

# AerosUSA Multi Cable Entries

Range of cable entry solutions for multiple cables.

Innovative cable entry solutions for every application





AGRO

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## **AerosUSA Multi Cable Entries** of various types

Multi Cable Entries are widely used where feedthroughs are required for a number of cables, close together. They require less space than a corresponding number of individual cable glands, and users benefit from efficient installation conditions and easy access – even where space is very limited.

AerosUSA has been developing and manufacturing high-quality cable glands in accordance with EN 62444 for over 65 years. This know-how is also applied in the design of AerosUSA's various Multi Cable Entries. The specially developed solutions, using well-proven sealing units and impact-resistant metal housings, result in extremely robust and reliable cable entry systems.

These were designed for use under the most adverse operating conditions, withstanding water, dust, vibrations and extreme temperatures. Typical applications include infrastructure projects (tunnels, IT data centres and telecommunications networks); control cabinet and plant engineering; vehicle, shipping, offshore and energy technology; and the manufacturing industry.



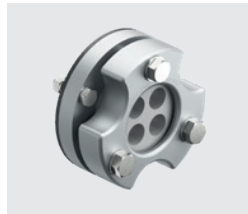
**MCE Multi Cable Entries**

For the feedthrough of non-preassembled cables, the stylish MCE unit offers excellent robustness and a high degree of sealing performance (up to IPX9K). Users benefit from efficient installation conditions and easy access – even where space is very limited.



**MCE EMC Multi Cable Entries**

Building on the benefits of the standard MCE series, this version additionally offers excellent EMC protection thanks to the integration of the contact spring design used in the Progress® EMC easyCONNECT series. This maximises control during installation, and ensures reliable shield grip by compensating for tolerances in the shield thickness.



**AGRO Progress® Flanged Cable Glands**

The Progress® Flange M50 offers the significant advantage that it enables the installation to be carried out from the front. The generous clear width, together with the splittable sealing inserts from the extensive Progress® range, enables pre-assembled cables to be fed through the unit.



**AGRO Progress® Multi Cable Glands**

The large M40, M50, M63 and M75 sizes from the standard cable gland range, in combination with splittable Progress® sealing inserts, also facilitate the feedthrough of pre-assembled cables. With these units also, you can additionally benefit from individually manufactured sealing inserts..



**AGRO Adapter Plates**

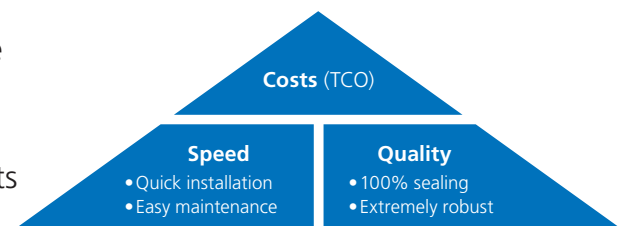
The Adapter Plate enables cables to be easily inserted into a housing, protected against moisture, dust and vibrations. In combination with the cable glands and conduit glands that are selected and arranged as per your specifications, the adapter plate ensures reliable sealing performance. Cable harnesses can be cost-effectively pre-assembled and efficiently installed.



## Overview of benefits

Speed, quality and TCO-costs  
always under control

AerosUSA Multi Cable entries, when integrated in cable harnesses, can be cost-effectively pre-assembled and then efficiently installed as a unit following just-in-time delivery. Our solutions enable you to keep the TCO costs under control over the entire product life cycle:



### Some of the benefits:

- Excellent sealing performance (up to IPX9K)
- High pull-out forces in accordance with EN 62444
- Flexibility in terms of cable diameter thanks to the use of multiLAYER sealing inserts (MCE models)
- Extremely robust (impact-resistant metal housings)
- **Customer-specific designs** (dimensions, sealing elements, etc.)

#### Installation:

- Cables can be installed **close together**
- Simply tighten manually **"to the stop"** (ease of installation, reliability)
- No auxiliary materials or lubricants required
- Various flat gaskets to suit different surface finishes
- All parts included

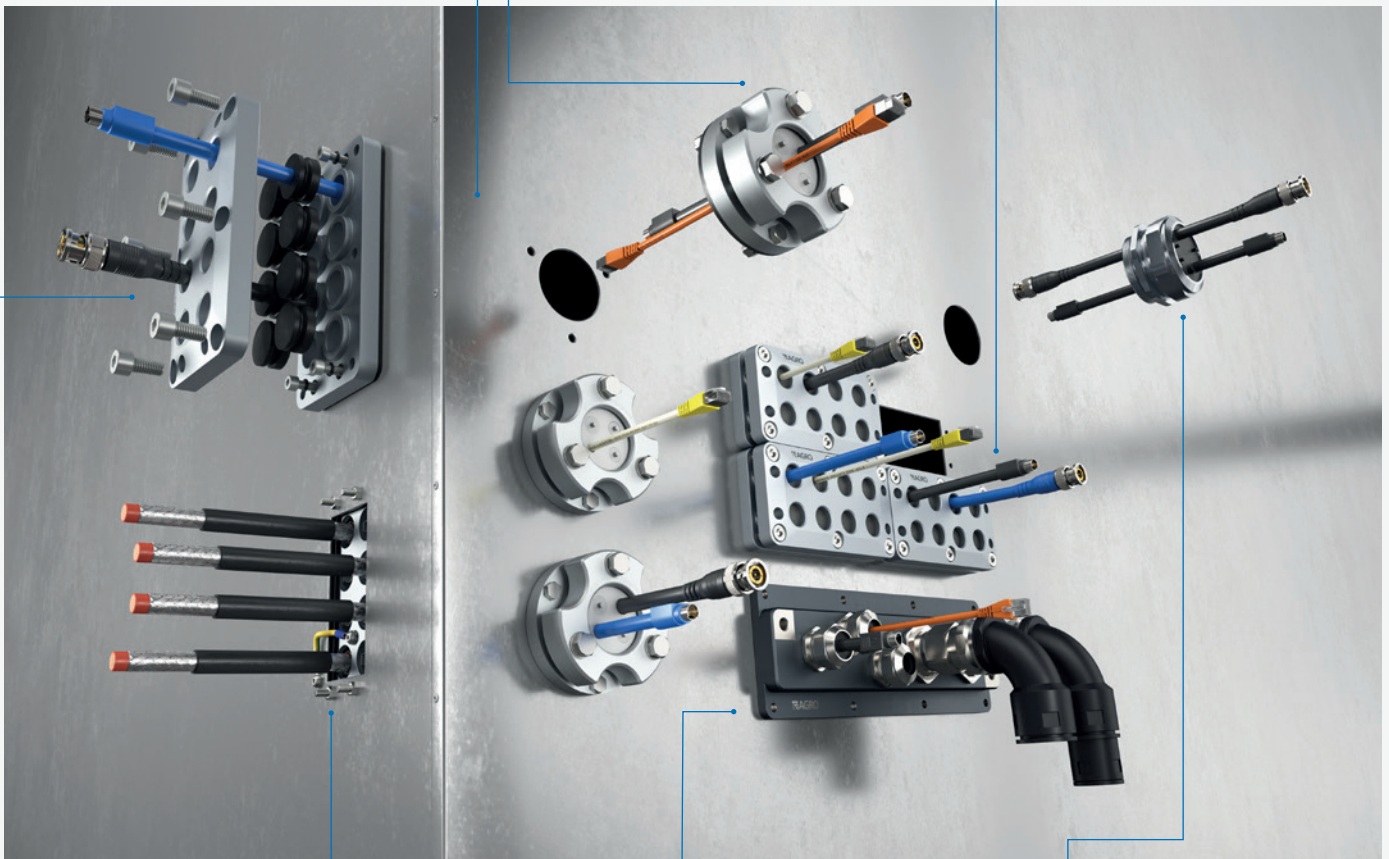
#### Progress® Flange M50:

