

≥™ Edition

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# Group Intro

Atkore delivers a unique portfolio of integrated electrical raceway solutions that deploy, isolate and protect structures or systems electrical circuitry from source to outlet.

**Aatkore**International

Flexicon is focused 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.

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

With 3,500 employees and 58 manufacturing and distribution facilities worldwide, Atkore meets customers' needs by providing unmatched quality, delivery and value across a robust product line that includes steel, PVC and aluminium conduit, armoured cable and flexible conduits, metal framing, wire baskets, cable trays and other complementary products including fittings and mechanical pipe.

Flexicon's range of non-metallic and metallic products help to protect cables from end to end, in many diverse markets, from Rail, & Transportation, Utilities, Machinery & Automation / OEM's and Hazardous Areas, Food Processing and Pharmaceutical to Construction.

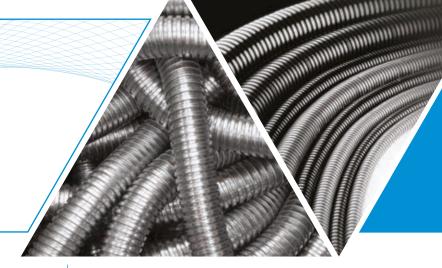






As part of the international Raceway division of Atkore that includes Marco Cable Management and Unistrut, we are market leaders in electrical raceway, with the resources, technology and products in place ready to support you with your next project.

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# Flexicon Capabilities

We are focused on bringing customers the best 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 across the world.

"We specialise in protecting your Cables from hazards for now and for the future'



# Quality Assurance, Testing & Manufacturing

We take testing seriously. Don't just take our word for it. With a dedicated design team, we work 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.

Flexicon have invested in and committed to extensive independent testing for our Products combined with Quality Audits for our Manufacturing Processes including the International Railway Industry Standard (IRIS), giving you the confidence that our systems do what we say they do.

















We extensively test our products to ensure that our product performance is as you would expect from a leading British Manufacturer. We understand the importance and potential consequences of product failure therefore we test our products far beyond the performance requirements of the certifications and approvals we have.



# **Global Presence**

With a Global reach, we work closely with customers to become part of their supply chain. We know how important it is to work 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 55 different Countries.

Our Flexicon PTY subsidiary is a dedicated Sales and Distribution operation in Australia and New Zealand, well placed to serve the ANZ Markets.

Our sister company AFC Cable Systems provide stock and local support in the North American markets.



FLEXIBLE CONDUIT SOLUTIONS



# 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 1669, Non-metallic UL recognised conduit systems for North America







# Rail - Ingress Protection

High levels of Ingress Protection is a critical requirement of installations in the Rail Industry. Whether this is from the weather in the form of rain or flooding, or from brake dust in Underground applications.

"Flooding is one of the most extreme forms of hazards for electrical systems. If product is submerged Ingress Protection becomes critical"

# Applications demand "over and above" standard IP tests

Ingress protection is normally tested using EN IEC 60529, with the levels of protection given by a 2 digit code.



1st digit - protection against solid objects and dust



2nd digit - protection against water

IP tests to EN IEC 60529, give an indication of system performance but they are very short tests on samples that have been assembled under ideal laboratory conditions, at room temperatures and in straight lengths.



#### **Durations and application of these tests are;**

- IPx4, 5 minutes light spray similar to a shower head
- IPx5, 3 minutes medium spray similar to a garden hose
- IPx6, 3 minutes high pressure jet similar to a fire hose
- IPx7, 30 minutes 1 metre immersion under water
- IPx8, immersion at a pressure and time decided by the manufacturer
- IPx9, 2 minutes high pressure hot water similar to a steam cleaner

## Other potential Hazards to consider

When it comes to protecting Safety and Performance Critical Cabling, we have listed some of the potential hazards to consider in Rail applications.

#### **Abrasion**

 Process of scraping or wearing something away



#### **Chemical resistance**

 Reaction to different compounds or substances



# Crush / Compression

 Forces applied to cause deformation



#### Fire

 Destructive burning



#### **Lightning Strike**

 Damaged caused by natural electrical discharge



#### **Impact**

 Sharp or blunt forces which could cause damage



#### Tensile Strength

 Resistance to conduit being pulled from the fitting



#### **EMC**

 Electromagnetic Compatibility





Integrated Sealing Technology

#### Integrity • Strength • Assurance

"Flexicon Ultra™ has been tested to IP68, submerged at a depth of 1 metre for a period of 3 days at min bend radius"



# Tested beyond the Standard

Water may be present as rain, condensation, immersion including flooding, spray, jet wash cleaning, ice formation and melting.

Suction can be created by rise and fall of temperature although conduit systems are normally vented to atmosphere through at least one end. A vented conduit system has advantages over a sealed enclosure with cable glands as the conduit allows the air inside the enclosure to expand and contract with temperature changes.

In conjunction with some of our major rail customers we have completed more onerous testing than the standard tests required to give the customer confidence that true performance adequately represented real life installations.

- IPx8 carried out at 2 bar for 1 hour at minimum bend radius
- IPx8 carried out at 1 metre under water for 72 hours at minimum bend radius
- IPx8 carried out under water and ice at minimum bend radius for 5 cycles of; 10 hours at -15°C followed by 5 hours at +40°C
- Flexing conduit under water for 5 days (exhibition display)
- Corrosion resistance 1,000 hour salt spray testing to EN ISO 9227 NSS @ 35°C
- UV resistance up to 21,000 hours testing using xenon arc
- Vibration and shock-testing to EN 61373 category 2, bogie mounted

Flexicon carries out extensive water ingress testing in house. For the Ultra system, over 1,000 IP tests were conducted to ensure that every conduit in every size, weight and material were checked with every type of fitting to ensure the integrity of the system. External test reports were then commissioned to confirm our in-house test results.

#### UV

 Resistance to Ultra Violet Radiation



#### Corrosion

 Damage caused to materials based on chemical reaction



# Grazing animals / Vermin or pests

- Livestock
- Sharpening of teeth and searching for food



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



#### Vibration & Shock

 Shaking or sudden movement



#### Theft & Vandalism

 Stealing, unauthorised removal or deliberate damage



#### **Fatigue Life**

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



#### Salt Water

 Prolonged exposure can cause dezincification (Corrosion)



# Rail - 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.

#### At Flexicon we define a Low Fire Hazard product as 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 people to see their way to escape.

#### **Low Toxicity**

in the event of a fire to ensure people 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.

# Rail Industry Standards

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 45545-2 European Fire Safety
- NFPA 130 North American Standard
- AS/NZS 1530.3 Australian Standard
- Russian Fire Safety Certificate 1374363
- TFL S1085 UK Underground Standard

# EN 45545-2 European Fire Safety Standard

This new European standard is rapidly replacing national standards in Europe and consists of 7 parts.

- Part 1: General
- · Part 2: Requirements for fire behaviour of materials and components

For Part 2, product groups are required to meet a set of performance requirement levels (R1 to R26), conduit performance R22 is for interior parts and R23 is for exterior parts. There are also 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.

The required HL level is given from a matrix of Operational Category of the track and Design Category of the train.

Flexicon EN 45545-2 conduits meet HL3 for both internal and external use.

	HL1	HL2	HL3			
R22 Internal use	T01 EN ISO 4589-2: OI	EN ISO 4589-2: Oxygen Minimum		28	28	32
	T10.03 EN ISO 5659-2: 25 kWm-2	Ds max. dimensionless	Maximum	600	300	150
	T12 NF X70-100-1 and -2, 600° C	CITNLP dimensionless Maximum		1.2	0.9	0.75
R23 External use	T01 EN ISO 4589-2: OI	Oxygen Content %	Minimum	28	28	32
	T10.03 EN ISO 5659-2: 25 kWm-2	Ds max. dimensionless Maximun		-	600	300
	T12 NF X70-100-1 and -2, 600° C	CITNLP dimensionless	Maximum	-	1.8	1.5

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R22 Internal use	T01 EN ISO 4589-2: OI	Oxygen Content %	Minimum	28	28	32
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	T12 NF X70-100-1 and -2, 600° C	CITNLP dimensionless	Maximum	-	1.8	1.5

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.





# **Assessing Fire Performance**

Flame Retardant

To assess how flame retardant a material is, the defined 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%.

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. The lower the smoke density, the more efficient evacuation and safety for fire fighting becomes.



Toxicity

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. If halogens, sulphur or phosphorus are present in a material, it is unlikely to pass the low toxicity tests.



Free

Halogen based materials give off highly toxic fumes and often 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.

# Simple classifications of performance from Flexicon...



#### **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, FPIHR, FPIHRSS and FPRTC.

	LOI	Conduits	
as	35.9%	FPIHR & FPIHRSS	(HL3)
	37.0%	FPR, FPRSS & FPRTC	EN 45545-21
1	48.3%	LFHU, LFHUBRD, LTPLFH, LTBRDLFH & LFHP	NFPA 130



#### **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.



# 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 sealing
- · Can be retrofitted with ease
- Suitable for use with multiple cable types
- Quicker to install
- Conduit fittings offering strain relief available
- No need for specialist cables

## 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 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
- Can be retrofitted
- 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
- Can be retrofitted
- Quicker to install

- No requirement for aditional fittings to create a bend
- Simple Cutting
- Simple termination
- Suitable for Static and / or Dynamic Applications



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



Realise the Benefits of using Flexible Conduit...

#### **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



- 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
- Light weight product



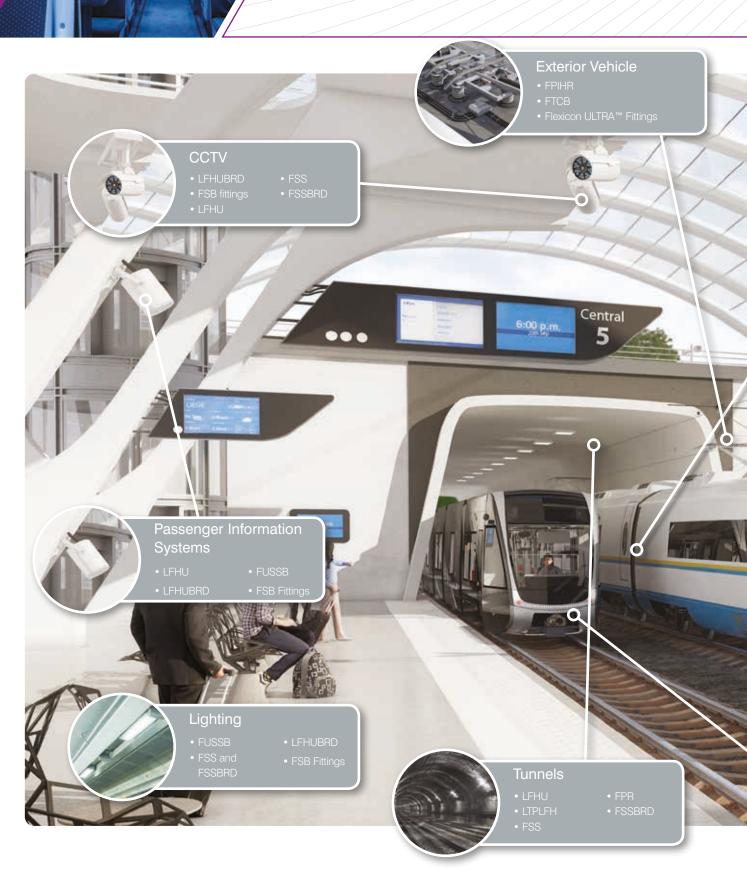






# Applications in Rail Flexicon offer a range of products for this tochnically demanding sector IP ratings, topsile

technically demanding sector. IP ratings, tensile strength characteristics, weight, corrosion resistance, fire performance properties and operating temperature ranges are all factors to consider.



# Rolling Stock and Infrastructure

- High performance products offering superior tensile and impact / compression strength
- Designed to meet the strictest standards – EMC testing /vibration

Inter Vehicle Jumper

Vibration proof

- Wide product range to meet all applications
- Independently tested to the relevant standards
- Anti-tamper







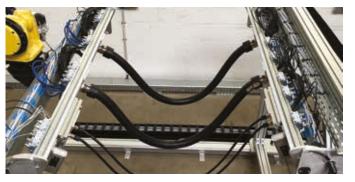
# Rolling Stock Product Testing & Approvals

"This technically demanding sector presents numerous challenges when it comes to product performance and compliance to the relevant standards."

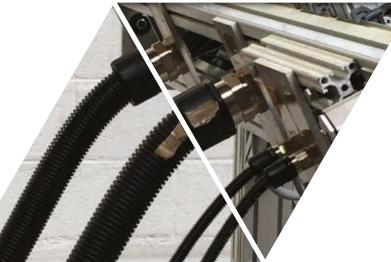
# Alstom Worldwide Approval

Flexicon has earned worldwide approval under Alstom global component parts listing. This includes Flexicon's true one piece Ultra™ gland range that gives the quickest and most reliable interconnection when terminating on to Flexicon's non-metallic Flexible Conduits.

Alstom first carried out mechanical tests on our samples to satisfy themselves of the mechanical performance. Alstom then stated that they were not satisfied that the standard IP testing to EN60529 as the tests did not adequately represent their applications. IP67 1m under water for 30 minutes was far too short a time and IP68 (2bar pressure for 1 hour, equivalent to 20m under water) was of little interest - if the train was 20m under water there would be bigger problems than water ingress into the conduit system. Alstom required 1m under water for 72 hours for straight conduit and then again at minimum bend radius, Alstom also insisted on making up the samples and carrying out the tests themselves.



A 1 million reversed cycling test was conducted to confirm the fatigue life of the conduit and the fittings, fully loaded with cables, to represent 35 years service life for inter-carriage jumpers on the most onerous track, line 11 of the Paris Metro. After the test the conduit was taken apart to check for any wear of the conduit or fittings on the cable and cable on the conduit and Flexicon's product showed no signs of failure.



# Rolling Stock Reference Projects



#### Russia - Rail Car Refurbishment

Metal braided conduits with fittings, along with Nylon FPR Conduit with FPAX fittings systems were used on the refurbishment of rail cars.

#### Dubai - Metro

Nylon FPIHR Conduit and Ultra brass threaded fittings were used on the roof of the carriages for the systems high IP rating and fire performance properties.

#### China - High Altitude Rail Link

Plastic coated steel conduits was used on vehicles under-frame harness applications that required properties for low temperature and high impact resistance.

#### United Kingdom - Train Renovations

Stainless Steel braided Nylon 6 FPRSS conduit and fittings were used for the installation of under vehicle harness assemblies requiring EMC screening and high IP ratings.

## Indonesia - EMC on Passenger Coaches

LTBRDP liquid tight conduit and LTP fittings were used under the trains for the EMC screening performance. Nylon FPAS Conduits and FPAX fittings were also used where high IP ratings were required.

#### Australia - New Vehicle Builds

Liquid tight, high temperature, Halogen free conduit systems were used on new rail vehicle builds.

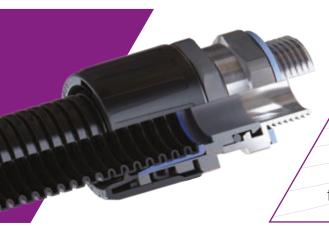
## United Kingdom - Refurbishment & Maintenance

Nylon 6 & 12 conduits FPR and FPI with FPA fittings were used within an out of warranty repair and overhaul project.

## Czech Republic - Carriage Installations

Nylon 6 & 12 conduit systems for carriage installation both interior and exterior use.





# Rolling Stock

Whether it is high speed travel over long distances, regional transit with repeated short journeys or true power solutions such as locomotives to move large masses of material & freight, we have the most reliable Cable Protection solutions to ensure safety and reliability for all types of Rolling Stock.



High Speed





Key considerations

- Reliability
- · Service life
- Ease of maintenance
- Standards & compliance
- · Operating environment

**Urban &** Regional Trains

Metro



Trams & Trolleybuses



Locomotives





Monorail

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



# Typical hazards & product considerations

- Fire Performance
- Ingress Protection
- Vibration & Shock Resistance
- Temperature
- Impact
- UV Resistance



- Strength to Weight ratio
- Flexibility
- Fatigue Life



**{{** }**}** 

- Abrasion Resistance
- · Chemical resistance
  - EMC

















# Standards



















# Typical Products



FPR - PA6 Corrugated



 LTBRDP - Galvanised Steel with Galvanised Steel braid, PVC cover



• FPIHR - PA12 Corrugated



· FPAU - Range of fittings with or without metal threads



 FPRSS - Stainless Steel Overbraid PA6 Corrugated



· F-Clamps and Fixing Accessories



 LFHU - LFH Coated Galvanised Steel

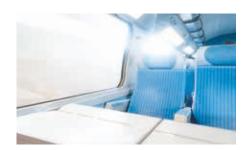


# Rail - Rolling Stock Applications

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.

# Inside Carriages / Passsenger Zones



#### FPR Conduits

- Modified PA6 conduit offering excellent Fire Performance
- Light weight
- High Tensile strength
- Vibration resistant



- $\bullet$  Flexicon ULTRA  $^{\scriptscriptstyle\mathsf{TM}}$  nylon thread
- Flexicon FPA nylon thread



# Carriage Lighting



#### FPR Conduits

- Modified PA6 conduit offering excellent Fire Performance
- Light weight
- High Tensile strength
- Vibration resistant



- Flexicon ULTRA™ nylon thread
- Flexicon FPA nylon thread



## Carriage TV Screens



#### FPR Conduits

- Modified PA6 conduit offering excellent Fire Performance
- · Light weight
- High Tensile strength
- Vibration resistant



- Flexicon ULTRA™ nylon thread
- Flexicon FPA nylon thread





# Under Carriages / Bogies



#### **FPIHR Conduits**

- Modified Heavy Duty PA12 conduit offering excellent dynamic performance with flexibility & fatigue life combined with Fire Performance. en 45545.
- Excellent UV resistant & high impact strength even at low temperatures
- Excellent Ingress Protection integrity when used with Flexicon ULTRA™
- High Tensile strength & Vibration resistant



- Flexicon ULTRA $^{™}$  metallic thread
- Flexicon ULTRA™ metallic thread with strain relief



HFPA 130

# Above Carriages



#### **FPIHR Conduits**

- Modified Heavy Duty PA12 conduit offering excellent dynamic performance with flexibility & fatigue life combined with Fire Performance. en 45545.
- Excellent UV resistant & high impact strength
- Excellent Ingress Protection integrity when used with Flexicon ULTRA™
- · High Tensile strength & Vibration resistant



- Flexicon ULTRA™ metallic thread
- Flexicon ULTRA™ metallic thread with strain relief



# Intercar Jumpers



#### **FPIHR Conduits**

- · Modified Heavy Duty PA12 conduit offering excellent dynamic performance with flexibility & fatigue life combined with Fire Performance. en 45545-2
- Excellent UV resistant & high impact strength even at low temperatures
- Excellent Ingress Protection integrity when used with Flexicon ULTRAT
- · High Tensile strength & Vibration resistant



- Flexicon ULTRA™ metallic thread
- Flexicon ULTRA™ metallic thread with strain relief



NFPA 130

# Couplings



#### **FPIHR Conduits**

- Modified Heavy Duty PA12 conduit offering excellent dynamic performance with flexibility & fatigue life combined with Fire Performance.
- Excellent UV resistant & high impact strength even at low temperatures
- Excellent Ingress Protection integrity when used with Flexicon ULTRAT
- · High Tensile strength & Vibration resistant



- Flexicon ULTRA™ metallic thread
- Flexicon ULTRA™ metallic thread with strain relief



HFPA 130





# Redevelopment of London's Blackfriars Tube Station

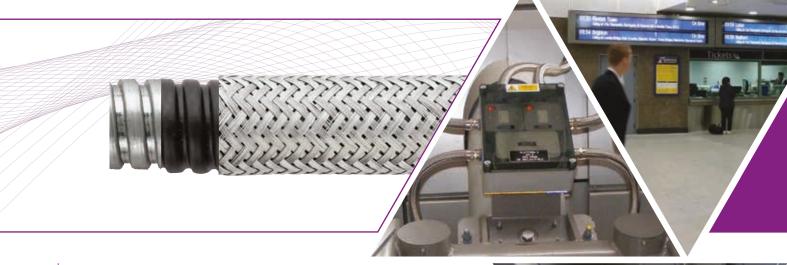
Balfour Beatty used Flexicon's flexible conduit to protect all of the cabling for lighting, power, signalling and communications for the major redevelopment of Blackfriars station.

The project included the creation of a common entrance at the north end of the rail bridge spanning the River Thames, increasing the length of the platforms to accommodate 50 percent longer trains, the refurbishment of the underground station and the construction of a new station on the South Bank of the Thames. The station was the first one to span the entire width of the River Thames and features 4,400 of photovoltaic panels producing over 1MW of electricity.

