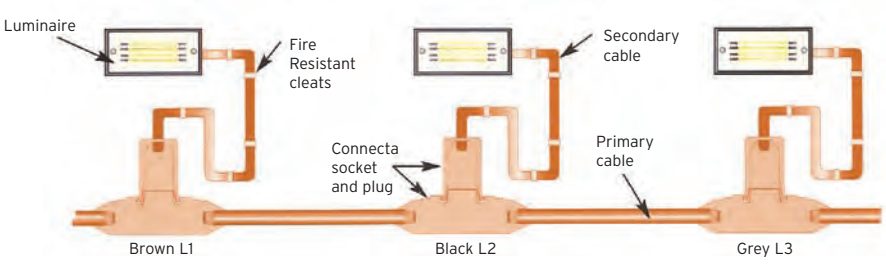
The Group's expertise delivers a wide-ranging product portfolio including communication, low voltage and special purpose cables. In addition we have the capability to manufacture customer-specific cable types.

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 maintains the integrity of a circuit even if a local device suffers fire damage.

optimum power ronments.



Example of take off sockets at pre-determined lengths

Connecta, part of our market-leading Firetuf range, is one such product. Manufactured in partnership with Custom Design Group of Cwmbran, South Wales, 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.

Connecta. Simple to install, easy to maintain.

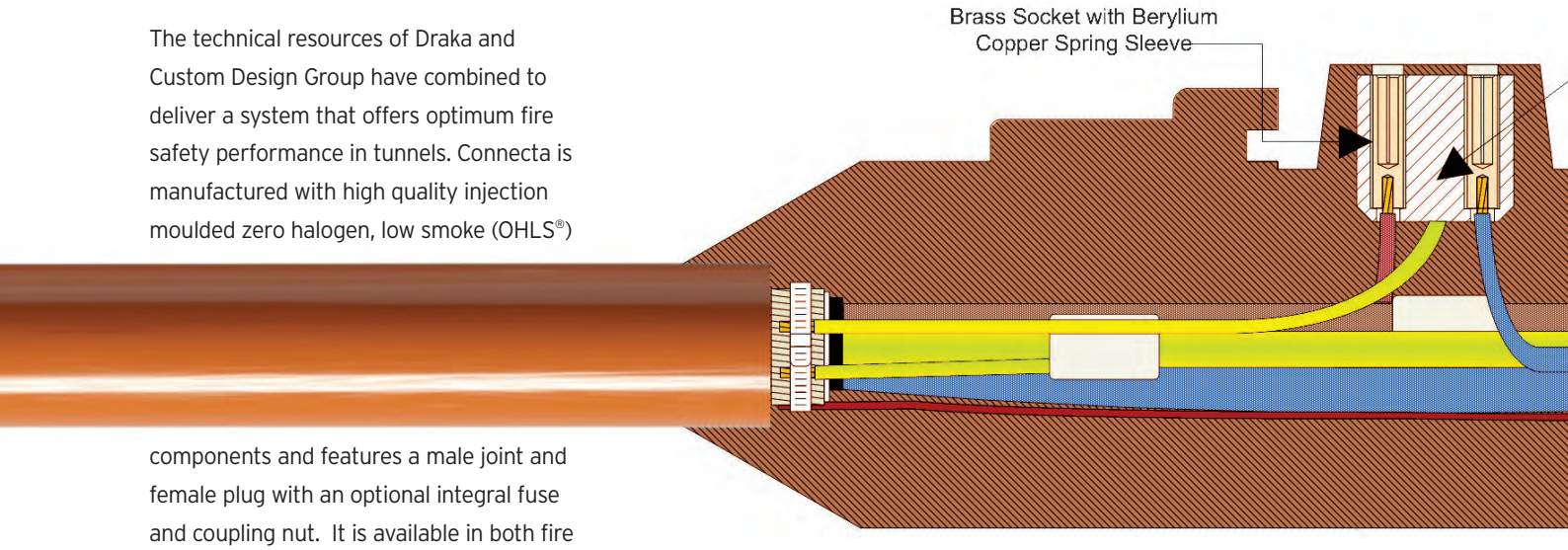
At Draka, we fully understand the importance of fire performance cables. This is why we are deeply committed to a policy of ongoing product development through investment in innovation.

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.

In short, at Draka 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.