- Can be screwed on from the front with low tightening strength, no twisting of the cables
- Quick installation using a manual or cordless ratchet (no awkward open-end wrench required)
- Customised sealing elements (regarding hole pattern, sealing material, etc.)
- For pre-assembled cables up to the clear width



#### MCE Multi Cable Entries:

- High sealing performance (IP6X / IPX8 / IPX9K) in accordance with cable gland standard
- Flexibility with respect to cable diameter thanks to the use of multiLAYER sealing elements
- Absolute process reliability (simply tightened manually "to the stop")



#### Maintenance:

- **Simple replacement from the front** of sealing elements (just remove the front panel, the system remains in place)
- Contact springs easy to replace and can be visually inspected from the rear

#### MCE EMC Multi Cable Entries:

- In addition to the benefits offered by the standard MCE:
- Strong and reliable shield grip by means of contact spring system
  - Low transfer impedances
  - Full installation control with respect to shield connection

#### Adapter Plates:

- For maximum flexibility in design and implementation
- Uses AGRO's modular system of certified standard cable glands
- Meets the highest fire protection requirements in accordance with EN 45545-2 (HL3), EN 45545-3 (E30) and NFPA 130

#### Progress® Multi Cable Glands:

- Tried-and-trusted standard cable glands with splittable sealing inserts, in the sizes M40, M50, M63 and M75
- Hole pattern of the sealing insert can be freely specified
- May be used for pre-assembled cables that can pass through the cable gland's metal parts





## MCE Multi Cable Entries

Setting new standards in terms of sealing performance and process reliability

- **Innovative:** Cable gland technology in accordance with EN 62444 for multiple cables
- **Excellent sealing performance:** Sealing in accordance with IP6X / IPX8 / IPX9K
- **Impact resistant:** Impact test category 7 (EN 62444)
- **Flexible:** multiLAYER sealing elements
- **Tailor-made:** Customer-specific sealing elements possible (e.g. for several cables)



## **AerosUSA develops an innovative new product**

For the first time on the market, tried-and-trusted cable gland technology in accordance with EN 62444 is used to create a feedthrough for multiple cables

### **The advantages of AerosUSA's MCE Multi Cable Entry at a glance:**

- High sealing performance (IP6X / IPX8 / IPX9K) in accordance with the cable gland standard EN 62444
- Absolute process reliability (screws simply tightened "to the stop")
- Flexibility with respect to cable diameter thanks to the use of multiLAYER sealing elements
- High pull-out forces in accordance with EN 62444
- The installation from the front is quick and cost-effective
- Extremely robust (high impact strength)
- No auxiliary materials or lubricants required
- Suitable for pre-assembly

## Sealing elements that offer flexibility with respect to cable diameter

The specially developed design with multiLAYER sealing elements, based on our Ex-Compact sealing geometry, provides flexibility with respect to cable diameter and offers reliable strain relief.

The sealing element contains a core at the centre and several ring-shaped layers around it. With the basic configuration, the sealing element provides optimal protection against dust and water (IP6X / IPX8 / IPX9K). The core and layers can be removed as required to accommodate cables of various diameters.

The strain relief, testing of which is based on EN 62444, corresponds to IP68 (system impermeability for 30 minutes at max. 0.3 bar with a CR flat gasket, or for 60 minutes at max. 4 bar with an NBR flat gasket).

The special design ensuring reliable strain relief and the use of tried-and-tested sealing elements make the innovative MCE an extremely robust and dependable cable entry system.

Customer-specific sealing elements, e.g. with multiple holes, can be produced and used according to your needs.



multiLAYER sealing element with a core and three ring-shaped layers.



Sealing element with several holes.

## Quick and reliable installation

As soon as the two halves of the compact unit's frame are screwed together using the six compression screws, the system is reliably sealed.

All the A4 stainless steel screws are easily accessible from the front. Auxiliary materials and lubricants are not required, so installation can be carried out easily, quickly and cost-effectively using an Allen key tool. The positioning of the screws makes it possible to install multiple MCEs close together, side by side.

The system can also be easily integrated into cable assemblies, facilitating efficient installation. As a result, twisting of cables – which can occur when multiple individual cable glands are used – is avoided during installation.



Reliable sealing of the frame halves by screwing together using six compression screws.

# AerosUSA MCE.

For well-sealed and reliable cable entries.

## Sealing elements:

- The “EX-Compact” sealing principle is well-proven with millions of applications in standard cable glands
- The multiLAYER sealing system offers great flexibility with respect to cable diameter
- Ingress protection rating IP6X / IPX8 / IPX9K
- High pull-out resistance
- Suitable for cables of diameter 4.0 to 22.5 mm
- Splittable for easy replacement
- Customer-specific sealing elements, e.g. with multiple holes, can also be produced

## MCE system:

- High process reliability
- High robustness, impact strength and impermeability
- Also suitable for applications with heightened environmental requirements
- Pre-assembled systems can be efficiently installed at the desired location
- No auxiliary materials or lubricants are required for installation



## Frame:

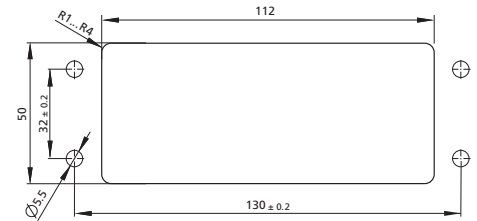
- High-strength anodised aluminium parts offer high impact resistance (tested in accordance with EN 62444) and good temperature and ageing resistance
- Drilling pattern based on industry standard dimensions

## Gasket options (see Ordering Information below):



- Flat gasket of CR (chloroprene rubber); tested for rating IPX8 with a maximum of 0.3 bar for 30 minutes; suitable for uneven, rough surfaces
- Flat gasket of NBR (acrylonitrile butadiene rubber); tested for rating IPX8 with a maximum of 4 bar for 60 minutes; suitable for smooth surfaces and higher sealing requirements

