



PMA Main Catalogue | June 2015

Flexible cable protection systems For applications with high requirements

PMA

Flexible cable protection systems

For applications with high requirements

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Company profile

A swiss company with a global presence

Company profile

A swiss company with a global presence

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1

Areas of applications

Mechanical engineering

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Rail vehicles/Rail infrastructure

1/4

Automation/Robotics

1/5

Countless applications

1/5

Company profile

A swiss company with a global presence

1



There is no better reference than satisfied customers. PMA provides customized specific solutions for customers worldwide.

A swiss company with a global presence

PMA headquarters is located in Uster (Switzerland), close to Zurich. The majority of what we produce for the world market is made at this location. Also our research and development department is located here.

PMA has sales offices in all of the major European industrial countries Germany, the UK, France, Spain, Austria, and Italy. Thanks of our large network of professional partners in all of the major industrialised countries around the globe, we are able to guarantee best quality regarding products, technical support, service and fast delivery.

PMA products are already sold in more than 45 countries and we continuously expand our partner base.

PMA is part of the Thomas & Betts Corporation, a member of the ABB group.



Setting new standards and trends

Customer needs are a top priority at PMA AG, and we work every day to ensure all our customer requirements are met in our products. We offer cable protection solutions and services that are tailored to meet requirements in every type of application. Our range extends from basic items right up to the most demanding high-tech products. We can develop system solutions and special products that are designed to meet specific customer requirements. Our intensive research and development activities, which include the field of new materials, are a major reason why PMA AG continues to set new standards and trends in the cable protection marketplace. These efforts together with excellent quality and service have helped us build up an outstanding reputation with leading corporations around the world.

From pioneer to market leader

PMA AG has been developing, producing, and selling top-quality cable protection systems since 1975. Our high-quality Swiss products have rapidly earned us an excellent reputation worldwide and established us as the market leader. Our range of more than 6,500 products gives customers the protection they need in railway, mechanical engineering, and shipbuilding

applications worldwide. PMA products are also the solution of choice in automation, building installations and other projects where power and data cables require dependable protection.

Unique benefits of PMA products

Service to the customer is what motivates us. In addition to series production, PMA AG can build fittings and conduits to meet individual requirements as a special service to our customers.

- A safe, reliable system that is easy to install
- Vibration-proof connections
- System connection strength
- Ingress protection conforming to recognized test methods
- High impact strength even at low temperatures
- High compression strength (peak load)
- Long-term reversed-bending resistance
- Good chemical resistance
- Fire protection (flammability and smoke generation)
- Good weather resistance
- Long wearing
- ...and much more

Company profile

Areas of applications

1



Mechanical engineering

A considerable number of PMA cable protection systems are used in mechanical engineering. A few examples illustrate how varied the range of mechanical engineering applications is. You will find our products in machine tools, packaging machines, printing machines, as well as heating, ventilation, conveyer, and filling systems. PMA products also make a vital contribution to the smooth operation of high voltage and emergency power systems, can production machinery and woodworking machines, etc. PMA cable protection solutions safeguard cables, wires and data links against heat, cold, tensile stress, pressure stress, and other external influences in the important mechanical engineering industry.



Rail vehicles/Rail infrastructure

PMA products have proven their dependability in railway construction projects around the world. This is the reason why large corporations including Siemens, Alstom, Bombardier, PESA, CSR/CNR, Deutsche Bahn, and SNCF have chosen us as supplier over a period of many years. Our special railway engineering product line provides protection and safety on signalling systems, couplings, trucks, and gangways, as well as roof, and underfloor equipment. The range of applications is very extensive. PMA products contribute to the safe operation of trams, locomotives, freight cars, high-speed trains, and even roller coasters.

Worldwide recognitions

All PMA products are rigorously tried and tested to meet the demands of industry worldwide.





Automation/Robotics

In the field of automation, there is a need for products that can withstand the stress of motion-intensive applications. Solutions developed by PMA AG for the automation industry fully meet these requirements. Special conduit designs, supports and abrasion protection sleeves provide optimal protection along the entire length of all moving elements, enabling engineers to achieve a massive reduction in torsional forces. There is good reason why leading robotics manufacturers rely on PMA technology.



Countless applications

PMA cable protection products can be used in an extremely wide range of applications. The list is virtually endless and includes industries such as telecommunications, construction equipment and medical equipment. Wherever there is a need for cable protection, the PMA AG product portfolio provides safe, dependable, forward-looking solutions or will develop them specially for you to meet your individual needs.

PMA Conduits



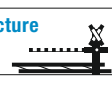








For diverse applications and technical requirements

PMA Conduits

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Products

Application areas

Machine building 	General applications Heavy loads Outdoor applications Antistatic requirements
Traction vehicles 	Outdoor applications with sunlight exposure Outdoor applications Indoor applications
Rail infrastructure 	Outdoor applications with sunlight exposure Indoor and tunnel applications
Automation/Robotics 	Moving systems Systems with extreme movements Moving systems with antistatic requirements
Ship + Off-shore 	Outdoor general applications Indoor applications Passenger area
Energy 	Outdoor applications with sunlight exposure Indoor applications Exposed to radiation
Others     	Vehicle building Telecommunications Building constructions Ex hazardous areas (ATEX, IECEx) High temperature applications
	To find on page:

	PMAFLEX Pro				PMAFLEX													PMAFLEX Multilayer					PMAFLEX Plus (UL-Listed)			Divisible System		PMA Smart Line								
	PHT	PLU	POH	PSX	CYL	ESD	PCL	PCS	PCSL	PEL	PIS/PIH	POS	PUE	PVD	VAM	VAML	VCS	VOH	PLR	XPSX	XPCL	XR90	XSOL	XVCS1H	XVCS2H	CUS	PUS	VUS	PACOF	PPCOF	LLPA	LLPF	LLPO			
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Products

Material properties	Ductility
	Reversed bending resistance
	Compression resistance
	Low temperature performance
	High temperature performance
	Resistance to weathering
Approvals	 Bi-National Recognition File UL1696 & CSA C22.2 No. 227.3-05 Bi-National Listing File UL1660 & CSA C22.2 No. 227.2.1
	Free from halogens, REACH + ROHS compliant Non flame propagating EN61386
	 EN 45545-2 NF F 16-101 + 102 BS 6853 DIN 5510-2 UNI CEI 11170-3 Ed. 2005 NFPA 130 (ASTM E162 – ASTM E662 – ASTM E1354) BSS 7239/SMP 800-C PN-K 2511 GOST 12.1.044-89
 DNV (Type approved) Lloyd's Register (Type approved) Bureau Veritas (Type approved)	
Temperature range	Continuous operating temperature (acc. to DO 9.21-4510) Short term max. operating temperature 168h (acc. to DO 9.21-4360)
Sizes	Nominal width min. Nominal width max. Metric size min. Metric size max.



PMA Conduits

Overview

Conduits to protect humans and cables. We offer many different conduit types for diverse applications with various technical requirements.

The product groups

- PMAFLEX Pro
- PMAFLEX
- PMAFLEX PLus
- PMAFLEX Multilayer
- PMA Divisible System
- PMA Smart Line

offer many different conduit types for diverse applications with various technical requirements to protect humans and cables.

Conduit sizes range from 6 mm to 125 mm Ø, from light-weight to heavyweight, and from pliable to highly flexible. PMA also offers slit and divisible conduits. Standard colours are black and grey. Many conduits are specially approved, e.g. CSA, UL Recognition, NF, etc.



PMA Conduits

Part number codes

Part number codes

2

X PCL T - 12 S B

Colour inner layer (for multilayer conduits):

G = Green

B = Blue

Colour (outside colour for multilayer conduits):

B = Black

S = Grey

Nominal width

Profile:

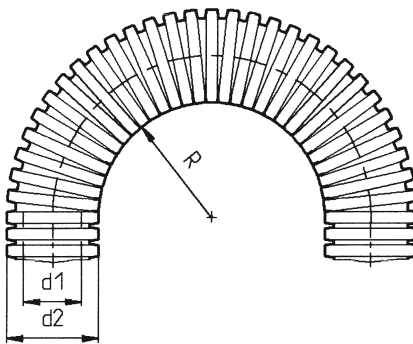
T = Fine profile

D = Fine profile

G = Coarse profile

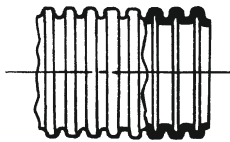
Type

Multilayer conduit

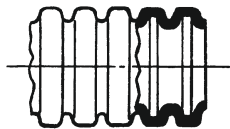


Stat. radius = Lowest recommended bending radius for static (fixed) installation

Dyn. radius = Lowest recommended bending radius for dynamic (flexible) installation



Fine profile T
Tight bending radius



Coarse profile G
High pull-out strength

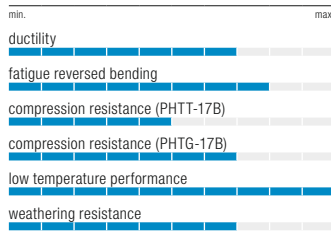
PMA Conduits

PMAFLEX Pro



PHT

PHT-Index

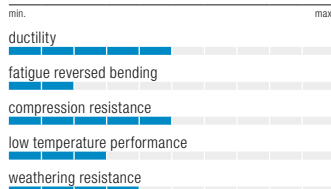


Approvals



PLU

PLU-Index



Approvals



PHT

highly flexible, medium/heavy-duty

- For applications at high and very low temperatures
- For dynamic applications

Order No. black	Conduit size		Inside Ø	Outside Ø	Stat./Dyn. radius	PU meter
	NW	metric				
PHTT-07B	07	10	6.2 mm	10.0 mm	15/40 mm	50
PHTT-10B	10	12	9.6 mm	13.0 mm	20/55 mm	50
PHTT-12B	12	16	12.0 mm	15.8 mm	30/65 mm	50
PHTT-17B	17	20	16.2 mm	21.2 mm	40/70 mm	50
PHTT-23B	23	25	22.6 mm	28.5 mm	45/95 mm	50
PHTG-17B	17	20	15.2 mm	21.2 mm	40/75 mm	50
PHTG-23B	23	25	22.0 mm	28.5 mm	45/100 mm	50
PHTG-29B	29	32	27.7 mm	34.5 mm	55/120 mm	50
PHTG-36B	36	40	35.8 mm	42.5 mm	60/180 mm	30
PHTG-48B	48	50	46.8 mm	54.5 mm	70/200 mm	30

- Specially formulated polyamide elastomer
- Both excellent flexibility and high compression strength
- Extremely good impact resistance at very low temperatures
- Enhanced temperature range compared to standard polyamides
- High resistance to ultra violet rays and weathering
- Free from halogens, REACH + ROHS compliant
- Temperature range: -50 °C to +135 °C, short-term to +180 °C

PLU

flexible, medium-duty

- For highest fire and passenger safety requirements
- Excellent fire safety characteristics acc. to BS 6853 1a (interior) and LUL Engineering Standard, approved by Metronet and Tube Line
- For static interior applications

Order No. black	Conduit size		Inside Ø	Outside Ø	Stat. radius	PU meter
	NW	metric				
PLUT-10B	10	12	9.5 mm	13.0 mm	20 mm	50
PLUT-12B	12	16	11.8 mm	15.8 mm	30 mm	50
PLUG-17B	17	20	15.3 mm	21.2 mm	40 mm	50
PLUG-23B	23	25	22.4 mm	28.5 mm	45 mm	50
PLUG-29B	29	32	28.7 mm	34.5 mm	55 mm	50
PLUG-36B	36	40	36.3 mm	42.5 mm	65 mm	30
PLUG-48B	48	50	47.3 mm	54.5 mm	70 mm	30

- Specially modified polypropylene
- Good ductility
- Good impact resistance
- Free from halogens, REACH + ROHS compliant
- Temperature range: -25 °C to +95 °C, short-term to +120 °C

PMA Conduits

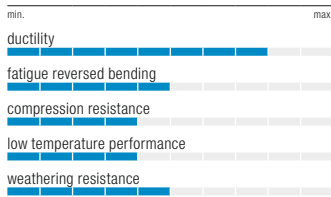
PMAFLEX Pro

2



POH

POH-Index



POH

very flexible, medium-duty

- For highest fire and passenger safety requirements
- Excellent fire safety characteristics acc. to BS 6853 1a (interior) and EN 45545-2 HL3

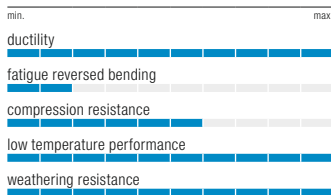
Order No. black	Order No. grey	Conduit size		Inside Ø	Outside Ø	Stat. radius	PU meter
		NW	metric				
POHT-10B	POHT-10S	10	12	9.2 mm	13.0 mm	13.0 mm	50
POHT-12B	POHT-12S	12	16	11.8 mm	15.8 mm	15.8 mm	50
POHG-17B	POHG-17S	17	20	15.7 mm	21.2 mm	21.2 mm	50
POHG-23B	POHG-23S	23	25	22.0 mm	28.5 mm	28.5 mm	50
POHG-29B	POHG-29S	29	32	27.4 mm	34.4 mm	34.4 mm	50
POHG-36B	POHG-36S	36	40	35.8 mm	42.4 mm	42.4 mm	30
POHG-48B	POHG-48S	48	50	46.8 mm	54.4 mm	54.5 mm	30

- Specially modified polypropylene
- Good ductility and reversed bending characteristics
- Free from halogens, REACH + ROHS compliant
- Temperature range: -25 °C to +95 °C, short-term to +120 °C



PSX

PSX-Index



PSX

flexible, light-duty

- For applications with highest fire safety performance requirements
- For applications with extreme temperature conditions
- For applications exposed to radiation

