# Product & Solutions Guide

The Power in Cable Protection





www.atkore.com/flexicon

## Building better together.





Allied Tube & Conduit A AFC Cable Systems A Heritage Plastics A Unistrut A United Poly Systems A FRE Composites A Cope A Calbrite Unistrut Construction A Calbond A Kaf-Tech A Columbia-MBF A Eastern Wire + Conduit A ACS/Uni-Fab A Four Star Industries A Marco Power-Strut A Calconduit A Razor Ribbon A Calpipe Security A Queen City Plastics A Sasco Strut A Vergokan A Flexicon A Cil A US Tray



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## Intro

We are focussed on bringing Customers the latest solutions and technologies for Cable Protection. We design, develop and manufacture our products from our Headquarters in Birmingham, UK therefore you can be assured of our quality and engineering excellence.

At the forefront of material technologies and industrial design, our Engineering and Manufacturing teams deliver reliable solutions that work for the long term.

"We drive innovation, developing tomorrow's solution for today."



Our design, testing and prototyping facility enables us to understand, interpret and respond to Customer requirements quickly and easily. We use the latest design software & technology and can create models and 3D prototypes to establish technical solutions. We continue to invest in developing our range.

With onsite manufacturing, we can adapt and respond to meet our Customer demands and requirements.

Our range of non-metallic and metallic products help to protect cables from end to end, in many diverse markets, from Construction, Transportation, Utilities, Machinery & Automation and Hazardous Areas to name but a few.





## **Global Presence**

With a Global reach, we work closely with our Customers to become part of the Supply Chain. We understand the importance of working with suppliers who offer support, expertise and guidance.

Our products have been installed in all 7 continents, and we currently distribute through approved partners to over 60 different Countries.



#### **International & National Conduit Standards**

- BS EN IEC 61386-1 Conduit Systems, generally accepted worldwide other than North America
- BS EN IEC 61386-23 Flexible Conduit Systems
- BS EN IEC 61386-22 Pliable Conduit Systems
- AS/NZS 2053, Australia and New Zealand but based on IEC 61386
- UL 1660, Non-metallic UL listed conduit for North America

- UL 360, Metallic UL listed conduit for North America
- UL 514B, UL listed conduit fittings for North America
- UL 1696, Non-metallic UL recognised conduit systems for North America







# Why use flexible conduit?

What would happen if your Cabling failed? In today's modern world there is an underlying trend towards more intelligent and automated systems driven by safety, efficiency and functionality. Flexible Conduit is the ideal solution to protect People and Personnel, Property and Processes.

# Understanding all the hazards?

Risks and hazards to cabling can vary significantly based on application, operating environments and conditions, hence one system does not necessarily suit all.

We understand the performance properties of our products & solutions and can minimise your risk. We offer application guidance and expert advice whatever your challenges.

Incorrect Specification could lead to critical failures for your Cabling and Installation.



Don't take chances when it comes to your Cable Protection...



"whatever your application, we've got it covered..."



## **Potential Hazards to consider**

When it comes to protecting Safety and Performance Critical Cabling, we have listed some of the potential hazards which could compromise your systems integrity.



#### **Ingress Protection**

 Penetration of solid objects, dust, liquid or steam



#### Chemical resistance

 Reaction to different compounds or substances



#### **Impact**

 Sharp or blunt forces which could cause damage



## Micro-organisms & Bacteria

 Danger from build up of bacteria, viruses and fungus



#### **Crush / Compression**

Forces applied to cause deformation



#### Static charge

 Build up on objects that cannot conduct a current



#### **Temperature**

 Intensity of heat present high or low. Rapid changes of temperature



#### **Explosive Gases / Dust**

Substance that can be made to explode



#### Fire

Destructive burning



#### Condensation

 Water which collects as droplets on a cold surface



#### Corrosion

 Damage caused to materials based on chemical reaction



#### **Grazing animals / Vermin or pests**

Livestock

· Sharpening of teeth, searching for food



#### **Lightning Strike**

Damaged caused by natural electrical discharge



#### Theft & Vandalism

 Stealing, unauthorised removal or deliberate damage



#### **EMC**

Electromagnetic Compatibility



#### **Fatigue Life**

 Weakness caused by repeated variations of stress or continuous and repeated movement



#### **Abrasion**

 Process of scraping or wearing something away



#### Vibration and Shock

Shaking or sudden movement



#### **Tensile Strength**

 Resistance to conduit being pulled from the fitting



#### UV

Resistance to Ultra Violet Radiation



# Benefits of using flexible conduit...

Providing an inherent mechanical barrier for cabling, Flexible Conduit offers more than just protection for Cables and Installations. It allows users and specifiers to do things differently, challenging traditional installation practices and offers unrivalled product performance.

#### Flexible Conduit vs Rigid Conduit



- No bending / corner accessories required
- Simple Cutting plus no thread cutting required
- Suitable for Static and / or Dynamic Applications
- Improved strength to weight ratio
- · Long Coiled Products as opposed to Straight lengths - easy to handle
- · No specialist tools required
- Easy routing of product around obstructions
- · Can be composite, metal or plastic material
- · Can be retrofitted
- · Can configure pre made assemblies / harnesses

#### Flexible Conduit vs Cable Glands

- · Can group multiple cables in one system meaning less terminations
- · Reduced physical glanding space required for termination of cables
- · Reduced risk of system failure due to fewer points of entry
- · Can replace faulty cables without replacing entire System
- Can upgrade and add circuits with ease
- · Fitting does not have to compress the cable to ensure • No need for specialist cables sealing
- · Can be retrofitted with ease
- · Suitable for use with multiple cable types
- Quicker to install
- · Conduit fittings offering strain relief available



## Flexible Conduit vs Armoured Cables



- · Simple Cutting easier assembly
- · Can combine multiple cable types in one system using off the shelf products
- Can make quick changes / upgrades to circuits within . Can be retrofitted existing system
- · Easy routing of cables with different bend radius
- Can replace faulty cables without replacing entire system
- · Suitable for Static and / or **Dynamic Applications**
- · Swivel thread fittings available to ease Installation
- Mechanical protection provided by the Conduit no need for specialist cables
- · Easier termination of glands

## Flexible Conduit vs Trunking

- · Coiled Products as opposed to lengths
- · Easy routing of product
- Higher IP ratings
- · Can be retrofitted

- No requirement for corners
- Simple Cutting
- Simple termination
- · Suitable for Static and / or **Dynamic Applications**





# Realise the Benefits of using Flexible Conduit...

- Simplicity
- Speed of Installation
- Lifetime Solution
- System Integrity





#### **Simplicity**

- No need for Specialist Cables
- Standard & Single Core Cables can be grouped and protected in one system
- Less Product Inventory in the Supply Chain



#### **Speed of Installation**

- Combining cables mean less cable entry points /terminations
- Ease of fixing with various securing options
- · No special tools required



#### **Lifetime Solution**

- Can easily add circuits throughout the life of the installation
- Easily accommodate changes as the installation needs change
- Off the shelf products



#### **System Integrity**

- Properties of the conduit can be matched to the potential hazards of the installation
- · Reliable solution for protection of critical cabling





## **Cable Protection Specialists**

We are focused on bringing Customers the latest solutions and technologies to solve their Cable Protection requirements.

Our knowledge, skills and expertise allows us to offer the ultimate solutions for technically demanding applications. We have been protecting performance and safety critical power and data cabling installations for many years.



With a dedicated design team, we are at the forefront of material technologies and industrial design to deliver solutions that work not only for today but also for the long term. Our Engineers use their extensive knowledge to drive innovation and develop the future today. We participate and are involved in both the IEC (worldwide) and CENELEC (European) committees that prepare conduit standards.

We understand the importance of material properties and how they affect performance and suitability. We have developed specialist conduits, using the latest material technologies, to ensure compliance with the latest international fire performance standards - EN 45545 and NFPA 130.

We can offer guidance and reassurance when it comes to products performance. We know how our products will react to various hazards and technically demanding environments, supported by years of experience.

## Other product testing



• Vibration and Shock Testing to EN

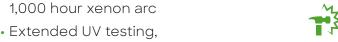


· Direct lightning strike of conduit and fixed fittings



• UV testing to UL 1660, 1,000 hour xenon arc

13,000 hour xenon arc





 Low temperature impact testing



• 1,000 hours salt spray testing for corrosion



EMC screening performance



 Fire performance testing including flammability, smoke, toxicity, halogen content and fire load - see Page 148



Anti-static testing



• Electrical insulation testing to EN 61386 and ASTM D 495 and 3638



 Food contact testing to EU 10/2011



# Quality Assurance, Testing & Manufacturing

# We take testing seriously. Don't just take our word for it.

We have invested and committed to extensive independent testing for our Products, and Quality Audits for our Manufacturing Processes, to give you the confidence that our solutions do what we say they do.



#### Our list of certifications and quality approvals include:



















We continuously test our products and are also independently audited to ensure our Product quality is as you would expect from a leading British Manufacturer. We understand the importance and potential consequences of product failure therefore to ensure suitability we test our products to the extremes.







Flexicon Ultra underwent more than 3,000 man hours of Ingress Protection testing during its development to ensure & validate product performance with all of our range of Nylon Non-Metallic Conduits in both fine pitch and coarse pitch derivatives. To demonstrate the Ingress Protection Performance to IP68 we tested our Flexicon Ultra products to a depth of 1metre for a period of 72hours. This is far beyond the requirement of BS EN IEC 60529, but potentially not beyond the requirements of certain applications (such as flooding). We also tested our Product to 2Bar (equivalent to 20m depth) for a period of 1 hour.

We work closely to support Customer specific testing to demonstrate Product Performance and suitability. We have previously demonstrated fatigue life tests representing a service life of 35 years with a minimum 1 million cycles with no point of failure.

Our in house laboratory allows us to continue to develop solutions and understand material and product capabilities. We continuously test and simulate product performance properties helping us to develop Customer Solutions which go above and beyond.



**UV Test Chamber** 



## What's New - Connectabox™

Flexicon's Connectabox™ is a unique, weatherproof connection box that provides a faster and simpler way to protect the interconnection of circuits and all types of cabling (power and data) without the need for additional seals or gels.

The IP66, IP67, IP68 and IP69 approved connection box is manufactured using modified Nylon PA6. It offers a truly weatherproof solutions that is lightweight, corrosion and UV resistant. This presents a practical solution for external applications or environments which are exposed to harsh external conditions or where routine maintenance may be more difficult. Maximum wiring space is achieved due to fast fit connectors, that simply twist and lock into place, without the need for threads or locknuts to secure.

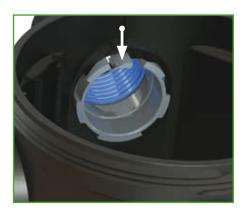
Compatible with Flexible conduit, Cable glands or Rigid conduits to offer maximum flexibility for interconnection.



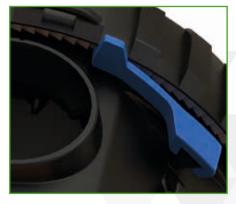
**NEW** 

#### Benefits include;

- IP66, IP67, IP68 (2 bar for 2hrs) and IP69 performance
- UV Resistant suitable for outdoor use
- 4x fast fit connection points entry points with flexible conduit
- Corrosion resistant suitable for wet environments
- Anti-tamper and vibration performance
- Connect multiple Outlets / Ways configure depending on requirements
- Can be drilled to accept cable glands and rigid conduit
- Low Fire Hazard EN45545-2 HL3 to R22 and R23



Quick release system for reconfiguring outlets - Push down to release fitting



Anti vibration lever



Maximum internal wiring space - no protruding threads or locknuts



Blank off unused outlets



## What's New?

# Innovation is at the centre of everything we do. This Product Guide features no less than 9 new Conduit Systems.

Highlighted below are a selection of new products featured in the 14th Edition.

#### **FPIHRL - Non Metallic Conduit**

This new range of corrugated conduits features enhanced fire performance properties to EN 45545 HL3 R23 for exterior vehicle applications, combined with excellent dynamic performance offering fatigue life and flexibility for the Rail Industry.



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#### **Abrasion Rings**

Designed to provide additional protection and prolong the life of non-metallic conduit systems which could be subject to extreme abrasion or potential damage from continuous rubbing. The abrasion rings can be fixed anywhere along the length of the conduit and are fixed in position to maintain localised additional protection.

#### **Divisible Conduits - FPRDS and FPPDS**

New ranges of divisible conduits in different materials for Rail and General purpose applications. Ideal for retrofit cable protection where the need to protect cables or repair cabling has been identified.



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#### **FPA80 - Large Diameter Fitting**

Suitable for use with any of Flexicon's 80mm non-metallic conduit systems, this fitting offers a simple easy to use one piece push fit connection with the conduit. Offering all the benefits of the trusted FPA range of fittings, with 360° teeth to provide all round protection and high tensile strength which is particularly important with larger conduit systems which may contain more and heavier cabling.

#### **UL Listed Hygienic Conduits**

81 & 109

This range of Hygienic Flexible Conduits are UL listed (UL 360) and NSF 169 component for splash zones in food production areas. Available from 3/8" up to 2" for use in Food and Beverage and other Hygienic applications where UL approvals are required.



**Hygienic Elbows** 

This new range of Hygienic Flexible Conduit elbow glands, available in Metric and NPSM threads, offer space saving opportunities and reduces potential stress on bending connected conduits. Manufactured from SS 316L material, the glands offer a smooth, easy to clean surface, designed for use with our Hygienic range of Conduits systems for Food & Beverage, Machinery & OEM's Healthcare and Pharmaceutical applications.



## Construction

The Construction sector relies on safe and effective Cable Protection to ensure the safety of People and Property. Electrical faults or failures can have disastrous consequences and can jeopardise necessary critical services.

# Whether it is a Datacentre, Hospital, Financial Institution, Airport, Hotel or Warehouse the continuous and safe availability of services is paramount.

The nature of construction and building sites often means that last minute changes are a necessity. No matter how detailed or comprehensive the plan, changes in response to unforeseen circumstances or environments is common.

Routing cables through flexible conduit can help to protect and reduce the mechanical stress on cables, ensuring that cable bend radius' are not exceeded.



Off site or modular construction is constantly developing due to the necessity to reduce build time and improve repeatability. Flexible Conduit can play an important role in the protection of wiring runs and pre-terminated connections to deliver a plug and play solution.

Flexible conduit can be either surface mounted or hidden within the fabric of the building. This can be under floors, above ceilings, down walls or inside concrete pours.

Sometimes conduits are part of the aesthetic design, with services visible as part of the look of the building.





## **Typical Hazards & Product Considerations**









- · Fire Performance
- Temperature

Corrosion



#### Aesthetics

#### **Example applications**

- Lighting
- CCTV
- IT / Data
- HVAC
- Building Controls
- BEMS / BMS
- Emergency Lighting

- Alarm Systems
- Access Controls
- Fire Safety, detection and protection
- Plant Room Equipment
- Switch Gear
- Distribution Boards

- Temporary Site Power
- · Lightning protection
- Escalators and Lifts
- Refrigeration
- Data Centres

## **Typical Products**



• FU - Galvanised Steel



FPAS - PA6 Corrugated



• FSU - PVC Coated **Galvanised Steel** 



• FPP - Polypropylene



· LFHU - LFH Coated **Galvanised Steel** 



· LTPUL - PVC Coated Liquid Tight UL

## **Product installation examples:**



Commercial Offices -Underfloor wiring to **Distribution Boxes** 



Plant rooms or connection of services



• FU/LFHU -Public or municipal buildings - Emergency Lighting / CCTV where fire safety is paramount



Liquid tight and Nylon systems for Data Centres



 Polypropylene -Acid resistant suitable to be buried in Concrete



# **Automation & Manufacturing**

Manufacturing and Automation is constantly evolving, with the rapid emergence of new technologies to achieve greater safety, efficiency and functionality.

Whether it is performing operations such as processing, assembly, inspection or materials handling, or in some cases a combination of all of these, Manufacturing Automation relies on effective Cable Protection.

Operating environments can vary significantly, however the fundamental requirement for continuous operation still exists. Engineers are constantly challenged to innovate, looking for improvements to deliver more for less.

# "Manufacturing Automation relies on effective Cable Protection"



## Typical hazards & product considerations



· Mechanical Strength





Flexibility & Fatigue Life



**₩** • Temperature



• Ingress Protection





· Abrasion Resistance



Hazardous Gases / Dust



· Chemical resistance







#### **Example applications**

- Control & Instrumentation Systems Detection / Measurement
- · Printing, Marking & Engraving
- Materials Handling Equipment Palletizers / Conveyers / Mixing & Dosing
- Packaging Accumulators / Baggers / Carton Machines
- Logistics Handling / Lifting / Conveying
- Fabrication Equipment Bending / Presses / Welding / Forming
- Metal Cutting Equipment Drilling / Grinding / Lathes / Milling / Rotary Transfer
- Refrigeration Storage / Temperature Controlled Environments
- Pumps / Drives / Motors
- Plant Room Equipment Electrical and Mechanical Services
- Robotics
- Plastics Processing



 FPA / FPAU -Range of Non-metallic fittings



 FPADS - Divisible Conduit Systems

## **Typical Products**



• FPI - PA12 Corrugated



• FPAS - PA6 Corrugated



· SSU - Stainless Steel



 FSU - PVC Coated Galvanised Steel



FPASC - PA6
 Corrugated UL



 LTP - PVC Coated Liquid Tight



 LTPPU - Polyurethane Coated Liquid Tight



 LTPUL - PVC Coated Liquid Tight UL

## **Product installation examples:**



• FPI – Production Line – Robotic arm



SSU -Foundry -Lighting & ventilation



• FSU – Electrical Power – Distribution boards



FPAS Machines Control Wiring



LTPUL Electrical Connection
 - Mains Power to
 machinery



## **Utilities**

Whether this is the Water Industry or the latest in Telecommunications technology, public service Utilities are essential for a nation's economy and wellbeing.

Continuity of supply is critical for the Utilities sector. With considerable levels of investment, maximising asset lifetimes can help to achieve efficiencies and reliable operations.

Projects need to offer safety and security. Whether it is a Water Treatment Plant or a Telecommunications mast, the loss of power or data can have a significant impact on the provision of services. With the risk of significant fines Operating Companies need to ensure provision of Utilities and Services which are typically 24 hours a day, 7 days a week processes.

"Whether state owned or privatised, the Utilities and Services offered need to be continuous and safe"



## Typical hazards & product considerations











Abrasion Resistance
 With Temperature



Chemical resistance



· Corrosion Resistance



Resistance







Hazardous Gases /







## **Example applications**

- Control & Instrumentation Systems –
   Detection / Measurement
- MCC (Motor Control Centres)
- Pumps / Drives / Motors
- Plant Room Equipment
- Lighting

- Alarms
- CCTV and Security
- Access Control
- UPS systems
- Base stations & Masts
- Antenna



## **Typical Products**



 FSS - Stainless Steel Corrugated



· FPAS - PA6 Corrugated



· SSU - Stainless Steel



· LTP - PVC Coated Liquid Tight



· FSU - PVC Coated Galvanised Steel



 LTPUL - PVC Coated Liquid Tight UL

## Product installation examples:



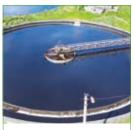
FSU -Water Treatment Plant - External lighting



FPAS Telecommunication
 Towers - Machines Control Wiring



LTP Sewage Treatment
 Works - Pumping
 Equipment



• FPIH – Primary Treatment Tanks



• LTPUL – Electrical Connection – Mains Power to machinery



# Renewables - Solar / Wind / **Hydro / Energy from Waste**

Renewable Energy is a critical aspect of reducing global carbon emissions and offers an infinite source of power. This sector relies on new technologies to improve efficiency and maximise return on investment.

In the global drive to reduce the impact of greenhouse gas emissions, renewable energy is playing an increasingly important role.

Whether this is Onshore Wind, Offshore Wind, Solar PV or Biomass all categories rely on cabling and subsequently cable protection for efficient and safe operation. High cost of major mechanical repair, combined with long service life expectations and the remoteness of equipment pose significant challenges when specifying Cable Protection.



## Typical hazards & product considerations































#### Solar Range - UV Performance for 20 years:

Flexicon's Solar Offer is a premium range of products designed for use for Cable Protection for Solar PV installations.

Flexicon warrants that the Flexible Conduit will not suffer from significant mechanical deterioration from ultra violet exposure for a period of up to 20 years from the purchase date of the product\*.

\* Contact Flexicon for further details - Terms and Conditions apply.

#### **Example applications**

- Solar PV Farms
  - Security and Perimeter Control
  - CCTV
- DC Combiner boxes
- Inverters
- Substation
- Weather Station
- Hydro Electric

- Wind Turbine:
- Nacelle
- Tower & Lighting
- Electric Pitch System
- Control System
- Condition monitoring systems
- Cooling and Heating
- Biomass

## **Typical Products**



 FPADS - Dual slit conduit suitable for retrofit



• FPAS - PA6 Corrugated



· SSU - Stainless Steel



 LTBRDP Conduit -Galvanised Steel Core with Braid Layer and PVC Coating



 LTPSS - PVC Coated Liquid Tight with Stainless Steel inner core



 EXD - Flameproof Barrier Gland



 FUSSB - Galvanised Steel Core with Stainless Steel Overbraid



 Polyamide systems and FPAU Ultra™ Fittings



 Lightning Swivel Fitting – High continuity fitting specifically developed for Wind Turbines







# Rail - Rolling Stock and Infrastructure

Passenger safety and operational integrity are vital characteristics of a modern rail network.







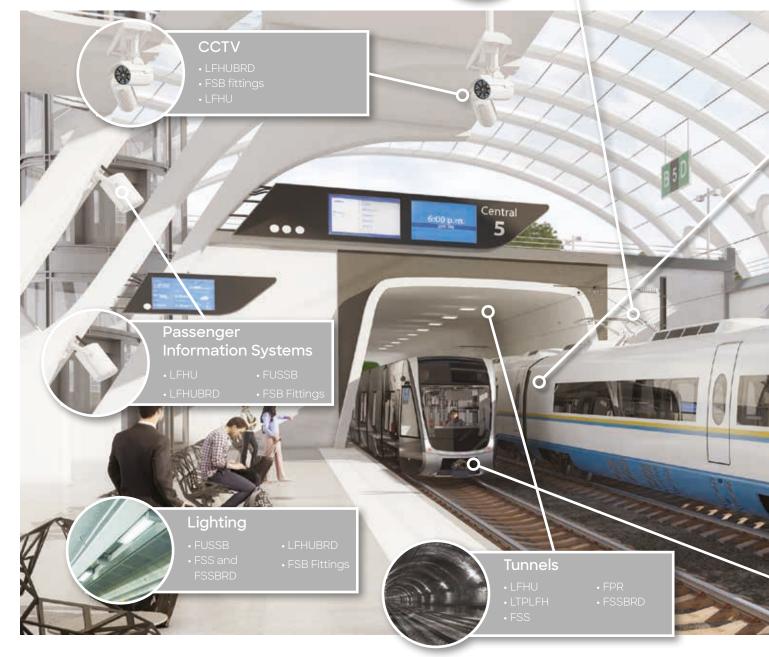






Flexicon offer a range of products for this technically demanding sector. IP ratings, tensile strength characteristics, weight, corrosion resistance, fire performance properties and operating temperature ranges are all factors to consider.

















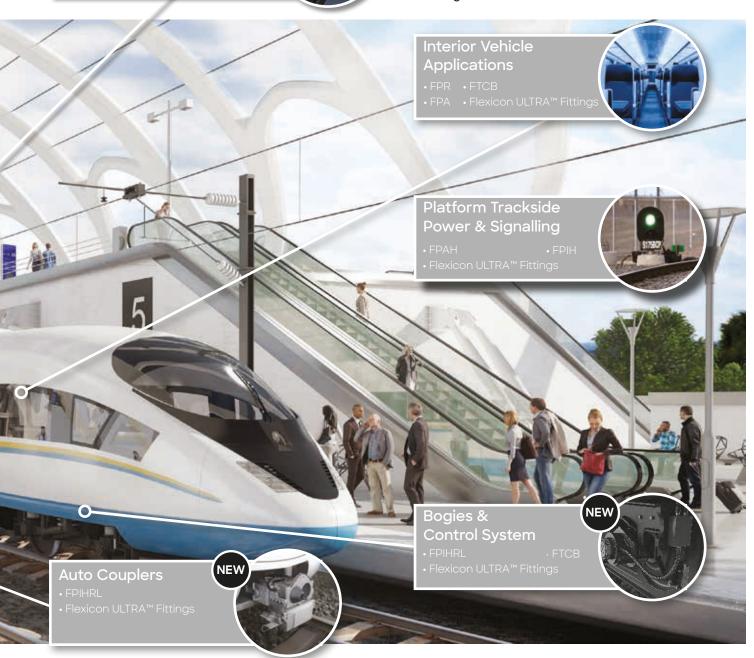




- Inter Vehicle Jumper **Applications**



- High performance products offering superior tensile and impact / compression strength
- Designed to meet the strictest standards - EMC testing /vibration
- Wide product range to meet all applications
- Independently tested to the relevant standards
- Vibration proof
- Anti-tamper







## Rail - Rolling Stock and Infrastructure

Passenger safety and operational integrity are vital characteristics of a modern rail network.

We know and appreciate the various challenges involved in achieving compliance to the latest industry legislation, managing and controlling risk, making procurement more efficient whilst striving for continuous improvement across the entire railway system.

"Flexicon have a proven track record in protecting Safety & Performance Critical Cabling"



## Typical hazards & product considerations



• Fire Performance





• Ingress Protection



• UV Resistance



Vibration & Shock
Resistance



• Strength to

Weight ratio Weight ratio



Chemical resistance

Abrasion Resistance



**₩** • Temperature



Flexibility



EMC

• Fatigue Life





## **Example applications**

#### Infrastructure

- Ticketing and Passenger Access
- · Station Car Parks
- · CCTV / Passenger Information Systems
- · Lifts & Escalators
- · Lighting
- · Platform Edge Screens
- · Rail Crossings
- · Trackside Points Machines
- · Trackside Signalling
- · Trackside Power
- Tunnels
- · Depot (Berthing and Maintenance)

#### **Rolling Stock**

- · High Speed
- · Intercity / Urban & Regional Trains
- Metro
- Trams & Trolleybuses
- Monorail
- Locomotives
- · Propulsion & Control Systems
- Bogies
- · HVAC
- · Couplers
- · Pantograph
- · Brake Systems
- · Door Modules
- · ETCS



· FPAU -Range of Non-metallic fittings





· F-Clamps and Fixing Accessories

## **Typical Products**



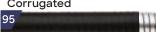
· FPR - PA6 Corrugated



· FPIHRL - PA12 Corrugated



 FPRSS - Stainless Steel Overbraid PA6 Corrugated



 LTPPU - Polyurethane Coated Liquid Tight



· LFHU - LFH Coated Galvanised Steel



 FSS - Stainless Steel Corrugated



 LFHUBRD - LFH Coated Galvanised Steel with SS Overbraid

#### · LTPLFH - LFH Coated Liquid Tight

## **Product installation examples:**

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LFHUBRD –
 Passenger
 Information System



LFHU Public Address Voice
 Alarms for staff
 safety - Rail Depot



 LFHU -CCTV & Security



 FPIHRL -Control wiring on top of carriage



• FPIHRL -Intercar Jumpers



# **Hazardous Area Applications**

System integrity and safety are critical for these technically demanding environments.

Using flexible conduit allows multiple cables to share the same space and hence reduce the number of entry points required into the control box and termination area.



Simplified Termination



· Reduce installation times



· Cable is mechanically protected



· No need for specialist cables



Can provide EMC screening



Flameproof integrity



🚱 - Future proofing - easier to upgrade























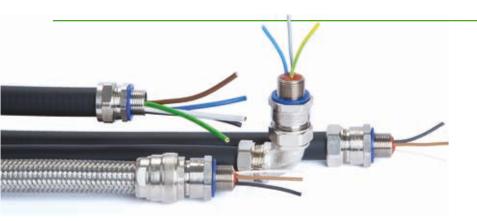
Combining our flexible conduit system with our Flameproof EXD glands, Contractors and Operators can ensure they mechanically protect their cabling installation without compromising on safety to protect people and assets.

Our standard products facilitate tailored solutions, off the shelf, thus minimising any lead times. Flexible conduit from Flexicon can help to:

- Enhance Safety and System Integrity
- Extend service life
- Offer Corrosion Resistance (harshest environments)
- Minimise downtime
- Reduce installation time
- Reduce cost and weight







#### **Local Support & Guidance**

- Product applications and suitability
- Experts on hand on how to protect vulnerable cables in safety and performance critical installations
- Product support offered to;
  - End Users - Consultants
  - OEM's Operators
- FPC's

Scan here to learn more about our **EXD Barrier Glands** 

## **Presence of Gases & Vapours**

- Upstream, Midstream and Downstream
- Refineries
- Chemical plants
- Loading and unloading areas in terminals
- Storage areas for tanks

## Combustion Plants

Mills

Silos

**Presence of Dust** 

- Dust extraction
- Polymer Production
- Paint Shops

## **Markets and Applications**

Skids

Motors

Control Boxes

- Lighting
- MCC (Motor Control Centres)
- CCTV

- Control & Instrumentation
- Detection & Measurement







## **Hazardous Area Products**

Flexicon have a wide range of cable protection solutions for use in Hazardous locations.

Routing of cables, both power and / or data, in hazardous areas, can be a complex task requiring detailed planning.

Our range offers a choice of seventeen different conduits, depending on the operating environment and technical challenges faced, suitable for use with our Ex d, Ex e and Ex t fittings.

Manufactured in Birmingham, UK, our comprehensive range of Ex d (flameproof), Ex e (Increased safety) and Ext (Dust Ignition Protection) fittings and accessories offer customers choice when it comes to specifying hazardous area approved equipment.

Our products are manufactured to the latest ATEX, IEC Ex, UL and CU-TR directives and standards.



## Typical hazards & considerations



· Ingress protection







• Hazardous Gases / Dust 🖟 • Low Fire Hazard 💢 👉 • Static charge







•••• Mechanical strength



Corrosion resistance



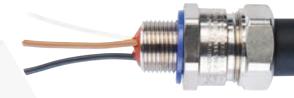


· Abrasion Resistance UV Resistance









## **UL Listed (file no. E247502)** page 100

UL Listed for use in USA and Canada, UL file No. E247502 (ordinary locations).

Suitable for use in hazardous locations as per NEC: Article 501 (B)(2), Class I Div 2. Article 502 (A)(2) & (B)(2) Class II Div 1&2. Article 503 (A)(3) & (B)(3) Class III Div 1&2.

## **LTP-CUL Fittings**









#### EXE - Increased safety & Dust Ignition proof page 104

Offering Ex e (Increased Safety) and Ex t (Dust Ignition Proof) protection.

Suitable for use in Zone 1, Zone 2, Zone 21 and Zone 22 Hazardous Areas when used with Flexicon's Liquid Tight Conduit Range.

#### LTP-EXE Fittings













## EXD - Flameproof Barrier Glands page 102

Offering Ex d (Flameproof), Ex e (Increased Safety) and Ex t (Dust Ignition Proof) protection. Suitable for use in Zone 1, Zone 2, Zone 20, Zone 21 and Zone 22 Hazardous Areas. This gland can be used with any of Flexicon's Liquid Tight Conduit Range.



Scan here to learn more about our EXD Barrier Glands

## LTP-EXD Fittings





# **Hygienic Range**

Production processes or environments which are subject to wash-down or hygienic requirements need to consider cable management carefully. Given the increase in automation, cable protection becomes even more important to protect power and data cabling.

Cleaning regimes are an important and essential process to ensure the safety and quality of a Company's Output and Goods. Whilst machinery or plant is being cleaned or maintained, production or service output is zero therefore this time should be as effective as possible, without compromising safety and quality.

# "Flexicon can offer Hygienic Cable Protection solutions that save time and money"





Flexicon can offer Cable Protection products which enable efficient cleaning whilst providing system integrity for Hygienic Environments.





Our products protect against the build up of microbes and bacteria and also ensure that cleaning processes do not damage or compromise equipment operation.

Applications including Food & Beverage, Machinery & OEM's, Healthcare and Pharmaceutical Industries all rely on the benefits of effective Cable Protection.





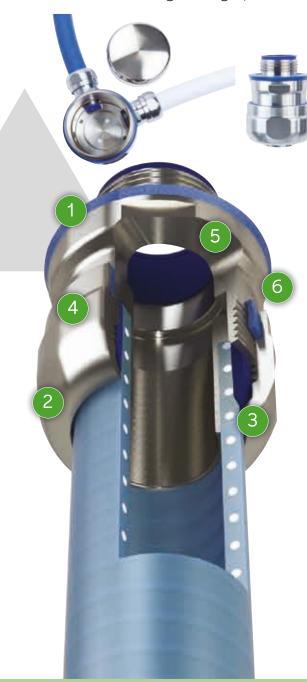


Flexicon can offer connection solutions for your critical power and data cables in Hygienic environments.

Our new range of Stainless Steel Round Boxes have been designed using SS Grade 316L and feature a range of connection options.

Our Hygienic fittings are available as a short thread version, to ensure a secure connection whilst maximising wiring space within the Box.





#### **Features & Benefits**

1) Hygienic design

In accordance with EN1672-2 & EN ISO 14159

(2) Smooth finish

Eliminate build up of bacteria & micro-organisms

(3) High IP rating

IP66, IP67, IP68 (2 Bar) & IP69

(4) Corrosion resistance

Material type (SS316L)

5) High chemical & thermal resistance

Resistant to chemicals & cleaning agents

6 Fewer components

Ease of assembly and integrated barrier seal to prevent contamination.



# Hygienic Cable Protection Solutions



Flexicon are the leading solutions provider to protect your critical power and data cables in Hygienic environments from damage caused by mechanical, electrical or environmental influences.

Flexible conduit is ideal for the Cable Protection, Management and routing of Power and / or data cables.



#### **Simplicity**

No need for specialist cables.

Standard and single core cables can be grouped and protected in one system. Mechanical protection is provided by the conduit system.

Fewer components mean less product inventory throughout the supply chain.



#### **Fixing**

Multiple circuits can be fixed and secured in one system. This makes cleaning easy with one smooth outer cover. A range of fixing and mounting solutions are available to secure the Conduit in place throughout its lifetime.



#### **Space Saving**

Grouping standard cables into one system means less glanding space / area required to terminate.

Cost savings can be achieved by using smaller enclosures, less components and reducing installation time required to terminate.



#### **Reduced Maintenance**

Existing circuits can be replaced or added with ease using a conduit system, throughout the life of the installation.

Less cable entry points means less opportunity for Ingress Protection failure during washdown or cleaning schedules.



#### **Speed of Installation**

Grouping cables using flexible conduit means fewer cable entry points to the enclosure / equipment therefore less installation time. Flexible Conduit offers the ability to route around equipment and plant without the need for specialist bending equipment.







# **Cable Protection for Hygienic Applications**

## Typical hazards & product considerations



Chemicals



Ingress Protection



👝 · Corrosion - Chemicals and Wash down



Steam jets



· Build up of Microbes and Bacteria



Contamination



🔰 🕍 · Temperature





Abrasion



· Continuous & Repeated Movement



Explosive Gases



 LTP-C-FG Fitting 12mm to 63mm

· C-FG 90 Fitting

12mm to 63mm

· LPC-C-FG Fitting

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• Round Box (SS316L)

## **Example applications**

- Processes and production plants in the food & pharmaceutical industry
- Dairy Industry
- Breweries and Beverage Industry
- Bakery
- Meat & Poultry
- Seafood

- Confectionary
- Frozen
- Fresh and Chilled Foods
- Pharmaceutical Industry
- Cosmetic Industry
- Medical Technologies
- Clean Service applications

## **Typical Products**



· LPC-FG -





· AFC - LFMC



· LPC-FG -



· LTBRDP-FG -

· AFC - LFNC





· LTBRDP-FG -

· LPC-FG -

108



· LTP-FG -



· LTPSS-FG -

## **Product installation examples:**



· In line detection



LPC Blue conduit with SS FG fitting



Mixing Machines



 Extend or adapt circuits and wiring



· Automation and **Processing Machinery** 



# **North American Approvals**

UL Listed and UL Recognised Products

Flexicon have developed a range of products and solutions for installations which require either UL "Listing" or "Recognition" approvals. In North America, and sometimes the rest of the World, compliance with UL (Underwriters Laboratories) is a fundamental requirement.



UL standards are exacting and rigorous, with full transparency listed through the UL website.

UL Representatives audit factories on a regular basis and any Manufacturers making claims regarding a product being "Listed" or "Recognised" can be verified by visiting the UL website.

Other standards include NFPA 70, also called the National Electrical Code, are the wiring rules for general wiring, and NFPA 79 is the Electrical Standard for Industrial Machinery.





## **UL Recognised**



UL Recognised approval is applicable to a component or raw material that is to be incorporated into a piece of finished equipment that will itself be UL Listed.

## **UL Listed Products**



UL Listed approval is applicable to a finished product that will be used in its own right.

Flexicon can offer both Non-metallic and metallic solutions where UL Listed is a requirement.



## **UL 514B Listed Conduit Fittings**



Flexicon have the following conduit fittings ranges UL Listed to UL514B.



LTP-CUL



FPAX



Ultra™





# c(UL)us UL 1660 Liquid-Tight, Flexible Non-metallic Conduit



UL 1660 is the Non-metallic flexible conduit standard. Corrugated conduit (known as type C), is normally made from nylon (polyamide) and as the fittings for this type of conduit are not compression fittings, the conduit and fittings need to be supplied as a system.

Flexicon has FPAS21C to FPAS67C, PA6 corrugated conduits UL listed to UL1660.

For more details see File No.E246572 - UL Listing for Flexicon FPASC.

The UL mark is cULus, showing approval for use in both USA and Canada.

This Conduit is designed for use with UL Listed range of FPAX and FPAU Ultra™ IP68 fittings from 21mm to 67mm with NPT and Metric threads.

For more details see File No. E247502 - UL Listing for Flexicon Fittings.

Atkore can also offer AFC UL-FG LFNC-B to UL 1660 standard, UL File E123464.

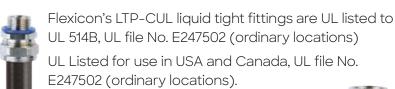


# us UL 360 Liquid-Tight, Flexible Steel Conduit

This is the standard for galvanised steel, PVC sheathed, flexible steel conduit. This standard specifies the conduit dimensions. with tolerances and for sizes up to 40mm it requires a copper bonding wire to be incorporated into the wall of the conduit.

Conduit fittings are specified under UL 514B, and are normally of a compression type that can cope with a wide tolerance range.

Flexicon's LTPUL conduit is UL listed to UL 360 for America and CSA approved for Canada.



Suitable for use in hazardous locations as per NEC: Article 501 (B)(2), Class I Div 2. Article 502 (A)(2) & (B)(2) Class II Div 1&2. Article 503 (A)(3) & (B)(3) Class III Div 1&2.

Atkore can offer a number of conduits with UL listing, notably AFC UL-FG LFMC to UL 360 standard, UL File E26540.



## C TIIS UL 1696 Non-metallic Protection Tubing

UL 1696 is the newest UL standard for conduit and is a system standard incorporating conduits and fittings.

Approval to UL 1696 gives a UL recognised system that may be incorporated into equipment that may itself end up being UL listed. Typically this standard covers corrugated polyamide and spirally reinforced PVC. This standard is harmonised between USA and

Canada so UL can also certify that products are suitable for use in Canada.

Flexicon has most of its nylon, PA6 and PA12 corrugated conduits, FPAS, FPAL, FPAH, FPR, FPI and FPIH, together with its FPA (IP66), FPAX (IP68) and FLK (IP66) fittings UL recognised to this standard, including use in Canada, UL file number E229161.

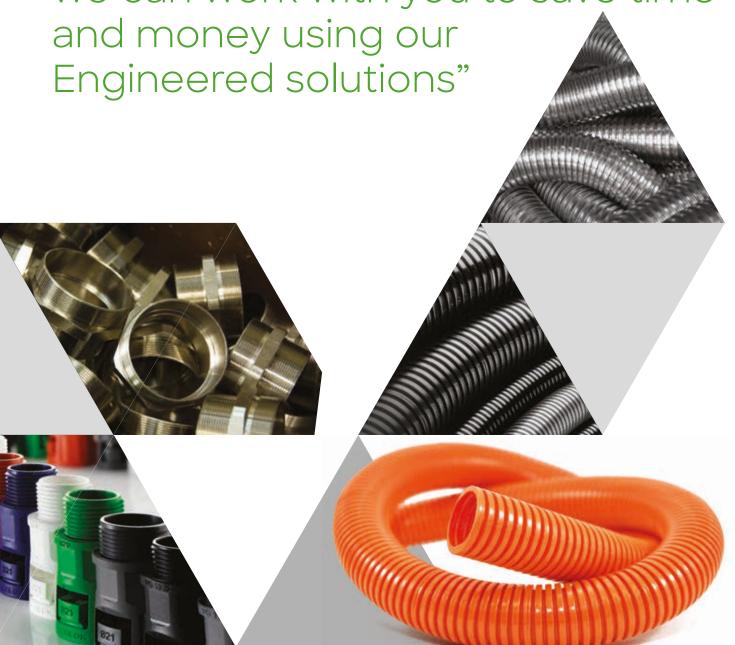


## **Tailored Solutions**

Flexicon can offer true engineering support when it comes to your Cable Protection requirements. When you talk to us, you know you are talking to the people that design, engineer and manufacture the products you are buying.

We are the experts when it comes to understanding product capabilities and can engineer solutions to help you save time and money when it comes to your protection requirements.

"one size does not necessarily fit all, we can work with you to save time





## Whatever your application, we've got it covered...

Working closely with our customers, we understand their protection challenges and have provided numerous customised solutions. Some examples of specials and tailored solutions are listed below:



- Long lengths Typically when 50m is not long enough we have provided extended lengths such as in special containers and cages up to 1,700m.
- Short lengths 10m is our smallest standard coil length but we can offer shorter lengths if necessary.
- Pre cut lengths Pre-cut to defined dimensions we can offer conduit pre-cut to your requirements ready to use saving you time.



#### **Assemblies**

· Ideal for use for wiring harnesses or for OEM's who are integrating products into their finished equipment. Consisting of pre-cut lengths of conduit, with fittings pre-terminated ready for assembly and wiring. Ideal for use in modular and prefabrication applications to simplify installation.



- · We offer a range of different Polymer formulations to change the performance characteristics and properties of our Flexible Conduits. This could be to modify any of the following:
  - Colours
  - UV resistance
  - Flame retardancy
  - Fire performance properties
  - Anti-static



Bespoke thread sizes

· We can offer various thread sizes and types. Our Non metallic fittings utilise barb design allowing us to create a variety of thread sizes across our FPA. FPAX and FPAU conduit fittings with metallic threads. Our manufacturing capability enables us to create various thread types, lengths, size and form.



- We can offer various termination options to interface with our Conduits. We have developed time and labour saving solutions to interface with equipment such as:
  - Push Fit termination no thread
  - Pulling eye assist with product handling
- Integrated Cable Strain Relief



#### Metal finishes

 We can offer different material finishes for metal systems. Often the self colour of Galvanised Steel, Stainless Steel or Aluminium does not match the required aesthetics. We can chemically blacken Stainless Steel conduits and fittings so they are not visible. We can also offer anodising of aluminium components to suit required aesthetics.

All the above options are considered as specials and may be subject to agreed Minimum Order Quantities and Leadtimes.





## Non-metallic conduit & fittings

Advances in material technologies and manufacturing techniques have created solutions that offer combinations of properties previously not associated with non metallic systems. We work with a range of non metallic material types, from Polyamide (PA6, PA12, PA66), Polypropylene (PP) and PVC and can offer over 27 systems in a range of sizes from 7mm to 106mm.

Flexicon can offer both corrugated conduits and smooth bore spiral helically reinforced conduits, offering you the choice depending on your application.