All of the services had been left visible as part of the design, so Flexicon's LFHUBRD flexible conduit had been specified since its grade 316 stainless steel overbraid provides both protection and aesthetic appeal. The system has high abrasion resistance and high mechanical strength, is highly flexible and has an ingress protection rating of up to IP65.

In addition, the flexible conduit meets all of Transport for London's fire requirements, with details listed on LUL product registration certificate no. 297. As a low fire hazard product, it is highly flame retardant, has low smoke emissions, low toxicity and is halogen free. It also provides EMC screening, which is vital for communications and signaling.





# Thameslink - Infrastructure Improvements

Linbrooke Services had specified and installed a flexible conduit system from Flexicon to protect power and data cabling for a passenger signage system as part of the Thameslink high capacity infrastructure improvements. The aim of the new system was to facilitate swift movement of passengers off and onto trains to minimise dwell time. It is vital in ensuring that people are on the right platform, at the right time and are standing in the right position.

There is signage in every area of the station to direct passengers to the correct platform and then screens right along the length of the platform to help spread passengers out for a 12 carriage train. It is part of a real time prediction system that uses data from a number of sources to

accurately predict the arrival of trains, which is used to analyse what this means to the overall train service at a station and then communicate this to passengers so that they can plan their journey.

The company selected Flexicon's LFHUBRD metallic conduit, which has a galvanised steel core, extra low fire hazard coating and a stainless steel overbraid. It provides EMC screening for data cabling and with its high tensile strength, crush and abrasion resistance will resist any potential vandalism. Its stainless steel overbraid also makes the conduit visually attractive to the viewing public.

Europe's Largest Infrastructure Project - Crossrail

The £14.8billion Crossrail project is Europe's largest infrastructure project and brings an extra 1.5million people to within 45 minutes of central London. Power and data is vital for operational efficiency and critical safety systems. With so many people using the new Elizabeth line, it is vital that the cabling is protected not just from day one but for the lifetime of the installation.

Cable protection from Flexicon is used for all lighting, small power, CCTV and audio systems in both the general public and back office areas and for the Platform Edge Screen (PES) that separates the station from the track area.

The main requirements for the cable protection system were to protect cabling from vandalism, provide ingress protection of up to IP68 and meet the stringent fire safety standards for sub-surface rail installations. For public facing areas the conduit had to also meet the aesthetic requirements of the installation.

Back office areas used Flexicon's new FSS stainless steel corrugated conduit. Public facing areas use either FSSBRD, which has a stainless steel over braid for added aesthetic appeal or the specially developed all metallic black stainless-steel conduit called FSS black.

# ir

# Infrastructure

Whether it is Passenger Information systems, Station Lighting, CCTV and Passenger Safety, Trackside power & signalling, train monitoring & information systems or tunnels, our products provide ideal Cable Protection for infrastructure and track related installations to ensure safety and reliability.







CCTV & Passenger Information Systems



Tickets & Barriers



Lifts & Escalators



# Key considerations

- Operating environment
- Safety
- Service life expectation
- Ease of maintenance
- Standards & compliance

#### Lighting

Advertising Screens





Trackside Points Machines





Trackside Power



Trackside Signalling









# Typical hazards & product considerations

- Fire Performance
- Ingress Protection
- Vibration & Shock Resistance
- Temperature
- Impact
- UV Resistance



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- Strength to Weight ratio
- Flexibility
- Fatique Life
- Abrasion Resistance
  - Chemical resistance
  - EMC







































# Typical Products



• LTPLFH - LFH Coated Liquid **Tight** 



• LFHU - LFH Coated Galvanised Steel



• FSS - Stainless Steel Corrugated



• FSSBRD - SS Corrugated with SS overbraid



• LFHUBRD - LFH Coated Galvanised Steel with SS Overbraid



• FPRSS - Stainless Steel Overbraid PA6 Corrugated



· LTPPU - Polyurethane Coated Liquid Tight



• FPR - PA6 Corrugated



# Infrastructure Applications

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.

# Security Systems (CCTV) & Lighting



#### LFHUBRD Conduits

 Galvanised Steel Conduit with Low Fire Hazard coating and a Stainless Steel overbraid offering excellent mechanical strength, EMC screening, Aesthetic appearance and good Ingress Protection.

HFPA 130





## Lifts and People Movers (escalators)



#### LFHU Conduits

en 45545-2

 Galvanised Steel Conduit with Low Fire Hazard coating offering excellent mechanical strength and good Ingress Protection.









# Passenger Information Systems



#### **LFHU Conduits**

 Galvanised Steel Conduit with Low Fire Hazard coating offering excellent mechanical strength and good Ingress Protection.











# Passenger Information



#### FSS & FSSBRD Conduits

 Stainless Steel Conduit offering inherent Fire Performance, high Ingress Protection and corrosion. Braided option also available for enhanced EMC screening.









# Trackside Signalling



#### FPIH Conduits

- Heavy duty PA12 conduit offering excellent UV resistance and high impact strength. Suitable for outdoor areas offering superior Ingress Protection, corrosion resistance and anti-vibration performance. Can be combined with FTCB to achieve EMC performance.
- For Network Rail approved Conduits and Fittings, see page 56





## **Tunnels**



#### FSS & FSSBRD Conduits

 Stainless Steel Conduit offering inherent Fire Performance, high Ingress Protection and corrosion. Braided option also available for enhanced EMC screening.











# **Ticketing**



#### LFHU Conduits

 Galvanised Steel Conduit with Low Fire Hazard coating offering excellent mechanical strength and good Ingress Protection.











# Rail Infrastructure -Signalling Power Distribution Systems

"Use in new and upgraded Signalling Power Distribution Systems in accordance with NR/L2/SIGELP/27410"

Benefits of Flexicon's unique offering for SIN 119

Safety and reliability of the Rail Infrastructure network is paramount. Network Rails ongoing challenge to achieve SIN 119 compliance has created the need for new solutions and techniques to remove potential dangers for the maintenance and management of 650V Signalling Power Distribution Systems in accordance with NR/L2/SIGELP/27410.

Flexible Conduit provides an ideal solution for new and existing equipment identified for upgrade and is fully compliant to NR/L2/SIGELP/27421 and NR/L2/SIGELP/27422 for use in Class II Based Signalling Power Distribution Systems.

PA05/06589

NetworkRail

#### Flexible Conduit Systems

 Flexible Insulating Conduits with a dielectric withstand of 3.5kV in accordance with NR/L2/SIGELP/27421

#### **Conduit Glands**

- Conduit Glands in accordance with NR/L2/SIGELP/27422
- Universal End of Line Gland
- True one piece

#### **Accessories**

 Range of fixing accessories and mounting equipment for Flexible Conduits









# Flexicon warrant resistance to UV degradation

Our range of Network Rail PADS approved products have been extensively tested to warrant that the product performance will not suffer from significant mechanical deterioration from ultra violet exposure for a period of 35 years in the UK from the purchase date of the product.



# Non-metallic conduit selection guide



PR   Pading   PF   Pading   PF   PR   PF   PF   PF   PF   PF   PF													
IP40	FPADS	NEW	NEW	<b>3</b>	4000	200	4000	NEW		Conduit System	Conduit System		
IP40													
IP66	•			-	-		-			ID40			
P Rating	•	•											
IP68   IP69											IP Rating		
Compression Strength (kg / 100mm)   75   95   75   120   45   60   60											ii riuung		
Compression Strength (kg / 100mm)				_									
Pull Off Strength (kg) for 21/20mm size	00	00	00	00	45	400	75	05	75		0		
High Fatigue Life	60 15												
Temp    Max   120°C   120°C   120°C   110°C   110°C	10	15				70	40						
Temp			-								Tilgii i augue Lile		
** Extra	120°C									Max	Temn		
Halogen Free Self Extinguishing EN 45545-2 [1015052] Fire Tests NFPA-130 [10170 130] AS/NZS 1530.3  Network Rail NR/L2/SIGELP/27421 UL Approvals UL Approved Lloyds  UV Resistance (35 years UK)	-40°C	-40°C	-50°C	-50°C	-50°C	-40°C	-40°C	-40°C	-40°C	Min	Temp		
Self Extinguishing EN 45545-2 (193562) Fire Tests  NFPA-130 (1976 130) AS/NZS 1530.3  Network Rail NR/L2/SIGELP/27421  Approvals  TfL London Underground (1915 1806) UL Approved Lloyds  UV Resistance (35 years UK)			LOW FIRE HAZARD	STANDARD LOW FIRE HAZARD	STANDARD LOW FIRE HAZARD	STANDARD LOW FIRE HAZARD	COTRA LOW FIRE HAZARD	STANDARD LOW FIRE HAZARD	COW FIRE HAZARD	** Extra * Standard			
EN 45545-2 (MPB 130) AS/NZS 1530.3  Network Rail NR/L2/SIGELP/27421  Tfl. London Underground UL Approved Lloyds  UV Resistance (35 years UK)	•	•	•	•	•	•	•	•	•	Halogen Free	Low Fire Hazard		
NFPA-130   NFPA-130   NFPA-130   Network Rail   NR/L2/   SIGELP/27421   NR/L2/   SIGELP/	•	•	•	•	•	•	•	•	•				
AS/NZS 1530.3    Network Rail   NR/L2/   SIGELP/27421     Approvals   TfL London   Underground   UL Approved   UL Approved   Lloyds   UV Resistance (35 years UK)			•				•						
Approvals    Network Rail   NR/L2/   SIGELP/27421			•				•			NFPA-130 NFPA 130	Fire Tests		
NR/L2/  SIGELP/27421   TfL London						•	•		•	AS/NZS 1530.3			
UL Approved Lloyds  UV Resistance (35 years UK)										NR/L2/			
Lloyds • UV Resistance (35 years UK)							•			TfL London Underground TRI \$1085	Approvals		
UV Resistance (35 years UK)				•	•	•	•	•	•	UL Approved			
							•		•	Lloyds			
Suitable for areas prone to flood or immersion  Suitable for Class II installations										35 years UK)	UV Resistance (3		
Suitable for Class II installations										Suitable for areas prone to flood			
										Suitable for Class II installations			
Dielectric strength 3.5kV													
Abrasion Resistance	•	•	•	•	•	•	•	•	•		-		
Resistance to Solvents	•	•	•	•	•	•	•	•	•	S	Resistance to Solvents		
EMC Performance											EMC Performance		
Page Number 30 30 30 30 31 31 31	31	31	31	31	31	30	30	30	30		Page Number		







# Non-metallic conduit selection guide



FPRSS	FPRTC	FPISS	FPIHSS	FPIHRSS	FTCB	NRFPAS	N R R R	NRFPAH	NRFPIH	NRFPIHR	NRFPADS
				NEW							
											•
						•	•	•	•	•	
•	•	•	•	•		•	•	•	•	•	
							•	•	•	•	
75	75	45	60	60		75	75	120	60	60	60
100	75 75	100	100	100		40	40	70	50	35	15
.00		•	•	•		•			•	•	
120°C	120°C	110°C	110°C	110°C	300°C	120°C	120°C	120°C	110°C	110°C	120°C
-40°C	-40°C	-50°C	-50°C	-50°C	-50°C	-40°C	-40°C	-40°C	-50°C	-50°C	-40°C
LOW FIRE HAZARD	LOW FIRE HAZARD	STANDARD LOW FIRE HAZARD	LOW FIRE HAZARD	CXTRA LOW FIRE HAZARD	LOW FIRE HAZARD	LOW FIRE HAZARD	LOW FIRE HAZARD	LOW FIRE HAZARD	LOW FIRE HAZARD	LOW FIRE HAZARD	
•	•	•	•	•	•	•	•	•	•	•	•
	•	•	•	•	•	•	•	•	•	•	•
						•	•	•	•	•	•
							•				
						•		•	•		
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•			•	•						•	•
•	•	•	•	•	•	•		•		•	
_	•				•					_	







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.

# Non-Metallic Conduits

# **FPAS**

flexible conduit.

#### **FPASC**



FPR



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

Colour: Black. Typical Applications: Where high

mechanical strength combined with high corrosion resistance is required with a basic level of fire performance suitable for external applications.

- · High mechanical strength
- · High impact resistance
- Temperature range -40°C to
- UL recognised
- · Low Fire Hazard (LFH), see page 8
- · UL 94 V2 flame retardancy
- · Halogen, sulphur and phosphorus
- UV resistant
- · Abrasion resistant
- · Highly resistant to solvents and oils

Construction: Standard weight, flame retardant nylon (PA6) corrugated

**Colour:** black or grey (RAL 7031). Orange available on request.\*

Typical Applications: High levels of corrosion performance ideal for external applications such as passenger information systems & ticketing stations requiring a basic level of fire performance.

- · 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 listed / UL recognised
- Low Fire Hazard (LFH), see page 8
- 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

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

Colour: Black or Grev (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 8
- UL 94 V2 flame retardancy
- Halogen, sulphur and phosphorus free
- UV resistant (black)
- · Abrasion resistant
- · Highly resistant to solvents and oils

flexible conduit. Colour: Black Typical Applications: Interior Rolling Stock applications, tunnels and

Construction: Standard weight nylon (highly flame retardant PA6) corrugated

- underground applications where extra low fire hazard performance is required. Highly flexible and high fatigue life
- · High impact strength and recovers if
- 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 LUL Std 1-085 APR
- UL 94 V0 flame retardancy
- · Halogen, sulphur and phosphorus free
- UV resistant
- · Abrasion resistant
- · Highly resistant to solvents and oils

• EN45545-HL3 **MFPA 130** 

european (NW) sizes nominal size (mm) oitch 10 8 11 F 10 13 12 16 F 14 18 20 C 17 21 E 21 C. 25 C. 23 28 F 23 C 28 29 34 C 29 34 F 36 42 C 48 54 C 56 67 C

FPAS	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend
FPAS10	)	50	10.0	6.3	15
FPAS11	l	50	11.5	8.2	20
FPAS13	3	25, 50	13.0	9.8	25
FPAS16	ì	25, 50	15.8	11.8	35
FPAS18	}	50	18.5	14.2	40
FPAS20	)	10, 25, 50	20.0	14.8	45
FPAS21	I	10, 25, 50	21.2	16.7	45
FPAS25	5	10, 25, 50	25.0	19.1	50
FPAS28	3	10, 25, 50	28.5	22.8	50
FPAS34	1	25, 50	34.5	28.1	60
FPAS34	<b>!F</b> *	50	34.5	28.8	60
FPAS42	2	10, 25, 50	42.5	35.5	70
FPAS54	1	10, 25, 50	54.5	47.2	80
FPAS67	7	10	67.2	56.3	130

For	larger	diameter	conduit	see	page	64

radius (mm)	FPAS	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	FPR	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	FPAH	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)
5							FPR10		50	10.0	6.3	15						
0																		
5							FPR13		50	13.0	9.8	25	FPAH13	3	50	13.0	9.0	35
5							FPR16		50	15.8	11.8	35	FPAH16	ì	50	15.8	11.5	45
0																		
5							FPR20		50	20.0	14.8	45						
5							FPR21		50	21.2	16.7	45						
	FPAS21	C	50	21.2	16.0	45							FPAH21		50	21.2	15.5	55
0							FPR25		50	25.0	19.1	50						
0																		
	FPAS28	BC .	50	28.5	21.7	50	FPR28		50	28.5	21.7	50	FPAH28	3	50	28.5	21.3	60
0	FPAS34	IC	50	34.5	28.1	60	FPR34		50	34.5	28.1	60	FPAH34	ļ.	25	34.5	27.6	70
0																		
0	FPAS42	2C	25	42.5	35.5	70	FPR42		25	42.5	35.5	70	FPAH42	2	25	42.5	34.6	80
0	FPAS54	IC	25	54.5	47.2	80	FPR54		25	54.5	47.2	80	FPAH54	ļ.	25	54.5	46.0	90
0	FPAS67	C 2	10	67.2	56.3	130	FPR67		10	67.2	56.3	130						

F = fine pitch C = coarse pitch

# FPA / FPAX / ULTRA™

Our range of non-metallic conduits below have been designed and engineered for use with our FPA, FPAX and ULTRA $^{\text{TM}}$  ranges of fittings.





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

Colour: Black.

Typical Applications: Where continual movement or flexing is required, ideal for applications requiring a basic level of fire performance such as external CCTV.

- · 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
- Low fire hazard
- Halogen, sulphur and phosphorus free



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

Colour: Black.

Typical Applications: Where continual movement or flexing is required, with a higher mechanical strength even at very low temperatures. Ideal for applications requiring a basic level of fire performance.

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



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

Colour: Black.

Typical Applications: Where 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
- Excellent UV resistance
- Displays self recovery if crushed
- Temperature range -50°C to +110°C
- UL recognised
- · Highly resistant to solvents and oils
- · Self extinguishing
- Low fire hazard
- Halogen, sulphur and phosphorus free
- EN45545-HL3



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

Colour: Black

Typical Applications: Retrofit and cable assemblies with preterminated plugs. Ideal to enhance personal protection against electric shock and protect vulnerable cabling within enclosures and Power Distribution Units.

- 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



FPI	part number	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)	FPIHR	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	FPADS	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	european (NW) sizes	nominal size (mm)	pitch
																								7	10	F
																		FPADS	11*	50	11.5	6.2	70	8	11	F
FPI13		50	13.0	9.8	25	FPIH13	50	)	13.0	9.0	25	FPIHR <sup>2</sup>	13	50	13.0	9.0	25	<b>FPADS</b>	13	50	13.0	7.9	75	10	13	F
FPI16		50	15.8	11.8	30	FPIH16	50	)	15.8	11.5	35	FPIHR <sup>*</sup>	16	50	15.8	11.5	35	<b>FPADS</b>	16	50	15.8	10.3	100	12	16	F
																								14	18	F
																									20	C
FPI21		50	21.2	16.7	35													FPADS	21	50	21.2	13.9	120	17	21	F
						FPIH21	50	)	21.2	15.0	45	FPIHR	21	50	21.2	15.0	45								21	C
																									25	C
																								23	28	F
FPI28		50	28.5	21.7	45	FPIH28	50	)	28.5	21.3	50	FPIHR	28	50	28.5	21.3	50	FPADS	28	50	28.5	20.5	170	23	28	C
FPI34		25	34.5	28.1	55	FPIH34	25	5	34.5	27.6	60	FPIHR	34	25	34.5	27.6	60	FPADS:	34	25	34.5	26.6	180	29	34	C
																								29	34	F
FPI42		25	42.5	35.5	60	FPIH42	25	5	42.5	34.6	70	FPIHR4	42	25	42.5	34.6	70	FPADS-	42	25	42.5	32.0	200	36	42	C
FPI54		25	54.5	47.2	70	FPIH54	25	5	54.5	46.0	80	FPIHR	54	25	54.5	46.0	80	FPADS	54	25	54.5	43.0	240	48	54	C
FPI67		10	67.2	56.3	120							FPIHR	67	10	67.2	56.0	130							56	67	С

For larger diameter conduit see page 64



# FPA system nylon

Construction: Nylon (PA66) moulded fittings.





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

Colour: Black or Grey.