Order No. black	Conduit size		Inside Ø	Outside Ø	Stat. radius	PU meter
	NW	metric				
PSXT-10B	10	12	9.8 mm	13.0 mm	20 mm	50
PSXT-12B	12	16	12.2 mm	15.8 mm	30 mm	50
PSXT-17B	17	20	16.2 mm	21.2 mm	35 mm	50
PSXG-23B	23	25	22.3 mm	28.5 mm	45 mm	50
PSXG-29B	29	32	28.0 mm	34.5 mm	55 mm	50
PSXG-36B	36	40	36.5 mm	42.5 mm	60 mm	30
PSXG-48B	48	50	47.5 mm	54.5 mm	70 mm	30

- Specially modified polyetherimide
- Excellent high and low temperature properties
- High radiation resistance
- Very good ductility
- Low smoke density and toxicity
- Chemical resistance: To oils, fats, acids, alcohols and hot water (good resistance to hydrolysis)
- Free from halogens, REACH + ROHS compliant
- Temperature range: -100 °C to +170 °C, short-term to +200 °C

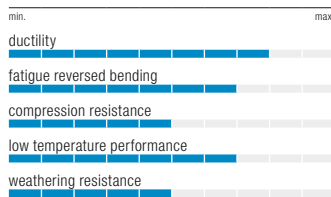
PMA Conduits

PMAFLEX



CYL

CYL-Index



Approvals



CYL

very flexible, medium-duty

- For machine building and installation industries
- For static and slightly dynamic applications

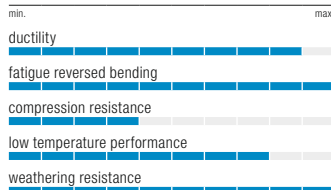
	Order No. black	Order No. grey	Conduit size		Inside Ø	Outside Ø	Stat. radius	PU meter
			NW	metric				
cRU us	CYLT-07B	CYLT-07S	07	10	6.2 mm	10.0 mm	15 mm	50
	CYLT-10B	CYLT-10S	10	12	9.6 mm	13.0 mm	20 mm	50
	CYLT-12B	CYLT-12S	12	16	12.0 mm	15.8 mm	30 mm	50
	CYLT-17B	CYLT-17S	17	20	16.2 mm	21.2 mm	40 mm	50
	CYLT-23B	CYLT-23S	23	25	22.6 mm	28.5 mm	45 mm	50
	CYLT-29B	CYLT-29S	29	32	29.0 mm	34.5 mm	55 mm	50
	CYLT-36B	CYLT-36S	36	40	36.5 mm	42.5 mm	60 mm	30
	CYLT-48B	CYLT-48S	48	50	47.5 mm	54.5 mm	70 mm	30
	CYLG-23B	CYLG-23S	23	25	21.9 mm	28.5 mm	45 mm	50
	CYLG-29B	CYLG-29S	29	32	27.6 mm	34.5 mm	55 mm	50
	CYLG-36B	CYLG-36S	36	40	36.0 mm	42.5 mm	60 mm	30
	CYLG-48B	CYLG-48S	48	50	47.0 mm	54.5 mm	70 mm	30
	CYLG-56B	CYLG-56S	56	68	56.3 mm	67.2 mm	120 mm	30
	CYLG-70B	CYLG-70S	70	80	68.0 mm	80.0 mm	160 mm	10
	CYLG-95B	CYLG-95S	95	106	91.9 mm	106.0 mm	210 mm	10
CYLG-125B	CYLG-125S	125	146	126.5 mm	146.5 mm	450 mm	6	

- Specially formulated polyamide 6
- Very good ductility and good reversed bending characteristics
- Good mechanical characteristics even under extreme conditions, such as low temperatures and low humidity
- Self-extinguishing, acc. to UL 94 V2
- Free from halogens, REACH + ROHS compliant
- Temperature range: –40 °C to +105 °C, short-term to +160 °C



ESD

ESD-Index



ESD

very flexible, medium-duty

- For dynamic applications in robotics and automation where electrostatic charge and uncontrolled discharge need to be avoided

Order No. black	Conduit size		Inside Ø	Outside Ø	Stat./Dyn. radius	PU meter
	NW	metric				
ESDT-07B	07	10	6.2 mm	10.0 mm	15/40 mm	50
ESDT-10B	10	12	9.6 mm	13.0 mm	20/50 mm	50
ESDT-12B	12	16	12.0 mm	15.8 mm	30/70 mm	50
ESDT-17B	17	20	16.4 mm	21.1 mm	40/75 mm	50
ESDT-23B	23	25	22.6 mm	28.4 mm	45/90 mm	50
ESDT-29B	29	32	29.0 mm	34.3 mm	55/110 mm	50
ESDT-36B	36	40	36.5 mm	42.5 mm	60/160 mm	30
ESDT-48B	48	50	47.5 mm	54.5 mm	70/200 mm	30
ESDG-56B	56	68	56.5 mm	67.0 mm	110/250 mm	30
ESDG-70B	70	80	67.5 mm	80.0 mm	150/330 mm	10
ESDG-95B	95	106	91.5 mm	106.0 mm	170/440 mm	10

- Specially modified polyamide 12
- Prevents electrostatic charging
- High dynamic load resistance
- For indoor and outdoor use (very good cold temperature performance)
- Excellent UV-resistance
- Free from halogens, REACH + ROHS compliant
- Temperature range: –40 °C to +90 °C, short-term to +150 °C

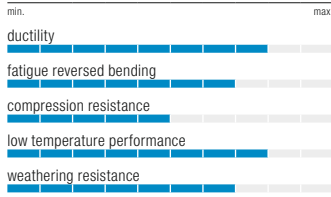
PMA Conduits PMAFLEX

2



PCL

PCL-Index



Approvals



PCL

very flexible, medium-duty

- For machine building, installation and vehicle building applications
- For static and slightly dynamic applications

	Order No. black	Order No. grey	Conduit size		Inside Ø	Outside Ø	Stat. radius	PU meter
			NW	metric				
	PCLT-07B	PCLT-07S	07	10	6.2 mm	10.0 mm	15 mm	50
	PCLT-10B	PCLT-10S	10	12	9.6 mm	13.0 mm	20 mm	50
cUL [®] US	PCLT-12B	PCLT-12S	12	16	12.0 mm	15.8 mm	30 mm	50
	PCLT-17B	PCLT-17S	17	20	16.2 mm	21.2 mm	40 mm	50
	PCLT-23B	PCLT-23S	23	25	22.6 mm	28.5 mm	45 mm	50
	PCLT-29B	PCLT-29S	29	32	29.0 mm	34.5 mm	55 mm	50
	PCLT-36B	PCLT-36S	36	40	36.5 mm	42.5 mm	60 mm	30
	PCLT-48B	PCLT-48S	48	50	47.5 mm	54.5 mm	70 mm	30
	PCLG-17B	PCLG-17S	17	20	15.3 mm	21.2 mm	40 mm	50
	PCLG-23B	PCLG-23S	23	25	21.9 mm	28.5 mm	45 mm	50
	PCLG-29B	PCLG-29S	29	32	27.6 mm	34.5 mm	55 mm	50
	PCLG-36B	PCLG-36S	36	40	36.0 mm	42.5 mm	60 mm	30
	PCLG-48B	PCLG-48S	48	50	47.0 mm	54.5 mm	70 mm	30
	PCLG-56B	PCLG-56S	56	68	56.3 mm	67.2 mm	130 mm	30
	PCLG-70B	PCLG-70S	70	80	67.5 mm	80.0 mm	160 mm	10
	PCLG-95B	PCLG-95S	95	106	91.5 mm	106.0 mm	210 mm	10
	PCLG-125B	PCLG-125S	125	146	126.5 mm	146.5 mm	450 mm	6

- Specially formulated polyamide 6
- Very good ductility and good reversed bending characteristics
- Very good mechanical characteristics even under extreme conditions, such as low temperatures and low humidity
- Very good long-term properties
- Self-extinguishing, acc. to UL 94 V2
- Free from halogens, REACH + ROHS compliant
- Temperature range: –50 °C to +105 °C, short-term to +160 °C

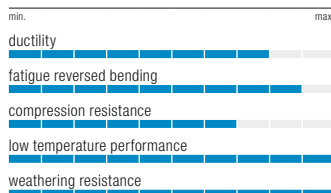
PMA Conduits

PMAFLEX



PCS

PCS-Index



Approvals



PCS

very flexible, heavy-duty

- For dynamic outside applications in railway vehicles
- For outdoor applications with highest requirements to UV and weathering resistance
- Extensive railway approvals

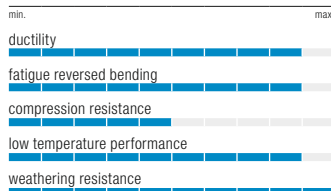
	Order No. black	Order No. grey	Conduit size		Inside ∅	Outside ∅	Stat./Dyn. radius	PU meter
			NW	metric				
	PCST-07B	PCST-07S	07	10	6.0 mm	10.0 mm	15/40 mm	50
	PCST-10B	PCST-10S	10	12	9.2 mm	13.0 mm	20/50 mm	50
cUS	PCST-12B	PCST-12S	12	16	11.8 mm	15.8 mm	25/70 mm	50
	PCST-17B	PCST-17S	17	20	16.0 mm	21.2 mm	35/80 mm	50
	PCSG-17B	PCSG-17S	17	20	15.2 mm	21.2 mm	35/85 mm	50
	PCSG-23B	PCSG-23S	23	25	21.5 mm	28.5 mm	40/110 mm	50
	PCSG-29B	PCSG-29S	29	32	27.7 mm	34.4 mm	50/130 mm	50
	PCSG-36B	PCSG-36S	36	40	35.8 mm	42.4 mm	60/180 mm	30
	PCSG-48B	PCSG-48S	48	50	46.8 mm	54.4 mm	70/220 mm	30
	PCSG-56B	PCSG-56S	56	68	56.1 mm	67.2 mm	130/280 mm	30
	PCSG-70B	PCSG-70S	70	80	66.5 mm	80.0 mm	170/360 mm	10
	PCSG-95B	PCSG-95S	95	106	91.0 mm	106.0 mm	250/470 mm	10

- Specially modified polyamide 12
- Highest reversed bending resistance
- Very good mechanical characteristics even under extreme conditions, such as low temperatures and low humidity
- Excellent fatigue resistance
- Excellent resistance to ultra violet rays and weathering
- Free from halogens, REACH + ROHS compliant
- Temperature range: –50 °C to +95 °C, short-term to +150 °C



PCSL

PCSL-Index



PCSL

highly flexible, medium-duty

- For dynamic outside applications in railway vehicles
- For outdoor applications with highest requirements to UV and weathering resistance
- Extensive railway approvals

	Order No. black	Order No. grey	Conduit size		Inside ∅	Outside ∅	Stat./Dyn. radius	PU meter
			NW	metric				
	PCSLT-07B	PCSLT-07S	07	10	6.2 mm	10.0 mm	15/40 mm	50
	PCSLT-10B	PCSLT-10S	10	12	9.6 mm	13.0 mm	20/50 mm	50
	PCSLT-12B	PCSLT-12S	12	16	11.9 mm	15.8 mm	25/65 mm	50
	PCSLT-17B	PCSLT-17S	17	20	16.4 mm	21.1 mm	30/65 mm	50
	PCSLG-17B	PCSLG-17S	17	20	15.2 mm	21.1 mm	30/80 mm	50
	PCSLG-23B	PCSLG-23S	23	25	21.7 mm	28.4 mm	40/100 mm	50
	PCSLG-29B	PCSLG-29S	29	32	27.4 mm	34.3 mm	50/120 mm	50
	PCSLG-36B	PCSLG-36S	36	40	35.8 mm	42.3 mm	60/180 mm	30
	PCSLG-48B	PCSLG-48S	48	50	46.7 mm	54.2 mm	70/200 mm	30

- Specially modified polyamide 12
- Excellent reversed bending resistance
- Good mechanical characteristics even under extreme conditions, such as low temperatures and low humidity
- Excellent fatigue resistance
- Excellent resistance to ultra violet rays and weathering
- Free from halogens, REACH + ROHS compliant
- Temperature range: –50 °C to +95 °C, short-term to +150 °C

PMA Conduits

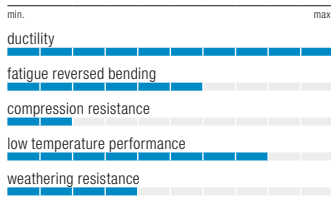
PMAFLEX

2



PEL

PEL-Index



PEL

highly flexible, light-duty, soft

- For electrical cabinets and appliance construction

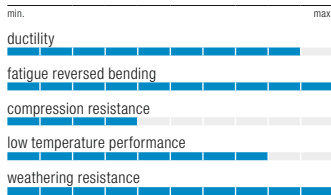
Order No. grey	Order No. grey, slit	Conduit size		Inside	Outside	Stat. radius	PU meter
		NW	metric	∅	∅		
PELT-10S	PELT-10SL	10	12	9.7 mm	12.7 mm	20 mm	50
PELT-12S	PELT-12SL	12	16	11.5 mm	15.5 mm	30 mm	50
PELT-17S	PELT-17SL	17	20	16.0 mm	20.9 mm	35 mm	50
PELT-23S	PELT-23SL	23	25	22.5 mm	27.5 mm	40 mm	50
PELT-29S	PELT-29SL	29	32	28.5 mm	33.8 mm	50 mm	30
PELT-36S	PELT-36SL	36	40	34.0 mm	41.6 mm	60 mm	30
PELT-48S	PELT-48SL	48	50	47.0 mm	53.2 mm	70 mm	30