#### **Key Features**

- Wide range of sizes
- Light Weight
- High Strength to Weight ratio
- Easy to cut
- · High Fatigue life
- Superior IP ratings up to IP69
- Low Corrosion
- Highly Flexible

#### **Key Features**

- Suitable for a wide range of applications
- Easy to work with for ease of installation
- Reduced installation times
- Reduced whole life costs
- Reduced risk of water or dust ingress
- Suitable for retrofit applications
- Suitable for diverse environments
- Movement without any impact on performance



















BS EN IEC 61386







Non-metallic conduit selection quide

P-Salang   P-Salang		selection guide													
Procession   Pro		t System	FPAS	FPAL	<b>БРАН</b>	FPASC	FPR	FPI	FPIH		FPP	FPADS			
PRating   Prof.   Pr		IP40													
Pull Off Strength (kg) For 21/20mm size   40   30   70   40   40   30   50   35   25   15   15   15   15	IP Rating	IP65 IP66 IP67 IP68	•	•	•	•	•	•	•	•	•				
High Fatigue Life	Pull Off Strength (kg	g) for 21/20mm size	40 45	30 40	70 55	40 45	40 45	30 35	50 45	35 55	25 40 black, grey,	15 120 black, blue, orange,	15 120	15 120	
Category  Placible  Pilable  Low Fire Hazard  * Extra  * Standard  Halogen Free  Self Extinguishing  Fire Tests  EN 45545-2  NFPA-130  Abrasion Resistance  Resistance to solvents  UV Resistance  UL Recognised  UL Listed  Lloyds  Landon Underground  Network Rail  Food Contact  ROHS  REACH			120°C	120°C		120°C		110°C	110°C	110°C		120°C			
Standard   Halogen Free   Self Extinguishing   Standard   Halogen Free   Self Extinguishing   Standard   Halogen Free   Self Extinguishing   Standard   Self Extinguishing   Se	Category	Flexible							1		1				
NFPA-130	Low Fire Hazard	* Standard Halogen Free	•		•	•	•	•	•	•	•	•	•	•	
Network Rail   Netw	Fire Tests									•					
Approvals  Lloyds London Underground Network Rail Food Contact  ROHS  REACH  UL Listed  O O O O O O O O O O O O O O O O O O	Resistance to solver		•	•	•	•	•	_	•	•		•	•	•	
REACH	Approvals	UL Listed Lloyds London Underground Network Rail	•	•		•	•	•		•		•			
	REACH		•	•	•	•	•	•	•	•	•		•	•	



124 Accessories



128 Contractor packs



130 Chemical resistance



# Non-metallic conduit selection guide

ı			I	ı								1		NEW
FPL	FPY	FPYS	FPYL	FPYLS	FPCB	FPCG	FPCGN	FPCBU	LPC	LPCO	LPCBU	LPCGN	LPC-FG	AFC UL-FG
•	•												OKE IN PARTY	
					•	•	•	•						
•									•	•	•	•	•	•
•	•		•						•	•	•	•	•	•
									•	•	•	•	•	•
									•	•	•	•	•	•
150	60	N/A	45	N/A	60	60	60	60	120	120	120	120	120	120
30	25	N/A	15	N/A	25	25	25	25	70	45	60	60	60	60
30	40	40	40	40	35	35	35	35	70	70	70	70	70	70
black, grey, white	black, grey	black	black	black	black	light grey	green	blue	grey	orange	blue	green	white, blue, grey	white
	•													
70°C	120°C	120°C	120°C	120°C	70°C	70°C	70°C	90°C	70°C	70°C	90°C	70°C	90°C	80°C
-5°C	-40°C	-40°C	-40°C	-40°C	-5°C	-20°C	-20°C	-20°C	-5°C	-20°C	-20°C	-20°C	-20°C	-20°C
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	•	•	•	•	•				•					
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•	•	•	•	•	•		•	•		•	•	•	•	•
	•		•	•	•	•		•	•	•		•	•	•
66	68	68	68	68	74	74	74	74	76	76	76	76	76	76



134 Thread data

136 Technical guidance



144 Low fire hazard



# Non-metallic fittings selection guide











## **Non-Metallic Conduit & Fittings**

Non-metallic systems are typically lighter, easier to work with and more cost effective to install. With advances in material technologies non-metallic systems can provide an alternative solution where typically only metal systems had been considered previously.

#### **FPAS**



Construction: Standard weight, flame retardant nvlon (PA6) corrugated flexible conduit

Colour: Black or Grey (RAL 7031). Orange available on request.

Typical Applications: All types of machinery, public buildings.

- · Highly flexible and high fatigue life
- High impact strength and recovers if crushed
- Temperature range -40°C to +120°C (-20°C to +100°C for moving applications)
- Lloyd's Register Type Approval
- UL recognised
- · Low Fire Hazard (LFH), see page 144
- UL 94 V2 flame retardancy
- Halogen, sulphur and phosphorus free
- UV resistant (black)
- · Abrasion resistant
- · Highly resistant to solvents and oils
- Slit version also available FPAS-S please contact us

#### **FPAL**



**Construction:** Light weight nylon (PA6) corrugated flexible conduit. Colour: Black or Grey (RAL 7031).

Typical Applications: Machines where lower mechanical protection is required and

- · Highly flexible and high fatigue life
- · High impact strength and recovers if crushed
- Temperature range -40°C to +120°C (-20°C to +100°C for moving applications)
- UL recognised
- Highly resistant to solvents and oils
- · Self extinguishing
- · Halogen, sulphur and phosphorus free

#### **FPAH**



Construction: Heavy weight, flame retardant, nylon (PA6) corrugated flexible conduit.

Colour: Black

Typical Applications: All types of machinery and public buildings where high mechanical strength required.

- · High mechanical strength
- · High impact resistance
- Temperature range -40°C to +120°C
- UL recognised
- · Low Fire Hazard (LFH), see page 144
- UL 94 V2 flame retardancy
- Halogen, sulphur and phosphorus free
- UV resistant
- Abrasion resistant
- Highly resistant to solvents

FPASC



Construction: Standard weight flame retardant nvlon (PA6) corrugated flexible conduit

Colour: Black or Grey (RAL 7031).

**Typical Applications:** All types of machinery, public buildings where UL listed is a requirement.

- · Highly flexible and high fatigue life
- · High impact strength and recovers if crushed
- Temperature range -40°C to +120°C (-20°C to +100°C for moving applications)
- UL listed
- Lloyd's Register Type Approval
- · Low Fire Hazard (LFH), see page 144
- UL 94 V2 flame retardancy
- · Halogen, sulphur and
- phosphorus free UV resistant (black)
- Abrasion resistant
- · Highly resistant to solvents

european (NW) siz	nominal size (mm)	pitch
7	10	F
8	11	F
10	13	F
12	16	F
14	18	F
	20	C
17	21	F
	21	C
	25	C
23	28	F
23	28	C
29	34	C
36	42	C
48	54	C
56	67	C
80	70	C
106	95	C

Sez

	FPAS	partnumber	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	FPAL	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	FPAH	partnumber	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	FPASC	partnumber	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)
F	PAS10		50	10.0	6.3	15	FPAL10		50	10.0	6.5	15												
F	PAS11		50	11.5	8.2	20	FPAL11		50	11.5	8.4	20												
F	PAS13		25, 50	13.0	9.8	25	FPAL13		50	13.0	10.0	25	FPAH1	3	50	13.0	9.0	35						
F	PAS16		25, 50	15.8	11.8	35	FPAL16		50	15.8	12.0	35	FPAH1	6	50	15.8	11.5	45						
F	PAS18		50	18.5	14.2	40	FPAL18		50	18.5	14.2	35												
F	PAS20		25, 50	20.0	14.8	45	FPAL20		50	20.0	15.0	40												
F	PAS21		25, 50	21.2	16.7	45	FPAL21		50	21.2	16.9	40	FPAH2	1	50	21.2	15.5	55	FPAS21	ıc	50	21.2	16.0	45
F	PAS25		25, 50	25.0	19.1	50	FPAL25		50	25.0	19.3	45	IIIAIIZ		00	21.2	10.0	55	11702		30	21.2	10.0	70
F	PAS28		25, 50	28.5	22.8	50	FPAL28		50	28.5	23.0	45												
													FPAH2	В	50	28.5	21.3	60	FPAS28	C	50	28.5	21.7	50
F	PAS34		25, 50	34.5	28.1	60	FPAL34		50	34.5	28.3	55	FPAH3	4	25	34.5	27.6	70	FPAS34	C	50	34.5	28.1	60
F	PAS42		10, 25	42.5	35.5	70	FPAL42		25	42.5	35.7	65	FPAH4	2	25	42.5	34.6	80	FPAS42	C.	25	42.5	35.5	70
F	PAS54		10, 25	54.5	47.2	80	FPAL54		25	54.5	47.4	80	FPAH5	4	25	54.5	46.0	90	FPAS54	C	25	54.5	47.2	80
F	PAS67		10	67.2	56.3	130	FPAL67		10	67.2	56.5	110	FPAH6	7	10	67.2	56.3	130	FPAS67	'C	10	67.2	56.3	130
L	DFPAS	80	10	80.0	67.0	150	LDFPAL	.80	10	80.0	67.0	160												
L	DFPAS	106*	10	106.0	91.8	210	LDFPAL	.106*	10	106.0	91.5	210												

For larger diameter conduit see page 70

### Ordering Notes

- Specify Black or Grey (B = Black, G = Grey) and reel length eg: FPAS21B-50M for a Black 50m reel
- · Some reel lengths are MTO in grey
- See cutting tool page 127
- \* Indicates parts made to order on request and may be subject to MOQ and lead time
- · Available on request:
- longer lengths and bulk packaging
- cut lengths and assemblies
- other colours
- full copies of independent test results confirming LFH properties
- fine pitch 34mm sizes
- Contractor Packs available see page 128 & 129
- For LFH performance see page 144



We have a range of products that can offer properties dependent on your requirement for impact resistance, flexibility, fatigue life, operating temperature and fire performance to name but a few.



**FPR** Construction: Standard

weight nylon (highly flame retardant PA6) corrugated flexible conduit.

Colour: Black **Typical Applications:** 

Railways, underground and public buildings. · Highly flexible and high

- fatigue life High impact strength and recovers if crushed
- · Temperature range -40°C to +120°C (-20°C to +100°C for

moving applications)

- UL recognised
- · Lloyd's Register Type Approval
- Extra Low Fire Hazard (LFH)
- · Compliant to LUI Std S1085
- UL 94 V0 flame retardancy
- · Halogen, sulphur and phosphorus free
- UV resistant
- Abrasion resistant
- · Highly resistant to solvents and oils
- EN 45545 HL3 Interior R22 and exterior R23



Construction: Standard weight nylon (PA12) corrugated flexible conduit.

Colour: Black.

FPI

**Typical Applications:** obots and continual flexing.

- · Highly flexible
- · Exceptional fatique life
- · High impact resistance even at very low temperatures
- UV resistant
- · Displays self recovery if crushed
- Temperature range -50°C to +110°C
- UL recognised
- · Highly resistant to solvents and oils
- Self extinguishing
- · Halogen, sulphur and phosphorus free



Construction: Heavy weight nylon (PA12) corrugated flexible conduit.

Colour: Black.

Typical Applications: Robots and continual flexing where higher mechanical strength required.

- Highly flexible and high fatique life
- · High mechanical strength
- · High impact resistance even at very low temperatures
- UV resistant
- Displays self recovery if crushed
- Temperature range -50°C to +110°C
- UL recognised
- · Highly resistant to solvents and oils
- Self extinguishing
- · Halogen, sulphur and phosphorus free

FPIHRL Construction: Heavy weight nylon (PA12) corrugated

flexible conduit. Colour: Black.

en 45545-2

Typical Applications: Where dynamic continual movement or flexing is required, with a higher mechanical strength even at very low temperatures such as on Bogies or Intercar Jumper assemblies. Rolling Stock applications requiring a superior level of fire performance.

- Highly flexible and high fatigue life
- · High mechanical strength
- · High impact resistance even at very low temperatures
- UV resistant
- Displays self recovery if crushed
- Temperature range -50°C to +110°C
- Highly resistant to solvents and oils
- Self extinguishing
- Extra Low Fire Hazard (LFH)

EN 45545 HL3 Exterior R23

· Halogen, sulphur and phosphorus free

Construction: Standard weight polypropylene. flexible conduit

=PP

Colour: Black, Grey (RAL 7031) or White (see page 71)

Typical Applications: Buildings, particularly where buried in concrete or plaster.

- Acid resistant
- Temperature range -20°C to +90°C
- Self extinguishing
- · Slit version also available

Other options available Also available as Divisible see FPPDS

FPR	partnumber	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	FPI	partnumber	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	FPIH	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	FPIHRL	partnumber	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	FPP	part number	leer rerigin (m)	outside dia (mm)	min inside bend	radius (mm)	pitch	nominal size (mm)	european (NW) sizes
FPR10		50	10.0	6.3	15																			FPP10	50	0 1	0.0 6.	3 15	j [	F	10	7
																														F	11	8
FPR13		50	13.0	9.8	25	FPI13		50	13.0	9.8	25	FPIH13	} {	50	13.0	9.0	25	FPIHR	RL13	50	13.0	9.0	25	FPP13	50	0 1	3.0 9.	8 25	j	F	13	10
FPR16		50	15.8	11.8	35	FPI16		50	15.8	11.8	30	FPIH16	; ;	50	15.8	11.5	35	FPIHR	RL16	50	15.8	11.5	35	FPP16	50	0 1	5.8 11	.8 35	;	F	16	12
																														F	18	14
FPR20		50	20.0	14.8	45																			FPP20	50	ე 2	0.0 14	.8 40	) [	C	20	
FPR21		50	21.2	16.7	45	FPI21		50	21.2	16.7	35													FPP21	50	ე 2	1.2 16	.7 40	)	F	21	17
												FPIH21	{	50	21.2	15.0	45	FPIHR	RL21	50	21.2	15.0	45							С	21	
FPR25		50	25.0	19.1	50																			FPP25	50	J 2	5.0 19	.1 50	) [	C	25	
																								FPP28	50	J 2	8.5 22	.8 55	j	F	28	23
FPR28		50	28.5	21.7	50	FPI28		50	28.5	21.7	45	FPIH28	} {	50	28.5	21.3	50	FPIHR	RL28	50	28.5	21.3	50							С	28	23
FPR34		50	34.5	28.1	60	FPI34		25	34.5	28.1	55	FPIH34	1 2	25	34.5	27.6	60	FPIHR	RL34	25	34.5	27.6	60	FPP34	25,	503	4.5 28	.1 65	j	С	34	29
FPR42		25	42.5	35.5	70	FPI42		25	42.5	35.5	60	FPIH42	2	25	42.5	34.6	70	FPIHR	RL42	25	42.5	34.6	70	FPP42	2	5 4	2.5 35	.5 80	) [	С	42	36
FPR54		25	54.5	47.2	80	FPI54		25	54.5	47.2	70	FPIH54	1 2	25	54.5	46.0	80	FPIHR	RL54	25	54.5	46.0	80	FPP54	2	5 5	4.5 47	.2 10	0	C	54	48
FPR67		10	67.2	56.3	130	FPI67		10	67.2	56.3	120	FPIH67	'	10	67.2	56.0	130	FPIHR	RL67	10	67.2	56.0	130	FPP67	10	J 6	7.2 56	.3 15	0	С	67	56
LDFPR	30	10	0.08	67.0	160							LDFPIH	180 ′	10	0.08	66.5	170	LDFPII	HRL80	10	80.0	66.5	170	LDFPP	<b>80</b> 10	J 8	0.0 67	.0 30	0	C	70	80
LDFPR1	106*	10	106.0	91.5	210							LDFPIH	106* 1	10 1	106.0	91.0	250	LDFPIH	RL106*	10	106.0	91.0	250	LDFPP1	<b>06*</b> 10	) 1	06.091	.5 40	0	С	95	106

For larger diameter conduit see page 70

#### **Standards**













BS EN IEC 61386









<sup>\*</sup> Note: Refer to conduit properties for applicable standards





FPADS

**Construction:** Double slit nylon (PA6) corrugated conduit.

**Colour:** Black. Other colours available\* Orange, White, Blue and Grey.

#### Typical Applications: Retrofit and cable assemblies with pre

- e Made from 2 interlocking slit
- corrugated conduits

  Temperature range
  -40°C to +120°C
- Cables can be inserted laterally
- Provides abrasion resistance and routing of cables for static applications
- · Self extinguishing
- Halogen, sulphur and phosphorus free
- UV resistant
- Other colours available\* in 21mm and 28mm Grey, Blue, Orange and White

## NEW LOW FARE FPRDS

Construction: Double slit nylon (highly flame retardant PA6) corrugated conduit.

#### Colour: Black.

Typical Applications: Retrofit and cable assemblies where Low Fire Hazard performance is required, i.e. Rail Industry.

- Made from 2 interlocking slit corrugated conduits
- Temperature range -40°C to +120°C
- Cables can be inserted laterally
- Provides abrasion resistance and routing of cables for static applications
- Self extinguishing
- Halogen, sulphur and phosphorus free
- Extra Low Fire Hazard (LFH)
- Compliant to LUL Std S1085UL 94 V0 flame retardancy
- EN 45545 HL3 Interior R22 and exterior R23
- NFPA 130
- Highly resistant to solvents and oils
- UV resistant

#### FPPDS

**Construction:** Double slit polypropylene corrugated conduit.

#### Colour: Black.

Typical Applications: Retrofit and cable assemblies where basic mechanical cable protection is required.

- Made from 2 interlocking slit corrugated conduits
- Temperature range -20°C to +90°C
- Cables can be inserted laterally
- Provides abrasion resistance and routing of cables for static applications
- Self extinguishing
- Acid resistant
- Also available as a handy Contractor pack
   see page 128

#### FCL FC

Nylon corrugated conduit clip with integral lid

Nylon PA66 conduit clip with integral lid for increased security. Incorporates internal ribs to prevent corrugated conduit from pulling through, 20 kg with FPAS21.

#### FCLAMP

Non-metallic, heavy duty conduit clamp

Nylon PA66, conduit fixing clamp for corrugated conduit. Suitable for use with with fine or coarse pitch conduits. Can be used with a range of accessories including cover plates and weld plates (available separately - see page 72).

## AB RINGS Abrasion Rings

Provides additional mechanical protection from localised abrasion for corrugated conduits. Can be fixed anywhere along the conduit and internal ribs maintain desired location. Nylon PA66 construction and

supplied as two half shells which interlock and secured using stainless steel self-tapping screws.







FPADS	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	FPRDS	partnumber	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	FPPDS	partnumber	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	Conduit Clip	FCLAMP	Abrasion Rings	pitch	nominal size (mm)	european (NW) sizes
																	FCL10			F	10	7
FPADS11	<b>1*</b> 50	11.5	6.2	70	FPRD	S11	50	11.5	6.2	70	FPPD	<b>\$11</b>	50	11.5	6.2	70				F	11	8
FPADS1	<b>3</b> 50	13.0	7.9	75	FPRE	)S13	50	13.0	7.9	75	FPPD	)S13	50	13.0	7.9	75	FCL13			F	13	10
FPADS1	<b>6</b> 50	15.8	10.3	100	FPRE	<b>OS16</b>	50	15.8	10.3	100	FPPD	)S16	50	15.8	10.3	100	FCL16	FCLAMP- 3-16	AR16B	F	16	12
																	FCL18			F	18	14
																	FCL20			C	20	
FPADS2	<b>1</b> 50	21.2	13.9	120	FPRE	)S21	50	21.2	13.9	120	FPPD	)S21	50	21.2	13.9	120	FCL21	FCLAMP- 3-21	AR21B	F	21	17
																	FCL21	FCLAMP- 3-21		C	21	
																	FCL25			C	25	
																	FCL28	FCLAMP- 4-28	AR28B	F	28	23
FPADS2	<b>8</b> 50	28.5	20.5	170	FPRE	)S28	50	28.5	20.5	170	FPPD	)S28	50	28.5	20.5	170	FCL28	FCLAMP- 4-28		C	28	23
FPADS3	4 25	34.5	26.6	180	FPRI	<b>)</b> \$34	25	34.5	26.6	180	FPPD	)S34	25	34.5	26.6	180	FCL34	FCLAMP- 5-34	AR34B	C	34	29
FPADS4	<b>2</b> 25	42.5	32.0	200	FPRI	)S42	25	42.5	32.0	200	FPPD	)S42	25	42.5	32.0	200	FCL42	FCLAMP- 6-42	AR42B	C	42	36
FPADS5	4 25	54.5	43.0	240	FPRI	<b>)</b> \$54	25	54.5	43.0	240	FPPD	)S54	25	54.5	43.0	240	FCL54	FCLAMP- 7-54	AR54B	C	54	48
																	FCL67	FCLAMP- 7-67		С	67	56
																		FCLAMP- 8-80		C	70	80
																				С	95	106

For larger diameter conduit see page 70

#### F = fine pitch C = coarse pitch

### **Ordering Notes**

- Specify colour (B = Black, G = Grey) and reel length eq: FPP16B-50M for a Black 50m reel
- Some lengths are MTO in Grey
- FPPH available on request
- \* Indicates parts made to order on request and maybe subject to MOQ and lead time.
- · Available on request:
- longer lengths and bulk packaging
- cut lengths and assemblies
- additional sizesother colours
- Hinged fitting available for 21mm double slit conduit FDF21-M20B



## **Non-Metallic Conduit & Fittings**

To make your selection from our wide range of flexible conduits easier, we have devised a table (see below) which offers a one page summary to help you when you come to select your fittings.

We have a wide selection of fittings that can be used with the conduits listed below.

Simply use the pull out page as a guide to see which fittings from the FPA, FPAU and Flexilok you can use with your chosen conduit.



Using this fold out page will illustrate the wide range of nonmetallic corrugated conduits we offer. There are ten different nonmetallic conduit families listed in this spread and these are detailed across Pages 44 - 46.

#### **Ordering Notes**

Once you have chosen your conduit from our wide range of products listed on Pages 44, 45 and 46, simply use this fold out page as a guide to see which fittings correspond with your selected conduit.

The fold out conduit summary chart below lines up with the respective susequent fittings pages to allow you to still see your selected conduit, whilst selecting your fittings.

european (NW) sizes		nominal size (mm)									NEW			NEW	NEW
ropea	pitch	minal	OD mm	FPAS	FPAL	FPAH	FPASC	FPR	FPI	FPIH	FPIHRL	FPP	FPADS	FPRDS	FPPDS
en	pi	00	10	part number	part number	part number	part number	part number	part number						
7	F	10	10.0	FPAS10	FPAL10			FPR10				FPP10			
7	F	10													
8	F	11	11.5	FPAS11	FPAL11								FPADS11	FPRDS11	FPPDS11
10	F	13	13.0	FPAS13	FPAL13	FPAH13		FPR13	FPI13	FPIH13	FPIHRL13	FPP13	FPADS13	FPRDS13	FPPDS13
10	F	13													
10	F	13													
12	F	16	15.8	FPAS16	FPAL16	FPAH16		FPR16	FPI16	FPIH16	FPIHRL16	FPP16	FPADS16	FPRDS16	FPPDS16
12	F	16													
12 12	F	16 16													
14	F	18	18.5	FPAS18	FPAL18										
14	F	18	10.5	Tradio	ITALIO										
	C	20	20.0	FPAS20				FPR20				FPP20		FPRDS20	FPPDS20
17	F	21	21.2	FPAS21	FPAL21			FPR21	FPI21			FPP21		FPRDS21	FPPDS21
17	C	21				FPAH21	FPAS21C			FPIH21	FPIHRL21		FPADS21		
17	C	21													
	C	25	25.0	FPAS25	FPAL25			FPR25				FPP25		FPRDS25	FPPDS25
23	F	28	28.5	FPAS28	FPAL28							FPP28			FPPDS28
23	C	28				FPAH28	FPAS28C	FPR28	FPI28	FPIH28	FPIHRL28		FPADS28	FPRDS28	
29	C	34	34.5	FPAS34	FPAL34	FPAH34	FPAS34C	FPR34	FPI34	FPIH34	FPIHRL34	FPP34	FPADS34	FPRDS34	FPPDS34
29		34													
36	C	42	42.5	FPAS42	FPAL42	FPAH42	FPAS42C	FPR42	FPI42	FPIH42	FPIHRL42	FPP42	FPADS42	FPRDS42	FPPDS42
36	C	42	545	FD40F:	FDALEC	FRAUE:	FD40F40	FDD= 4	FDIE 4	FRUIE	FRUIDI F	FDD=4	FDADOS:	FDDDO# :	FRRRAT
48	C	54	54.5	FPAS54	FPAL54	FPAH54	FPAS54C	FPR54	FPI54	FPIH54	FPIHRL54	FPP54	FPADS54	FPRDS54	FPPDS54
48	C	54	67.0	FPAS67	FPAL67	FPAH67	EDAC670	FPR67	EDIC7	FPIH67	EDILIDI 67	FPP67			
56 70	C	67 80	67.0 80.0	LDFPAS80	LDFPAL80	FPARO/	FPAS67C	LDFPR80	FPI67	LDFPIH80	FPIHRL67 LDFPIHRL80	LDFPP80			
95	C		106.0	LDFPAS80	LDFPAL80			LDFPR80		LDFPIH80 LDFPIH106	LDFPIHRL80	LDFPP80 LDFPP106			
99	U	100	100.0	EDLLW9 100	LDFFAL 100			FDLLK 100	]	בטורווווטט	LDI FIIIKL 100	בטודרוטט			

#### **Standards**











IEC EN 61386













## Flexilok® system





#### Construction: Nylon (PA66) moulded fitting.

- · One piece fast fit
- Slim design
- IP rating: IP66
- · Anti-vibration and tamper resistant
- Pull off strength with:

(FLK21 - FPAS21 25kg) (FLK21 - FPAL21 20kg)

- · Can be removed using a screwdriver
- Suitable for fine and coarse pitch conduits
- Temperature range -40°C to +120°C
- · Metric threads supplied complete with locknuts
- Low Fire Hazard (LFH), see page 145
- · Halogen, sulphur and phosphorus free
- Available in Black, Grey (RAL 7031) and white, see page 67
- 42mm and 54mm feature 4 teeth for added strength
- Thread face sealing washers may be required to maintain IP rating at the connection to other equipment, see page 124

#### **Fittings**

#### FLK

#### Straight external thread

Nylon, one piece, slim, fast fit, external threaded fitting suitable for knockouts or threaded entries.

#### FLK Push in

Simple, one piece, push in fitting suitable for knockouts with no need for locknuts. Ideal for use when enclosure access is restricted.

#### FLK-FLK

One piece, slim, fast fit coupler for joining 2 conduits together

Coupler

#### FLK90

#### 90° Elbow external thread

One piece, slim, fast fit, external threaded 90 degree elbow fitting suitable for knockouts.

Ext Metric

FLK10-M12





Ext PG

FLK10-PG7







Coupler



Ext Metric Ext PG

en	no	10
7	10	10.0
7	10	
8	11	11.5
10	13	13.0
10	13	
10	13	
12	16	15.8
12	16	
12	16	
12	16	
14	18	18.5
14	18	
	20	20.0
17	21	21.2
17	21	
17	21	
	25	25.0
23	28	28.5
23	28	
29	34	34.5
29	34	
36	42	42.5
36	42	
48	54	54.5
48	54	
56	67	67.0
80	70	
106	95	

uropean (NW) sizes

FLK13-M16	FLK13-PG9		
FLK16-M16	FLK16-PG11	FLK16-038	FLK16-PL
FLK16-M20	FLK16-PG13		
FLK20-M20			FLK20-PL2
FLK21-M20	FLK21-PG16	FLK21-050	FLK21-PL

Ext NPT

	21					
	25	25.0	FLK25-M25			
3	28	28.5	FLK28-M25	FLK28-PG21	FLK28-075	
3	28					
)	34	34.5	FLK34-M32	FLK34-PG29	FLK34-100	
)	34					
;	42	42.5	FLK42-M40	FLK42-PG36	FLK42-125	
6	42		FLK42-M50			
3	54	54.5	FLK54-M50	FLK54-PG48		

FLK54-M63

_			
Or	darin	a No	tac

- Specify Black or Grey (B=Black, G=Grey) eg. FLK20-M20B
- · For white version see page 67
- · Grey and White options may be subject to MOQ and lead time
- · Details for removal tools can be found on

FLK16-PL20	FLK16-FLK16	FLK16-M16-90 FLK16-M20-90	FLK16-PG11-90
FLK20-PL20	FLK20-FLK20	FLK20-M20-90	
FLK21-PL20	FLK21-FLK21	FLK21-M20-90	FLK21-PG16-90
FLK25-PL25	FLK25-FLK25	FLK25-M25-90	
FLK28-PL25	FLK28-FLK28	FLK28-M25-90	FLK28-PG21-90
FLK34-PL32	FLK34-FLK34	FLK34-M32-90	FLK34-PG29-90
		FLK42-M40-90	
		FLK54-M50-90	

#### Also Available

- Push in fitting removal tool see accessories page 127
- · Brass threaded versions
- Two teeth version of 42mm and 54mm available on request

#### **Removal Tool**



NOTE: 42mm and 54mm require a removal tool to aid removal if necessary see page 127.





- One piece fast fit
- Slim design
- IP rating: IP66
- · Anti-vibration and tamper resistant
- Pull off strength with:

(FLK21 - FPAS21 25kg) (FLK21 - FPAL21 20kg)

(FLK20-PP - FPP20 13kg)

- · Can be removed using a screwdriver
- Suitable for fine and coarse pitch conduits
- Temperature range -40°C to +120°C
- · Metric threads supplied complete
- · Halogen, sulphur and phosphorus free
- · Available in Black, Grey (RAL 7031) and white, see page 67
- Polypropylene version suitable for acid environments
- · Thread face sealing washers may be required to maintain IP rating at the connection to other equipment, see page 124

cable tie (not supplied).

#### FLK45 FLK-PP EC REC 45° Elbow external thread Straight external thread End cap Rubber end cap One piece, slim, fast fit, external Polypropylene, one piece, slim, Nylon PA66 end cap to snap over Thermoplastic elastomer cap used fast fit, external threaded fitting suitable for knockouts or threaded threaded 45 degree elbow fitting end of conduit and provide a to seal end of conduit. Can be cut smooth entry bush to prevent snagging and sharp edges, and provide a neat finish when no to size depending on size of cable. Can be additionally secured using suitable for knockouts.

connectors are used.

		II	11			
				to fit		nominal size (mm)
Ext Metric	Ext Metric (PP)	End Cap	part number	conduit size	outlet ID mm	nomin
			REC10	10	0-7	10 10
			REC10	11	0-7	11
			REC13	13	0-7	13
						13
						13
	FLK16-M16-PP	EC16B	REC16	16	0-11	16
FLK16-M20-45						16
						16
						16
						18
						18
FLK20-M20-45	FLK20-M20-PP					20
FLK21-M20-45		EC21B	REC21	21	0-15	21
		EC21B	REC21	21	0-15	21
						21
FLK25-M25-45	FLK25-M25-PP					25
FLK28-M25-45		EC28B	REC28	28	0-21	28
		EC28B	REC28	28	0-21	28
FLK34-M32-45	FLK34-M32-PP	EC34B	REC34	34	0-25	34
						34
FLK42-M40-45		EC42B	REC42	42	0-34	42
					0.40	42
FLK54-M50-45		EC54B	REC54	54	0-46	54
						54
			REC67	67	0-52	67
			REC80	80	0-62	70



(NW) sizes

european OD mm

7

8 11.5

10

10

12

12

12

14

17

17

23

29

36

48

10.0 7

13.0 10

15.8 12

18.5 14

20.0

21.2 17

25.0

28.5 23

34.5 29

42.5 36

54.5 48

67.0 56 80











european (NW) sizes nominal size (mm)

7 10 10.0

7 10

8 11 11.5

10 13 13.0

10 13

10 13

12 16 15.8

12 16

12 16

12 16

14 18 14 18 20 20.0

17 21 21.2

17 21

17 21

23 28

23 28 34.5

29 34

29 34

36 42

36 42 48 54 54.5

48 54

56 67 67.0

70 80 95 106 9

18.5

25.0

42.5

25 28.5 FPA25-M25

FPA28-M25

FPA28-M32

FPA34-M32

FPA34-M40

FPA42-M40

FPA42-M50

FPA54-M50

FPA54-M63

FPA67-M63

FPA80-M85

#### **Nylon & Brass threaded**

Construction: Nylon (PA66) moulded

FPA21-BU125

FPA28-BU138

FPA28-BU144

FPA34-BU144

FPA34-BU175

FPA42-BU200

FPA42-BU225

FPA54-BU200

FPA54-BU225

Construction: Nylon (PA66) moulded fitting with nickel plated brass swivel thread.

Colour: Black or Grev.

#### **Fittings FPA** FPA90 **FPA** Straight UNEF 90° Elbow external thread Straight external thread Flange swivel internal thread One piece, fast fit, external One piece, fast fit One piece, fast fit, external threaded 90 fitting with nylon swivel flange with threaded fitting. Suitable for degree elbow fitting. Suitable One piece, fast fit fitting with nickel plated brass swivel UNEF internal thread for attachment to knockouts or threaded entries. for knockouts. 'O' ring. circular connectors. 90 Degree 90 Degree 90 Degree Ext Metric Ext PG Ext NPT Ext UNEF Thread Flange Metric NPT PG FPA10-M12 FPA10-PG7 FPA10-M12-90 FPA10-PG7-90 FPA10-M16 FPA10-PG9 FPA11-M12 FPA11-PG7 FPA11-M12-90 FPA13-M12 FPA13-M16-90 FPA13-PG7 FPA13-BU063 (5/8") FPA13-PG9-90 FPA13-M16 FPA13-PG9 FPA13-BU075 (3/4") FPA13-M20 FPA13-PG11 FPA13-BU088 (7/<sub>8</sub>") FPA16-M16 FPA16-PG9 FPA16-038 FPA16-BU075 (3/4") FPA16-FL FPA16-M16-90 FPA16-PG9-90 FPA16-050-90 FPA16-M20 FPA16-PG11 FPA16-050 FPA16-BU088 (½") FPA16-M20-90 FPA16-PG11-90 FPA16-PG13 FPA16-BU100 (1") FPA16-PG13-90 FPA16-PG16 FPA16-BU119 (13/16") FPA18-M20 FPA18-PG13 FPA18-M20-90 FPA20-M20 FPA20-M20-90 FPA21-M20 FPA21-PG13 FPA21-050 FPA21-BU100 FPA21-FL FPA21-M20-90 FPA21-PG16-90 FPA21-050-90 (1") FPA21-M25 FPA21-PG16 FPA21-BU119 (1<sup>3</sup>/<sub>16</sub>")

(11/4")

(1%")

(17/16")

(17/16")

(13/4")

(2")

(21/4")

(2")

(21/4")

#### **Ordering Notes**

FPA28-PG21

FPA28-PG29

FPA34-PG29

FPA42-PG36

FPA54-PG42

FPA54-PG48

FPA67-PG48

• Specify Black or Grey (B = Black, G = Grey) eg. FPA16-M16B

FPA28-075

FPΔ34-100

FPA42-125

FPA42-150

FPA54-150

FPA54-200

FPA67-200

- · Grey option may be subject to MOQ and lead time
- The IP rating onto a UNEF threaded connector may be dependent on the design of the connector
- · Available on request:

FPA28-FL

FPA34-FL

FPA42-FL

- additional sizes, alternative threads - additional UNEF threads and combinations

FPA25-M25-90

FPA28-M25-90

FPA34-M32-90

FPA42-M40-90

FPA42-M50-90

FPA54-M50-90

FPA54-M63-90

FPA67-M63-90

FPA28-PG21-90

FPΔ34-PG29-90

FPA42-PG36-90

FPA54-PG48-90

FPA67-PG48-90

FPA28-075-90

FPΔ34-100-90

FPA42-125-90

FPA42-150-90

FPA54-150-90

FPA54-200-90

FPA67-200-90





- 1 part fast fit
- IP rating: IP66
- · Vibration & shock tested to EN61373 Cat 2
- Tamper resistant
- · Can be removed using a screwdriver
- Both 90° & 45° elbows incorporate swept bore to facilitate cable installation & protect cables when installed
- · All round teeth give high pull off strength 70kg with FPAH21
- · Suitable for fine and coarse pitch conduits
- Temperature range -50°C to +135°C
- · Low Fire Hazard (LFH), see page 144
- · Halogen, sulphur and phosphorus free
- · Available in Black or Grey (RAL 7031)
- EN 45545 HL3 and NFPA 130 compliant
- · Nylon metric threads supplied with glass reinforced nvlon locknut
- · Thread face sealing washers may be required to maintain IP rating at the connection to other equipment, see page 124

#### FPA90 FPA45 FPA45 FPA90 90° Elbow UNEF swivel 45° Elbow UNEF swivel Flange 45° Elbow external thread internal thread internal thread One piece, fast fit 90 degree One piece, fast fit, external elbow fitting with nylon swivel flange with 'O' ring face seal. threaded 45 degree elbow fitting. One piece, fast fit, 90 degree One piece, fast fit, 45 degree elbow fitting with nickel plated brass swivel UNEF internal Suitable for knockouts. elbow fitting with nickel plated brass swivel UNEF internal thread for attachment to circular connectors. thread for attachment to circular connectors. nominal size шш 45 Degree 45 Degree 45 Degree 00 90 Degree Flange 90 Degree UNEF Metric PG NPT 45 Degree UNEF Thread 10 10.0 10 11 11.5 FPA13-BU063-90 (5%") 13 13.0 FPA13-BU075-90 13 (3/4") FPA13-BU088-90 (7/8") 13 FPA16-BU075-90 (3/4") FPA16-FL-90 FPA16-M20-45 FPA16-PG13-45 FPA16-050-45 FPA16-BU075-45 (3/4") 16 15.8 FPA16-BU088-90 (7/8") FPA16-BU088-45 16 (7/8") FPA16-BU100-90 (1") FPA16-BU100-45 16 (1") FPA16-BU119-90 (13/16") FPA16-BU119-45 (13/16") 16 18 18.5 18 20 20.0 FPA21-BU100-90 FPA21-FL-90 FPA21-M20-45 FPA21-PG13-45 FPA21-050-45 FPA21-BU100-45 (1") 21 21.2 (1") FPA21-BU119-90 (13/16") FPA21-PG16-45 FPA21-BU119-45 (13/16") 21 FPA21-BU125-90 FPA21-BU125-45 (11/4") (11/4") 21 25 25.0 FPA28-BU138-90 FPA28-PG21-45 FPA28-BU138-45 (1%") FPA28-FL-90 FPA28-M25-45 FPA28-075-45 (1%") 28 28.5 FPA28-BU144-90 (17/16") FPA28-BU144-45 (17/16") 28 FPΔ34-RU144-90 (17/16") FPΔ34-FI-90 FPΔ34-M32-45 FPΔ34-PG29-45 FPΔ34-100-45 FPΔ34-RU144-45 (17/16") 34 34.5 FPA34-RU175-90 (13/4") FPA34-RU175-45 (13/4") 34

#### **Standards**

FPA42-BU200-90

FPA42-BU225-90

FPA54-BU200-90

FPA54-BU225-90

















FPA42-FL-90

FPA54-FL-90\*



FPA42-M50-45

FPA54-M50-45

FPA42-PG36-45

FPA42-150-45

FPA54-150-45



(2")

(21/4")

(2")

(21/4")

FPA42-BU200-45

FPA42-BU225-45

FPA54-BU200-45

FPA54-BU225-45

(2")

(21/4")

(2")

(21/4")

european (NW) sizes

7

7

8

10

10

10

12

12

12

12

14

14

17

17

17

23

23

29

29

36

48

70

42 42.5 36

42

54 54.5 48

54

67 67.0 56

80





## **FPA system**





### Nylon & Brass threaded

Construction: Nylon (PA66) moulded

Construction: Nylon (PA66) moulded fitting with nickel plated

brass swivel thread. Colour: Black or Grey.

#### **Fittings**

			FPA45	FPA-FPA	FPA-MPC
			Flange One piece, fast fit 45 degree elbow fitting with nylon swivel flange with 'O' ring face seal.	Coupler  One piece, fast fit, coupler to join corrugated conduits. Also available in FPAX and FPAU versions.	Coupler One piece, fast fit, coupler to join corrugated conduit to rigid conduit.
european (NW) sizes	nominal size (mm)	OD mm	IP66	IP66	IP66
7 7	10 10	10.0	45 Degree Flange	Coupler	Rigid Conduit Coupler
8	11	11.5			
10 10	13 13	13.0			
10 12 12 12 12	13 16 16 16 16	15.8	FPA16-FL-45	FPA16-FPA16	FPA16-MPC16
14 14	18 18	18.5			
17 17 17	20 21 21 21	20.0	FPA21-FL-45	FPA20-FPA20 FPA21-FPA21	FPA21-MPC20
	25	25.0		FPA25-FPA25	
23 23	28 28	28.5	FPA28-FL-45	FPA28-FPA28	FPA28-MPC25
29 29	34 34	34.5	FPA34-FL-45	FPA34-FPA34	FPA34-MPC32
36 36	42 42	42.5	FPA42-FL-45	FPA42-FPA42	FPA42-MPC40
48 48	54 54	54.5	FPA54-FL-45	FPA54-FPA54	
56	67	67.0			
70 95	80 106				

### **Ordering Notes**

- \* Indicates parts made to order on request
- NPB = Nickel Plated Brass
- Grey option may be subject to MOQ and lead time
- Available on request:
- for brass locknuts and sealing washers see accessories, page 124
   EMC braid clamp version see page 121





- 1 part fast fit
- IP rating: IP66
- · Vibration & shock tested to EN61373 Cat 2
- Tamper resistant
- · Can be removed using a screwdriver
- Both 90° & 45° elbows incorporate swept bore to facilitate cable installation & protect cables when installed
- All round teeth give high pull off strength 70kg with FPAH21
- Suitable for fine and coarse pitch conduits
- Temperature range -50°C to +135°C
- · Low Fire Hazard (LFH), see page 144
- Halogen, sulphur and phosphorus free
- · Available in Black or Grey (RAL 7031)
- EN 45545 HL3 and NFPA 130 compliant

• Thread face sealing washers may be required to maintain IP rating at the connection to other equipment, see page 124

#### **FPA**

Straight swivel brass external thread One piece, fast fit, swivel, nickel plated brass external threaded fitting. Suitable for knockouts or threaded entries.





#### Straight swivel brass internal thread

One piece, fast fit, swivel, nickel plated brass internal threaded fitting.





#### 90° Elbow swivel brass external thread

One piece, fast fit, swivel, 90 degree elbow, nickel plated brass external threaded fitting. Suitable for knockouts or threaded entries.









NPB Ext Metric	NPB Ext PG	NPB Int Metric	NPB Ext Metric	NPB Ext PG
FPA13-BM16	FPA13-BPG9	FPA13-BFM16	FPA13-BM16-90	FPA13-BPG9-90
FPA16-BM16	FPA16-BPG9	FPA16-BFM16	FPA16-BM16-90	FPA16-BPG9-90
FPA16-BM20	FPA16-BPG11	FPA16-BFM20	FPA16-BM20-90	FPA16-BPG11-90
FPA21-BM20	FPA21-BPG13	FPA21-BFM20	FPA21-BM20-90	FPA21-BPG13-90
	FPA21-BPG16			FPA21-BPG16-90
FPA28-BM25	FPA28-BPG21	FPA28-BFM25	FPA28-BM25-90	FPA28-BPG21-90
FPA34-BM32	FPA34-BPG29	FPA34-BFM32	FPA34-BM32-90	FPA34-BPG29-90
FPA42-BM40	FPA42-BPG36	FPA42-BFM40	FPA42-BM40-90	FPA42-BPG36-90
FPA42-BM50			FPA42-BM50-90	

> 20 20.0

european (NW) sizes

7

7

8

10

10

10

12

12

12

12

14

14

#### **Standards**

FPA54-BM50

FPA54-BM63

FPA67-BM63















FPA54-BPG48\*





FPA54-BFM50



FPA54-BPG48-90\*

FPA54-BM50-90

FPA54-BM63-90





## **FPA system**





#### **Brass threaded**

Construction: Nylon (PA66) moulded fitting with nickel

plated brass swivel thread. **Colour:** Black or Grey.