## Technical data

Frame material:	Anodised aluminium, corrosion-resistant
O-ring:	NBR
External dimensions:	(L x B x H, assembled) 148 x 79 x 26 mm
Temperature range:	-30°C / +105°C
Testing based on EN 62444:	<ul style="list-style-type: none"> <li>• Heat retention</li> <li>• Strain relief (min. Type A)</li> <li>• Twist test</li> <li>• Impact test, Cat. 7</li> <li>• IPX6 (water jet)</li> <li>• IPX8 (max. 0.3 bar for 30 minutes with CR flat gasket)</li> <li>• IPX8 (max. 4 bar for 60 minutes with NBR flat gasket)</li> <li>• IPX9K (90 bar, 85°C)</li> <li>• IP6X dust protection</li> <li>• Salt spray test in accordance with ISO 9227</li> </ul>
Materials:	In accordance with REACH and RoHS standards



## Ordering Information

	$\begin{matrix} > \oslash < \\ \text{min mm} \end{matrix}$	$\begin{matrix} > \oslash < \\ \text{max mm} \end{matrix}$		Flat gasket	Reference size	Type code	Art.-No.
8	0/4.0	10.0	4x M5, hexagon socket	CR, tested to IPX8, max. 0.3 bar*	M20	MCE 08 / 08 S010	<b>1908.88.08.010</b>
8	0/6.0	16.0	4x M5, hexagon socket	CR, tested to IPX8, max. 0.3 bar*	M25	MCE 08 / 08 S011	<b>1908.88.08.011</b>
3	0/10.0	22.5	4x M5, hexagon socket	CR, tested to IPX8, max. 0.3 bar*	M32	MCE 08 / 03 S012	<b>1908.88.03.012</b>
8	0/4.0	10.0	4x M5, hexagon socket	NBR, tested to IPX8, max. 4 bar **	M20	MCE 08 / 08 S020	<b>1908.88.08.020</b>
8	0/6.0	16.0	4x M5, hexagon socket	NBR, tested to IPX8, max. 4 bar **	M25	MCE 08 / 08 S021	<b>1908.88.08.021</b>
3	0/10.0	22.5	4x M5, hexagon socket	NBR, tested to IPX8, max. 4 bar **	M32	MCE 08 / 03 S022	<b>1908.88.03.022</b>

\* CR = chloroprene rubber, tested to IPX8 with max. 0.3 bar for 30 minutes, can compensate for minor surface irregularities

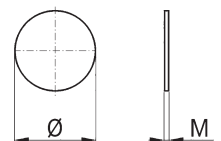
\*\* NBR = acrylonitrile butadiene rubber, tested to IPX8 with max. 4 bar for 60 minutes, only for smooth surfaces

$\begin{matrix} >|\oslash|< \\ \text{min mm} \end{matrix}$   $\begin{matrix} >|\oslash|< \\ \text{max mm} \end{matrix}$  Sealing element clamping range (cable diameter range)

### Dust protection discs

If any parts (core or rings) of a multiLAYER sealing element have been removed although it is not yet to be equipped with a cable, the opening can be easily sealed using a dust protection disc. This provides reliable dust protection and can protect during transport.

Reference size	$\begin{matrix} > \oslash < \\ \text{mm} \end{matrix}$	M mm	Material	Art.-No.
M20	23.5	0.3	PA6	<b>1908.20.235.05</b>
M25	26.5	0.3	PA6	<b>1908.25.265.05</b>
M32	34.3	0.3	PA6	<b>1908.32.343.05</b>



Used in the MCE Multi Cable entry, these dust protection discs were also tested to IPX8 (max. 2 bar for 30 minutes).





# MCE EMC Multi Cable Entries

## Outstanding EMC protection for even the most demanding conditions

- **Electromagnetic compatibility:** Excellent EMC protection thanks to integrated easyCONNECT contact springs
- **High degree of sealing:** IP6X / IPX8 / IPX9K in accordance with cable gland standard EN 62444
- **Impact resistance:** Impact test category 7 (EN 62444)
- **Flexibility:** multiLAYER sealing elements
- **Tailor-made:** Customer-specific sealing elements possible (e.g. with multiple holes)



## **AerosUSA EMC Multi Cable Entries (MCE EMC):**

Tried-and-trusted, high-quality shield grip combined with the robustness and reliable sealing performance of AerosUSA's MCE range

### **The advantages of AerosUSA's MCE EMC Multi Cable Entry at a glance:**

- Strong, reliable shield grip by means of spring contact system
- Low transfer impedance
- Absolute reliability in terms of system assembly, full installation control with regard to the cable shield
- High degree of sealing (IP6X / IPX8 / IPX9K) in accordance with the cable gland standard EN 62444
- Flexibility with respect to cable diameter thanks to the use of multiLAYER sealing elements
- High pull-out forces in accordance with EN 62444
- The installation from the front is quick and cost-effective
- Extremely robust (high impact strength)
- No auxiliary materials or lubricants required

## easyCONNECT contact springs: Strong and reliable shield grip

The tried-and-trusted contact spring from the Progress® EMC easyCONNECT range ensures full installation control and compensates for variations in the shield thickness to achieve a dependable shield grip. The contact springs facilitate good and reliable contact, in the case of partially stripped shielded cables or of fully exposed cable shields.

The strong yet gentle clamping of the cable shields by the contact springs ensures excellent shield contact and achieves low transfer impedances. The special shape of the contact springs enables them to accommodate a wide range of cable diameters, and also makes it possible to dismantle the cable gland unit without destroying the shield braiding. The cables can still rotate and can be pushed/pulled through the unit or removed during the installation process.

Each contact spring can also clasp around several cables within the specified clamping range, gripping the braided shields accordingly. It can therefore also be used in combination with multi-hole sealing inserts.

## Sealing elements that offer great flexibility with respect to cable diameter

The special design using AerosUSA's multi-part multiLAYER sealing elements, based on our Ex-Compact sealing geometry, offers great flexibility with respect to cable diameter and ensures reliable strain relief.

The sealing element contains a core at the centre and several ring-shaped layers around it. With the basic configuration, the sealing element provides optimal protection against dust and water (IP6X / IPX8 / IPX9K). The core and layers can be removed as required to accommodate cables of various diameters.