- Specially modified polyethylene
- Very good ductility
- Suitable for small bending radii
- Good resistance against strong acids and bases
- Free from halogens, REACH + ROHS compliant
- Temperature range: –50 °C to +60 °C



PIS/PIH

PIS/PIH-Index



PIS/PIH

highly flexible, medium- and heavy-duty

- For robotics and automation applications
- UL 94 V0

	Order No. black	Order No. grey	Conduit size		Inside	Outside	Stat./Dyn. radius	PU meter
			NW	metric	∅	∅		
	PIST-07B	PIST-07S	07	10	6.2 mm	10.0 mm	15/40 mm	50
	PIST-10B	PIST-10S	10	12	9.6 mm	13.0 mm	20/50 mm	50
	PIST-12B	PIST-12S	12	16	11.9 mm	15.8 mm	25/65 mm	50
	PIST-17B	PIST-17S	17	20	16.4 mm	21.1 mm	30/65 mm	50
	PIST-23B	PIST-23S	23	25	22.6 mm	28.4 mm	35/90 mm	50
	PIST-29B	PIST-29S	29	32	29.0 mm	34.3 mm	45/110 mm	50
	PIST-36B	PIST-36S	36	40	36.5 mm	42.5 mm	60/165 mm	30
	PIST-48B	PIST-48S	48	50	47.5 mm	54.5 mm	70/180 mm	30
cRU [®] US	PISG-17B	PISG-17S	17	20	15.2 mm	21.1 mm	30/80 mm	50
	PISG-23B	PISG-23S	23	25	21.7 mm	28.4 mm	40/100 mm	50
	PISG-29B	PISG-29S	29	32	27.9 mm	34.7 mm	50/120 mm	50
	PISG-36B	PISG-36S	36	40	35.8 mm	42.3 mm	60/180 mm	30
	PISG-48B	PISG-48S	48	50	46.7 mm	54.2 mm	70/200 mm	30
	PIHG-56B	PIHG-56S	56	68	56.3 mm	67.2 mm	110/270 mm	30
	PIHG-70B	PIHG-70S	70	80	67.2 mm	79.6 mm	150/350 mm	30
	PIHG-95B	PIHG-95S	95	106	91.3 mm	106.0 mm	170/450 mm	30
	PIHG-125B	PIHG-125S	125	146	126.5 mm	146.5 mm	350/480 mm	20

- Specially modified polyamide 12
- PIS: Medium-wall (Nominal width 07 to 48)
- PIH: Heavy-wall (Nominal width 56 to 125)
- Very good reversed bending characteristics
- Good mechanical characteristics even under extreme conditions, such as low temperatures and low humidity
- Excellent resistance to ultra violet rays and atmospheric corrosion
- Free from halogens, REACH + ROHS compliant
- Temperature range: –50 °C to +95 °C, short-term to +150 °C

Approvals



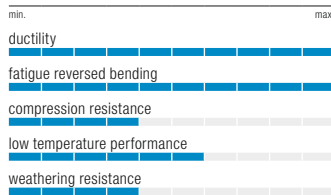
PMA Conduits

PMAFLEX



POS

POS-Index



POS

highly flexible, medium-duty

- For automation as well as for machine building and industrial installations, especially where continuous movements occur

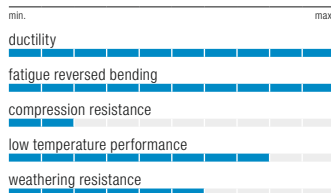
Order No. black	Conduit size		Inside ∅	Outside ∅	Stat./Dyn. radius	PU meter
	NW	metric				
POST-10B	10	12	9.6 mm	13.0 mm	20/50 mm	50
POST-12B	12	16	11.9 mm	15.8 mm	30/70 mm	50
POST-17B	17	20	16.2 mm	21.2 mm	35/75 mm	50
POST-23B	23	25	22.6 mm	28.5 mm	40/100 mm	50
POST-29B	29	32	29.0 mm	34.5 mm	50/120 mm	50
POST-36B	36	40	36.5 mm	42.5 mm	60/180 mm	30
POST-48B	48	50	47.5 mm	54.5 mm	70/195 mm	30
POSG-29B	29	32	27.6 mm	34.5 mm	50/120 mm	50
POSG-36B	36	40	36.0 mm	42.5 mm	60/180 mm	30
POSG-48B	48	50	47.0 mm	54.5 mm	70/195 mm	30
POSG-70B	70	80	67.2 mm	79.6 mm	150/350 mm	30
POSG-95B	95	106	91.3 mm	106.0 mm	170/450 mm	30

- Specially modified polypropylene
- Excellent reversed bending performance and flexibility
- Good impact resistance
- Good resistance against strong acids
- Free from halogens, REACH + ROHS compliant
- Temperature range: –25 °C to +95 °C, short-term to +130 °C



PUE

PUE-Index



PUE

highly flexible, medium-duty

- For robotic applications with multi-axial movements
- Specially suitable for tight bending-radii

Order No. black	Conduit size		Inside ∅	Outside ∅	Stat./Dyn. radius	PU meter
	NW	metric				
PUET-23B	23	25	22.4 mm	28.5 mm	35/70 mm	50
PUET-29B	29	32	28.8 mm	34.5 mm	40/90 mm	30
PUET-36B	36	40	35.8 mm	42.4 mm	50/120 mm	30
PUET-48B	48	50	48.6 mm	54.5 mm	60/130 mm	21
PUEG-56B	56	68	56.3 mm	67.2 mm	90/170 mm	30
PUEG-70B	70	80	68.2 mm	80.5 mm	100/220 mm	30

- Specially formulated polyurethane
- Highest reversed bending resistance
- Excellent chafing characteristics
- Free from halogens, REACH + ROHS compliant
- Temperature range: –60 °C to +50 °C

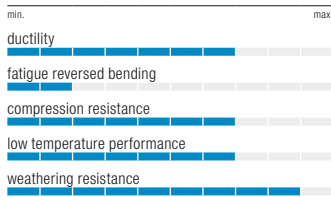
PMA Conduits PMAFLEX

2



PVD

PVD-Index



PVD

pliable, medium-duty

- For long-term high temperature requirements in machine building applications
- Excellent chemical resistance also at high temperatures

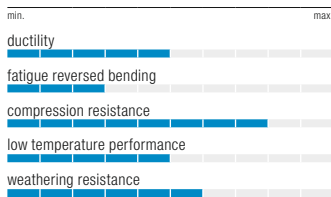
Order No. transparent	Conduit size NW metric		Inside Ø	Outside Ø	Stat. radius	PU meter
PVDT-10P	10	12	9.5 mm	12.6 mm	20 mm	50
PVDT-12P	12	16	11.8 mm	15.5 mm	30 mm	50
PVDT-17P	17	20	16.0 mm	20.8 mm	40 mm	50
PVDT-23P	23	25	22.6 mm	28.0 mm	45 mm	50
PVDT-29P	29	32	29.0 mm	34.1 mm	50 mm	50

- Specially formulated PVDF
- Very good abrasion resistance
- High stiffness
- Excellent UV resistance
- Self-extinguishing and free from cadmium
- Temperature range: –60 °C to +150 °C



VAM

VAM-Index



VAM

flexible, heavy-duty

- For high fire and passenger safety requirements in interior applications such as passenger areas or public buildings
- HL3 acc. to EN 45545-2

Order No. black	Order No. grey	Conduit size NW metric		Inside Ø	Outside Ø	Stat. radius	PU meter
VAMT-10B	VAMT-10S	10	12	9.2 mm	13.0 mm	25 mm	50
VAMT-12B	VAMT-12S	12	16	11.8 mm	15.8 mm	30 mm	50
VAMG-17B	VAMG-17S	17	20	15.2 mm	21.2 mm	40 mm	50
VAMG-23B	VAMG-23S	23	25	22.0 mm	28.5 mm	50 mm	50
VAMG-29B	VAMG-29S	29	32	27.7 mm	34.4 mm	60 mm	50
VAMG-36B	VAMG-36S	36	40	35.8 mm	42.4 mm	70 mm	30
VAMG-48B	VAMG-48S	48	50	46.8 mm	54.4 mm	80 mm	30

- Specially formulated polyamide 6
- High impact and compression strength
- High stiffness
- Minimal development of smoke and gases
- Free from halogens, REACH + ROHS compliant
- Temperature range: –40 °C to +105 °C, short-term to +160 °C

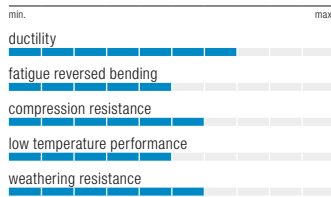
PMA Conduits

PMAFLEX



VAML

VAML-Index



VAML

flexible, medium-duty

- For high fire and passenger safety requirements in interior applications such as passenger areas or public buildings
- HL3 acc. to EN 45545-2

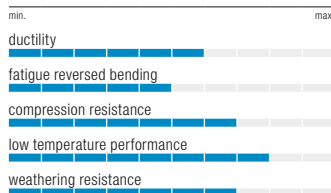
Order No. black	Order No. grey	Conduit size		Inside	Outside	Stat. radius	PU meter
		NW	metric	∅	∅		
VAMLT-10B	VAMLT-10S	10	12	9.6 mm	13.0 mm	20 mm	50
VAMLT-12B	VAMLT-12S	12	16	12.0 mm	15.8 mm	30 mm	50
VAMLG-17B	VAMLG-17S	17	20	15.3 mm	21.2 mm	40 mm	50
VAMLG-23B	VAMLG-23S	23	25	22.6 mm	28.5 mm	45 mm	50
VAMLG-29B	VAMLG-29S	29	32	27.6 mm	34.5 mm	55 mm	50
VAMLG-36B	VAMLG-36S	36	40	36.0 mm	42.5 mm	65 mm	30
VAMLG-48B	VAMLG-48S	48	50	47.0 mm	54.5 mm	75 mm	30
VAMLG-56B	VAMLG-56S	56	68	56.3 mm	67.2 mm	140 mm	30
VAMLG-70B	VAMLG-70S	70	80	67.5 mm	80.0 mm	160 mm	10
VAMLG-95B	VAMLG-95S	95	106	91.5 mm	106.0 mm	210 mm	10
VAMLG-125B	VAMLG-125S	125	146	126.0 mm	146.5 mm	450 mm	6

- Specially formulated polyamide 6
- Good flexibility
- Good impact strength
- Minimal development of smoke and gases
- Free from halogens, REACH + ROHS compliant
- Temperature range: –40 °C to +105 °C, short-term to +160 °C



VCS

VCS-Index



VCS

flexible, heavy-duty

- For static external installations, especially in railway vehicles

	Order No. black	Order No. grey	Conduit size		Inside	Outside	Stat. radius	PU meter
			NW	metric	∅	∅		
	VCST-07B	VCST-07S	07	10	6.0 mm	10.0 mm	20 mm	100
	VCST-10B	VCST-10S	10	12	9.2 mm	13.0 mm	25 mm	50
	VCST-12B	VCST-12S	12	16	11.8 mm	15.8 mm	30 mm	50
	VCST-17B	VCST-17S	17	20	16.0 mm	21.2 mm	40 mm	50
	VCSG-17B	VCSG-17S	17	20	15.2 mm	21.2 mm	40 mm	50
	VCSG-23B	VCSG-23S	23	25	22.0 mm	28.5 mm	50 mm	50
	VCSG-29B	VCSG-29S	29	32	27.7 mm	34.4 mm	60 mm	50
	VCSG-36B	VCSG-36S	36	40	35.8 mm	42.4 mm	70 mm	30
	VCSG-48B	VCSG-48S	48	50	46.8 mm	54.4 mm	80 mm	30
	VCSG-56B	VCSG-56S	56	68	56.1 mm	67.2 mm	150 mm	30
	VCSG-70B	VCSG-70S	70	80	66.5 mm	80.0 mm	200 mm	10
	VCSG-95B	VCSG-95S	95	106	91.0 mm	106.0 mm	300 mm	10

- Specially formulated polyamide 6
- High compression and impact strengths at low temperatures and low humidity
- Good ductility
- Very good resistance to ultra violet rays and weathering
- Free from halogens, REACH + ROHS compliant
- Temperature range: –50 °C to +105 °C, short-term to +160 °C

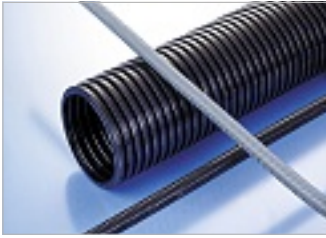
Approvals



PMA Conduits

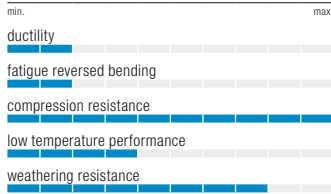
PMAFLEX

2



VOH

VOH-Index



VOH

pliable, very heavy-duty

- For applications in heavy machine and plant construction
- High compression resistance