### **Fittings**

			FPA90	FPA45		FPA45
			90° Elbow swivel brass internal thread One piece, fast fit, swivel, 90 degree elbow, nickel plated brass internal threaded fitting.	45° Elbow swivel bra: One piece, fast fit, swive nickel plated brass exte Suitable for knockouts o	el, 45 degree elbow, rnal threaded fitting.	45° Elbow swivel brass internal thread One piece, fast fit, swivel, 45 degree elbow, nickel plated brass internal threaded fitting.
european (NW) sizes	nominal size (mm)	шш	IP66	IP66		IP66
onne 7	10	10.0	NPB Int Metric	NPB Ext Metric	NPB Ext PG	NPB Int Metric
7	10					
8	11	11.5				
10 10 10	13 13 13	13.0	FPA13-BFM16-90			
12 12 12 12	16 16 16 16	15.8	FPA16-BFM16-90 FPA16-BFM20-90	FPA16-BM16-45 FPA16-BM20-45	FPA16-BPG13-45 FPA16-BPG16-45	FPA16-BFM20-45
14 14	18 18	18.5				
17 17 17	20 21 21 21	20.0	FPA21-BFM20-90	FPA21-BM20-45	FPA21-BPG13-45 FPA21-BPG16-45	FPA21-BFM20-45
	25	25.0				
23 23	28 28	28.5	FPA28-BFM25-90	FPA28-BM25-45	FPA28-BPG21-45	FPA28-BFM25-45
29 29	34 34	34.5	FPA34-BFM32-90	FPA34-BM32-45	FPA34-BPG29-45	FPA34-BFM32-45
36 36	42	42.5	FPA42-BFM50-90	FPA42-BM40-45 FPA42-BM50-45	FPA42-BPG36-45	FPA42-BFM50-45
48 48	54 54	54.5	FPA54-BFM50-90	FPA54-BM50-45 FPA54-BM63-45	FPA54-BPG48-45*	FPA54-BFM50-45
56	67	67.0				
70	80					
95	106					

### **Ordering Notes**

- \* Indicates parts made to order on request
- NPB = Nickel Plated Brass
- Grey option may be subject to MOQ and lead time

#### · Available on request:

- for brass locknuts and sealing washers
- see accessories, page 124
   EMC braid clamp version, see page 121







- 1 part fast fit
- IP rating: of conduit & fitting: IP66 of cable gland: IP68 (10 bar)+IP69
- Vibration & shock tested to EN61373 Cat 2
- Tamper resistant
- · Can be removed using a screwdriver
- All round teeth give high pull off strength 70kg with FPAH21
- Both 90° and 45° elbows incorporate swept bore to facilitate cable installation and protect cables when installed
- · Suitable for fine and coarse pitch conduits
- Temperature range: conduit fitting: -50°C to +135°C cable gland: -40°C to +100°C static -20°C to +100°C dynamic
- · Low Fire Hazard (LFH), see page 144
- · Halogen, sulphur and phosphorus free
- · Refer to accessories for clamping range page 129
- · Thread face sealing washers may be required to maintain IP rating at the connection to other equipment, see page 124

#### FPA45 **FPA** FPA90 With integral cable gland With integral cable gland With integral cable gland One piece, fast fit, swivel, nickel plated brass One piece, fast fit, swivel, 90 degree elbow, One piece, fast fit, swivel, 45 degree elbow, nickel plated brass external threaded cable gland fitting. Suitable for knockouts or nickel plated brass external threaded cable gland fitting. Suitable for knockouts or threaded entries. external threaded cable gland fitting. Suitable for knockouts or threaded entries. threaded entries.

NPB Metric	NPB Metric	NPB Metric
FPA13-BM16-CG	FPA13-BM16-CG-90	
FPA16-BM16-CG	FPA16-BM16-CG-90	FPA16-BM20-CG-45
FPA16-BM20-CG	FPA16-BM20-CG-90	
FPA21-BM20-CG	FPA21-BM20-CG-90	FPA21-BM20-CG-45
FFAZ I-DMZU-CG	FFAZ I-DMZU-CG-90	FFAZ I"DINIZU"UU"45
FPA28-BM25-CG	FPA28-BM25-CG-90	FPA28-BM25-CG-45
FPA34-BM32-CG	FPA34-BM32-CG-90	FPA34-BM32-CG-45
FPA42-BM40-CG	FPA42-BM40-CG-90	FPA42-BM40-CG-45
FPA54-BM50-CG	FPA54-BM50-CG-90	FPA54-BM50-CG-45

#### **Standards**





















european (NW) sizes

7 8

10

10

10

12 12

12

14 18.5

14

17

17

23

29

36

48

nominal size (mm)

10 10.0 7

10

11 11.5 13.0 13

13

13

16 15.8 12

16

16 16

18

18

20 20.0

21 21.2 17

21

21

25 25.0 28 28.5 23

28

34 34.5 29

34

42 42.5 36

42

54 54.5 48

54

67 67.0 56

OD mm





## **ULTRA™** system











Construction: Nylon (PA66) moulded fittings featuring Integrated Sealing Technology Construction: Nylon (PA66) moulded fittings featuring Integrated Sealing Technology with nickel plated brass swivel threads

Colour: 2 Tone Colour - Black and Grey.

### Fittings ULTRA™ system straight

#### **FPAU**

#### **FPAU**





#### Straight external thread

One piece fast fit, external threaded fitting with integrated conduit seal. Suitable for knockouts or threaded entries.





#### Straight UNEF swivel internal thread

One piece fast fit fitting with nickel plated brass swivel UNEF internal thread for attachment to circular connectors with integrated conduit seal.





### **FPAU**

#### Straight swivel brass external thread

One piece fast fit, swivel, nickel plated brass external threaded fitting with integrated conduit seal. Suitable for knockouts or threaded entries.





IP66	IP67	IP68	IP69

european (NW) sizes	nominal size (mm)	0D mm
7	10	10.0
7	10	
8	11	11.5
10	13	13.0
10	13	
10	13	
12	16	15.8
12	16	
12	16	
12	16	
14	18	18.5
14	18	
	20	20.0
17	21	21.2
17	21	
17	21	
	25	25.0
23	28	28.5
23	28	
29	34	34.5
29	34	
36	42	42.5
36	42	
48	54	54.5

54 56

70 80 95 106

	nominal size (mr	0D mm	Ext Metric	Ext PG	Ext NPT	Int UNEF	Thread	NPB Ext Metric	NPB Ext PG	NPB Ext NPT
			LXI WELLIC	LXLFG	LXUNFI	IIICONLI	Illieau	INFO EXCIVIEUTO	NEDEXLEG	NFD EXTNET
	10 10	10.0								
	10 11	11.5								
	13	13.0	FPAU13-M16	FPAU13-PG9				FPAU13-BM16	FPAU13-BPG9	
	13	.0.0								
	13									
	16	15.8	FPAU16-M16	FPAU16-PG9	FPAU16-038	FPAU16-BU075	(3/4")	FPAU16-BM16	FPAU16-BPG9	FPAU16-B038*
	16		FPAU16-M20	FPAU16-PG11	FPAU16-050	FPAU16-BU088	(%")	FPAU16-BM20	FPAU16-BPG11	FPAU16-B050*
	16			FPAU16-PG13		FPAU16-BU100	(1")			
	16			FPAU16-PG16		FPAU16-BU119	(13/16")			
	18	18.5								
	18									
	20	20.0								
	21	21.2	FPAU21-M20	FPAU21-PG13	FPAU21-050	FPAU21-BU100	(1")	FPAU21-BM20	FPAU21-BPG13	FPAU21-B050*
	21		FPAU21-M25	FPAU21-PG16		FPAU21-BU119	(1¾6")		FPAU21-BPG16	
	21	05.0				FPAU21-BU125	(11/4")			
	25 28	25.0 28.5	FPAU28-M25	FPAU28-PG21	FPAU28-075	FPAU28-BU138	(1%")	FPAU28-BM25	FPAU28-BPG21	FPAU28-B075*
	28	20.3	FPAU28-M32	FPAU28-PG29	FFAU20-075	FFAU20-BU 130	(178)	FFAU20-DW25	FFAU20-DFU21	FFAU20-BU/5
	34	34.5	FPAU34-M32	FPAU34-PG29	FPAU34-100	FPAU34-BU144	(1½,6")	FPAU34-BM32	FPAU34-BPG29	FPAU34-B100*
	34	0 1.0	FPAU34-M40	117,00111020	1171001 100	117.00120111	(17.67	117,001 2,1102	117100121020	117.001 2100
	42	42.5	FPAU42-M40	FPAU42-PG36	FPAU42-125	FPAU42-BU200	(2")	FPAU42-BM40	FPAU42-BPG36	FPAU42-B125*
١.	42		FPAU42-M50		FPAU42-150	FPAU42-BU225	(21/4")	FPAU42-BM50		FPAU42-B150*
	54	54.5	FPAU54-M50	FPAU54-PG42	FPAU54-150	FPAU54-BU200	(2")	FPAU54-BM50		FPAU54-B150*
	54		FPAU54-M63	FPAU54-PG48	FPAU54-200	FPAU54-BU225	(21/4")	FPAU54-BM63	FPAU54-BPG48*	FPAU54-B200*
	67	67.0	FPAX67-M63		FPAX67-200					

#### **Ordering Notes**

- \* Indicates parts made to order on request
- NPB = Nickel Plated Brass
- · Available on request:
- other threads - for brass locknuts and sealing washers see accessories, page 124
- EMC braid clamp version see page 121

#### **Fine Pitch**



#### **Coarse Pitch**





- Fast fit True one piece component
- IP rating: for conduit & fitting

#### IP66 + IP67 + IP68 (2 bar 1hr) + IP68 (72hrs @ 1m) + IP69

- PA66 Nylon moulded fitting
- Nylon threads supplied complete with glass reinforced nylon locknut
- Metallic threads made from Nickel Plated Brass
- · Face seal details:
- Metric Nylon threads supplied with retained Polyester Elastomer Washer
- NPT and Metric Brass threads supplied with retained Fibre Washer
- PG Brass threads supplied with Fibre Washer - UNEF, Flange and Cable Glands supplied with
- Vibration and shock tested to EN61373 Cat 2
- Tamper resistant
- Both 90° and 45° elbows incorporate swept bore to facilitate cable installation and protect cables when installed
- · Can be removed using a screwdriver
- · All round teeth give high pull off strength 70kg with FPAH21
- Suitable for fine and coarse pitch conduits
- Temperature range

#### conduit fitting: -50°C to +135°C

- Low Fire Hazard (LFH) see page 144
- Halogen, sulphur and phosphorus free
- UV resistant
- · Swivel threads allow assembly without twisting of cables
- EN 45545 HL3 and NFPA 130 compliant

#### **FPAU**



### **FPAU**



#### FPAU - FPAU

corrugted conduits.



european (NW) sizes

7

10

10

12

12

12

14

17

17

23

29

36

48

70

95

OD

nominal size (mm)

10 10.0 7

10

11 11.5 8

13 13.0 10

13

13

16 15.8 12

16

16

16

18 18.5 14

18

20 20.0

21 21.2 17

21

21

25 25.0

28 28.5 23

28

34 34.5 29

34

42 42.5 36

42

54 54.5 48

54

67 67.0 56

80

106

#### Straight swivel brass internal thread

One piece fast fit, swivel, nickel plated brass internal threaded fitting with integrated conduit seal.











One piece fast fit fitting with nylon swivel flange with integrated conduit seal and with 'O' ring face seal.













One piece fast fit coupler to join









NPB Int Metric	Flange	Coupler
FPAU13-BFM16		
FPAU16-BFM16	FPAU16-FL	FPAU16-FPAU16
FPAU16-BFM20		
FPAU21-BFM20	FPAU21-FL	FPAU21-FPAU21
FPAU28-BFM25	FPAU28-FL	FPAU28-FPAU28
FPAUZO-DFIVIZO	FPAU20-FL	FPAU20-FPAU20
FPAU34-BFM32	FPAU34-FL	FPAU34-FPAU34
FPAU42-BFM40	FPAU42-FL	
FPAU54-BFM50		

#### **Standards & Approvals**















### **Technical Drawing**



















## **ULTRA™** system









Construction: Nylon (PA66) moulded fittings featuring Integrated Sealing Technology Construction: Nylon (PA66) moulded fittings featuring Integrated Sealing Technology with nickel plated brass swivel threads

Colour: 2 Tone Colour - Black and Grey.

#### Fittings ULTRA™ system 90° and 45°

#### FPAU 90

### FPAU 90

### FPAU 90

### FPAU 90



One piece fast fit, external threaded 90 degree elbow fitting with integrated conduit seal. Suitable for knockouts.

#### 90° UNEF Swivel internal thread

One piece fast fit, 90 degree elbow fitting with nickel plated brass swivel UNEF internal thread for attachment to circular connectors with integrated conduit seal.

#### 90° Swivel brass external thread

One piece fast fit, swivel, 90 degree elbow, nickel plated brass external threaded fitting with integrated conduit seal. Suitable for knockouts or threaded entries.

#### 90° Swivel brass internal thread

One piece fast fit, swivel, 90 degree elbow, nickel plated brass internal threaded fitting with integrated conduit seal.







	IP66	
--	------	--



90° External thread













	ч	
	Ш	
	100	
Int II	NFF	







OD mm	10.0		11.5	13.0			15.8				18.5		20.0	21.2			25.0	28.5		34.5		42.5	
nominal size	10	10	11	13	13	13	16	16	16	16	18	18	20	21	21	21	25	28	28	34	34	42	42
european (NM	7	7	8	10	10	10	12	12	12	12	14	14		17	17	17		23	23	29	29	36	36

48 54 54.5

48 54 56

70 80 95 106

**67** 67.0

		44			9.198		
Ext Metric	Ext NPT	Int UNE	F	NPB Ext Metric	NPB Ext PG	NPB Ext NPT	NPB Int Metric
FPAU13-M16-90				FPAU13-BM16-90	FPAU13-BPG9-90		FPAU13-BFM16-90
FPAU16-M16-90	FPAU16-050-90B	FPAU16-BU075-90	(¾")	FPAU16-BM16-90	FPAU16-BPG9-90	FPAU16-B050-90*	FPAU16-BFM16-90
FPAU16-M20-90		FPAU16-BU088-90	(7%")	FPAU16-BM20-90	FPAU16-BPG11-90		FPAU16-BFM20-90
		FPAU16-BU100-90	(1")				
		FPAU16-BU119-90	(13/16")				
FPAU21-M20-90	FPAU21-050-90B	FPAU21-BU100-90	(1")	FPAU21-BM20-90	FPAU21-BPG13-90	FPAU21-B050-90*	FPAU21-BFM20-90
		FPAU21-BU119-90	(13/16")		FPAU21-BPG16-90		
		FPAU21-BU125-90	(1¼")				
FPAU28-M25-90	FPAU28-075-90B	FPAU28-BU138-90	(1%")	FPAU28-BM25-90	FPAU28-BPG21-90	FPAU28-B075-90*	FPAU28-BFM25-90
		FPAU28-BU144-90	(17/16")				
FPAU34-M32-90	FPAU34-100-90B	FPAU34-BU144-90	(17/16")	FPAU34-BM32-90	FPAU34-BPG29-90	FPAU34-B100-90*	FPAU34-BFM32-90
		FPAU34-BU175-90	(13/4")				
FPAU42-M40-90	FPAU42-125-90B	FPAU42-BU200-90	(2")	FPAU42-BM40-90	FPAU42-BPG36-90	FPAU42-B125-90*	FPAU42-BFM50-90
FPAU42-M50-90	FPAU42-150-90B	FPAU42-BU225-90	(21/4")	FPAU42-BM50-90		FPAU42-B150-90*	
FPAU54-M50-90	FPAU54-150-90B	FPAU54-BU200-90	(2")	FPAU54-BM50-90	FPAU54-BPG48-90*	FPAU54-B150-90*	FPAU54-BFM50-90
FPAU54-M63-90	FPAU54-200-90B	FPAU54-BU225-90	(21/4")	FPAU54-BM63-90		FPAU54-B200-90*	

#### **Ordering Notes**

- \* Indicates parts made to order on request
- NPB = Nickel Plated Brass
- · Available on request:
- other threads
- for brass locknuts and sealing washers see accessories, page 124
- EMC braid clamp version see page 121

### How to identify a Flexicon ULTRA™ fitting



- 2 Tone colour Capnut different to Body
- IP69 and Ultra logo marked on product
- Blue insert seal with visible ribs within capnut
- Retained Face Sealing Washer





- Fast fit True one piece component
- IP rating: for conduit & fitting

#### IP66 + IP67 + IP68 (2 bar 1hr) + IP68 (72hrs @ 1m) + IP69

- PA66 Nylon moulded fitting
- Metallic threads made from Nickel Plated Brass
- Nylon threads supplied complete with glass reinforced nylon locknut
- Face seal details:
- Metric Nylon threads supplied with retained Polyester Elastomer Washer
- NPT and Metric Brass threads supplied with retained Fibre Washer
- PG Brass threads supplied with Fibre Washer
- UNEF, Flange and Cable Glands supplied with O-ring
- Vibration and shock tested to EN61373 Cat 2
- Tamper resistantBoth 90° and 45° elbows incorporate swept bore to facilitate cable installation and protect cables when installed
- Can be removed using a screwdriver
- · All round teeth give high pull off strength 70kg with FPAH21
- Suitable for fine and coarse pitch conduits

Temperature range:

#### conduit fitting: -50°C to +135°C

- Low Fire Hazard (LFH) see page 144
- · Halogen, sulphur and phosphorus free
- UV resistant
- Swivel threads allow assembly without twisting of cables
- EN 45545 HL3 and NFPA130 compliant

#### FPAU 90



#### FPAU 45 45° Flange



#### FPAU 45



european (NW) sizes

7

10

10

12 15.8 16

12

12

12

14

17

17

23

29

36

48 54.5

48

70

95

nominal size (mm)

10 10.0 7

10

11 11.5 8

13 13.0 10

13

13

16

16

16

18 18.5 14

18

20 20.0

21 21.2 17

21

21

25 25.0

28 28.5 23

28

34 34.5 29

34

42 42.5 36

42

54

54

67 67.0 56

80

106

OD mm

#### 90° Flange

One piece fast fit 90 degree elbow fitting with nylon swivel flange with integrated conduit seal and 'O' ring face seal.

















One piece fast fit, 45 degree elbow fitting

with nylon swivel flange with integrated conduit seal and with 'O' ring face seal.









integrated conduit seal.



45° UNEF Swivel internal thread



One piece fast fit, 45 degree elbow fitting with

nickel plated brass swivel UNEF internal thread for attachment to circular connectors with





Flange

FPAU16-FL-90

FPAU21-FL-90

FPAU28-FL-90

FPAU34-FL-90

FPAU42-FL-90

FPAU54-FL-90



*	
Flange	

FPAU16-FL-45

FPAU21-FL-45

FPAU28-FL-45

FPΔU34-FI -45

FPAU42-FL-45

FPAU54-FL-45

Int U	JNEF
FPAU16-BU075-45	(3/4")
FPAU16-BU088-45	(7/8")
FPAU16-BU100-45	(1")
FPAU16-BU119-45	(13/16")
	(am
FPAU21-BU100-45	(1")
FPAU21-BU119-45	(13/16")
FPAU21-BU125-45	(1¼")
FPAU28-BU138-45	(1%")
FPAU28-BU144-45	
FPAU34-BU144-45	(17/16") (17/16")
FPAU34-BU175-45	(13/4")
FPAU42-BU200-45	(2")
117.012 00200 40	\~ /

### **Standards & Approvals**



















#### **Benefits of Barb Construction**

(21/4")

(2")

(21/4")

- · Inherent swivel feature allowing easy connection to another thread for termination, eliminating any dynamic stress on the system
- · Reduces wear between the retaining teeth and the conduit, which can often lead to failure

FPAU42-BU225-45

FPAU54-BU200-45

FPAU54-BU225-45







## **ULTRA™** system







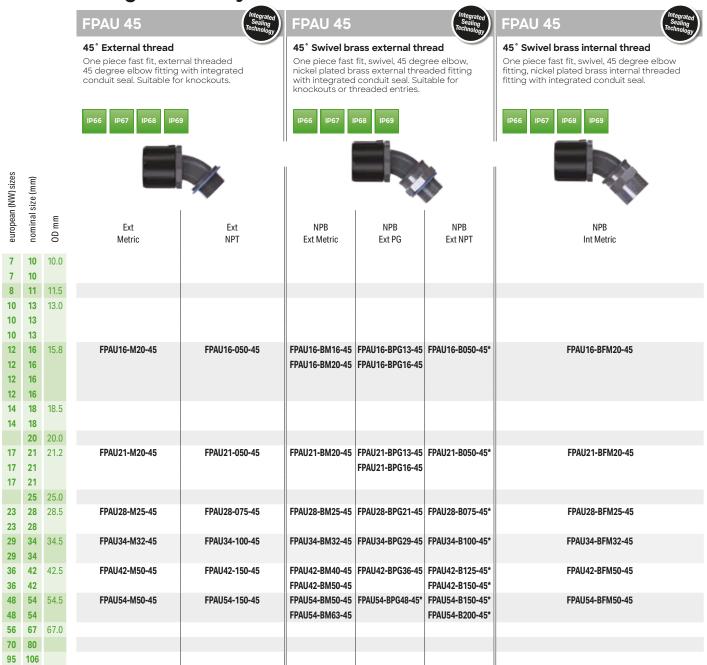




Construction: Nylon (PA66) moulded fittings featuring Integrated Sealing Technology Construction: Nylon (PA66) moulded fittings featuring Integrated Sealing Technology with nickel plated brass swivel threads

Colour: 2 Tone Colour - Black and Grey.

#### Fittings ULTRA™ system 45°



#### **Ordering Notes**

- \* Indicates parts made to order on request
- NPB = Nickel Plated Brass
- · Available on request:
- other threads
- for brass locknuts and sealing washers see accessories, page 124
- EMC braid clamp version see page 121

#### **Technical Drawing**







- Fast fit True one piece component
- IP rating: for conduit & fitting IP66 + IP67 + IP68 (2 bar 1hr) + IP68 (72hrs @ 1m) + IP69 for cable gland - IP68 (2 bar 1hr)
- Nylon threads supplied complete with glass reinforced nylon locknut
- · PA66 Nylon moulded fitting
- Metallic threads made from Nickel Plated Brass
- · Face seal details:
- Metric Nylon threads supplied with retained Polyester Elastomer Washer
- NPT and Metric Brass threads supplied with retained Fibre Washer
- PG Brass threads supplied with Fibre Washer UNEF, Flange and Cable Glands supplied with O-ring
- Vibration and shock tested to EN61373 Cat 2
- Tamper resistant
- · Both 90° and 45° elbows incorporate swept bore to facilitate cable installation and protect cables when installed

One piece fast fit, swivel, 90 degree

elbow, nickel plated brass externa threaded cable aland fitting with integrated conduit seal. Suitable for knockouts or threaded entries.

Can be removed using a screwdriver

90°ELBOW

Cable gland

- · All round teeth give high pull off strength 70kg with FPAH21
- Suitable for fine and coarse pitch conduits
- Temperature range:
- conduit fitting: -50°C to +135°C
- Low Fire Hazard (LFH) see page 144 · Halogen, sulphur and phosphorus free
- UV resistant
- Swivel threads allow assembly without twisting of cables
- EN 45545 HL3 and NFPA130 compliant
- · Refer to tables below for clamping range (Cable Range)

#### **ULTRA™** system R Type Cable Strain Relief

#### **STRAIGHT**

#### With integral cable gland

One piece fast fit, swivel, nickel plated brass external threaded cable gland fitting with integrated conduit seal. Suitable for knockouts or threaded entries.





NPR

metric

FPAU13-BM16-CG-R1

FPAU13-BM16-CG-R2

FPAU13-BM16-CG-R3 FPAU16-BM16-CG-R1

FPAU16-BM16-CG-R2

FPAU16-BM16-CG-R3

FPAU21-BM20-CG-R1

FPAU21-BM20-CG-R2

FPAU21-BM20-CG-R3

FPAU28-BM25-CG-R1

FPAU28-BM25-CG-R2

FPAU34-BM32-CG-R1 FPAII34-RM32-CG-R2

FPAU42-RM40-CG-R1

FPAU42-BM40-CG-R2

FPAU54-BM50-CG-R1

FPAU54-BM50-CG-R2 36.0 - 40.0













40-65 5.0 - 8.0

6.5 - 9.5

4.0 - 6.5

5.0 - 8.0

6.5 - 9.5

4.0 - 6.5

5.0 - 8.0

6.5 - 9.5

9.0 - 13.0

11 0 - 15 5

14 0 - 18 0

170 - 205

170 - 205

20.0 - 25.0

32 0 - 36 0

FPAU16-BM20-CG-R1

FPAU16-BM20-CG-R2

FPAU16-BM20-CG-R3

FPAU16-BM20-CG-R4

FPAU21-BM20-CG-R4

FPAU21-BM25-CG-R1

FPAU21-BM25-CG-R2

FPAU28-BM32-CG-R1

FPAU28-BM32-CG-R2

FPAU42-BM50-CG-R1

FPAU42-BM50-CG-R2

FPAU54-BM63-CG-R1

FPAU54-BM63-CG-R2

Cable		Cable	
Range	NPB	Range	NPB
(mm)	metric	(mm)	metric

4.0 - 6.5

5.0 - 8.0

6.5 - 9.5

7.0 - 10.5

7.0 - 10.5

9.0 - 13.0

11.0 - 15.5

14.0 - 18.0

17 0 - 20 5

27 0 - 32 0

29.0 - 34.0

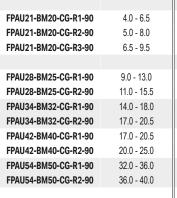
36 0 - 40 0

39.0 - 44.0

NPB metric	Cable Ra (mm)	



FPAU13-BM16-CG-R1-90	4.0 - 6.5	
FPAU13-BM16-CG-R2-90	5.0 - 8.0	
FPAU13-BM16-CG-R3-90	6.5 - 9.5	
FPAU16-BM16-CG-R1-90	4.0 - 6.5	FPAU16-BM20-CG-R1-45
FPAU16-BM16-CG-R2-90	5.0 - 8.0	FPAU16-BM20-CG-R2-45
FPAU16-BM16-CG-R3-90	6.5 - 9.5	FPAU16-BM20-CG-R3-45
		FPAU16-BM20-CG-R4-45
FPAU21-BM20-CG-R1-90	4.0 - 6.5	FPAU21-BM20-CG-R1-45



### 45°ELBOW



#### Cable gland

One piece fast fit, swivel, 45 degree elbow, nickel plated brass external threaded cable gland fitting with integrated conduit seal. Suitable for knockouts or threaded entries.

IP66	IP67	IP68	IP69



european (NW) siz	7	7	10	10	10	12	12	12	12	14	14		17	17	17		23	23	29	29	36	36	48	48	56	70	95
OD mm	10.0	11.5	13.0	13.0		15.8	13.0			18.5		20.0	21.2			25.0	28.5		34.5		42.5		54.5		67.0		
nominal size (mn	10	10 11		13 13	13	16	16	16	16	18	18	20	21	21	21	25	28	28	34	34	42	42	54	54	67	80	106
Cable Range (mm)						4.0 - 6.5	5.0 - 8.0	6.5 - 9.5	7.0 - 10.5				4.0 - 6.5	5.0 - 8.0	6.5 - 9.5		9.0 - 13.0	11.0 - 15.5	14.0 - 18.0	17.0 - 20.5	17.0 - 20.5	20.0 - 25.0	32.0 - 36.0	36.0 - 40.0			

#### **Standards**











### How to identify a Flexicon ULTRA™ fitting

FPAU21-BM20-CG-R2-45

FPAU21-BM20-CG-R3-45

FPAU28-BM25-CG-R1-45

FPAU28-BM25-CG-R2-45

FPAU34-BM32-CG-R1-45

FPAU34-RM32-CG-R2-45

FPAU42-RM40-CG-R1-45

FPAU42-BM40-CG-R2-45

FPAU54-BM50-CG-R1-45

FPAU54-BM50-CG-R2-45



- · 2 Tone colour Capnut different to Body
- · IP69 and Ultra logo marked on product
- · Blue insert seal with visible ribs within capnut
- Retained Face Sealing Washer





## **FPA & FPAX**











#### T Pieces and Dividers

**Construction:** Nylon (PA66) moulded fitting. FPA colour black or grey as standard. FPAX incorporate internal elastomeric seal(s).

#### **Fittings**

FPA	FPA	Reducer/Stop Plug
T piece with inspection lid Fast fit T piece with inspection lid.	Reducing divider Fast fit reducing divider	Fitting to reduce or blank off any outlets.
IP66	IP66	IP66



### **Ordering Notes**

- \* Indicates parts made to order on request and may be subject to MOQ and lead time
- Available on request:other colours
- Grey option may be subject to MOQ and lead time

### How to read the fittings code

FPAX21-R28

Conduit Size — T-piece or Reducer Size —





- Fast fit
- IP rating: FPA: IP66

FPAX: IP66 + IP67 + IP68 (2 bar 1hr) FPAX Divider: IP66 + IP67 + IP68

(2 bar 1hr) +IP69

· Maintains all the benefits of FPA and FPAX fittings

- Vibration and shock tested to EN61373 Cat 2
- Tamper resistant
- All round teeth give high pull off strength
- Low Fire Hazard (LFH), see page 144
- Halogen, sulphur & phosphorous free
- · Inspection lid facilitates pull through of cables easing installation on the T-piece
- Rounded internal corners protect cable insulation during installation and use
- Incorporates mounting lugs to aid secure fixing
- EN 45545 HL3 and NFPA130 compliant

			FPAX	FPAX	Reducer/Stop Plug	
			T piece with inspection lid Fast fit T piece with inspection lid and additional seals for enhanced IP rating.	<b>Divider</b> Fast fit reducing divider with additional seals for enhanced IP ratings	Fitting to reduce or blank off any outlets.	
			IP66	IP66 IP67 IP68 IP69	IP66 IP67 IP68	
sizes	(-	2 for divider			R SP	
european (NW) sizes	Conduit In (mm)	Conduit Out x 2 for divider				
12	16	13	FPAX16T	FPAX16-13-13	FPAX13-R16 SP-R16	
17	21	16	FPAX21T	FPAX21-16-16	FPAX16-R21 FPAX13-R21 SP-R21	
23	28	21	FPAX28T	FPAX28-21-21	FPAX21-R28 FPAX16-R28 FPAX13-R28 SP-R28	
29	34	28	FPAX34T	FPAX34-28-28	FPAX28-R34 FPAX21-R34 FPAX16-R34 SP-R34	
36	42		FPAX42T	FPAX42-34-34	FPAX34-R42 FPAX28-R42 FPAX21-R42	
48	54	42		FPAX54-42-42	][	

#### **Standards**























## Connectabox™ Features



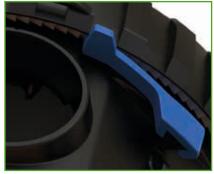
Scan here to learn more about our



Unique - Ultra Flexible Conduit Fitting



Lid Lanyard - Keeps lid and base together



Anti vibration lever



Identification label slot



Push & Twist quick fit fittings



## **Order configuration**

To configure your requirements simply order from the table below. Fitting part numbers are listed, along with accessories to be used in the box CNB110. Kits are available consisting of standard components, shown by quantity in the table.



					What	s Included	
			Part No.	CNB110	CNB110-KIT2	CNB110-KIT3	CNB110-KIT4
	Box & Lid		CNB110	1	1	1	1
•		16mm	FPAU16-CNB				
	Fittings.	21mm	FPAU21-CNB			2	3
	Fittings	28mm	FPAU28-CNB		2	1	
		34mm	FPAU34-CNB				1
	Blanking Plug*		CNB-BP	4	2	1	0
-	Lanyard & Screw		CNB-LAN	1	1	1	1
	Acces	sories			Part No.		Qty
		16r	nm		FPAU16-CNB		1
	Fittings	21r	mm		FPAU21-CNB		1
	rittingo	28r	nm		FPAU28-CNB		1
		34r	mm		FPAU34-CNB	1 2 1	1
		2-7	mm		CNB-CG-2/7		1
	Oabla Oland	4.5-1	0mm		CNB-CG-4-5/10	)	1
	Cable Gland	6-13	Bmm		CNB-CG-6/13		1
		9-17	'mm		CNB-CG-9/17		1
	Thread Insert	M2	20		CNB-BFM20		1
を記	Blanking Plug*				CNB-BP		10
42	DIN Rail Insert Plat	te			CNB-INSERT		1
	Fibre Insert Plate				CNB-INSERT-F		1
	Extended Lid				CNB-EL		1

<sup>\*</sup>All part numbers are for qty of 1 except CNB-BP which are supplied in a pack of 10.



## **FPL system**

**IP40** 



Construction: UPVC corrugated pliable conduit

#### Conduit

## FPL

Construction: Standard weight, upvc, corrugated pliable conduit.

Colour Black, Grey (RAL 7045) or White. (see page 71 in certain sizes.)

**Typical Applications:** Static connections in buildings.

- High compression strength
- Bends to a small radius
- IP rating:

IP40 with MP and T fittings IP66 with FLK fittings IP67 with MPS fittings

- Temperature range -5°C to +70°C
- Self extinguishing
- UV resistant (black)
- · Tensile strength:

FLK20 25kg MP20 20kg MPS20 15ka

#### **Fittings**

#### FLK FLK90 **MPS** 90° Elbow external thread Straight external Straight external Straight external thread One piece, slim, fast fit, nylon thread thread external threaded 90 degree elbow fitting suitable for Straight nylon compression fitting external thread Straight nylon One piece, slim, fast compression fitting with seal external fit, nylon externa threaded fitting knockouts. thread including locknut. suitable for including locknut. knockouts or threaded entries.



Se E   IIIII			MI Frame
		MPs	shown
metric thread part number	metric thread part number	metric thread part number	metric thread part number
FLK16-M16 FLK16-M20	FLK16-M16-90 FLK16-M20-90	MP-16-M16 MP-16-M20	MPS-16-M16 MPS-16-M20
FLK20-M20	FLK20-M20-90	MP-20-M20	MPS-20-M20
FLK25-M25	FLK25-M25-90	MP-25-M25	MPS-25-M25
FLK32-M32*	FLK32-M32-90*		

#### **Ordering Notes**

reel length (m)

100

50, 100

50

25

- Specify Black or Grey (B = Black, G = Grey)
- FPL can be used with FPA fittings
- Grey or White options may be subject to MOQ and lead time

#### · Available on request:

- longer lengths and bulk packaging
- cut lengths and assemblies, additional sizes
- alternative threads, other colours
- heavy duty version
- Thread face sealing washers may be required to maintain
- IP rating at the connection to other equipment, see page 124
- \* Indicates parts made to order

#### **Don't Forget**



#### **Standards**

BS EN IEC 61386







nominal size

16

16 20

25

32

FPL

FPL16

FPL20

FPL25

FPL32



## **White Products**

Construction: Polypropylene or upvc conduit system with nylon straight, 90° elbow, coupler and conduit clips options.

#### Conduit

#### **Fittings**

# **FPP** For details see page 45 For details see page 66

#### Straight external thread One piece, slim, fast fit, external threaded fitting suitable for knockouts or threaded entries

#### 90° Elbow external thread One piece, slim, fast

FLK-90

fit, external threaded 90 degree elbow fitting suitable for knockouts

#### FLK-FLK Coupler

One piece, fast fit, slim coupler to join corrugated conduits.

#### Nylon corrugated conduit clip with integral lid

**FCL** 

Nylon PA66 conduit clip with integral lid for increased security. Incorporates internal ribs to prevent conduit from pulling through.

#### FCL-P

#### Nylon plain conduit clip with integral

Nylon PA66 conduit clip with integral lid for increased security and plain internal diameter for use with rigid conduit or smoothbore flexible conduit.



















Ext Metric FLK20-M20-90W FLK25-M25-90W

FLK20-FLK20W FLK25-FLK25W

FCL20W FCL25W FCL20W-P FCL25W-P

### C - Contractor pack

FPL-CP20W FPL-CP25W

european (NW)

20

25

M20 thread M25 thread



- · 10m of FPL white conduit
- · 10 x Flexilok® fittings
- · 10 x Locknuts

#### LPC

Smooth bore, smooth cover, helically formed pvc, flexible conduit with spiral upvc reinforcement and flexible pvc jacket.







Available in 20mm and 25mm sizes. Use with FCL-P clips to secure.

See page 76 for more details

#### MPC

Straight nylon compression fitting with external thread





2 part compression fitting with internal spigot and all round teeth to grip conduit.

See page 77 for

#### **Standards**













## FPY, FPYS, FPYL, FPYLS system

#### Corrugated flexible conduit

#### **Properties**

- Highly flexible and high fatigue life
- · High impact strength and recovers if crushed
- Temperature range -40°C to +120°C
- · Highly resistant to solvents and oils
- · Self extinguishing (FPY and FPYS)
- · Halogen, sulphur and phosphorus free

#### Conduit

#### **FPY**

**Construction:** Nylon (PA6) corrugated flexible conduit.

Colour: black.

Typical Applications: Automotive

#### EPYS

**Construction:** Slit nylon (PA6) corrugated flexible conduit.

Colour: black

**Typical Applications:** Automotive looms, harnesses and retrofit.

#### **FPYL**

**Construction:** Nylon (PA6) corrugated flexible conduit.

Colour: black.

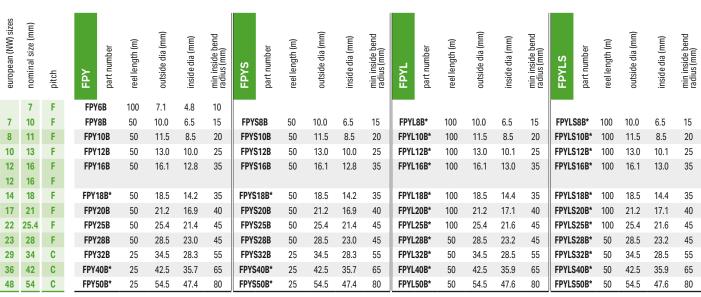
**Typical Applications:** Lightweight automotive.

#### **FPYLS**

**Construction:** Slit, light weight nylon (PA6) corrugated flexible conduit.

Colour: black.

**Typical Applications:** Lightweight automotive looms, harnesses and retrofit.



F = fine pitch C = coarse pitch

### **Ordering Notes**

- Metric threads supplied complete with locknuts
- Available on request:
- reduced outlet T pieces
- other coloursPG threads

<sup>\*</sup> FPYL & FPYLS are made to order on request and maybe subject to MOQ and lead times.











## MP, MP90 & T system

Construction: Nylon compression fittings.

Colour: Black.

MP fitting with nylon retaining clip provides a pull off strength of 20kg with FPY20 and 15kg with FPYL20 and IP40.

MPS fitting with a neoprene sealing ring provides a pull off strength of 15kg with FPY20 and 10kg with FPYL20 and IP67.

#### **Fittings**

MP	MPS	MP90	MPS90	Т	TS
Straight external thread	Straight external thread	90° Elbow external thread	90° Elbow external thread	T Piece fitting T piece nylon	T Piece fitting with seals
Straight nylon compression fitting external thread including locknut.	Straight nylon compression fitting, with seal, external thread including locknut.	90° elbow nylon compression fitting external thread including locknut.	90° elbow nylon compression fitting, with seal, external thread including locknut.	compression fitting.	T piece nylon compression fitting, with seals.
IP40	IP67	IP40	IP67	IP40	IP67







Ext Metric	Ext Metric	Ext Metric	Ext Metric	T Piece	T Piece	european (NW) sizes
						7
						8
MP-12-M16	MPS-12-M16			T12X12X12	T\$12X12X12	10
MP-16-M16	MPS-16-M16	MP90-16-M16	MPS90-16-M16	T16X16X16	TS16X16X16	12
MP-16-M20	MPS-16-M20	MP90-16-M20	MPS90-16-M20			12
						14
MP-20-M20	MPS-20-M20	MP90-20-M20	MPS90-20-M20	T20X20X20	TS20X20X20	17
MP-25-M25	MPS-25-M25	MP90-25-M25	MPS90-25-M25	T25X25X25	TS25X25X25	22
MP-28-M25	MPS-28-M25	MP90-28-M25	MPS90-28-M25			23
MP-32-M32	MPS-32-M32	MP90-32-M32	MPS90-32-M32			29
MP-40-M40		MP90-40-M40				36
MP-50-M50						48

Thread face sealing washers may be required to maintain IP rating at the connection to other equipment, see page 124

#### **Standards**













nominal size (mm)

10

13.0 13

28.5 34.5 42 42.5 **54** 54.5





## Large diameter systems

Nylon and Polypropylene (PP)







#### Conduit

## LDFPAI

Construction: Light weight nylon (PA6) corrugated flexible

Colour: Black or Grey

**Typical Applications:** Machines where lower mechanical protection is required and

 Highly flexible and high fatigue life

buildings.

- · High impact strength and recovers if crushed
- · Temperature range -40°C to +120°C (-20°C to +100°C for moving applications)
- · Highly resistant to solvents and oils
- · Self extinguishing
- · Halogen, sulphur and phosphorus free

weight, flame retardant

Colour: Black or Grey

Typical Applications: All types of machinery, public buildings.

- · High impact strength and recovers if crushed
- Temperature range -40°C to +120°C (-20°C to +100°C for moving applications)
- Approval
- (LFH), see page 144
- retardancy
- Halogen, sulphur and
- Abrasion resistant

#### EH 45545-2 HEPA 138





Construction: Heavy weight nylon (PA12) corrugated flexible

Colour: Black

**Typical Applications:** Where dynamic

continual movement or flexing is required. with a higher mechanical strength even at very low temperatures such as on Bogies or Intercar Jumper assemblies. applications requiring a superior level of fire performance.

- even at very low temperatures
- UV resistant
- · Displays self recovery if crushed
- · Self extinguishing
- · Halogen, sulphur and phosphorus free

LDFPP Construction: Standard weight polypropylene,

flexible conduit. Colour: Black, Grey (RAL 7031) or White (see page 46)

Typical Applications: uildings, particularly where buried in

concrete or plaster

- Acid resistant
- Temperature range -20°C to +90°C
- · Self extinguishing

## Construction: Standard

nvlon (PA6) corrugated flexible conduit.

(RAL 7031). Orange available on request.\*

- Highly flexible and high fatigue life
- · Lloyd's Register Type
- · Low Fire Hazard
- UL 94 V2 flame
- phosphorus free
- UV resistant (black)
- · Highly resistant to solvents and oils

corrugated flexible

Typical Applications:

· Highly flexible and

high fatigue life

and recovers if

crushed

(LFH)

S1085

Railways, underground and public buildings.

· High impact strength

Temperature range

-40°C to +120°C (-20°C to +100°C for

moving applications)

• Lloyd's Register Type

· Extra Low Fire Hazard

· Compliant to LUL Std

· Halogen, sulphur and

phosphorus free

Abrasion resistant

· Highly resistant to

solvents and oils

• UL 94 VO flame

retardancy

UV resistant

Colour: Black

#### **DFPR** Construction: Heavy Construction: Standard weight nylon (highly flame retardant PA6)

weight nylon (PA12) corrugated flexible conduit.

Colour: Black

\_DFPIH

**Typical Applications:** 

Robots and continual flexing where higher mechanical strength required.