# Fittings

		FPA			FPA		FPA	FPA9	0	
		One piece, fa threaded fittir	external threatest fit, external ng. Suitable for threaded entries		straight UNE swivel intern One piece, fast fit nickel plated bras internal thread for circular connector	al thread fitting with s swivel UNEF attachment to	flange One piece, fast fit fitting with nylon swivel flange with 'O' ring.	One piece, fa	external that fit, external to fitting. Suitables.	hreaded 90
		IP66			IP66		IP66	IP66		
nominal size (mm)	ши								A	
nomi	0D mm	Ext Metric	Ext PG	Ext NPT	Ext UNEF	Thread	Ext Flange	90 Degree Metric	90 Degree PG	90 Degree NPT
10 10	10.0	FPA10-M12 FPA10-M16	FPA10-PG7 FPA10-PG9					FPA10-M12-90	FPA10-PG7-90	
11	11.5	FPA11-M12	FPA11-PG7					FPA11-M12-90		
13	13.0	FPA13-M12	FPA13-PG7		FPA13-BU063	(5/8")		FPA13-M16-90	FPA13-PG9-90	
13		FPA13-M16	FPA13-PG9		FPA13-BU075	(3/4")				
13		FPA13-M20	FPA13-PG11		FPA13-BU088	(7/8")				
16	15.8	FPA16-M16	FPA16-PG9	FPA16-038	FPA16-BU075	(3/4")	FPA16-FL	FPA16-M16-90	FPA16-PG9-90	FPA16-050-90
16		FPA16-M20	FPA16-PG11	FPA16-050	FPA16-BU088	(7/8")		FPA16-M20-90	FPA16-PG11-90	
16			FPA16-PG13		FPA16-BU100	(1")			FPA16-PG13-90	
16			FPA16-PG16		FPA16-BU119	(1 <sup>3</sup> / <sub>16</sub> ")				
18	18.5	FPA18-M20	FPA18-PG13					FPA18-M20-90		
18										
20	20.0	FPA20-M20				(41)		FPA20-M20-90		
21	21.2	FPA21-M20	FPA21-PG13	FPA21-050	FPA21-BU100	(1")	FPA21-FL	FPA21-M20-90	FPA21-PG16-90	FPA21-050-90
21		FPA21-M25	FPA21-PG16		FPA21-BU119	(13/16")				
21	05.0	EDAGE MAGE			FPA21-BU125	(11/4")		FDAGE SECT CO		
25	25.0 28.5	FPA25-M25 FPA28-M25	EDA20 D024	FPA28-075	EDA20 DI1420	(43/11)	FPA28-FL	FPA25-M25-90	EDA20 D024 00	FPA28-075-90
28 28	20.0	FPA28-M25 FPA28-M32	FPA28-PG21 FPA28-PG29	LLW70-019	FPA28-BU138 FPA28-BU144	(1%") (1 <sup>7</sup> / <sub>16</sub> ")	FFAZO-FL	FFAZO-IVIZO-9U	FPA28-PG21-90	FFA20-0/0-90
20	0.4 =	FFAZO-IVIJZ	FFMZ0-PUZ9		FFAZO-DU144	(1/16)				

# **Ordering Notes**

FPA34-PG29

FPA42-PG36

FPA54-PG42

FPA54-PG48

FPA67-PG48

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

FPA34-100

FPA42-125

FPA42-150

FPA54-150

FPA54-200

FPA67-200

FPA34-BU144

FPA34-BU175

FPA42-BU200

FPA42-BU225

FPA54-BU200

FPA54-BU225

(17/16")

(13/4")

(2")

(21/4")

(2")

(21/4")

- The IP rating onto a UNEF threaded connector may be dependent on the design of the connector
- \* Indicates parts made to order on request and may be subject to MOQ and lead time

· Available on request:

FPA34-FL

FPA42-FL

FPA34-M32-90

FPA42-M40-90

FPA42-M50-90

FPA54-M50-90

FPA54-M63-90

FPA34-PG29-90

FPA42-PG36-90

FPA54-PG48-90

FPA67-M63-90 FPA67-PG48-90 FPA67-200-90

FPA34-100-90

FPA42-125-90

FPA42-150-90

FPA54-150-90

FPA54-200-90

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

european (NW) sizes

17 17 17

23 23

29

29 34

36

36 42

48

48 54

**56 67** 67.0

**34** 34.5

**42** 42.5

**54** 54.5

FPA34-M32

FPA34-M40

FPA42-M40

FPA42-M50

FPA54-M50

FPA54-M63

FPA67-M63

# Ü

- 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 149
- · Halogen, sulphur and phosphorus free
- Available in Black or Grey (RAL 7031)
- EN 45545 HL3 and NFPA compliant
- Nylon metric threads supplied with glass reinforced nylon locknut
- · Face seal washers available on request see page 84

FPA90		FPA90	FPA4	5		FPA45				
90° elbow UNE internal thread One piece, fast fit, elbow fitting with ni brass swivel UNEF thread for attachme circular connectors.	00 degree ckel plated internal nt to	flange One piece, fast fit 90 degree elbow fitting with nylon swivel flange with 'O' ring face seal.	45° elbow thread One piece, far threaded 45 d Suitable for kr	st fit, external degree elbow		45° elbow UN internal threa One piece, fast fit, elbow fitting with r brass swivel UNEF thread for attachm circular connector.	45 degree nickel plated internal ent to			
IP66		IP66	IP66		<b>&gt;</b>	IP66		nominal size (mm)	0D mm	european (NW) sizes
90 Degree UNEF	Thread	90 Degree Flange	45 Degree Metric	45 Degree PG	45 Degree NPT	45 Degree UNEF	Thread			
								10 10	10.0	7
								11	11.5	8
FPA13-BU063-90 FPA13-BU075-90 FPA13-BU088-90	(5%") (3¼") (7%")							13 13 13	13.0	10 10 10
FPA16-BU075-90 FPA16-BU088-90 FPA16-BU100-90 FPA16-BU119-90	(3/4") (7/8") (1") (13/16")	FPA16-FL-90	FPA16-M20-45	FPA16-PG13-45	FPA16-050-45	FPA16-BU075-45 FPA16-BU088-45 FPA16-BU100-45 FPA16-BU119-45	(¾") (7/8") (1") (1¾6")	16 16 16 16	15.8	12 12 12 12
								18 18	18.5	14 14
								20	20.0	
FPA21-BU100-90 FPA21-BU119-90 FPA21-BU125-90	(1") (1¾6") (1¼")	FPA21-FL-90	FPA21-M20-45	FPA21-PG13-45 FPA21-PG16-45	FPA21-050-45	FPA21-BU100-45 FPA21-BU119-45 FPA21-BU125-45	(1") (1 <sup>3</sup> / <sub>16</sub> ") (1 <sup>1</sup> / <sub>4</sub> ")	21 21 21	21.2	17 17 17
								25	25.0	
FPA28-BU138-90	(13/8")	FPA28-FL-90	FPA28-M25-45	FPA28-PG21-45	FPA28-075-45	FPA28-BU138-45	(13/8")	28	28.5	23
FPA28-BU144-90 FPA34-BU144-90	(1½6") (1½6")	FPA34-FL-90	FPA34-M32-45	EDASA DESO AE	EDA24 100 45	FPA28-BU144-45 FPA34-BU144-45	(1½16") (1½16")	28 34	34.5	23
FPA34-BU144-90 FPA34-BU175-90	(1 <sup>3</sup> / <sub>4</sub> ")	FFA04-FL-9U	FFA34-W32-43	rraj4-ruzy-43	FFA34-100-43	FPA34-BU144-45	(1 <sup>-7</sup> /16 <sup>-1</sup> ) (1 <sup>3</sup> / <sub>4</sub> ")	34	34.5	29
FD140 DU000 00	(1/4)	ED440 EL 00	ED140 1450 45	ED1 40 D000 4E	ED140.4E0.4E	FD440 BU000 45	(174)	40	40.5	25

# Standards & Approvals



FPA42-BU200-90

FPA42-BU225-90

FPA54-BU200-90

FPA54-BU225-90





(21/4")

(2")

(21/4")



FPA42-FL-90

FPA54-FL-90\*





FPA54-M50-45

FPA42-M50-45 FPA42-PG36-45 FPA42-150-45

FPA54-150-45





FPA42-BU200-45

FPA42-BU225-45

FPA54-BU200-45

FPA54-BU225-45

(2")

(21/411)

(2")

(21/4")









**42** 42.5 **36** 

48 **67** 67.0 **56** 

42

54

54



# FPA system nylon

Construction: Nylon (PA66) moulded fittings.

# FPA system brass threaded

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

Colour: Black or Grey.





# Fittings

# FPA-FPA flange One piece, fast fit 45 degree elbow fitting with nylon swivel flange with 'O' ring face seal. Description: Des

european (	nominal si	OD mm	45 Degree Flange	Coupler	Rigid Conduit Coupler
7	10	10.0			
7	10				
8		11.5			
10	13	13.0			
10	13				
10	13				
12	16	15.8	FPA16-FL-45	FPA16-FPA16	FPA16-MPC16
12	16				
12	16				
12	16	40.5			
14	18	18.5			
14	18	20.0		FDA20 FDA20	
17	20 21	21.2	FPA21-FL-45	FPA20-FPA20 FPA21-FPA21	FPA21-MPC20
17	21	21.2	FFAZ1-FL-45	FFAZ I-FFAZ I	FFAZ I-WIFGZU
17	21				
.,	25	25.0		FPA25-FPA25	
23		28.5	FPA28-FL-45	FPA28-FPA28	FPA28-MPC25
23	28	20.0			<u>-</u>
29		34.5	FPA34-FL-45	FPA34-FPA34	FPA34-MPC32
29	34				
36		42.5	FPA42-FL-45	FPA42-FPA42	FPA42-MPC40
36	42				
48	54	54.5	FPA54-FL-45	FPA54-FPA54	
48	54				
56	67	67.0			

# **Ordering Notes**

- \* Indicates parts made to order on request
- NPB = Nickel Plated Brass
- · Available on request:
- colour Grey, other threads
- for brass locknuts and sealing washers see accessories, page 84
- EMC braid clamp version see page 55



#### • 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 8
- · Halogen, sulphur and phosphorus free
- · Available in Black or Grey (RAL 7031)
- EN 45545 HL3 and NFPA compliant



#### FPA

#### FPA

#### FPA90

#### 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

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

					10	10.0	
					10		
					11	11.5	
FPA13-BM16	FPA13-BPG9	FPA13-BFM16	FPA13-BM16-90	FPA13-BPG9-90	13	13.0	
					13		ŀ
					13		ŀ
FPA16-BM16	FPA16-BPG9	FPA16-BFM16	FPA16-BM16-90	FPA16-BPG9-90	16	15.8	
FPA16-BM20	FPA16-BPG11	FPA16-BFM20	FPA16-BM20-90	FPA16-BPG11-90	16		ŀ
					16		ŀ
					16		
					18	18.5	
					18		
					20	20.0	
FPA21-BM20	FPA21-BPG13	FPA21-BFM20	FPA21-BM20-90	FPA21-BPG13-90	21	21.2	
	FPA21-BPG16			FPA21-BPG16-90	21		ŀ
					21		
					25	25.0	
FPA28-BM25	FPA28-BPG21	FPA28-BFM25	FPA28-BM25-90	FPA28-BPG21-90	28	28.5	
					28		
FPA34-BM32	FPA34-BPG29	FPA34-BFM32	FPA34-BM32-90	FPA34-BPG29-90	34	34.5	
					34		
FPA42-BM40	FPA42-BPG36	FPA42-BFM40	FPA42-BM40-90	FPA42-BPG36-90	42	42.5	
FPA42-BM50			FPA42-BM50-90		42		
FPA54-BM50	FPA54-BPG48*	FPA54-BFM50	FPA54-BM50-90	FPA54-BPG48-90*	54	54.5	
FPA54-BM63			FPA54-BM63-90		54		
FPA67-BM63					67	67.0	

Standards & Approvals

















european (NW) sizes

17 17 17

nominal size (mm)

OD mm













# FPA system brass threaded

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

Colour: Black or Grey.





# **Fittings**

#### FPA90

90° elbow swivel brass internal thread

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



european (NW) sizes nominal size (mm)

OD mm



# FPA45

45° elbow swivel brass external thread

One piece, fast fit, swivel, 45 degree elbow, nickel plated brass external threaded fitting. Suitable for knockouts or threaded entries.





#### FPA45

45° elbow swivel brass internal thread

One piece, fast fit, swivel, 45 degree elbow, nickel plated brass internal threaded fitting.





NPB Int Metric	NPB Ext Metric	NPB Ext PG	NPB Int Metric
INI D IIIL WICKIO	IVI D EXTINIONIO	INI D EXCI O	INI D IIIL INIGUIO

_	_	_	IN B III Modio	IVI D EXCIVIOUIO	INI D EXCI Q	M B III Modio
7	10	10.0				
7	10					
8	11	11.5				
10	13	13.0	FPA13-BFM16-90			
10	13					
10	13					
12	16	15.8	FPA16-BFM16-90	FPA16-BM16-45	FPA16-BPG13-45	FPA16-BFM20-45
12	16		FPA16-BFM20-90	FPA16-BM20-45	FPA16-BPG16-45	
12	16					
12	16					
14	18	18.5				
14	18					
	20	20.0				
17	21	21.2	FPA21-BFM20-90	FPA21-BM20-45	FPA21-BPG13-45	FPA21-BFM20-45
17	21				FPA21-BPG16-45	
17	21					
		25.0				
23		28.5	FPA28-BFM25-90	FPA28-BM25-45	FPA28-BPG21-45	FPA28-BFM25-45
23	28					
29		34.5	FPA34-BFM32-90	FPA34-BM32-45	FPA34-BPG29-45	FPA34-BFM32-45
29	34					
36		42.5	FPA42-BFM50-90	FPA42-BM40-45	FPA42-BPG36-45	FPA42-BFM50-45
36	42			FPA42-BM50-45		
48		54.5	FPA54-BFM50-90	FPA54-BM50-45	FPA54-BPG48-45*	FPA54-BFM50-45
48	54			FPA54-BM63-45		
56	67	67.0				

# **Ordering Notes**

- \* Indicates parts made to order on request
- NPB = Nickel Plated Brass
- Available on request:
  - colour Grey, other threads
- for brass locknuts and sealing washers see accessories, page 84
- EMC braid clamp version, see page 55



• 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

 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 8

 Halogen, sulphur and phosphorus free

 Refer to accessories for clamping range page 85



#### FPA

#### FPA90

#### FPA45

#### cable gland

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

#### cable gland

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

#### cable gland

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









NPB Metric

NPB Metric

				10.0	7
			10	44.5	7
FD140 D1140 00	ED140 D1440 00 00			11.5	8
FPA13-BM16-CG	FPA13-BM16-CG-90		13	13.0	10
			13		10
			13		10
FPA16-BM16-CG	FPA16-BM16-CG-90	FPA16-BM20-CG-45		15.8	12
FPA16-BM20-CG	FPA16-BM20-CG-90		16		12
			16		12
			16		12
				18.5	14
			18		14
			20	20.0	
FPA21-BM20-CG	FPA21-BM20-CG-90	FPA21-BM20-CG-45	21	21.2	17
			21		17
			21		17
			25	25.0	
FPA28-BM25-CG	FPA28-BM25-CG-90	FPA28-BM25-CG-45	28	28.5	23
			28		23
FPA34-BM32-CG	FPA34-BM32-CG-90	FPA34-BM32-CG-45	34	34.5	29
			34		29
FPA42-BM40-CG	FPA42-BM40-CG-90	FPA42-BM40-CG-45	42	42.5	36
			42		36
FPA54-BM50-CG	FPA54-BM50-CG-90	FPA54-BM50-CG-45	54	54.5	48
			54		48
			67	67.0	56

Note: PG thread versions and EMC Cable Gland version on request.

### Standards & Approvals



















european (NW) sizes

nominal size (mm) ШШ 00













### FPAX system nylon

Construction: Nylon (PA66) moulded fitting incorporating internal elastomeric seal.

Colour: Black or Grey\* on request











# Fittings

			FPAX	FPAX - FPAX	FPAX		FPAX
			straight external thread Fast fit, external threaded fitting with additional conduit seal. Suitable for knockouts or threaded entries.	Fast fit coupler to join corrugated conduits. Also available in FPA and FPAU versions.	Fast fit fitting with no brass swivel UNEF for attachment to ci connectors with adconduit seal.	ickel plated internal thread rcular	flange Fast fit fitting with nylon swivel flange with additional conduit seal and with 'O' ring face seal.
			IP66 IP67 IP68 IP69	IP66 IP67 IP68 IP69	IP66 IP67 IP68	IP69	IP66 IP67 IP68 IP69
european (NW) sizes	nominal size (mm)	0D mm				E	
enr	non	00	Ext Metric Ext PG Ext NPT		Int UNEF	Thread	Flange
7	10	10.0					
7 8	10	44 E					
10	11 13	11.5 13.0	FPAX13-M16 FPAX13-PG9	FPAX16-FPAX16			
10	13	10.0	Tracto into Tracto Lus	TTAKI			
10	13						
12	16	15.8	FPAX16-M16 FPAX16-PG9 FPAX16-038		FPAX16-BU075	(3/4")	FPAX16-FL
12	16		FPAX16-M20 FPAX16-PG11 FPAX16-050		FPAX16-BU088	(7/8")	
12	16		FPAX16-PG13		FPAX16-BU100	(1")	
12 14	16 18	18.5	FPAX16-PG16		FPAX16-BU119	(1¾16")	
14	18	10.5					
	20	20.0					
17	21	21.2	FPAX21-M20 FPAX21-PG13 FPAX21-050	FPAX21-FPAX21	FPAX21-BU100	(1")	FPAX21-FL
17	21		FPAX21-PG16		FPAX21-BU119	(13/16")	
17	21				FPAX21-BU125	(13/8")	
	25	25.0					
23	28	28.5	FPAX28-M25 FPAX28-PG21 FPAX28-075	FPAX28-FPAX28	FPAX28-BU138	(13%")	FPAX28-FL
23 29	28 34	34.5	FPAX28-M32 FPAX28-PG29	EDAVOA FDAVOA	FPAX28-BU144	(17/16")	FPAX34-FL
29	34	34.5	FPAX34-M32 FPAX34-PG29 FPAX34-100 FPAX34-M40	FPAX34-FPAX34	FPAX34-BU144	(17/16")	FFAAJ4-FL
36	42	42.5	FPAX42-M40 FPAX42-PG36 FPAX42-125	FPAX42-FPAX42	FPAX42-BU200	(2")	FPAX42-FL
36	42	12.0	FPAX42-M50 FPAX42-150		FPAX42-BU225	(21/4")	III/U/TE I E
48	54	54.5	FPAX54-M50 FPAX54-PG42 FPAX54-150		FPAX54-BU200	(2")	
48	54		FPAX54-M63 FPAX54-PG48 FPAX54-200		FPAX54-BU225	(21/4")	
56	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 84
- EMC braid clamp version see page 55



- Fast fit
- IP rating:
- IP66 + IP67 + IP68 (2 bar) + IP69
- Supplied with additional conduit seal and Vibration and shock tested to EN61373 Cat 2
- Face seal details:
  - Metric Nylon threads supplied with retained Polyester Elastomer Washer NPT and PG Nylon threads supplied with Neoprene Washer
- Brass threads supplied with Fibre Washer Suitable for fine and coarse pitch conduits
- UNEF, Flange and Cable Glands supplied with O-ring
- 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
- Temperature range -50°C to +135°C
- · Metric nylon threads supplied complete with glass reinforced nylon locknuts
- Swivel UNEF threads allow assembly to military style electrical connectors without twisting of cables and includes sealing 'O' ring face seal
- Low Fire Hazard (LFH), see page 8
- Halogen, sulphur and phosphorus free
- EN 45545 HL3 and NFPA130 compliant

#### FPAX90 FPAX90 FPAX90 90° elbow external thread 90° elbow UNEF swivel internal thread Fast fit, external threaded 90 degree elbow Fast fit 90 degree elbow fitting with nylon fitting with additional conduit seal. Suitable swivel flange with additional conduit seal with Fast fit, 90 degree elbow fitting with nickel plated brass swivel UNEF internal thread for attachment to circular connectors with 'O' ring face seal. for knockouts. additional conduit seal. european (NW) sizes nominal size (mm) ШШ 0 Ext Metric Ext PG Ext NPT Int UNEF Flange 10 7 10 7 11 8 FPAX13-M16-90 FPAX13-PG9-90 13 10 13 10 13 10 FPAX16-M16-90 FPAX16-PG9-90 FPAX16-050-90 16 12 FPAX16-BU075-90 (3/4") FPAX16-FL-90 FPAX16-M20-90 FPAX16-PG11-90 FPAX16-BU088-90 (<sup>7</sup>/<sub>8</sub>") 16 12 FPAX16-PG13-90 FPAX16-BU100-90 16 12 (1") FPAX16-BU119-90 (13/16") 16 12 18 18.5 14 18 14 20 FPAX21-M20-90 FPAX21-PG13-90 FPAX21-050-90 FPAX21-BU100-90 FPAX21-FL-90 21 17 (1") FPAX21-PG16-90 FPAX21-BU119-90 (13/16") 21 17 FPAX21-BU125-90 (11/4") 21 17 25 FPAX28-BU138-90 FPAX28-M25-90 FPAX28-PG21-90 FPAX28-075-90 (13%") FPAX28-FL-90 28 28.5 23 28 FPAX28-BU144-90 (17/16") 23 FPAX34-M32-90 FPAX34-PG29-90 FPAX34-100-90 FPAX34-BU144-90 (17/16") FPAX34-FL-90 34 34.5 29 29 FPAX42-M40-90 FPAX42-PG36-90 FPAX42-125-90 FPAX42-R11200-90 (2") FPAX42-FL-90 42 42.5 36 (21/4") FPAX42-M50-90 FPAX42-150-90 FPAX42-R11225-90 42 36 FPAX54-M50-90 FPAX54-PG48-90 FPAX54-150-90 FPAX54-BU200-90 (2") 54 48 FPAX54-M63-90 FPAX54-200-90 FPAX54-BU225-90 (21/4") 54 48 **67** 67.0 **56**

### Standards & Approvals

































# **FPAX** system nylon & brass threaded

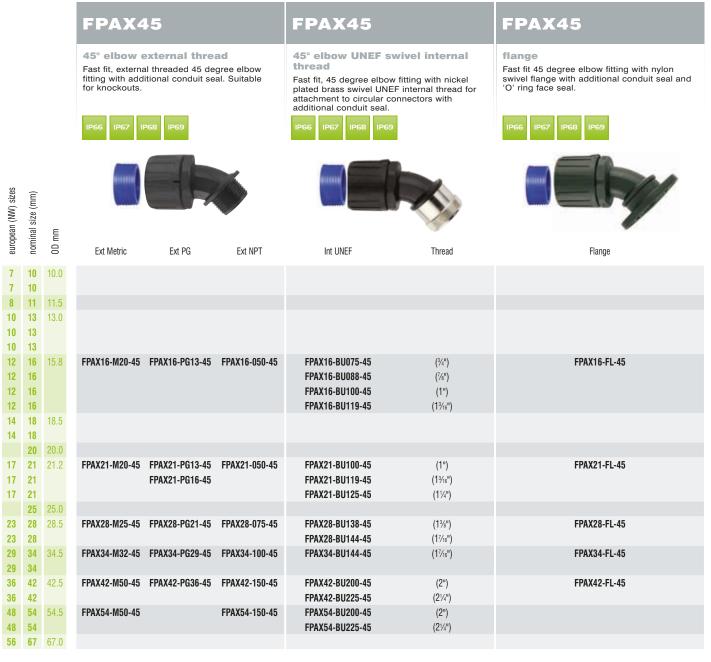


**Construction:** Nylon (PA66) moulded fitting incorporating internal elastomeric seal.

Construction: Nylon (PA66) moulded fitting with swivel metal thread. External and internal metallic threads are made from nickel plated brass and incorporate an internal elastomeric seal.