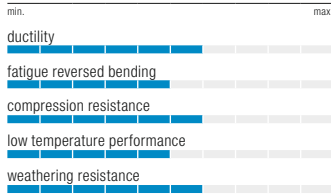
Order No. black	Order No. grey	Conduit size		Inside Ø	Outside Ø	Stat. radius	PU meter
		NW	metric				
VOHD-07B	VOHD-07S	07	10	5.8 mm	10.0 mm	30 mm	50
VOHD-10B	VOHD-10S	10	12	9.0 mm	13.0 mm	35 mm	50
VOHD-12B	VOHD-12S	12	16	11.6 mm	15.8 mm	40 mm	50
VOHG-17B	VOHG-17S	17	20	14.5 mm	21.0 mm	60 mm	50
VOHG-23B	VOHG-23S	23	25	21.1 mm	28.5 mm	70 mm	50
VOHG-29B	VOHG-29S	29	32	26.6 mm	34.5 mm	80 mm	50
VOHG-36B	VOHG-36S	36	40	35.0 mm	42.5 mm	90 mm	30
VOHG-48B	VOHG-48S	48	50	46.5 mm	54.5 mm	100 mm	30
VOHG-56B	VOHG-56S	56	68	55.5 mm	67.2 mm	135 mm	10
VOHG-70B	VOHG-70S	70	80	67.0 mm	80.0 mm	200 mm	10
VOHG-95B	VOHG-95S	95	106	90.5 mm	106.0 mm	300 mm	10
VOHG-125B	VOHG-125S	125	146	126.0 mm	146.5 mm	480 mm	6

- Specially modified polyamide 6
- Highest degree of mechanical protection
- Good fire safety characteristics
- Very good UV and weathering resistance
- Free from halogens, REACH + ROHS compliant
- Temperature range: –40 °C to +105 °C, short-term to +160 °C



PLR

PLR-Index



PLR

flexible, medium-wall

- In light rail rolling stock applications e.g. Tram, Metro, Monorail
- HL2 acc. to EN 45545-2

Order No. black	Order No. grey	Conduit size		Profile	Inside Ø	Outside Ø	Stat. radius	PU meter
		NW	metric					
PLRT-07B	PLRT-07S	07	10	T	6.2 mm	10.0 mm	15 mm	50
PLRT-10B	PLRT-10S	10	12	T	9.6 mm	13.0 mm	20 mm	50
PLRT-12B	PLRT-12S	12	16	T	12.0 mm	15.8 mm	30 mm	50
PLRG-17B	PLRG-17S	17	20	G	15.8 mm	21.2 mm	40 mm	50
PLRG-23B	PLRG-23S	23	25	G	21.9 mm	28.5 mm	45 mm	50
PLRG-29B	PLRG-29S	29	32	G	27.6 mm	34.5 mm	55 mm	50
PLRG-36B	PLRG-36S	36	40	G	36.0 mm	42.5 mm	60 mm	30
PLRG-48B	PLRG-48S	48	50	G	47.0 mm	54.5 mm	70 mm	30

- Specially modified polyamide 6
- Good pressure resistance
- Very good fire safety characteristics
- Self-extinguishing
- Free from halogens, REACH + ROHS compliant
- Temperature range: –40 °C to +105 °C, short-term to +160 °C

Approvals



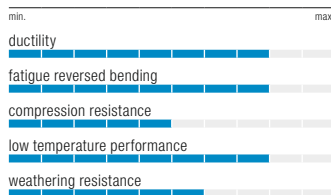
PMA Conduits

PMAFLEX Multilayer



XPCL

XPCL-Index



XPCL

highly flexible, medium-duty

- For machine building and equipment with high requirements
- Allows easy cable insertion due to low friction inner layer

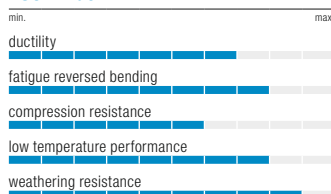
Order No. black/blue	Order No. grey/blue	Conduit size NW metric		Inside Ø	Outside Ø	Stat. radius	PU meter
XPCLT-10BB	XPCLT-10SB	10	12	9.6 mm	13.0 mm	20 mm	50
XPCLT-12BB	XPCLT-12SB	12	16	11.8 mm	15.6 mm	30 mm	50
XPCLT-17BB	XPCLT-17SB	17	20	16.6 mm	21.0 mm	40 mm	50
XPCLG-17BB	XPCLG-17SB	17	20	15.6 mm	20.9 mm	40 mm	50
XPCLG-23BB	XPCLG-23SB	23	25	21.9 mm	28.5 mm	45 mm	50
XPCLG-29BB	XPCLG-29SB	29	32	27.6 mm	34.5 mm	55 mm	50
XPCLG-36BB	XPCLG-36SB	36	40	36.0 mm	42.5 mm	60 mm	30
XPCLG-48BB	XPCLG-48SB	48	50	47.0 mm	54.5 mm	70 mm	30

- Outer layer: Specially formulated polyamide 6
- Intermediate layer: Specially bonding compound
- Inner layer: Specially modified polyethylene
- Very good ductility and good reversed bending characteristics
- Good mechanical characteristics even under extreme conditions, such as low temperatures and low humidity
- Self-extinguishing
- Free from halogens, REACH + ROHS compliant
- Temperature range: –50 °C to +105 °C, short-term to +160 °C



XSOL

XSOL-Index



XSOL

highly flexible, medium-duty

- All-purpose, especially in long-term external applications, e.g. energy technology

	Order No. black/green	Conduit size NW metric		Inside Ø	Outside Ø	Stat. radius	PU meter
	XSOLT-10BG	10	12	9.6 mm	13.0 mm	25 mm	50
cRU ^{us}	XSOLT-12BG	12	16	11.8 mm	15.6 mm	30 mm	50
	XSOLT-17BG	17	20	15.2 mm	21.0 mm	40 mm	50
	XSOLG-23BG	23	25	22.0 mm	28.5 mm	50 mm	50
	XSOLG-29BG	29	32	27.5 mm	34.4 mm	60 mm	50
	XSOLG-36BG	36	40	35.8 mm	42.4 mm	70 mm	30
	XSOLG-48BG	48	50	46.8 mm	54.4 mm	80 mm	30

- Outer layer: Specially formulated polyamide 12
- Intermediate layer: Specially bonding compound
- Inner layer: Specially modified polyamide 6
- Very good resistance to UV and weathering
- Very high ductility and reversed bending resistance
- Very good mechanical strength
- High impact resistance even under extreme conditions, such as low temperatures and low humidity
- Good fire safety characteristics, self-extinguishing
- Free from halogens, REACH + ROHS compliant
- Temperature range: –50 °C to +95 °C, short-term to +150 °C

Approvals



PMA Conduits

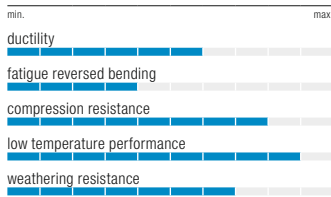
PMAFLEX Multilayer

2



XVCS1H

XVCS1H-Index



XVCS1H

flexible, heavy-duty

– For track side applications and other exterior static applications

Order No. black/green	Conduit size		Inside	Outside	Stat. radius	PU meter
	NW	metric	∅	∅		
XVCS1H-12BG	12	16	11.7 mm	15.5 mm	30 mm	50
XVCS1H-17BG	17	20	15.2 mm	21.0 mm	40 mm	50
XVCS1H-23BG	23	25	21.7 mm	28.4 mm	50 mm	50
XVCS1H-29BG	29	32	27.5 mm	34.3 mm	60 mm	50
XVCS1H-36BG	36	40	35.8 mm	42.2 mm	70 mm	30
XVCS1H-48BG	48	50	46.8 mm	54.3 mm	80 mm	30

– Outer layer: Specially formulated polyamide 6
Intermediate layer: Specially bonding compound
Inner layer: Specially modified polyolefin

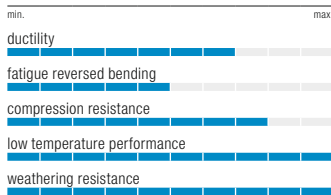
– Easy layouting through:
– High conduit ductility and formability
– Low friction inner layer facilitates cable insertion
– Excellent impact characteristics at low temperatures

– Very good resistance to ultra violet rays and atmospheric corrosion
– Free from halogens, REACH + ROHS compliant
– Temperature range: –50 °C to +90 °C, short-term to +120 °C



XVCS2H

XVCS2H-Index



XVCS2H

flexible, heavy-duty

– For track side applications and other exterior static applications with high UV exposure

Order No. black/green	Conduit size		Inside	Outside	Stat. radius	PU meter
	NW	metric	∅	∅		
XVCS2H-12BG	12	16	11.7 mm	15.5 mm	25 mm	50
XVCS2H-17BG	17	20	15.2 mm	21.0 mm	35 mm	50
XVCS2H-23BG	23	25	22.0 mm	28.4 mm	40 mm	50
XVCS2H-29BG	29	32	27.7 mm	34.3 mm	50 mm	50
XVCS2H-36BG	36	40	35.8 mm	42.2 mm	60 mm	30
XVCS2H-48BG	48	50	46.8 mm	54.3 mm	70 mm	30

– Outer layer: Specially formulated polyamide 12
Intermediate layer: Specially bonding compound
Inner layer: Specially modified polyolefin

– Easy layouting through:
– High conduit ductility and formability
– Low friction inner layer facilitates cable insertion
– Excellent impact characteristics at low temperatures

– Excellent resistance to ultra violet rays and atmospheric corrosion
– Free from halogens, REACH + ROHS compliant
– Temperature range: –50 °C to +90 °C, short-term to +120 °C

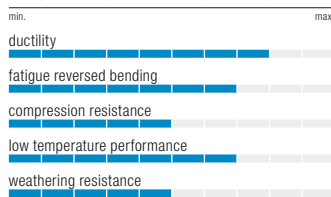
PMA Conduits

PMAFLEX PPlus



CUS

CUS-Index



Approvals



CUS

very flexible, medium-duty

- For machine building and installation industries
- For electrical installations, especially in the US market
- Inexpensive solution for requirements acc. to UL 1660 (UL Listing)

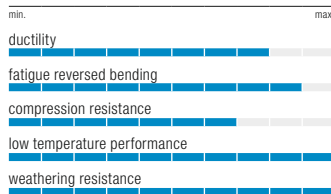
Order No. black	Order No. grey	Conduit size			Inside Ø	Outside Ø	Stat. radius	PU meter/ft
		Inch	NW	metric				
CUSG-17B	CUSG-17S	½	17	20	15.2 mm	21.2 mm	40 mm	31/100
CUSG-23B	CUSG-23S	¾	23	25	21.9 mm	28.5 mm	45 mm	31/100
CUSG-29B	CUSG-29S	1	29	32	27.6 mm	34.5 mm	55 mm	31/100
CUSG-36B	CUSG-36S	1 ¼	36	40	36.0 mm	42.5 mm	60 mm	31/100
CUSG-48B	CUSG-48S	1 ½	48	50	47.0 mm	54.5 mm	70 mm	31/100

- Specially modified polyamide 6
- Good ductility and reversed bending characteristics
- Very good mechanical properties even under extreme conditions, such as low temperatures and low humidity
- Self-extinguishing, acc. to UL 94 V2
- Free from halogens, REACH + ROHS compliant
- Temperature range: -40 °C to +105 °C, short-term to +160 °C



PUS

PUS-Index



Approvals



PUS

very flexible, heavy-duty

- For long-term external applications with approval acc. to UL 1660 (UL Listing)
- For dynamic applications

Order No. black	Order No. grey	Conduit size			Inside Ø	Outside Ø	Stat./Dyn. radius	PU meter/ft
		Inch	NW	metric				
PUSG-17B	PUSG-17S	½	17	20	15.2 mm	21.2 mm	35/85 mm	31/100
PUSG-23B	PUSG-23S	¾	23	25	22.0 mm	28.5 mm	40/110 mm	31/100
PUSG-29B	PUSG-29S	1	29	32	27.7 mm	34.4 mm	50/130 mm	31/100
PUSG-36B	PUSG-36S	1 ¼	36	40	35.8 mm	42.4 mm	60/180 mm	31/100
PUSG-48B	PUSG-48S	1 ½	48	50	46.8 mm	54.4 mm	70/220 mm	31/100

- Specially modified polyamide 12
- Very good reversed bending resistance
- Very good mechanical strength at low temperatures
- Excellent resistance to ultra violet rays and weathering
- Self-extinguishing, acc. to UL 94 V2
- Free from halogens, REACH + ROHS compliant
- Temperature range: -50 °C to +95 °C, short-term to +150 °C

PMA Conduits

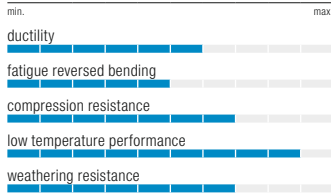
PMAFLEX Plus

2



VUS

VUS-Index



Approvals



VUS

flexible, heavy-duty

- For static exterior installations with approval acc. to UL 1660 (UL Listing)
- For applications requiring high compression resistance

Order No. black	Order No. grey	Conduit size			Inside Ø	Outside Ø	Stat. radius	PU meter/ft
		Inch	NW	metric				
VUSG-17B	VUSG-17S	½	17	20	15.2 mm	21.2 mm	40 mm	31/100
VUSG-23B	VUSG-23S	¾	23	25	22.0 mm	28.5 mm	50 mm	31/100
VUSG-29B	VUSG-29S	1	29	32	27.7 mm	34.4 mm	60 mm	31/100
VUSG-36B	VUSG-36S	1 ¼	36	40	35.8 mm	42.4 mm	70 mm	31/100
VUSG-48B	VUSG-48S	1 ½	48	50	46.8 mm	54.4 mm	80 mm	31/100

- Specially modified polyamide 6
- Good ductility
- High mechanical strength even under extreme conditions, such as low temperatures and low humidity
- Very good resistance to ultra violet rays and weathering
- Free from halogens, REACH + ROHS compliant
- Temperature range: -50 °C to +105 °C, short-term to +160 °C

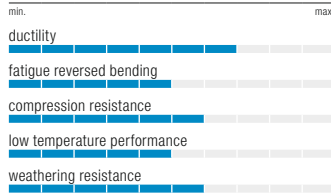
PMA Conduits

PMA Divisible System



PACOF

PACOF-Index



PACOF

flexible, divisible

- HL3 according to EN45545-2
- For machine building and plant construction
- For trouble-free retrofitting and applicable for repairs