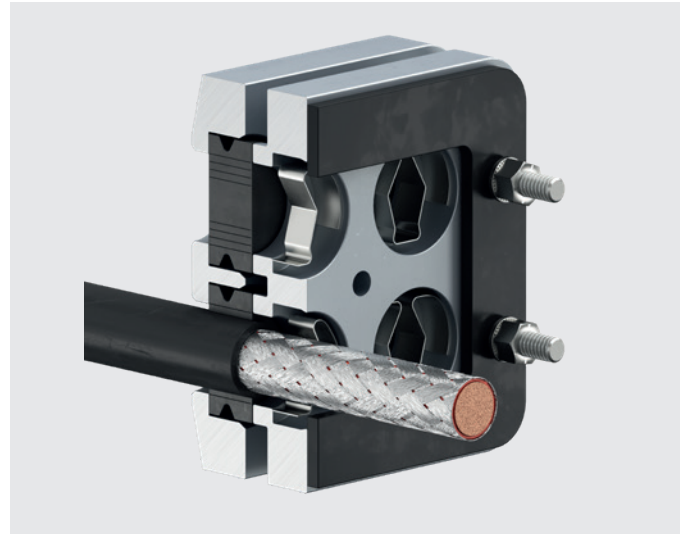
In the basic configuration, the sealing unit offers optimal protection against dust and water (IP6X / IPX8 / IPX9K). Depending on the cable used, individual layers can be removed to adjust the clamping area. The strain relief, with testing based on EN 62444, corresponds to IP68. Customer-specific sealing elements, e.g. with multiple holes, can be produced and used according to your needs.



multiLAYER sealing element with a core and three ring-shaped layers.



Sealing element with several holes.



Cross section of an MCE EMC Multi Cable entry with a stripped cable

## Quick and reliable installation

As soon as the two halves of the unit's frame are screwed together using the six compression screws, the system is reliably sealed.

All the A4 stainless steel screws are easily accessible from the front. Auxiliary materials and lubricants are not required, so installation can be carried out easily, quickly and cost-effectively. The positioning of the screws makes it possible to install multiple MCEs close together, side by side.

The system can also be easily integrated into cable assemblies, facilitating efficient installation. As a result, twisting of cables – which can occur when multiple individual cable glands are used – is avoided during installation.



Reliable sealing of the frame halves by screwing together using six compression screws.

# AerosUSA MCE EMC.

For interference-free, well-sealed and reliable cable entries.

## MCE EMC system:

- Easily identifiable by the shiny, nickel-plated surface of the frame's lower plate
- Separation of sealing and EMC functions
- Also suitable for applications with heightened environmental requirements
- Pre-assembled systems can be efficiently installed at the desired location
- No auxiliary materials or lubricants are required for installation

## Sealing elements:

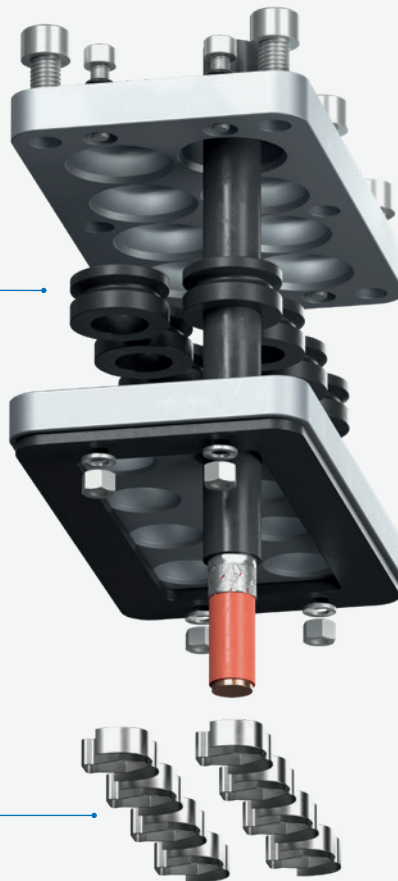
- The "EX-Compact" sealing principle is well-proven with millions of applications in standard cable glands
- The multiLAYER sealing system offers great flexibility with respect to cable diameter
- Ingress protection rating IP6X / IPX8 / IPX9K
- High pull-out resistance
- Suitable for cables of diameter 4.0 to 22.5 mm
- Splittable for easy replacement
- Customer-specific sealing elements, e.g. with multiple holes, can also be produced

## Lower plate:

- Made of nickel-plated aluminium for the optimal discharge of interference signals
- With an additional earthing point for grounding connection between the lower plate and the housing
- Drilling pattern based on industry standard dimensions

## Contact springs:

- easyCONNECT contact springs with large clamping range (great flexibility with respect to cable diameter)
- Allow visual inspection of the shield connection



## Upper plate:

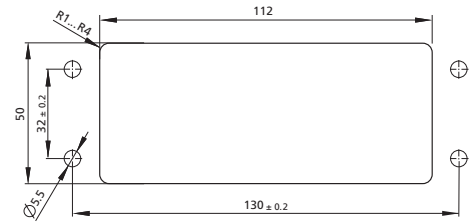
- High-strength anodised aluminium offering high impact resistance (tested in accordance with EN 62444) and good temperature and ageing resistance

## Gasket options (see Ordering Information below):

- Flat gasket of CR (chloroprene rubber); tested for rating IPX8 with a maximum of 0.3 bar for 30 minutes; suitable for uneven, rough surfaces
- Flat gasket of NBR (acrylonitrile butadiene rubber); tested for rating IPX8 with a maximum of 4 bar for 60 minutes; suitable for smooth surfaces and higher sealing requirements

## Technical data

Upper plate material:	Anodised aluminium, corrosion-resistant
Lower plate material:	Nickel-plated aluminium, corrosion-resistant
O-ring:	NBR
External dimensions:	(L x W x H, assembled) 148 x 79 x 26 mm
Temperature range:	-30°C / +105°C
Testing based on EN 62444:	<ul style="list-style-type: none"> <li>• Heat retention</li> <li>• Strain relief (min. Type A)</li> <li>• Twist test</li> <li>• Impact test, Cat. 7</li> <li>• IPX6 (water jet)</li> <li>• IPX8 (max. 0.3 bar for 30 minutes with CR flat gasket)</li> <li>• IPX8 (max. 4 bar for 60 minutes with NBR flat gasket)</li> <li>• IPX9K (90 bar, 85 °C)</li> <li>• IP6X dust protection</li> <li>• Salt spray test in accordance with ISO 9227</li> </ul>
Materials:	In accordance with REACH and RoHS standards



## Ordering Information

	$\begin{matrix} > \oslash < \\ \text{min mm} & \text{max mm} \end{matrix}$	$\begin{matrix} > \oslash < \\ \text{min mm} & \text{max mm} \end{matrix}$	$\begin{matrix} > \blacksquare < \\ \text{min mm} & \text{max mm} \end{matrix}$	$\begin{matrix} > \blacksquare < \\ \text{min mm} & \text{max mm} \end{matrix}$		Flat gasket	Reference size	Type code	Art.-No.
8	0/4.0	10.0	6.0	12.0	4x M5	CR, tested to IPX8, max. 0,3 bar *	M20	MCE 08 / 08 S101	<b>1908.88.08.83.101</b>
8	0/6.0	16.0	9.5	17.0	4x M5	CR, tested to IPX8, max. 0,3 bar *	M25	MCE 08 / 08 S102	<b>1908.88.08.83.102</b>
3	0/10.0	22.5	14.0	21.0	4x M5	CR, tested to IPX8, max. 0,3 bar *	M32	MCE 08 / 03 S103	<b>1908.88.03.83.103</b>
8	0/4.0	10.0	6.0	12.0	4x M5	NBR, tested to IPX8, max. 4 bar **	M20	MCE 08 / 08 S111	<b>1908.88.08.83.111</b>
8	0/6.0	16.0	9.5	17.0	4x M5	NBR, tested to IPX8, max. 4 bar **	M25	MCE 08 / 08 S112	<b>1908.88.08.83.112</b>
3	0/10.0	22.5	14.0	21.0	4x M5	NBR, tested to IPX8, max. 4 bar **	M32	MCE 08 / 03 S113	<b>1908.88.03.83.113</b>