The technical resources of Draka and Custom Design 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 male joint and female 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 2.5mm² to 50.0mm², in 3, 4 or 5 core variations and 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.

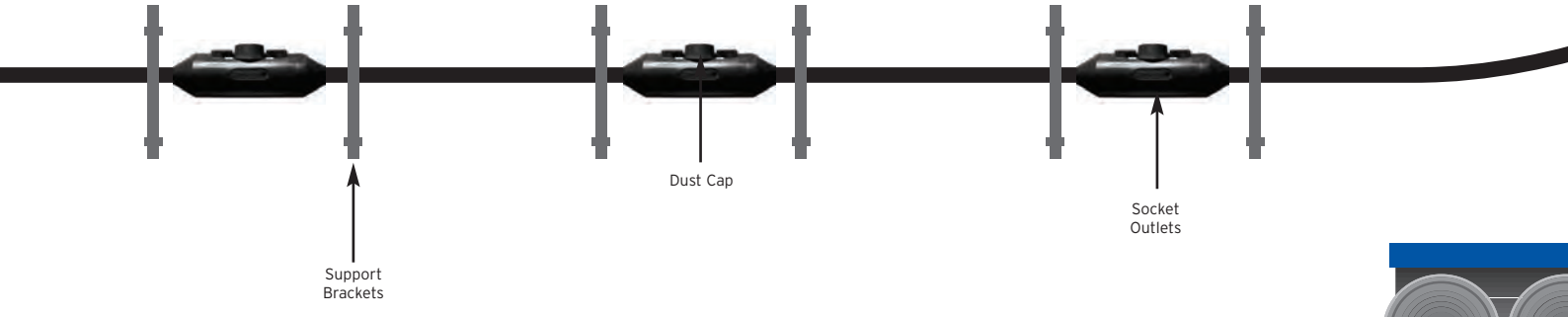


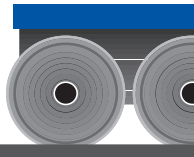
Installation is quick and simple

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

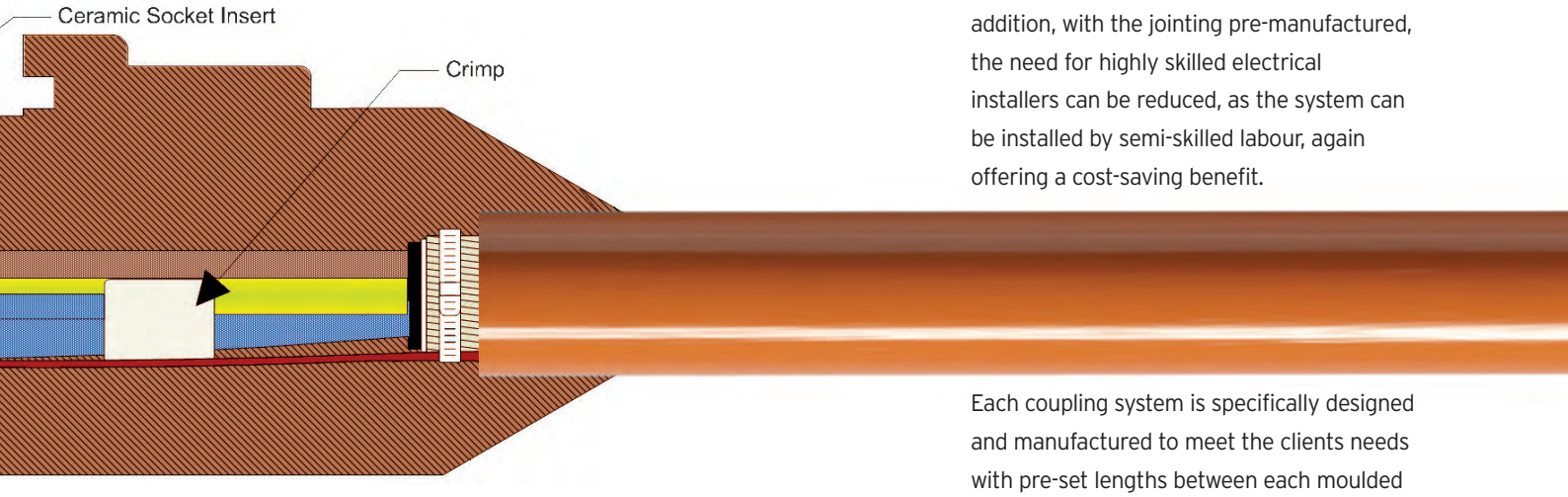
	Small Connecta	Large Connecta	Extra Large Connecta
Diameter (mm)	70	90	90
Length (mm)	150	220	260
Weight (Kg)	1.5	2	2.2





* Dependant on cable size and number of sockets

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.