- Highly flexible and high fatigue life
- High mechanical strength
- High impact resistance even at very low temperatures
- UV resistant
- Displays self recovery if crushed
- · Temperature range -50°C to +110°C
- · Highly resistant to solvents and oils
- Self extinguishing
- · Halogen, sulphur and phosphorus free
- Low Fire Hazard (LFH), see page 144

Also available in extra low fire hazard version -FPIHRL see page 45

Rolling Stock

- Highly flexible and high fatigue life
  - · High mechanical strength
  - High impact resistance

  - Temperature range -50°C to +110°C
  - · Highly resistant to solvents and oils
  - Extra Low Fire Hazard

• EN 45545 HL3 Exterior

european (NW) sizes nominal size (mm)

70 80

95 106 ree

LDFPAL80 10 80.0 67.0 150 LDFPAS80 10 80.0 67.0 160 LDFPIH80 10 80.0 66.5 170

outside dia (mm

inside dia (mm

min inside b radius (mm)

outside dia (mm length (m) reel

LDFPAL106\* 10 106.0 91.8 210 LDFPAS106 10 106.0 91.5 210 LDFPIH106\* 10 106.0 91.0 250

min inside bend radius (mm) dia (

length (m) part number reel

outside dia (mm

min inside benc radius (mm) inside dia (mm

outside dia (mm reel length (m) part number

inside dia LDFPR80

min inside bend radius (mm)

outside dia (mm reel

LDFPR106\* 10 106.0 91.5 210 | LDFPIHRL106\* 10 106.0 91.0 250 | LDFPP106\* 10 106.0 91.5 400

(mm)

dia (

pend part number min inside b radius (mm)

outside dia (mm min inside be radius (mm) 10 80.0 67.0 160 LDFPIHRL80 10 80.0 66.5 170 LDFPP80 10 80.0 67.0 300

dia (

Refer to page 44 for other materials

### **Ordering Notes**

- Specify black or grey (B = Black, G = Grey) eg: LDFPAS80B-10M for Black 10m reel
- · Grey option may be subject to MOQ and lead time
- Available on request:
- longer lengths and bulk packaging

Contact Flexicon for more details

- cut lengths and assemblies - alternative conduit material
- FCC75 and FCC106 PVC lined plated steel P-clips
- F-Clamps see page 72 \* Indicates parts made to order on request and may be

subject to MOQ and lead time

· 80mm can be used with

#### **Standards**

BS EN IEC 61386











- Suitable for use with Large Diameter conduits
- Material
- LDMP and LDMPS: nylon PA6
- FPA FCLAMP: nylon PA66
- REC: thermoplastic elastomer
- Temperature Range
   LDMP & LDMPS fittings: -40° to 120°
   FPA & FCLAMP: -50° to 135°
- REC: -50° to 120°

- UV resistant
- Fire Performance
  - LDMP and LDMPS:
  - Halogen, Sulphur & Phosphorous Free
  - Self extinguishing
  - RFC:
  - Halogen, Sulphur & Phosphorous Free
- FPA and FCLAMP:
- Extra Low Fire Hazard see page 144
- Halogen, Sulphur & Phosphorous Free
- Self extinguishing
- EN45545 HL3 and NFPA 130 compliant
- For installation instructions see page 136

#### **Fittings**

FPA80	LDMP	LDMPS	LDMP90	LDMPS90	FCLAMP	REC	FCC CLIPS
Straight external thread One piece, fast fit, external threaded fitting. Suitable for knockouts or threaded entries.	Straight flanged nylon clamp fitting Flanged body with 2 clamps.	Straight flanged nylon clamp fitting with seals Flanged body with 2 clamps and seals.	90° Flanged nylon clamp fitting Flanged 90° body with 2 clamps.	90° Flanged nylon clamp fitting with seals Flanged 90° body with 2 clamps and seals.	Non-metallic, heavy duty conduit clamp Nylon PA66, conduit fixing clamp for corrugated conduit. Suitable for use with with fine or coarse pitch conduits. Can be used with a range of accessories including cover plates and weld plates (available separately - see	Rubber end cap Thermoplastic elastomer cap used to seal end of conduit. Can be cut to size depending on size of cable. Can be additionally secured using cable tie (not supplied).	Plated steel P clip with pvc liner P clip to support and secure conduit.
IP66	IP40	IP65	IP40	IP65	page 72).		



termination	part number	termination	part number	termination	part number	termination	part number	termination	part number	part number	part number	part number	european (NW) sizes	nominal size (mm)
M85	FPA80-M85B	FL	LDMP-80-FL	FL	LDMPS-80-FL	FL	LDMP90-80-FL	FL	LDMPS90-80-FL	FCLAMP-8-80	REC80	FCC75	70	80
		FL	LDMP-106-FL	FL	LDMPS-106-FL	FL	LDMP90-106-FL	FL	LDMPS90-106-FL			FCC106	95	106





## **Conduit Fixing range**







Nylon corrugated conduit clip with integral lid

Nylon PA66 conduit clip with integral lid for increased security. Incorporates internal ribs to prevent corrugated conduit from pulling through, 20kg with FPAS21.

## a a

NW Size	Conduit Size (OI mm	FCL clip for corrugated
7	10	FCL10
10	13	FCL13
12	16	FCL16
14	18	FCL18
	20	FCL20
17	21	FCL21
	25	FCL25
	26	
23	28	FCL28
	32	FCL32
25	33	
36	34	FCL34
48	42	FCL42
	54	FCL54

### FCL-P (Smooth)

Non metallic conduit clip for smooth conduits with integral lid Nylon conduit fixing clip for smooth conduit. Available in Black or Grey (RAL 7001).

NW Size	Conduit Size (OD) mm	FCL clip for plain conduit
7	10	
10	13	
12	16	FCL16-P
14	18	FCL18-P
	20	FCL20-P
17	21	FCL21-P
	25	FCL25-P
	26	FCL26-P
23	28	
	32	FCL32-P
25	33	FCL33-P
36	34	
48	42	
	54	

#### **Conduit Clamps**

Non-metallic, heavy duty conduit clamp

Nylon PA66, conduit fixing clamp for corrugated conduit. Suitable for use with fine or coarse pitch conduits. Can be used with a range of accessories including cover plates and weld plates.



#### F-CLAMP and Accessories

NW Size	Conduit Size (OD) mm	FCLAMP	FCLAMP Kit	Extended Weld Plate galvanised steel	Weld Plate galvanised steel	Cover Plate galvanised steel
12	16	FCLAMP-3-16	FCLAMP-KIT16	FCLAMP-EWP3	FCLAMP-WP3	FCLAMP-CP3
17	21	FCLAMP-3-21	FCLAMP-KIT21	FCLAMP-EWP3	FCLAMP-WP3	FCLAMP-CP3
23	28	FCLAMP-4-28	FCLAMP-KIT28	FCLAMP-EWP4	FCLAMP-WP4	FCLAMP-CP4
29	34	FCLAMP-5-34	FCLAMP-KIT34	FCLAMP-EWP5	FCLAMP-WP5	FCLAMP-CP5
36	42	FCLAMP-6-42	FCLAMP-KIT42	FCLAMP-EWP6	FCLAMP-WP6	FCLAMP-CP6
48	54	FCLAMP-7-54	FCLAMP-KIT54	FCLAMP-EWP7	FCLAMP-WP7	FCLAMP-CP7
56	67	FCLAMP-7-67	FCLAMP-KIT67	FCLAMP-EWP7	FCLAMP-WP7	FCLAMP-CP7
	80	FCLAMP-8-80	FCLAMP-KIT80	FCLAMP-EWP8	FCLAMP-WP8	FCLAMP-CP8





For a comprehensive range of Channel and Channel Nuts refer to Unistrut - www.atkore.com/unistrut



- Suitable for use with flexible, pliable and rigid conduits
- Clips and F-Clamps manufactured from nylon PA66
- Temperature Range -50° to 135°
- UV resistant
- Low Fire Hazard see page 144
- · Halogen, Sulphur & Phosphorous Free
- Self extinguishing
- For installation instructions see page 138
- EN45545 HL3 and NFPA 130 compliant

# **System Overview**



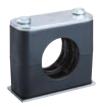


# **Configurations**





FCL mounted on channel using FCL Mount kits. FCL Clips can be rotated to any angle to help route conduits



FCLAMP mounted on Weld Plate with Cover Plate



FCLAMP directly mounted on channel using Channel Nuts



FCLAMP mounted on Elongated Weld Plate with Cover Plate



FCLAMP directly mounted on channel using Channel Nuts and Cover Plate



FCLAMP Kit Complete



FCLAMP Kit mounted on channel with Conduit

	Thr	ead Le	ength	Requ	iirements - Dimension Table
FCLAMP	A	В	С	D	
FCLAMP-3-16	29	36	39	42	
FCLAMP-3-21	29	36	39	42	
FCLAMP-4-28	35	42	45	48	
FCLAMP-5-34	49	56	59	62	
FCLAMP-6-42	58	65	68	71	
FCLAMP-7-54	85	92	97	102	
FCLAMP-7-67	85	92	97	102	
FCLAMP-8-80	110	117	124	129	

For Stacking Kit please contact Flexicon. Channel Nut galvanised steel for Unistrut type channel. Part number CN-UNI-M6-GS





# **FPCB** system

Construction: Spiral reinforced PVC



# FPCG, FPCGN & FPCBU system

Construction: Spiral reinforced PVC with special properties

### Conduit

**FPCB** Construction: Smooth bore, helically formed PVC, flexible conduit with spiral

UPVC reinforcement and flexible

PVC jacket.

Typical Applications: Routing of cables

# c **FN**°us

Construction: Smooth bore, helically

UPVC reinforcement and flexible

formed PVC, flexible conduit with spiral

Typical Applications: As FPCB but where

c **FAL** us

# **Fittings**

### MPC

#### Straight nylon compression fitting external thread

2 part compression fitting with internal spigot and all round external teeth to grip conduit. Available in Black or Grey (RAL 7001).



# c **SN** us

### **FPCG**

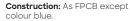
Construction: As FPCB except

Typical Applications: As FPCB.

# **FPCBU**

**FPCGN** 

PVC jacket.



Typical Applications: As FPCB but where high temperature is required. UL recognised.







### **FPCURB**

Construction: As FPCB.

Typical Applications: As FPCB. UL recognised.

nominal size (mm)	FPC	Black part number	Black (UL Recognised)	Grey (RAL 7001)	Green (RAL 6001)	Blue (RAL 5012)	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)
12	FPC	12B	FPC12URB	FPC12G*	FPC12GN*	FPC12BU*	30	14.5	10.0	25
16	FPC	16B	FPC16URB	FPC16G*	FPC16GN*	FPC16BU*	30	16.5	12.0	25
16										
20	FPC:	20B	FPC20URB	FPC20URB FPC20G*		FPC20GN* FPC20BU*		21.0	16.0	35
25	FPC	25B	FPC25URB	FPC25G*	FPC25GN*	FPC25BU*	30	27.5	22.0	45
30	FPC	30B*	FPC30URB	FPC30G*			30	30.5	25.0	55
32	FPC	32B	FPC32URB	FPC32G*	FPC32GN*	FPC32BU*	10, 30	33.5	28.0	60
40	FPC4	40B	FPC40URB	FPC40G*	FPC40GN*	FPC40BU*	10, 30	41.0	35.0	80
50	FPC	50B	FPC50URB	FPC50G*	FPC50GN*	FPC50BU*	10, 30	46.4	40.0	105
63	FPC	63B	FPC63URB	FPC63G*	FPC63GN*	FPC63BU*	10, 30	57.0	50.0	120

metric thread part number	PG thread part number	NPT part number
MPC-12-M16	MPC-12-PG9	
MPC-16-M16	MPC-16-PG11	
MPC-16-M20	MPC-16-PG13	MPC-16-050
MPC-20-M20	MPC-20-PG16	MPC-20-050
MPC-25-M25	MPC-25-PG21	MPC-25-075
MPC-30-M32*	MPC-30-PG29*	
MPC-32-M32	MPC-32-PG29	MPC-32-100
MPC-40-M40	MPC-40-PG36	MPC-40-125
MPC-50-M50	MPC-50-PG42	MPC-50-150
MPC-63-M63	MPC-63-PG48	MPC-63-200

Longer reel lengths available on request











# **Ordering Notes**

- Add reel length eg: FPC20B-30M for 30M
- \* Indicates parts made to order on request and may be subject to MOQ and lead time
- For UL recognised black conduit order FPCURB\*
- · Available on request:
- additional sizes
- alternative threads - other colours





- Highly flexible
- Accepts torsional movement
- Vibration and shock tested to EN61373 Cat 2
- IP rating: IP65
- Temperature range
- -5°C to +70°C (FPCB Black)
- -20°C to +70°C (FPCG Grey)

- -20°C to +70°C (FPCGN Green)
- -20°C to +90°C (FPCBU Blue)
- Metric threads supplied complete with locknuts
- FPCB (Black) is UV resistant
- · FPCGN (Green) is oil resistant
- · FPCBU (Blue) is high temperature
- Self extinguishing
- · FPCG, FPCGN, FPCBU and FPCURB are UL recognised to UL1696 for use in US and Canada
- · Thread face sealing washers may be required to maintain IP rating at the connection to other equipment, see page 124

### MPC90

#### 90° Elbow nylon compression fitting external thread

2 part compression, 90 degree elbow fitting with internal spigot and all round external teeth to grip conduit. Available in Black or Grey (RAL 7001).



# MPC45

#### 45° Elbow nylon compression fitting external thread

2 part compression, 45 degree elbow fitting with internal spigot and all round external teeth to grip conduit. Available in Black or Grey (RAL 7001).







metric thread part number	PG thread part number	NPT part number	metric thread part number	NPT part number
MPC90-16-M16	MPC90-16-PG11			
MPC90-16-M20	MPC90-16-PG13	MPC90-16-050	MPC45-16-M20	MPC45-16-050
MPC90-20-M20	MPC90-20-PG16	MPC90-20-050	MPC45-20-M20	MPC45-20-050
MPC90-25-M25	MPC90-25-PG21	MPC90-25-075	MPC45-25-M25	MPC45-25-075
MPC90-32-M32	MPC90-32-PG29	MPC90-32-100	MPC45-32-M32	MPC45-32-100
MPC90-40-M40	MPC90-40-PG36	MPC90-40-125		

# 32 40 50 63

nominal size (mm)

# **Standards**











<sup>\*</sup> refer to conduit properties for applicable standards







# **LPC** system

Construction: Smooth spiral reinforced pvc









## Conduit

### LPC

Construction: Smooth bore, smooth cover, helically formed pvc, flexible conduit with spiral upvc reinforcement and flexible pvc jacket.

Colour: Black or Grey

Typical Applications: Machines and applications requiring high levels of Ingress protection such as

# **Fittings**

## FCL-P

#### Non metallic conduit clip

Nylon conduit fixing clip for smooth conduit. Available in Black or Grey (RAL 7001).

## LPCO

Construction: As LPC except

**Typical Applications:** As LPC but where high flexibility is required.

# LPCGN

Construction: As LPC except colour Green.

**Typical Applications:** As LPC but where oil resistance is required.

### LPCBU

Construction: As LPC except colour Blue.

Typical Applications: As LPC but where high temperature is required.



Also available in Hygenic version in White, Blue and Grey - see page 80



nominal size (mm)	Thc	Black part number	reel length (m)	Grey (RAL 7001)	Orange (RAL 2008)	Green (RAL 6001)	Blue (RAL 5012)	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)
12	LPC12B	}	30	LPC12G*	LPC120*	LPC12GN*	LPC12BU*	30	14.2	10.0	50
16	LPC16B	3	30	LPC16G	LPC160	LPC16GN*	LPC16BU*	30	17.8	12.6	50
16											
20	LPC20B	3	10, 30	LPC20G	LPC200	LPC20GN*	LPC20BU*	30	21.1	16.0	70
25	LPC25B	3	10, 30	LPC25G	LPC250	LPC25GN*	LPC25BU*	30	26.4	21.0	90
32	LPC32B	3	10, 30	LPC32G	LPC320	LPC32GN*	LPC32BU*	30	33.1	26.5	140
40	LPC40B	3	10, 30	LPC40G*	LPC400*	LPC40GN*	LPC40BU*	30	41.8	35.4	190
50	LPC50B	}	10, 30	LPC50G*	LPC500*	LPC50GN*	LPC50BU*	30	47.9	40.0	240
63	LPC63B	3	10, 30	LPC63G*	LPC630*	LPC63GN*	LPC63BU*	30	59.7	51.3	270

metric thread part number
FCL18-P
FCL21-P
FCL26-P
FCL33-P











# **Ordering Notes**

- \* Indicates parts made to order on request and may be subject to MOQ and lead time
- · Available on request:
- additional sizes - alternative threads

- other colours
- conduit couplers
- 45 degree brass elbow
- combined conduit fitting with cable gland, see page 120

# **Alternatives**





- Smooth, wipe clean surface
- · Accepts some torsional movement
- IP rating:
- IP66, IP67 with MPC fittings
- IP66, IP67, IP68 (2 bar 1hr) + IP69 with metal C-type compression fittings
- Temperature range
- -5°C to +70°C (LPC and LPCG)

- -20°C to +70°C (LPCO and LPCGN)
- -20°C to +90°C (LPCBU)
- · LPCO (Orange) is highly flexible
- · LPCGN (Green) is oil resistant
- · LPCB (Black) is UV resistant
- · Self extinguishing
- Metric nylon fittings supplied complete with locknut
- · Vibration and shock tested to EN 61373 Cat 2
- · Thread face sealing washers may be required to maintain IP rating at the connection to other equipment, see page 124.

#### MPC

#### Straight nylon compression fitting external thread

2 part compression, 90 degree elbow fitting with internal spigot and all round external teeth to grip conduit. Available in Black or Grey (RAL 7001).







#### MPC90

#### 90° Elbow nylon compression fitting external thread

2 part compression, 90 degree elbow fitting with internal spigot and all round external teeth to grip conduit. Available in Black or Grey (RAL 7001).









#### MPC45

#### 45° Elbow nylon compression fitting external thread

2 part compression, 45 degree elbow fitting with internal spigot and all round external teeth to grip conduit. Available in Black or Grey (RAL 7001).













metric thread part number	PG thread part number	NPT thread part number	metric thread part number	PG thread part number	NPT thread part number	metric thread part number	NPT thread part number
MPC-16-M16	MPC-16-PG11		MPC90-16-M16	MPC90-16-PG11			
MPC-16-M20	MPC-16-PG13	MPC-16-050	MPC90-16-M20	MPC90-16-PG13	MPC90-16-050	MPC45-16-M20	MPC45-16-050
MPC-20-M20	MPC-20-PG16	MPC-20-050	MPC90-20-M20	MPC90-20-PG16	MPC90-20-050	MPC45-20-M20	MPC45-20-050
MPC-25-M25	MPC-25-PG21	MPC-25-075	MPC90-25-M25	MPC90-25-PG21	MPC90-25-075	MPC45-25-M25	MPC45-25-075
MPC-32-M32	MPC-32-PG29	MPC-32-100	MPC90-32-M32	MPC90-32-PG29	MPC90-32-100	MPC45-32-M32	MPC45-32-100
MPC-40-M40	MPC-40-PG36	MPC-40-125	MPC90-40-M40	MPC90-40-PG36	MPC90-40-125		
MPC-50-M50	MPC-50-PG42	MPC-50-150					
MPC-63-M63	MPC-63-PG48	MPC-63-200					

# nominal size (mm) 12 16 16

# **Standards**







**BS EN IEC 61386** 



















# Metallic fittings for use with LPC conduits

# **Fittings**

С	C-S	C-90							
External metric thread nickel plated brass  Multipart compression fitting including elastomeric seal. Can be used for knockout or threaded entries as fitting rotates until tightened.	Swivel external thread nickel plated brass Multipart compression fitting including elastomeric seal. The external thread swivels about the main body even after tightening. Suitable for knockout or threaded entries.	90° External thread nickel plated brass 90° multipart compression fitting including elastomeric seal. Can be used for knockouts.							
IP66 IP67 IP68 IP69	IP66 IP67 IP68 IP69	IP66 IP67 IP68 IP69							







nominal size (mm)	LPC for conduit see page 80	metric thread part number	for PG thread size	for NPT thread size	thread	metric thread part number	metric thread part number
12	LPC12	LPC12-M16-C	LPC12-PG9-C			LPC12-M16-S	LPC12-M16-C90
16	LPC16	LPC16-M16-C	LPC16-PG11-C			LPC16-M16-S	LPC16-M16-C90
16		LPC16-M20-C	LPC16-PG13-C	LPC16-050-C	(1/2")	LPC16-M20-S	LPC16-M20-C90
20	LPC20	LPC20-M20-C	LPC20-PG16-C	LPC20-050-C	(1/2")	LPC20-M20-S	LPC20-M20-C90
25	LPC25	LPC25-M25-C	LPC25-PG21-C	LPC25-075-C	(3/4")	LPC25-M25-S	LPC25-M25-C90
32	LPC32	LPC32-M32-C	LPC32-PG29-C	LPC32-100-C	(1")	LPC32-M32-S	LPC32-M32-C90
40	LPC40	LPC40-M40-C	LPC40-PG36-C	LPC40-125-C	(11/4")	LPC40-M40-S	LPC40-M40-C90
50	LPC50	LPC50-M50-C	LPC50-PG42-C	LPC50-150-C	(11/2")		LPC50-M50-C90
63	LPC63	LPC63-M63-C	LPC63-PG48-C	LPC63-200-C	(2")		LPC63-M63-C90

<sup>\*</sup> Please see conduit range information page 80

# **Ordering Notes**

- \* Indicates parts made to order on request and may be subject to MOQ and lead time
- · Available on request:
- additional sizes
- alternative threads
- alternative materials (eg. PU)

#### - other colours

- conduit couplers
   45 degree brass elbow
   combined conduit fitting with cable gland, see page 120

# **Alternatives**



see page 78



- Smooth, wipe clean surface
- Accepts some torsional movement
- IP rating:
- IP66 and IP67 with MPC fittings
- IP66, IP67, IP68 (2 bar 1hr) + IP69 with metal C-type compression fittings
- Temperature range
- -5°C to +70°C (LPC and LPCG)
- -20°C to +70°C (LPCO and LPCGN)
- -20°C to +90°C (LPCBU)
- Thread face sealing washers may be required to maintain IP rating at the connection to other equipment, see page 124

C-45	CSS	C90-SS
<b>45° External thread nickel plated brass</b> 45° multipart compression fitting including elastomeric seal. Can be used for knockouts.	External thread stainless steel  Multipart compression fitting in Stainless Steel (Grade 316L) including elastomeric seal. Can be used for knockout or threaded entries as fitting rotates until tightened.	90° External thread stainless steel 90° multipart compression fitting Stainless Steel (Grade 316L) including elastomeric seal. Can be used for knockouts.
IP66 IP67 IP68 IP69	IP66 IP67 IP68 IP69	IP66 IP67 IP68 IP69

metric thread part number	metric thread part number	metric thread part number	nominal size (mm)
			12
	LPC16-M16-CSS		16
LPC16-M20-C45	LPC16-M20-CSS	LPC16-M20-CSS90	16
LPC20-M20-C45	LPC20-M20-CSS	LPC20-M20-CSS90	20
LPC25-M25-C45	LPC25-M25-CSS	LPC25-M25-CSS90	25
LPC32-M32-C45	LPC32-M32-CSS	LPC32-M32-CSS90	32
LPC40-M40-C45	LPC40-M40-CSS		40
LPC50-M50-C45	LPC50-M50-CSS		50
LPC63-M63-C45			63

# **Standards**







BS EN IEC 61386





# **LPC-FG** system





# **Hygienic Range**

### Conduit



Construction: Smooth bore. smooth cover, helically formed PVC, flexible conduit with spiral uPVC reinforcement and flexible PVC jacket.

Colour: White.

Typical Applications: Suitable for repeat contact with all food types, excluding fatty foods, at full temperature.

The flexible PVC is manufactured from FDA approved ingredients and has been independently tested to European Food regulation 10/2011.

Temp: -20°C to +90°C

## LPC-BUFG

Construction: Smooth bore. smooth cover, helically formed PVC, flexible conduit with spiral uPVC reinforcement and flexible PVC jacket.

Colour: Blue.

**Typical Applications:** Suitable for repeat contact with all food types, excluding fatty foods, at full temperature.

The flexible PVC is manufactured from FDA approved ingredients and has been independently tested to European Food regulation 10/2011.

Temp: -20°C to +90°C



# LPC-GFG

Construction: Smooth bore smooth cover, helically formed PVC, flexible conduit with spiral uPVC reinforcement and flexible PVC jacket.

Colour: Grey.

Typical Applications: Suitable for repeat contact with all food types, excluding fatty foods, at full temperature.

The flexible PVC is manufactured from FDA approved ingredients and has been independently tested to European Food regulation 10/2011.

**Temp:** -5°C to +70°C







Construction: LFNC-B Smooth bore. Construction: LFNC-B Smooth bore, smooth cover rugged nonmetallic PVC construction for Splash Zones. NSF® 169 Component for "splash zones" in food production areas and UL 1660, UL File E123464, PVC isolate inhibits beat jacket inhibits bacteria growth and is non-conductive and non-corrosive.

Colour: White.

Typical Applications: Food equipment & other devices associated with food production requiring NSF 169 compliance components for Special Purpose Food Equipment and Devices, and UL certifications.

**Temp:** -20°C to +80°C

nominal size (mm)	LPC-WFG	partnumber	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	LPC-BUFG	partnumber	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	LPC-GFG	partnumber	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	AFC UL-FG	partnumber	reel length (m)	outside dia max (mm)	inside dia min (mm)	min inside bend radius (mm)
12	LPCWFG	12	30	14.2	10.0	50	LPCBUF	G12	30	14.2	10.0	50	LPCGF	G12	30	14.2	10.0	50						
16	LPCWFG	16	30	17.8	12.6	50	LPCBUF	G16	30	17.8	12.6	50	LPCGF	G16	30	17.8	12.6	50	NSZ1-30	-00*	30.5	18.0	12.3	50.8
16																								
20	LPCWFG	20	10, 30	21.1	16.0	70	LPCBUF	G20	10, 30	21.1	16.0	70	LPCGF	G20	10, 30	21.1	16.0	70	NSZ2-30	-00*	30.5	21.4	15.8	82.6
25	LPCWFG	25	10, 30	26.4	21.0	90	LPCBUF	G25	10, 30	26.4	21.0	90	LPCGF	G25	10, 30	26.4	21.0	90	NSZ3-30	-00*	30.5	27.0	20.8	108
32	LPCWFG	32	10, 30	33.1	26.5	140	LPCBUF	G32	10, 30	33.1	26.5	140	LPCGF	G32	10, 30	33.1	26.5	140	NSZ4-30	-00*	30.5	33.4	26.5	165
40	LPCWFG	40	10, 30	41.8	35.4	190	LPCBUF	G40	10, 30	41.8	35.4	190	LPCGF	G40	10, 30	41.8	35.4	190	NSZ5-24	l-00*	15.3	42.2	35.1	203
50	LPCWFG	50	10, 30	47.9	40.0	240	LPCBUF	G50	10, 30	47.9	40.0	240	LPCGF	G50	10, 30	47.9	40.0	240	NSZ6-24	l-00*	15.3	48.3	40.0	229
63	LPCWFG	63	10, 30	59.7	51.3	270	LPCBUF	G63	10, 30	59.7	51.3	270	LPCGF	G63	10, 30	59.7	51.3	270	NSZ7-24	-00*	15.3	60.4	51.3	283

# **Ordering Notes**

- \* Indicates parts made to order on request and may be subject to MOQ and lead time
- · Available on request:
- additional sizes
- alternative threads

### **Accessories**



see page 122



- Smooth, wipe clean surface
- · Accepts some torsional movement
- IP rating:

#### IP66, IP67, IP68 (2 bar 1hr) + IP69

- Temperature range
- -20°C to +90°C

- · C-FG fitting designed in accordance with EN1672-2 and EN ISO 14159
- · C-FG fitting manufactured from stainless steel grade 316L
- · Compatible with Hygienic Round Box see page 122
- For UL listed fittings consult us

• I-PACK see page 128 - 3m of conduit, 2 fittings and 2 locknuts



# **Fittings**

C-FG









## **External thread**

Multipart compression fitting designed using principles given in EN1672-2 and EN ISO 14159 for use with LTP and LFMC conduits. Manufactured from 316L stainless steel, complete with polyester elastomer compression seals to prevent ingress of food or bacteria. Ideal for use where space is limited.

## FCC-SS

# Stainless steel (316L) P clips

P clip to support conduit.

#### LOCKNUTS

#### Stainless steel (316L) locknuts

Hexagonal locknut to secure fitting.











External thread stainless steel food grade

steel, complete with polyester elastomer compression seals to prevent ingress of food or bacteria. Can be used for knockout or threaded entries as fitting rotates until tightend.

ST fittings are designed for use with Round Boxes on page 122. They have a shorter thread to maximise space within the box or enclosure.

Multipart compression fitting designed using principles given in EN1672-2 and EN ISO 14159. Manufactured from 316L stainless





















Ext Metric	Ext NPSM	Ext Metric	NPSM thread part number	part number	metric thread part number	nominal size (mm)
LPC12-M16-C-FG				FCC12-SS		12
LPC16-M16-C-FG				FCC16-SS	SS-M16	16
				FCC16-SS	SS-M20	16
LPC20-M20-C-FG	LPC20-050P-C-FG	LPC20-M20-C90-FG	LPC20-050P-C90-FG	FCC20-SS	SS-M20	20
LPC25-M25-C-FG	LPC25-075P-C-FG	LPC25-M25-C90-FG	LPC25-075P-C90-FG	FCC25-SS	SS-M25	25
LPC32-M32-C-FG	LPC32-100P-C-FG	LPC32-M32-C90-FG	LPC32-100P-C90-FG	FCC32-SS	SS-M32	32
LPC40-M40-C-FG				FCC40-SS	SS-M40	40
LPC50-M50-C-FG				FCC50-SS	SS-M50	50
LPC63-M63-C-FG*				FCC63-SS*	SS-M63*	63

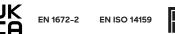
Other sizes coming soon

### **Standards**



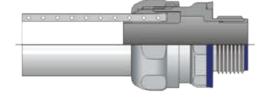












**Technical Drawing** 



\* refer to conduit properties for applicable standards





# Metallic conduit & fittings

We work with a range of material types including Galvanised Steel and Stainless Steel, and have developed composite solutions to enhance performance properties to suit technically demanding applications. Our Metallic Offer features over 35 systems, in a range of sizes from 10mm to 75mm.

Flexicon manufacture a range of helically wound conduits, with and without coatings, liquid tight conduits, pliable galvanised steel corrugated conduits and annularly corrugated conduits. Metallic systems can also be combined with overbraids to create composite solutions when required.



## **Key Features**

- High Compression Strength
- · High Pull Off Strength
- Wide Temperature Tolerances
- High Impact Strength
- EMC Screening Performance
- High IP Rating up to IP69
- Inherent Fire Performance Properties
- High Abrasion Resistance

# Key Features

- Suitable for heavy duty applications
- Maintains integrity of the system in extreme applications
- Suitable for a diverse range of operating environments
- Can withstand impact forces such as falling objects
- Protection against electromagnetic interference
- Reduced risk of water or dust ingress



















BS EN IEC 61386













# Metallic conduit selection guide

															- 3			
	Conduit System	E	SSU	FSU	FNU	LFHU	FPU	LTP	LTPAS	LTPHC	LTPLFH	LTPUL	LTPPU	LTPPUAS	LTPSS	LTBRDP	LTBRDLFH	
												#						
IP Rating	IP40 IP54 IP65 IP66 IP67			•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Compression Streng Pull Off Strength (kg Min Bend Radius (m	y) for 20mm size	350 120 45	400 170 45	350 120 45	350 120 45	350 120 45	350 120 45	400 130 65	400 130 65	400 130 65	400 130 100	500 160 90	400 130 65	400 130 65	400 130 65	400 130 65	400 130 130	
Colours High Fatigue Life		zinc	stain- less steel	black, grey, orange	black	black	black, blue	black, grey, orange	black, grey, orange	black	black	black	black, blue	black	black	black	black	
Тетр	Max Min	300°C -100°C	600°C -100°C	70°C -15°C	120°C -40°C	90°C -25°C	100°C -40°C	105°C -20°C	105°C -20°C	150°C -60°C	90°C -25°C	75°C -15°C	100°C -40°C	100°C -40°C	105°C -20°C	105°C -20°C	90°C -25°C	
Category	Flexible Pliable ***Inherent																	
Low Fire Hazard	** Extra * Standard  Halogen Free	LOW FIRE HAZARD	INMERIOR LOW FIRE HAZARD		•	COTIPA LOW FIRE HAZARD	•			•	CONTRA LOW FIRE HAZARD		•	•			CXTRA LOW FIRE HAZARD	
Fire Tests	Self Extinguishing EN 45545-2 NFPA-130	•	•			•					•			•			•	
Abrasion Resistance Resistance to solven		•	•		•		•						•	•				
UV Resistance			•	•	•		•	•	•	•	•	•	•	•	•	•	•	
EMC Performance																EMC SCREEN **	CNBUANCED EMC SCREEN	
Hazardous Locations								•	•	•	•	•	•	•	•	•	•	
Anti-Static		AS ANTI-STATE	AS ANTI-STATIC						AS ANTI-STATIC					AS ANTI-STATIC				
Approvals	UL Listed Lloyds London Underground Food Contact	•	•			•		•			•	•					•	
ROHS		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
REACH		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
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124 Accessories



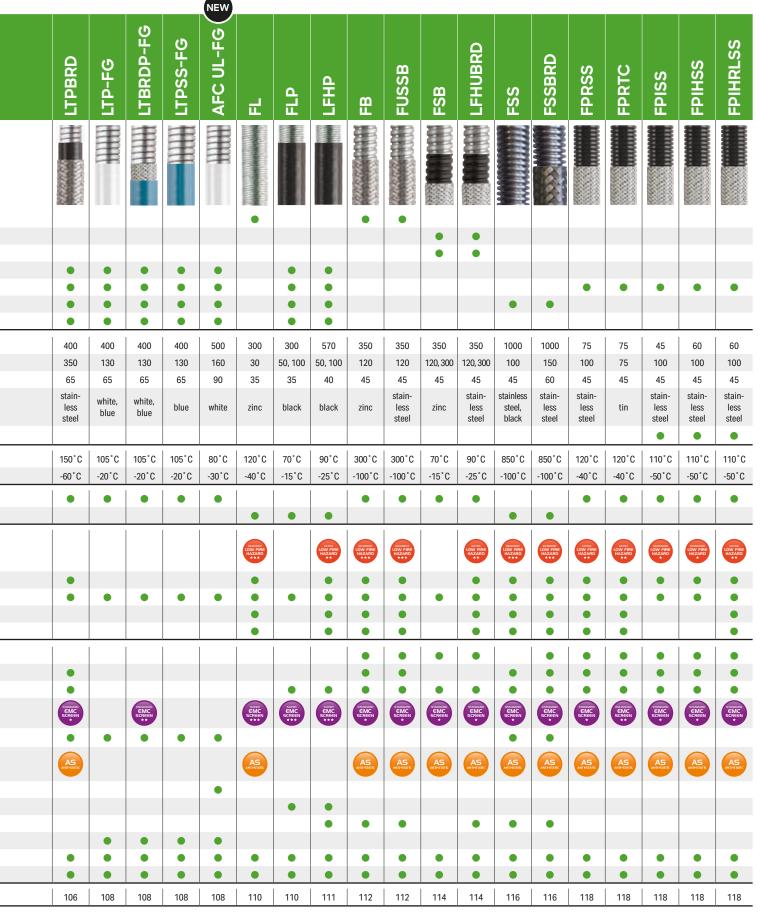
128 Contractor packs



132 Chemical resistance



# Metallic conduit selection guide





 $134 \; \textbf{Thread data}$ 



135 Technical guidance



144 Low fire hazard



# Metallic fittings selection guide

# Multipart

## **NPB**

























# **Liquid Tight**

# **NPB (Nickel Plated Brass)**



























# Stainless steel (316L)







101

# Other

# Hygienic



109





**Round Boxes** 



Clips



Strain Relief Glands



# Accessories

Insert

Cable Gland





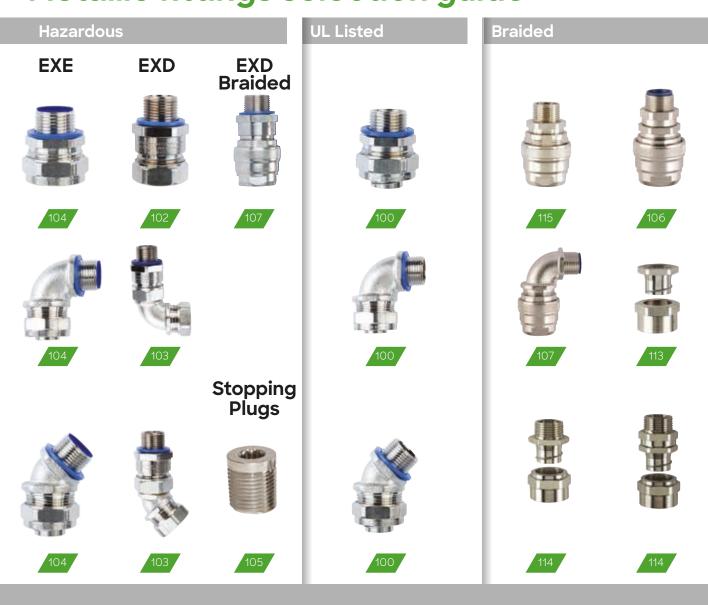


Locknuts





# Metallic fittings selection guide













117



Stopping Plugs



**Pliable** 



110

Accessories













Couplers









**Thread Converters** 



# FU & SSU system







## Galvanised steel and stainless steel

## Conduit



Construction: Galvanised steel, helically wound, flexible conduit.

**Typical Applications:** Underfloor wiring in office blocks inherent low fire hazard applications typically interior applications due to IP40 rating.

**Temp:** -100°C to +300°C





#### SSU

**Construction:** Stainless steel (grade 316L), helically wound, flexible conduit.

Colour: Stainless steel, self colour.

**Typical Applications:** Instrumentation and security or where enhanced corrosion performance is required.

**Temp:** -100°C to +600°C





# **Fittings**

#### M

# Fixed external thread nickel plated brass

Two part fitting comprising shell and body with external thread. This fitting can be inserted into a knockout and secured with a locknut.

IP40

### M-SS

# Fixed external thread stainless steel

Two part fitting comprising shell and body with external thread. This fitting can be inserted into a knockout and secured with a locknut.

IP40

#### S

# Swivel external thread nickel plated brass

Two part fitting comprising shell and body. The external thread swivels about the main body. Can be used with threaded entries, or knockout secured with a locknut.

IP40













nominal size (mm)	FU	part number	reel length (m)	ssu	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)
10	FU10⁺		25, 50	SSU10	+	10, 25, 50	9.0	6.8	25
12	FU12		25, 50	SSU12	+	10, 25, 50	13.0	10.2	$30^{\dagger}$
16	FU16		10, 25, 50	SSU16		10, 25, 50	16.0	13.0	40
16									
20	FU20		10, 25, 50	SSU20		10, 25	20.5	16.9	45
25	FU25		10, 25, 50	SSU25		10, 25	25.0	21.1	55
32	FU32		10, 25	SSU32		10, 25	32.0	28.1	60
40	FU40		10, 25	SSU40		10	42.5	37.6	80
50	FU50		10, 25	SSU50		10	53.0	48.4	90
63	FU63		10	SSU63	*	10	62.5	57.5	115
75	FU75		10				77.0	70.0	150

metric thread part number	PG thread part number	metric thread part number	metric thread part number	PG thread part number
FU10-M12-M	FU10-PG7-M	SSU10-M12-M	FU10-M12-S	FU10-PG7-S
FU12-M16-M	FU12-PG9-M	SSU12-M16-M	FU12-M16-S	FU12-PG9-S
FU16-M16-M	FU16-PG11-M	SSU16-M16-M	FU16-M16-S	FU16-PG11-S
FU16-M20-M			FU16-M20-S	FU16-PG13-S
FU20-M20-M	FU20-PG16-M	SSU20-M20-M	FU20-M20-S	FU20-PG16-S
FU25-M25-M	FU25-PG21-M	SSU25-M25-M	FU25-M25-S	FU25-PG21-S
FU32-M32-M	FU32-PG29-M	SSU32-M32-M	FU32-M32-S	FU32-PG29-S
FU40-M40-M	FU40-PG36-M	SSU40-M40-M	FU40-M40-S	FU40-PG36-S
FU50-M50-M	FU50-PG48-M	SSU50-M50-M	FU50-M50-S	FU50-PG42-S
FU63-M63-M		SSU63-M63-M*	FU63-M63-S	
FU75-M75-M				

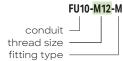
# **Ordering Notes**

- Add reel length eg: FU20-25M for
- Indicates parts made to order on request and may be subject to MOQ and lead time
- + Double interlock section
- † SSU12 Minimum bend radius is 50mm

#### Available on request:

- longer lengths and bulk packaging
- cut lengths and assemblies
- alternative threads

# How to read the fittings code





- High mechanical strength
- Highly flexible
- Inherently Low Fire Hazard (LFH) see page 144
- Fully compliant to LUL Std S1085 (Cert No. 296)
- Temperature range
- -100°C to +300°C (FU)
- -100°C to +600°C (SSU + SS fittings)
- -100°C to +400°C (SSU + NPB fittings)

S-SS	Р	F	FCC	90° Elbow
Swivel external thread stainless steel	Plain hole connector nickel plated brass	Fixed internal thread nickel plated brass	Plated steel P clip with pvc liner and secure	Internal and external threaded nickel
Two part fitting comprising shell and body. The external thread swivels about the main body. Can be used with threaded entries, or knockout secured with a locknut.	Two part fitting comprising shell and body without thread. The body is fitted through the opposite side of the entry to the conduit and acts as a locking device also providing a smooth entry bush.	Two part fitting comprising shell and body with internal thread which can be used to connect with an external thread.	stainless steel P clips P clip to support and secure conduit.	plated brass elbow 90° elbow which can be screwed onto external threaded fittings to create a 90° elbow termination.
IP40	IP40	IP40		

















metric thread part number	hole size (mm)	part number	metric thread part number	plated steel part number	stainless steel part number	part number	nominal size (mm)
SSU10-M12-S				FCC10	FCC10-SS*	BM90-PG7*	10
SSU12-M16-S	12	FU12-P		FCC12	FCC12-SS	BM90-16M	11
SSU16-M16-S	16	FU16-P	FU16-M16-F	FCC16	FCC16-SS	BM90-16M	13
			FU16-M20-F	FCC16	FCC16-SS	BM90-20M	13
SSU20-M20-S	20	FU20-P	FU20-M20-F	FCC20	FCC20-SS	BM90-20M	16
SSU25-M25-S	25	FU25-P	FU25-M25-F	FCC25	FCC25-SS	BM90-25M	18
SSU32-M32-S	32	FU32-P	FU32-M32-F	FCC32	FCC32-SS	BM90-32M	20
	40	FU40-P	FU40-M40-F	FCC40	FCC40-SS	BM90-40M	21
	51	FU50-P	FU50-M50-F	FCC50	FCC50-SS	BM90-50M	25
	61	FU63-P	FU63-M63-F	FCC63	FCC63-SS*		28
	75	FU75-P		FCC75			34

# **Standards**



BS EN IEC 61386

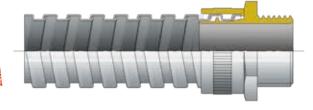








# **Technical Drawing**



Note: refer to conduit properties for applicable standards





# FSU & FNU system







# Galvanised steel PVC or nylon coated

## Conduit

## FSU

Construction: Galvanised steel, helically wound, flexible conduit with PVC coating.

Colour: Black and Grey. Orange available on request\*.

Typical Applications: General factory wiring and connections

**Temp:** -15°C to +70°C

# FNU

Construction: Galvanised steel, helically wound, flexible conduit with elastomeric nylon coating.

Colour: Black.

**Typical Applications:** Demanding applications requiring higher temperatures or solvent and abrasion resistance.

**Temp:** -40°C to +120°C

# **Fittings**

#### Fixed external thread nickel plated brass

Two part fitting comprising shell and body with external thread. This fitting can be inserted into a knockout and secured with a locknut.

# Swivel external thread

nickel plated brass

Two part fitting comprising shell and body. The external thread swivels about the main body. Can be used with threaded entries, or knockout secured with a locknut.