\* CR = Chloroprene rubber, tested to IPX8 with max. 0.3 bar for 30 minutes, can compensate for minor surface irregularities

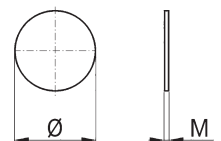
\*\* NBR = acrylonitrile butadiene rubber, tested to IPX8 with max. 4 bar for 60 minutes, only for smooth surfaces

$\begin{matrix} >|\oslash|< \\ \text{min mm} & \text{max mm} \end{matrix}$ 
 $\begin{matrix} >|\oslash|< \\ \text{min mm} & \text{max mm} \end{matrix}$ 
 Sealing element clamping range (cable diameter range)
  $\begin{matrix} >|\blacksquare|< \\ \text{min mm} & \text{max mm} \end{matrix}$ 
 $\begin{matrix} >|\blacksquare|< \\ \text{min mm} & \text{max mm} \end{matrix}$ 
 Shield grip diameter

### Dust protection discs

If any parts (core or rings) of a multiLAYER sealing element have been removed although it is not yet to be equipped with a cable, the opening can be easily sealed using a dust protection disc. This provides reliable dust protection and can protect during transport.

Reference size	$\begin{matrix} > \oslash < \\ \text{mm} \end{matrix}$	M mm	Material	Art.-No.
M20	23.5	0.3	PA6	<b>1908.20.235.05</b>
M25	26.5	0.3	PA6	<b>1908.25.265.05</b>
M32	34.3	0.3	PA6	<b>1908.32.343.05</b>



Used in the MCE Multi Cable entry, these dust protection discs were also tested to IPX8 (max. 2 bar for 30 minutes).



# AerosUSA Progress® Flange M50

## The solution for installing from the front

### The advantages of AerosUSA's Progress® Flange M50 at a glance:

- Easy installation; can be screwed on from the front with low tightening torques
- Quick installation using a manual or cordless ratchet (no awkward open-end wrench required)
- Customised sealing elements (regarding hole pattern, sealing material, etc.)
- Absolute process reliability; tightened manually "to the stop"
- No twisting of the cable during installation
- High degree of sealing (customer-specific requirements can be implemented)
- High strain relief forces
- Anodised aluminium; extremely robust and assembly customisation possible
- No auxiliary materials or lubricants required for installation



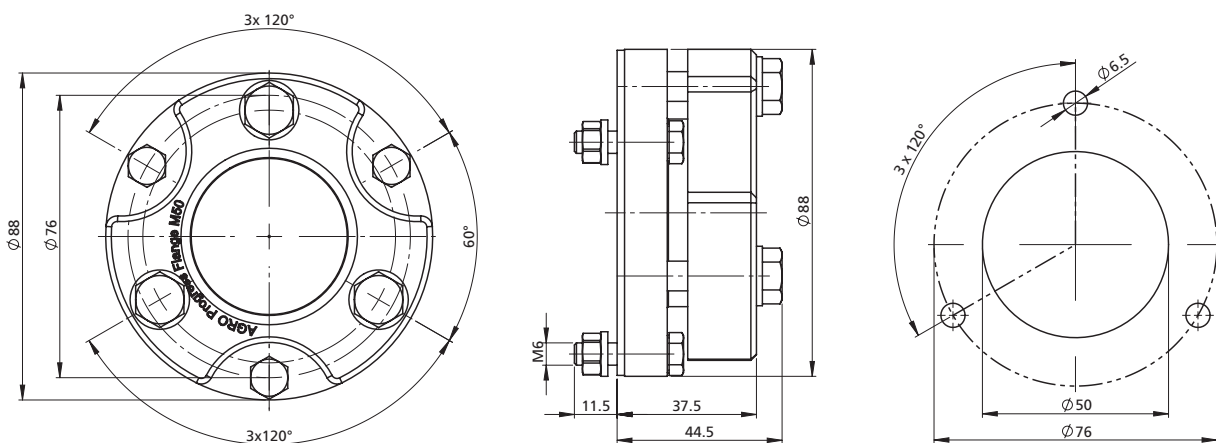
The Progress® Flange M50 offers the great advantage that it is screwed in place from directly in front, with the installation carried out in an axial manner, thus avoiding any twisting of the cable. It is connected to the housing simply by tightening the three supplied screws. Three further compression screws ensure good sealing and hold the sealing element in position.

The screws require only a low tightening torque, which can be applied using a manual or cordless ratchet (the use of an awkward open-end spanner is not required).

As an installation requirement, in the interest of maximising reliability, the two halves of the device are interlocked when screwed together, applying a defined contact pressure to the sealing element.

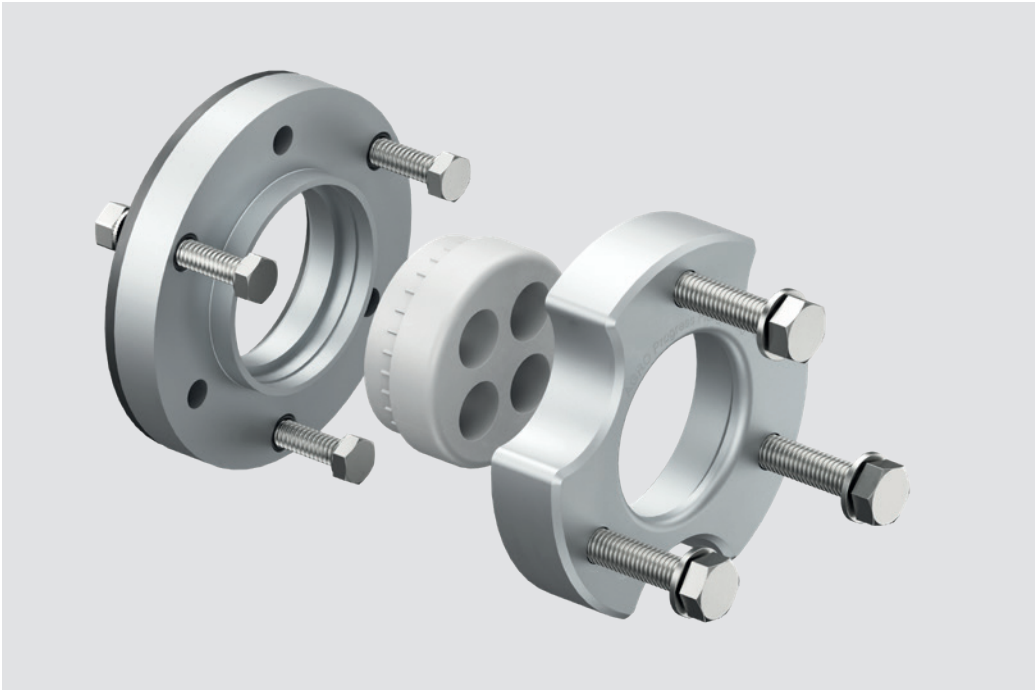
The generous clear width of 42 mm, together with the splittable sealing inserts from the extensive Progress® range of compatible elements, enables pre-assembled cables to be fed through the device and connected to it.