Colour: Black or Grey\* on request.

# **Fittings**



### Ordering Notes

- Specify Black or Grey (B=Black, G=Grey)
   eg: FPAX16-M20-45B
- NPB = Nickel Plated Brass
- · Available on request:
  - other threads
- for brass locknuts and sealing washers see accessories, page 84
- EMC braid clamp version, see page 55



### Fast fit Ö

- IP rating: IP66 + IP67 + IP68 (2 bar) + IP69
- · Supplied with additional conduit seal and face seal
- Face seal details:
- Metric Nylon threads supplied with retained Polyester Elastomer Washer
- NPT and PG Nylon threads supplied with Neoprene Washer
- 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
- 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 -50°C to +135°C
- Metric nylon threads supplied complete with glass reinforced nylon locknuts
- Swivel UNEF threads allow assembly to military style electrical connectors without twisting of cables and includes sealing 'O' ring face seal
- Low Fire Hazard (LFH), see page 8
- · Halogen, sulphur and phosphorus free
- EN 45545 HL3 and NFPA130 compliant

#### **FPAX**

#### straight swivel brass external thread

Fast fit, swivel, nickel plated brass external threaded fitting. Suitable for knockouts or threaded entries.













NPB Ext Metric

FPAX13-BM16

FPAX16-BM16

FPAX16-BM20

FPAX21-BM20

FPAX28-BM25

FPAX34-BM32

FPAX42-BM40

FPAX42-RM50

FPAX54-BM50

FPAX54-BM63

NPB Ext PG

FPAX13-BPG9

FPAX16-BPG9

FPAX16-BPG11

FPAX21-BPG13

FPAX21-BPG16

FPAX28-BPG21

FPAX34-BPG29

FPAX42-BPG36

FPAX54-BPG48\*

#### FPAX

#### straight swivel brass internal thread

Fast fit, swivel, nickel plated brass internal threaded fitting with additional conduit seal.









NPB Int Metric

FPAX13-BFM16

FPAX16-BFM16

FPAX16-BFM20

FPAX21-BFM20

FPAX28-BFM25

FPAX34-BFM32

FPAX42-BFM40

FPAX54-BFM50

#### FPAX90

#### 90° elbow swivel brass external thread

Fast fit, swivel, 90 degree elbow, nickel plated brass external threaded fitting with additional conduit seal. Suitable for knockouts or threaded entries.









NPB Ext Metric

FPAX13-BM16-90

FPAX16-BM16-90

FPAX16-BM20-90

FPAX21-BM20-90

FPAX28-BM25-90

FPAX34-BM32-90

FPAX42-BM40-90

FPAX42-RM50-90

FPAX54-BM50-90

FPAX54-BM63-90

NPB Ext PG

FPAX13-BPG

FPAX16-BPG

FPAX16-BPG1

FPAX21-BPG1

FPAX21-BPG1

FPAX28-BPG2

FPAX34-BPG2

FPAX42-BPG3

FPAX54-BPG4

	10	10.0	7
	10		7
	11	11.5	8
9-90	13	13.0	10
	13		10
	13		10
9-90	16	15.8	12
11-90	16		12
	16		12
	16		12
	18	18.5	14
	18		14
	20	20.0	
13-90	21	21.2	17
16-90	21		17
	21		17
	25	25.0	
21-90	28	28.5	23
	28		23
29-90	34	34.5	29
	34		29
36-90	42	42.5	36
	42		36
8-90*	54	54.5	48
	54		48

nominal size (mm)

OD mm

european (NW) sizes

### Standards & Approvals

























**67** 67.0 **56** 



### FPAX system brass threaded

Construction: Nylon (PA66) moulded fitting with swivel metal thread. External and internal metallic threads are made from nickel plated brass and incorporate an internal elastomeric seal.

Colour: Black.











## **Fittings**

#### FPAX45 FPAX45 FPAX90 90° elbow swivel brass 45° elbow swivel brass 45° elbow swivel brass internal internal thread external thread Fast fit, swivel, 90 degree elbow, nickel plated Fast fit, swivel, 45 degree elbow, nickel plated Fast fit, swivel, 45 degree elbow, nickel plated brass external threaded fitting with additional conduit seal. Suitable for knockouts or brass internal threaded fitting with additional brass internal threaded fitting with additional conduit seal. conduit seal. threaded entries european (NW) sizes nominal size (mm) ШШ 00 NPB Int Metric NPB Ext Metric NPB Ext PG NPB Int Metric 7 10 7 10 8 11 FPAX13-BFM16-90 10 13 10 13 10 13 12 16 FPAX16-BFM16-90 FPAX16-BM16-45 FPAX16-BPG13-45 FPAX16-BFM20-45 12 16 FPAX16-BFM20-90 FPAX16-BM20-45 FPAX16-BPG16-45 12 16 12 16 14 18 18.5 14 18 20 17 21 FPAX21-BFM20-90 FPAX21-BM20-45 FPAX21-BPG13-45 FPAX21-BFM20-45 17 21 FPAX21-BPG16-45 17 21 25.0 25 23 28 28.5 FPAX28-BFM25-90 FPAX28-BM25-45 FPAX28-BPG21-45 FPAX28-BFM25-45 23 28 **34** 34.5 29 FPAX34-BFM32-90 FPAX34-BM32-45 FPAX34-BPG29-45 FPAX34-BFM32-45 29 34 36 **42** 42.5 FPAX42-BFM50-90 FPAX42-BM40-45 FPAX42-BPG36-45 FPAX42-BFM50-45 36 42 FPAX42-RM50-45 48 **54** 54.5 FPAX54-BFM50-90 FPAX54-BM50-45 FPAX54-BPG48-45\* FPAX54-BFM50-45 48 54 FPAX54-BM63-45 **56 67** 67.0

### **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 84
- EMC braid clamp version, see page 55

Fast fit Ö

- IP rating: for conduit & fitting IP66 + IP67 + IP68 (2 bar) + IP69

for cable gland: IP68 (10 bar)+IP69

- Supplied with additional conduit seal & face seal
- Face seal details:
- Metric Nylon threads supplied with retained Polyester Elastomer Washer
- NPT and PG Nylon threads supplied with Neoprene Washer
- 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
- 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 8
- Halogen, sulphur and phosphorus free
- Refer to accessories for clamping range page 85
- EN 45545 HL3 and NFPA compliant



FPAX21-BM20-CG-90

FPAX28-BM25-CG-90

FPAX34-BM32-CG-90

FPAX42-BM40-CG-90

FPAX54-BM50-CG-90

Note: PG thread versions and EMC Cable Gland version on request.

### Standards & Approvals







FPAX21-BM20-CG

FPAX28-BM25-CG

FPAX34-BM32-CG

FPAX42-BM40-CG

FPAX54-BM50-CG













FPAX21-BM20-CG-45

FPAX28-BM25-CG-45

FPAX34-BM32-CG-45

FPAX42-BM40-CG-45

FPAX54-BM50-CG-45







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28 28.5 23

28

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34

42 42.5 36

42

54

54

**67** 67.0 **56** 

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17

23 34.5

29

29

36

48

48











### **ULTRA™** system

The World's Best Conduit Fitting

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.



NEW

#### Fittings **ULTRA™** system straight

#### **FPAU**



#### 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

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







#### straight swivel brass external

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







european (NW) sizes nominal size (mm)

ШШ











**56 67** 67.0



OO	Ext Metric	Ext NPT	Int UNEF	Thread	NPB Ext Metric	NPB Ext PG	NPB Ext NPT
0.0							
1.5							
3.0	FPAU13-M16				FPAU13-BM16	FPAU13-BPG9	
5.8	FPAU16-M16 FPAU16-M20	FPAU16-038 FPAU16-050	FPAU16-BU075 FPAU16-BU088 FPAU16-BU100 FPAU16-BU119	(¾") (½") (1") (1¾6")	FPAU16-BM16 FPAU16-BM20	FPAU16-BPG9 FPAU16-BPG11	FPAU16-B038* FPAU16-B050*
0.0							
1.2	FPAU21-M20 FPAU21-M25	FPAU21-050	FPAU21-BU100 FPAU21-BU119 FPAU21-BU125	(1") (1¾6") (1¼")	FPAU21-BM20	FPAU21-BPG13 FPAU21-BPG16	FPAU21-B050*
5.0							
8.5	FPAU28-M25 FPAU28-M32	FPAU28-075	FPAU28-BU138	(13%")	FPAU28-BM25	FPAU28-BPG21	FPAU28-B075*
4.5	FPAU34-M32 FPAU34-M40	FPAU34-100	FPAU34-BU144	(17/16")	FPAU34-BM32	FPAU34-BPG29	FPAU34-B100*
2.5	FPAU42-M40 FPAU42-M50	FPAU42-125 FPAU42-150	FPAU42-BU200 FPAU42-BU225	(2") (2½")	FPAU42-BM40 FPAU42-BM50	FPAU42-BPG36	FPAU42-B125* FPAU42-B150*
4.5	FPAU54-M50 FPAU54-M63	FPAU54-150 FPAU54-200	FPAU54-BU200 FPAU54-BU225	(2") (2½")	FPAU54-BM50 FPAU54-BM63	FPAU54-BPG48*	FPAU54-B150* FPAU54-B200*

### **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 84
- EMC braid clamp version see page 55

### Fine Pitch



### Coarse Pitch



- Fast fit True one piece component
- IP rating: for conduit & fitting IP66 + IP67 + IP68 (2 bar) + 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
- Metric Brass threads supplied with retained Fibre Washer

- NPT threads supplied with a Neoprene 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
- · Can be removed using a screwdriver
- · All round teeth give high pull off strength

75kg with FPAH21

- Suitable for fine and coarse pitch conduits
- Temperature range:
- conduit fitting: -50°C to +135°C Low Fire Hazard (LFH) see page 8
- · Halogen, sulphur and phosphorus free
- UV resistant
- Swivel threads allow assembly without twisting of cables
- EN 45545 HL3 and NFPA 130 compliant



european (NW) sizes

7

7

8

10

10

10

12

12

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23

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36

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28 28.5 23

28

34

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42 42.5 36

42

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**67** 67.0 **56** 

#### **FPAU FPAU** FPAU - FPAU straight swivel brass internal thread One piece fast fit fitting with nylon swivel One piece fast fit coupler to join flange with integrated conduit seal and with corrugted conduits. One piece fast fit, swivel, nickel plated brass internal threaded fitting with integrated conduit seal or threaded entries. 'O' ring face seal. nominal size (mm) ШШ 00 NPB Int Metric Flange Coupler 10 10 11 FPAU13-BFM16 13 13 13 FPAU16-BFM16 FPAU16-FL FPAU16-FPAU16 16 FPAU16-BFM20 16 16 16 18 18.5 18 20 FPAU21-BFM20 FPAU21-FL FPAU21-FPAU21 21 21 21

### Standards & Approvals

FPAU28-BFM25

FPAU34-BFM32

FPAU42-BFM40

FPAU54-BFM50













FPAU28-FL

FPAU34-FL

FPAII42-FI





### **Technical Drawing**

FPAU28-FPAU28

FPAU34-FPAU34















**ULTRA™** system

The World's Best Conduit Fitting

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.



NEW

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

#### FPAU 90



#### FPAU 90

90° UNEF swivel

elbow fitting with nickel

plated brass swivel UNEF

One piece fast fit, 90 degree

internal thread for attachment to circular connectors with

Int UNEF

(3/4")

(7/8")

(1")

(13/16")

(1")

(13/16")

(11/4")

(13/8")

(17/16")

(17/16")

(13/4")

(2")

(21/4")

(2")

(21/4")

FPAU42-BM50-90

FPAU54-BM63-90

internal thread



#### FPAU 90



FPAU 90

90° swivel brass

One piece fast fit, swivel, 90 degree elbow, nickel

internal thread

plated brass internal threaded fitting with



#### 90° external thread

One piece fast fit, external threaded 90 degree elbow fitting with integrated conduit









FPAU16-050-90B

FPAU21-050-90B

FPAU28-075-90B

FPAU34-100-90B

FPAU42-125-90B

FPAU42-150-90R

FPAU54-150-90B

FPAU54-200-90B





FPAU16-BU075-90

FPAU16-BU088-90

FPAU16-BU100-90

FPAU16-BU119-90

FPAU21-BU100-90

FPAU21-BU119-90

FPAU21-BU125-90

FPAU28-BU133-90

FPAU28-BU144-90

FPAU34-BU144-90

FPAU34-BU175-90

FPA1142-R11200-90

FPAII42-RI1225-90

FPAU54-BU200-90

FPAU54-BU225-90









FPAU13-BM16-90 FPAU13-BPG9-90

FPAU16-BM20-90 FPAU16-BPG11-90



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.





integrated conduit seal.







NPR Fxt Metric

NPB Ext PG

FPAU16-BM16-90 FPAU16-BPG9-90 FPAU16-B050-90\*

FPAU21-BM20-90 FPAU21-BPG13-90 FPAU21-B050-90\*

FPAU21-BPG16-90

FPAU28-BM25-90 FPAU28-BPG21-90 FPAU28-B075-90\*

FPAU34-BM32-90 FPAU34-BPG29-90 FPAU34-B100-90\*

FPAU42-BM40-90 FPAU42-BPG36-90 FPAU42-B125-90\*

FPAU54-BM50-90 FPAU54-BPG48-90\* FPAU54-B150-90\*

NPR Fxt NPT

NPB Int Metric

FPAU13-BFM16-90

FPAU16-BFM16-90

FPAU16-BFM20-90

FPAU21-BFM20-90

FPAU28-BFM25-90

FPAU34-BFM32-90

FPAU42-BFM50-90

FPAU54-BFM50-90

european (INVV) sizes	nominal size (mm)	ш		
folina	nomi	OD mm	Ext Metric	Ext NPT

FPAU13-M16-90

FPAU16-M16-90

FPAU16-M20-90

FPAU21-M20-90

FPAU28-M25-90

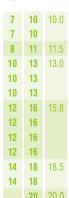
FPAU34-M32-90

FPA1142-M40-90

FPA1142-M50-90

FPAU54-M50-90

FPAU54-M63-90



54

48 **56 67** 67.0

Ф	_	O
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
47	04	04.0

# **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 84
- EMC braid clamp version see page 55

### 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

FPAU42-B150-90\*

FPAU54-B200-90\*

Retained Face Sealing Washer



- Fast fit True one piece component
- IP rating: for conduit & fitting IP66 + IP67 + IP68 (2 bar) + 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
- Metric Brass threads supplied with retained Fibre Washer

- NPT threads supplied with a Neoprene 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
- · Can be removed using a screwdriver
- · All round teeth give high pull off strength

- 75kg with FPAH21
- Suitable for fine and coarse pitch conduits
- Temperature range: conduit fitting: -50°C to +135°C
- Low Fire Hazard (LFH) see page 8
- · Halogen, sulphur and phosphorus free
- UV resistant
- · Swivel threads allow assembly without twisting of cables
- EN 45545 HL3 and NFPA130 compliant



european (NW) sizes

nominal size (mm)

OD mm

#### FPAU 90



#### FPAU 45



#### FPAU 45



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













Flange

One piece fast fit, 45 degree elbow fitting with nylon swivel flange with integrated conduit seal and with 'O' ring face seal.











Flange



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 integrated conduit seal.











Int UNEF

				4.5	10.5	
				10	10.0	7
				10		7
				11	11.5	8
				13	13.0	10
				13		10
				13		10
FPAU16-FL-90	FPAU16-FL-45	FPAU16-BU075-45	(3/4")	16	15.8	12
		FPAU16-BU088-45	(7/8")	16		12
		FPAU16-BU100-45	(1")	16		12
		FPAU16-BU119-45	(13/16")	16		12
				18	18.5	14
				18		14
				20	20.0	
FPAU21-FL-90	FPAU21-FL-45	FPAU21-BU100-45	(1")	21	21.2	17
		FPAU21-BU119-45	(13/16")	21		17
		FPAU21-BU125-45	(11/4")	21		17
			( ' '	25	25.0	
FPAU28-FL-90	FPAU28-FL-45	FPAU28-BU133-45	(13/8")	28	28.5	23
1110201200		FPAU28-BU144-45	(17/16")	28	20.0	23
FPAU34-FL-90	FPAU34-FL-45	FPAU34-BU144-45	(17/16")	34	34.5	29
117.00112.00	11110011210	FPAU34-BU175-45	(13/4")	34	01.0	29
FPAU42-FL-90	FPAU42-FL-45	FPAU42-BU200-45	(2")	42	42.5	36
11 NO42-1E-30	117042-12-40	FPAU42-BU225-45	(21/4")	42	72.0	36
FPAU54-FL-90	FPAU54-FL-45	FPAU54-BU200-45	(2")	54	54.5	48
FFA0J4-FL-90	FFAUJ4-FL-43			54	54.5	48
		FPAU54-BU225-45	(21/4")		07.0	
				67	67.0	56

### Standards & Approvals















### Benefits of Barb Construction

- 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

















**ULTRA™** system

The World's Best Conduit Fitting

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.



NEW

### Fittings ULTRA™ system 45°

#### FPAU 45 FPAU 45 FPAU 45 45° external thread 45° swivel brass external thread 45° swivel brass internal thread One piece fast fit, external threaded 45 degree One piece fast fit, swivel, 45 degree elbow, One piece fast fit, swivel, 45 degree elbow elbow fitting with integrated conduit seal. nickel plated brass external threaded fitting fitting, nickel plated brass internal threaded Suitable for knockouts. with integrated conduit seal. Suitable for fitting with integrated conduit seal. knockouts or threaded entries european (NW) sizes nominal size (mm) ШШ Ext Ext NPB NPR NPB NPR 9 Metric NPT Ext Metric Ext PG Ext NPT Int Metric 7 10 7 10 8 11 10 13 10 13 10 13 12 16 FPAU16-BM16-45 FPAU16-BPG13-45 FPAU16-B050-45\* FPAU16-BFM20-45 FPAU16-M20-45 FPAU16-050-45 12 16 FPAU16-BM20-45 FPAU16-BPG16-45 12 16 12 16 14 18 18.5 14 18 20 17 FPAU21-M20-45 FPAU21-050-45 FPAU21-BM20-45 FPAU21-BPG13-45 FPAU21-B050-45\* FPAU21-BFM20-45 21 17 21 FPAU21-BPG16-45 17 21 25.0 25 23 28 28.5 FPAU28-M25-45 FPAU28-075-45 FPAU28-BM25-45 FPAU28-BPG21-45 FPAU28-B075-45\* FPAU28-BFM25-45 23 28 **34** 34.5 29 FPAU34-M32-45 FPAU34-100-45 FPAU34-BM32-45 FPAU34-BPG29-45 FPAU34-B100-45\* FPAU34-BFM32-45 29 34 36 **42** 42.5 FPAU42-M50-45 FPAU42-150-45 FPAU42-BM40-45 FPAU42-BPG36-45 FPAU42-B125-45\* FPAU42-BFM50-45 36 42 FPAII42-RM50-45 FPAUA2-R150-45\* 48 **54** 54.5 FPAU54-M50-45 FPAU54-150-45 FPAU54-BM50-45 FPAU54-BPG48-45\* FPAU54-B150-45\* FPAU54-BFM50-45 48 54 FPAU54-BM63-45 FPAU54-B200-45\* **56 67** 67.0

### **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 84
- EMC braid clamp version see page 55

### **Technical Drawing**



- Fast fit True one piece component
- IP rating: for conduit & fitting IP66 + IP67 + IP68 (2 bar) + IP68 (72hrs @ 1m) + IP69 for cable gland - IP68 (10 bar)
- 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
- Metric Brass threads supplied with retained Fibre Washer

- NPT threads supplied with a Neoprene 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
- Can be removed using a screwdriver
- All round teeth give high pull off strength 75kg with FPAH21

- Suitable for fine and coarse pitch conduits
- Temperature range: conduit fitting: -50°C to +135°C
- Low Fire Hazard (LFH) see page 8
- · 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)

### NEW

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

#### STRAIGHT



#### 90°ELBOW





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











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NPB	Cable Ra
netric	(mm

ange

NPB

Cable Range

NPB metric

One piece fast fit, swivel, 90 degree

elbow, nickel plated brass external

threaded cable gland fitting with integrated conduit seal. Suitable for

knockouts or threaded entries.