#### Plain hole connector nickel plated brass

Two part fitting comprising shell and body without thread. The body is fitted through the opposite side of the entry to the conduit and acts as a locking device also providing a smooth entry bush.













nominal size (mm)	FSU	reel length (m)	FNU	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)
10	FSU10B+	25, 50				10.0	6.8	25
12	FSU12B	25, 50				14.0	10.2	30
16	FSU16B	10, 25, 50	FNU16	B*	25	17.0	13.0	40
16								
20	FSU20B	10, 25, 50	FNU20	B*	25	21.5	16.9	45
25	FSU25B	10, 25, 50	FNU25	B*	25	26.0	21.1	55
32	FSU32B	10, 25	FNU32	B*	25	34.0	28.1	60
40	FSU40B	10, 25				44.5	37.6	90
50	FSU50B	10, 25				55.0	48.4	100
63	FSU63B	10				64.5	57.5	115
75	FSU75B	10				79.0	70.0	150

metric thread part number	PG thread part number	metric thread part number	PG thread part number	hole size (mm)	part number
FSU10-M12-M	FSU10-PG7-M	FSU10-M12-S	FSU10-PG7-S	9	FSU10-P
FSU12-M16-M	FSU12-PG9-M	FSU12-M16-S	FSU12-PG9-S	12	FSU12-P
FSU16-M16-M	FSU16-PG11-M	FSU16-M16-S	FSU16-PG11-S	16	FSU16-P
FSU16-M20-M		FSU16-M20-S	FSU16-PG13-S		
FSU20-M20-M	FSU20-PG16-M	FSU20-M20-S	FSU20-PG16-S	20	FSU20-P
FSU25-M25-M	FSU25-PG21-M	FSU25-M25-S	FSU25-PG21-S	25	FSU25-P
FSU32-M32-M	FSU32-PG29-M	FSU32-M32-S	FSU32-PG29-S	32	FSU32-P
FSU40-M40-M	FSU40-PG36-M	FSU40-M40-S	FSU40-PG36-S	40	FSU40-P
FSU50-M50-M	FSU50-PG48-M	FSU50-M50-S	FSU50-PG42-S	51	FSU50-P
FSU63-M63-M		FSU63-M63-S		61	FSU63-P
FSU75-M75-M				75	FSU75-P

# **Ordering Notes**

- Add reel length eg: FSU20-25M for 25m reel
- FSU fittings used for FNU conduit
- \* Indicates parts made to order on request and may be subject to MOQ and lead time
- + Double interlock section
- Grey and other colours may be subject to MOQ and lead times

#### Available on request:

- longer lengths and bulk packaging
- cut lengths and assemblies
- other colours
- stainless steel fittings (grade 316L)
- alternative threads
- 45° elbows 16 to 32mm

# How to read the fittings code

FU10-M12-M conduit thread size fitting type





- High mechanical strength
- Highly flexible
- IP rating: IP54 with standard fittings, IP65 with type C compression fittings
- Temperature range
- -15°C to +70°C (FSU)
- -40°C to +120°C (FNU)

- FNU offers high abrasion resistance and solvent resistance
- Low Fire Hazard version available (see type LFHU on page 92)
- Nickel plated brass fittings
- Vibration and shock tested to EN 61373 Cat 2

• Thread face sealing washers may be required to maintain IP rating at the connection to other equipment, see page 124

F	C	C-S	C90	Coupler	E
Fixed internal thread nickel plated brass Two part fitting comprising shell and body with internal thread which can be used to couple two pieces of conduit together when used with a swivel fitting.	External thread nickel plated brass  Multipart compression fitting including elastomeric seal. Can be used for knockouts or threaded entries as fitting rotates until tightened.	External thread nickel plated brass Multipart compression fitting including elastomeric seal. The external thread swivels about the main body even after tightening.	External thread elbow nickel plated brass Multipart 90° compression fitting including elastomeric seal.	Nickel plated brass Multipart compression coupler to connect two conduits together.	Insert nickel plated brass Single part, machined insert to cap end of conduit.
IP54	IP65	IP65	IP65	IP65	













metric thread part number	metric thread part number	PG thread part number	NPT thread part number	metric thread part number	metric thread part number	part number	part number	nominal size (mm)
							FSU10-E	10
	FSU12-M16-C	FSU12-PG9-C		FSU12-M16-C-S	FSU12-M16-C90		FSU12-E	12
FSU16-M16-F	FSU16-M16-C	FSU16-PG11-C	FSU16-050-C	FSU16-M16-C-S	FSU16-M16-C90	FSU16-FSU16	FSU16-E	16
FSU16-M20-F	FSU16-M20-C	FSU16-PG13-C		FSU16-M20-C-S	FSU16-M20-C90		FSU16-E	16
FSU20-M20-F	FSU20-M20-C	FSU20-PG16-C	FSU20-050-C	FSU20-M20-C-S	FSU20-M20-C90	FSU20-FSU20	FSU20-E	20
FSU25-M25-F	FSU25-M25-C	FSU25-PG21-C	FSU25-075-C	FSU25-M25-C-S	FSU25-M25-C90	FSU25-FSU25	FSU25-E	25
FSU32-M32-F	FSU32-M32-C	FSU32-PG29-C	FSU32-100-C	FSU32-M32-C-S	FSU32-M32-C90	FSU32-FSU32	FSU32-E	32
FSU40-M40-F	FSU40-M40-C						FSU40-E	40
FSU50-M50-F	FSU50-M50-C						FSU50-E	50
FSU63-M63-F							FSU63-E	63
							FSU75-E	75

Also available in a Contractor Pack - see page 128

# **Standards**

BS EN IEC 61386

















# LFHU system

**Galvanised steel LFH coated** 

# **FPU system**

# Galvanised steel polyurethane coated

## Conduit

## LFHU

Construction: Galvanised steel, helically wound, flexible steel conduit with Low Fire Hazard (LFH) coating.

Colour: Black.

Typical Applications: Public and commercial buildings and tunnels where low fire hazard performance is a requirement.

**Temp:** -25°C to +90°C



# FPU



Construction: Galvanised steel, helically wound, flexible steel conduit with low temperature, high abrasion, high fatigue life halogen free polyurethane coating.

Colour: Black and Metallic Blue

Typical Applications: Where low temperature and mechanical strength are important.

**Temp:** -40°C to +100°C

## **Fittings**

#### Fixed external thread nickel plated brass

Two part fitting comprising shell and body with external thread. This fitting can be inserted into a knockout and secured with a locknut.

#### Swivel external thread nickel plated brass

Two part fitting comprising shell and body. The external thread swivels about the main body. Can be used with threaded entries, or knockout secured with a locknut.

#### Plain hole connector nickel plated brass

Two part fitting comprising shell and body without thread. The body is fitted through the opposite side of the entry to the conduit and acts as a locking device also providing a smooth entry bush.









П





П



LFHU	part number	reel length (m)	FPU	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min in side bend radius (mm)
LFHU12	2B*	25	FPU12	B*	25	14.0	10.2	30
LFHU16	BB.	25, 50	FPU16	В	25	17.0	13.0	40
LFHU20	)B	10, 25, 50	FPU20	В	25, 50	21.5	16.9	45
LFHU25	iΒ	10, 25, 50	FPU25	В	25, 50	26.0	21.1	55
LFHU32	2B	10, 25	FPU32	В	25	34.0	28.1	80
LFHU40	)B	10, 25	FPU40	В*	10	44.5	37.6	90
LFHU50	)B	10, 25	FPU50	B*	10	55.0	48.4	100
LFHU63	BB	10	FPU63	В*	10	64.5	57.5	115
LFHU75	iB	10	FPU75	B*	10	79.0	70.0	150

metric thread part number	PG thread part number	metric thread part number	PG thread part number	hole size (mm)	part number
FSU12-M16-M	FSU12-PG9-M	FSU12-M16-S	FSU12-PG9-S	12	FSU12-P
FSU16-M16-M	FSU16-PG11-M	FSU16-M16-S	FSU16-PG11-S	16	FSU16-P
FSU16-M20-M		FSU16-M20-S	FSU16-PG13-S		
FSU20-M20-M	FSU20-PG16-M	FSU20-M20-S	FSU20-PG16-S	20	FSU20-P
FSU25-M25-M	FSU25-PG21-M	FSU25-M25-S	FSU25-PG21-S	25	FSU25-P
FSU32-M32-M	FSU32-PG29-M	FSU32-M32-S	FSU32-PG29-S	32	FSU32-P
FSU40-M40-M	FSU40-PG36-M	FSU40-M40-S	FSU40-PG36-S	40	FSU40-P
FSU50-M50-M	FSU50-PG48-M	FSU50-M50-S	FSU50-PG42-S	51	FSU50-P
FSU63-M63-M		FSU63-M63-S		61	FSU63-P
FSU75-M75-M				75	FSU75-P

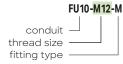
# **Ordering Notes**

- · Add reel length eg: LFHU20B-25M for 25m reel
- FSU fittings used on LFHU conduit
- For metallic blue change B to BU eg FPU20BU-25M
- \* Indicates parts made to order on request and may be subject to MOQ and lead time
- · Metallic Blue may be subject to MOQ and lead times

#### · Available on request:

- longer lengths and bulk packaging
- cut lengths and assemblies additional sizes
- stainless steel fittings (grade 316L)
- alternative threads
- 45° C type elbows 16 to 32mm

# How to read the fittings code



#### Important Note

• For LFH performance see page 144

nominal size (mm)



- High mechanical strength
- Highly flexible
- IP rating: IP54 with standard fittings, IP65 with type C compression fittings
- Extra low Fire Hazard
- · UL94 V0, for LFH see page 148 (LFHU)
- High fatigue life and high abrasion resistant (FPU)
- Halogen, sulphur and phosphorus free
- · Compliant to LUL Std S1085 (LFHU) (Cert No. 297)
- EN45545-2 HL3 for LFHU
- Temperature range:
- -25°C to +90°C (LFHU)
- -40°C to +100°C (FPU)
- Nickel plated brass fittings

- Vibration and shock tested to EN61373 Cat 2
- Thread face sealing washers may be required to maintain IP rating at the connection to other equipment, see page 124

F	С	C-S	C90	Coupler	E
Fixed internal thread nickel plated brass	External thread nickel plated brass Multipart compression fitting including elastomeric seal. Can be used for	External thread nickel plated brass	External thread elbow nickel plated brass	Nickel plated brass Multipart	Insert nickel plated brass Single part,
Two part fitting comprising shell and body with internal thread which can be	knockouts or threaded entries as fitting rotates until tightened.	Multipart compression fitting including elastomeric seal.	Multipart 90° compression fitting including elastomeric seal.	compression coupler to connect two conduits together.	machined insert to cap end of conduit.
used to couple two pieces of conduit together when used with a swivel fitting.		The external thread swivels about the main body even after tightening.			
IP54	IP65	IP65	IP65	IP65	















metric thread part number	metric thread part number	PG thread part number	NPT thread part number	metric thread part number	metric thread part number	part number	part number	nominal size (mm)
	FSU12-M16-C	FSU12-PG9-C		FSU12-M16-C-S	FSU12-M16-C90		FSU12-E	12
FSU16-M16-F	FSU16-M16-C	FSU16-PG11-C	FSU16-050-C	FSU16-M16-C-S	FSU16-M16-C90	FSU16-FSU16	FSU16-E	16
FSU16-M20-F	FSU16-M20-C	FSU16-PG13-C		FSU16-M20-C-S	FSU16-M20-C90		FSU16-E	16
FSU20-M20-F	FSU20-M20-C	FSU20-PG16-C	FSU20-050-C	FSU20-M20-C-S	FSU20-M20-C90	FSU20-FSU20	FSU20-E	20
FSU25-M25-F	FSU25-M25-C	FSU25-PG21-C	FSU25-075-C	FSU25-M25-C-S	FSU25-M25-C90	FSU25-FSU25	FSU25-E	25
FSU32-M32-F	FSU32-M32-C	FSU32-PG29-C	FSU32-100-C	FSU32-M32-C-S	FSU32-M32-C90	FSU32-FSU32	FSU32-E	32
FSU40-M40-F	FSU40-M40-C						FSU40-E	40
FSU50-M50-F	FSU50-M50-C						FSU50-E	50
FSU63-M63-F							FSU63-E	63
							FSU75-E	75

# **Standards**















Note: refer to conduit properties for applicable standards





# **Liquid Tight Conduits range**

## **Metallic Conduits**



#### LTP



**Construction:** Galvanised steel, helically wound, flexible conduit with smooth oil resistant and high temperature PVC cover.

**Colour:** Black. Grey or Orange on request

Typical Applications: High mechanical strength combined with extremely high IP rating (IP68 and IP69) suitable for external applications where fire performance is not a consideration such as external car park barriers and systems.

**Special Characteristics:** Oil resistant and self extinguishing.

- · High mechanical strength
- IP rating: IP66 + IP67 + IP68 (5 bar 1hr) + IP69
- · Smooth, wipe clean outer cover
- · Cover does not wrinkle when bent
- Temperature range -20°C to +105°C
- Good flexibility

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- Lloyd's Register Type Approval
- Resistant to oils and greases
- Vibration and shock tested to EN61373 Cat 2
- Black, Grey and Orange are UV resistant and suitable for external use
- Also available as a Hygienic version with a coating manufactured from FDA approved ingredients - see page 108

#### LTPAS



**Construction:** Galvanised steel, helically wound, flexible conduit with smooth oil resistant and high temperature PVC cover.

Colour: Black. Grey on request Typical Applications: High mechanical strength combined with extremely high IP rating (IP68 and IP69) suitable for external applications where fire performance is not a consideration.

Special Characteristics: Oil resistant and self extinguishing. LTPAS As per LTP but with an anti-static performance coating.

- · High mechanical strength
- IP rating: IP66 + IP67 + IP68 (5 bar 1hr) + IP69
- Smooth, wipe clean outer cover
- Cover does not wrinkle when bent
- Temperature range -20°C to +105°C
- · Good flexibility
- UV resistant (black) and suitable for external use
- Anti-Static performance coating to EN60079-0
- Resistant to oils and greases
- Vibration and shock tested to EN61373 Cat 2

#### LTPHC



#### Colour: Black

Typical Applications: High mechanical strength combined with high and low temperature performance, combined with

performance, combined with extremely high IP rating (IP68 and IP69) suitable for external applications where fire performance is not a consideration.

Special Characteristics: Wide temperature range performance. Good flexibility at low and high temperatures.

- High mechanical strength
- IP rating: IP66 + IP67 + IP68 (5 bar 1hr) + IP69
- Temperature range -60°C to +150°C
- Good flexibility
- UV resistant (black) and suitable for external use
- Resistant to oils and greases
- Vibration and shock tested to EN61373 Cat 2

# LTPLFH



**Construction:** Galvanised steel, helically wound, flexible conduit with smooth oil resistant Low Fire Hazard (LFH) cover.

#### Colour: Black

Typical Applications: High mechanical strength combined with extremely high IP rating (IP68 and IP69) suitable for internal and external applications where fire performance is a requirement. APR 2020.

**Special Characteristics:** As per LTP but where Extra Low Fire Hazard performance is required.

- · High mechanical strength
- IP rating: IP66 + IP67 + IP68 (5 bar 1hr) + IP69
- · Smooth, wipe clean outer cover
- Cover does not wrinkle when bent
- Temperature range -25°C to +90°C (LTPLFH)
- Good flexibility
- UV resistant (black) and suitable for external use
- Resistant to oils and greases
- Compliant to LUL Std S1085 (LTPLFH) Cert No. 2020
- EN 45545 to HL3
- Vibration and shock tested to EN61373 Cat 2

nominal size (mm)	(") ezisede size		ם ב	inside dia (mm)	LTP	part number	reel length (m)	min inside bend radius (mm)	LTPAS	part number	reel length (m)	,	radius (mm)	ГТРНС	part number	reel length (m)	min inside bend radius (mm)	LTPLFH	part number	reel length (m)	min inside bend radius (mm)	
10	1/4	11	.8	7.0	LTP10B	•	50	35														
10	)																					
12	5/1	14	1.2 1	10.0	LTP12B		25, 50	40						LTPHC	12B⁺	25	40					
16	3/8	17	'.8   1	12.6	LTP16B	10	0, 25, 50	45	LTPAS1	6B*	25		45	LTPHC	16B	25	45	LTPLF	116B	25	60	
16	5																					
20	1/2	21	.1 1	16.0	LTP20B	10	0, 25, 50	65	LTPAS2	:0B*	25		65	LTPHC	20B	25	65	LTPLF	120B	25	100	
25	3/4	26	6.4 2	21.0	LTP25B	10	0, 25, 50	100	LTPAS2	5B*	25	1	100	LTPHC	25B	25	100	LTPLF	125B	25	130	
32	1	33	3.1 2	26.5	LTP32B	10	0, 25, 50	135	LTPAS3	2B*	25	1	135	LTPHC	32B	25	135	LTPLF	132B	10	180	
40	13	4 41	.8 3	35.4	LTP40B		10, 25	175	LTPAS4	0B*	10	1	175	LTPHC4	10B	10	175					
50	13	47	'.9 4	10.4	LTP50B	•	10, 25	230	LTPAS5	0B**	10	2	230	LTPHC	60B⁺	10	230					
63	2	59	1.7   5	51.6	LTP63B	•	10, 25	280	LTPAS6	3B**	10	2	280	LTPHC	3B**	10	280					

# **Ordering Notes**

- Add reel length eg: LTP20B-25M for a 25m reel
- For LTP specify colour (B = Black, G = Grey) Black and Grey. Orange available on request
- \* Indicates parts made to order on request and may be subject to MOQ and lead time
- + Double interlock section
- # PG & NPT threads not supplied with insulated throats
- Available on request:
- longer lengths and bulk packaging
- cut lengths and assemblies
- other colours



# **Liquid Tight Conduits range**



#### LTPUL

Construction: Galvanised steel, helically wound, flexible steel conduit including copper bonding strip (up to 40mm) with smooth PVC cover.

Colour: Black

Typical Applications: As for LTP but where UL listing or CSA approval is required.

#### Special Characteristics: UL listed and CSA approved.

- · High mechanical strenath
- IP rating: IP66 + IP67 + IP68 (5 bar 1hr) + IP69
- · Smooth, wipe clean outer cover
- · Cover does not wrinkle
- · Temperature range -15°C to +75°C (LTPUL)
- · Good flexibility
- · UV resistant (Black) and suitable for external use
- · Resistant to oils and greases
- For UL listed fittings see page 104
- · Vibration and shock tested to EN61373 Cat 2
- · Also available as Hygienic version see page 108

#### LTPPU

Construction: Galvanised steel, helically wound, flexible steel conduit with smooth halogen free polyurethane cover.

Colour: Black (B) and Blue (BU)(RAL 5012)

Typical Applications: High mechanical strength with low temperature and high abrasion resistance, combined with extremely high IP rating (IP68 and IP69) suitable for external applications where fire performance is not a requirement.

#### Special Characteristics:

Low temperature performance, high abrasion and high fatigue life.

- High mechanical strength
- Good flexibility
- IP rating: IP66 + IP67 + IP68 (5 bar 1hr) + IP69
- · Smooth, wipe clean outer cover
- Cover does not wrinkle when bent
- · Resistant to oils & greases
- · Temperature range: -40°C to +100°C
- UV resistant and suitable for external use
- · High abrasion, high fatigue life
- Vibration and shock tested to EN61373 Cat 2

#### LTPPUAS



Colour: Black (B) and Blue (BU) (RAL 5015)

Typical Applications: High mechanical strength with low temperature and high abrasion resistance, combined with extremely high IP rating (IP68 and IP69) suitable for external applications where fire performance is not a requirement.

Special Characteristics: Low temperature performance, high abrasion and high fatigue life.

LTPPUAS As per LTPPU but with an anti-static performance coating.

- · High mechanical strength
- Good flexibility
- IP rating: IP66 + IP67 + IP68 (5 bar 1hr) + IP69
- · Smooth, wipe clean outer cover
- · Cover does not wrinkle when bent
- · Resistant to oils & greases
- Temperature range: -40°C to +100°C
- UV resistant and suitable for external use
- Vibration and shock tested to FN61373 Cat 2
- Anti-Static performance coating to EN60079-0

### LTPSS

Construction: Stainless steel (316L), helically wound, flexible conduit with oil resistant and high temperature pvc smooth cover.

Colour: Black

Typical Applications: Machinery or outdoor applications where high corrosion resistance and liquid tight are a requirement.

#### **Special Characteristics:**

Enhanced corrosion resistance performance.

- · High mechanical strength
- · Good flexibility
- IP rating: IP66 + IP67 + IP68 (5 bar 1hr) + IP69
- · Smooth, wipe clean outer cover
- · Cover does not wrinkle when bent
- · Resistant to oils & greases
- Temperature range: -20°C to +105°C
- UV resistant and suitable for external use
- Vibration and shock tested to EN61373 Cat 2
- · Also available as a Hygienic version with a coating manufactured from FDA approved ingredients - see page 108

	part number	reel length (m)	min inside bend radius (mm)	LTPPU	part number	inside dia (mm)	min inside bend radius (mm)	LTPPUAS	part number	reel length (m)	min inside bend radius (mm)	LTPSS	part number	reel length (m)	min inside bend radius (mm)	US trade size (")	nominal size (mm)
				LTPPU	J10*	25	35									1/4	10
																	10
				LTPPU	J12*	25	40									5∕16	12
67	01-30-BK	30.5	50	LTPPU	J16*	25	45	LTPPU	AS16*	25	45	LTPSS1	6*	25	45	3/8	16
																	16
67	02-30-BK	30.5	90	LTPPU	J20*	25	65	LTPPU	AS20*	25	65	LTPSS2	.0	25	65	1/2	20
67	03-30-BK	30.5	110	LTPPU	J25*	25	100	LTPPU	AS25*	25	100	LTPSS2	!5	25	100	3/4	25
67	04-30-BK	30.5	140	LTPPU	J32*	25	135	LTPPU	AS32*	25	135	LTPSS3	32	10	135	1	32
670	05-24-BK	15.2	180	LTPPU	J40*	10	175	LTPPU	AS40*	10	175	LTPSS4	10	10	180	11/4	40
670	06-24-BK*	15.2	230	LTPPU	J50**	10	230	LTPPU	AS50**	10	230	LTPSS5	0⁺	10	230	1½	50
670	07-24-BK <sup>+</sup>	15.2	280	LTPPL	J63**	10	280	LTPPU	AS63**	10	280	LTPSS6	3⁺	10	280	2	63

## **Standards**

















# **Technical Drawing**



LTPPU, LTPPUAS

Note: refer to conduit properties for applicable standards



# **Liquid Tight Conduits range**



#### **LTBRDP**

Construction: Galvanised steel, helically wound, flexible conduit with galvanised steel braid and oil resistant and high temperature pvc smooth cover.

Colour: Black

Typical Applications: Machinery or outdoor applications where high corrosion resistance and liquid tight are a requirement combined with EMC screening

Special Characteristics: Good flexibility and EMC screening.

- · High mechanical strength
- · Good flexibility
- IP rating: IP66 + IP67 + IP68 (5 bar 1hr) + IP69
- · Smooth, wipe clean outer cover
- · Cover does not wrinkle when bent
- · Resistant to oils & greases
- Temperature range: -20°C to +105°C
- · UV resistant and suitable for external use
- · Vibration and shock tested to EN61373 Cat 2
- · Provides EMC screening
- · Also available as a Hygienic version with a coating manufactured from FDA approved ingredients - see

# LTBRDL

Construction: Galvanised steel. helically wound, flexible conduitwith galvanised steel braid, with smooth oil resistant Low Fire Hazard (LFH) cover.

Colour: Black

Typical Applications: Installations where liquid tight is a requirement and where low fire hazard properties and EMC screening are required.

Special Characteristics: As per LTP but where Extra Low Fire Hazard performance is required.

- · High mechanical strength
- Good flexibility
- IP rating: IP66 + IP67 + IP68 (5 bar 1hr) + IP69
- · Smooth, wipe clean outer cover
- Cover does not wrinkle when bent
- Resistant to oils & greases
- · Temperature range: -20°C to +90°C
- UV resistant and suitable for external use
- · Vibration and shock tested to EN61373 Cat 2
- · Provides EMC screening
- Extra Low Fire Hazard UL94 VO (for LFH see page 144)
- Compliant to LUL Std S1085 (Cert No. 658)
- EN 45545 to HI 3

#### FCC

#### Plated steel P clip with PVC

P clip to support and secure conduit.

#### FCC-SS

Stainless steel (316L) P clips P clip to support

conduit.

# Insert nickel

plated brass

machined insert to cap end of







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LTBRDP20B

LTBRDP25B

LTBRDP32B

LTBRDP40B

LTBRDP50B\*

LTBRDP63B\*

65

100

120

140

180

LTBRDLFH20B

LTBRDLFH25B

LTBRDLFH32B\*

25

25

25

min ins radius	
130	
200	

270

plated steel part numbe	
FCC10	
FCC12	
FCC16	
FCC16	
	ı

FCC20

FCC25

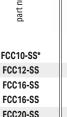
FCC32

FCC40

FCC50

FCC63

part numbe
FCC10-S
FCC12-
FCC16-



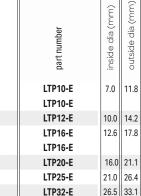
FCC25-SS

FCC32-SS

FCC40-SS

FCC50-SS

FCC63-SS\*



LTP40-E

LTP50-E

LTP63-E

# **Technical Drawing**

25

25

25

10



LTBRDP & LTBRDLFH

nominal size (mm)

10

16

63

1/4 10

5∕16 12

3/8 16

1/2 20

3/4 25

1 32

35.4 41.8 11/4 40

40.4 47.9 1½ 50

51.6 59.7



# **Metallic Conduit and Fittings**

To make your selection from our wide range of flexible conduits easier, we have devised a table (see below) which offers a one page summary to help you when you come to select your fittings.

We have a wide selection of fittings that can be used with the conduits listed below.



Using this fold out page will illustrate the wide range of liquid tight metallic conduits we offer. There are ten different metallic conduit families listed in this spread and these are detailed across Pages 94 - 96.

#### **Ordering Notes**

Once you have chosen your conduit from our wide range of products listed on Pages 94, 95 and 96, simply use this fold out page as a guide to see which fittings correspond with your selected conduit.

The fold out conduit summary chart below lines up with the respective subsequent fittings pages to allow you to still see your selected conduit, whilst selecting your fittings.





# Looking for Cable Protection for Hygienic Applications?

See pages 108 & 109 for futher details on our new Liquid Tight Hygienic Range.



LTPUL63B

# Standards & Approvals

LTPAS63B



LTP63B

59.7 51.6

63















LTPHC63B





LTPPU63

LTPPUAS63

LTPSS63

LTBRDP63B



# **Liquid Tight Conduit fittings**

# Nickel plated brass fittings







IP69

# **Fittings**

С	C-S	C-F	C-SF
External thread nickel plated brass  Multipart compression fitting including elastomeric seal. Can be used for knockout or threaded entries as fitting rotates until tightened.	Swivel external thread nickel plated brass  Compression fitting for knockout or threaded entries.  Multipart compression fitting including elastomeric seal. The external thread swivels about the main body even after tightening.	Internal thread nickel plated brass  Multi part compression fitting including elastomeric seal to connect with an external thread.	Swivel internal thread nickel plated brass  Multi part compression fitting including elastomeric seal. Swivel internal thread makes it suitable for connection to male threads. Internal thread swivels about the main body even after tightening.
IP66 IP67 IP68 IP69	IP66 IP67 IP68 IP69	IP66 IP67 IP68 IP69	IP66 IP67 IP68 IP69









nominal size (mm)	US trade size (")	metric thread part number	Zfor PG thread size	for NPT thread size	metric thread part number	metric thread part number	metric thread part number
10	1/4	LTP10-M12-C	PG7				
10		LTP10-M16-C					
12	5∕16	LTP12-M16-C	PG9		LTP12-M16-S		
16	3/8	LTP16-M16-C	PG11	050 (%")	LTP16-M16-S		
16		LTP16-M20-C	PG13		LTP16-M20-S		LTP16-M20-SF
20	1/2	LTP20-M20-C	PG16	050 (1/2")	LTP20-M20-S	LTP20-M20-F	LTP20-M20-SF
25	3/4	LTP25-M25-C	PG21	075 (¾")	LTP25-M25-S	LTP25-M25-F	LTP25-M25-SF
32	1	LTP32-M32-C	PG29	100 (1")	LTP32-M32-S	LTP32-M32-F	
40	11/4	LTP40-M40-C	PG36	125 (11/4")	LTP40-M40-S	LTP40-M40-F	
50	1½	LTP50-M50-C	PG42	150 (1½")	LTP50-M50-S	LTP50-M50-F	
63	2	LTP63-M63-C	PG48	200 (2")			

<sup>#</sup> When ordering PG or NPT please see notes in properties.

# **Ordering Notes**

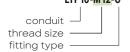
- Add reel length eg: LTP20B-25M for a 25m reel
- For LTP specify colour (B = Black, G = Grey)
- \* Indicates parts made to order on request and may be subject to MOQ and lead time
- + Double interlock section

#### · Available on request:

- longer lengths and bulk packaging
- cut lengths and assemblies
- C-S with PG threads
- other colours
- internal thread fittings

# How to read the fittings code

**Note:** For PG or NPT thread types please insert thread size listed to obtain part number



LTP10-M12-C i.e LTP16-PG13-C or LTP16-050-C



- · High mechanical strength
- IP rating: IP66 + IP67 + IP68 (5 bar 1hr) + IP69
- Temperature range: -50°C to +135°C
- Oil resistant
- UV resistant
- Nickel Plated Brass Fittings
- Earthing ferrule is manufactured in machined Nickel Plated Brass to facilitate easy assembly and re-use
- · Stainless steel fittings also available see page 101
- Metric threads supplied with Insulated Throats
- PG and NPT threads supplied without Insulated Throats
- Swivel fittings allows the thread to swivel about the main body even after tightening
- For compatible conduits see page 94, 95 and 96
- Vibration and shock tested to EN61373 Cat 2
- Conforms to EN 61386
- · Interchangeable with all Liquidtight conduits made to American (UL360) sizes.
- For UL listed fittings see page 100
- Thread face sealing washers may be required to maintain IP rating at the connection to other equipment, see page 124

#### C90 C45 Coupler External thread External thread Nickel plated brass Fibre, retained face Insert nickel plated brass nickel plated brass nickel plated brass sealing washers Single part, machined insert to Multi part compression coupler including elastomeric seals to 90° multipart compression 45° multipart Retained sealing cap end of conduit. compression fitting including elastomeric washer to maintain IP rating of fitting to fitting including elastomeric seal. Can connect two conduits together. seal. Can be used for knockouts. be used for knockouts. adjacent equipment.











metric thread part number	metric thread part number	part number	metric thread part number	part number	US trade size (")	nominal size (mm)
				LTP10-E	1/4	10
				LTP10-E		10
LTP12-M16-C90				LTP12-E	5/16	12
LTP16-M16-C90				LTP16-E	3/8	16
LTP16-M20-C90	LTP16-M20-C45	LTP16-LTP16	FW16	LTP16-E		16
LTP20-M20-C90	LTP20-M20-C45	LTP20-LTP20	FW20	LTP20-E	1/2	20
LTP25-M25-C90	LTP25-M25-C45	LTP25-LTP25	FW25	LTP25-E	3/4	25
LTP32-M32-C90	LTP32-M32-C45	LTP32-LTP32	FW32	LTP32-E	1	32
LTP40-M40-C90	LTP40-M40-C45	LTP40-LTP40	FW40	LTP40-E	11/4	40
LTP50-M50-C90	LTP50-M50-C45		FW50	LTP50-E	1½	50
LTP63-M63-C90	LTP63-M63-C45		FW63	LTP63-E	2	63

# **Standards & Approvals**



BS EN IEC 61386

















# **Liquid Tight Conduit fittings**











# **Fittings**







# C-UL

External thread nickel plated brass Multipart compression fitting including nylon compression seal. Can be used for knockout or threaded entries as fitting rotates until tightened. UL Listed to UL514B.

### C-UL90

External thread nickel plated brass 90° multipart compression fitting including nylon compression seal. Can be used for knockouts. UL Listed to UL514B.

#### C-UL45

External thread nickel plated brass 45° multipart compression fitting including nylon compression seal. Can be used for knockouts. UL Listed to UL514B.









nominal size (mm)	US trade size (")	metric thread part number	NPT thread thread size		metric thread part number	metric thread part number
10	1/4					
10						
12	5∕16					
16	3/8	LTP16-M20-CUL	LTP16-050-CUL	(3/8")	LTP16-M20-CUL90	LTP16-M20-CUL45
16						
20	1/2	LTP20-M20-CUL	LTP20-050-CUL	(1/2")	LTP20-M20-CUL90	LTP20-M20-CUL45
25	3/4	LTP25-M25-CUL	LTP25-075-CUL	(3/4")	LTP25-M25-CUL90	LTP25-M25-CUL45
32	1	LTP32-M32-CUL	LTP32-100-CUL	(1")	LTP32-M32-CUL90	LTP32-M32-CUL45
40	11/4	LTP40-M40-CUL	LTP40-125-CUL	(11/4")	LTP40-M40-CUL90	LTP40-M40-CUL45
50	1½	LTP50-M50-CUL	LTP50-150-CUL	(11/2")	LTP50-M50-CUL90	LTP50-M50-CUL45
63	2	LTP63-M63-CUL	LTP63-200-CUL	(2")	LTP63-M63-CUL90	LTP63-M63-CUL45



# How to read the fittings code

LTP20-M20-CUL

conduit thread size fitting type



- High mechanical strength
- IP rating: IP66 + IP67 + IP68 (5 bar 1hr) + IP69
- Temperature range: -50°C to +135°C
- Oil resistant
- UV resistant
- Earthing ferrule is manufactured in machined Nickel Plated Brass to facilitate easy assembly and re-use UL Listed fittings:
- Nickel Plated Brass Fittings

- C-UL fittings listed to UL514B
- UL Listed for use in USA and Canada, UL file No. E247502 (ordinary locations). Suitable for use in hazardous locations as per NEC: Article 501 (B)(2), Class I Div 2. Article 502 (A)(2) & (B)(2) Class II Div 1&2. Article 503 (A)(3) & (B)(3) Class III Div 1&2.
- · Supplied with face seal washer
- Metric Threads supplied with NPB locknut Stainless Steel fittings:
- Stainless steel fittings manufactured from SS316L - offer superior corrosion resistance
- Metric threads supplied with Insulated Throats
- · For compatible conduits see page 94, 95 and 96
- Vibration and shock tested to EN61373 Cat 2
- · Conforms to EN 61386
- · Interchangeable with all Liquidtight conduits made to American (UL360) sizes.

#### C90-SS C-SS Locknut-SS FCC-SS External thread External thread Stainless steel (316L) locknuts Stainless steel (316L) P clips stainless steel stainless steel (316L) Hexagonal locknut to secure fitting. 90° multipart compression fitting Multipart compression fitting P clip to support conduit. with Stainless Steel (316L) body and nut and nickel plated brass with Stainless Steel (316L) body and nut and nickel plated brass insert, including elastomeric seal. insert, including elastomeric seal. Can be used for knockouts. Can be used for knockout or threaded entries as fitting rotates until tightened.







**Technical Drawing** 



metric thread part number	metric thread part number	part number	part number	US trade size (")	nominal size (mm)
				1/4	10
					10
				5/16	12
LTP16-M16-CSS		SS-M16	FCC16-SS	3/8	16
LTP16-M20-CSS	LTP16-M20-CSS90	SS-M20	FCC16-SS		16
LTP20-M20-CSS	LTP20-M20-CSS90	SS-M20	FCC20-SS	1/2	20
LTP25-M25-CSS	LTP25-M25-CSS90	SS-M25	FCC25-SS	3/4	25
LTP32-M32-CSS	LTP32-M32-CSS90	SS-M32	FCC32-SS	1	32
LTP40-M40-CSS		SS-M40	FCC40-SS	11/4	40
LTP50-M50-CSS		SS-M50	FCC50-SS	1½	50
LTP63-M63-CSS*		SS-M63*	FCC63-SS*	2	63

# Standards & Approvals



**BS EN IEC 61386** 











Note: Refer to product detail for applicable standards







# Hazardous area liquid tight conduit solutions

# **EXD Conduit Glands**

# Flameproof EXD barrier cable gland

### **Properties**

- IP Rating: IP66 + IP67 + IP68 (5 bar 1hr) + IP69
- · Material: Nickel Plated Brass or Stainless Steel (316L)
- Suitable for threaded entries or knockouts
- Operating Temperature of gland -60°C to +85°C
- · High mechanical strength

- · Can be used in Zone 1, Zone 2, Zone 20, Zone 21 and Zone 22 Hazardous areas
- · ATEX and IECEx Ex d (Flameproof)
- ATEX and IECEx Ex e (Increased Safety)
- ATEX and IECEx Ex ta (Dust Ignition Protection) EAC Certified - refer to product datasheet

IEC 60079-31 2013

## **Glands**

## **Standards**

















# Hazardous Area Approvals

	• •			
	ATEX APPROVAL to EN60079-0 2012			⟨£x⟩
$\overline{}$	Ex d Flameproof	Ex d I Mb	EN 60079-12007	
J	Ex e Increased Safety	Ex e I Mb	EN 60079-7 2007	
9	IECEx APPROVAL to IEC60079-0 2011			IEC MECEX
(1)	Ex d Flameproof	ExdIMb	IEC 60079-1 2014-06	
	Ex e Increased Safety	Ex e I Mb	IEC 60079-7 2006-7	
	ATEX APPROVAL to EN60079-0 2012			(£x)
_	Ex d Flameproof	Ex d II C Gb	EN 60079-12007	
_	Ex e Increased Safety	Ex e II C Gb	EN 60079-7 2007	

_	27 G 1 G 1 G 1 G 2 G 1		
_	Ex e Increased Safety	Ex e II C Gb	EN 60079-7 2007
5	Ex e Increased Safety Ex ta Dust Ignition Proof	Ex ta IIIC Da IP6X	IEC 60079-31 2009
Ö	IECEx APPROVAL to IEC60079-0 2011		
<u></u>	Ex d Flameproof	Ex d II C Gb	IEC 60079-1 2014-06
	Ex e Increased Safety	Ex e II C Gb	IEC 60079-7 2006-7

## LTP - EXD

Construction: Nickel Plated Brass gland with a nylon and elastomeric seal and two part epoxy resin pack. Supplied in boxes of one, complete with instructions and gloves.

Typical Applications: Flameproof barrier gland offering a high specification, high quality solution for Ex d, Ex e and Ex

ta applications. IP rating: IP66 + IP67 + IP68 (5 bar 1hr) + IP69



Ex ta Dust Ignition Proof







### LTP - EXD - SS

Construction: Stainless steel (grade 316L) gland with a nylon and elastomeric seal and two part epoxy resin pack. Supplied in boxes of one, complete with instructions and gloves.

Ex ta IIIC Da IP6X

Typical Applications: Flameproof barrier gland offering a high specification, high quality solution for Ex d, Ex e and Ex ta applications where additional corrosion resistance

IP rating: IP66 + IP67 + IP68 (5 bar 1hr) + IP69



5	IP67	IP68	IP69

To fit nominal size (mm)	metric thread part number	NPT thread part number	To fit nominal size (mm)	metric thread part number	NPT thread part number
16	LTP16-M20-EXD	LTP16-050-EXD	16	LTP16-M20-EXD-SS	LTP16-050-EXD-SS
20	LTP20-M20-EXD	LTP20-050-EXD	20	LTP20-M20-EXD-SS	LTP20-050-EXD-SS
25	LTP25-M25-EXD	LTP25-075-EXD	25	LTP25-M25-EXD-SS	LTP25-075-EXD-SS
32	LTP32-M32-EXD	LTP32-100-EXD	32	LTP32-M32-EXD-SS	LTP32-100-EXD-SS
40	LTP40-M40-EXD	LTP40-125-EXD	40	LTP40-M40-EXD-SS	LTP40-125-EXD-SS
50	LTP50-M50-EXD	LTP50-150-EXD	50	LTP50-M50-EXD-SS	LTP50-150-EXD-SS
63	LTP63-M63-EXD	LTP63-200-EXD	63	LTP63-M63-EXD-SS	LTP63-200-EXD-SS

# Used with the following conduits:- as featured on pages 94, 95 & 96

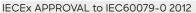




- IP Rating: IP66 + IP67 + IP68 (5 bar 1hr)
- Material: Nickel Plated Brass
- Suitable for threaded entries
- Operating Temperature of gland -60°C to +85°C
- High mechanical strength
- Can be used in Zone 1, Zone 2, Zone 20, Zone 21 and Zone 22 Hazardous areas
- ATEX and IECEx Ex d (Flameproof)
- ATEX and IECEx Ex e (Increased Safety)
- ATEX and IECEx Ex ta (Dust Ignition Protection)

# Hazardous Area Approvals





Ex d Flameproof Ex d II C Gb Ex e Increased Safety Ex e II C Gb Ex ta Dust Ignition Proof Ex ta IIIC Da IP6X



Scan and watch the LTP EXD animation now

## LTP - EXD - 90

Construction: 90° elbow, Nickel Plated Brass gland with a nylon and elastomeric seal and two part epoxy resin pack. Supplied in boxes of one complete with instructions and gloves.

Typical Applications: Flameproof barrier gland ideal for use when there is restricted space to terminate into an enclosure / equipment.

IP rating: IP66 + IP67 + IP68 (5 bar 1hr)



Ī				
	IP66	IP67	IP68	

To fi	t nominal size (mm)	metric thread part number	NPT thread part number
16		LTP16-M20-EXD-90	LTP16-050-EXD-90
20		LTP20-M20-EXD-90	LTP20-050-EXD-90
25		LTP25-M25-EXD-90	LTP25-075-EXD-90
32		LTP32-M32-EXD-90	LTP32-100-EXD-90
40		LTP40-M40-EXD-90	LTP40-125-EXD-90
50		LTP50-M50-EXD-90	LTP50-150-EXD-90
63		LTP63-M63-EXD-90	LTP63-200-EXD-90

# LTP - EXD - 45

Construction: 45° elbow, nickel plated brass gland with a nylon and elastomeric seal and two part epoxy resin pack. Supplied in boxes of one complete with instructions and gloves.

Typical Applications: Flameproof barrier gland ideal for use when there is restricted space to terminate into an enclosure / equipment.
IP rating: IP66 + IP67 + IP68 (5 bar 1hr)





IP66	IP67	IP68

To fit nominal size (mm)	metric thread part number	NPT thread part number
16	LTP16-M20-EXD-45	LTP16-050-EXD-45
20	LTP20-M20-EXD-45	LTP20-050-EXD-45
25	LTP25-M25-EXD-45	LTP25-075-EXD-45
32	LTP32-M32-EXD-45	LTP32-100-EXD-45
40	LTP40-M40-EXD-45	LTP40-125-EXD-45
50	LTP50-M50-EXD-45	LTP50-150-EXD-45
63	LTP63-M63-EXD-45	LTP63-200-EXD-45

<sup>\*</sup> Indicates parts made to order on request and may be subjest to MOQ and lead time.

