You can also benefit from individually manufactured sealing inserts, e.g. with regard to the hole pattern or the material used, and plastic plugs can be supplied to seal unused optional holes.



## Progress® Flange M50:

Flexibility thanks to use of the Progress® modular system



The flat gaskets supplied enable the device to be mounted on housings with various surface textures.

Gasket options (included):




- Flat gasket of CR (chloroprene rubber); tested for rating IPX8 with a maximum of 0.3 bar for 30 minutes; suitable for uneven, rough surfaces
- Flat gasket of NBR (acrylonitrile butadiene rubber); tested for rating IPX8 with a maximum of 4 bar for 60 minutes; suitable for smooth surfaces and higher sealing requirements

### Technical data

Material:	Aluminium EN 5083, silver-grey anodised (other colours on request)
Sealing elements:	Progress® modular system, customer-specific designs
Flat gaskets:	CR (chloroprene rubber) and NBR (acrylonitrile butadiene rubber)
Mounting screws:	Hexagon, A4 steel, M6 x 25 mm, ratchet size 10 mm, tightening torque 10 Nm
Compression screws:	Hexagon, A4 steel, M8 x 30 mm, ratchet size 13 mm
External dimensions:	(Ø x H, assembled) 88 x 41 mm
Temperature range:	-40°C / +100°C
Protection class:	IPX8 (max. 0.3 bar for 30 minutes with CR flat gasket) IPX8 (max. 4 bar for 60 minutes with NBR flat gasket)
Materials:	In accordance with REACH and RoHS standards

## Ordering Information

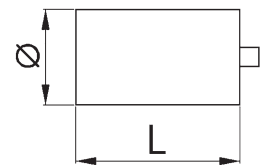
Comments	Reference size	Art.-No.	
Progress® Flange M50, anodised aluminium, excluding sealing element	M50	<b>1988.88.001</b>	50



The sealing elements are offered individually in accordance with customer specifications. For an individual design, please contact our sales team. We will be happy to advise you about possible configurations and hole sizes / cable clamping ranges.

### Sealing plugs for Multi Cable cable glands

Material: Polyamid PA 6  
 Use: For sealing unused holes in Multi Cable cable glands  
 Temperature range: -30°C / +100°C



#### Sealing plugs for cable glands

$\varnothing$ mm	L mm	Art.-No.	
2	12	<b>1310.020.07</b>	50
3	14	<b>1310.030.07</b>	50
4	14	<b>1310.040.07</b>	50
5	14	<b>1310.050.07</b>	50
6	14	<b>1310.060.07</b>	50
7	14	<b>1310.070.07</b>	50
8	14	<b>1310.080.07</b>	50
9	14	<b>1310.090.07</b>	50
10	14	<b>1310.100.07</b>	50
11	14	<b>1310.110.07</b>	50
12	14	<b>1310.120.07</b>	50





# AerosUSA Progress® Multi Cable Glands

Tried-and-trusted cable glands  
with splittable sealing inserts

## Your benefits at a glance:

- In sizes M40, M50, M63 and M75 as preferred sizes for pre-assembled cables
- The hole pattern of the sealing insert can be freely configured
- Splittable sealing inserts for pre-assembled cables that can be inserted through the cable gland's metal parts
- AGRO will be happy to support you in developing a solution to meet your specific needs



AerosUSA Progress® Multi Cable Glands with splittable Multi Cable sealing inserts are ideal for applications where a small number of cables are to be routed through a wall in a compact manner.

The well-proven AerosUSA Progress® Multi Cable Glands are primarily supplied in the large sizes M40, M50, M63 and M75.

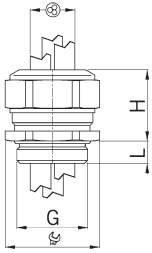


Examples of supplied customer-specific Multi cable glands: With seven holes (left) or for a flat cable (right).



Splittable sealing inserts allow pre-assembled cables to be inserted from the side.

## With short, metric entry thread




Material:	Nickel-plated brass
Seal:	TPE
O-ring:	NBR
Strain relief:	Type A in accordance with EN 62444
Protection class:	IP 68
Temperature range:	-40°C / +100°C



Progress® MS Multi



One-piece sealing insert  
not continuously isolating


G	$\begin{matrix} > \varnothing < \\ \text{min mm} \end{matrix}$	$\begin{matrix} > \varnothing < \\ \text{max mm} \end{matrix}$	$\begin{matrix} \text{O} \\ \text{mm} \end{matrix}$	$\begin{matrix} \text{H} \\ \text{mm} \end{matrix}$	$\begin{matrix} \text{L} \\ \text{mm} \end{matrix}$	Art.-No.	E-No.	
M16x1.5	2.0	3.0	2	18	5	1310.17.2.030	121 161 408	50
M16x1.5	2.5	4.0	2	18	22	1310.17.2.040	121 161 418	50
M16x1.5	3.5	5.0	2	18	22	1310.17.2.050	121 161 428	50
M20x1.5	3.5	5.0	2	24	23	1310.20.2.050	121 161 508	50
M20x1.5	4.5	6.0	2	24	23	1310.20.2.060	121 161 518	50
M20x1.5	5.5	7.5	2	24	23	1310.20.2.075	121 161 528	50
M20x1.5	3.5	5.0	3	24	23	1310.20.3.050	121 161 538	50
M20x1.5	4.5	6.0	3	24	23	1310.20.3.060	121 161 548	50
M20x1.5	5.2	6.5	3	24	23	1310.20.3.065	121 161 558	50
M20x1.5	3.5	5.0	4	24	23	1310.20.4.050	121 161 568	50
M20x1.5	4.5	6.0	4	24	23	1310.20.4.060	121 161 578	50
M25x1.5	5.0	7.0	2	30	28	1310.25.2.070	121 161 608	25
M25x1.5	6.7	9.0	2	30	28	1310.25.2.090	121 161 618	25
M25x1.5	7.7	10.0	2	30	28	1310.25.2.100	121 161 628	25
M25x1.5	5.5	7.0	3	30	28	1310.25.3.070	121 161 638	25
M25x1.5	6.8	9.0	3	30	28	1310.25.3.090	121 161 648	25
M25x1.5	5.5	7.0	4	30	28	1310.25.4.070	121 161 658	25
M25x1.5	4.8	6.0	6	30	28	1310.25.6.060	121 161 668	25
M32x1.5	9.0	11.5	2	36	28	1310.32.2.115	121 161 708	25
M32x1.5	7.0	9.0	3	36	28	1310.32.3.090	121 161 718	25
M32x1.5	8.5	10.5	3	36	28	1310.32.3.105	121 161 728	25
M32x1.5	7.0	9.0	4	36	28	1310.32.4.090	121 161 738	25
M32x1.5	5.8	7.0	6	36	28	1310.32.6.070	121 161 738	25

Further designs and entry threads available on request.