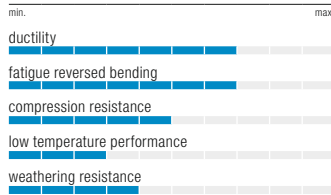
Order No. black	Conduit size		Inside ∅	Outside ∅	Stat. radius	PU meter
	NW	metric				
PACOF-07B	07	10	5.6 mm	10.0 mm	30 mm	50
PACOF-10B	10	12	8.5 mm	12.8 mm	33 mm	50
PACOF-12B	12	16	11.0 mm	15.6 mm	35 mm	50
PACOF-17B	17	20	15.5 mm	21.1 mm	45 mm	50
PACOF-23B	23	25	22.1 mm	28.4 mm	70 mm	50
PACOF-29B	29	32	27.2 mm	34.5 mm	120 mm	50
PACOF-36B	36	40	32.0 mm	42.4 mm	145 mm	30
PACOF-48B	48	50	43.9 mm	54.1 mm	150 mm	30
PACOF-70B	70	80	62.0 mm	79.0 mm	190 mm	10

- Specially modified polyamide 6
- Can be opened and closed again in longitudinal direction any time
- Good ductility
- Good compression resistance
- Free from halogens, REACH + ROHS compliant
- Temperature range: -40 °C to +105 °C, short-term to +160 °C



PPCOF

PPCOF-Index



PPCOF

flexible, divisible

- For machine building and plant construction
- For trouble-free retrofitting and applicable for repairs

Order No. black	Conduit size		Inside ∅	Outside ∅	Stat. radius	PU meter
	NW	metric				
PPCOF-07B	07	10	5.6 mm	10.0 mm	25 mm	50
PPCOF-10B	10	12	8.5 mm	12.8 mm	28 mm	50
PPCOF-12B	12	16	11.0 mm	15.6 mm	35 mm	50
PPCOF-17B	17	20	15.1 mm	21.1 mm	45 mm	50
PPCOF-23B	23	25	22.1 mm	28.4 mm	60 mm	50
PPCOF-29B	29	32	26.6 mm	34.5 mm	100 mm	50
PPCOF-36B	36	40	31.8 mm	42.4 mm	120 mm	30
PPCOF-48B	48	50	43.9 mm	54.1 mm	140 mm	30
PPCOF-70B	70	80	60.5 mm	78.0 mm	200 mm	10

- Specially modified polypropylene PP
- Can be opened and closed again in longitudinal direction any time
- Good reversed bending resistance
- Temperature range: -20 °C to +105 °C, short-term to +150 °C

PMA Conduits

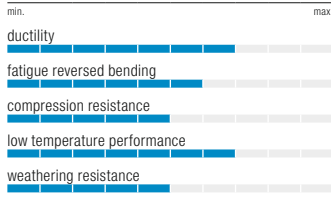
PMA Smart Line

2



LLPA

LLPA-Index



Approvals



LLPA

very flexible, medium-duty

– For machine building, installation and construction industries

	Order No. black	Order No. grey	Conduit size		Profile	Inside Ø	Outside Ø	Stat. radius	PU meter
			NW	metric					
	LLPA-07A	LLPA-07S	07	10	T	6.2 mm	10.0 mm	15 mm	50
	LLPA-10A	LLPA-10S	10	12	T	9.6 mm	13.0 mm	20 mm	50
cRU US	LLPA-12A	LLPA-12S	12	16	T	12.0 mm	15.8 mm	30 mm	50
	LLPA-17A	LLPA-17S	17	20	T	16.2 mm	21.2 mm	40 mm	50
	LLPA-23A	LLPA-23S	23	25	T	22.6 mm	28.5 mm	45 mm	50
	LLPA-29A	LLPA-29S	29	32	T	29.0 mm	34.5 mm	55 mm	50
	LLPA-36A	LLPA-36S	36	40	T	36.5 mm	42.5 mm	60 mm	30
	LLPA-48A	LLPA-48S	48	50	T	47.5 mm	54.5 mm	70 mm	30

cRU US	LLPAG-17A	LLPAG-17S	17	20	G	15.8 mm	21.2 mm	40 mm	50
	LLPAG-23A	LLPAG-23S	23	25	G	21.9 mm	28.5 mm	45 mm	50
	LLPAG-29A	LLPAG-29S	29	32	G	27.6 mm	34.5 mm	55 mm	50
	LLPAG-36A	LLPAG-36S	36	40	G	36.0 mm	42.5 mm	60 mm	30
	LLPAG-48A	LLPAG-48S	48	50	G	47.0 mm	54.5 mm	70 mm	30
	LLPAG-56A	LLPAG-56S	56	68	G	56.3 mm	67.2 mm	120 mm	30
	LLPAG-70A	LLPAG-70S	70	80	G	68.0 mm	80.0 mm	160 mm	10
	LLPAG-95A	LLPAG-95S	95	106	G	91.9 mm	106.0 mm	210 mm	10
	LLPAG-125A	LLPAG-125S	125	146	G	126.5 mm	146.5 mm	450 mm	06

- Specially modified polyamide 6
- Good ductility
- Good mechanical characteristics

- Free from halogens, REACH + ROHS compliant
- Temperature range: –40 °C to +105 °C, short-term to +160 °C

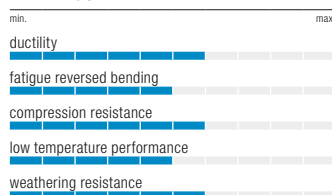
PMA Conduits

PMA Smart Line



LLPF

LLPF-Index



LLPF

flexible, medium-duty

- For machine building, installation and construction industries
- For applications with high fire safety requirements
- UL 94 V0

Order No. black	Order No. grey	Conduit size		Profile	Inside Ø	Outside Ø	Stat. radius	PU meter
		NW	metric					
LLPF-07A	LLPF-07S	07	10	T	6.2 mm	10.0 mm	15 mm	50
LLPF-10A	LLPF-10S	10	12	T	9.6 mm	13.0 mm	20 mm	50
LLPF-12A	LLPF-12S	12	16	T	12.0 mm	15.8 mm	30 mm	50
LLPF-17A	LLPF-17S	17	20	T	16.2 mm	21.2 mm	40 mm	50
LLPF-23A	LLPF-23S	23	25	T	22.6 mm	28.5 mm	45 mm	50
LLPF-29A	LLPF-29S	29	32	T	29.0 mm	34.5 mm	55 mm	50

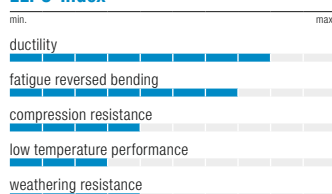
LLPFG-17A	LLPFG-17S	17	20	G	15.8 mm	21.2 mm	40 mm	50
LLPFG-23A	LLPFG-23S	23	25	G	21.9 mm	28.5 mm	45 mm	50
LLPFG-29A	LLPFG-29S	29	32	G	27.6 mm	34.5 mm	55 mm	50
LLPFG-36A	LLPFG-36S	36	40	G	36.0 mm	42.5 mm	60 mm	30
LLPFG-48A	LLPFG-48S	48	50	G	47.0 mm	54.5 mm	70 mm	30

- Specially modified polyamide 6
- Good pressure resistance
- Very good fire safety characteristics
- Self-extinguishing
- Free from halogens, REACH + ROHS compliant
- Temperature range: –40 °C to +105 °C, short-term to +160 °C



LLPO

LLPO-Index



LLPO

very flexible, light-duty

- For machine building and installation

Order No. black	Order No. grey	Conduit size		Profile	Inside Ø	Outside Ø	Stat. radius	PU meter
		NW	metric					
LLPO-07A	LLPO-07S	07	10	T	6.2 mm	10.0 mm	15 mm	50
LLPO-10A	LLPO-10S	10	12	T	9.6 mm	13.0 mm	20 mm	50
LLPO-12A	LLPO-12S	12	16	T	12.0 mm	15.8 mm	30 mm	50
LLPO-17A	LLPO-17S	17	20	T	16.2 mm	21.2 mm	40 mm	50
LLPO-23A	LLPO-23S	23	25	T	22.6 mm	28.5 mm	45 mm	50
LLPO-29A	LLPO-29S	29	32	T	29.0 mm	34.5 mm	55 mm	50
LLPO-36A	LLPO-36S	36	40	T	36.5 mm	42.5 mm	60 mm	30
LLPO-48A	LLPO-48S	48	50	T	47.5 mm	54.5 mm	70 mm	30

- Specially modified polyolefine
- Excellent reversed bending characteristics
- Good flammability characteristics
- Very good resistance against acids and hydrolysis
- Free from halogens, REACH + ROHS compliant
- Temperature range: –20 °C to +90 °C, short-term to +130 °C

PMAFIX Pro

Next generation cable protection

PMAFIX Pro

Introduction	3/3
General technical details	3/4
Part number codes	3/5
Size codes/installation	3/6
Connectors: metric/metal thread	3/7
Connectors: female thread	3/11
Sealing elements	3/12



PMAFIX Pro

Introduction

Next generation cable protection. The extremely successful and technically proven PMAFIX System has been developed further to create the PMAFIX Pro product range.

The new generation fittings are the product of experience gained over many years in the most varied application areas. The PMAFIX Pro has two components, an outer body and an inner sealing element. The sealing element functions both as a seal and as a locking mechanism providing all ingress protection grades up to IP68 and IP69K even in applications where there is long term continuous movement. PMAFIX Pro is manufactured by using multiple component injection moulding process.

Key features

- Meets all ingress protection categories up to and including IP68 and IP69K also when the conduit connection is continually in motion
- Manufactured with newest 2-component injection moulding technology
- Fulfills highest international quality and standard requirements
- Intelligent safety locking mechanism
- Allows simple “push-in” installation of conduits
- Due to the integrated conduit supports conduit remains centralised with little deformation even when bent sharply directly at the fitting



PMAFIX Pro

General technical details

3

Material

- Fittings made from specially modified polyamide 6
- Threads made from nickel-plated brass or polyamide 6
- Sealings made from cross linked polyester elastomer
- Self-extinguishing
- Free from halogens, REACH + ROHS compliant
- Temperature range: -50 °C to +105 °C, short-term to +160 °C

Characteristics

- Highest assembly reliability – the fitting only locks when the sealing element is fully inserted
- Highest operational safety assured through visual and acoustic correct assembly controls
- Excellente resistance to ultra violet rays and weathering
- Highest impact resistance through fully closed design
- Highest conduit pull out strength
- Vibration-proof connection to PMA conduits
- Fits conduit profiles – fine (T) and coarse (G)
- To avoid accidental opening, disassembling only possible with a screwdriver

IP68 + IP69K

static + dynamic

- Highest sealing through fully closed system also in highest dynamic applications
- Extra long ribbed sealing areas (cross linked material)
- 360° locking and sealing element shields against high pressure water jets (up to 100 bar)
- Content of delivery: Locking and sealing element and thread seal for male threads (O-Ring and/or flat gasket)



patent



Up to 100 bar



PMAFIX Pro

Part number codes

Part number codes

N K N H - M 20 7 - 10

Thread length

PMA Conduit code (Table 1)

Thread code (Table 2)

Thread type:

M= Metric thread

U = UN thread for round connector

Mode of ingress protection:

H = IP68 + IP69K with thread seal

S = IP68 + IP69K on conduit side

Z = IP68 + IP69K with strain relief

Serie:

N = Straight

A = 45° elbow

B = 90° curved elbow

I = Female thread

Type: PMAFIX Pro

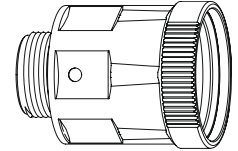
Colour:

N = Black with metal thread

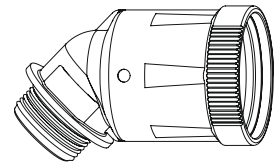
M = Grey with metal thread

B = Black

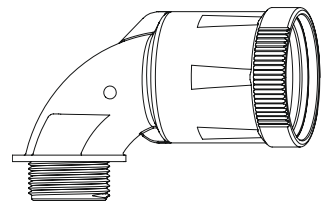
Connector series



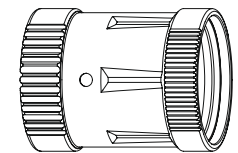
N = Straight



A = 45° elbow



B = 90° curved elbow



I = Female thread

PMAFIX Pro

Size codes, installation

Table 1
Conduit codes

Nominal width	Metric size	PMA code
10	12	0
12	16	2
17	20	7
23	25	3
29	32	9
36	40	6
48	50	8

Additional code for female thread connectors

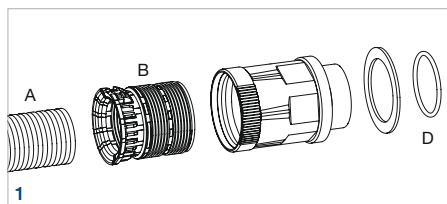
Type	PMA code
With O-ring groove (MIL C 5015)	G

Table 2
Thread codes

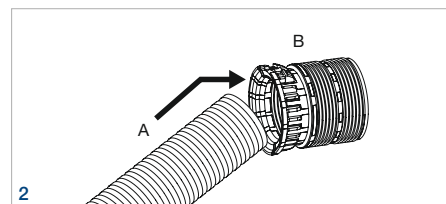
Thread metric	PMA code
M12x1.5	M12
M16x1.5	M16
M20x1.5	M20
M25x1.5	M25
M32x1.5	M32
M40x1.5	M40
M50x1.5	M50
M63x1.5	M63

Thread UN	PMA code
$\frac{7}{8}$ -20 UNEF	U21
1-20 UNEF	U24
$1\frac{3}{16}$ -18 UNEF	U29
$1\frac{7}{16}$ -18 UNEF	U35
$1\frac{9}{4}$ -18 UNS	U43
2-18 UNS	U50
$2\frac{1}{4}$ -16 UN	U56

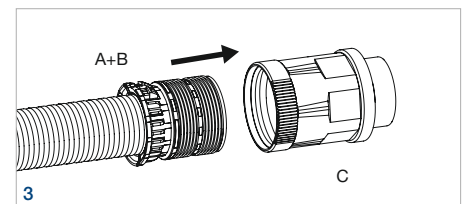
Installation IP68 + IP69K



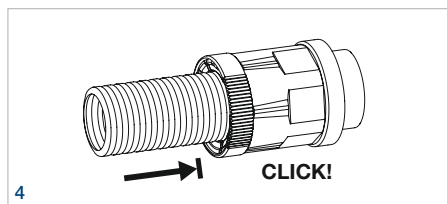
- A = Corrugated conduit
- B = Sealing and locking element
- C = Fitting body
- D = Thread seal (O-ring or glat gasket*)



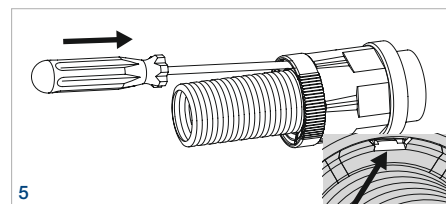
Place corrugated conduit (A) at a slight angle against the sealing element (B), then push right into the end.