# Hazardous area liquid tight conduit solutions

# **EXE**

# **Increased Safety and Dust Ignition Proof**

### **Properties**

- IP Rating: IP66 for Ex e and Ex t applications
- IP Rating: IP67 + IP68 (5 bar 1hr) + IP69 for industrial applications
- · Material: Nickel Plated Brass
- Suitable for knockouts or threaded entries
- Operating Temperature of fitting  $-20\,^{\circ}$ C to  $+85\,^{\circ}$ C for Ex e and Ex t applications
- High mechanical strength and electrical continuity
- $\bullet$  Operating Temperature of fitting -50  $^{\circ}\text{C}$  to +135  $^{\circ}\text{C}$  for industrial applications
- Can be used in Zone 1, Zone 2, Zone 21 and Zone 22 Hazardous areas when used with Flexicon's Liquid Tight range of flexible conduits
- ATEX and IECEx Ex e (Increased Safety)
- ATEX and IECEx Ex t (Dust Ignition Protection)
- Vibration and shock resistant to EN61373 Cat 2

# Hazardous Area Approvals

	ATEX APPROVAL to EN60079-0 2009			
=	Ex e Increased Safety	Ex e II Gb	EN 60079-7 2007	$\langle \mathcal{E}_{\mathbf{x}} \rangle$
9	Ex tb Dust Ignition Proof	Ex tb IIIC Da IP6X	EN 60079-31 2009	67
Ō	IECEx APPROVAL to IEC60079-0 2007			
(1)	Ex e Increased Safety	Ex e II Gb	IEC 60079-7 2006	IEC IECEX
	Ex tb Dust Ignition Proof	Ex tb IIIC Da IP6X	IEC 60079-31 2008	

### Offering Ex e (Increased Safety) and Ex t (Dust Ignition Protection) performance with any Liquid Tight Conduits



#### \* images for illustration purposes

### **Used** with



or any of the LTP conduit types, see page 94

#### **Standards**















LTP - EXE





### **Flexicon**

# **EXD Accessories Range**

#### **Properties**

- IP Rating: IP66 for Ex e and Ex t applications
- IP Rating: IP67 + IP68 (5 bar 1hr) + IP69 for industrial applications
- · Material: Nickel Plated Brass
- Suitable for knockouts or threaded entries
- Operating Temperature of fitting -20°C to +85°C for Ex e and Ex t applications
- · High mechanical strength and electrical continuity
- Operating Temperature of fitting -50°C to +135°C for industrial applications
- · Can be used in Zone 1, Zone 2, Zone 21 and Zone 22 Hazardous areas when used with Flexicon's Liquid Tight range of flexible conduits
- ATEX and IECEx Ex e (Increased Safety)
- ATEX and IECEx Ex t (Dust Ignition Protection)
- · Vibration and shock resistant to EN61373 Cat 2



## **Accessories**

Our range of thread converters and adaptors are designed for both Industrial and Hazardous Area applications with Ex "d", Ex "e" and Ex "ta" component approval.

Available with male to female connection threads these products can be used to increase, reduce or convert the thread type.

Thread convertor - converts a thread from one specification to another. i.e. Metric to NPT or Metric to PG.

Thread adaptors - reduces a male thread to a smaller female thread. i.e M20 to M16 or enlarges a male thread to a larger female thread. i.e. M16 up to M20.

Technical Data										
ATEX Directive Code	I M2/II 2 G D/II 1 D									
ATEX & IECEx	zEx db I/IIC Mb/Gb; Ex eb I/IIC Mb Gb;									
Protection concepts	Ex ta IIIC Da									
Harmonized	EN/IEC 60079-0; EN/IEC 60079-1;									
Standards	EN/IEC 60079-7; EN/IEC 60079-31									

Note: Only one thread convertor or adaptor is allowed between the enclosure entry and the Flexicon gland or fitting

# **EXD Thread Converters and Adaptors**

Our thread converters are Nickel Plated Brass as standard.

Male Thread - External	M16	M20	M25	M32	M40	M50
M16		B-M16-M20-EXD				
M20	B-M20-M16-EXD		B-M20-M25-EXD			
M25		B-M25-M20-EXD		B-M25-M32-EXD		
M32			B-M32-M25-EXD		B-M32-M40-EXD	
M40				B-M40-M32-EXD		
M50				B-M50-M32-EXD	B-M50-M40-EXD	
M63					B-M63-M40-EXD	B-M63-M50-EXD

Female Thread - Internal

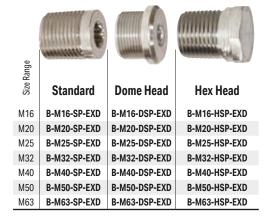
Internal Metric to External NPT Female Thread - Internal

Male Thread - External	M20	M25	M32
1/2"	B-050-M20-EXD		
3/4"	B-075-M20-EXD	B-075-M25-EXD	
1"			B-100-M32-EXD

To obtain Adaptor & Reducer nominal dimensions, follow the steps below:- Step 1 - Select male thread by consulting the left hand column of the table. Step 2 - Select the female thread size by consulting column headings at the top of tables, and by cross referencing this with the selection in step 1. Please note that the data in the tables above includes Adaptors and Reducers that are certified for use in Hazardous Areas

# **EXD Stopping Plugs**

Our stopping plugs are Nickel Plated Brass as standard.



## **Tamperproof**

The tamperproof stopping plugs can be installed or removed using an allen key. We offer standard stopping plugs or Dome Head type allen key stopping plugs.

Technical Data - Dome Head and Tamperproof											
Stopping Plugs											
ATEX Directive Code	I M2/II 2 G D/II 1 D										
ATEX & IECEx	Ex db I/IIC Mb/Gb; Ex eb I/IIC										
Protection concepts	Mb Gb; Ex ta IIIC Da										
Harmonized	EN/IEC 60079-0; EN/IEC										
Standards	60079-1; EN/IEC 60079-7;										
	EN/IEC 60079-31										

# Hex H<u>ead</u>

The Hex head stopping plugs can be installed or removed with a standard open ended or ring type spanner or wrench.

Technical Data - Hexagon Head Stopping Plug								
ATEX Directive Code	I M2/II 2GD							
ATEX & IECEx Protection concepts	Ex e I Mb, Ex e IIC Gb; Ex tb IIIC Db							
IEC Ex Code of Protection Category	Ex d I / Ex e I / Ex d IIC / Ex e II, Ex tD A21 IP6X							
Harmonized Standards	EN/IEC 60079-0; EN/IEC 60079-1; EN/IEC 60079-7; EN/IEC 60079-31							

Ex e and Ex t approvals



atkore.com/flexicon





# LTPBRD system











# Galvanised steel core, thermoplastic elastomer coated and stainless steel overbraid



## Conduit



### **LTPBRD**

Construction: Galvanised steel, helically wound, flexible conduit with thermoplastic elastomer cover (same as LTPHC) and stainless steel (grade 316) overbraid.

Typical Applications: Very arduous industrial environments such

- · High mechanical strength
- Good flexibility
- IP rating: IP66 + IP67 + IP68 (5 bar 1hr) + IP69
- Wide Temperature range -60°C to +150°C
- · High abrasion resistance
- Very high tensile strength
- · High corrosion performance
- Vibration and shock tested to EN61373 Cat 2
- Inherent Anti-Static performance properties
- EMC screening performance Standard

# **Fittings**

### External thread nickel plated brass

Multipart compression fitting including elastomeric seal. Can be used for knockout. Braid is locked between inner and outer compression nuts.

#### Swivel external thread nickel plated brass

Multipart compression fitting including elastomeric seal can be used for knockouts or threaded entries. Braid is locked between inner and outer compression nuts.













nominal size (mm)	LTPBRD	part number	reel length (m)	outside dia (mm)	inside dia (mm)	minimum inside bend radius (mm)
16	LTPBRD	16	25	19.3	12.6	45
16						
20	LTPBRD2	20	25	22.6	16.0	65
25	LTPBRD2	25	25	27.9	21.0	100
32	LTPBRD	32	25	34.6	26.5	135
40	LTPBRD4	40	10	43.3	35.4	175
50	LTPBRD	50*+	10	49.3	40.4	230

metric thread part number	metric thread part number
LTPB16-M16-C	LTPB16-M16-S
LTPB16-M20-C	LTPB16-M20-S
LTPB20-M20-C	LTPB20-M20-S
LTPB25-M25-C	LTPB25-M25-S
LTPB32-M32-C	LTPB32-M32-S
LTPB40-M40-C	LTPB40-M40-S
LTPB50-M50-C*	LTPB50-M50-S*

# **Ordering Notes**

- Add reel length eg: LTPBRD20B-25M for 25m reel
- Indicates parts made to order on request and may be subject to MOQ and lead time
- Double interlock section

#### · Available on request:

- longer lengths
- 45° available in sizes 16-50mm
- cut lengths and assemblies
- additional sizes
- full copies of independent test report confirming screening effectiveness

# How to read the fittings code

### LTPB20-M20-M conduit thread size fitting type

# **Standards**











- High mechanical strength
- Good flexibility
- IP rating: IP66 + IP67 + IP68 (5 bar 1hr) +
- Temperature range -60°C to +150°C
- · High abrasion resistance
- · Very high tensile strength
- Vibration and shock tested to EN61373 Cat 2
- Inherent Anti-Static performance properties

#### LTPB-EXD

• IP Rating: IP66 + IP67 + IP68 (5 bar 1hr) +

Fibre retained face

Retained sealing washer to

maintain IP rating of fitting to adjacent equipment.

sealing washers

Material: Nickel Plated Brass Suitable for threaded entries Operating Temperature of gland -60°C to +85°C

- · Can be used with individual cores or oversheathed cable
- Thread face sealing washers may be required to maintain IP rating at the connection to other equipment, see page 124

#### C90

#### External threaded elbow nickel plated brass

Multipart compression fitting including elastomeric seal. Braid is locked between inner and outer compression nuts.











Nickel plated brass with a nylon and elastomeric seal and two part epoxy resin pack

Flameproof barrier gland for external braided conduit systems where high mechanical protection and / or EMC screening is required.

















#### Locknuts FCC

#### Galvanised steel and nickel plated brass locknuts

Hexagonal locknut to secure fitting. EMC locknuts have raised corners to ensure good continuity.

Plated steel P clip with pvc liner, stainless steel P clips

P clip to support conduit.











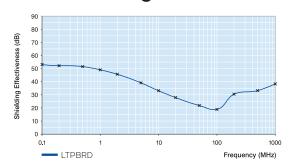






metric thread part number	metric thread part nu mber	NPT thread part number	metric thread part number	metric thread steel part number	metric thread EMC part number	metric thread brass part number	plated steel part number	stainless steel part number	nominal size (mm)
LTPB16-M16-C90			FW16	S-M16		B-M16	FCC16	FCC16-SS	16
LTPB16-M20-C90			FW20						16
LTPB20-M20-C90	LTPB20-M20-EXD	LTPB20-M20-EXD-90	FW20	S-M20	B-M20-EMC	B-M20	FCC20	FCC20-SS	20
LTPB25-M25-C90	LTPB25-M25-EXD	LTPB25-M25-EXD-90	FW25	S-M25	B-M25-EMC	B-M25	FCC25	FCC25-SS	25
LTPB32-M32-C90	LTPB32-M32-EXD	LTPB32-M32-EXD-90	FW32	S-M32	B-M32-EMC	B-M32	FCC32	FCC32-SS	32
LTPB40-M40-C90	LTPB40-M40-EXD	LTPB40-M40-EXD-90	FW40	S-M40	B-M40-EMC	B-M40	FCC40	FCC40-SS	40
LTPB50-M50-C90*	LTPB50-M50-EXD*	LTPB50-M50-EXD-90*	FW50	S-M50		B-M50	FCC50	FCC50-SS	50

# **EMC Screening Performance**







# LTP-FG system LTBRDP-FG system LTPSS-FG system **AFC UL-FG LFMC system**









# Conduit 🚛

LTP-FG



Construction: Galvanised steel helically wound, flexible conduit with smooth White or Blue PVC cover.

Typical Applications: Suitable for repeat contact with all food types, excluding fatty foods, at full temperature.

The flexible PVC is manufactured from FDA approved ingredients and has been independently tested to European Food regulation 10/2011.

**Temp:** -20°C to +105°C













## LTBRDP

Construction: Galvanised steel helically wound, flexible conduit with galvanised steel braid and a White or Blue PVC smooth cover.

Typical Applications: Suitable for applications where high corrosion resistance and liquid tight are a requirement combined with EMC screening.

The flexible PVC is manufactured from FDA approved ingredients and has been independently tested to European Food regulation 10/2011.

Temp: -20°C to +105°C







#### LTPSS-FG

Construction: Stainless steel (316L), helically wound, flexible PVC Blue smooth cover.

Typical Applications: Suitable for repeat contact with all food types, excluding fatty foods at full temperature.

The PVC is manufactured from FDA approved ingredients and has been independently tested to European Food regulation 10/2011.

**Temp:** -20°C to +105°C













Construction: Zinc coated galvanised low carbon steel strip with UL bonding strip upto 40mm with smooth PVC cover for Splash Zones. NSF® 169 Component for "splash zones" in food production areas and UL 360, UL File E26540. PVC jacket inhibits bacteria growth and offers ease of cleaning/sterilization using bleach with no degradation of jacket.

Typical Applications: Food equipment & other devices associated with food production requiring NSF 169 compliance components for Special Purpose Food Equipment and Devices, and UL certifications

Temp: -30°C to +80°C









nominal size (mm)	US trade size (")	LTP-FG	part number	reel length (m)	outside dia (mm)	inside dia (mm)	LTBRDP-FG	part number	reel length (m)	outside dia (mm)	inside dia (mm)	LTPSS-FG	part number	reel length (m)	outside dia (mm)	inside dia (mm)	AFC UL-FG LFMC	part number	reel length (m)	outside dia max (mm)	inside dia min (mm)	min inside bend radius (mm)
12	%16	LTPWFG12	2																			
16	3∕8	LTPWFG16	3 2	25	17.8	12.6						LTPSSBU	FG16	25	17.8	12.6	SZ01-30-0	00	30.5	18.1	12.8	51
16																						
20	1/2	LTPWFG20	10	, 25	21.1	16.0	LTBRDPWI	FG20	10, 25	21.1	16.0	LTPSSBU	FG20	25	21.1	16.0	SZ02-30-0	00	30.5	21.4	16.3	83
25	3/4	LTPWFG25	5 10	, 25	26.4	21.0	LTBRDPWI	FG25	10, 25	26.4	21.0	LTPSSBU	FG25	25	26.4	21.0	SZ03-30-0	00	30.5	26.7	21.3	100
32	1	LTPWFG32	2 10	, 25	33.1	26.5	LTBRDPWI	FG32	10, 25	33.1	26.5	LTPSSBU	FG32	10	33.1	26.5	SZ04-30-0	00	30.5	33.4	27.0	165
40	11/4	LTPWFG40	) '	10	41.8	35.4	LTBRDPWI	FG40	10	41.8	35.4	LTPSSBU	FG40	10	41.8	35.4	SZ05-24-0	00	15.2	42.2	35.8	203
50	1½	LTPWFG50	)+ '	10	47.9	40.4	LTBRDPWF	G50+	10	47.9	40.4	LTPSSBUF	G50+	10	47.9	40.4	SZ06-24-0	00	15.2	48.3	40.6	229
63	2	LTPWFG63	3+	10	59.7	51.6											SZ07-24-0	00	15.2	60.4	51.9	282

Part number for White version

Part number for White version shown above

# Ordering Notes

- For Blue cover substitute W for BU eg. LTPBUFG20 or LTPBRDPBUFG20 for 20mm size
- Add reel length eg: LTPWFG16-25M for 25m reel Indicates parts made to order on request and
- may be subject to MOQ and lead time + Double interlock section

#### · Available on request:

- longer lengths
- cut lengths and assemblies
- additional sizes

## **Standards**











EU Regulation 10/2011

**EN ISO 14159** 

EN 1672-2

**BS EN IEC 61386** 

EN IEC 61373 Cat 2





#### **Properties**

- High mechanical strength
- · Good flexibility
- IP rating: IP66 + IP67 + IP68 (5 bar 1hr) + IP69
- Temperature range -60°C to +150°C
- High abrasion resistance
- · Very high tensile strength
- Vibration and shock tested to EN61373 Cat 2
- Inherent Anti-Static performance properties
- IP Rating: IP66 + IP67 + IP68 (5 bar 1hr) + IP69 Material: Nickel Plated Brass
- Suitable for threaded entries Operating Temperature of gland
- -60°C to +85°C

- · Can be used with individual cores or oversheathed cable
- · For UL listed fittings consult us

### **Fittings**





### C-FG

#### External thread stainless steel food grade

Multipart compression fitting designed using principles given in EN1672-2 and EN ISO 14159. Manufactured from 316L stainless steel, complete with polyester elastomer compression seals to prevent ingress of food or bacteria. Can be used for knockout or threaded entries as fitting rotates until tightend. ST fittings are designed for use with Round Boxes on page 126. They have a shorter thread to maximise space within the box or enclosure.

#### C-FG-90

#### 90° elbow external thread Multipart compression fitting designed

willipart compression fitting designed using principles given in EN1672-2 and EN ISO 14159 for use with LTP and LFMC conduits. Manufactured from 316L stainless steel, complete with polyester elastomer compression seals to prevent ingress of food or bacteria. Ideal for use where space is limited.

### FCC-SS

#### Stainless steel (316L) P clips

P clip to support conduit.

#### Locknuts

#### Stainless steel (316L) locknuts

Hexagonal locknut to secure fitting.











ST Fitting





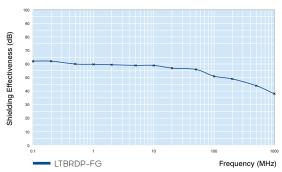




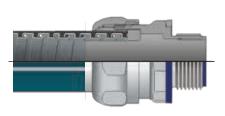
part number	stfitting part number	NPSM thread part number	Metric thread version	NPSM thread version	part number	part number	US trade size (")	nominal size (mm)
LTP12-M16-C-FG							5∕16	12
LTP16-M16-C-FG					FCC16-SS	SS-M16	3/8	16
					FCC16-SS	SS-M20		16
LTP20-M20-C-FG	LTP20-M20ST-C-FG	LTP20-050P-C-FG	LTP20-M20-C90-FG	LTP20-050P-C-FG-90	FCC20-SS	SS-M20	1/2	20
LTP25-M25-C-FG		LTP25-075P-C-FG	LTP25-M25-C90-FG	LTP25-075P-C-FG-90	FCC25-SS	SS-M25	3/4	25
LTP32-M32-C-FG		LTP32-100P-C-FG	LTP32-M32-C90-FG	LTP32-100P-C-FG-90	FCC32-SS	SS-M32	1	32
LTP40-M40-C-FG		LTP40-125P-C-FG			FCC40-SS	SS-M40	11/4	40
LTP50-M50-C-FG		LTP50-150P-C-FG			FCC50-SS	SS-M50	1½	50
LTP63-M63-C-FG*		LTP63-200P-C-FG			FCC63-SS*	SS-M63	2	63

Other sizes coming soon

## **EMC Screening Performance**



## **Technical Drawing**







## **FL** system

## Galvanised steel pliable

# **FLP system**

## Galvanised steel PVC coated, pliable













### Conduit





Construction: Corrugated galvanised steel with kraft paper lining.

Colour: Zinc self colour.

Typical Applications: Any installation where there is no movement.

- High compression strength
- · Provides EMC screening
- IP rating: IP40
- Can be formed into shape requiring fewer clips
- Temperature range -40°C to +120°C
- Nickel plated brass fittings
- · Inherently low fire hazard

## **Fittings**

## С Туре

#### External thread nickel plated brass

Multipart compression fitting including elastomeric compression seal. Can be used for knockout or threaded entries as fitting rotates until tightened. Provides EMC screening.



## Conduit

### FLP



Colour: Black

Typical Applications: Any installation where there is no movement and a high IP rating is required.

- High compression strength
- Pull off strength: Type C 50kg (20mm)
- Provides EMC screening
- IP rating: IP66 + IP67 for Type C
- · Smooth, wipe clean outer cover
- · Does not wrinkle when bent
- · Can be formed into shape requiring fewer clips
- Temperature range -15°C to +70°C
- · Lloyd's Register Type Approved

## **Fittings**

### C Type

#### External thread nickel plated brass

Multipart compression fitting including serrated elastomeric seal. Can be used for knockout or threaded entries as fitting rotates until tightened. Provides EMC screening once outer plastic sheath is trimmed from end of conduit.







#### nominal size (mm) outside dia (mm) nside dia (mm) reel length (m) 16 20 FL20 25 19.0 14.6 35 25 FL25 25.1 20.4 45 32 40 50

metric thread part number	
FL20-M20-C	
FL25-M25-C	

FLP			min inside bend radius (mm)	outside dia (mm)	inside dia (mm)
FLP20	В	10,25,50	35	20.9	14.6
FLP25	В	10,25,50	45	27.3	20.4
FLP32	В	10,25	55	34.0	26.7

metric thread part number
FLP20-M20-C
FLP25-M25-C
FLP32-M32-C

#### **Standards**







**BS EN IEC 61386** 





Note: refer to conduit properties for applicable standards

## **Technical Drawing**









# Flexicon LFHP system



# Galvanised steel extra LFH coated, pliable



#### Conduit

# LFHP

**Construction:** Corrugated galvanised steel with kraft paper lining and smooth extra LFH outer cover.

#### Colour: Black

**Typical Applications:** Any installation where there is no movement and a high IP rating is required.

- Pull off strength: Type C-HS 100kg (20mm)
- Extra low fire hazard, oil resistant and UV resistant
- · Vibration and shock tested to EN61373 Cat 2
- High compression strength 570kg/100mm
- Provides EMC screening
- IP rating: IP66 + IP67
- Can be formed into shape requiring fewer clips
- Temperature range -25°C to +90°C
- · Smooth, wipe clean outer cover
- · Does not wrinkle when bent
- · Lloyd's Register Type Approved
- Compliant to LUL Std S1085 (Cert No.297)
- NCAGE No. U5256
- EN 45545-2 to HL3

## **Fittings**

### C Type

#### External thread nickel plated brass

Multipart compression fitting including serrated elastomeric seal. Can be used for knockout or threaded entries as fitting rotates until tightened. Provides EMC screening once outer plastic sheath is trimmed from end of conduit.







nominal size (mm)	<b>LFHP</b> part number	reel length (m)	min inside bend radius (mm)	outside dia (mm)	inside dia (mm)
16					
20	LFHP20B	25	40	20.9	14.6
25	LFHP25B	25	55	27.3	20.4
32	LFHP32B	25	65	34.0	26.7
40					
50					

metric thread part number metric thread part number	
FLP20-M20-C	
FLP25-M25-C	
FLP32-M32-C	

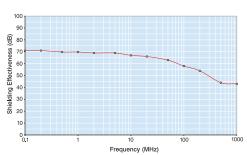
## **Ordering Notes**

- · Add reel length eg: FLP20B-25M for 25m reel
- · Available on request:
- longer lengths
- cut lengths and assemblies
- additional sizes
- full copies of independent test report confirming screening effectiveness

# How to read the fittings code

FLP20-M20-C conduit thread size fitting type

## **EMC Screening Performance**







# FB system







## Galvanised steel core galvanised steel overbraid

## **FUSSB system**





Galvanised steel core stainless steel overbraid

#### Conduit



**Construction:** Galvanised steel, helically wound conduit with galvanised steel overbraid.

Colour: Zinc, self colour.

Typical Applications: Industrial environments and

high temperatures.

**Temp:** -100°C to +300°C







### FUSSB

**Construction:** Galvanised steel, helically wound, flexible conduit with stainless steel (316) overbraid.

**Typical Applications:** Underground stations where LFH properties and EMC screening are required.

**Temp:** -100°C to +300°C





## **Fittings**

М

Fixed external thread nickel plated brass

Two part fitting comprising shell and body with external thread. This fitting can be inserted into a knockout and secured with a locknut.

IP40

S

Swivel external thread nickel plated brass

Two part fitting comprising shell and body. The external thread swivels about the main body. Can be used with threaded entries, or knockout secured with a locknut.

IP40





nominal size (mm)	85	part number	FUSSB	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)
12	FB12	F	USSB1	2*	25	14.0	10.2	30
16 16	FB16	F	USSB1	16*	25	17.5	13.0	40
20	FB20	F	USSB2	20	25	21.5	16.9	45
25	FB25	F	USSB2	25	25	26.0	21.1	55
32	FB32	F	USSB3	32	25	34.0	28.1	70
40	FB40	F	USSB4	10*	10	43.5	37.6	80
50	FB50	F	USSB	i0*	10	54.5	48.4	90

metric part number part number prompted part number prompted part number prompted part number prompted part number	
FB12-M16-M FB12-PG9-M FB12-M16-S FB12-PG9-S	
FB16-M16-M FB16-PG11-M FB16-M16-S FB16-PG11-S	
FB16-M20-M FB16-M20-S	
FB20-M20-M FB20-PG16-M FB20-M20-S FB20-PG16-S	
FB25-M25-M FB25-PG21-M FB25-M25-S FB25-PG21-S	
FB32-M32-M FB32-PG29-M FB32-M32-S FB32-PG29-S	
FB40-M40-M FB40-PG36-M FB40-M40-S FB40-PG36-S	
FB50-M50-M FB50-PG48-M FB50-M50-S FB50-PG42-S	

## **Ordering Notes**

- · Add reel length eg: FB20-25M for 25m reel
- \* Indicates parts made to order on request and may be subject to MOQ and lead time

#### Available on request:

- longer lengths, cut lengths and assemblies
- additional sizes, stainless steel overbraided
- PG threads, female threaded fittings
- full copies of independent test report confirming screening effectiveness

# How to read the fittings code

conduit thread size fitting type

## **Standards**



BS EN IEC 61386







#### **Properties**

- High mechanical strength
- Highly flexible
- IP rating: IP40
- · High abrasion resistance
- Resists hot metal swarf and splashes
- Provides EMC screening

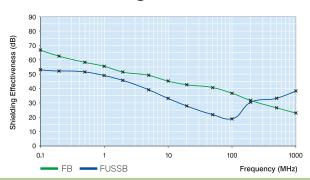
55dB@1MHz (FB) 49dB@1MHz (FUSSB)

- Temperature range -100°C to +300°C
- Inherently Low Fire Hazard (LFH) see page 144
- Fully compliant to LUL Std S1085. (Cert No. 296)
- Nickel plated brass fittings
- EN45545-2 to HL3 and NFPA 130 compliant

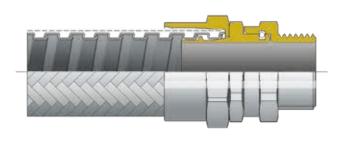
P	90° Elbow	Locknuts	FCC
Plain hole connector nickel plated brass  Two part fitting comprising shell and body without thread. The body is fitted through the opposite side of the entry to the conduit and acts as a locking device also providing a smooth entry bush.	Internal and external threaded nickel plated brass elbow 90° elbow which can be screwed onto external threaded fittings.	Galvanised steel and nickel plated brass locknuts  Hexagonal locknut to secure fitting. EMC locknuts have raised corners to ensure good continuity.	Plated steel P clip with pvc liner, stainless steel P clips P clip to support and secure conduit.



## **EMC Screening Performance**



## **Technical Drawing**







## **FSB** system







Galvanised steel core, pvc coated, galvanised steel overbraid

## LFHUBRD system









### Conduit

**FSB** 



steel overbraid

Construction: Galvanised steel, helically wound, flexible conduit with pvc coating and galvanised steel overbraid.

Colour: Zinc, self colour.

Typical Applications: Industrial environments where higher abrasion resistance or screening are required.

## **Fittings**



plated brass Two part fitting comprising shell and body with external thread. This fitting can be inserted into a knockout and

Fixed external thread nickel

secured with a locknut.

#### Swivel external thread nickel plated brass

Two part fitting comprising shell and body. The external thread swivels about the main body. Can be used with threaded entries, or knockout secured with a locknut.



## LFHUBRD

Construction: Galvanised steel, helically wound, flexible conduit with extra LFH coating and stainless steel (316) overbraid.

Typical Applications: Metro rail stations where LFH, EMC screening and anti-vandal properties are required. Compliant to LUL Std S1085 (Cert No.297).







nominal size (mm
12
16
16
20
25
32
40

50

FSB	part number	LFHUBRD	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)
FSB12				25	15.2	10.2	30
FSB16				25	18.2	13.0	40
FSB20		LFHUB	RD20	25	22.7	16.9	45
FSB25		LFHUB	RD25	25	27.2	21.1	55
FSB32		LFHUB	RD32	25	35.2	28.1	70
FSB40		LFHUB	RD40	10	45.7	37.6	80
FSB50				10	57.7	48.4	90

metric thread part number	PG thread part number	metric thread part number	PG thread part number
FSB12-M16-M	FSB12-PG9-M	FSB12-M16-S	FSB12-PG9-S
FSB16-M16-M	FSB16-PG11-M	FSB16-M16-S	FSB16-PG11-S
FSB16-M20-M		FSB16-M20-S	
FSB20-M20-M	FSB20-PG16-M	FSB20-M20-S	FSB20-PG16-S
FSB25-M25-M	FSB25-PG21-M	FSB25-M25-S	FSB25-PG21-S
FSB32-M32-M	FSB32-PG29-M	FSB32-M32-S	FSB32-PG29-S
FSB40-M40-M	FSB40-PG36-M	FSB40-M40-S	FSB40-PG36-S
FSB50-M50-M	FSB50-PG48-M	FSB50-M50-S	FSB50-PG42-S

## **Ordering Notes**

- · Add reel length eg: FSB20-25M for 25m reel
- · Available on request:
- longer lengths, cut lengths and assemblies
- additional sizes, stainless steel overbraided
- PG threads, female threaded fittings
- full copies of independent test report confirming screening effectiveness

## How to read the fittings code

#### FSB20-M20-M

conduit thread size fitting type

## **Standards**









BS EN IEC 61386





Note: refer to conduit properties for applicable standards



#### **Properties**

- High mechanical strength
- Tensile strength with standard fittings 120kg for 20mm size
- Tensile strength with C type fittings 300kg for 20mm size
- · Highly flexible
- IP rating: IP54 for standard fittings, IP65 for C type fittings
- · High abrasion resistance

- · Resists hot metal swarf and splashes
- · Provides EMC screening
- Temperature range
- -15°C to +70°C (FSB)
- -20°C to +90°C (LFHUBRD)
- · LFHUBRD is extra low fire hazard
- Compliant to LUL Std S1085 (LFHUBRD) (Cert No. 297)
- · Nickel plated brass fittings

- Vibration and shock tested to EN61373 Cat 2
- · LFHUBRD is EN45545-2 to HL3
- · Thread face sealing washers may be required to maintain IP rating at the connection to other equipment, see page 124

#### Plain hole connector nickel plated brass

Two part fitting comprising shell and body without thread. The body is fitted through the opposite side of the entry to the conduit and acts as a locking device also providing a smooth entry bush.





#### Fixed external thread nickel plated brass

Multipart compression fitting including elastomeric seal. Can be used for knockouts. Braid is locked between inner and outer compression nuts.



CS

#### Swivel external thread nickel plated brass

Multipart compression fitting including elastomeric seal of be used for knockouts or threaded entries. Braid is locked between inner and outer compression nuts.

C90

#### External thread elbow nickel plated brass

Multipart 90° compression fitting including elastomeric seal. Braid is locked between inner and outer compression nuts.









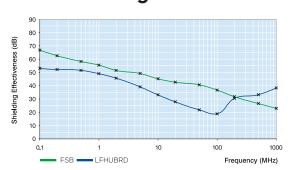




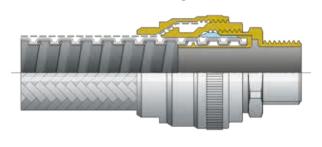
hole size (mm)	bart number	metric thread part number	PG thread part number	metric thread part number	metric thread part number
16	FSB16-P	FSB16-M16-C	FSB16-PG11-C	FSB16-M16-C-S	FSB16-M16-C90
10	13010-1	FSB16-M20-C	FSB16-PG13-C	FSB16-M20-C-S	FSB16-M20-C90
20	FSB20-P	FSB20-M20-C	FSB20-PG16-C	FSB20-M20-C-S	FSB20-M20-C90
25	FSB25-P	FSB25-M25-C	FSB25-PG21-C	FSB25-M25-C-S	FSB25-M25-C90
32	FSB32-P	FSB32-M32-C	FSB32-PG29-C	FSB32-M32-C-S	FSB32-M32-C90
40	FSB40-P				
50	FSB50-P				

32 40 50

## **EMC Screening Performance**



## **Technical Drawing**



atkore.com/flexicon





## **FSS** system

## Stainless steel corrugated conduit







# **FSSBRD** system







## Stainless steel corrugated conduit with overbraid

#### Conduit

#### **FSS**

Construction: Stainless steel (316L) annularly corrugated conduit. Inherent Low Fire hazard performance with superior Ingress Protection (IP68) and excellent corrosion resistance.

Typical Applications: Metro rail stations and tunnels.

**Colour:** Self colour, also available in Black\* version on request

- IP rating: IP67, IP68 (2 bar 1hr)
- Temperature range -100°C to +850°C
- · High Mechanical Strength
- Pull off strength: 100kg (20mm)
- High compression strength 1000kg/100mm
- Inherent low fire hazard
- Compliant to LUL Std S1085 (Pending)
- EN 45545-2 to HL3 and NFPA 130 compliant
- Excellent Corrosion resistance
- Oil resistant
- UV resistant
- Provides EMC screening
- Offers Antistatic properties

# IP68 EN 45545-



### FSSBRD

Construction: Stainless steel (316L) annually corrugated conduit with stainless steel (316L) overbraid.

Typical Applications: Inherent Low Fire hazard performance with superior Ingress Protection (IP68), excellent corrosion resistance and enhanced EMC performance together with abrasion resistance. Metro rail stations and tunnels

#### Colour: Self colour

- IP rating: IP67, IP68 (2 bar 1hr)
- Temperature range -100°C to +850°C
- High Mechanical Strength
- · High Abrasion resistance
- Pull off strength: 150kg (20mm)
- High compression strength 1000kg/100mm
- Inherent low fire hazard
- Compliant to LUL Std S1085 (Pending)EN 45545-2 to HL3 and NFPA 130
- compliant

   Excellent Corrosion resistance
- Oil resistant
- UV resistant
- Provides EMC screening Standard
- Offers Antistatic properties

## IP68





## **Fittings**

## Fixed external thread nickel

Multipart compression fitting including conduit retention clip and polyester seal. Can be used with knockouts. For BRD version, Braid is locked between inner and outer compression nuts.

**Colour:** Self colour or also available in Black for FSS version.

#### S\_E

## Swivel internal thread nickel plated brass

Multipart compression fitting including conduit retention clip and polyester seal. Swivel internal thread allows connection to external thread.

**Colour:** Self colour or also available in Black for FSS version.











FSS	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	FSSBRD	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)
FSS20		25	21.6	16.2	45	FSSBRI	D20	25	21.6	16.2	60
FSS25		25	26.8	20.2	55	FSSBRI	D25	25	28.3	20.2	70
FSS32*		25	32.5	25.4	65	FSSBRI	D32*	25	33.8	25.4	80
FSS40*		10	41.3	34.1	105	FSSBRI	D40*	10	43.0	34.1	120
FSS50*		10	50.0	40.0	130	FSSBRI	D50*	10	51.2	40.0	145

## **Ordering Notes**

 Indicates parts made to order on request and may be subject to MOQ and leadtime.

for use with FSS	for use with FSSBRD	for use with FSS
FSS20-M20-C	FSSBRD20-M20-C	FSS20-FM20-S
FSS25-M25-C	FSSBRD25-M25-C	FSS25-FM25-S
FSS32-M32-C*	FSSBRD32-M32-C*	FSS32-FM32-S*
FSS40-M40-C*	FSSBRD40-M40-C*	FSS40-FM40-S*
FSS50-M50-C*	FSSBRD50-M50-C*	FSS50-FM50-S*

## **Standards**







nominal size (mm)



#### **Properties**

- IP rating: IP67, IP68 (2 bar 1hr)
- Temperature range -50°C to +135°C
- Inherently Low Fire Hazard
- Suitable for knockout or threaded entries
- Nickel Plated Brass Fittings
- · Conduit throat supplied with fitting to protect cables from cut end of conduit
- High mechanical strength
- Tensile strength with standard fittings 100kg for 20mm size
- Tensile strength with BRD C type fittings 150kg for 20mm size
- BRD type fittings: Braid is locked between inner and outer compression nuts
- · Also available in chemically blackened version for FSS
- Thread face sealing washers may be required to maintain IP rating at the connection to other equipment, see page 124

## NEW

#### Swivel external thread nickel plated brass

Multipart compression fitting including conduit retention clip and polyester seal. Swivel external thread means it can be used for knockouts and / or threaded entries.

For BRD version, Braid is locked between inner and outer compression nuts.

Colour: Self colour or also available in Black for FSS version





#### C90

#### **External thread** nickel plated brass

90° multipart compression fitting including elastomeric seal. Can be used for knockouts

#### C45

#### **External thread** nickel plated brass

45° multipart compression fitting including elastomeric seal. Can be used for knockouts.

## FSS - EXD

#### Nickel plated brass with a nylon and elastomeric seal and two part epoxy resin pack

Flameproof barrier gland for FSS systems where high mechanical protection and / or EMC screening is required.

#### FCC-SS CLIPS

#### Stainless steel (316L) P clips

P clip to support conduit.





















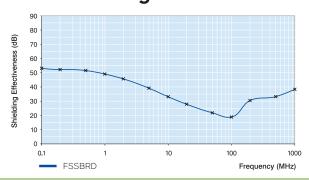




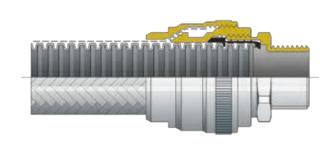


for use with FSS	for use with FSSBRD	for use with FSS	for use with FSS	metric thread part nu mber		nominal size (mm)
FSS20-M20-S	FSSBRD20-M20-S	FSS20-M20-C90	FSS20-M20-C45	FSS20-M20-EXD	FCC20-SS	20
FSS25-M25-S	FSSBRD25-M25-S	FSS25-M25-C90	FSS25-M25-C45	FSS25-M25-EXD	FCC25-SS	25
FSS32-M32-S*	FSSBRD32-M32-S*	FSS32-M32-C90*	FSS32-M32-C45*	FSS32-M32-EXD	FCC32-SS	32
FSS40-M40-S*	FSSBRD40-M40-S*	FSS40-M40-C90*	FSS40-M40-C45*	FSS40-M40-EXD	FCC40-SS	40
FSS50-M50-S*	FSSBRD50-M50-S*	FSS50-M50-C90*	FSS50-M50-C45*	FSS50-M50-EXD*	FCC50-SS	50

## **EMC Screening Performance**



## **Technical Drawing**







## **FPRSS** system





Corrugated nylon, (PA6) stainless steel overbraid

# **FPRTC** system



Corrugated nylon, (PA6) tinned copper overbraid

# FPISS, FPIHSS, FPIHRLSS system

Corrugated nylon, (PA12), stainless steel overbraid

### Conduit



Construction: Standard weight, extra low fire hazard, corrugated nylon (PA6), with stainless steel (316L) overbraid.

#### Typical Applications:

Metro rail stations for anti-vandal.



**FPISS** 





Construction: Standard weight, corrugated nylon (PA12), with stainless steel (316L) overbraid.

Typical Applications: Moving machinery where low temperatures, abrasion and impacts occur.

### **FPRTC**



Construction: Standard weight, extra low fire hazard, corrugated nylon (PA6), with tinned copper overbraid.

Typical Applications: Inside railway carriages where screening is required.



# PIHSS



Construction: Heavy weight, corrugated nylon (PA12), with stainless steel (316L) overbraid.

Typical Applications: Where low temperatures, abrasion, impact and regular movement occurs.

### **Fittings**

#### Fixed external thread nickel plated brass

Multipart compression fitting including conduit retention clip and elastomeric seal. Can be used with knockouts. Braid is locked between inner and outer compression nuts



#### Swivel external thread nickel plated brass

Multipart compression fitting including conduit retention clip and elastomeric seal. Can be used for knockouts and threaded entries. Braid is locked between inner and outer compression nuts.





### **FPIHRLSS**

Construction: Heavy weight, extra low fire hazard, corrugated nylon (PA12), with stainless steel (316L) overbraid.



35

45

50

60

Typical Applications: Under railway carriages where extra low fire hazard, low temperatures, abrasion, impact and regular movement occurs.





nominal size (mm)	FPRSS	partnumber	FPRTC	partnumber	FPISS	partnumber	FPIHSS	partnumber	FPIHRLSS	partnumber	outside dia (mm)	min inside dia (mm)
16	FPRSS16	-50M	FPRTC16	-50M*	FPISS16-	·50M*	FPIHSS16	5-50M	FPIHRLSS	16-50M	17.3	11.5
21	FPRSS21	-50M	FPRTC21	-50M*	FPISS21-	·50M*	FPIHSS21	-50M	FPIHRLSS	21-50M	22.7	15.0
28	FPRSS28	-50M	FPRTC28	-50M*	FPISS28-	·50M*	FPIHSS28	3-50M	FPIHRLSS	28-50M	30.0	21.3
34	FPRSS34	-50M	FPRTC34	-50M*	FPISS34-	25M*	FPIHSS34	-25M	FPIHRLSS	34-25M	36.0	27.6
42	FPRSS42	-25M*	FPRTC42	-25M*	FPISS42-	25M*	FPIHSS42	2-25M*	FPIHRLSS	42-25M	44.0	35.5

FPRSS54-25M\* FPRTC54-25M\* FPISS54-25M\* FPIHSS54-25M\* FPIHRLSS54-25M 56.0 47.2

metric thread part number	metric thread part number	PG thread part number
BC16-M16-C	BC16-M16-S	BC16-PG11-S
BC21-M20-C	BC21-M20-S	BC21-PG16-S
BC28-M25-C	BC28-M25-S	BC28-PG21-S
BC34-M32-C	BC34-M32-S	BC34-PG29-S
BC42-M40-C	BC42-M40-S	
BC54-M50-C*	BC54-M50-S*	

## **Ordering Notes**

- \* Indicates parts made to order on request and may be subject to MOQ and lead time
- Thread face sealing washers may be required to maintain IP rating at the connection to other equipment, see page 124

#### Available on request:

- longer lengths
- cut lengths and assemblies
- additional sizes
- full copies of independent test report confirming screening effectiveness

## How to read the fittings code

#### BC21-M20-C conduit thread size fitting type

## **Standards**



**BS EN IEC 61386** 







Note: refer to conduit properties for applicable standards



#### **Properties**

#### **FPRSS & FPRTC**

- · Highly flexible and high fatigue life
- · High impact strength
- Temperature range -40°C to +120°C
- Extra low fire hazard see page 144
- Provides EMC screening 49dB@1MHz (FPRSS) 67dB@1MHz (FPRTC)
- FPRSS provides high tensile strength and resistance to abrasion, corrosion and vandals
- Vibration and shock tested to EN61373 Cat 2
- · LUL Std S1085 Cert No. 298
- FPRSS & FPRTC EN 45545-2 to HL3 R22 and R23

#### **FPISS, FPIHSS & FPIHRLSS**

- Highly flexible
- · Exceptional fatigue life
- Very high impact resistance even at low temperatures
- Temperature range -50°C to +110°C
- Low fire hazard
- Provides EMC screening 49dB@1MHz
- Provides high tensile strength and resistance to abrasion, corrosion and vandals
- Vibration and shock tested to EN61373 Cat 2
- · FPIHRLSS EN 45545-2 to HL3 R23 Exterior

#### 90° Elbow FW C-90 Sealing Washers Locknuts FCC **External thread** Internal and external Fibre retained Fibre face sealing Galvanised steel and Plated steel P elbow nickel threaded nickel face sealing nickel plated brass clip with pvc washers plated brass plated brass elbow washers liner, stainless locknuts Sealing washer to maintain IP rating of fitting to adjacent steel P clips Multipart 90° 90° elbow which can be screwed onto external Retained sealing washer to maintain Hexagonal locknut to secure fitting. EMC locknuts have raised corners to ensure compression fitting P clip to support including conduit retention clip and IP rating of fitting to adjacent equipment. threaded fittings. equipment. conduit. good continuity. elastomeric seal. Can be used with knockouts. Braid is locked between inner and outer compression nuts.