Available with sealing insert according to EN 45545 / NFPA 130; in this case, for inquiries or orders, please put an F in front of the Article No.



One-piece sealing insert  
not continuously isolating

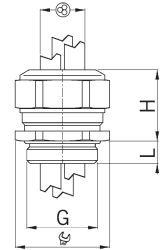
G	$\begin{matrix} > \varnothing < \\ \text{min mm} \end{matrix}$	$\begin{matrix} > \varnothing < \\ \text{max mm} \end{matrix}$	$\begin{matrix} \text{O} \\ \text{mm} \end{matrix}$	$\begin{matrix} \text{H} \\ \text{mm} \end{matrix}$	$\begin{matrix} \text{L} \\ \text{mm} \end{matrix}$	$\begin{matrix} \text{i} \\ \text{info} \end{matrix}$	Art.-No.		
M40x1.5	12.5	14.0	2	46	31	8	1	1310.40.2.140	10
M40x1.5	10.5	12.0	4	46	31	8	1	1310.40.4.120	10
M40x1.5	6.5	8.0	6	46	31	8	1	1310.40.6.080	10
M50x1.5	6.5	8.0	7	55	34	9	1	1310.50.7.080	10
M50x1.5	8.5	10.0	4	55	34	9	1	1310.50.4.100	10
M63x1.5	13.5	15.0	4	70	37	10	1	1310.63.4.150	5
M63x1.5	8.5	10.0	8	70	37	10	1	1310.63.8.100	5
M75x1.5	16.5	18.0	6	80	38	11	-	1310.75.6.180	1

Further designs and entry threads available on request.

1= NBR seal

Available with sealing insert according to EN 45545 / NFPA 130; in this case, for inquiries or orders, please put an F in front of the Article No.

Material: Nickel-plated brass  
 Seal: TPE  
 O-ring: NBR  
 Strain relief: Type A in accordance with EN 62444  
 Protection class: IP 68  
 Temperature range: -40°C / +100°C



Progress® MS Multi



One-piece sealing insert  
not continuously isolating

G	>Ø< min mm	>Ø< max mm	⊗	Ⓜ	H mm	L mm	Art.-No.	E-No.	📦
M16x1.5	2.0	3.0	2	18	22	10	1311.17.2.030	121 171 408	50
M16x1.5	2.5	4.0	2	18	22	10	1311.17.2.040	121 171 418	50
M16x1.5	3.5	5.0	2	18	22	10	1311.17.2.050	121 171 428	50
M20x1.5	3.5	5.0	2	24	23	10	1311.20.2.050	121 171 508	50
M20x1.5	4.5	6.0	2	24	23	10	1311.20.2.060	121 171 518	50
M20x1.5	5.5	7.5	2	24	23	10	1311.20.2.075	121 171 528	50
M20x1.5	3.5	5.0	3	24	23	10	1311.20.3.050	121 171 538	50
M20x1.5	4.5	6.0	3	24	23	10	1311.20.3.060	121 171 548	50
M20x1.5	5.2	6.5	3	24	23	10	1311.20.3.065	121 171 558	50
M20x1.5	3.5	5.0	4	24	23	10	1311.20.4.050	121 171 568	50
M20x1.5	4.5	6.0	4	24	23	10	1311.20.4.060	121 171 578	50
M25x1.5	5.0	7.0	2	30	28	11	1311.25.2.070	121 171 608	25
M25x1.5	6.7	9.0	2	30	28	11	1311.25.2.090	121 171 618	25
M25x1.5	7.7	10.0	2	30	28	11	1311.25.2.100	121 171 628	25
M25x1.5	5.5	7.0	3	30	28	11	1311.25.3.070	121 171 638	25
M25x1.5	6.8	9.0	3	30	28	11	1311.25.3.090	121 171 648	25
M25x1.5	5.5	7.0	4	30	28	11	1311.25.4.070	121 171 658	25
M25x1.5	4.8	6.0	6	30	28	11	1311.25.6.060	121 171 668	25
M32x1.5	9.0	11.5	2	36	28	13	1311.32.2.115	121 171 708	25
M32x1.5	7.0	9.0	3	36	28	13	1311.32.3.090	121 171 718	25
M32x1.5	8.5	10.5	3	36	28	13	1311.32.3.105	121 171 728	25
M32x1.5	7.0	9.0	4	36	28	13	1311.32.4.090	121 171 738	25
M32x1.5	5.8	7.0	6	36	28	13	1311.32.6.070		25

Further designs and entry threads available on request.  
 Available with sealing insert according to EN 45545 / NFPA 130; in this case, for inquiries or orders, please put an F in front of the Article No.

One-piece sealing insert  
not continuously isolating

G	>Ø< min mm	>Ø< max mm	⊗	Ⓜ	H mm	L mm	i info	Art.-No.	📦
M40x1.5	12.5	14.0	2	46	31	13	1	1311.40.2.140	10
M40x1.5	10.5	12.0	4	46	31	13	1	1311.40.4.120	10
M40x1.5	6.5	8.0	6	46	31	13	1	1311.40.6.080	10
M50x1.5	8.5	10.0	4	55	34	14	1	1311.50.4.100	10
M50x1.5	6.5	8.0	7	55	34	14	1	1311.50.7.080	10
M63x1.5	13.5	15.0	4	70	37	14	1	1311.63.4.150	5
M63x1.5	8.5	10.0	8	70	37	14	1	1311.63.8.100	5
M75x1.5	16.5	18.0	6	80	38	15	-	1311.75.6.180	1

Further designs and entry threads available on request.  
 1= NBR seal  
 Available with sealing insert according to EN 45545 / NFPA 130; in this case, for inquiries or orders, please put an F in front of the Article No.



