



# Wiring Solutions

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**RACO®**

**BRYANT®**

**MURR  
ELEKTRONIK**

**Z+F**

**IBOCO®**

**murrplastik®**  
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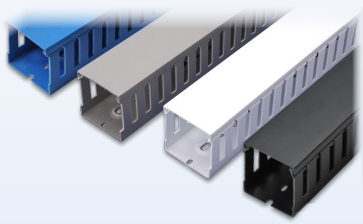


## IBOCO® Wire Ducts

### T1/T1E Series Rigid Duct

Iboco T1 and T1E series rigid wire ducts are rugged ducts made of rigid PVC, carry a UL 94V-0 flammability rating, and are available in gray, white, blue and black colors.

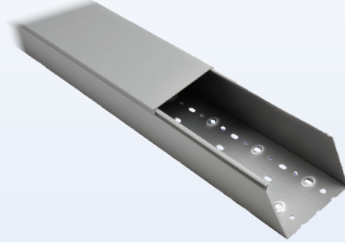
- T1 is wide finger open-slot rigid wire duct
- T1E is thin finger open-slot rigid wire duct
- Sold in 2-meter lengths with cover
- Various sizes to fit all your panel needs



### TSH Series Rigid Duct

Iboco TSH series rigid wire ducts are a solid wall version of the T1 series and are also made of rigid PVC, carry a UL 94V-0 flammability rating, and are available in gray.

- TSH is solid wall rigid wire duct
- Sold in 2 meter (6.56 ft) lengths by the piece including the cover
- Includes standard mounting holes



### Dinosaur Series Flexible Duct

Dinosaur DN series gray flexible wire ducts are resilient, bendable, and are ideal for transporting wiring inside the control panel. Made of low-smoke, halogen-free polypropylene material, these ducts carry a UL 94V-0 flammability rating, CSA approval, and are UL recognized.



Note: Accessories such as spiral wrap, braided sleeving, replacement rigid duct covers, mounting accessories and labels are also available.

## Tubing, Conduit, and Connectors



### I-Flex Tubing and Connectors

I-Flex liquid-tight flexible electrical tubing and connectors house and protect wiring and cables, providing simple and fast installation. Available in a range of diameters, flexible non-metallic tubing is ideal for tight, non-linear wiring runs, including where liquid or ultraviolet resistance is required.

- Flexible and perfect for fast installations
- Excellent for areas with tight quarters, movement, vibration, or flexing issues
- Available in light gray or black



### Electri-Flex Conduit

Electri-Flex Liquatite series flexible liquid-tight electrical conduit houses and protects wiring and cables for motors, lighting, enclosures or anywhere environment is a concern. Liquid-tight conduit is available in metallic, non-metallic and shielded styles, in various lengths and diameters, and is suitable for use in many applications, including hazardous locations.

- Excellent for protecting motors, lighting, enclosures and hazardous location applications



### RACO® Metallic Connectors

Electrical connectors and fittings provide transitions between components of wired or piped systems. Fittings connect conduit or pipe at splice or directional points, or to the mechanical termination of electrical devices.

- Designed to fit flexible metallic liquid-tight conduit and Type B flexible non-metallic liquid-tight conduit
- Available in straight or right angle
- Positively bonds conduit to a box or enclosure to meet Class I, Div 2; Class II, Div 1 & 2; and Class III, Div 1 and 2 hazardous locations
- Sold individually or bulk quantity cartons



## bimed Cable Glands

Cable glands, commonly known as cable connectors or fittings, are designed to attach and secure a cable to electrical equipment or at an enclosure entry point. Cable glands provide strain relief and typically seal out dust, dirt and even liquids.