Cable Range

#### 45°ELBOW



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









								10	10.0	7
								10		7
								11	11.5	8
FPAU13-BM16-CG-R1	4.0 - 6.5			FPAU13-BM16-CG-R1-90	4.0 - 6.5			13	13.0	10
FPAU13-BM16-CG-R2	5.0 - 8.0			FPAU13-BM16-CG-R2-90	5.0 - 8.0			13		10
FPAU13-BM16-CG-R3	6.5 - 9.5			FPAU13-BM16-CG-R3-90	6.5 - 9.5			13		10
FPAU16-BM16-CG-R1	4.0 - 6.5	FPAU16-BM20-CG-R1	4.0 - 6.5	FPAU16-BM16-CG-R1-90	4.0 - 6.5	FPAU16-BM20-CG-R1-45	4.0 - 6.5	16	15.8	12
FPAU16-BM16-CG-R2	5.0 - 8.0	FPAU16-BM20-CG-R2	5.0 - 8.0	FPAU16-BM16-CG-R2-90	5.0 - 8.0	FPAU16-BM20-CG-R2-45	5.0 - 8.0	16		12
FPAU16-BM16-CG-R3	6.5 - 9.5	FPAU16-BM20-CG-R3	6.5 - 9.5	FPAU16-BM16-CG-R3-90	6.5 - 9.5	FPAU16-BM20-CG-R3-45	6.5 - 9.5	16		12
		FPAU16-BM20-CG-R4	7.0 - 10.5			FPAU16-BM20-CG-R4-45	7.0 - 10.5	16		12
								18	18.5	14
								18		14
								20	20.0	
FPAU21-BM20-CG-R1	4.0 - 6.5	FPAU21-BM20-CG-R4	7.0 - 10.5	FPAU21-BM20-CG-R1-90	4.0 - 6.5	FPAU21-BM20-CG-R1-45	4.0 - 6.5	21	21.2	17
FPAU21-BM20-CG-R2	5.0 - 8.0	FPAU21-BM25-CG-R1	9.0 - 13.0	FPAU21-BM20-CG-R2-90	5.0 - 8.0	FPAU21-BM20-CG-R2-45	5.0 - 8.0	21		17
FPAU21-BM20-CG-R3	6.5 - 9.5	FPAU21-BM25-CG-R2	11.0 - 15.5	FPAU21-BM20-CG-R3-90	6.5 - 9.5	FPAU21-BM20-CG-R3-45	6.5 - 9.5	21		17
								25	25.0	
FPAU28-BM25-CG-R1	9.0 - 13.0	FPAU28-BM32-CG-R1	14.0 - 18.0	FPAU28-BM25-CG-R1-90	9.0 - 13.0	FPAU28-BM25-CG-R1-45	9.0 - 13.0	28	28.5	23
FPAU28-BM25-CG-R2	11.0 - 15.5	FPAU28-BM32-CG-R2	17.0 - 20.5	FPAU28-BM25-CG-R2-90	11.0 - 15.5	FPAU28-BM25-CG-R2-45	11.0 - 15.5	28		23
FPAU34-BM32-CG-R1	14.0 - 18.0			FPAU34-BM32-CG-R1-90	14.0 - 18.0	FPAU34-BM32-CG-R1-45	14.0 - 18.0	34	34.5	29
FPAU34-BM32-CG-R2	17.0 - 20.5			FPAU34-BM32-CG-R2-90	17.0 - 20.5	FPAU34-BM32-CG-R2-45	17.0 - 20.5	34		29
FPAU42-BM40-CG-R1	17.0 - 20.5	FPAU42-BM50-CG-R1	27.0 - 32.0	FPAU42-BM40-CG-R1-90	17.0 - 20.5	FPAU42-BM40-CG-R1-45	17.0 - 20.5	42	42.5	36
FPAU42-BM40-CG-R2	20.0 - 25.0	FPAU42-BM50-CG-R2	29.0 - 34.0	FPAU42-BM40-CG-R2-90	20.0 - 25.0	FPAU42-BM40-CG-R2-45	20.0 - 25.0	42		36
FPAU54-BM50-CG-R1	32.0 - 36.0	FPAU54-BM63-CG-R1	36.0 - 40.0	FPAU54-BM50-CG-R1-90	32.0 - 36.0	FPAU54-BM50-CG-R1-45	32.0 - 36.0	54	54.5	48
FPAU54-BM50-CG-R2	36.0 - 40.0	FPAU54-BM63-CG-R2	39.0 - 44.0	FPAU54-BM50-CG-R2-90	36.0 - 40.0	FPAU54-BM50-CG-R2-45	36.0 - 40.0	54		48
								67	67.0	56

### Standards & Approvals















### 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



### **Abrasion Rings 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

ARB New	FPA	FPA	Reducer/Stop Plug
Nylon abrasion ring For Corrugated Conduit	T piece with inspection lid.	Reducing divider Fast fit reducing divider	Fitting to reduce or blank off any outlets.
	IP66	IP66	IP66



duit Out x 2 for divider









european (NW) size	Conduit In (mm)	Conduit Out x 2 for				SP SP
12	16	13		FPA16T FPA20T	FPA16-13-13	FPA13-R16 SP-R16
17	21	16		FPA21T	FPA21-16-16	FPA16-R21 FPA13-R21 SP-R21
23	28	21		FPA28T	FPA28-21-21	FPA25-R28 FPA21-R28 FPA20-R28 FPA16-R28 FPA13-R28 SP-R28
29	34	28		FPA34T	FPA34-28-28	FPA28-R34 FPA21-R34 FPA16-R34 SP-R34
36	42		AR42B	FPA42T		FPA34-R42 FPA28-R42 FPA21-R42
48	54		AR54B			

### **Ordering Notes**

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

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) FPAX Divider: IP66 + IP67 + IP68

(2 bar) +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 8
- 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



						400
			FPAX	FPAX NEW	Reducer / Stop Plug	
			T piece with inspection lid  Fast fit T piece with inspection lid and additional seals for enhanced IP rating.	Divider Fast fit reducing divider with additional seals for enhanced IP ratings	Fitting to reduce or blank off any outlets.	
			IP66 IP67 IP68	IP66 IP67 IP68 IP69	IP66 IP67 IP68	
					R	
		der		200		H
ANAN OLIVO	european (NWV) Sizes	Conduit Out x 2 for divider			SP	9
000000000000000000000000000000000000000	european	Conduit in (mm) Conduit Out x 2 1				
1	12 1	6 13	FPAX16T	FPAX16-13-13	FPAX13-R16 SP-R16	
			FPAX20T			
1	17 2	1 16	FPAX21T	FPAX21-16-16	FPAX16-R21 FPAX13-R21	
					SP-R21	
2	23 2	8 21	FPAX28T	FPAX28-21-21	FPAX21-R28	
					FPAX16-R28 FPAX13-R28	1
					SP-R28	
2	29 3	4 28	FPAX34T	FPAX34-28-28	FPAX28-R34 FPAX21-R34	
					FPAX16-R34 SP-R34	
3	36 4	.2	FPAX42T	FPAX42-34-34	FPAX34-R42 FPAX28-R42	Ų
	18 5	4 42		FPAX54-42-42	FPAX21-R42 FPAX34-R42	

### Standards & Approvals





























### FPRSS system corrugated nylon, (PA6)

stainless steel overbraid



corrugated nylon, (PA6) tinned copper overbraid







swivel external thread

Multipart compression fitting including conduit retention clip

threaded entries. Braid is locked

and elastomeric seal. Can be used for knockouts and

between inner and outer compression nuts

nickel plated brass



### Conduit



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

Typical Applications: Metro rail stations for anti-vandal.







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

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

# FPRTC



Typical Applications: Inside railway carriages where screening is required.







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

Typical Applications: Under railway carriages 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.







#### **FPIHRSS**

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

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





utside dia (mm) FPIHSS16-50M\* FPIHRSS16-50M\* 17.3 11.5 35 FPIHSS21-50M\* FPIHRSS21-50M\* 22.7 15.0 45

BC16-M16-C

BC21-M20-C

BC28-M25-C

BC34-M32-C

BC42-M40-C

RC54-M50-C3



BC16-PG11-S

BC21-PG16-S

BC28-PG21-S

BC34-PG29-S

Ē		
size (n	-	
B		
E 0		

54

FPRS	part numbe
FPRSS16	5-50M
FPRSS21	I-50M
FPRSS28	3-50M

















Available on request:

- cut lengths and assemblies

- longer lengths

- additional sizes











**Ordering Notes** 









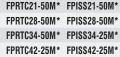


\* Indicates parts made to order on request and

may be subject to MOQ and lead time

- full copies of independent test report

confirming screening effectiveness





FPRTC16-50M\* FPISS16-50M\*

FPIHSS28-50M\* FPIHRSS28-50M\* 30.0 21.3 50

FPIHSS34-25M\* FPIHRSS34-25M\* 36.0 27.6

FPRSS42-25M\* FPRC42-25M\* FPISS42-25M\* FPIHSS42-25M\* FPIHSS42-25M\* 44.0 35.5 70 FPIHSS54-25M\* FPIHRSS54-25M\* 56.0 47.2 80

### How to read the fittings code

conduit thread size fitting type

BC21-M20-C

### Standards & Approvals

BC16-M16-S

BC21-M20-S

BC28-M25-S

BC34-M32-S

BC42-M40-S

BC54-M50-S3



Note: refer to conduit properties for applicable standards

system corrugated nylon, (PA12), stainless steel overbraid FPIHRSS system corrugated nylon, (PA12), stainless steel overbraid

#### **FPRSS & FPRTC**

- Highly flexible and high fatigue life
- High impact strength
- Temperature range -40°C to +120°C
- Extra low fire hazard see page 8
- 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

#### FPISS, FPIHRSS & FPIHSS

- 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
- FPIHRSS EN 45545-2 to HL3 and NFPA130

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



















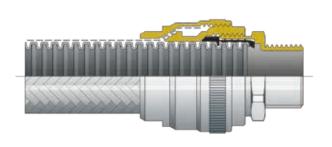
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metric thread part number	metric thread part number	metric thread part number	part number	metric thread steel part number metric thread EMC part number	metric thread brass part number	plated steel part number	stainless steel part number	nominal size (m
	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**



### **FTCB Braided sleeving** tinned copper braid system





# for EMC screening

## **Braid**

#### FTCB

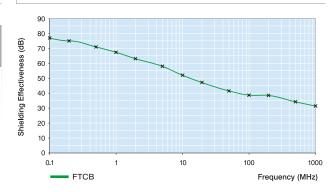
Construction: Tinned copper braided sleeving.

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.

- EMC Screening 67dB @ 1Mhz for 20mm
- Minimum optical cover 90%
- · Can offer mechanical support
- Can offer abrasion resistance

### **EMC Screening Performance**



FTCB	part number	Reel length (m)	Nominal I/D(mm)	Usable ø mm min	Usable ø 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

#### 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**

- · 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

#### Standards

**BS EN IEC 61386** 







### **SBCA System**

swivel braid clamp adaptor



# Fittings

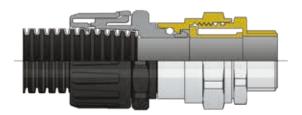


nominal size (mm)	FPA	part number	FPAX	part number	FPAU	part number	Use with Braided sleeving
16							
21	FPA21-M	20-SBCA	FPAX21-N	M20-SBCA	FPAU21-	M20-SBCA	FTCB10, FTCB12, FTCB15
28	FPA28-M	25-SBCA	FPAX28-N	M25-SBCA	FPAU28-	M25-SBCA	FTCB15, FTCB20, FTCB25
34	FPA34-M	32-SBCA	FPAX34-N	M32-SBCA	FPAU34-	M32-SBCA	FTCB20, FTCB25, FTCB30
42	FPA42-M	40-SBCA	FPAX42-N	M40-SBCA	FPAU42-	M40-SBCA	FTCB25, FTCB30, FTCB35
54							

### **Ordering Notes**

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

### **Technical Drawing**





# NRFPAS, NRFPAH & NRFPR conduit

nylon corrugated flexible conduit

In accordance with NR/L2/SIGELP/27421



## Non-Metallic Conduits



#### **NRFPAS**

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

Colour: Black.

Typical Applications: Providing mechanical protection and supplementary insulation to existing legacy cabling in accordance with NR/L2/SIGELP/27421.

- · 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 8
- 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

#### **NRFPAH**

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

Typical Applications: Providing mechanical protection and supplementary insulation to existing legacy cabling in accordance with NR/L2/SIGELP/27421. Conduit offers higher mechanical strength than NRFPAS.

- · High mechanical strength
- · High impact resistance
- Temperature range -40°C to +120°C
- UL recognised
- Low Fire Hazard (LFH), see page 8
- UL 94 V2 flame retardancy
- · Halogen, sulphur and phosphorus free
- UV resistant
- Abrasion resistant
- · Highly resistant to solvents and oils



**Construction:** Standard weight nylon (highly flame retardant PA6) corrugated flexible conduit.

Colour: Black.

Typical Applications: Providing mechanical protection and supplementary insulation to existing legacy cabling in accordance with NR/L2/SIGELP/27421. Conduit offers enhanced fire performance properties than NRFPAS

- · 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 LUL Std 1-085 APR 298
- UL 94 V0 flame retardancy
- Halogen, sulphur and phosphorus free
- UV resistant
- Abrasion resistant
- · Highly resistant to solvents and oils
- EN45545-HL3

european (NW) sizes	nominal size (mm)	pitch	NRFPAS	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	NRFPAH	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	Z A A A	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)
17	21	F	0086/0087	738	50	21.2	16.7	45							0086/008	746	50	21.2	16.7	45
	21	C							0086/008	754	50	21.2	15.5	55						
23	28	F	0086/0087	739	50	28.5	22.8	50												
23	28	C							0086/008	755	50	28.5	21.3	60	0086/008	747	50	28.5	21.7	50
29	34	C	0086/0087	740	25	34.5	28.1	60	0086/008	756	25	34.5	27.6	70	0086/008	748	50	34.5	28.1	60
36	42	C	0086/0087	741	25	42.5	35.5	70	0086/008	757	25	42.5	34.6	80	0086/008	749	25	42.5	35.5	70
48	54	C	0086/0087	742	25	54.5	47.2	80	0086/008	758	25	54.5	46.0	90	0086/008	750	25	54.5	47.2	80
56	67	C	0086/0087	743	10	67.2	56.3	130							0086/008	751	10	67.2	56.3	130
70	80	C	0086/0087	744	10	80.0	67.0	160							0086/008	752	10	80.0	67.0	160
90	106	C	0086/0087	745	10	106.0	91.5	210							0086/008	753	10	106.0	91.5	210

### NRFPIH, NRFPIHR & **NRFPADS** conduit

nylon corrugated flexible conduit

In accordance with NR/L2/SIGELP/27421







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

Colour: Black.

Typical Applications: Suitable for flood areas.

- 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
- UL recognised
- · Highly resistant to solvents and oils
- · Self extinguishing
- · Low fire hazard
- · Halogen, sulphur and phosphorus freeand oils
- · Self extinguishing
- Low fire hazard
- · Halogen, sulphur and phosphorus free



Construction: Heavy weight, flame retardant nvlon (PA12) corrugated flexible conduit.

Colour: Black.

Typical Applications: Suitable for flood areas and offers enhanced fire performance properties over NRFPIH.

- · 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
- UL recognised
- · Highly resistant to solvents and oils
- · Self extinguishing
- Low fire hazard
- · Halogen, sulphur and phosphorus free
- EN45545-HL3

#### NRFPADS

Construction: Double slit nylon (PA6) corrugated conduit.

Colour: Black.

Typical Applications: Suitable for retrofit.

- 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

NRFPIH	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	N H H H	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	NRFPADS	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	european (NW) sizes	nominal size (mm)	pitch
												0086/008	759	50	21.2	13.9	120	17	21	F
0086/0087	64	50	21.2	15.0	45	0086/008	770	50	21.2	15.0	45								21	C
																		23	28	F
0086/0087	65	50	28.5	21.3	50	0086/008	771	50	28.5	21.3	50	0086/008	760	50	28.5	20.5	170	23	28	C
0086/0087	66	25	34.5	27.6	60	0086/008	772	25	34.5	27.6	60	0086/008	761	25	34.5	26.6	180	29	34	C
0086/0087	67	25	42.5	34.6	70	0086/008	773	25	42.5	34.6	70	0086/008	762	25	42.5	32.0	200	36	42	C
0086/0087	68	25	54.5	46.0	80	0086/008	774	25	54.5	46.0	80	0086/008	763	25	54.5	43.0	240	48	54	C
0086/0087	69	10	67.2	56.0	130													56	67	C
																		70	80	C
																		90	106	C

NRFPIH	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	NRFPIHR	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	NRFPADS	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	european (NW) sizes	nominal size (mm)	pitch
												0086/00875	59	50	21.2	13.9	120	17	21	F
0086/0087	764	50	21.2	15.0	45	0086/008	770	50	21.2	15.0	45								21	C
																		23	28	F
0086/0087	765	50	28.5	21.3	50	0086/008	771	50	28.5	21.3	50	0086/00876	60	50	28.5	20.5	170	23	28	C
0086/0087	766	25	34.5	27.6	60	0086/008	772	25	34.5	27.6	60	0086/00876	61	25	34.5	26.6	180	29	34	C
0086/0087	767	25	42.5	34.6	70	0086/008	773	25	42.5	34.6	70	0086/00876	62	25	42.5	32.0	200	36	42	C
0086/0087	768	25	54.5	46.0	80	0086/008	774	25	54.5	46.0	80	0086/00876	63	25	54.5	43.0	240	48	54	C
0086/0087	769	10	67.2	56.0	130													56	67	C
																		70	80	C
																		90	106	C

## **Connectors & Approved Fittings & Glands**

In accordance with NR/L2/SIGELP/27422















## Fittings









NRFPAU 90











#### NRFPAU

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















One piece fast fit, external threaded 90

degree elbow fitting with integrated conduit seal. Suitable for knockouts. Supplied with locknut.





One piece fast fit, external threaded with 45 degree elbow fitting with integrated conduit seal. Suitable for knockouts.

















nominal size (mm)	european (NW) size
21	17
21	
28	23
28	23
34	29
42	36
54	48
67	56
80	70
106	95

Ext Metric	Thread Size	Ext Metric	Thread Size	Ext Metric	Thread Size
0086/008782	M20	0086/008795	M20	0086/008790	M20
0086/008783	M25	0086/008796	M25	0086/008791	M25
0086/008784	M32	0086/008797	M32	0086/008792	M32
0086/008785	M40	0086/008798	M40	0086/008793	M50
0086/008787	M50	0086/008800	M50	0086/008794	M50
0086/008789*	M63				

<sup>\*</sup> FPAX fitting type

### Fine Pitch



### Coarse Pitch



### Technical Drawing





#### (n NRFPAU

- Fast fit True one piece component
- IP rating: for conduit & fitting
- IP66 + IP67 + IP68 (2 bar) +
- IP68 (72hrs @ 1m) + IP69
- PA66 Nylon moulded fitting
- Nylon threads supplied complete with glass reinforced nylon locknut
- Vibration and shock tested to EN61373

Tamper resistant

- Low Fire Hazard (LFH) see page 8
- Halogen, sulphur and phosphorus free
- NR/L2/SIGELP/27422



PA05/06589



# LARGE DIAMETER CLAMP FITTING

Straight flanged nylon clamp fitting with seals.







 $90^{\circ}$  flanged nylon clamp fitting with seals.