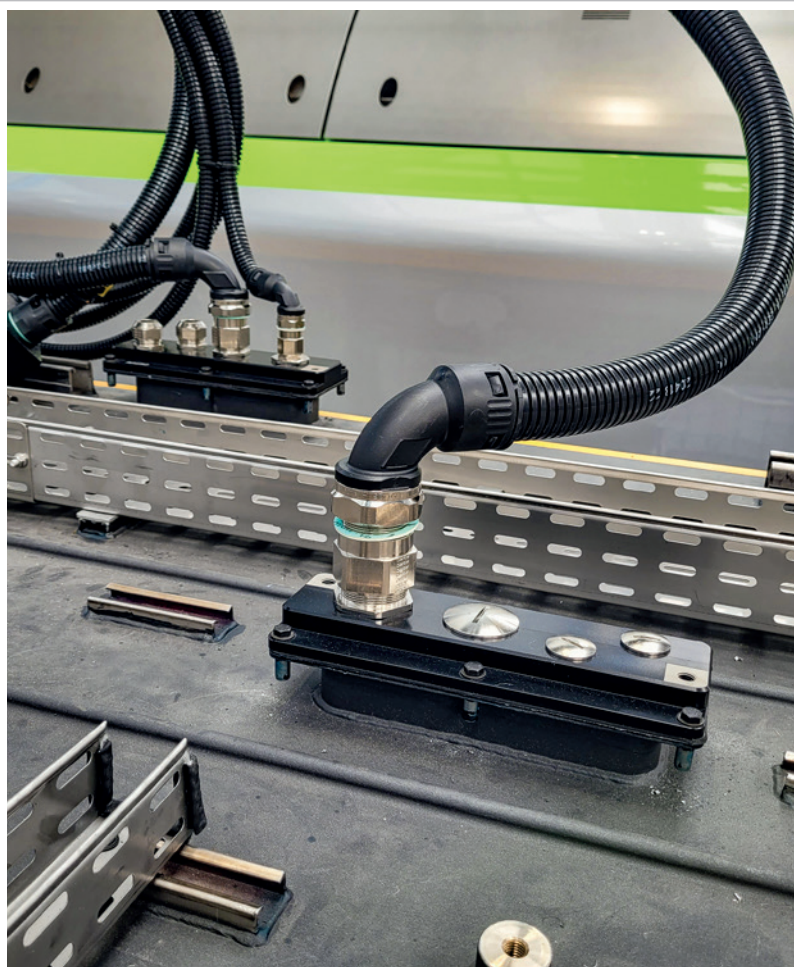


# AerosUSA Adapter Plates

World's first adapter plate  
for routing cables into  
railway vehicles

## Your benefits at a glance:

- For all Progress® Cable Glands or conduit connections
- Roof and floor feedthroughs, also for several cables in protective sleeving
- Complies with highest fire protection requirements in accordance with EN 45545-2 (HL3), EN 45545-3 (E30) and NFPA 130
- Protects against high-pressure water and dust in accordance with IP68 and IP69
- Quick and easy installation by means of pre-assembly
- With two grounding points



The world's first adapter plate for routing multiple cables from outside to inside provides a reliable solution for electric rail vehicles and for buses and trucks that are also powered by overhead lines. In developing this innovative product, AerosUSA has solved problems commonly experienced during the service life of the vehicles as well as in their fabrication.

Using the new adapter plates, it is now possible to simply route cables into the vehicle through its roof or floor, protected from operational influences. The routing of traction current cables and other supply lines through the vehicle roof in particular often poses problems for manufacturers and operators: weather-related effects on the roof of rain, snow, dust, cold and heat, together with the airflow and the constant vibrations during operation, can result in malfunctions where the sealing performance of a cable entry solution is affected by the harsh operating conditions. While loose connections can be checked and rectified relatively quickly, a loss of sealing performance is not immediately obvious and will typically only become apparent in the event of a malfunction or during a major inspection.

Therefore, the absolute reliability of the cable feedthroughs' sealing performance was a key priority in the product's development. The special compression technology of AerosUSA's Progress® Cable Gland range, which ensures maximum sealing performance and cable-friendly strain relief in accordance with EN 62444, even in dynamic applications, is thus also used in the adapter plate. The sealing inserts are made of special ther-moplastic elastomers (TPE) and can facilitate the routing of multiple cables in protective conduits. They satisfy the most stringent fire protection demands and even exceed the requirements of EN 45545-2 (HL 3), EN 45545-3 (E30) and NFPA 130. The seals in accordance with IP 68 and IP 69 are reliably protected against high-pressure water and dust. The operating temperatures range from -50°C to +105°C



Another advantage is the quick, reliable and easy installation. Individually installing multiple cable glands of different sizes on top of or beneath vehicles is very time-consuming. With the new adapter plate, cable harnesses can be cost-effectively pre-assembled and installed, complete with the plate, on the roof or under the vehicle floor.

The adapter plate, which has two grounding points, is available in three versions, each with four or five feedthroughs of nominal sizes M25 and M32. Cable glands from the entire Progress® modular system range are compatible with the adapter plate

## Technical data

Adapter plate material:	Anodised aluminium
Seal:	Special AGRO TPE
Sealing insert colour:	Light grey, RAL 7035
Strain relief:	Type A in accordance with EN 62444
Temperature range:	-50°C / +105°C
Protection class:	IP 68 / IP 69



### Adapter Plate - Type 1: F1900.32.902

Adapter Plate X1900.88.04.901 with 4 feedthroughs:  
2 x M25 and 2 x M32

Dimensions (LxWxH): 248 x 98 x 20 mm  
Further special designs on request.

The example shown features:  
2 x F1000.25.205  
1 x F1065.25.2.900 with 3500.32.25  
1 x 5121.028.225 (90° bend, rotatable)  
1 x 5121.034.232 (90° bend, rotatable)



### Adapter Plate - Type 2: F1900.40.912

Adapter Plate X1900.88.04.900.02 with 4 feedthroughs:  
2 x M25 and 2 x M32

Dimensions (LxWxH): 248 x 98 x 20 mm  
Further special designs on request.

The example shown features:  
2 x F1000.40.285  
1 x FX1000.25.145  
1 x FX1065.25.060  
1 x 5121.028.225 (90° bend, rotatable)  
1 x 5601.015.228



### Adapter Plate - Type 3: F1900.40.909

Adapter Plate X1900.88.05.900.02 with 5 feedthroughs:  
3 x M25 and 2 x M32

Dimensions (LxWxH): 287 x 98 x 20 mm  
Further special designs on request.

The example shown features:  
3 x F1000.25.125  
1 x FX1065.32.3.901 with 3500.40.32  
1 x FX1065.32.5.901 with 3500.40.32  
2 x 5121.034.232 (90° bend, rotatable)  
1 x 5601.028.234



Of course, these adapter plates may also be used for other applications – for example, in general vehicle manufacturing or for housings in mechanical engineering, etc.

Please contact our team of technical advisers to discuss your specific needs.

# Systems and solutions for the professional electrical installation.



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For cable the best.



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Products for applications in mechanical engineering,  
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## Pressure balance elements.

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electronics.

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solutions and communication media, please visit  
our website: [www.aerosusa.com](http://www.aerosusa.com)