### Standard and Protection Series Plastic Cable Glands

#### Material

- Body: PA 6 (Polyamide 6)
- Cap: PA 6 (Polyamide 6)
- Seal: CR (Chloroprene Rubber)
- Locknut: PA 6 (Polyamide 6), 30% glass fiber reinforced (Protection series only)

#### Protection Class

- IP68 - 5 Bar (72.5 psi)

#### Attachment Threads

- Available in Metric, PG, or NPT threads



### Brass Cable Glands

#### Material

- Body: Brass nickel-plated
- Cap: Brass nickel-plated
- Seal: CR (Chloroprene Rubber)
- Clamp Insert: PA 6 (Polyamide 6)
- O-ring: NBR

#### Protection Class

- IP68 - 5 Bar (72.5 psi)

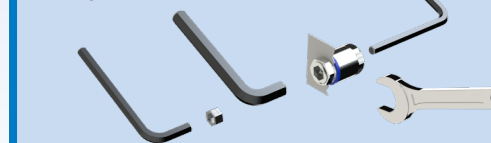
#### Attachment Threads

- Available in Metric, PG, or NPT threads



#### Also Available:

**Hygienic Cable Gland Adapters:** These adapters allow the use of a smaller Allen wrench when installing the hygienic cable gland.



**Replacement Hex Nuts:** Available in various materials, thread sizes and for standard, hygienic, or EMC gland types



Cable glands are also available for specialized applications such as control of EMC noise and in hygienic conditions like those required for food, beverage and pharmaceutical industries.

### EMC Cable Glands

EMC cable glands maintain the shielding integrity from the shielded cable to the enclosure simply by tightening the gland. Long-lasting contact is achieved using a high-definition spring designed to move to prevent damage to the sheath.

#### Material

- Body: Brass nickel-plated
- Cap: Brass nickel-plated
- Seal: CR (Chloroprene Rubber)
- Clamp Insert: PA 6 (Polyamide 6)
- Contact Spring: Special copper alloy
- O-ring: NBR

#### Protection Class

- IP68 - 5 Bar (72.5 psi)

#### Attachment Threads

- Available in Metric, PG, or NPT threads



### Hygienic Cable Glands

Hygienic cable glands have a smooth finish with no threads exposed, preventing harmful microorganisms from sticking to the surface. The sealing material is in accordance with FDA guideline 21 CFR 177.2600. The design allows for easier, faster, and lower-cost cleaning.

Hygienic cable glands are available in standard type and EMC type, which adds the shielding protection for shielded wiring.

#### Material

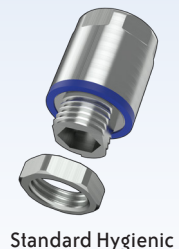
- Body: Stainless Steel
- Cap: Stainless Steel
- Locknut: Stainless Steel
- Contact Spring: Special copper alloy (EMC version only)
- Seal: EPDM, according to FDA guideline 21 CFR 177.2600

#### Protection Class

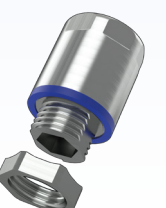
- IP66, IP69, IP68 - 5 Bar (72.5 psi)
- UL TYPE 1, 2, 4, 4X, 12, 12K, 13 according to UL 50E

#### Attachment Threads

- Available in Metric, or NPT threads



Standard Hygienic



EMC Hygienic

## murrplastik® Cable Entry Systems

Cable entry systems consist of split frame systems that allow the installation of pre-made and/or terminated cables to be installed through an enclosure and other bulkhead surfaces. These systems also include one-piece frames that allow non-terminated cables to be installed. In addition, split frame and one-piece systems are also available in FDA compliant versions that can be used for food, beverage, pharmaceutical and industries requiring clean room specifications. All series consist of robust multi-part frame designs that give better mechanical stability while achieving a high degree of environmental protection.

### KDL/D and KDL/D Mono Series

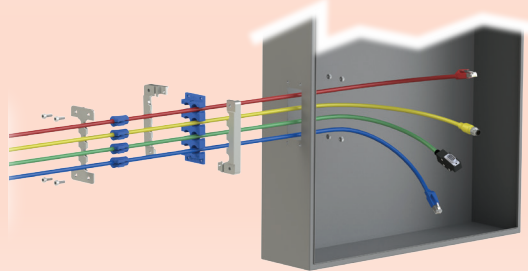
The KDL/D series is a split-frame system that enables the quick and simple installation of up to 48 pre-made and/or terminated cables in a single frame. The KDL/D MONO series is a round split-frame version that allows up to 8 cables in a single frame.