Fast fit coupler to join two corrugted conduits of the same nominal size.









EN 45545-2 | NFPA 138



		0086/008775
		0086/008776
		0086/008777
		0086/008778
		0086/008779
0086/008802	0086/008804	
0086/008803	0086/008805	

95 106

### Standards & Approvals

























### **End of Line Connectors and Approved Fittings & Accessories**

In accordance with NR/L2/SIGELP/27422









EN 45545-2 | NFPA 130

## Fittings

### NRFPAU EOL

Straight conduit fitting combined with nylon cable gland for strain relief and secondary sealing. EOL glands have long metric threads.







(2 bar)



#### NRREC

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).



#### CLIPS

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



nominal size (mm)

_	_
21	17
21	
28	23
28	23
34	29
42	36
54	48
67	56
80	70
106	95

Clamp Range (mm)

	oramp mango (mm)		
0086/008832	7 - 12		0086/008806
0086/008833	13 - 18	0086/008824	0086/008807
0086/008834	18 - 25	0086/008825	0086/008808
0086/008835	22 - 32	0086/008826	0086/008809
0086/008836	30 - 38	0086/008827	0086/008810
0086/008837	34 - 44	0086/008828	
		0086/008829	

### Standards & Approvals



























#### (n NRFPAU

- Fast fit True one piece component
- IP rating: for conduit & fitting IP66 + IP67 + IP68 (2 bar)
- PA66 Nylon moulded fitting
- Nylon threads supplied complete with glass reinforced nylon locknut
- Vibration and shock tested to EN61373 Cat 2

 Low Fire Hazard (LFH) see page 8 Halogen, sulphur and

phosphorus free

NR/L2/SIGELP/27422



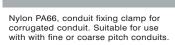




## EN 45545-2 | NFPA 138

#### NR FCLAMP KIT

#### CONDUIT CUTTER



NR FCLAMP

Nylon PA66, conduit fixing clamp for corrugated conduit, complete with two fixing bolts, two ½ zebedees (PNS06) and one plate.

(HL3)

EN 45545-2 | NFPA 130

For any non-metallic flexible and rigid conduits.







0086/008811	NRFCLAMP-KIT21	0086/008830
0086/008812	NRFCLAMP-KIT28	0086/008830
0086/008813	NRFCLAMP-KIT34	0086/008830
0086/008814	NRFCLAMP-KIT42	0086/008831
0086/008815	NRFCLAMP-KIT54	0086/008831
0086/008816	NRFCLAMP-KIT67	0086/008831
0086/008817		

23 23 29 36 48 56 70 95
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NEW

# Simple and reliable connection boxes for specialist applications

Flexicon can offer connection box solutions, engineered to provide unrivalled performance with a variety of both fine and coarse pitch conduits.

With a removable lid the box provides access to your connections when necessary and maintains the integrity of your system throughout. Offering 4 way connection, the round box provides any combination of 16, 21, 28 and 34mm conduit connections.

The box can be configured for use in multiple ways, for example used as a through box or connected to provide a 90 degree solution. Further entries can be made via the lid or the base.

### Features and Benefits

Offering design flexibility, combined with the unrivalled benefits offered by Flexible Conduit, our Round Connection boxes are ideal for Performance & Safety Critical applications.

#### Flexibility.

• 4 outlets - enables desired circuit configuration with maximum wiring space

 Suitable for 16, 21, 28 and 34mm entries - compatible with different cable sizes

Compatible with a wide range of non-metallic Flexible Conduits

#### Reliability and Performance.

- IP68 performance offers Ingress Protection and System Integrity
- Conduit Connections have all round teeth secures conduits in place
- Anti-tamper, Dynamic & Vibration performance

#### Simplicity.

- Removable lid can add circuits with easy access to wiring
- External Fixing positions easy installation and mounting
- · Speed of installation Quick push fit connection





# The Ultimate in Flexibility

Several variants of sizes and connections to achieve specific requirements. Please contact us for selection.



#### Different Conduit Connections -

• This range will accept different conduit types and sizes offering a flexible way of combining systems.



#### Clear Lid Option

 If you are looking for visibility within the box then there is the option of a clear lid. This could be beneficial if you have status indicators or monitoring equipment connected.



 Suitable for use with a range of equipment and terminations other than just conduit.



### Maximum Wiring Space

• Suitable for mounting terminals or DIN Rail for wiring connections.

### Lid mounting options

 Can be used to mount sensors or equipment allowing the ultimate in flexibility, i.e. PIR detectors or Dusk / Dawn Sensors.



#### Configurable Outlets

• Suitable for use as a through connection box or as a 90 degree. Simply blank off any unused outlets to maintain the Ingress Protection.



### Large diameter systems

nylon



### Conduit





Construction: Light weight nylon (PA6) corrugated flexible conduit.

Colour: Black or Grey (RAL

Typical Applications: Machines where lower mechanical protection is required and 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)
- · Highly resistant to solvents and oils
- Self extinguishing
- · Halogen, sulphur and phosphorus free

# LDFPA

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

Colour: Black or Grev (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
- · Low Fire Hazard (LFH), see page 8
- UL 94 V2 flame retardancy
- · Halogen, sulphur and phosphorus free
- UV resistant (black)
- · Highly resistant to solvents and oils

# LDFPII

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 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 8

#### **LDFPF**

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

Colour: Black

Typical Applications: Railways, underground and public buildings.

- Highly flexible and high fatique 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
- Extra Low Fire Hazard (LFH)
- · Compliant to LUL Std S1085
- UL 94 V0 flame retardancy · Halogen, sulphur and
- phosphorus free UV resistant
- Highly resistant to solvents

# LDFPIH

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

Colour: Black.

Typical Applications: Where 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
- Excellent UV resistance
- · 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
- FN45545-HI 3

european (NW) sizes	nominal size (mm)	LDFPAL	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	LDFPAS	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	LDFPIH	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	LDFPR	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)	LDFPIHR	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)
70	80	LDFPAL	.80	10	80.0	67.0	150	LDFPAS	880	10	80.0	67.0	160	LDFPIH	180	10	80.0	66.5	170	LDFPR8	0	10	80.0	67.0	160	LDFPIHF	R80	10	80.0	66.5	170
95	106	LDFPAL	106*	10	106.0	91.8	210	LDFPAS	3106	10	106.0	91.5	210	LDFPIH	1106*	10	106.0	91.0	250	LDFPR1	06*	10	106.0	91.5	210	LDFPIHF	R106*	10	106.0	91.0	250

### **Ordering Notes**

- Specify black or grey (B = Black, G = Grey) eg: LDFPAS80B-10M for Black 10m reel
- Available on request:
- longer lengths and bulk packaging
- cut lengths and assemblies

+ Contact Flexicon for more details

- alternative conduit material
- FCC75 and FCC106 PVC lined plated steel P-clips
- · 80mm can be used with F-Clamps - see page 85
- \* Indicates parts made to order on request and may be subject to MOQ and lead time

### Standards & Approvals

BS EN IEC 61386











Material

• Suitable for use with Large Diameter conduits

- LDMP and LDMPS: nylon PA6
- FCLAMP: nylon PA66
- REC: thermoplastic elastomer
- Temperature Range
- LDMP & LDMPS fittings: -40° to 120°
- FCLAMP: -50° to 135°
- REC: -50° to 120°
- UV resistant

- Fire Performance
  - LDMP and LDMPS:
  - Halogen, Sulphur & Phosphorous Free
  - Self extinguishing
- REC:
- Halogen, Sulphur & Phosphorous Free

#### - FCLAMP:

- Extra Low Fire Hazard see page 8
- Halogen, Sulphur & Phosphorous Free
- Self extinguishing
- EN45545-HL3 and NFPA 130 compliant



# Fittings

LDMP	LDMPS	LDMP90	LDMPS90	FCLAMP	REC	FCC CLIPS
straight flanged nylon clamp fitting Flanged body with 2 clamps.	straight flanged nylon clamp fitting with seals Flanged body with 2 clamps and seals.  IP65 IP67 IP68	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 contact Flexicon for more details).	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.





- Also available:
- FPA80-M85 (2mm Pitch thread)



# Metallic conduit selection guide



-	Conduit System	FU	nss	FSU	LFHU	FPU	LTP	LТРНС	LTPLFH	
-	Condu									
	IP40	•	•							
	IP54			•	•	•				
	IP65			•	•	•				
IP Rating	IP66						•	•	•	
	IP67						•	•	•	
	IP68						•	•	•	
	IP69						•	•	•	
Compression Streng	th (ka/100mm)	350	400	350	350	350	400	400	400	
Pull Off Strength (kg		120	170	120	120	120	130	130	130	
Min Bend Radius (m		45	45	45	45	45	65	65	100	
Mili Della Hadias (III	111) 101 20111111 3126	40	70	43	70	70	00	03	100	
Colours		zinc	stainless steel	black, grey, orange	black	black, blue	black, grey, orange	black	black	
High Fatigue Life				•		•				
Ŧ	Max	300°C	600°C	70°C	90°C	100°C	105°C	150°C	90°C	
Temp	Min	-100°C	-100°C	-15°C	-25°C	-40°C	-20°C	-60°C	-25°C	
Catagony	Flexible	•	•	•	•	•	•	•	•	
Category	Pliable									
Low Fire Hazard	*** Inerent ** Extra * Standard	OMERAN LOW FIRE HAZARD	OMERICATI LOW FIRE HAZARD		COTTAL LOW FIRE HAZARD				COMPA LOW FIRE HAZARD	
	Halogen Free	•	•		•	•		•	•	
	Self Extinguishing	•	•	•	•	•	•	•	•	
	EN 45545-2 EN 4554	(H3) (S-21)	•		•				•	
Fire Tests	NFPA-130 NFPA	_	•		•				•	
Abrasion Resistance		•	•			•				
Resistance to solver	ıts	•	•			•		•		
UV Resistance		•	•	•			•	•	•	
EMC Performance										
Anti-Static		AS ANTI-STATE	AS ANTI-STATE							
Approvals	<b>Lloyds</b> TFL London Undergrou	nd •	•		•		•		•	
ROHS	J			•	•	•	•	•		
REACH					•					
		68	68	70	70	70	72	72	72	
Page Number		00	00	70	70	70	12	12	12	



# Metallic conduit selection guide



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<u>a</u>	<u>«</u>	C C		SS	₽	v <sub>0</sub>	m vo
LTPPU	LTBRDP	LTBRDLFH	M L	FUSSB	LFHUBRD	FSS	FSSBRD
連	連	連	<b>E</b>	<b>E</b>	<b>II</b>	NEW	NEW
- 13					<b>E</b>		
			•	•			
					•		
					•		
		•					
•						•	•
-	400	400	050	050	050	1000	1000
400 130	400 130	400 130	350 120	350 120	350 120, 300	1000 100	1000 150
65	65	130	45	45	45	45	60
black, blue	black	black	zinc	stainless steel	stainless steel	stainless steel, black	stainless steel
•							
100°C	105°C	90°C	300°C	300°C	90°C	400°C	400°C
-40°C	-20°C	-25°C	-100°C	-100°C	-25°C	-100°C	-100°C
•	•	•	•	•	•	•	•
						•	•
		LOW FIRE HAZARD	UNITARY ELECTRICAL CONTROL OF THE HAZARD	UNITARY LOW FIRE HAZARD	COTTIAN LOW FIRE HAZARD	OW FIRE HAZARD	OBSERBLY LOW FIRE HAZARD ***
•		•	•	•	•	•	•
•	•	•	•	•	•	•	•
		•	•	•	•	•	•
		•	•	•	•	•	•
•			•	•	•	•	•
•			•	•		•	•
•	•	•	•	•	•	•	•
	EMC SCREEN **	EMC SCREEN **	STANDARD EMC SCREEN	STANDARD EMC SCREEN	STANDARID EMC SCREEN	STANDARD EIMC SCREEN	STANDARD EMC SCREEN
			AS Aurit-grant	AS Aurit-grant	AS ANTI-STATIC	AS ANTI-CTARIC	AS AVIII-STARIC
		•	•	•	•	•	•
•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•
73	73	73	76	76	78	80	80









# FU & SSU system galvanised steel and stainless steel



Conduit

#### 5111



**Construction:** Galvanised steel, helically wound, flexible conduit **Colour:** Zinc, self colour.

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

(H.3) EN 45545-2 NFPA 130

#### 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.

(HL3) EN 45545-2 | NFPA 130

# 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

#### e

#### 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













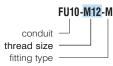
nominal size (mm)	FU	part number	reel length (m)	nss	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)
10	FU10+		25, 50	SSU10	+	10, 25, 50	9.0	6.8	25
12	FU12		25, 50	SSU12	+	10, 25, 50	13.0	10.2	$30^{\dagger}$
16	FU16		10, 25, 50	SSU16		10, 25, 50	16.0	13.0	40
16									
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 25m reel
- 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 148

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)

IP rating: IP40

- SSU is highly corrosion resistant
- Nickel plated brass fittings
- · Stainless steel (316L) fittings





S-SS	P	F	FCC	90° elbow
swivel external thread stainless steel 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.	fixed internal thread nickel plated brass Two part fitting comprising shell and body with internal thread which can be used to connect with an external thread.	plated steel P clip with pvc liner and secure stainless steel P clips P clip to support and secure conduit.	internal and external threaded nickel 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	9	FU10-P		FCC10	FCC10-SS*		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 & Approvals





















#### Note: refer to conduit properties for applicable standards

### **Technical Drawing**





### FSU system galvanised steel pvc or nylon coated

**LFHU** system galvanised steel LFH coated

### FPU system

galvanised steel polyurethane coated

## Conduit

#### FSU

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

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

Typical Applications: General factory wiring and connections

#### 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



# 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.







#### 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.











nominal size (mm)	FSC part number	LFHU part number	reel length (m)	FPU	part number reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)
12	FSU12B	LFHU12B*	$10^{\dagger}, 25, 50$	FPU12B	* 25	14.0	10.2	30
16	FSU16B	LFHU16B	10, 25, 50	FPU16B	25	17.0	13.0	40
6								
20	FSU20B	LFHU20B	10, 25, 50	FPU20B	25, 50	21.5	16.9	45
25	FSU25B	LFHU25B	10, 25, 50	FPU25B	25, 50	26.0	21.1	55
32	FSU32B	LFHU32B	10, 25	FPU32B	25	34.0	28.1	80
10	FSU40B	LFHU40B	10, 25	FPU40B	* 10	44.5	37.6	90
50	FSU50B	LFHU50B	10, 25	FPU50B	<b>3*</b> 10	55.0	48.4	100
3	FSU63B	FSU63B LFHU63B		10 <b>FPU63B*</b>		64.5	57.5	115
75	FSU75B	LFHU75B	10	FPU75B	<b>3*</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
FSU	12-M16-M	FSU12-PG9-M	FSU12-M16-S	FSU12-PG9-S	12	FSU12-P
FSU	16-M16-M	FSU16-PG11-M	FSU16-M16-S	FSU16-PG11-S	16	FSU16-P
FSU	16-M20-M		FSU16-M20-S	FSU16-PG13-S		
FSU	20-M20-M	FSU20-PG16-M	FSU20-M20-S	FSU20-PG16-S	20	FSU20-P
FSU	25-M25-M	FSU25-PG21-M	FSU25-M25-S	FSU25-PG21-S	25	FSU25-P
FSU	32-M32-M	FSU32-PG29-M	FSU32-M32-S	FSU32-PG29-S	32	FSU32-P
FSU	40-M40-M	FSU40-PG36-M	FSU40-M40-S	FSU40-PG36-S	40	FSU40-P
FSU	50-M50-M	FSU50-PG48-M	FSU50-M50-S	FSU50-PG42-S	51	FSU50-P
FSU	63-M63-M		FSU63-M63-S		61	FSU63-P
FSU	75-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
- † 10m length for FSU ONLY

- 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

FSU10-M12-M conduit thread size fitting type

#### · 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 8
- · 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 and NFPA 130
- 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



F	С	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.	external thread elbow nickel plated brass Multipart 90° compression fitting including elastomeric seal.	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 (
	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	<b>50</b>
FSU63-M63-F							FSU63-E	63
							FSU75-E	75

### Standards





BS EN IEC 61386











Note: refer to conduit properties for applicable standards

### **Technical Drawing**



(mm)

### **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) + IP69
- · Smooth, wipe clean outer cover
- Cover does not wrinkle when bent
- Temperature range -20°C to +105°C
- Good flexibility
- 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

### (M.3) EN 45545-21 NEPA 130



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) + 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
- EXTRA Low Fire Hazard UL94 V0 (for LFH see page 148)
- Compliant to LUL Std S1085 (LTPLFH) Cert No. 2020
- EN 45545 to HL3 and NFPA130 compliant
- Vibration and shock tested to EN61373 Cat 2

#### LTPHC

**Construction:** Galvanised steel, helically wound, flexible conduit with smooth thermoplastic elastomer (TPE) cover.

Colour: Black

Typical Applications: High mechanical strength combined with high and low temperature 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) + IP69
- Smooth, wipe clean outer cover
- · Cover does not wrinkle when bent
- 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

nominal size (mm)	US trade size (")	outside dia (mm)	inside dia (mm)	ETP .	part number reel length (m)	min inside bend radius (mm)	LTPLFH	part number	reel length (m)	min inside bend radius (mm)	СТРНС	part number	reel length (m)	min inside bend radius (mm)
10	1/4	11.8	7.0	LTP10B+	50	35								
10														
12	5/16	14.2	10.0	LTP12B	25, 50	40					LTPHC12B	+	25	40
16	3/8	17.8	12.6	LTP16B	10, 25,	50 45	LTPLFH1	6B	25	60	LTPHC16B		25	45
16														
20	1/2	21.1	16.0	LTP20B	10, 25,	50 65	LTPLFH2	OB	25	100	LTPHC20B		25	65
25	3/4	26.4	21.0	LTP25B	10, 25,	50 100	LTPLFH2	5B	25	130	LTPHC25B		25	100
32	1	33.1	26.5	LTP32B	10, 25,	50 135	LTPLFH3	2B	10	180	LTPHC32B		25	135
40	11/4	41.8	35.4	LTP40B	10, 25	175					LTPHC40B		10	175
50	11/2	47.9	40.4	LTP50B+	10, 25	230					LTPHC50B	+	10	230
63	2	59.7	51.6	LTP63B+	10, 25	280					LTPHC63B	*+	10	280

### **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
- # PG & NPT threads not supplied with insulated throats
- Available on request:
- longer lengths and bulk packaging
- cut lengths and assemblies
- C-S with PG threads
- internal thread fittings

- other colours









LTBRDLFH



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) + 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

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) + 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

Construction: Galvanised steel, helically wound, flexible conduit 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) + 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 V0 (for LFH see page 8)
- Compliant to LUL Std S1085 (Cert No. 658)
- EN 45545 to HL3 and NFPA 130 compliant

СТРРО	part number	inside dia (mm)	min inside bend radius (mm)	LTBRDP	part number	inside dia (mm)	min inside bend radius (mm)	LTBRDLFH	part number	reel length (m)	min inside bend radius (mm)	nominal size (mm)
LTPPU10*	•	25	35									10
LEBBILLO		05	40									10
LTPPU12*		25	40									12
LTPPU16*	*	25	45									16
												16
LTPPU20*	ŧ	25	65	LTBRDP2	20B	25	65	LTBRDLFI	H20B	25	130	20
LTPPU25*	+	25	100	LTBRDP2	25B	25	100	LTBRDLFI	H25B	25	200	
LTPPU32*	+	25	135	LTBRDP3	32B	25	120	LTBRDLFI	H32B*	25	270	25
LTPPU40*	+	10	175	LTBRDP4	10B	10	140					32
LTPPU50*		10	230	LTBRDPS		10	180					40
LTPPU63*		10	280	LTBRDP6		10	270					50
E111 000		10	200	בוטווטו (	000	10	210					63

## Standards



























## **Liquid Tight Conduit fittings**

nickel plated brass fittings

IP68

IP69

## Fittings

C	c-s	C-F NEW	C-SF NEW
external thread nickel plated brass	swivel external thread nickel plated brass	internal thread nickel plated brass	swivel internal thread nickel plated brass
Multipart compression fitting including elastomeric seal. Can be used for knockout or threaded entries as fitting rotates until tightened.	Compression fitting for knockout or threaded entries.  Multipart compression fitting including elastomeric seal. The external thread swivels about the main body even after tightening.	Multi part compression fitting including elastomeric seal to connect with an external thread.	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 (")	outside dia (mm)	inside dia (mm)	metric thread part number	for PG thread size	TON 104	thread size	metric thread part number	metric thread part number	metric thread part number
10	1/4	11.8	7.0	LTP10-M12-C	PG7					
10				LTP10-M16-C						
12	5/16	14.2	10.0	LTP12-M16-C	PG9			LTP12-M16-S		
16	3/8	17.8	12.6	LTP16-M16-C	PG11	050	(1/2")	LTP16-M16-S		
16				LTP16-M20-C	PG13	050	(1/2")	LTP16-M20-S		LTP16-M20-SF
20	1/2	21.1	16.0	LTP20-M20-C	PG16	050	(1/2")	LTP20-M20-S	LTP20-M20-F	LTP20-M20-SF
25	3/4	26.4	21.0	LTP25-M25-C	PG21	075	(3/4")	LTP25-M25-S	LTP25-M25-F	LTP25-M25-SF
32	1	33.1	26.5	LTP32-M32-C	PG29	100	(1")	LTP32-M32-S	LTP32-M32-F	
40	11/4	41.8	35.4	LTP40-M40-C	PG36	125	(11/4")	LTP40-M40-S	LTP40-M40-F	
50	11/2	47.9	40.4	LTP50-M50-C	PG42	150	(11/2")	LTP50-M50-S	LTP50-M50-F	
63	2	59.7	51.6	LTP63-M63-C	PG48	200	(2")			

# When ordering PG or NPT please see below.

## **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



LTP16-050-C

- · High mechanical strength
- IP rating: IP66 + IP67 + IP68 (5 bar) + 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
- 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
- Vibration and shock tested to EN61373 Cat 2
- Conforms to EN 61386
- Interchangeable with all Liquidtight conduits made to American (UL360) sizes.