Sectional view of Connecta socket

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 pre-wired individual luminaires.

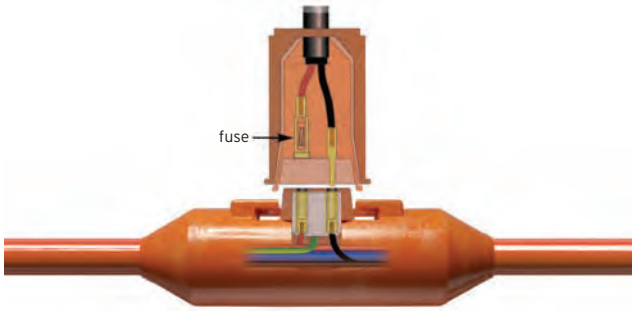
Secondary cable connection to luminaire.
(length of flylead can be specified by client)

Connecta. Three (black or red) components pre-assembly

Connecta fully assembled

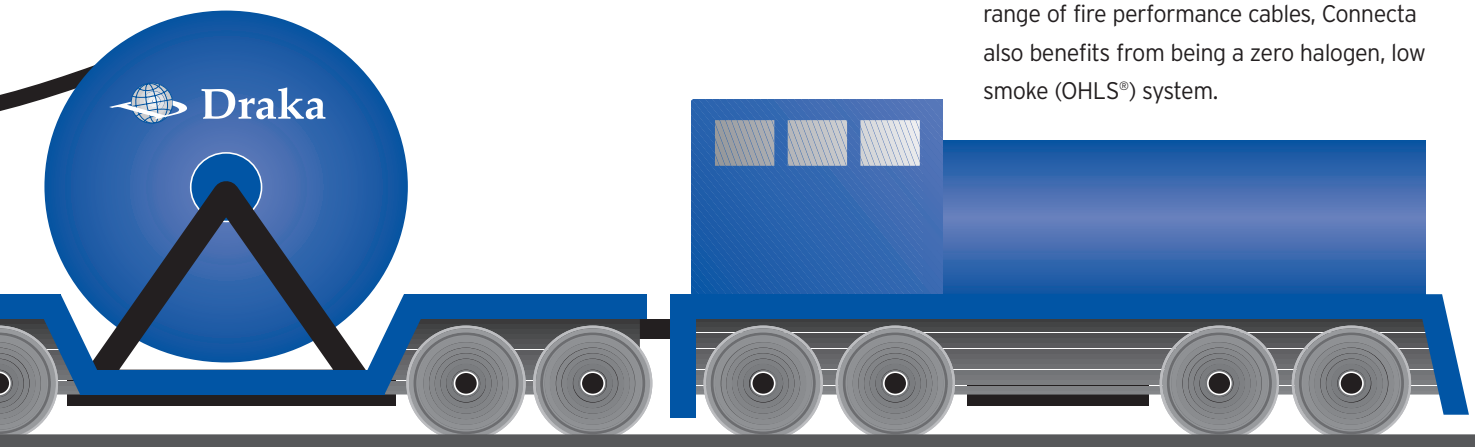
The flyleads are generally supplied to the client's chosen luminaire manufacturer for wiring prior to sending the lighting on to site.

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



View of joint retaining coupling nut

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.