- Available in 4 frame sizes
- Uninterrupted cable guidance
- Easy assembly
- Integrated strain relief
- Fits standard cut-out dimensions
- High protection class IP65
- Matching grommets: KDT/X
- 2-year warranty

### KDL/H-VA-FDA Series

This is a split-frame system that enables the quick and simple installation of up to 12 pre-made and/or terminated cables in a single frame. The frames are made of stainless steel and the grommets and grommet blocks are made of TPE, making them FDA compliant cable entry systems.

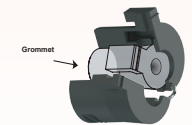
- 2-piece or 3-piece frames
- Easy assembly
- Integrated strain relief
- Halogen free
- Suitable for standard cutouts for 24-pin and 16-pin industrial connectors
- High protection class IP69K
- 2-year warranty



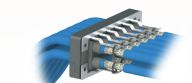
**Split-frames** clamp together with a grommet block and grommets to provide a high-density cable entry point with an IP65 environmental rating. Also available in stainless steel FDA compliant with IP69K rating.



**Grommets** are perfect for round cable entries and are available in two versions, small or medium to accept various cable diameters. A blank grommet is available for any unused small openings in the grommet block. Also available in TPE FDA compliant with IP69K rating.



**Grommet adapters** offer the option of installing a small grommet into a slot for medium grommets, allowing greater flexibility for your cabling application.



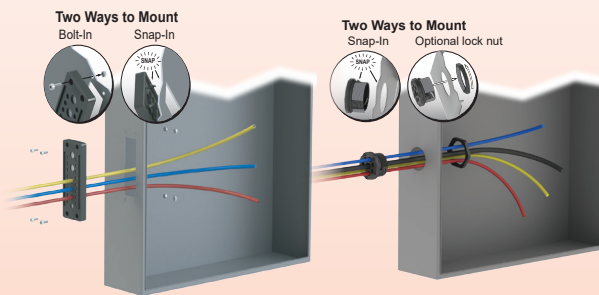
**Discharge plate** provides a means to eliminate interference that can occur on cable shields. The discharge plate is made of high-quality 1.4310 (V2A) stainless steel.



### KDP/X and KDP/R Series

The KDP/X series is a one-piece frame system that can be used with standard cutouts and mounted with an improved tool-free clip-in mounting or screw mounting option. The KDP/X series allows quick and simple installation of up to 29 non-terminated cables in a single frame. The KDP/R series is a round version that allows up to 46 cables in a single frame.

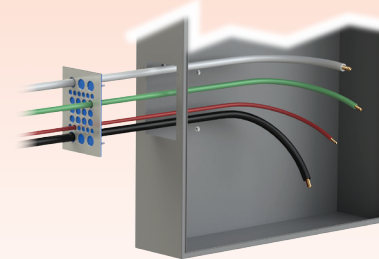
- Available in 2 frame sizes
- Integrated strain relief
- Fits standard cut-out dimensions
- High protection class IP65
- Halogen free
- 2-year warranty



### KDP Series FDA Cablequick®

This one-piece frame is made of stainless steel and includes an FDA compliant TPE elastomer specially modified for Murrplastik to enable the use for food, beverage and pharmaceutical industries. This series allows quick and simple installation of up to 56 non-terminated cables in a single frame.

- High stability
- Halogen free
- FDA compliant per FDA 21 CFR
- High protection class IP65
- ECOLAB Certified
- 2-year warranty



**One-piece frames** have one instead of two elastomer plates and are a great alternative to cable fittings when having a large number of cables and space is an issue. Also available in stainless steel FDA compliant with IP69K rating.



**ZL strain relief plate** may be used wherever strain relief for cables, conduits, cords, or wires is required or for routing in a secure, easy and cost-effective way.