C90	C45	Coupler	FW	E
external thread nickel plated brass 90° multipart compression fitting including elastomeric seal. Can be used for knockouts.	external thread nickel plated brass 45° multipart compression fitting including elastomeric seal. Can be used for knockouts.	nickel plated brass Multi part compression coupler including elastomeric seals to connect with an external thread.	fibre, retained face sealing washers Retained sealing washer to maintain IP rating of fitting to adjacent equipment.	insert nickel plated brass Single part, machined insert to cap end of conduit.
IP66	IP66 IP67 IP68 IP69	IP66 IP67 IP68 IP69	IP66 IP67 IP68 IP69	











metric thread part number	metric thread part number	part number	metric thread part number	part number	inside dia (mr	outside dia (m	US trade size	nominal size (mr
				LTP10-E	7.0	11.8	1/4	10
				LTP10-E				10
LTP12-M16-C90				LTP12-E	10.0	14.2	5/16	12
LTP16-M16-C90				LTP16-E	12.6	17.8	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	16.0	21.1	1/2	20
LTP25-M25-C90	LTP25-M25-C45	LTP25-LTP25	FW25	LTP25-E	21.0	26.4	3/4	25
LTP32-M32-C90	LTP32-M32-C45	LTP32-LTP32	FW32	LTP32-E	26.5	33.1	1	32
LTP40-M40-C90	LTP40-M40-C45	LTP40-LTP40	FW40	LTP40-E	35.4	41.8	11/4	40
LTP50-M50-C90	LTP50-M50-C45		FW50	LTP50-E	40.4	47.9	11/2	50
LTP63-M63-C90	LTP63-M63-C45		FW63	LTP63-E	51.6	59.7	2	63

## Standards & Approvals











## **Technical Drawing**







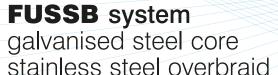




# **FB system**galvanised steel core galvanised steel overbraid











## Conduit

## STANDARD EMC OW FIRE HAZARD

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

Colour: Zinc, self colour.

**FUSSB** 

Typical Applications: Industrial environments and high temperatures.







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

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





## 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.

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.





S







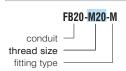
nominal size (mm)	85	part number	FUSSB	part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)
12	FB12		FUSSB	12*	25	14.0	10.2	30
16	FB16		FUSSB	16*	25	17.5	13.0	40
16								
20	FB20		FUSSB	20	25	21.5	16.9	45
25	FB25		FUSSB	25	25	26.0	21.1	55
32	FB32		FUSSB:	32	25	34.0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

metric thread part number	PG thread part number	metric thread part number	PG thread 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



## Standards & Approvals



















- · 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 8
- Fully compliant to LUL Std S1085. (Cert No. 296)
- Nickel plated brass fittings
- EN45545-2 to HL3 and NFPA130



-		
	_	

#### 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.



## 90° elbow

internal and external threaded nickel plated brass elbow

90° elbow which can be screwed onto external threaded fittings.

### C

#### 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 can be used for knockouts or threaded entries. Braid is locked between inner and outer compression nuts.









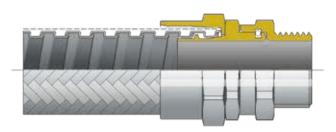
hole size (mm)	part number	metric thread part number	metric thread part number	PG thread part number	metric thread part number
12	FB12-P	BM90-16M			
16	FB16-P	BM90-16M	FSB16-M16-C	FSB16-PG11-C	FSB16-M16-C-S
		BM90-20M	FSB16-M20-C	FSB16-PG13-C	FSB16-M20-C-S
20	FB20-P	BM90-20M	FSB20-M20-C	FSB20-PG16-C	FSB20-M20-C-S
25	FB25-P	BM90-25M	FSB25-M25-C	FSB25-PG21-C	FSB25-M25-C-S
32	FB32-P	BM90-32M	FSB32-M32-C	FSB32-PG29-C	FSB32-M32-C-S
40	FB40-P	BM90-40M			
51	FB50-P	BM90-50M			

## 12 16 16 20

## **EMC Screening Performance**

#### 80 Shielding Effectiveness (dB) 70 60 50 40 30 20 10 FB -FUSSB Frequency (MHz)

## **Technical Drawing**





## LFHUBRD system galvanised steel core, extra LFH coated, stainless steel overbraid





## Conduit

### **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).



## 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.



#### 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.







nominal size (mm)	
20	
25	I
32	ı
40	I

50

<b>LFHUBRD</b> part number	reel length (m)	outside dia (mm)	inside dia (mm)	min inside bend radius (mm)
LFHUBRD20	25	22.7	16.9	45
LFHUBRD25	25	27.2	21.1	55
LFHUBRD32	25	35.2	28.1	70
LFHUBRD40	10	45.7	37.6	80
LFHUBRD50*	10	57.7	48.4	90

<sup>\*</sup> Indicates parts made to order on request and maybe subect to MOQ and lead time.

metric thread part number	PG thread part number	metric thread part number	PG thread part number
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: LFHUBRD20-25M 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
   -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 and NFPA130



#### P

#### 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.



#### C

#### 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.





## 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.



#### **C90**

## external thread elbow nickel plated brass

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











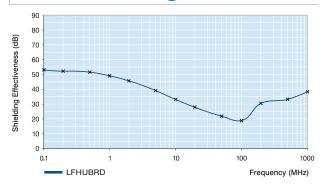




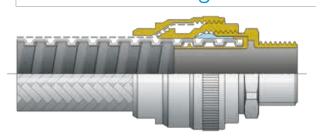
hole size (mm)	part number	metric thread part number	PG thread part number	metric thread part number	metric thread part number
20	FSB20-P	FSB20-M20-C	FSB20-PG16-C	FSB20-M20-C-S	FSB20-M20-C90
25	FSB25-P	FSB25-M25-C	FSB25-PG21-C	FSB25-M25-C-S	FSB25-M25-C90
32	FSB32-P	FSB32-M32-C	FSB32-PG29-C	FSB32-M32-C-S	FSB32-M32-C90
40	FSB40-P				
50	FSB50-P				

nominal size (mm)

## **EMC Screening Performance**



## **Technical Drawing**





## FSS system stainless steel corrugated conduit

## **FSSBRD** system stainless steel corrugated conduit with overbraid





NEW

## Conduit



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: IP68

FSS

- Temperature range -100°C to +400°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 NPFA 130 compliant
- · Excellent Corrosion resistance
- · Oil resistant
- UV resistant
- · Provides EMC screening
- · Offers Antistatic properties









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

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: IP68
- Temperature range -100°C to +400°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 NPFA 130
- compliant
- · Excellent Corrosion resistance
- Oil resistant
- UV resistant
- Provides EMC screening Standard
- Offers Antistatic properties





## **Fittings**



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	FSSBR	D20	25	21.6	16.2	60
FSS25		25	26.8	20.2	55	FSSBR	D25	25	28.3	20.2	70
FSS32*		25	32.5	25.4	65	FSSBR	D32	25	33.8	25.4	80
FSS40*		10	41.3	34.1	105	FSSBR	D40*	10	43.0	34.1	120
F\$\$50		10	50.0	40.0	130	FSSBR	D50	10	51.2	40.0	145

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*

## **Ordering Notes**

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

## Standards











nominal size (mm)

20

32 40 50

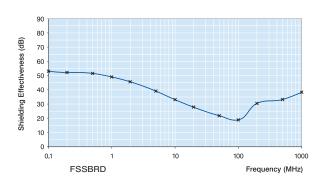
- IP rating: IP68
- Temperature range -50°C to +135°C
- Inherently Low Fire Hazard
- Suitable for knockout or threaded
- Nickel Plated Brass Fittings
- Conduit throat supplied with fitting to protect cables from cut end of conduit
- High mechanical strength
- Tensile strength with standard fittings 100kg 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



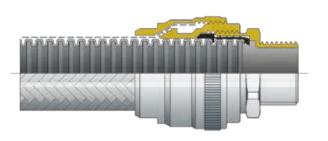
C-S	<b>C90</b>	C45 NEW	FCC-SS CLIPS
swivel external thread nickel plated brass  Multipart compression fitting including conduit retention clip and polyester seal. Swivel external thread means it can be used for knockouts and / or threaded entries.  For BRD version, Braid is locked between inner and outer compression nuts.  Colour: Self colour or also available in Black for FSS version.	external thread nickel plated brass 90° multipart compression fitting including elastomeric seal. Can be used for knockouts.	external thread nickel plated brass 45° multipart compression fitting including elastomeric seal. Can be used for knockouts.	stainless steel (316L) P clips P clip to support conduit.
IP68	IP68	IP68	4

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

## **EMC** Screening Performance



## **Technical Drawing**



## Cable Gland Fittings cable strain relief and enhanced IP rating for Flexicon conduits

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.

#### · 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
- EMC cable gland version on request

Suitable for the following conduits	Conduit	Fitting	nominal size (mm)	Part Number	IP rating of conduit system	IP rating of cable gland	Clamping range of cable gland
FU & SSU			16 20 25 32	FSU16-M16-CG FSU20-M20-CG FSU25-M25-CG FSU32-M32-CG	IP40	IP68 (10 bar)+IP69	4.5-10mm 7-13mm 9-17mm 11-21mm
FSU, FNU, LFHU and FPU		10.50	16 20 25 32	FSU16-M16-CG FSU20-M20-CG FSU25-M25-CG FSU32-M32-CG	IP65	IP68 (10 bar)+IP69	4.5-10mm 7-13mm 9-17mm 11-21mm
LTP, LTPHC, LTPUL, LTPAS, LTPSS, LTPLFH LTBRDP, LTBRDLFH, LTPPU and LTPPUAS			16 20 25 32	LTP16-M16-CG LTP20-M20-CG LTP25-M25-CG LTP32-M32-CG	IP66+IP67+ IP68 (5 bar)+IP69	IP68 (10 bar)+IP69	4.5-10mm 7-13mm 9-17mm 11-21mm
FB & FUSSB	\\ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		16 20 25 32	FSB16-M16-CG FSB20-M20-CG FSB25-M25-CG FSB32-M32-CG	IP40	IP68 (10 bar)+IP69	4.5-10mm 7-13mm 9-17mm 11-21mm
FSB & LFHUBRD		Timet	16 20 25 32	FSB16-M16-CG FSB20-M20-CG FSB25-M25-CG FSB32-M32-CG	IP65	IP68 (10 bar)+IP69	4.5-10mm 7-13mm 9-17mm 11-21mm
LTPBRD		Ther	16 20 25 32	LTPB16-M16-CG LTPB20-M20-CG LTPB25-M25-CG LTPB32-M32-CG	IP66+IP67+ IP68 (5 bar)+IP69	IP68 (10 bar)+IP69	4.5-10mm 7-13mm 9-17mm 11-21mm
LPC, LPCG, LPCO, LPCBU			16 20 25 32	LPC16-M16-CG LPC20-M20-CG LPC25-M25-CG LPC32-M32-CG	IP66+IP67+ IP68 (5 bar)+IP69	IP68 (10 bar)+IP69	4.5-10mm 7-13mm 9-17mm 11-21mm

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

## Standards













## **Round Connection boxes**

stainless steel nickel plated brass



IP67

IP68

IP69





## **Connection Boxes**

### **ROUND BOX - STAINLESS STEEL**





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. 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
FB0X75X60-M20X4-SS	65	75

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

NEW IP66 IP67 IP68 IP69

Diameter (mm)



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.

Height (mm)

2 Way Box shown2 mounting holes on baseM20 Thread Entries

2	Way
4	Way

Fait Nullingi	Height (IIIII)	Diameter (mm)
FBOX75X60-M20X2-NPB	65	75
FBOX75X60-M20X4-NPB	65	75

For non-metallic Round Connection Boxes see page 63





Dart Number

## Accessories

#### PG NPT locknuts metric locknuts stop plug locknuts nickel plated brass, plated steel, nickel plated Zinc or nylon (black) nylon PG stainless steel, nylon black or grey brass, Zinc, black (grey) nylon black or grey stainless steel part number nylon part number plated steel part number number zinc part PG part B-M12 LM12-N# B-PG7 PG7-N# SP-M12\* SP-PG7\* B-M16 S-M16 SS-M16 LM16-N# B-PG9 PG9-N# SP-M16 SP-PG9 B-M20 B-M20-EMC S-M20 SS-M20 LM20-N# B-PG11 PG11-N# Z-050 050-NB SP-M20 SP-PG11 B-M25 B-M25-EMC S-M25 SS-M25 LM25-N# B-PG13 PG13-N# Z-075 075-NB SP-M25 SP-PG13 B-M32 B-M32-EMC S-M32 SS-M32 LM32-N# B-PG16 PG16-N# Z-100 100-NB SP-M32 SP-PG16 B-M40 B-M40-EMC S-M40 SS-M40 LM40-N# B-PG21 PG21-N# Z-125 SP-M40\* SP-PG21 B-M50 S-M50 SS-M50 LM50-N# B-PG29 PG29-N# Z-150 SP-PG29 LM63-N# PG36-N# B-M63 S-M63 SS-M63\* B-PG36 Z-200 B-M75 PG42-N# B-PG42 PG48-N# B-PG48

sea	ling wa	shers				earthing was
Polyes	ster Elastome	r, Neoprene	and fibre fac	e sealing w	ashers	shake proof washer
Polye: Elastome	ster Neoprene r Metric Metric	1	Neoprene PG	Fibre Metric	Fibre PG	
	0		0	0	0	
metric thread	metric thread	PG thread part number	NPT thread part number	metric thread part number	PG thread part number	metric thread part number
	SW12	SWPG7		FW12	FWPG7	
RSW1	l6 SW16	SWPG9		FW16	FWPG9	SPW16
RSW2	20 SW20	SWPG11	SW050	FW20	FWPG11	SPW20
RSW2	25 SW25	SWPG13	SW075	FW25	FWPG13	SPW25
RSW3	32 SW32	SWPG16	SW100	FW32	FWPG16	SPW32
RSW4	10 SW40	SWPG21	SW125	FW40	FWPG21	
RSW	50 SW50	SWPG29	SW150	FW50	FWPG29	
RSW6	63 SW63	SWPG36	SW200	FW63	FWPG36	
		SWPG42				
		SWPG48			FWPG48	

earthing washers						
shake proof washer earth tag washer						
nread nber	hread					
metric thread part number	metric thread part number					
SPW16 SPW20	ET-M20					
SPW25	ET-M25					
SPW32						

<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



to fit o	part n	part n
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	

#### **FCLAMP** conduit clip

nylon conduit clip with integral lid black or grey

non-metallic, heavy duty conduit clamp

Nylon PA66, Nylon conduit fixing clamp for corrugated conduit.

FCLAMP- 3-16

FCLAMP- 3-21

FCLAMP- 4-28

FCLAMP- 5-34

FCLAMP- 6-42

FCLAMP- 7-54

FCLAMP- 7-67

FCLAMP- 8-80

(For fixing rails & accessories contact Flexicon)







10 FCL10 13 FCL13 16 FCL16 FCL16B-P 18 FCL18 FCL18B-P 20 FCL20 FCL20B-P 21 FCL21 FCL21B-P 25 FCL25 FCL25B-P 28 FCL28 32 FCL32 34 FCL34 FCL33B-P

### EC

#### end cap

to snap over end of conduit and provide a smooth entry bush to sharp edges, and provide a neat finish when no connectors

Nylon PA66 end can prevent snagging and are used.



#### 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)



end cap

EC16B

EC21B

EC28B

EC34B

EC42B

EC54B





part number	to fit conduit	outlet ID mm
REC10	10	0-7
REC13	13	0-7
REC16	16	0-11
REC21	21	0-15
REC28	28	0-21
REC34	34	0-25
REC42	42	0-34
REC54	54	0-46
REC67	67	0-52
REC80	80	0-62

42

54

67

FCL42

FCL54

to fit nominal conduit sizes

### 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



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: 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)
- UL Listed

#### 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)
- UL Listed

<sup>80</sup> \* indicates parts made to order on request and may be subject to MOQ and lead time

## Technical Data - Resistance to Chemicals

Page number	Conduit S	ystem	ASTM NO. 1	ASTM NO. 2	ASTM NO. 3	ACETIC ACID (10%)	ACETONE	ALUMINIUM CHLORIDE	BENZENE	SARBON TETRACHLORIDE	CHLOROFORM	CITRIC ACID	OOPPER SULPHATE	CRESOL	DIESEL OIL	DIETHYLAMINE	ETHANOL	ETHER	ETHYLAMINE	ETHYLENE GLYCOL	FREON 32	HYDROCHLORIC ACID (10%)	HYDROCHLORIC ACID (30%)	HYDROGEN PEROXIDE (30%)	HYDROGEN PEROXIDE (60%)	LACTIC ACID
30	FPAS	nylon LFH PA6 corrugated, std weight			/			×		<b>√</b>												×	×	×	×	L
30	FPAH	nylon LFH PA6 corrugated, heavy weight	/	/	<b>√</b>	L	/	×	/	/	×	<b>√</b>	L	×	/	/	/	/	/	<b>√</b>	/	×	×	×	×	L
30	FPASC	nylon LFH PA6 corrugated, std weight	1	/	<b>√</b>	L	/	×	/	/	×	/	L	×	/	/	/	/	/	<b>√</b>	/	×	×	×	×	L
30	FPR	nylon extra LFH PA6 corrugated, std weight	<b>√</b>	<b>√</b>	✓	L	/	×	/	/	×	<b>√</b>	L	×	✓	<b>√</b>	/	/	/	✓	✓	×	×	×	×	L
31	FPADS	nylon PA6 double slit corrugated	/	/	<b>√</b>	L	/	×	/	/	×	<b>√</b>	L	×	/	/	/	/	/	✓	/	×	×	×	×	L
31	FPI	nylon PA12 corrugated, standard weight	/	/	<b>√</b>	L	/	L	/	/	×	/	L	×	/	L	L	✓	L	<b>√</b>	/	×	×	×	×	L
31	FPIH	nylon PA12 corrugated, heavy weight	/	/	<b>√</b>	L	/	L	/	/	×	/	L	×	/	L	L	<b>√</b>	L	<b>√</b>	/	×	×	×	×	L
31	FPIHR	nylon PA12 corrugated, heavy weight	/	/	<b>√</b>	L	/	L	/	/	×	/	L	×	/	L	L	<b>√</b>	L	<b>√</b>	/	×	×	×	×	L
52	FPRSS	PA6 corrugated, SS316 overbraid	✓	✓	✓	L	✓	×	✓	✓	×	✓	L	×	✓	✓	1	✓	✓	✓	/	×	×	×	×	L
52	FPRTC	PA6 corrugated, tinned copper overbraid	✓	✓	✓	L	<b>√</b>	×	<b>√</b>	<b>√</b>	×	✓	L	×	1	✓	1	/	1	X	×	×	×	×	×	×
52	FPISS	PA12 corrugated, SS316 overbraid	✓	✓	✓	L	<b>√</b>	L	✓	✓	×	✓	L	×	✓	L	L	<b>√</b>	L	✓	✓	×	×	×	×	L
52	FPIHSS	PA12 corrugated, SS316 overbraid	✓	✓	✓	L	✓	L	✓	✓	×	✓	L	×	✓	L	L	<b>√</b>	L	✓	✓	×	×	×	×	L
52	FPIHRSS	PA12 corrugated, SS316 overbraid	✓	✓	✓	L	✓	L	✓	✓	×	✓	L	×	✓	L	L	<b>√</b>	L	✓	✓	×	×	×	×	L
56	NRFPAS	nylon LFH PA6 corrugated, std weight	✓	<b>√</b>	✓	L	/	×	/	/	×	<b>√</b>	L	×	/	<b>√</b>	/	<b>√</b>	/	✓	/	×	×	×	×	L
56	NRFPAH	nylon LFH PA6 corrugated, heavy weight	<b>√</b>	<b>√</b>	✓	L	/	×	/	<b>√</b>	×	<b>√</b>	L	×	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	/	✓	<b>√</b>	×	×	×	×	L
56	NRFPR	nylon extra LFH PA6 corrugated, std weight	✓	✓	✓	L	<b>√</b>	×	<b>√</b>	<b>√</b>	×	✓	L	×	<b>√</b>	✓	✓	/	<b>√</b>	<b>√</b>	/	×	×	×	×	L
57	NRFPIH	nylon PA12 corrugated, heavy weight	1	/	1	L	1	L	1	/	×	<b>√</b>	L	X	1	L	L	<b>√</b>	L	<b>√</b>	1	X	X	×	×	L
57	NRFPIHR	nylon PA12 corrugated, heavy weight	1	/	✓	L	1	L	1	/	×	<b>√</b>	L	X	1	L	L	<b>√</b>	L	<b>√</b>	1	X	X	×	×	L
57	NRFPADS	nylon PA6 double slit corrugated	1	/	1	L	1	X	1	/	×	✓	L	X	1	/	1	<b>√</b>	1	✓	1	X	X	×	×	L
	key		od res ted re					PP SS			with with								Χ	poor	resi	stano	e			

## Non-Metallic conduit and fittings

Visit our website and use our conduit selector tool to see chemical resistance properties.