Example of cable laying and socket positions

Project	Contractor	Client	Application	Length of Cable	No. of connecta's
Changi Airport Extension	AMEC	Singapore MRT	Rail Tunnel Lighting	7km	220
North Eastern Line	AMEC	Singapore MRT	Rail Tunnel Lighting	32km	3400
HS1 (previously CTRL)	EMCOR rail	RLE (Rail Link Engineering)	Rail Tunnel Lighting	97km	4800
Dublin Port Tunnel	Mercury Engineering	Dublin Port Authority	Road Tunnel Lighting	14.7km	1620
Piccadilly Line extension (Heathrow Terminal 5)	Balfour Beatty Rail	Tubelines (LU)	Rail Tunnel Lighting	12.6km	710
Heathrow Express extension (Heathrow Terminal 5)	Balfour Beatty Rail Projects	Network Rail	Rail Tunnel Lighting	11.6km	715
Airside Road Tunnels (Heathrow Terminal 5)	Crown House Engineering	BAA	Road Tunnel Lighting	4.3km	1180
Waterloo and City Line	Giffen Group	Metronet Rail (LU)	Rail Tunnel Lighting	4.5km	610
Waterloo and City Line	Giffen Group	Metronet Rail (LU)	Rail Tunnel Power	4.4km	87
Brisbane Inner Northern Busway Tunnel	Stowe Austrailia	Queensland Transport	Road Tunnel Lighting	2.8km	510
Holmesdale Tunnel (M25)	Costain	Highways Agency	Road Tunnel Lighting	15.7km	1095
Trawsfynydd Nuclear Power Station Decommissioning	Crown House Engineering	Magnox	Restricted Access Emergency Lighting	2km	270
Dockland Light Railway Woolwich Arsenal Extension	Colas Rail	TFL	Rail Tunnel Lighting	9km	711
Bell Common Tunnel (M25)	Costain	Highways Agency	Road Tunnel Lighting	12.7km	1608
Woodhead Cable Tunnel	AMCO	National Grid	HV Cable Tunnel Lighting	5km	264
Cuilfail Tunnel (A27)	VVB Engineering	East Sussex County Council	Road Tunnel Lighting	3km	147
Hindhead Tunnel (A3)	Balfour Beatty Engineering Services	Highways Agency	Road Tunnel Lighting	17.8km	1198
Hatfield Tunnel (A1M)	Balfour Beatty Engineering Services	Highways Agency	Road Tunnel Lighting	21km	2028
Severn Tunnel (Sudbrook pumping station)	Network Rail	Network Rail	Tunnel lighting	800m	107
Channel Tunnel- repairs to fire damaged section	Opteor Maintenance	Eurotunnel	Tunnel lighting	2km	210
Blackwall Tunnel	VVB Enginering		Road Tunnel Lighting	7.7km	618

Dublin Port Tunnel

Connecta.
Tried and tested.

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

Connecta from Draka. Tried, tested and trusted by specifiers and contractors throughout the world. The Connecta system has been installed in the Channel Tunnel Rail Link (CTRL), London

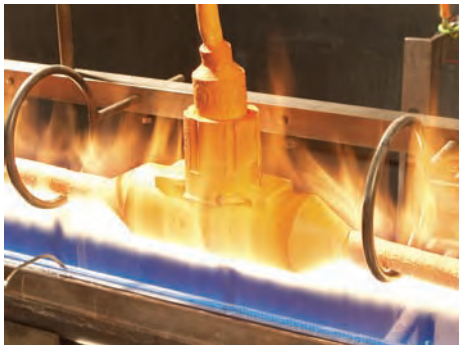
Our testing and commissioning programme ensures all components are tested individually then again as a complete system with luminaires energised.

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.

Underground, Heathrow Terminal 5 Tunnels, Dublin Port Tunnel and the Singapore Mass Transit Network (MRT) amongst many others (see table on left).

Rated to IP67



BS6387 Category W - Resistance to fire and water; 650ºC for 15 minutes, then for 15 minutes with fire and water

BS6387 Category C - Resistance to fire; 950ºC for 3 hours

BS6387 Category Z - Resistance to fire with mechanical shock; 950ºC for 15 minutes with 30 second hammer blows

Ingress protection tests

First characteristic numeral	Degree of protection from foreign particles	
	Brief description	Definition
0	Non-protected	
1	Protected against solid foreign objects of 50mm ø and greater	The object probe, sphere of 50mm ø shall not fully penetrate
2	Protected against solid foreign objects of 12,5mm ø and greater	The object probe, sphere of 12,5mm ø shall not fully penetrate
3	Protected against solid foreign objects of 2,5mm ø and greater	The object probe of 2,5mm ø shall not penetrate at all
4	Protected against solid foreign objects of 1,0mm ø and greater	The object probe of 1,0mm 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 15º	Vertically falling drops shall have no harmful effects when the enclosure is tilted at any angle up to 15º on either side of the vertical
3	Protected against spraying water	Water sprayed at an angle up to 60º 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 than for numeral 7

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