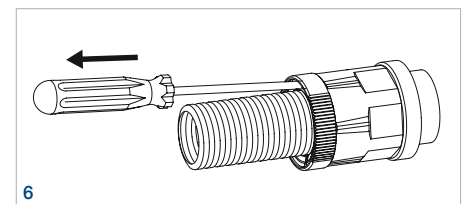
Push the conduit and sealing element (A+B) together into the outer body of the fitting (C). Water or a lubricating agent can help facilitate the push-in process.



The locking mechanism engages when the sealing element is pushed in fully.



To disengage the locking mechanism introduce a size 1 screwdriver parallel to the conduit into the opening shown in the detail drawing.

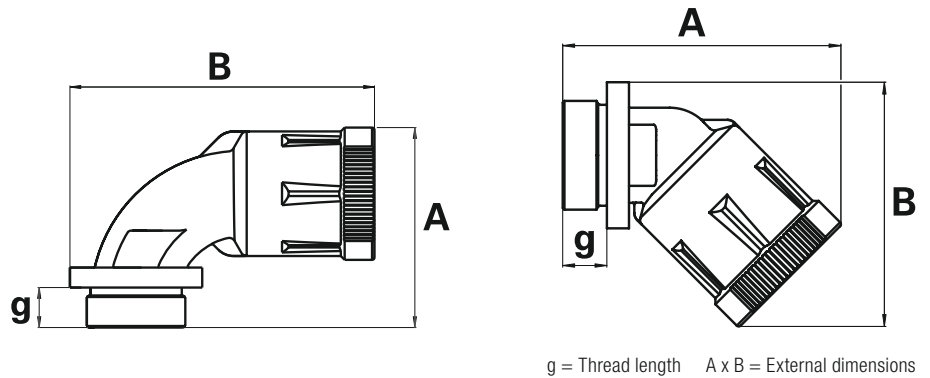


Pull the conduit and screwdriver out of the fitting together keeping the screwdriver parallel to the conduit.

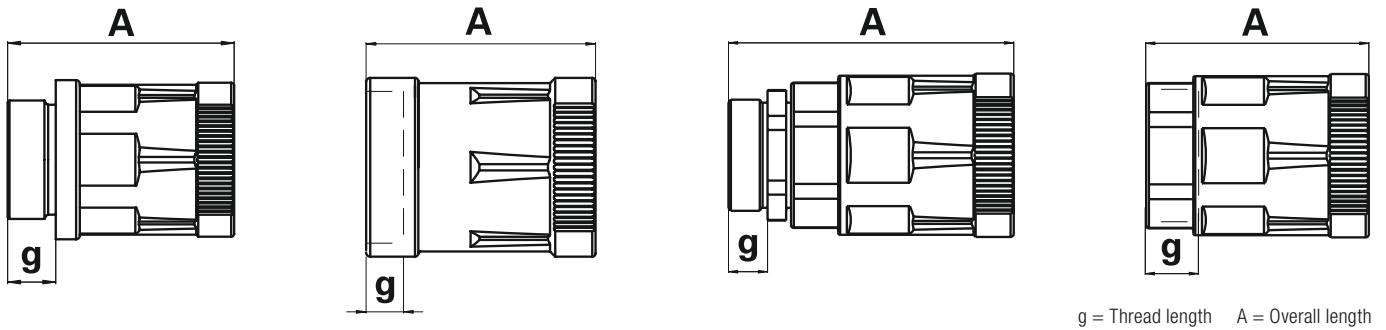
* Ensure to follow O-ring manufacturers guidelines when using O-rings for sealing purposes.

PMAFIX Pro

Connectors metric, metal thread



3



KNH, patent

Approvals



KNH

Connector straight, metric metal thread

– For applications in railway vehicles and heavy machine construction

	Order No. black IP68 + IP69K	Order No. grey IP68 + IP69K	Thread metric	Fits to conduit size NW metric		Thread length	Overall length
	NKNH-M120-10	MKNH-M120-10	M12 x 1.5	10	12	10.0 mm	45.0 mm
	NKNH-M160-10	MKNH-M160-10	M16 x 1.5	10	12	10.0 mm	45.0 mm
	NKNH-M162-10	MKNH-M162-10	M16 x 1.5	12	16	10.0 mm	50.5 mm
	NKNH-M202-10	MKNH-M202-10	M20 x 1.5	12	16	10.0 mm	50.5 mm
	NKNH-M207-10	MKNH-M207-10	M20 x 1.5	17	20	10.0 mm	56.0 mm
	NKNH-M257-11	MKNH-M257-11	M25 x 1.5	17	20	11.0 mm	57.0 mm
	NKNH-M253-11	MKNH-M253-11	M25 x 1.5	23	25	11.0 mm	59.5 mm
	NKNH-M323-13	MKNH-M323-13	M32 x 1.5	23	25	13.0 mm	61.5 mm
	NKNH-M329-13	MKNH-M329-13	M32 x 1.5	29	32	13.0 mm	67.0 mm
	NKNH-M409-13	MKNH-M409-13	M40 x 1.5	29	32	13.0 mm	68.5 mm
	NKNH-M406-13	MKNH-M406-13	M40 x 1.5	36	40	13.0 mm	74.0 mm
	NKNH-M506-14	MKNH-M506-14	M50 x 1.5	36	40	14.0 mm	75.0 mm
	NKNH-M508-14	MKNH-M508-14	M50 x 1.5	48	50	14.0 mm	81.0 mm
	NKNH-M638-14	MKNH-M638-14	M63 x 1.5	48	50	14.0 mm	81.0 mm

– High thread and system connection strength

PMAFIX Pro

Connectors metric, metal thread

3



KNZ, patent

Approvals



KNZ

Connector straight with strain relief, metric metal thread

- For applications in railway vehicles and heavy machine construction
- For the separation of damp and dry areas

	Order No. IP68 + IP69K Compl., black	Order No. Fitting*	Order No. Insert	Thread metric	Fits to conduit size		Terminal range	Thread length	Overall length
					NW	metric			
	NKNZ-M120/P1	NKNZ-M120R/P	DE-M120/P1	M12 x 1.5	10	12	4.0–6.5 mm	5.0 mm	53.5 mm
	NKNZ-M120/P2		DE-M120/P2	M12 x 1.5	10	12	5.0–8.0 mm	5.0 mm	53.5 mm
	NKNZ-M120/P3		DE-M120/P3	M12 x 1.5	10	12	6.5–9.5 mm	5.0 mm	53.5 mm
	NKNZ-M160/P1	NKNZ-M160R/P	DE-M160/P1	M16 x 1.5	10	12	4.0–6.5 mm	6.0 mm	54.5 mm
	NKNZ-M160/P2		DE-M160/P2	M16 x 1.5	10	12	5.0–8.0 mm	6.0 mm	54.5 mm
	NKNZ-M160/P3		DE-M160/P3	M16 x 1.5	10	12	6.5–9.5 mm	6.0 mm	54.5 mm
	NKNZ-M202/P1	NKNZ-M202R/P	DE-M202/P1	M20 x 1.5	12	16	4.0–6.5 mm	6.5 mm	60.5 mm
	NKNZ-M202/P3		DE-M202/P3	M20 x 1.5	12	16	6.5–9.5 mm	6.5 mm	60.5 mm
	NKNZ-M202/P4		DE-M202/P4	M20 x 1.5	12	16	7.0–10.5 mm	6.5 mm	60.5 mm
	NKNZ-M207/P3	NKNZ-M207R/P	DE-M207/P3	M20 x 1.5	17	20	6.5–9.5 mm	6.5 mm	66.5 mm
	NKNZ-M207/P4		DE-M207/P4	M20 x 1.5	17	20	7.0–10.5 mm	6.5 mm	66.5 mm
	NKNZ-M207/P5		DE-M207/P5	M20 x 1.5	17	20	9.0–13.0 mm	6.5 mm	66.5 mm
	NKNZ-M257/P4	NKNZ-M257R/P	DE-M257/P4	M25 x 1.5	17	20	7.0–10.5 mm	7.5 mm	67.5 mm
	NKNZ-M257/P5		DE-M257/P5	M25 x 1.5	17	20	9.0–13.0 mm	7.5 mm	67.5 mm
	NKNZ-M257/P6		DE-M257/P6	M25 x 1.5	17	20	11.5–15.5 mm	7.5 mm	67.5 mm
	NKNZ-M253/P5	NKNZ-M253R/P	DE-M253/P5	M25 x 1.5	23	25	9.0–13.0 mm	7.5 mm	75.0 mm
	NKNZ-M253/P6	NKNZ-M253R1/P	DE-M253/P6	M25 x 1.5	23	25	11.5–15.5 mm	7.5 mm	75.0 mm
	NKNZ-M323/P2	NKNZ-M323R/P	DE-M323/P2	M32 x 1.5	23	25	9.0–13.0 mm	8.0 mm	76.0 mm
	NKNZ-M323/P4		DE-M323/P4	M32 x 1.5	23	25	14.0–18.0 mm	8.0 mm	76.0 mm
	NKNZ-M323/P5	NKNZ-M323R1/P	DE-M323/P5	M32 x 1.5	23	25	17.0–20.5 mm	8.0 mm	76.0 mm
	NKNZ-M329/P2	NKNZ-M329R/P	DE-M329/P2	M32 x 1.5	29	32	14.0–18.0 mm	8.0 mm	83.0 mm
	NKNZ-M329/P3		DE-M329/P3	M32 x 1.5	29	32	17.0–20.5 mm	8.0 mm	83.0 mm
	NKNZ-M329/P4		DE-M329/P4	M32 x 1.5	29	32	20.0–25.0 mm	8.0 mm	83.0 mm
	NKNZ-M409/P1	NKNZ-M409R/P	DE-M409/P1	M40 x 1.5	29	32	11.5–15.5 mm	8.0 mm	83.0 mm
	NKNZ-M409/P2		DE-M409/P2	M40 x 1.5	29	32	14.0–18.0 mm	8.0 mm	83.0 mm
	NKNZ-M409/P3		DE-M409/P3	M40 x 1.5	29	32	17.0–20.5 mm	8.0 mm	83.0 mm
	NKNZ-M409/P4		DE-M409/P4	M40 x 1.5	29	32	20.0–25.0 mm	8.0 mm	83.0 mm
	NKNZ-M409/P5		DE-M409/P5	M40 x 1.5	29	32	24.0–28.0 mm	8.0 mm	83.0 mm
	NKNZ-M406/P1	NKNZ-M406R/P	DE-M406/P1	M40 x 1.5	36	40	20.0–25.0 mm	9.0 mm	87.5 mm
	NKNZ-M406/P2		DE-M406/P2	M40 x 1.5	36	40	24.0–28.0 mm	9.0 mm	87.5 mm
	NKNZ-M506/P1	NKNZ-M506R/P	DE-M506/P1	M50 x 1.5	36	40	27.0–32.0 mm	10.0 mm	90.0 mm
	NKNZ-M506/P3		DE-M506/P3	M50 x 1.5	36	40	32.0–36.0 mm	10.0 mm	90.0 mm
	NKNZ-M508/P2	NKNZ-M508R/P	DE-M508/P2	M50 x 1.5	48	50	32.0–36.0 mm	10.0 mm	100.0 mm
	NKNZ-M508/P3		DE-M508/P3	M50 x 1.5	48	50	36.0–40.0 mm	10.0 mm	100.0 mm
	NKNZ-M638/P1	NKNZ-M638R/P	DE-M638/P1	M63 x 1.5	48	50	32.0–35.0 mm	10.0 mm	100.0 mm
	NKNZ-M638/P2		DE-M638/P2	M63 x 1.5	48	50	39.0–44.0 mm	10.0 mm	100.0 mm

* without insert

- Sealing inserts are made from TPE-V
- With integrated strain relief and optimal ingress protection at the cable (up to IP68/10 bar)

- High thread and system connection strength
- Temperature range sealing insert Pflitsch: –40 °C to +135 °C

Note

For several conductors multiple sealing inserts MDE are available. R/P version of fitting has to be used in combination with multiple sealing inserts.