NEW

PHENOL **FPAS** ✓ L × ✓ × × L × ✓ ✓ × ✓ ✓ ✓ ✓ ✓ × × ✓ ✓ ✓ L ✓ ✓ L ✓ ✓ × **FPAH**  $\bot \times \checkmark \times \times \bot \times \checkmark \checkmark \times \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark \bot \checkmark \checkmark \bot \checkmark \times \checkmark \checkmark$ **FPASC** ✓ L × ✓ × × L × ✓ ✓ × ✓ ✓ ✓ ✓ ✓ × × ✓ ✓ ✓ L ✓ ✓ L ✓ ✓ × **FPR FPADS** ✓ L × ✓ × × L × ✓ ✓ × ✓ ✓ ✓ ✓ L × × ✓ ✓ ✓ × ✓ ✓ L ✓ ✓ × FPI  $oldsymbol{J} oldsymbol{ol{ol{ol}}}}}}}}}}}} oldsymbol{oldsymbol{oldsymbol{oldsymbol{oldsymbol{oldsymbol{oldsymbol{oldsymbol{oldsymbol{oldsymbol{oldsymbol{ol}}}}}}}}}}}}}}}}}$ **FPIH** ✓ L×✓×× L×✓ ✓×✓ ✓ ✓ L××✓ ✓ ✓×✓ ✓ L ✓ ✓× FPIHR √ L × √ × × L × √ √ × L √ √ √ √ × × √ √ √ L √ √ L √ √ × FPRSS **√** L × **√** × × × × **√ √** × × × × × × × × × **√ √** × L **√** × L **√** × **FPRTC** ✓ L × ✓ × × L × ✓ ✓ × L ✓ ✓ ✓ ✓ L × × ✓ ✓ ✓ × ✓ ✓ L ✓ ✓ × **FPISS** ✓ L × ✓ × × L × ✓ ✓ × L ✓ ✓ ✓ ✓ L × × ✓ ✓ ✓ × ✓ ✓ L ✓ ✓ × FPIHSS √ L × √ × × L × √ √ × L √ √ √ ∫ L × × √ √ √ × √ √ L √ √ × / L × / × × L × / / × / / / / / × × / / / L / / L / / × ✓ L × ✓ × × L × ✓ ✓ × ✓ ✓ ✓ ✓ ✓ × × ✓ ✓ ✓ L ✓ ✓ L ✓ ✓ × NRFPAH ✓ L×✓×× L×✓ ✓×✓ ✓ ✓ ✓ ××✓ ✓ ✓ L ✓ ✓ L ✓ ✓ × NRFPR ✓ L×✓×× L×✓ ✓×✓ ✓ ✓ L××✓ ✓ ✓×✓ ✓ L ✓ ✓× NRFPIH √ L × √ × × L × √ √ × √ √ √ √ L × × √ √ √ × √ √ L √ √ × NRFPIHR **NRFPADS** 

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.

## Technical Data - Resistance to Chemicals

Page number	Conduit S	System	ASTM NO. 1	ASTM NO. 2	ASTM NO. 3	ACETIC ACID (10%)	ACETONE	ALUMINIUM CHLORIDE	BENZENE	CARBON TETRACHLORIDE	CHLOROFORM	CITRIC ACID	COPPER SULPHATE	CRESOL	DIESEL OIL	DIETHYLAMINE	ETHANOL	ETHER	ETHYLAMINE	ETHYLENE GLYCOL	FREON 32	HYDROCHLORIC ACID (10%)	HYDROCHLORIC ACID (30%)	HYDROGEN PEROXIDE (30%)	HYDROGEN PEROXIDE (60%)	LACTIC ACID
68	FU	galvanised steel	<b>√</b>	✓	✓	×	✓	×	✓	✓	✓	✓	✓	✓	✓	<b>√</b>	✓	<b>√</b>	<b>√</b>	×	X	×	X	×	×	×
68	SSU	stainless steel, grade 316	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	X	✓	1	<b>√</b>
70	FSU	galvanised steel, pvc coated	×	×	X	L	X	×	X	×	X	✓	✓	L	L	×	X	×	X	L	L	<b>√</b>	X	<b>√</b>	1	L
70	LFHU	galvanised steel, LFH coated	L	L	L	<b>√</b>	×	×	×	×	X	<b>√</b>	✓	×	X	<b>√</b>	×	×	X	<b>√</b>	X	×	X	X	×	<b>√</b>
70	FPU	galvanised steel, polyurethane coated	<b>√</b>	✓	✓	×	L	L	L	L	X	<b>√</b>	<b>√</b>	×	<b>√</b>	L	✓	L	×	<b>√</b>	X	×	X	L	×	L
72	LTP	galv steel, pvc coated, liquid tight	L	L	L	<b>√</b>	×	×	×	L	X	<b>√</b>	✓	L	L	L	×	L	L	L	L	L	×	L	×	L
72	LTPHC	galv steel, thermoplastic rubber, liquid tight	<b>√</b>	L	L	<b>√</b>	✓	×	×	L	L	✓	✓	✓	✓	<b>√</b>	<b>√</b>	<b>√</b>	L	✓	×	<b>√</b>	<b>√</b>	L	×	L
72	LTPLFH	galv steel, LFH coated, liquid tight	✓	<b>√</b>	✓	<b>√</b>	×	×	×	L	X	<b>√</b>	<b>√</b>	L	L	L	×	L	L	L	L	L	×	L	×	L
73	LTBRDP	galv steel, braided core, pvc coated, liquid tight	✓	✓	✓	<b>√</b>	×	×	×	L	×	<b>√</b>	✓	L	L	L	×	L	L	L	L	L	×	L	×	L
73	LTPPU	galv steel, polyurethane coated, liquid tight	<b>√</b>	<b>√</b>	✓	×	L	L	L	L	×	<b>√</b>	✓	×	✓	L	<b>√</b>	×	<b>√</b>	×	×	×	L	×	×	L
73	LTBRDLFH	galv steel, braided core, LFH coated, liquid tight	L	L	L	<b>√</b>	×	×	×	×	×	<b>√</b>	<b>√</b>	×	L	<b>√</b>	×	×	×	<b>√</b>	×	×	×	×	×	<b>√</b>
76	FB	galvanised steel, galv steel overbraid	<b>√</b>	✓	✓	×	✓	×	✓	✓	✓	✓	✓	✓	✓	<b>√</b>	✓	<b>√</b>	<b>√</b>	×	×	×	×	×	×	×
76	FUSSB	galvanised steel, SS316 overbraid	✓	✓	✓	×	✓	×	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	×	X	×	×	X	×	X
78	LFHUBRD	galv steel, LFH coated, SS316 overbraid	L	L	L	<b>√</b>	×	×	×	×	×	<b>√</b>	✓	×	X	<b>√</b>	×	×	×	<b>√</b>	×	×	×	X	×	<b>√</b>
80	FSS	stainless steel corrugated	<b>√</b>	1	1	<b>√</b>	/	×	/	/	1	/	/	/	1	<b>√</b>	/	<b>√</b>	<b>√</b>	/	/	×	×	<b>√</b>	<b>√</b>	<b>√</b>
80	FSSBRD	stainless steel corrugated, overbraid	✓	✓	1	<b>√</b>	1	×	1	<b>√</b>	1	<b>√</b>	/	✓	1	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	1	×	×	<b>√</b>	<b>√</b>	<b>√</b>
	key	✓ good L limite									ith po ith sta						Х	pool	r resi:	stanc	е					



## Metallic conduit and fittings

Visit our website and use our conduit selector tool to see chemical resistance properties.

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	10 to
<b>√</b>	✓	1	<b>√</b>	X	×	×	×	1	✓	1	×	X	<b>√</b>	×	×	X	X	X	✓	1	×	X	<b>√</b>	1	×	X	<b>√</b>	X	FU
<b>√</b>	<b>√</b>	/	<b>√</b>	×	×	/	✓	/	✓	/	SS	/	/	SS	/	L	×	✓	/	/	✓	1	/	/	<b>√</b>	/	/	✓	ssu
L	×	×	×	<b>√</b>	✓	×	L	L	×	×	×	1	×	×	<b>√</b>	L	×	X	×	L	×	×	L	L	×	/	L	✓	FSU
L	×	×	×	<b>√</b>	×	1	✓	×	×	×	×	/	×	1	/	<b>√</b>	×	X	L	L	L	L	×	L	×	<b>√</b>	×	<b>√</b>	LFHU
L	L	×	L	×	×	L	L	L	✓	×	×	L	×	1	L	×	L	L	×	L	×	×	×	1	×	/	L	L	FPU
<b>√</b>	×	×	L	L	×	1	L	×	L	L	SS	1	×	SS	<b>√</b>	<b>√</b>	×	SS	×	L	×	×	L	/	×	/	L	×	LTP
L	✓	L	<b>√</b>	<b>√</b>	✓	1	L	1	<b>√</b>	✓	SS	<b>√</b>	✓	SS	<b>√</b>	×	<b>√</b>	SS	×	X	L	×	×	<b>√</b>	✓	/	×	<b>√</b>	LTPHC
L	×	×	X	L	×	1	L	L	L	L	SS	<b>√</b>	×	SS	<b>√</b>	✓	×	SS	×	L	×	×	L	L	×	1	L	×	LTPLFH
<b>√</b>	×	×	L	L	×	1	L	1	L	L	SS	<b>√</b>	×	SS	<b>√</b>	✓	×	SS	×	L	×	×	L	/	×	1	L	×	LTBRDP
L	L	×	L	×	×	L	L	L	✓	×	SS	L	×	✓	L	×	L	L	×	L	×	×	×	✓	×	/	L	L	LTPPU
L	×	×	×	<b>√</b>	×	1	<b>√</b>	×	L	×	SS	1	×	/	<b>√</b>	✓	×	X	L	L	L	L	×	L	×	/	×	1	LTBRDLFH
<b>√</b>	✓	✓	<b>√</b>	×	×	×	×	1	✓	✓	×	×	✓	×	×	×	×	X	✓	✓	×	×	<b>√</b>	✓	×	×	<b>√</b>	×	FB
<b>√</b>	✓	<b>√</b>	<b>√</b>	×	×	×	×	1	✓	✓	×	×	<b>√</b>	×	×	×	×	X	<b>√</b>	✓	×	×	<b>√</b>	<b>√</b>	×	×	<b>√</b>	×	FUSSB
L	X	×	×	<b>√</b>	×	1	1	×	×	×	×	1	×	1	<b>√</b>	<b>√</b>	×	X	L	L	L	L	×	L	×	/	×	/	LFHUBRD
<b>√</b>	1	1	1	×	×	1	1	1	1	1	SS	1	/	SS	/	L	×	1	1	1	1	1	/	1	1	1	<b>√</b>	1	FSS
<b>√</b>	<b>√</b>	1	<b>√</b>	×	×	1	✓	1	1	/	SS	1	/	SS	/	L	×	1	1	1	1	1	/	1	<b>√</b>	/	<b>√</b>	/	FSSBRD

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.



## Technical Data

## 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

### 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
¾"	17.4	1.14
1/2"	21.5	1.81
3/11	27.0	1.81
1"	33.6	2.21
11/4"	42.3	2.21
1½"	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
3/11	26.4	24.1	1.81
1"	33.3	30.3	2.31
11/4"	41.9	39.0	2.31
1½"	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

Thread size (inches)	External thread outside diameter (mm)	Internal thread inside diameter (mm)	Pitch mm
5/8"	15.9	14.7	1.06
3/11	19.1	17.7	1.27
7∕8"	22.2	20.9	1.27
1"	25.4	24.0	1.27
13/16"	30.2	28.6	1.41
11/4"	31.8	30.2	1.41
1%"	34.9	33.4	1.41
<b>1</b> 7/16"	36.5	35.0	1.41
1¾"	44.5	42.9	1.41
2"	50.8	49.3	1.41
21/4"	57.2	55.4	1.41
	(inches) %" %" %" 1" 1%" 1%" 1%" 1%" 2"	(inches) outside diameter (mm)  %" 15.9  %" 19.1  %" 22.2  1" 25.4  1%e" 30.2  1½" 31.8  1¾" 34.9  1½e" 36.5  1½" 44.5  2" 50.8	(inches)         outside diameter (mm)         inside diameter (mm)           %"         15.9         14.7           %"         19.1         17.7           %"         22.2         20.9           1"         25.4         24.0           1%"         30.2         28.6           1¼"         31.8         30.2           1%"         34.9         33.4           1½"         36.5         35.0           1½"         44.5         42.9           2"         50.8         49.3

## 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 (mm <sup>-</sup> ) 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 4.0mm<sup>2</sup> cables?

- The total cross sectional area of the conductors is 5 x 14.5mm² = 73mm²
- The cross sectional area of LTP20 is 3.142 x  $[inside\ diameter]^2 = 201 mm^2$
- % of conduit cross sectional area 73 = 36%

201

This is less than 40%; therefore this conduit is suitable for this combination of cables.

## UK wiring regulations

UK wiring regulations BS7671 prohibit the use of flexible or pliable conduit as an earthing conductor.

Where conduits of 40mm and above penetrate fire barriers in buildings the wiring regulations stipulate that internal seals should be used to maintain fire resistance.

To meet the UK wiring regulations conduit should be self extinguishing unless they are to be buried or contained in non combustible material e.g. concrete or plaster.

Please telephone the Flexicon hotline for further guidance, +44 (0)1675 466900.

## IP Rating and Technical Guidance

## IP ratings guide

(Ingress Protection to BS EN IEC 60529)



#### 1st digit - protection against solid objects

4

No protection

40

1 Protected against objects greater than 50mm

45

Protected against objects greater than 12mm

4

Protected against objects greater than 2.5mm
Protected against objects greater than 1.0mm

Total I

Ingress of dust is not totally prevented but dust does not enter in harmful quantities



6 No ingress of dust



### **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

4

No protection



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



Medium pressure jet – similar to garden hose – from any angle for 3 minutes



6 High pressure jet – similar to fire hose – from any angle for 3 minutes



**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.

- Compression strength
- · Tensile strength
- Impact strength
- Temperature range
- Flexibility
- Fatigue life
- Electrical insulation or continuity
- IP rating
- Chemical resistance

- Corrosion resistance
- Abrasion resistance
- UV resistanceAnti vibration
- Fire performance
- EMC screening
- Dimensions
- Weight

Cable glands are manufactured to EN 50262.

### Classification of conduit systems to BS EN IEC 61386

Level	1st digit Compression Strength N/50mm	2nd digit Impact Strengtl Joules at min temp	3rd digit Minimum Temp deg C	4th digit Maximum Temp dea C		6th digit Electrical Properties	7th digit IP Rating Solids	8th digit IP Rating Water	9th digit Corrosion Resistance (water)	10th digit Tensile Strength N	11th digit Flame Propagation	12th digit Suspended Load N/48hr
0						None declared		0	None declared	None declared		
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 + Insulation	ng 3	3 [	Medium in & high out	Medium (500)	I	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)	\	! Heavy (850)
6				250			6	6				
7				400				7				

## Technical Data - Testing & Approvals

## 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.



### 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.





### IRIS - Std No. ISO/TS 22163:2017

Flexicon has been assessed and certified by SGS in accordance with IRIS for the activities of Design and Development and Manufacturing for the scope of certification: 19 (Single Railway Components) Design, development and manufacture of Flexible Conduit Cable Protection Systems.





### RISQS

Flexicon are RISQS verified so buyers can quickly establish and assess our Safety Management, Capacity, Quality Management and Corporate legislation compliance.



## Railway Industry Association (RIA) & Rail Alliance

Flexicon are active members with Railway Industry Association (RIA) the trade association for UK based suppliers to the Railway industry, and also Rail Alliance.

## **Customer Tests**



Testing rig with FPIH and FPIHR

FPIH and FPIHR different sizes



With Brass threaded Flexicon fittings

## Fatigue Life – Simulation of minimum 35 years service – > 1 million 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 & Approvals

## Product Testing & 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, up to 21,000 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



Environmental - 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 1669, 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





## **UNISTRUT®**



Unistrut are the leading supplier of metal framing Systems for over 90 years and specialise in Channel framing, cable managements and Prefabricated framing.

## Unistrut® Worldwide Reach from UK Manufacturer

Unistrut has been a leading manufacturer for over 90 years, producing the original Unistrut metal framing system during the 1930's. The Unistrut product portfolio soon expanded and now includes a variety of cable management solutions and advanced metal framing systems, which continue to be used across the globe. Unistrut has a reputation for industry leading quality and innovation, and this is demonstrated through the company's continued ability to provide mechanical products and solutions to meet almost any requirement.

## Unistrut® Cable Management Solutions

- Cable Tray
- Cable Ladder

- Metal Trunking
- Modular & Pre-fabricated

## Unistrut® For Rail

Unistrut products have been specified on major rail projects across the UK and worldwide. Unistrut Channel and cable management systems are approved for use on LUL including section 12 applications. Other approvals include Cross Rail and Network Rail.

The most recent project being the implementation of the new Cross Rail C610 project in London, which saw a the full product offering being supplied delivering 280,000m of cable tray and 110,000m of cable ladder to the project, and benefitted from the use of Unistrut Modular services, having pre-fabricated curved multiarm brackets supplied to carry cable containment through the new tunnel network.

For more information on Unistrut products, and to hear more on how Unistrut products can be used to bring value engineering keeping within budget and to programme in rail projects, contact us on +44 (0)121 580 6300.







Marco is the largest manufacturer of Steel Wire Cable Tray in the UK and known industry-wide for their superb quality and innovative cost-saving solutions.



## Marco Cable Management

Marco Cable Management are a leading UK manufacturer of PVC and steel cable management solutions, which includes a wide range of uPVC dado trunking systems, and the UK's largest range of Steel Wire Cable Trays. Marco's products are designed for a wide variety of industrial and commercial installations, with products designed to complement and accommodate all of an installation's cable management requirements.

### Marco for Rail

Marco's range of Steel Wire Cable Trays have been given the authorised for use status by London Underground, and since 2014 have been utilised on a number of projects by the organisation.

Marco's products meet and exceed all UK and European standards required by TFL for both power and data cabling.

Marco's steel wire cable tray can be supplied in a hot-dip galvanised finish, ensuring products can be used in harsh environments, where erosion may occur, ensuring Marco's tray can be installed in various installations including tunnels and stations.

Marco's steel wire cable tray systems are commonly seen carrying structured cabling throughout many of the UK's railway stations and facilities.

## Marco Safety Rating

Marco's Steel Wire Cable Tray has also been awarded the E90 fire safety rating. Whilst there is currently no UK equivalent, Marco have utilised the German testing method to ensure our cable trays can withstand and continue to perform in temperatures up to 1000°C. Marco's trays can be assigned to functional integrity classes E30, E60 and E90 in accordance with DIN 4102-12.

For more information on the Marco range, and how our range of cable management solutions can help, contact us on +44 (0)1248 725 772.



# FLEXICEN FLEXIBLE CONDUIT SOLUTIONS