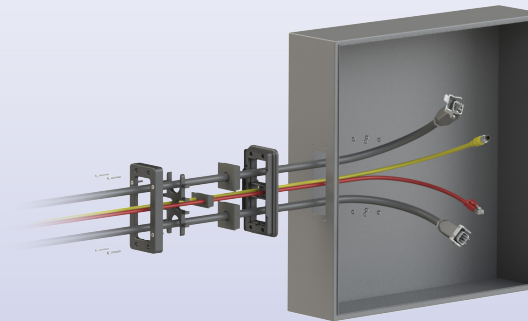
**KAF series strain relief plates** may be used wherever strain relief or routing for cables, cords, wires or hoses is required.

## bimed Cable Entry Systems

### BPA Series Cable Entry Plates

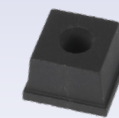
BPA series cable entry plates allow cables to be installed through an enclosure and other bulkhead surfaces, with the added benefit that pre-made, terminated cables can be installed without disassembling the connectors. The BPA series is a split-frame system that allows quick and simple installation of up to 10 cables in a single frame. The grommets are pyramidal with conical outer surface. These shapes ensure high strain relief when they are compressed into their conical seats. The robust multi-part frame design provides better mechanical stability and a high degree of environmental protection.

- Uninterrupted cable guidance
- Easy assembly
- Integrated strain relief
- IP66, UL Type 12, 13, 4X protection
- Matching grommets: BPA series
- Operating temperatures: -40 to +176 °F (-40 to +80 °C)
- 2-year warranty



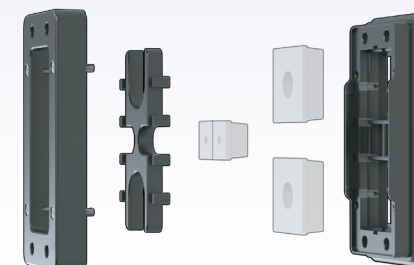
### Split Frames

The split frame is a multi-part system that clamps together with a grommet block and grommets to provide a high-density cable entry point for up to 10 cables. The grommet block is included with each frame.



### Grommets

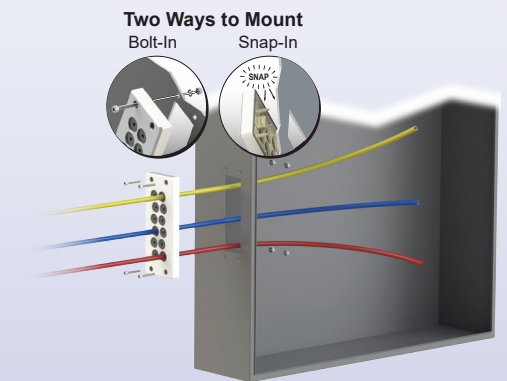
BPA series grommets are perfect for round cables. The small version accepts cable diameters between 0.138 to 0.61 inches (3.5 to 15.5mm). The large version accepts cable diameters between 0.61 to 1.161 inches (15.5 to 29.5 mm).



### BRM Cable Entry Systems

The BRM series cable entry systems allow non-terminated cables to be installed through an enclosure or other bulkhead surfaces, allowing a high density of cables to pass through a small area. The BRM series is a one-piece system that enables quick and simple installation of up to 29 cables in a single frame. The ultra-flexible entrance membrane ensures ingress protection for a large range of cable diameters.

- Available in 1 frame size
- Quick and easy to install
- Bolt-in or snap-in mounting
- Integrated strain relief
- Fits standard cut-out dimensions
- IP65, UL Type 12,13, 4X protection
- Operating temperature: -40 to 176 °F (-40 to 80 °C)
- 2-year warranty



Note: Mounting Hardware not included.

### Frames

BRM series frames are one-piece systems that allow non-terminated cables to be installed through an enclosure or other bulkhead surfaces, allowing a high density of cables to pass through a small area.