PMAFIX Pro

Connectors metric, metal thread



KNZ, patent

Approvals



KNZ

Connector straight with strain relief, metric long metal thread

- For applications in railway vehicles and heavy machine construction
- For the separation of damp and dry areas

	Order No. IP68 + IP69K Compl., black	Order No. Fitting*	Order No. Insert	Thread metric	Fits to conduit size		Terminal range	Thread length	Overall length
					NW	metric			
	NKNZ-M160/P1-L	NKNZ-M160R/P-L	DE-M160/P1	M16 x 1.5	10	16	4.0–6.5 mm	15.0 mm	63.5 mm
	NKNZ-M160/P2-L		DE-M160/P2	M16 x 1.5	10	16	5.0–8.0 mm	15.0 mm	63.5 mm
	NKNZ-M160/P3-L		DE-M160/P3	M16 x 1.5	10	16	6.5–9.5 mm	15.0 mm	63.5 mm
	NKNZ-M202/P1-L	NKNZ-M202R/P-L	DE-M202/P1	M20 x 1.5	12	20	4.0–6.5 mm	15.0 mm	69.0 mm
	NKNZ-M202/P3-L		DE-M202/P3	M20 x 1.5	12	20	6.5–9.5 mm	15.0 mm	69.0 mm
	NKNZ-M202/P4-L		DE-M202/P4	M20 x 1.5	12	20	7.0–10.5 mm	15.0 mm	69.0 mm
	NKNZ-M207/P3-L	NKNZ-M207R/P-L	DE-M207/P3	M20 x 1.5	17	20	6.5–9.5 mm	15.0 mm	75.0 mm
	NKNZ-M207/P4-L		DE-M207/P4	M20 x 1.5	17	20	7.0–10.5 mm	15.0 mm	75.0 mm
	NKNZ-M207/P5-L		DE-M207/P5	M20 x 1.5	17	20	9.0–13.0 mm	15.0 mm	75.0 mm
	NKNZ-M257/P5-L	NKNZ-M257R/P-L	DE-M257/P5	M25 x 1.5	17	25	9.0–13.0 mm	15.0 mm	75.0 mm
	NKNZ-M257/P6-L		DE-M257/P6	M25 x 1.5	17	25	11.5–15.5 mm	15.0 mm	75.0 mm
	NKNZ-M323/P2-L	NKNZ-M323R/P-L	DE-M323/P2	M32 x 1.5	23	32	9.0–13.0 mm	15.0 mm	83.0 mm
	NKNZ-M323/P4-L		DE-M323/P4	M32 x 1.5	23	32	14.0–18.0 mm	15.0 mm	83.0 mm
	NKNZ-M323/P5-L	NKNZ-M323R1/P-L	DE-M323/P5	M32 x 1.5	23	32	17.0–20.5 mm	15.0 mm	83.0 mm
	NKNZ-M329/P2-L	NKNZ-M329R/P-L	DE-M329/P2	M32 x 1.5	29	32	14.0–18.0 mm	15.0 mm	90.0 mm
	NKNZ-M329/P3-L		DE-M329/P3	M32 x 1.5	29	40	17.0–20.5 mm	15.0 mm	90.0 mm
	NKNZ-M409/P3-L	NKNZ-M409R/P-L	DE-M409/P3	M40 x 1.5	29	40	17.0–20.5 mm	15.0 mm	90.0 mm
	NKNZ-M409/P4-L		DE-M409/P4	M40 x 1.5	29	40	20.0–25.0 mm	15.0 mm	90.0 mm
	NKNZ-M409/P5-L		DE-M409/P5	M40 x 1.5	29	50	24.0–28.0 mm	15.0 mm	90.0 mm
	NKNZ-M506/P1-L	NKNZ-M506R/P-L	DE-M506/P1	M50 x 1.5	36	50	27.0–32.0 mm	15.0 mm	95.0 mm
	NKNZ-M506/P3-L		DE-M506/P3	M50 x 1.5	36	50	32.0–36.0 mm	15.0 mm	95.0 mm
	NKNZ-M508/P2-L	NKNZ-M508R/P-L	DE-M508/P2	M50 x 1.5	48	50	32.0–36.0 mm	15.0 mm	105.0 mm
	NKNZ-M508/P3-L		DE-M508/P3	M50 x 1.5	48	50	36.0–40.0 mm	15.0 mm	105.0 mm
	NKNZ-M638/P1-L	NKNZ-M638R/P-L	DE-M638/P1	M63 x 1.5	48	63	32.0–35.0 mm	15.0 mm	105.0 mm
	NKNZ-M638/P2-L		DE-M638/P2	M63 x 1.5	48	63	39.0–44.0 mm	15.0 mm	105.0 mm

* without insert

- Sealing inserts are made from TPE-V
- With integrated strain relief and optimal ingress protection at the cable (up to IP68/10 bar)
- High thread and system connection strength
- Temperature range sealing insert Pflitsch: –40 °C to +135 °C

Note

For several conductors multiple sealing inserts MDE are available. R/P version of fitting has to be used in combination with multiple sealing inserts.

PMAFIX Pro

Connectors metric, metal thread

3



KAH, patent

Approvals



KAH

Connector 45° elbow, metric metal thread

– For applications in railway vehicles and heavy machine construction

	Order No. black IP68 + IP69K	Order No. grey IP68 + IP69K	Thread metric	Fits to conduit size		Thread length	External dimensions
				NW	metric		
	NKAH-M120-10	MKAH-M120-10	M12 x 1.5	10	12	10.0 mm	55.5 x 43.0 mm
	NKAH-M160-10	MKAH-M160-10	M16 x 1.5	10	12	10.0 mm	55.5 x 45.0 mm
cUL US	NKAH-M162-10	MKAH-M162-10	M16 x 1.5	12	16	10.0 mm	62.5 x 50.0 mm
	NKAH-M202-10	MKAH-M202-10	M20 x 1.5	12	16	10.0 mm	62.5 x 52.0 mm
	NKAH-M207-10	MKAH-M207-10	M20 x 1.5	17	20	10.0 mm	71.0 x 59.5 mm
	NKAH-M257-11	MKAH-M257-11	M25 x 1.5	17	20	11.0 mm	72.0 x 62.5 mm
	NKAH-M253-11	MKAH-M253-11	M25 x 1.5	23	25	11.0 mm	80.0 x 68.0 mm
	NKAH-M323-13	MKAH-M323-13	M32 x 1.5	23	25	13.0 mm	82.0 x 72.0 mm
	NKAH-M329-13	MKAH-M329-13	M32 x 1.5	29	32	13.0 mm	93.0 x 79.5 mm
	NKAH-M409-13	MKAH-M409-13	M40 x 1.5	29	32	13.0 mm	94.5 x 85.5 mm
	NKAH-M406-13	MKAH-M406-13	M40 x 1.5	36	40	13.0 mm	105.5 x 93.5 mm
	NKAH-M506-14	MKAH-M506-14	M50 x 1.5	36	40	14.0 mm	106.5 x 98.5 mm
	NKAH-M508-14	MKAH-M508-14	M50 x 1.5	48	50	14.0 mm	120.0 x 111.0 mm
	NKAH-M638-14	MKAH-M638-14	M63 x 1.5	48	50	14.0 mm	120.0 x 114.0 mm

– High thread and system connection strength



KBH, patent

Approvals



KBH

Connector 90° curved elbow, metric metal thread

– For applications in railway vehicles and heavy machine construction

	Order No. black IP68 + IP69K	Order No. grey IP68 + IP69K	Thread metric	Fits to conduit size		Thread length	External dimensions
				NW	metric		
	NKBH-M120-10	MKBH-M120-10	M12 x 1.5	10	12	10.0 mm	44.0 x 62.5 mm
	NKBH-M160-10	MKBH-M160-10	M16 x 1.5	10	12	10.0 mm	44.0 x 64.5 mm
cUL US	NKBH-M162-10	MKBH-M162-10	M16 x 1.5	12	16	10.0 mm	47.5 x 72.0 mm
	NKBH-M202-10	MKBH-M202-10	M20 x 1.5	12	16	10.0 mm	47.5 x 74.0 mm
	NKBH-M207-10	MKBH-M207-10	M20 x 1.5	17	20	10.0 mm	53.0 x 81.0 mm
	NKBH-M257-11	MKBH-M257-11	M25 x 1.5	17	20	11.0 mm	54.0 x 84.0 mm
	NKBH-M253-11	MKBH-M253-11	M25 x 1.5	23	25	11.0 mm	63.0 x 92.0 mm
	NKBH-M323-13	MKBH-M323-13	M32 x 1.5	23	25	13.0 mm	65.0 x 96.0 mm
	NKBH-M329-13	MKBH-M329-13	M32 x 1.5	29	32	13.0 mm	75.0 x 108.0 mm
	NKBH-M409-13	MKBH-M409-13	M40 x 1.5	29	32	13.0 mm	76.5 x 114.0 mm
	NKBH-M406-13	MKBH-M406-13	M40 x 1.5	36	40	13.0 mm	87.5 x 126.0 mm
	NKBH-M506-14	MKBH-M506-14	M50 x 1.5	36	40	14.0 mm	88.5 x 131.0 mm
	NKBH-M508-14	MKBH-M508-14	M50 x 1.5	48	50	14.0 mm	101.0 x 145.5 mm
	NKBH-M638-14	MKBH-M638-14	M63 x 1.5	48	50	14.0 mm	101.0 x 148.5 mm

– High thread and system connection strength

– Smooth elbow allows easy threading of wires and cables

PMAFIX Pro

Connectors, female polyamide UNEF thread



KIHG, patent

Approvals



KIHG

Connector straight, UN female thread for MIL-C5015

– For applications in railway vehicles and heavy machine construction

Order No. black IP68 + IP69K	Thread UN	Shell size MIL	Fits to conduit size		Thread length	Overall length
			NW	metric		
BKIHG-U212	7/8"-20 UNEF	16	12	16	9.0 mm	47.0 mm
BKIHG-U217	7/8"-20 UNEF	16	17	20	9.0 mm	52.5 mm
BKIHG-U242	1"-20 UNEF	18	12	16	9.0 mm	47.0 mm
BKIHG-U247	1"-20 UNEF	18	17	20	9.0 mm	52.5 mm
BKIHG-U243	1"-20 UNEF	18	23	23	9.0 mm	55.5 mm
BKIHG-U292	1 3/16"-18 UNEF	20	12	16	9.0 mm	50.5 mm
BKIHG-U297	1 3/16"-18 UNEF	20	17	20	9.0 mm	52.5 mm
BKIHG-U293	1 3/16"-18 UNEF	20	23	25	9.0 mm	55.5 mm
BKIHG-U299	1 3/16"-18 UNEF	20	29	32	9.0 mm	61.0 mm
BKIHG-U357	1 7/16"-18 UNEF	24	17	20	9.0 mm	58.0 mm
BKIHG-U353	1 7/16"-18 UNEF	24	23	25	9.0 mm	55.5 mm
BKIHG-U359	1 7/16"-18 UNEF	24	29	32	9.0 mm	61.0 mm
BKIHG-U433	1 3/4"-18 UNS	32	23	25	10.0 mm	62.5 mm
BKIHG-U439	1 3/4"-18 UNS	32	29	32	10.0 mm	62.0 mm
BKIHG-U503	2"-18 UNS	36	23	25	10.0 mm	67.0 mm
BKIHG-U509	2"-18 UNS	36	29	32	10.0 mm	67.5 mm
BKIHG-U506	2"-18 UNS	36	36	40	10.0 mm	67.0 mm
BKIHG-U508	2"-18 UNS	36	48	50	10.0 mm	73.5 mm
BKIHG-U566	2 1/4"-16 UN	40	36	40	10.0 mm	72.0 mm
BKIHG-U568	2 1/4"-16 UN	40	48	50	10.0 mm	73.5 mm

– Suitable for MIL connector, series C5015

PMAFIX Pro

Connectors metric, female metal thread (sealing elements)

3



KIS, patent

Approvals



KIS

Connector straight, metric metal female thread

– For applications in railway vehicles and heavy machine construction

Order No. black IP68 + IP69K	Thread metric	Fits to conduit size metric		Thread length	Overall length
NKIS-M162	M16 x 1.5	12	16	9.0 mm	49.0 mm
NKIS-M207	M20 x 1.5	17	20	10.5 mm	56.0 mm
NKIS-M253	M25 x 1.5	23	25	10.5 mm	58.5 mm
NKIS-M329	M32 x 1.5	29	32	11.0 mm	65.5 mm
NKIS-M406	M40 x 1.5	36	40	13.5 mm	72.0 mm
NKIS-M508	M50 x 1.5	48	50	15.0 mm	83.0 mm
NKIS-M638	M63 x 1.5	48	50	17.5 mm	84.0 mm

– High thread and system connection strength
 – No seal on female thread side



KNH2

KNH2

PMAFIX Pro sealing and locking element

Order No.	Fits to conduit size metric		Outside Ø	Overall length
KNH2-NW10	10	12	22.0 mm	28.0 mm
KNH2-NW12	12	16	25.5 mm	33.5 mm
KNH2-NW17	17	20	31.5 mm	38.5 mm
KNH2-NW23	23	25	38.5 mm	41.0 mm
KNH2-NW29	29	32	46.5 mm	46.5 mm
KNH2-NW36	36	40	55.5 mm	50.5 mm
KNH2-NW48	48	50	68.0 mm	56.5 mm

PMAFIX

Connectors for conduits

PMAFIX

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PMAFIX IP66, IP68 (IP69K) General technical details

PMAFIX connectors. The designation PMAFIX describes a very large range of connectors for PMA conduits with the patented PMA safety clip system.