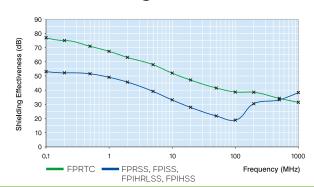




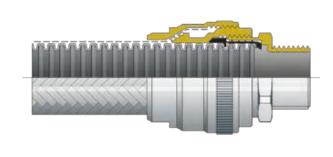


metric thread part number	metric thread part number	metric thread part number	part number	metric thread steel part number	metric thread EMC part number	metric thread brass part number	plated steel part number	stainless steel part number	nominal size (mm)
	BM90-16M	FW16	FWPG11	S-M16		B-M16	FCC16	FCC16-SS	16
BC21-M20-C90	BM90-20M	FW20	FWPG16	S-M20	B-M20-EMC	B-M20	FCC20	FCC20-SS	20
	BM90-25M	FW25	FWPG21	S-M25	B-M25-EMC	B-M25	FCC25	FCC25-SS	25
	BM90-32M	FW32	FWPG29	S-M32	B-M32-EMC	B-M32	FCC32	FCC32-SS	32
	BM90-40M	FW40		S-M40	B-M40-EMC	B-M40	FCC40	FCC40-SS	40
	BM90-50M	FW50		S-M50		B-M50	FCC50	FCC50-SS	50

## **EMC Screening Performance**



## **Technical Drawing**





# **Strain Relief Fittings**

For applications that require the conduit system to provide strain relief and enhanced IP rating to the cables being mechanically protected eg. rail market or heavy machinery construction sector.

#### **Properties**

- Combined properties of conduit fitting and cable gland
- Cable strain relief Additional IP rating on cable inside conduit\*
- Nickel plated brass fittings • Cable gland properties: IP68 (10 bar) + IP69
- Temperature range
  -40°C to +100°C for static applications
  -20°C to +100°C for dynamic applications

	-20	C 10 +	100 C	101	ayı ia		applica	LIC
•	EMC	cable	gland	l ver	sion	on r	equest	

						s cable glaria version on	request
Suitable for the following conduits	Conduit	Fitting	nominal size (mm)	PartNumber	IP rating of conduit system	IP rating of cable gland	Clamping range of cable gland
		the lander has	16	FSU16-M16-CG			4.5-10mm
FU & SSU	delicitation delicitation delicitation del		20	FSU20-M20-CG	IP40	IP68 (10 bar)+IP69	7-13mm
			25	FSU25-M25-CG			9-17mm
			32	FSU32-M32-CG			11-21mm
	00000	Andreite a	16	FSU16-M16-CG			4.5-10mm
_			20	FSU20-M20-CG	IP65	IP68 (10 bar)+IP69	7-13mm
FSU, FNU, LFHU and FPU	1=1=1=1=1=	The Part of the Part of	25	FSU25-M25-CG		,	9-17mm
	100000		32	FSU32-M32-CG			11-21mm
LTP, LTPHC, LTPUL, LTPAS,			16	LTP16-M16-CG	1		4.5-10mm
LTPSS, LTPLFH	Security States of the last of the	A CONTRACTOR AND A SECOND	20	LTP20-M20-CG	IP66+IP67+	IP68 (10 bar)+IP69	7-13mm
LTBRDP, LTBRDLFH, LTPPU	market to an extension		25	LTP25-M25-CG	IP68 (5 bar)+IP69	1700 (10 Dai)+1709	9-17mm
and LTPPUAS		Carlo Carlo Carlo Carlo	32	LTP32-M32-CG	1600 (3 Dai)+1609		11-21mm
and LIFFOAS			02	L11 02-W02-00	<u></u>		11 2 1111111
		1					
	6565555555	my the more to	16	FSB16-M16-CG			4.5-10mm
FB & FUSSB	>>>>>>>>	44-4	20	FSB20-M20-CG	IP40	IP68 (10 bar)+IP69	7-13mm
			25	FSB25-M25-CG			9-17mm
	20000000000		32	FSB32-M32-CG			11-21mm
	(6466464646	and the last of	16	FSB16-M16-CG			4.5-10mm
FSB & LFHUBRD			20	FSB20-M20-CG	IP65	IP68 (10 bar)+IP69	7-13mm
	2222222222		25	FSB25-M25-CG			9-17mm
	11111111111111		32	FSB32-M32-CG			11-21mm
					•		
	10100000000	and the same of	16	LTPB16-M16-CG	[		4.5-10mm
LTPBRD	ancient		20	LTPB10-M10-CG	IP66+IP67+	IP68 (10 bar)+IP69	7-13mm
LIFBRD			25	LTPB25-M25-CG	IP68 (5 bar)+IP69	11 00 (10 bai) 11 03	9-17mm
	122222222		32	LTPB32-M32-CG	55 (5 541) 17 65		11-21mm
							2
I		1	40	10040 1140 00			4.5.40
LDC LDCC	a de la de maria	The fire solve the	16	LPC16-M16-CG	IDCC-IDCZ	ID00 (40 L ) (1000	4.5-10mm
LPC, LPCG,	SUBSECT OF	1 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	20	LPC20-M20-CG	IP66+IP67+	IP68 (10 bar)+IP69	7-13mm
LPCO, LPCBU		And in case of	25 32	LPC25-M25-CG	IP68 (5 bar)+IP69		9-17mm
-			32	LPC32-M32-CG			11-21mm
				*10 :	1 1000 (10.1	\ ID60	

\*IP rating up to IP68 (10 bar), IP69 dependent on cable used

### **Standards**

BS EN IEC 61386















Minimum optical cover 90%Can offer mechanical support

· Can offer abrasion resistance

#### **Properties**

## **FTCB Braided sleeving**

Atkore Flexicon

Tinned copper braid system for EMC

screening



## Overbraid

#### **FTCB**

Construction: Tinned copper braided sleeving.

• EMC Screening 67dB @ 1Mhz for 20mm

Colour: Self colour

**Typical Applications:** Screening of cables from electromagnetic, electrostatic and RF interference. Can be sleeved over cables before they are drawn into conduits.

FTCB	part number	Nominal I/D(mm)	Usableø mm min	Usableø mm max	Cross sectional area -mm²
FTCB3	100	3.0	2.0	3.5	1.06
FTCB4	100	4.0	3.0	5.0	1.49
FTCB5	100	5.0	4.0	6.0	1.91
FTCB6	100	6.0	5.0	7.0	2.23
FTCB10	50	10.0	7.0	12.0	4.43
FTCB12	50	12.5	11.0	13.0	4.83
FTCB15	50	15.0	13.0	18.0	8.29
FTCB20	50	20.0	17.0	23.0	9.65
FTCB25	50	25.0	22.0	28.0	12.54
FTCB30	25	30.0	27.0	36.0	19.30
FTCB35	25	35.0	30.0	50.0	19.30
FTCB50	25	50.0	45.0	65.0	35.63

#### **FPA**

#### **FPAU**

 $\textbf{Construction:} \ \textbf{Nylon PA66 \& Nickel Plated Brass}.$ 

Colour: Black.

**Typical Applications:** Straight fitting with internal braid clamp assembly for use with braided sleeving inside corrugated conduit.

part number

IP66

conduit size (mm)

21

28

34

42









## 



### Note:

- As the diameter increases towards the maximum expansion the sleeving decreases in length.
- Normally supplied on disposable PVC former or can be supplied in flat form on a reel by request
- Temperature performance of sleeving: -50°C to +300°C



## **Ordering Notes**

FPA21-M20-SBCA

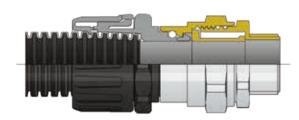
FPA28-M25-SBCA

FPA34-M32-SBCA

FPA42-M40-SBCA

- · Available on request:
- 90° and 45° elbows
- PG threads

## **Technical Drawing**







## **Metallic Round Connection boxes**



## Stainless steel and nickel plated brass

IP66

IP67

IP68

IP69

### **Connection Boxes**

## ROUND BOX - STAINLESS STEEL - HYGIENIC



Construction: Stainless Steel (Grade 316) Round box consisting of a base and lid. Designed using the principles of EN 1672-2 and EN ISO 14159 supplied with blue high visibility polyester elastomer lid and base seals. Available with either 2 or 4 holes, other versions available on request. 2 Fixing holes are provided, together with component Mounting holes to help with installation. Slots in the lid allow for secure tightening of the lid and aids opening for maintenance or upgrade. Design offers high Ingress Protection combined with high corrosion resistance.



Typical Applications: Ideal use as a Junction Box for the interconnection of circuits for Hygienic Applications. The lid and base construction provides access to cabling routed through connecting conduits. Fixing holes are provided in the base and pre drilled Mounting holes provide easy option to fix terminals or DIN rail within the box. Ideal for extending or modifying circuits whilst maintaining system integrity. When used with Flexicon Short Thread fittings the box provides a reliable interface with Flexible conduit whilst maximising the available wiring space within the box. Blanking Plugs can be used to seal off any unused ways. The Box offers the possibility to connect and interface with Cable Glands or different types of cabling installations.

4 Way Box shown 2 mounting holes on base M20 Thread Entries

2 Way
4 Way

Part Number	Height (mm)	Diameter (mm)
FB0X75X60-M20X2-SS	65	75
FBOX75X60-M20X4-SS	65	75

### **ROUND BOX - NICKEL PLATED BRASS**



Construction: Nickel Plated Brass Round box consisting of a base and lid. Supplied with blue high visibility polyester elastomer lid and base seals. Available with either 2 or 4 holes, other versions available on request. 2 Fixing holes are provided, together with component Mounting holes to help with installation. Slots in the lid allow for secure tightening of the lid and aids opening for maintenance or upgrade. Design offers high Ingress Protection.

Typical Applications: Ideal use as a Junction Box for the interconnection of circuits for general purpose Applications. The lid and base construction provides access to cabling routed through connecting conduits. Fixing holes are provided in the base and pre drilled Mounting holes provide easy option to fix terminals or DIN rail within the box. Ideal for extending or modifying circuits whilst maintaining system integrity. When used with Flexicon Short Thread fittings the box provides a reliable interface with Flexible conduit whilst maximising the available wiring space within the box. Blanking Plugs can be used to seal off any unused ways. The Box offers the possibility to connect and interface with Cable Glands or different types of cabling installations.

2 Way Box shown2 mounting holes on baseM20 Thread Entries

2 Way 4 Way

Part Number	Height (mm)	Diameter (mm)		
FBOX75X60-M20X2-NPB	65	75		
FBOX75X60-M20X4-NPB	65	75		

For non-metallic Round Connection boxes see page 64











#### **Properties**

- IP rating: IP66, IP67, IP68 (2 bar 1hr), IP69
  Temperature range -50°C to +135°C
  Hygienic Box designed using principles given in EN1672-2 and EN ISO 14159
- Blue high visibility polyester elastomer lid and base seals
- 3 Way, 2 Way 90° and 1 Way available on request
  Other diameters and heights available on request
- ST fittings are short threaded fittings designed for use with Round Box



#### **Terminations**









C	onduits
	The state of the s
F	ittings
F	ittings

<b>LPC-FG</b> See page 80	<b>LTP-FG</b> See page 108	LTBRDP-FG See page 108	<b>LTPSS-FG</b> See page 108	
Part Number	Part Number	Part Number	Part Number	
LPCWFG20	LTPWFG20	LTBRDPWFG20		
LPCBUFG20	LTPBUFG20	LTBRDPBUFG20	LTPSSBUFG20	
Part Number	Part Number	Part Number	Part Number	Blanking Plugs (SS) Part Number
LPC20-M20ST-C-FG	LTP20-M20ST-C-FG	LTP20-M20ST-C-FG	LTP20-M20ST-C-FG	SP-M20-FG-SS
See page 81	See page 109	See page 109	See page 109	



<b>LPC Type</b> See page 76		<b>Liquid Tight</b> See pages 94			
Part Number		Part Number			
LPC20B	LTP20	LTPLFH20	LTBRDP20		
LPC20G	LTPAS20	LTPPU20	LTBRDLFH20		
LPC200	LTPHC20	LTPPUAS20			
LPC20GN	LTPUL20	LTPSS20			
LPC20BU					
Part Number		Part Number		Cable Gland Part Number	Blanking Plugs (NPB) Part Number
LPC20-M20ST-C	LTP20-M20ST-C			B-M20ST-CG	SP-M20-NPB
See page 78		See page 98		See page 120	See page 128

For non-metallic Round Connection Boxes see page 64

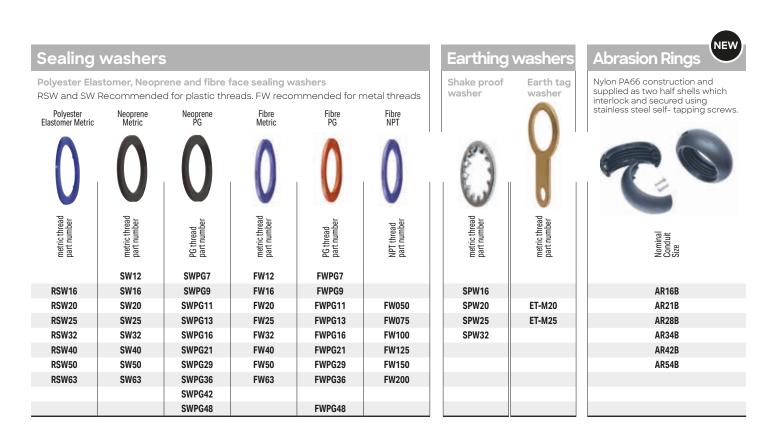




## **Accessories**

#### **Metric Locknuts** PG Locknuts NPT Locknuts Stop plug Nylon PG (grey) Nickel plated brass, plated steel, stainless steel, Nickel plated Zinc or nylon (black) Nylon metric nylon black or grey brass. Zinc black nylon black or grey stainless steel part number nickel plated brass part number plated number plated steel part number plated metric part number nickel p brass part nu ylon part n ylon sart n oárt n zinc PG part B-M12 LM12-N# B-PG7 PG7-N# SP-M12\* SP-PG7\* S-M16 SS-M16 SP-PG9 B-M16 LM16-N# B-PG9 PG9-N# SP-M16 B-M20-EMC SS-M20 LM20-N# SP-PG11 B-M20 S-M20 B-PG11 PG11-N# Z-050 050-NB SP-M20 B-M25-EMC LM25-N# S-M25 SS-M25 B-PG13 PG13-N# Z-075 075-NB SP-M25 SP-PG13 B-M25 B-M32-EMC S-M32 I M32-N# SP-M32 R-M32 SS-M32 B-PG16 PG16-N# 7-100 100-NR SP-PG16 B-M40-EMC S-M40 SS-M40 I M40-N# R-PG21 7-125 SP-M40\* SP-PG21 R-M40 PG21-N# SS-M50 LM50-N# PG29-N# SP-PG29 B-M50 S-M50 B-PG29 Z-150 B-M63 SS-M63\* LM63-N# B-PG36 PG36-N# S-M63 Z-200 B-M75 LM75-N B-PG42 PG42-N# LM85-N# B-PG48 PG48-N#

<sup>\*</sup> Indicates parts made to order on request and may be subject to MOQ and lead time



<sup>#</sup>add B or G to specify colour. eg. LM20-NB for Black



### Fixing clips

Plated steel with black pvc liner or stainless steel. LFH liner available on request



size

3
partnumber
FCC10-SS*
FCC12-SS

to fit conduits	partnumber	partnumber
10	FCC10	FCC10-SS*
12	FCC12	FCC12-SS
16	FCC16	FCC16-SS
20	FCC20	FCC20-SS
25	FCC25	FCC25-SS
32	FCC32	FCC32-SS
40	FCC40	FCC40-SS
50	FCC50	FCC50-SS
63	FCC63	FCC63-SS*
75	FCC75	
80	FCC80	
106	FCC106	

### Conduit clip

Nylon conduit clip with integral lid black or grey

#### **FCLAMP**

Non-metallic, heavy duty conduit clamp Nylon PA66, Nylon conduit

(For fixing rails & accessories see page 72)

fixing clamp for corrugated conduit.

#### End cap

EC

Nylon PA66 end cap to snap over end of conduit and provide a smooth entry bush to prevent snagging and sharp edges, and provide a neat finish when no connectors are used.

#### REC

Rubber end cap

Thermoplastic elastomer cap used to seal end of conduit. Can be cut to size depending on size of cable. Can be additionally secured using cable tie (not supplied).





to fit nominal conduit sizes	to fit nominal conduit sizes conduit sizes for conduit clip for corrugated conduit clip for plain or rigid		folamp	end cap	part number	to fit conduit size	outlet ID mm
10	FCL10				REC10	10	0-7
13	FCL13				REC13	13	0-7
16	FCL16	FCL16B-P	FCLAMP- 3-16	EC16B	REC16	16	0-11
18	FCL18	FCL18B-P					
20	FCL20	FCL20B-P					
21	FCL21	FCL21B-P	FCLAMP- 3-21	EC21B	REC21	21	0-15
25	FCL25	FCL25B-P					
28	FCL28		FCLAMP- 4-28	EC28B	REC28	28	0-21
32	FCL32						
34	FCL34	FCL33B-P	FCLAMP- 5-34	EC34B	REC34	34	0-25
42	FCL42		FCLAMP- 6-42	EC42B	REC42	42	0-34
54	FCL54		FCLAMP- 7-54	EC54B	REC54	54	0-46
67			FCLAMP- 7-67		REC67	67	0-52
80			FCLAMP- 8-80		REC80	80	0-62

<sup>\*</sup> indicates parts made to order on request and may be subject to MOQ and lead time

### Cable glands

Our range of Cable glands provides an easy to assemble, fast fit, liquid tight solution for multipurpose applications. Available in nickel plated brass they have been designed to provide the highest degree of functionality and safety.

Thread Size.	Nickel plated brass	Thread Length (mm)	Cable Dia (min) (mm)	Cable Dia (max) (mm)	Spanner Size (mm)	Pack Quantity
M16	B-M16-CG	12	4.5	10	20	10
M20	B-M20-CG	12	7	13	24	10
M25	B-M25-CG	12	9	17	29	10
M32	B-M32-CG	15	11	21	36	2
M40	B-M40-CG	15	19	28	45	2
M50	B-M50-CG	15	27	35	54	1
M63	B-M63-CG	15	35	47	67	1

### **Technical Details**

- Material: Nickel plated brass
- IP Rating: IP68 (10 bar) + IP69
- · Produced and tested in accordance with EN 50262:1999
- Temperature range:
- -40°C to +100°C (static) -20°C to +100°C (dynamic)

Thread Size.	EMC Nickel plated brass	Thread Length (mm)	Cable Dia (min) (mm)	Cable Dia (max) (mm)	Spanner Size (mm)	Pack Quantity
M16	B-M16-CG-EMC	12	4.5	9	20	10
M20	B-M20-CG-EMC	12	7	12.5	24	10
M25	B-M25-CG-EMC	12	9	16.5	29	10
M32	B-M32-CG-EMC	15	11	21	36	2
M40	B-M40-CG-EMC	15	19	28	45	2
M50	B-M50-CG-EMC	15	27	35	54	1

#### **Technical Details**

- Material: EMC Nickel plated brass
- IP Rating: IP68 (10 bar)
- · Produced and tested in accordance with EN 50262:1999

- Temperature range:

  -40°C to +100°C (static)

  -20°C to +100°C (dynamic)



# **Accessories**

### 90° Elbow

internal and external threaded nickel plated brass 90° elbow



threads	part number
PG7	BM90-PG7*
M16	BM90-16M
M20	BM90-20M
M25	BM90-25M
M32	BM90-32M
M40	BM90-40M
M50	BM90-50M

### Couplers

Nickel plated brass internally threaded



threads	metric thread part number
M16	B-M16-C
M20	B-M20-C
M25	B-M25-C
M32	B-M32-C
M40	B-M40-C
M50	B-M50-C
M63	B-M63-C
M75	B-M75-C

### Thread converters

Nickel plated brass thread convertors, reducers and enlargers external and internal thread.

#### **Metric Internal Threads**



	external thread	internal thread	(0		10			
	exte	inte thre	M16	M20	M25	M32	M40	M50
	M16			B-M16-M20				
ဗ	M20		B-M20-M16		B-M20-M25			
etri	M25			B-M25-M20		B-M25-M32		
Metric - Metric	M32			B-M32-M20	B-M32-M25		B-M32-M40	
letri	M40					B-M40-M32		
2	M50					B-M50-M32	B-M50-M40	
	M63						B-M63-M40	B-M63-M50
	PG7		B-PG7-M16	B-PG7-M20				
	PG9		B-PG9-M16	B-PG9-M20				
	PG11		B-PG11-M16	B-PG11-M20				
ی	PG13.5		B-PG13-M16	B-PG13-M20				
PG - Metric	PG16		B-PG16-M16	B-PG16-M20	B-PG16-M25			
- G	PG21			B-PG21-M20	B-PG21-M25	B-PG21-M32		
<u> </u>	PG29			B-PG29-M20	B-PG29-M25	B-PG29-M32	B-PG29-M40	
	PG36					B-PG36-M32	B-PG36-M40	
	PG42							
	PG48						B-PG48-M40	
<u>.</u> 9	%" NPT		B-038-M16					
Metr	1/2" NPT			B-050-M20				
NPT - Metric	3/4" NPT			B-075-M20	B-075-M25			
Z	1" NPT					B-100-M32		

#### **PG Internal Threads**

	,		caac	I.	I.	İ.	l .	I.	I.	1
	external thread	internal thread	PG7	PG9	PG11	PG13.5	PG16	PG21	PG29	PG36
	M16		B-M16-PG7	B-M16-PG9	B-M16-PG11					
9	M20		B-M20-PG7	B-M20-PG9	B-M20-PG11	B-M20-PG13	B-M20-PG16	B-M20-PG21		
- P	M25							B-M25-PG21		
Metric - PG	M32							B-M32-PG21		
2	M40								B-M40-PG29	
	M50									B-M50-PG36
	PG7			B-PG7-PG9						
	PG9		B-PG9-PG7		B-PG9-PG11					
	PG11		B-PG11-PG7	B-PG11-PG9		B-PG11-PG13				
	PG13.5			B-PG13-PG9	B-PG13-PG11		B-PG13-PG16			
PG-PG	PG16			B-PG16-PG9	B-PG16-PG11	B-PG16-PG13		B-PG16-PG21		
ခ်	PG21						B-PG21-PG16		B-PG21-PG29	
	PG29							B-PG29-PG21		B-PG29-PG36
	PG36								B-PG36-PG29	
	PG42									B-PG42-PG36
	PG48									B-PG48-PG36

Note: Refer to page 134 for thread dimensions tables.

For EXD thread converters, please see page 105





### Tools

The following tools and accessories are available to aid installation. See page 136 for cutting and assembly advice. Alternatively visit our website & view our handy video clips to aid your installation.

#### Clamp

Cutting vice to hold metallic conduits and guide hacksaw (16-50mm).



Part Number

BSB clamp

#### **Conduit cutter**

For any non metallic flexible and rigid conduits.



Part Number

**CC01** up to 34mm conduits**CC02** up to 67mm conduits

#### Slitting tool

Can be used to slit all corrugated conduits down to 13mm.



Part Number

CS01 Slitting tool

### Slit conduit insertion tool

For easy installation of wires into slit conduit.



Part Number	for conduit
ST16	FPYS16 + FPYS12
ST20	FPYS20
ST25	FPYS25
ST32	FPYS32

4 tooth Flexilok® Removal tool for use with 42mm & 54mm sizes (see page 48)



Part Number For use with:

FLK42RT FLK42-M40, FLK42-M50, FLK42-PG36
FLK54RT FLK54-M50, FLK54-M63, FLK54-PG48

# Removal tool for push in Flexilok® fittings (see page 48)



Part Number For use with

RTPF20 FLK16-PL20, FLK20-PL20, FLK21-PL20

RTPF25 FLK25-PL25, FLK28-PL25

RTPF32 FLK34-PL32



**Contractor Packs** 

#### **Hygiene Packs** Each pack contains:

· 3m conduit · 2 fittings · 2 locknuts

## 20mm I-PACK

#### I-PACKBUFG20 3m x LPCBUFG20 Conduit

2x LPC-C-FG Fittings 2x SS-M20 Locknuts



Blue Version

#### I-PACKWEG20

3m x LPCWFG20 Conduit 2x LPC-C-FG Fittings 2x SS-M20 Locknuts



White Version

- · Hygienic design
- · Smooth finish
- · High IP rating
- Corrosion resistant
- Temp: -20°C to +90°C



- · Self extinguishing
- · Vibration & shock tested

### 25mm I-PACK

#### I-PACKBUFG25

3m x LPCBUFG25 Conduit 2x LPC-C-FG Fittings 2x SS-M25 Locknuts



#### I-PACKWFG25

3m x LPCWEG25 Conduit 2x LPC-C-FG Fittings 2x SS-M25 Locknuts



White Version

- Hygienic design
- · Smooth finish
- High IP rating
- Corrosion resistant
- Temp: -20°C to +90°C











#### Fewer components

- Self extinguishing
- · Vibration & shock tested

### **Contractor Packs**

### **Benefits**

- · Simplistic ordering
- · Easy storage
- · Ready to use



## FPL-CP20W M20 thread FPL-CP25W M25 thread

- 10 metres of white corrugated upvc FPL20 or FPL25
- Pliable conduit for static applications
- Self extinguishing
- 10 white nylon Flexilok fittings and locknuts FLK20-M20W or FLK25-M25W
- IP66
- 1 part, fast fit

## **FPADS Contractor Packs**

Divisible conduit pack - Retrofit

FPADS - CP21BX5 M20 thread





#### Conduit wraps around cables

- 5 metres of divisible conduit
- 10 x Hinged fittings and locknuts - M20
- · Self extinguishing
- UV Resistant
- Enhanced mechanical protection
- IP40



IP54

IP65

IP66

IP66

#### STEEL



M20 thread



- 10 metres of galvanised steel with PVC coating
- Temperature range -15°C to +70°C
- Self extinguishing

- · High mechanical strength
- Highly flexible
- 5 M20 fixed fittings
- 5 M20 swivel fittings
- 10 steel locknuts
- . ID54

## NYLON

FPAS-CP21B FPAS-CP25B M20 thread M25 thread



- 10 metres of standard weight nylon PA6 FPAS21 or FPAS25
- · Low fire hazard
- · Halogen free
- · Self extinguishing
- · Low smoke and Low toxicity
- · High flexibility and fatigue life
- · High impact strength
- · Oil and solvent resistant
- UV resistant

- Temperature range -40°C to +120°C
- 10 FPA fittings and locknuts FPA21-M20B or FPA25-M25B
- · One part, fast fit
- · Removable using a screwdriver
- High pull-off strength
- Anti-vibration
- IP66
- UV resistant

### **PVC SPIRAL**

FPC-CP20B FPC-CP25B

M20 thread M25 thread



- 10 metres of spiral reinforced pvc FPC20 or FPC25
- · Highly flexible
- Accepts torsional movement
- Self extinguishing
- UV resistant
- Temperature range -5°C to +70°C
- 10 MPC fittings and locknuts
- IP65
- UV resistant
- Smooth bore

#### NYLON

FPYE-CP20B

M20 thread

FPYE-CP25B

M25 thread



- 10 metres of light weight nylon PA6 FPAL20 or FPAL25
- Flexible
- Halogen free
- Self extinguishing
- Temperature range -40°C to +120°C
- 10 Flexilok fittings and locknuts FLK20-M20B or FLK25-M25B
- IP66
- · One part, fast fit

#### POLYPROPYLENE

FPP-CP20B FPP-CP25B M20 thread M25 thread

FPP-CP34B

M32 thread



- 10 metres of polypropylene FPP20, FPP25 or FPP34
- Temperature range -20°C to +90°C
- Self extinguishing
- To specify grey change B to a G eg: FPP-CP20G
- 10 Flexilok (PP) fittings and locknuts FLK20-M20BPP, FLK25-M25BPP or FLK34-M32BPP
- IP66
- · One part, fast fit

### **Standards**







## Don't forget

See page 125









## Non-Metallic conduit and fittings

								_	•						.9.								
Page number	Conduit S	System	ASTM NO.1	ASTM NO.2	ASTM NO.3	ACETIC ACID (10%)	ACETONE	ALUMINIUM CHLORIDE	BENZENE	CARBON TETRACHLORIDE	CHLOROFORM	CITRICACID	COPPERSULPHATE	CRESOL	DIESEL OIL	DIETHYLAMINE	ETHANOL	ETHER	ETHYLAMINE	ETHYLENE GLYCOL	FREON 32	HYDROCHLORIC ACID (10%)	HYDROCHLORIC ACID (30%)
44	FPAS	nylon LFH PA6 corrugated, std weight	1	1	1	L	1	×	1	1	×	1	L	×	1	1	1	1	1	1	1	×	×
44	FPAL	nylon PA6 corrugated, light weight	1	1	1	L	1	×	1	1	×	1	L	×	1	1	1	1	1	1	1	×	×
44	FPAH	nylon LFH PA6 corrugated, heavy weight	1	1	1	L	1	×	1	1	×	1	L	×	1	1	1	1	1	1	1	×	×
44	FPASC	nylon LFH PA6 corrugated, std weight	1	1	1	L	1	×	1	1	×	1	L	×	1	1	1	1	1	1	1	×	×
45	FPR	nylon extra LFH PA6 corrugated, std weight	1	1	1	L	1	×	1	1	×	1	L	×	1	1	1	1	1	1	1	×	×
45	FPI	nylon PA12 corrugated, standard weight	1	1	1	L	1	L	1	1	×	1	L	×	1	L	L	1	L	1	/	×	×
45	FPIH	nylon PA12 corrugated, heavy weight	1	1	1	L	1	L	1	1	×	1	L	×	1	L	L	1	L	1	1	×	×
45	FPIHRL	nylon PA12 corrugated, heavy weight	1	1	1	L	1	L	1	1	×	1	L	×	1	L	L	1	L	1	1	×	×
45	FPP	polypropylene corrugated, std weight	1	1	L	PP	1	L	L	L	L	1	L	×	1	1	1	1	1	1	/	PP	PP
46	FPADS	nylon PA6 double slit corrugated	1	1	1	L	1	×	1	1	×	1	L	×	1	1	1	1	1	1	1	×	×
46	FPRDS	nylon extra LFH PA6 corrugated, std weight	1	1	1	L	1	×	1	1	×	1	L	×	1	1	1	1	1	1	1	×	×
46	FPPDS	polypropylene corrugated, std weight	1	/	L	PP	1	L	L	L	L	/	L	×	1	1	1	1	1	1	1	PP	PP
66	FPL	upvc corrugated	1	1	1	L	×	L	×	L	×	1	L	×	1	L	1	1	L	1	L	×	×
68	FPY	nylon PA6 corrugated	1	1	1	L	1	×	1	1	×	1	L	×	1	1	1	1	1	1	1	×	×
68	FPYS	slit nylon PA6 corrugated, std weight	1	1	1	L	1	×	1	1	×	1	L	×	1	1	1	1	1	1	1	×	×
68	FPYL	nylon PA6 corrugated, light weight	1	1	1	L	1	×	1	1	×	1	L	×	1	1	1	1	1	1	1	×	×
68	FPYLS	slit nylon PA6 corrugated, light weight	1	1	1	L	1	×	1	1	×	1	L	×	1	1	1	1	1	1	1	×	×
74	FPCB	pvc spiral reinforced black	×	×	×	L	×	L	×	L	×	1	L	×	L	L	×	L	L	L	L	×	×
74	FPCG	pvc spiral reinforced grey	×	×	×	L	×	L	×	L	×	1	L	×	L	L	×	L	L	L	L	×	×
74	FPCGN	pvc spiral reinforced green oil resistant	1	1	1	1	×	×	×	L	×	1	1	L	1	L	×	L	L	L	L	L	×
74	FPCBU	pvc spiral reinforced blue high temperature	×	×	×	L	×	L	×	L	×	1	L	×	L	L	×	L	L	L	L	×	×
76	LPCB	smooth, pvc spiral reinforced	1	1	1	1	×	×	×	L	×	1	1	L	1	L	×	L	L	L	L	L	×
76	LPCO	smooth pvc spiral orange ultra flexible	1	1	1	1	×	×	×	L	×	1	1	L	1	L	×	L	L	L	L	L	×
76	LPCBU	smooth pvc spiral blue high temperature		1	1	1	×	×	×	L	×	1	1	L	1	L	×	L	L	L	L	L	×
76	LPCGN	smooth pvc spiral green oil resistant		1	1	1	×	×	×	L	×	1	1	L	1	L	×	L	L	L	L	L	×
80	LPC-FG	smooth, pvc spiral reinforced	1	1	1	1	×	×	×	L	×	1	1	L	1	L	×	L	L	L	L	L	×
80	AFC UL-FG	smooth, non-metallic PVC construction	L	С	×	L	×	1	×	×	×	1	С	L	×	С	×	×	С	L	×	×	×
	Kev	✓ good	d resis	tance	;			PP s	uitab	le wit	h pol	yprop	ylene	fittir	igs		X	poorı	resist	ance			

Δ.



### **Resistance to Chemicals**

Visit our website and use our conduit selector tool to see chemical resistance properties.

			Resistance to Chemicals resistance properties.																													
HYDROGEN PEROXIDE (30%)	HYDROGEN PEROXIDE (60%)	LACTIC ACID	LUBRICATING OIL	METHANOL	METHYL BROMIDE	MEK	NITRIC ACID (10%)	NITRIC ACID (60%)	OXALIC ACID	OZONE (GAS)	PARAFFIN OIL	PETROL	PHENOL	SEAWATER	SILVER NITRATE	SKYDROL	SODIUM CHLORIDE	SODIUM HYDROXIDE (10%)	SODIUM HYDROXIDE (60%)	SULPHUR DIOXIDE (GAS)	SULPHURIC ACID (10%)	TOLUENE	TRANSFORMER OIL	1,1,1-TRICHLOROETHANE	TRICHLOROETHYLENE	TURPENTINE	VEGETABLE OIL	VINYLACETATE	WATER	WHITE SPIRIT	ZINC CHLORIDE	
×	×	L	1	L	×	1	×	×	L	×	1	1	×	1	1	1	1	1	1	×	×	1	1	1	L	1	1	L	1	1	×	FPAS
×	×	L	1	L	×	1	×	×	L	×	1	1	×	1	1	1	1	1	1	×	×	1	1	1	L	1	1	L	1	1	×	FPAL
×	×	L	1	L	×	1	×	×	L	×	1	1	×	1	1	1	1	1	1	×	×	1	1	1	L	1	1	L	1	1	×	FPAH
×	×	L	1	L	×	1	×	×	L	×	1	1	×	1	1	1	1	1	1	×	×	1	1	1	L	1	1	L	1	1	×	FPASC
×	×	L	1	L	×	1	×	×	L	×	1	1	×	1	1	1	1	1	1	×	×	1	1	1	L	1	1	L	1	1	×	FPR
×	×	L	1	L	×	1	×	×	L	×	1	1	×	1	1	1	1	1	L	×	×	1	1	1	×	1	1	L	1	1	×	FPI
×	×	L	1	L	×	1	×	×	L	×	1	1	×	1	1	1	1	1	L	×	×	1	1	1	×	1	1	L	1	1	×	FPIH
×	×	L	1	L	×	1	×	×	L	×	1	1	×	1	1	1	1	1	L	×	×	1	1	1	×	1	1	L	1	1	×	FPIHRL
×	×	PP	1	L	×	1	PP	PP	PP	×	1	1	×	1	1	1	1	1	1	PP	PP	1	1	L	L	×	1	L	1	1	×	FPP
×	×	L	1	L	×	1	×	×	L	×	1	1	×	1	1	1	1	1	1	×	×	1	1	1	L	1	1	L	1	1	×	FPADS
×	×	L	1	L	×	1	×	×	L	×	1	1	×	1	1	1	1	1	1	×	×	1	1	1	L	1	1	L	1	1	×	FPRDS
×	×	PP	1	L	×	1	PP	PP	PP	×	1	1	×	1	1	1	1	1	1	PP	PP	1	1	L	L	×	1	L	1	1	×	FPPDS
×	×	L	1	L	×	×	×	×	L	×	1	1	×	1	1	×	1	1	1	×	×	×	1	×	×	1	1	×	1	1	×	FPL
×	×	L	1	L	×	1	×	×	L	×	1	1	×	1	1	1	1	1	1	×	×	1	1	1	L	1	1	L	1	1	×	FPY
×	×	L	1	L	×	1	×	×	L	×	1	1	×	1	1	1	1	1	1	×	×	1	1	1	L	1	1	L	1	1	×	FPYS
×	×	L	1	L	×	1	×	×	L	×	1	1	×	1	1	1	1	1	1	×	×	1	1	1	L	1	1	L	1	1	×	FPYL
×	×	L	1	L	×	1	×	×	L	×	1	1	×	1	1	1	1	1	1	×	×	1	1	1	L	1	1	L	1	1	×	FPYLS
L	×	L	L	×	×	×	×	×	L	×	L	×	×	1	1	×	1	1	L	×	×	×	L	×	L	L	L	×	1	L	×	FPCB
L	×	L	L	×	×	×	×	×	L	×	L	×	×	1	1	×	1	1	L	×	×	×	L	×	L	L	L	×	1	L	×	FPCG
L	×	L	1	×	×	×	L	×	1	L	1	1	L	1	1	×	1	1	1	×	×	×	L	×	L	L	1	×	1	L	×	FPCGN
L	×	L	L	×	×	×	×	×	L	×	L	×	×	1	1	×	1	1	L	×	×	×	L	×	L	L	L	×	1	L	×	FPCBU
L	×	L	1	×	×	×	L	×	1	L	1	1	L	1	1	×	1	1	1		SS		L	×	L	L	1	×	1	L	×	LPCB
L	×	L	1	×	×	×	L	×	1	L	<b>√</b>	1	L	1	1	×	1	1	1		SS		L	×	L	L	✓	×	1	L	×	LPCO
L	×	L	1	X	×	X	L	×	1	L	1	1	L	1	1	×	1	1	1		SS		L	×	L	L	1	×	1	L	×	LPCBU
L	×	L	1	×	×	×	L	×	/	L	1	/	L	1	1	×	1	1	/	×	SS		L	×	L	L	1	×	/	L	X	LPCGN
L	×	L	1	×	×	×		×	/	L	✓ 	✓ 	L	1	✓ ✓	×	✓ 	1	1		SS		L	×	L	L	1	×	1	L	X	LPC-FG
L	×	С	<b>√</b>	С	×	×	<b>√</b>	×	<b>/</b>	С	С	С	L	1	×	×	С	✓	1	С	<b>√</b>	×	С	×	×	×	<b>√</b>	С	<b>/</b>	С	<b>/</b>	AFC UL-FG

The chart above is based on exposure to single chemicals at room temperature and should be used as a selection guide. For additional chemicals, higher concentrations, elevated temperatures or combinations of chemicals, please call +44 (0)1675 466900 for technical advice.



Metallic conduit and fittings

			111	Cro	יוווג	<b>. .</b>	OH	au	ונכ	אווכ	<i>a</i> 11	CUI	ng:	3									
Page number	Conduit S	System	ASTM NO. 1	ASTM NO. 2	ASTM NO. 3	ACETICACID (10%)	ACETONE	ALUMINIUM CHLORIDE	BENZENE	CARBONTETRACHLORIDE	CHLOROFORM	CITRIC ACID	COPPER SULPHATE	CRESOL	DIESEL OIL	DIETHYLAMINE	ETHANOL		ETHYLAMINE	ETHYLENE GLYCOL	FREON 32	HYDROCHLORIC ACID (10%)	HYDRO CHLORIC ACID (30%)
88	FU	galvanised steel	1	1	1	×	1	×	1	1	1	1	1	1	1	1	1	1	1	×	×	×	×
88	SSU	stainless steel, grade 316	1	1	1	1	1	×	1	1	1	1	1	1	1	1	1	1	1	1	1	×	×
90	FSU	galvanised steel, pvc coated	×	×	×	L	×	×	×	×	×	1	1	L	L	×	×	×	×	L	L	1	×
90	FNU	galvanised steel, nylon coated	1	1	1	L	1	×	L	1	X	1	L	×	1	1	1	1	1	1	1	×	×
92	LFHU	galvanised steel, LFH coated	L	L	L	1	×	×	×	×	×	1	1	×	×	1	×	×	×	1	×	×	×
92	FPU	galvanised steel, polyurethane coated	1	1	1	×	L	L	L	L	X	1	1	×	1	L	1	L	×	1	×	×	×
98	LTP	galv steel, pvc coated, liquid tight	L	L	L	1	×	×	×	L	X	1	1	L	L	L	×	L	L	L	L	L	×
98	LTPAS	galv steel, pvc coated, liquid tight	L	L	L	1	×	×	×	L	X	1	1	L	L	L	×	L	L	L	L	L	×
98	LTPHC	galv steel, thermoplastic rubber, liquid tight	1	L	L	1	1	×	×	L	L	1	1	1	1	1	1	1	L	1	×	1	1
98	LTPLFH	galv steel, LFH coated, liquid tight	1	1	1	1	×	×	×	L	X	1	1	L	L	L	×	L	L	L	L	L	×
95	LTPUL	galv steel, PVC coated, liquid tight	1	1	1	1	×	×	×	L	X	1	1	L	L	L	×	L	L	L	L	L	×
95	LTPPU	galv steel, polyurethane coated, liquid tight	1	1	1	×	L	L	L	L	X	1	1	×	1	L	1	L	×	✓	×	×	×
95	LTPPUAS	galv steel, polyurethane coated, liquid tight	1	1	1	×	L	L	L	L	X	1	1	×	1	L	1	L	×	✓	×	×	×
95	LTPSS	stainless steel, pvc coat- ed, liquid tight	1	1	1	1	×	×	×	L	X	1	1	L	L	L	×	L	L	L	L	L	×
96	LTBRDP	galv steel, braided core, pvc coated, liquid tight	1	1	1	1	×	×	×	L	X	1	1	L	L	L	×	L	L	L	L	L	×
96	LTBRDLFH	galv steel, braided core, LFH coated, liquid tight	L	L	L	1	×	×	×	×	X	1	1	×	L	1	×	X	×	1	×	×	×
106	LTPBRD	galv steel, rubber coat- ed, SS316 overbraid	1	L	L	1	1	×	×	L	L	1	1	1	1	1	1	1	L	✓	×	1	1
108	LTP-FG	galv steel, pvc coated, liquid tight	L	L	L	1	×	×	×	L	X	1	1	L	L	L	×	L	L	L	L	L	×
108	LTBRDP-FG	galv steel, pvc coated, liquid tight	L	L	L	1	×	×	×	L	X	1	1	L	L	L	×	L	L	L	L	L	×
108	LTPSS-FG	stainless steel, pvc coated, liquid tight	1	1	1	1	×	×	×	L	×	1	1	L	1	L	×	L	L	L	L	L	×
108	AFC UL-FG	Zinc coated, galvanised low carbon steel strip	L	С	×	L	×	1	×	×	×	1	С	L	×	С	×	×	С	L	×	×	×
110	FL	galvanised steel, pliable	1	1	1	×	1	×	1	1	1	1	1	1	1	1	1	1	1	×	×	×	×
111	FLP	galvanised steel, pvc coated, pliable	×	×	×	L	×	×	×	L	X	1	1	L	L	L	×	L	L	L	L	1	L
112	LFHP	galvanised steel, LFH coated, pliable	L	L	L	1	×	×	×	×	×	1	1	×	×	1	×	×	×	✓	×	×	×
112	FB	galvanised steel, galv steel overbraid	1	1	1	×	1	×	1	1	1	1	1	1	1	1	1	1	1	X	×	×	×
114	FUSSB	galvanised steel, SS316 overbraid	1	1	1	×	1	×	1	1	1	1	1	1	1	1	1	1	1	X	×	×	×
114	FSB	galv steel, pvc, galv steel overbraid	×	×	×	L	×	×	×	×	×	1	1	L	L	×	×	×	×	L	L	1	×
116	LFHUBRD	galv steel, LFH coated, SS316 overbraid	L	L	L	1	×	×	×	×	X	1	1	×	×	1	×	X	×	✓	×	×	×
116	FSS	stainless steel corrugated	1	1	1	1	1	×	1	1	1	1	1	1	1	1	1	1	1	✓	1	×	×
118	FSSBRD	stainless steel corrugated, overbraid	1	1	1	1	1	×	1	1	1	1	1	1	1	1	1	1	1	1	1	×	×
118	FPRSS	PA6 corrugated, SS316 overbraid	1	1	1	L	1	×	1	1	×	1	L	X	1	1	1	1	1	1	1	X	×
118	FPRTC	PA6 corrugated, tinned copper overbraid	1	1	1	L	1	X	1	1	X	1	L	X	1	1	1	1	1	X	X	X	×
118	FPISS	PA12 corrugated, SS316 overbraid	1	1	1	L	1	L	1	1	×	1	L	X	1	L	L	1	L	1	1	X	×
118	FPIHSS	PA12 corrugated, SS316 overbraid	1	1	1	L	1	L	1	1	X	1	L	X	1	L	L	1	L	1	1	X	×
118	FPHIRLSS	PA12 corrugated, SS316 overbraid	1	1	/	L	1	L	1	1	X	1	L	X	✓	L	L	1	L	✓	1	X	×
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Δ.