A special back sealing design ensures "close fit" even if a cable is removed. This unique feature allows a cable to be inserted and removed as needed.







# Data and Power Connection Cables

## M12 D-coded Industrial Ethernet Shielded Cables

Murrelektronik M12 D-coded industrial shielded cables provide easy connection to industrial field devices. The D-coded designation is usually assigned to connectors used for Ethernet or ProfiNet network systems.

- High flex industrial Ethernet Cat5e shielded cable
- Available in up to 15m / 49.2ft lengths
- Up to 100Mbps full duplex communication
- TPE (thermoplastic elastomer) jacket
- Flame retardant and resistant to welding sparks and chemicals
- Connector types include M12 straight or right-angle, and RJ45



## M12 D-coded to Pigtail Industrial Ethernet Shielded Cables

Murrelektronik M12 D-coded connector to pigtail industrial shielded cables offer a pigtail end to allow the user to install their choice of connector. A choice of Murrelektronik field wireable connectors are available to complete your termination.

- High flex industrial Ethernet Cat5e shielded cable
- Available in up to 15m / 49.2ft lengths
- Up to 100Mbps full duplex communication
- TPE (thermoplastic elastomer) jacket
- Flame retardant and resistant to welding sparks and chemicals
- M12 connector to pigtail



## M12 X-coded Cat6a Industrial Ethernet Shielded Cables

Murrelektronik M12 X-coded Cat6a industrial Ethernet shielded cables include an M12 X-coded connection on one end and an RJ45 connection on the other end. The X-coded designation is usually used with industrial vision systems.

- High flex industrial Ethernet Cat6a shielded cable
- Available in up to 5m / 16.4ft lengths
- Up to 10Gbps full duplex communication
- TPE (thermoplastic elastomer) jacket
- Flame retardant, chemical resistant
- M12 to RJ45 connection



## Cat5e Industrial Ethernet Shielded Cables with RJ45 Connectors

Murrelektronik Cat5e industrial Ethernet shielded cables include RJ45 connectors on both ends to easily connect to field Ethernet devices used in industrial installations.

- High flex industrial Ethernet Cat5e shielded cable
- Available in up to 15m / 49.2ft lengths
- Up to 100Mbps full duplex communication
- TPE (thermoplastic elastomer) jacket
- Flame retardant and resistant to welding sparks and chemicals
- RJ45 to RJ45 connectors



## M12 L-coded Industrial Power Cables

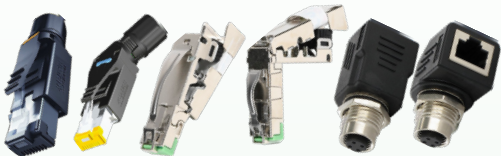
Murrelektronik M12 L-coded industrial cables provide easy power connection to field devices. The L-coded designation is assigned to power connectors that have a 30 to 40% smaller design while being capable of providing 80% more power. The small design provides space savings, improved power transmission, and increased flexibility when designing your application.

- Available in up to 15m / 49.2ft lengths
- 16AWG and 14AWG wire sizes
- 12A and 16A ratings
- TPE (thermoplastic elastomer) jacket
- Flame retardant and resistant to welding sparks and chemicals



## Shielded RJ45 IDC Field Wireable Connectors

Murrelektronik RJ45 IDC field wireable connectors allow users to make their own connector terminations. The IDC designation (insulation displacement connector), also known as IPC (insulation piercing connector), refers to the connector design, which includes sharp blades that when crimped, are forced into the insulated cable, creating a tight connection. No need to strip conductors, and installation is very reliable.



## M12 L-coded Power Adapter Cable and T-coupler

The adapter cable and T-coupler provide an easy way to expand power cable applications. The adapter cable connects to a 7/8-16 straight connector and converts it to an M12 L-coded female straight connector. The T-coupler provides an M12 male straight connector to two female straight connectors.



## M12 L-coded Field Wireable Power Connections

Murrelektronik M12 L-coded field wireable power connectors allow users to make connector terminations to best fit their power application.