### **Resistance to Chemicals**

Visit our website and use our conduit selector tool to see chemical resistance properties.

														R	es	IST	.ar	IC	e 1	O	CI	1e	m	IC	ais		r	esis	tanc	e pi	rope	rties.
HYDROGEN PEROXIDE (30%)	HYDROGEN PEROXIDE (60%)	LACTIC ACID	LUBRICATING OIL	METHANOL	METHYL BROMIDE	MEK	NITRIC ACID (10%)	NITRIC ACID (60%)	OXALIC ACID	OZONE (GAS)	PARAFFIN OIL	PETROL	PHENOL	SEA WATER	SILVER NITRATE	SKYDROL	SODIUM CHLORIDE	SODIUM HYDROXIDE (10%)	SODIUM HYDROXIDE (60%)	SULPHUR DIOXIDE (GAS)	SULPHURIC ACID (10%)	TOLUENE	TRANSFORMER OIL	1,1,1-TRICHLOROETHANE	TRICHLOROETHYLENE	TURPENTINE	VEGETABLE OIL	VINYL ACETATE	Water	WHITE SPIRIT	ZINC CHLORIDE	nes.
X	X	X	1	1	1	1	X	X	X	X	1	1	1	×	X	1	X	X	X	X	×	1	1	X	X	1	1	X	X	1	×	FU
1	1	1	1	1	1	1	×	×	1	1	1	1	1	SS	1	1	SS	1	L	×	1	1	1	1	1	1	1	1	1	1	1	SSU
1	1	L	L	×	×	×	1	1	×	L	L	×	×	×	1	×	×	1	L	×	×	×	L	×	×	L	L	×	1	L	1	FSU
×	×	L	1	L	×	1	×	×	L	×	1	1	×	×	1	1	×	1	1	×	×	1	1	1	L	1	1	L	1	1	X	FNU
×	×	1	L	×	×	×	1	×	1	1	×	×	×	×	1	×	1	1	1	×	×	L	L	L	L	×	L	×	1	×	1	LFHU
L	×	L	L	L	×	L	×	×	L	L	L	1	×	×	L	×	1	L	×	L	L	×	L	×	×	×	✓	×	1	L	L	FPU
L	×	L	1	×	×	L	L	×	1	L	×	L	L	SS	1	×	SS	1	1	×	SS	×	L	×	×	L	✓	×	1	L	X	LTP
L	×	L	1	×	×	L	L	×	1	L	×	L	L	SS	1	×	SS	1	1	×	SS	×	L	×	×	L	1	×	1	L	×	LTPAS
L	×	L	L	1	L	1	1	1	1	L	1	1	1	SS	1	1	SS	1	×	1	SS	×	×	L	×	×	✓	1	1	×	1	LTPHC
L	×	L	L	×	×	×	L	×	1	L	L	L	L	SS	1	×	SS	1	1	×	SS	×	L	×	×	L	L	×	1	L	×	LTPLFH
L	X	L	1	×	×	×	L	×	1	L	1	L	L	SS	1	×	SS	1	1	×	SS	×	L	×	×	L	✓	×	1	L	×	LTPUL
L	×	L	L	L	×	L	×	×	L	L	L	1	×	SS	L	×	1	L	×	L	L	×	L	×	×	×	✓	×	1	L	L	LTPPU
L	×	L	L	L	×	L	×	×	L	L	L	1	×	SS	L	×	1	L	×	L	L	×	L	×	×	×	✓	×	1	L	L	LTPPUAS
L	×	L	1	×	×	×	L	×	1	L	1	L	L	SS	1	×	SS	1	1	×	SS	×	L	×	×	L	✓	×	1	L	×	LTPSS
L	×	L	1	×	×	L	L	×	1	L	1	L	L	SS	1	×	SS	1	1	×	SS	×	L	×	×	L	1	×	1	L	X	LTBRDP
×	×	1	L	×	×	×	1	×	1	1	×	L	×	SS	1	×	1	1	1	×	×	L	L	L	L	×	L	×	1	×	1	LTBRDLFH
L	×	L	L	1	L	1	1	1	1	L	1	1	1	L	1	1	SS	1	×	1	SS	×	×	L	×	×	✓	1	1	×	1	LTPBRD
L	×	L	1	×	×	L	L	×	1	L	×	L	L	SS	1	×	SS	1	1	×	SS	×	L	×	×	L	✓	×	1	L	×	LTP-FG
L	×	L	1	×	×	L	L	×	1	L	×	L	L	SS	1	×	SS	1	1	×	SS	×	L	×	×	L	✓	×	1	L	×	LTBRDP-FG
L	×	L	1	×	×	×	L	×	1	L	1	1	L	SS	1	×	SS	1	1	×	SS	×	L	×	×	L	1	×	1	L	X	LTPSS-FG
L	×	С	1	С	×	×	1	×	1	С	С	С	L	1	×	×	С	1	1	С	1	×	С	×	×	×	✓	С	1	С	1	AFC UL-FG
X	×	×	1	1	1	1	×	×	×	×	1	1	1	X	×	1	×	×	×	×	×	1	1	×	×	1	✓	×	×	1	×	FL
✓	1	L	L	×	×	×	1	1	L	L	L	×	L	L	1	×	L	1	L	×	×	×	L	×	×	L	L	×	1	L	1	FLP
X	×	✓	L	×	×	×	1	×	1	1	×	×	×	L	1	×	1	1	1	×	×	L	L	L	L	×	L	×	✓	×	1	LFHP
×	X	×	1	1	1	1	×	×	×	×	1	1	1	X	×	1	×	×	×	×	×	1	1	×	×	1	✓	×	×	✓	×	FB
×	×	×	1	1	1	1	×	×	×	×	1	1	1	×	×	1	×	×	×	×	×	1	1	×	×	1	✓	×	×	1	X	FUSSB
×	×	×	L	×	×	×	×	×	×	×	L	×	×	X	×	×	×	×	×	×	×	×	L	×	×	L	L	×	×	L	X	FSB
X	×	1	L	×	×	×	1	×	1	1	×	×	×	×	1	×	1	1	1	×	×	L	L	L	L	×	L	×	1	×	1	LFHUBRD
✓	1	1	1	1	1	1	×	×	1	1	1	1	1	SS	1	1	SS	1	L	×	1	1	1	1	1	1	✓	1	1	1	1	FSS
✓	1	1	1	1	1	1	×	×	1	1	1	1	1	SS	1	1	SS	1	L	×	1	1	1	1	1	1	✓	1	1	1	1	FSSBRD
×	×	L	1	L	×	1	×	×	L	×	1	1	×	L	1	1	1	1	1	×	×	1	1	1	L	1	✓	L	1	1	×	FPRSS
×	×	×	1	L	×	1	×	×	×	×	1	1	×	×	×	×	×	×	×	×	×	1	1	×	L	1	×	L	1	1	×	FPRTC
×	×	L	1	L	×	1	×	×	L	×	1	1	×	L	1	1	1	1	L	×	×	1	1	1	×	1	1	L	1	1	×	FPISS
×	×	L	1	L	×	1	×	×	L	×	1	1	×	L	1	1	1	1	L	×	×	1	1	1	×	1	✓	L	1	1	×	FPIHSS
X	X	L	1	L	×	1	×	×	L	×	1	1	×	L	1	1	1	1	L	×	X	1	1	1	X	1	✓	L	1	<b>√</b>	×	FPHIRLSS

The chart above is based on exposure to single chemicals at room temperature and should be used as a selection guide. For additional chemicals, higher concentrations, elevated temperatures or combinations of chemicals, please call +44(0)1675 466900 for technical advice.



## **Thread Data and Cable Carrying Capacity**

#### Metric

Standard thread conforming to EN60423

Thread size	External thread outside diameter (mm)	Internal thread inside diameter (mm)	Pitch mm
M12	12.0	10.4	1.5
M16	16.0	14.4	1.5
M20	20.0	18.4	1.5
M25	25.0	23.4	1.5
M32	32.0	30.4	1.5
M40	40.0	38.4	1.5
M50	50.0	48.4	1.5
M63	63.0	61.4	1.5
M75	75.0	73.4	1.5
M85	85.0		

#### PG

German standard thread conforming to DIN40430

Thread size	External thread outside diameter (mm)	Internal thread inside diameter (mm)	Pitch mm
PG7	12.5	11.3	1.27
PG9	15.2	13.9	1.41
PG11	18.6	17.3	1.41
PG13.5	20.4	19.1	1.41
PG16	22.5	21.2	1.41
PG21	28.3	26.8	1.59
PG29	37.0	35.5	1.59
PG36	47.0	45.5	1.59
PG42	54.0	52.5	1.59
PG48	59.3	57.8	1.59

#### **NPT**

American taper pipe thread conforming to ANS/ASME B1.20.1 - 1983

Thread size (inches)	External thread max outside diameter (mm)	Pitch mm
3/8"	17.4	1.14
1/2"	21.5	1.81
3/4"	27.0	1.81
1"	33.6	2.21
111/4"	42.3	2.21
11/2"	48.5	2.21
2"	60.6	2.21

### PF / gas

Japanese conduit thread conforming to JIS B 0202

Thread size (inches)	External thread outside diameter (mm)	Internal thread inside diameter (mm)	Pitch mm
1/2"	21.0	18.6	1.81
3/4"	26.4	24.1	1.81
1"	33.3	30.3	2.31
11/4"	41.9	39.0	2.31
11/2"	47.8	44.8	2.31
2"	59.6	56.7	2.31

#### **UNEF / UNS / UN**

American unified thread conforming to BS1580 used on circular connectors

UNEF Imperial sizes	Thread size (inches)	External thread outside diameter (mm)	Internal thread inside diameter (mm)	Pitch mm
5/8" - 24 UNEF	5/8"	15.9	14.7	1.06
3/4" - 20 UNEF	3/4"	19.1	17.7	1.27
7/8" - 20 UNEF	7/8"	22.2	20.9	1.27
1" - 20 UNEF	1"	25.4	24.0	1.27
13/16" - 18 UNEF	13/16"	30.2	28.6	1.41
11/4" - 18 UNEF	11/4"	31.8	30.2	1.41
13/8" - 18 UNEF	13/8"	34.9	33.4	1.41
17/16" - 18 UNEF	17/16"	36.5	35.0	1.41
13/4" - 18 UNS	13/4"	44.5	42.9	1.41
2" - 18 UNS	2"	50.8	49.3	1.41
21/4" - 18 UN	21/4"	57.2	55.4	1.41

## Cable carrying capacity

UK wiring regulations BS7671, recommend that the total cross sectional area of the sum of the individual cables should not exceed 40% of the cross sectional area of the conduit. The nominal cross sectional area of single-core, stranded, PVC insulated cables is provided as a guide only. Other cables may have different dimensions.

Nominal conductor size (mm²)	Nominal overall cross sectional area (mm²) of cable
1.0	6.6
1.5	7.6
2.5	9.6
4.0	14.5
6.0	18.8
10.0	29.3
16.0	40.2
25.0	63.8
35.0	83.5
50.0	113.0
70.0	149.0
95.0	204.0

Example: is LTP20 suitable for five 4.0mm² cables?

- The total cross sectional area of the conductors is 5 x 14.5mm<sup>2</sup> = 73mm<sup>2</sup>
- The cross sectional area of LTP20 is 3.142 x [inside diameter]<sup>1</sup> = 201mm<sup>1</sup>
- % of conduit cross sectional area 73 = 36%

201

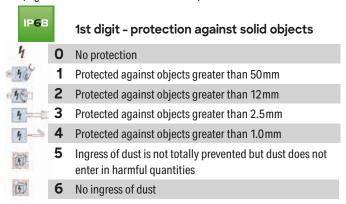
This is less than 40%; therefore this conduit is suitable for this combination of cables.



## **IP Rating and Technical Guidance**

### IP ratings guide

(Ingress Protection to BS EN IEC 60529)





## **Buyer Beware**

IP tests are type tests of short duration and do not guarantee long term performance. EN 60529 states that equipment conforming to IP67 or IP68 cannot be assumed to meet IP66 and that the manufacturer shall declare the pressure and duration of the test, for example, FPAX 2 bar for 2 hours.



#### 2nd digit - protection against water

L

No protection

3 minutes



Protected against falling drops



Protected against drops falling at 15°



3 Low pressure spray – similar to shower head - up to 60° from vertical



4 Low pressure spray – similar to shower head – from any angle for 5 minutes



**5** Medium pressure jet – similar to garden hose – from any angle for 3 minutes



angle for 3 minutes

High pressure jet – similar to fire hose – from any angle for



7 Submersion at 1 metre for 30 minutes



Higher water pressure eg: 2 bar for 2 hours. Conduits are tested in-house at up to 10 bar. (equivalent to 100m underwater)



9 Steam clean, high pressure high temp jet wash

## Technical guidance

#### **Application advice**

Flexicon can offer impartial advice on which of our wide range of conduit systems are most suited to your application. Factors which may be important include:-

#### Standards, performance and approvals

Flexicon conduits and fittings are manufactured by Flexicon to comply with the IEC and European conduit standard BS EN IEC 61386 - see classification table below.

Certain tests are carried out internally by Flexicon, other testing is carried out externally by accredited test laboratories. Specific test reports are available upon request.

Vibration and shock testing to EN61373 Cat 2.

Certain conduit systems have been tested and approved to the relevant parts of the Australian Standard AS/NZS 2053:3 2001. Where product performance data over and above the requirements of BS EN IEC 61386 is provided e.g: Low Fire Hazard testing and EMC screening, other appropriate standards have been used.

Cable glands are manufactured to EN 50262.

- Compression strength
- Corrosion resistance
- Tensile strength
- Abrasion resistance
- Impact strength
- UV resistance
- Temperature range
- Anti vibration
- Flexibility
- Fire performance
- Fatigue life
- EMC screening
- Electrical insulation or continuity

· Chemical resistance

- Dimensions
- IP rating
- Weight

## Classification of conduit systems to BS EN IEC 61386

o Level	1st digit Compression Strength N/50mm	2nd digit Impact Strength Joules at min temp	3rd digit Minimum Temp deg C	4th digit Maximum Temp deg C	5th digit Conduit Type	None deb digit Electrical Properties	7th digit IP Rating Solids	8th digit O IP Rating Water	Ornosion  Ph digit Corrosion Resistance (water)	Noth digit Tensile Strength N	11th digit Flame Propagation	12th digit Suspended Load N/48hr
1	V. Light (125)	V. Light (0.5)	5	60	Rigid	Continuous		1	Low in & out	V. Light (100)	Non Flame Propagating	V. Light (20)
2	Light (320)	Light (1)	-5	90	Pliable	Insulating		2	Medium in & out	Light (250)	Flame Propagating	Light (30)
3	Medium (750)	Medium (2)	-15	105	Pliable self recoving	Continuous + Insulating	3	3	Medium in & high out	Medium (500)		Medium (150)
4	Heavy (1250)	Heavy (6)	-25	120	Flexible		4	4	High in & out	Heavy (1000)		Heavy (450)
5	V. Heavy (4000)	V. Heavy (20)	-45	150			5	5		V. Heavy (2500)		V. Heavy (850)
6				250			6	6				
7				400				7				

atkore.com/flexicon



#### **Installation Instructions**

## **Cutting Conduit**



Scan to visit our Channel to see our latest videos



Non-metallic conduits to 34mm can be easily cut with Flexicon Conduit Cutters, part no. CC01. Use CC02 for sizes up to 67mm. Drop the blade into a corrugation and squeeze and twist until conduit is cut 50% through. Cut the remaining 50% without twisting to achieve a square cut.

Metallic conduits should be cut with a fine tooth (32 TPI) hacksaw or bandsaw. Ensure you make a straight vertical cut. Our clamping vice, part no. BSB makes the use of a hacksaw much easier.



Cutting of overbraided conduit is made much easier by tightly wrapping self adhesive tape around the conduit and sawing through the middle of the tape. The tape should be removed after cutting if EMC screening is required. Ensure you make a straight vertical cut.

Note: Conduit length is measured under light tension. When cutting an exact number of lengths from a reel (e.g. 5 x 5m from 25m) please take into account the length tolerance of the reel and each cut length.

## **Non-Metallic Fittings**



Our range of non-metallic conduit fittings, Flexicon Ultra™, Flexilok®, FPA and FPAX are all push fit fittings which are quick to assemble once you have cut the conduit to length.



For  $Ultra^{\mbox{\tiny TM}},$   $Flexilok^{\mbox{\tiny 0}}$  and FPA fittings simply push the conduit into the end of the fitting with a slight twist until it will go no further. Pull back slightly to ensure the locking teeth mechanism has engaged with the corrugations.



The FPAX fitting features a conduit seal to provide an IP rating up to IP69. This simply fits onto the end of the conduit before the fitting is connected to the conduit. To aid assembly moisten this seal. For a one piece fitting with an IP69 rating use Ultra™ (An FPA fitting cannot be uprated to IP69 with the addition of a seal). Pull back slightly to ensure the locking teeth mechanism has engaged with the corrugations.

To remove the Ultra™, FPA or FPAX fittings simply insert a small screwdriver into the screwdriver slot and move the screwdriver handle towards the "off" position. Remove the screwdriver then manually twist the cap further towards the off position - the fitting can then be released from the conduit. Once removed, the fitting can be reused by simply twisting the cap so that the screwdriver slot lines up with the ON position.

Scan to view our videos

## **Metallic Fittings**



Our fitting's components are supplied part assembled to illustrate how they go together. Our C type fittings consist of a compression nut, an elastomeric seal, an insert and a body.



Firstly place the back nut on the conduit followed by the seal (note the orientation). Next, screw the insert into the end of the conduit until this gives a secure fit.



Bring the body to mate with the back nut. Metal fittings should be tightened with grips or spanner to ensure security



### **EMC & Installation Instructions**

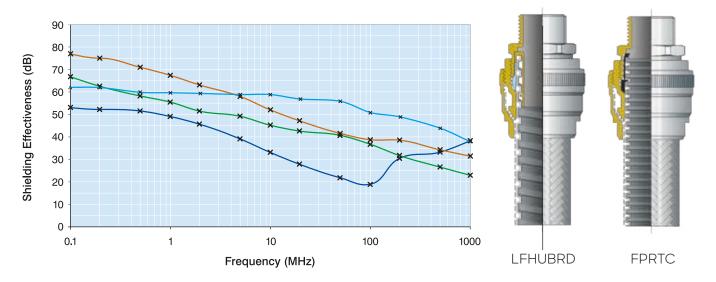
#### EMC Screening Using Pliable Conduit

To obtain EMC screening on pliable FLP conduit, the outer plastic sheath must be trimmed back prior to assembly of the fitting to ensure good electrical contact with the tapered bore of the fitting body as shown

## **EMC Screening Performance**

Flexicon has classified EMC screening of our products as follows;					
STANDARD EMC SCREEN	ENHANCED EMC SCREEN **	SUPER EMC SCREEN ***			
Standard 50dB @ IMHz	Enhanced 60dB @ IMHz	Super 70dB @ IMHz			

Braid Material	Part number
Galv Steel	LTBRDP, LTBRDP-FG, LTBRDLFH
Galv Steel	FB
Stainless Steel	LFHUBRD, FUSSB, FPRSS, FPISS, FPIHSS, FPIHRLSS, FSSBRD
Tinned Copper	FPRTC, FTCB



## **Braided Fittings - Installation**



Our type-C braided fittings consist of an outer compression nut, an inner compression nut, an elastomeric seal, an insert and a body. Firstly place the outer compression nut on the conduit as per 1. Remove the tape securing the braid and pull back to allow the inner compression nut to be fitted as per 2. Next, fit the elastomeric seal (note the orientation) and screw the insert into the end of the conduit until this gives a secure fit as per 3.

Bring the body to mate with the inner compression nut and secure. Next, bring the back shell to mate with the inner compression nut to secure the braid as per 4. Metal fittings should be tightened with grips or spanner to ensure securing and IP rating as per 5.



# **Conduit Mounting Options**

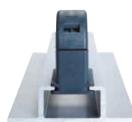
## **Conduit Clips and Mounting Channel**

#### Clip Mounting



Clips can be secured using the fixing hole in the base of the clip.





Clips can be located by sliding into the end of the channel. To install, slide the FCL clip in from the end of the channel.

The FCL clips have been designed to easily fit within the channel

A choice of fixing options are available to securely fasten the FCL clip within or to the channel.

## **Securing Conduit - FCL Clips and F-Clamps**

#### Fixing Conduit



Ensure the hinged lid is open and insert the conduit from above. The clip size is shown on the clip for easy reference. The clip provides a secure fit whether the hinge is open or closed. The FCL clip includes an internal rib to help locate and retain corrugated conduits. The FCL-P clips do not have this rib and can therefore be used with plain or smooth outer conduits.

Once the conduit is located, close the hinge and listen for a click. The clip does not rely on the hinge to retain the conduit in place however the lid increases conduit retention.

#### Simple Remova



To remove the conduit insert a small screwdriver where it states OPEN. Push down and lever to release. The hinge should then be free to open.

#### Fixina Conduit



Our F-Clamp solution is ideal for added security and fixing of conduits which could be subject to vibration, stresses or continuous and repeated movement. There are various fixing options depending on the installation.

- Fig.1 represents a Weld Plate with an F-Clamp with a Cover Plate.
- Fig.2 represents an elongated Weld Plate with an F-Clamp and a Cover Plate.
- Fig.3 shows an F-Clamp mounted directly onto Channel Profile B using Channel Nuts.
- Fig.4 shows and F-Clamp mounted directly onto Channel Profile B using Channel Nuts with a Cover Plate.







The Cover plate sits on top of the F-Clamp and can be used to provide additional strength when using the F-Clamps.

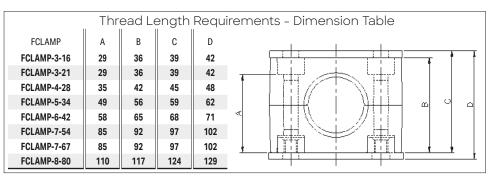
For additional strength the F-Clamps can be mounted onto Weld plates. Flexicon can offer two versions. For further details consult us.



The F-Clamps products can be mounted side by side and / or can be stacked vertically. This offers a flexible and adaptable method of support for different conduit sizes.

For stacking arrangements and stacking bolts contact us for further details.





For Stacking Kit please contact Flexicon.

For a full and comprehensive range of channels and fixing options visit www.aktore.com/unistrut

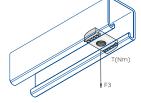


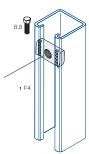














	Part No.	I	F3	
	ZP	(Nm)	kN	
P1000	PNP06	12	4.20	
	PNP08	28	4.70	
P 9	PNP10	55	6.00	
41	PNP12	70	8.00	
	PNP16	125	10.30	
41				
P3300	PNS06	12	4.20	
P ባ 21	PNS08	28	4.70	
	PNS10	55	6.00	
41	PNS12A	60	6.00	
P4000	PNL06	12	4.20	
₽ ¶ 21	PNL08	28	4.70	
' <sup>۱</sup> '	PNL10	40	6.00	
41	PNL12A	60	8.00	

	Part No.	T	F3
	SS	(Nm)	kN
P1000	PNP06	12	4.20
	PNP08	28	4.70
P 9 41	PNP10	55	6.00
	PNP12A	70	8.00
41	PNP16	125	10.30
41			
P3300	PNP06	12	4.20
<u> </u>	PNP08	28	4.70
	PNP10	55	6.00
41	PNP12A	60	6.00

Contact our technical team today for further information.



#### **Hazardous Areas**

### Introduction

Hazardous Areas exist where a flammable mixture of gas and air, or dust and air, can exist in large enough quantities and for long enough periods to create a risk of explosion if an ignition source is present. Wherever possible it is important to minimise the risk of explosive mixtures forming and / or the risk of ignition. In the instances where this is impossible or impractical then means of providing a level of protection are required.

This guide will briefly explain how people and plant can be protected in hazardous areas. The guide is particularly focussed towards applications for the Flexicon EXD conduit gland and is not intended to be a full guide to hazardous areas. Users of this conduit gland should be fully qualified, competent and conversant with hazardous area requirements.

# Flammable Mixtures & Ignition Sources

Flammable gases when mixed with air can be explosive. Gases are categorised into 3 groups with Group A being the least explosive and Group C being the most explosive. Equipment is also classified from T1 to T6 according to maximum allowed temperature of the equipment to prevent ignition of the gas/air mixture it is designed to work in. Certain fine dusts dispersed in air can also be explosive. Ignition sources include: sparking due to static discharge, electrical arcs, lightning, hot engine exhaust, hot equipment and heat from chemical reactions.

#### **Hazardous Area Zones**

The level of risk in hazardous areas is defined by a zoning system.



#### Zone 0

A place in which an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas, vapour or mist is present continuously or for long periods or frequently.



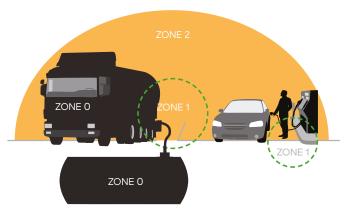
#### Zone 1

A place in which an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas, vapour or mist is likely to occur in normal operation occasionally.



#### Zone 2

A place in which an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas, vapour or mist is not likely to occur in normal operation but, if it does occur, will persist for a short period only.



### **Combustible Dust Hazards**

IEC 60079-31 - Electrical apparatus for use in the presence of combustible dust.



#### Zone 20

A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is present continuously, or for long periods or frequently.



#### Zone 21

A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is likely to occur in normal operation occasionally.



#### Zone 22

A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is not likely to occur in normal operation but, if it does occur, will persist for a short period only.

Flexicon's EXD barrier glands range can be used in Zone 1 and Zone 2 areas where Group A, B or C gases are present. As the gland does not add to the temperature of the enclosure, it does not have a temperature classification and so can be used with all temperature classes. Flexicon's EXD barrier glands can be used in Zone 20, Zone 21 and Zone 22 where explosive dust may be present.

## **Anti-Static Applications**

Clause 7.4 of EN60079-0 refers to the avoidance of a build-up of electrostatic charge on Group I or Group II electrical equipment. Electrical equipment shall be so designed that under normal conditions of use, maintenance and cleaning, danger of ignition due to electrostatic charges shall be avoided. This requirement is satisfied by suitable selection of the material so that surface resistance complies with either of the limits given below when measured in accordance with 26.13;

10° $\Omega$  measured at (50 ± 5) % relative humidity; or 10° $\Omega$  measured at (30 ± 5) % relative humidity.





## Installation

### Watch the Connectabox™ animation now!

For instructions on how to install, upgrade and to experience all of the benefits of Connectabox™ please watch the Connectabox animation using the QR code for a direct link.





DIN Rail Insert Plate & DIN



4 way with Splicing Connector



3 Way using Blanking Plug (different size conduits)



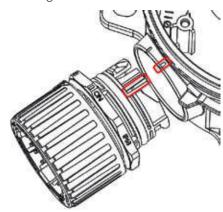
Watch the Connectabox™ animation now!



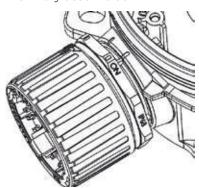
Multi Way using Flexible Conduit & Cable Glands

## Accessory fitting guide

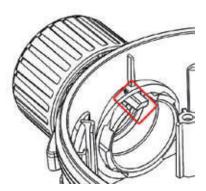
 Align slot in conduit fitting and index mark on box. Lubricate O-ring before installation.



2. Push fitting fully home into box and rotate until it clicks. Fitting is now fully assembled.



3. To remove fitting, push down on tab, rotate fitting to release and withdraw.

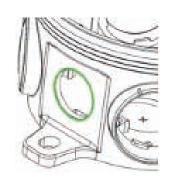


Note-fittings cannot be removed whilst box lid is in place

## Accessory fitting guide for user drilled holes

When using genuine Flexicon accessories in a correctly sized hole with a sealing washer and nut correctly torqued up, the IP of the assembled unit will be maintained to the rating stated for the accessory.

 $\textbf{Warning} \ \mathsf{Use} \ \mathsf{of} \ \mathsf{third} \ \mathsf{party} \ \mathsf{accessories} \ \mathsf{may} \ \mathsf{affect} \ \mathsf{the} \ \mathsf{IP} \ \mathsf{rating} \ \mathsf{of} \ \mathsf{the} \ \mathsf{assembled} \ \mathsf{unit}.$ 



### Flexicon Non-Metallic Conduit



The Flexicon Connectabox™ Fittings are compatible with 16 Flexicon Non-Metallic flexible corrugated conduits. IP ratings quoted within this brochure are based on using Flexicon Conduit. Flexicon cannot guaranteed IP ratings if other brands of conduit are used.

For help choosing the most suitable conduit for your application, check out the FlexiApp.



Scan and use our **FlexiApp** now!



## **Product Testing & Approvals**

## **Compliance with international standards**

Our products have been designed to be compliant with international standards from EN, NFF, DIN, BS, ASTM and UL. We have extensive third party and in house testing to support product performance.

Flexicon has been assessed and certified in accordance with the International Railway Industry Standard (IRIS) for the activities of Design and Development and Manufacturing for the scope of certification: 20 (Single railway components) Design, development and manufacture of Flexible Conduit Cable Protection Systems.



















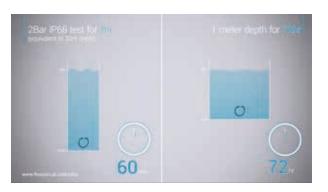






### **Tested to Extremes**





Our products have been tested to the extremes to ensure suitability for technically demanding environments.

For example, to demonstrate the Ingress Protection performance to IP68 we've tested our products for Ingress Protection to 1 metre depth for a period of 72 hours, far beyond the requirements of the BS EN IEC 60529.

We've also tested our products for 2 Bar (equivalent to 20 metre depth) for a period of 1 hour. These tests are conducted at minimum bend radius.

#### **Customer Tests**







FPHIRL different sizes



With Brass threaded Flexicon fittings

## Fatigue Life - Simulation of minimum 35 years service - >1million cycles

Customers are looking for confidence and reassurance in the materials / products they are using and often specify performance tests that are far in excess of any product standards which may be too generic or perhaps not arduous enough due to specific hazards or risks. A good example is a fatigue life test to represent a service life of 35 years for conduit used for Intercar jumpers. This test was conducted over 1 million cycles with no point of failure so we can clearly demonstrate servicable lifetimes beyond 1 million cycles.



# **Testing and Approvals**

## **Other Product Testing**



Vibration and Shock Testing to EN 61373 Cat 2



 Direct lightning strike of conduit and fixed fittings



- UV testing to UL 1660, 1,000 hour xenon arc
- Extended UV testing, 13,000 hour xenon arc



Low temperature impact testing



• 1,000 hours salt spray testing for corrosion



• EMC screening performance



 Fire performance testing including flammability, smoke, toxicity, halogen content and fire load - see page 148



Anti-static testing



 Electrical insulation testing to EN 61386 and ASTM D 495 and 3638



Food contact testing to EU 10 2011



Enviromental - 2 weeks at 95°C - 90%rh

- 2 weeks at 105°C

#### **International and National Conduit Standards**

- BS EN IEC 61386-1 Conduit Systems, generally accepted worldwide other than North America
- BS EN IEC 61386-23 Flexible Conduit Systems
- BS EN IEC 61386-22 Pliable Conduit Systems
- AS/NZS 2053, Australia and New Zealand but based on IEC 61386
- UL 1660, Non-metallic UL listed conduit for North America

- UL 360, Metallic UL listed conduit for North America
- UL 514B, UL listed conduit fittings for North America
- UL 1696, Non-metallic UL recognised conduit systems for North America





### **Datasheets & Technical Info**

We pride ourselves on the rigorous testing and approvals we apply to our products.

To give you confidence and help you select the correct products for your application we can provide Technical datasheets for all our products, documenting performance properties and key specification information.

Our datasheets are available on request and provide supplementary information on;

- Key Dimensions Line Drawing (Full 3D CAD models also available)
- Construction and Materials
- Product Features & Applications
- Testing and Approvals Report details and Test Certificate Numbers
- Performance data e.g. HL Classifications, LOI % etc





## **Fire Performance**

The reaction of products in the event of a fire is critical when it comes to effective product specification. There are recognised national and international standards related to products performance and reaction to fire. Flexicon can offer a wide range of conduit systems which have been independently tested.

Low Fire Hazard systems are required to protect the public, personnel and property in the event of a fire and are demanded by specifiers, Industry Bodies, Train and Network Operators, fire services and even insurers.

At Flexicon we define a Low Fire Hazard product by having all of the following properties:

#### **Highly Flame Retardant**

To prevent a fire starting or limit its development if one does start.

#### Low Smoke

Emission in the event of a fire to enable personnel to see their way to escape.

#### **Low Toxicity**

In the event of a fire to ensure personnel are not overcome during their escape.  $\,$ 

#### Halogen Free

Gives an indication of low smoke and low toxicity. It also rules out halogen acid gas emission - a fact that is of interest to insurers as acid smoke can destroy computer equipment and damage the structure of a building. Halogens are Fluorine, Chlorine, Bromine and Iodine.

## **Methods of Assessing Fire Performance**



Flame Retardancy The minimum requirement is self-extinguishing according to the worldwide conduit system standard BS EN IEC 61386 where a vertical sample of conduit is exposed to a 1kW burner and must extinguish within 30 seconds of the removal of the flame. The char must not have travelled more than a certain distance up the sample and there must be no flaming droplets. Fittings are tested by means of a 750°C glow wire test.

To assess how flame retardant a material is, the normal test method is to measure the Limiting Oxygen Index (LOI) according to BS EN ISO 4589-2 which determines the percentage of oxygen that needs to be present to support combustion. The higher the LOI percentage, the greater the flame retardancy of the material. Oxygen present in normal air is approx. 21%. Another method is the glow wire test, BS EN IEC 60695-2, which applies a glow wire to a plaque of material at 750°C, 850°C or 960°C.

UL94 is an Underwriters Laboratories standard that measures the rate of burning up a vertical test plaque, category V0 is the most flame retardant followed by V1 and V2. There is a category HB but this indicates that the material is flammable even along a horizontal test plaque.



Low Smoke emission There are a number of fire tests, mainly from the rail industry, where a specified sample of material is burnt under controlled conditions in a given size smoke

chamber and the smoke obscuration of a defined beam of light is measured. Although the different tests are similar, the results and the requirements are different.



Low Toxicity There are a number of fire tests, mainly from the rail industry, where a specified sample of material is burnt under controlled conditions in a given size smoke chamber and the fumes are analysed for various gases, the concentration of each gas is then multiplied by

its toxic potency to give a toxicity index.

Although the different tests are similar, the results and the requirements are different.

If halogens, sulphur or phosphorus are present in a material, it is unlikely to pass the low toxicity tests.



Halogen Free The Halogens are fluorine, chlorine, bromine and iodine. Chlorine is the most common in PVC, fluorine is in fluoropolymers and bromine appears in flame retardants. All of them give off highly toxic fumes and thick smoke. A material cannot be

considered as Low Fire Hazard if it contains halogen. However a halogen free material is not necessarily Low Fire hazard as it may not be low toxicity, low smoke and highly flame retardant.

Halogen content is assessed by various chemical tests and analytical techniques.





# **Fire Performance**

Our product development programme involves extensive testing to the latest Rail Industry standards to ensure the safety of our products, thus providing confidence for specifiers and consultants when it comes to their reaction to fire.

#### EN 45545 - European Fire Safety

This new European standard is rapidly replacing national standards in Europe and consists of 7 parts.

Conduit performance is quoted to EN 45545-2. R22 is for interior parts and R23 is for exterior parts.

There are three defined levels of performance related to the reaction of fire, HL1, HL2 and HL3. HL3 is the highest level of performance when it comes to the reaction to fire, and will be specified for higher risk applications.

#### **BS 6853**

This UK standard relates to passenger rolling stock and are classified into two main categories depending on the operating environment.

Category I relates to Underground applications, which is then sub divided into 2 parts, depending on operating conditions. Category II relates to Surface stock.

#### TFL S1085 - Transport for London

This standard is used by London Underground to control the materials used throughout their Underground and Crossrail System.

This standard considers flammability, smoke and toxic fume emissions and includes tests from BS 6853.

Products approved for use have APR numbers.

Flexicon's range of conduit systems have 6 Certificates, covering 11 products as Authorised for use.

Certificate No. 296, conduit types FU, SSU and FUSSB.

Certificate No. 297, conduit types LFHU, LFHUBRD & LFHP.

Certificate No. 298, conduit types FPR and FPRSS.

Certificate No. 658, conduit type LTBRDLFH.

Certificate No. 2020, conduit type LTPLFH.

Certificate No. 2624, EXD barrier glands.

## Flexicon products tested to;





#### NFPA 130 - North American Standard

This standard is used by US Rail authorities.
Tests called up by NFPA 130 are ASTM E 162
(for flammability) and ASTM E 662 (for smoke). Other
North American standards are: ASTM E 1354 Heat
Load, Boeing BSS 7239 Toxicity

#### NF F 16-101/2

This French rail standard consists of an Ignition rating (I) and a Fume Rating (F).

The lower the number the higher the level of performance when it comes to the reaction to fire. I2 F2 offers more protection than I3 F2.

#### **DIN 5510**

This German standard consists of three elements including Flame Spread, Smoke evolution and Flaming droplets.

Products categorisation looks like this: S4 / SR2 / ST2.

#### AS/NZS 1530.3 - Australian Standard

This standard is used by Australian Rail.

#### CEI 11170 - Italian Standard

This standard is used by the Italian Rail. Products categorisation looks like this: LR4.

Russian Fire Safety Certificate - 1374363

## Classification of Low Fire Hazard performance (LFH)



#### **Inherently Low Fire Hazard**

These products are made entirely from metals so there is no non-metallic material to burn or create smoke or toxic fumes.

Inherently Low Fire Hazard products include; FU, SSU, FB, FUSSB, FTCB, FSS, FSSBRD and metal fittings.



#### **Extra Low Fire Hazard**

These products have a Limiting Oxygen Index of greater than 32% as well as being low smoke and low toxicity.

Extra Low Fire Hazard products include; LFHU, LFHUBRD, LTPLFH, LTBRDLFH, LFHP, FPR, FPRSS, FPIHRL, FPIHRLSS, FPRTC, FPA, FPAX and FPAU fittings.



#### Standard Low Fire Hazard

These products have a Limiting Oxygen Index of greater than 26% as well as being low smoke and low toxicity.

Standard Low Fire Hazard products include; FPAS, FPAH, FPI, FPISS, FPIH, FPIHSS and PA66 fittings.



atkore.com/flexicon



# **Standards and Approvals**



## ISO 9001 - 2015

Flexicon is accredited to ISO 9001 2015 by the British Standards Institution (BSI) for the design and manufacture of conduit systems and accessories. Certificate No FM58347.



#### **BS EN IEC 61386**

## **BS EN IEC 61386**

BS EN IEC 61386 is the worldwide standard for conduit systems providing standardised tests and classifications of system performance.

Our Technical Director, sits on the committees of both the IEC (worldwide) and CENELEC (European) that prepare conduit standards.

# UK CA

#### **UKCA**

From 1st January 2023 the use of UKCA marking will become mandatory in Great Britain (GB) for product types that are currently CE marked. Businesses have been able to use the UKCA mark since 1 January 2021 to demonstrate their conformity with product standards in England, Scotland and Wales. As our products are intended for global sales, they will carry both CE and UKCA marking on product labels.



#### CF

Flexicon are marked with the CE mark to show that they comply with the essential requirements of the relevant European Directives.



#### **RoHS**

All Flexicon's products meet the requirements of the European RoHS Directive, Restriction of Hazardous substances. This precludes the use of certain toxic materials and heavy metals.



#### **REACH**

All Flexicon's products meet the requirements of the European RoHS Directive, Restriction of Hazardous substances. This precludes the use of certain toxic materials and heavy metals.



# IRIS - International Railway Industry Standard

Flexicon has been assessed and certified in accordance with IRIS for the activities of Design and Development and Manufacturing for the scope of certification: 20 (Single Railway Components) Design, development and manufacture of Flexible Conduit Cable Protection Systems.



## **Transport for London - TFL**

Flexicon have a number of products that have been approved for use by London Underground and Crossrail.



# **Network Rail - PADS Approval**

Flexicon have a number of products approved to the new enhanced PADS approval for Flexible Conduits, Glands and Accessories intended for use in signalling and infrastructure applications. This requirement now includes applications prone to flooding or prolonged immersion under water.



## Railway Industry Association (RIA)

Flexicon are active members in the Railway Industry Association.





Flexicon's EXD glands have been independently tested and accredited for ATEX and IECEx Ex d, Ex e and Ex t applications. These glands also have CU-TR approvals.





Our LTP EXE range of fittings have been tested and accredited for both ATEX and IEC Ex. Our LTP-CUL fittings are UL Listed for use in USA and Canada, UL file No. E247502 (ordinary locations). Suitable for use in hazardous locations as per NEC: Article 501 (B)(2), Class I Div 2. Article 502 (A)(2) & (B)(2) Class II Div 1&2. Article 503 (A)(3) & (B)(3) Class III Div 1&2.



# Hazardous area products

IEC 60079-1, Ex d Flameproof glands

IEC 60079-7, Ex e Increased Safety glands and conduit fittings

IEC 60079-31, Ex t Dust Ignition Protection glands and conduit fittings

IEC Ex factory approval for the manufacture of Ex d, Ex e and Ex t products by Intertek.

- EN 60079-1, Ex d Flameproof glands
- EN 60079-7, Ex e Increased Safety glands and conduit fittings

ATEX factory approval for the manufacture of Ex d and Ex e products by Intertek.







## **North American Approvals**

Our FPASC nylon conduits from 21mm to 67mm have Underwriters Laboratories (UL) listing for use in USA and Canada to the UL standard UL1660 - File No. E246572.

Our FPAX and FPAU fittings have UL listing to UL514B and CSA standard C22.2 No. 18.3-04. File No. E247502.

Most of Flexicon's nylon conduits (FPAS, FPAL, FPAH, FPR, FPI and FPIH) and fittings (FPA, FPAX, and FLK) have UL recognition to UL 1696 for use in USA and Canada - File No. E229161. Our LTP-CUL fittings are UL Listed for use in USA and Canada, UL file No. E247502 (ordinary locations). Suitable for use in hazardous locations as per NEC: Article 501 (B)(2), Class I Div 2. Article 502 (A)(2) & (B)(2) Class II Div 1&2. Article 503 (A)(3) & (B)(3) Class III Div 1&2. FPC conduits and MPC fittings are UL recognised to UL1696 for use in USA and Canada - File

We have tested a selection of our products for UV performance against UL 1660 test criteria (see UL Test Report No. 13CA50836)



# **Hygienic Applications**

Flexicon's Hygienic products are manufactured from FDA approved ingredients and have been independently tested to European Food Regulation 10/2011.

Flexicon's Hygienic multipart compression fittings have been designed using principles given in EN1672-2 and EN ISO 14159.



# **Lloyds Register of Shipping Type Approval**

Specific conduit systems from Flexicon have Lloyds Register of Shipping Type Approval having been assessed for suitability for marine and other arduous applications.



## UK MOD - NCAGE No. U5256

Flexicon is a registered supplier to the UK Ministry of Defence NCAGE No. U5256 and holds NATO codification numbers for specific conduits.



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