Connectors are available for ingress protection IP66 and IP68. IP66 connectors are fitted with a pre-installed universal safety clip which ensures a quick “push-in” installation. IP68 connectors for increased requirements will be delivered with a special conduit seal cap. The new PMAFIX IP68GT fittings combine simplest push-in assembly with highest sealing performance.

Material

- Fittings made from specially formulated polyamide 6
- Threads made from nickel-plated brass or polyamide 6
- Self-extinguishing
- Free from halogens, REACH + ROHS compliant
- Very good chemical properties
- Temperature range:
–40 °C to +105 °C, short-term to +160 °C

Characteristics

- Excellent conduit pull-out strength
- High impact resistance
- Vibration-proof connection to PMA corrugated conduits
- Fits conduit profiles – fine (T) and coarse (G)
- To avoid accidental opening, disassembling only possible with a screwdriver



PMAFIX

General technical details

IP66

IP66 static

IP54 dynamic

- One piece fitting
- Conical sealing method
- Easy "push-in" installation
- Pre-installed safety clip AFN2
- Content of delivery: Connector with pre-installed safety clip



patent

4

IP68GT

IP68 static

IP67 dynamic

IP69K according to DIN 40050

- The single piece PMAFIX IP68GT fitting with integrated sealing cap and pre-installed locking clip
- Simple push-in assembly (as with the proven PMAFIX IP66 system)
- The extra long sealing cap guarantees the highest level of ingress protection
- Identical approvals as for the PMAFIX IP68 system component version
- Fast modification of specification drawings through simple addition of ,GT' to the existing order number (e.g. BVNV-M257 → BVNV-M257GT)
- Additional water protection ring WPS for IP69K ingress protection in conjunction with the IP68 system to be applied right after the IP68 connector onto the conduit
- Content of delivery: Connector with integrated sealing cap, pre-installed safety clip and thread seal for male thread (O-ring and/or flat gasket)



patent

IP68

IP68 static

IP67 dynamic

IP69K according to DIN 40050

- High sealing through additional seal cap
- For highest dynamic applications
- Additional water protection ring WPS for IP69K ingress protection in conjunction with the IP68 system to be applied right after the IP68 connector onto the conduit
- Content of delivery: Connector with sealing cap, safety clip and thread seal for male thread (O-ring and/or flat gasket)



patent



PMAFIX

Part number codes

Part number codes

B V N D - P 16 7 GT / 01

Modification code

Safety retaining clip type

GT = Universal safety clip
.. = Oval clip

PMA Conduit code (Table 1)

Thread code (Table 2)

Thread type:

P = PG thread
M = Metric thread
F = Metric fine thread
N = NPT thread
G = Gas thread
U = UN thread for round connector

Mode of ingress protection:

D = Self-sealing IP66
L = With seal cap IP67 on conduit side
R = With seal cap IP68 on conduit side
V = With gasket reinforced IP68
Z = Add. combined sealing with strain relief IP68

PMAFIX serie

N = Straight
W = 90° elbow
B = 90° curved elbow
A = 45° elbow
O = 90° elbow with flange
I = Female thread
Y = Y piece
T = T piece

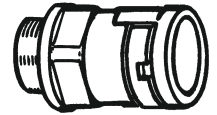
PMAFIX type:

V = Reinforced
S = Series V with swiveling coupler
P = ATEX + IECEx certified
(see PMA Ex-System catalogue)

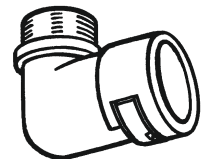
Colour:

B = Black
S = Grey
T = Transparent
N = Black with metal thread
M = Grey with metal thread
X = Special colour

Connector series



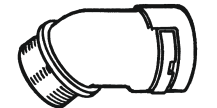
Serie N



Serie W



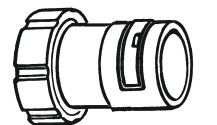
Serie B



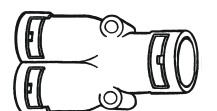
Serie A



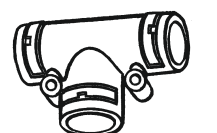
Serie O



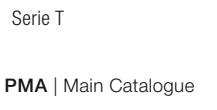
Serie I



Serie V



Serie Y



Serie T

PMAFIX

Size codes

Table 1

Conduit codes

Nominal width	Metric size	PMA code
07	10	M
10	12	0
12	16	2
17	20	7
23	25	3
29	32	9
36	40	6
48	50	8

Additional code for female thread connectors

Type	PMA code
AMP	A
Souriau (ex Burndy) UTG 6	B
With O-ring groove (MIL C 5015)	G
Souriau (ex Burndy) UTO/UTS	S

4

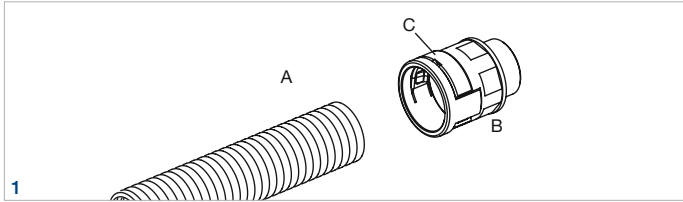
Table 2

Thread codes

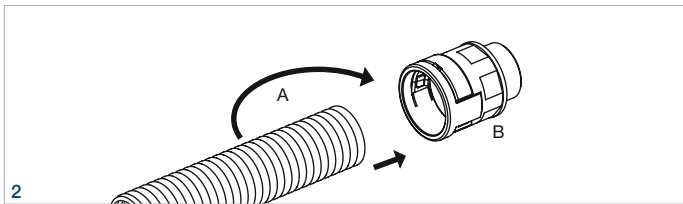
Thread metric	PMA code	Thread PG	PMA code	Thread Gas	PMA code	Thread NPT	PMA code	Thread UN	PMA code
		PG07	P07	G ¼	G00				
M12 x 1.5	M12	PG09	P09	G ⅜	G01				
M16 x 1.5	M16	PG11	P11	G ½	G02	N ½	N02	½–28 UNEF	U12
M20 x 1.5	M20	PG13.5	P13	G ¾	G04	N ¾	N04	⅜–24 UNEF	U13
		PG16	P16	G 1	G06	N 1	N06	⅝–24 UNEF	U15
M25 x 1.5	M25	PG21	P21	G 1¼	G07	N 1¼	N07	11/16–24 UNEF	U16
M32 x 1.5	M32	PG29	P29	G 1½	G08	N 1½	N08	¾–20 UNEF	U18
M40 x 1.5	M40	PG36	P36	G 2	G09	N 2	N09	13/16–20 UNEF	U20
M50 x 1.5	M50	PG42	P42	G 2¼	G10			7/8–20 UNEF	U21
M63 x 1.5	M63	PG48	P48	G 2½	G11			15/16–20 UNEF	U23
								1–20 UNEF	U24
								1¼–18 UNEF	U26
M 8 x 1.0	F08							19/16–18 UNEF	U29
M12 x 1.0	F12							1¼–18 UNEF	U30
M18 x 1.0	F18							19/16–18 UNEF	U32
								13/8–18 UNEF	U34
								17/16–18 UNEF	U35
								15/8–18 UNEF	U40
								1¾–18 UNS	U43
								2–18 UNS	U50
								2¼–16 UN	U56
								2¾–12 UN	U57
								2½–12 UN	U62

PMAFIX Installation

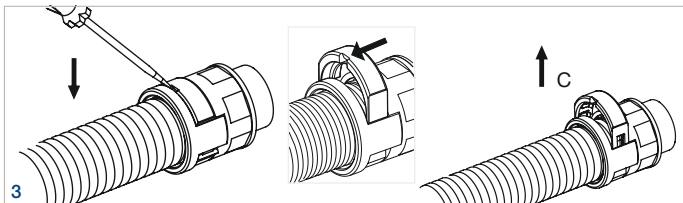
Installation IP66



1
A = Conduit
B = Fitting
C = Universal safety clip



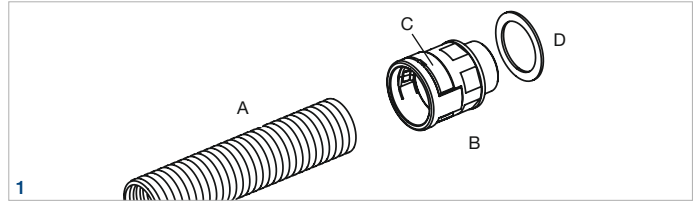
2
Push in the conduit (A) with a slight twist until the stop.



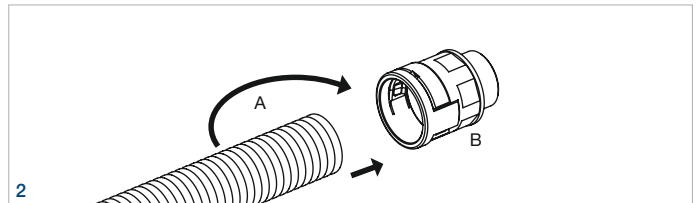
3
To re-open use a screwdriver.
The screwdriver slot in the oval clip (C) should be on the conduit side.

Locking clip pre-installed in all IP66 connectors.

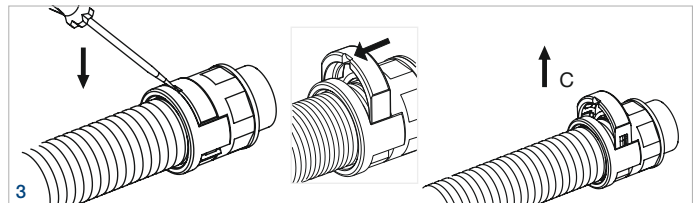
Installation IP68GT



1
A = Conduit
B = Fitting with integrated sealing cap
C = Universal safety clip
D = Thread seal (either O-ring or flat gasket*, not both)



2
Push in the conduit (A) right into the end of the fitting (B) with a slight twist.
Additional insertion resistance will be felt when the end of the fitting has been reached.



3
To re-open use a screwdriver.
The screwdriver slot in the oval clip (C) should be on the conduit side.

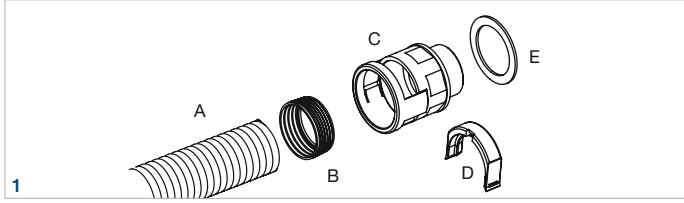
Pre-installed sealing cap and locking clip in all IP68GT connectors.

* Ensure to follow O-ring manufacturers guidelines when using O-rings for sealing purposes.

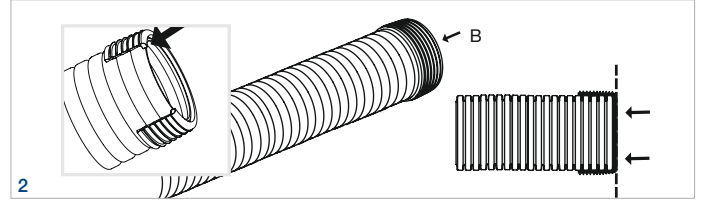
PMAFIX Installation

Installation IP68 (IP69K)

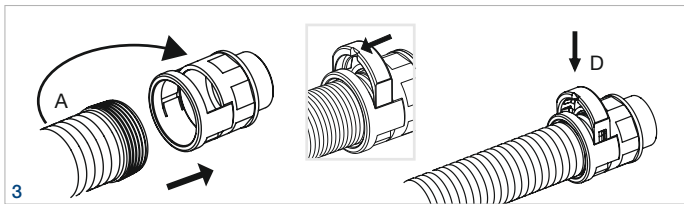
4



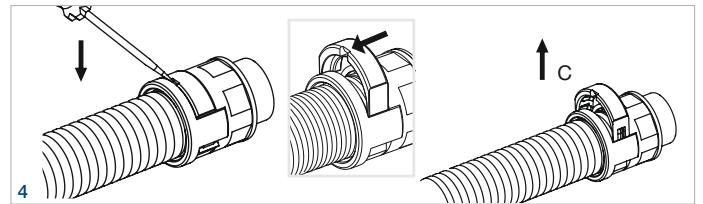
A = Conduit
B = Sealing cap
C = Fitting
D = Oval clip
E = Thread seal
(O-ring or flat seal*)



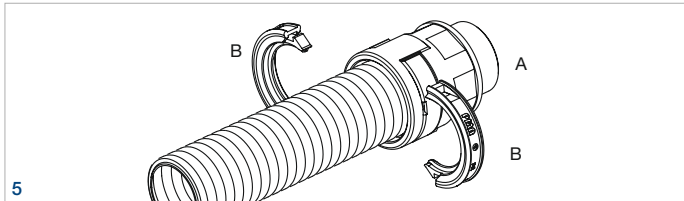
Push sealing cap (B) completely onto the conduit in order to achieve IP68.



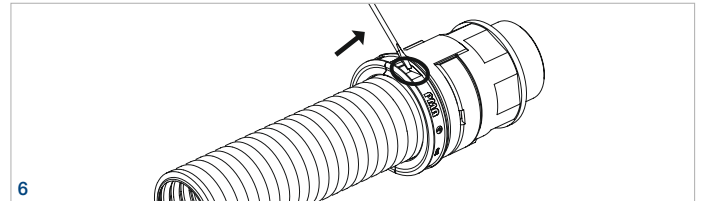
Push in the conduit (A) with a slight twist until the stop. Insert oval clip (D) in the locking element window and click into place. Screwdriver slot in the oval clip should be on conduit side.



To re-open use a screwdriver.



For IP69K:
Based on IP68 System
A = Conduit with IP68 fitting
B = WPS half shells



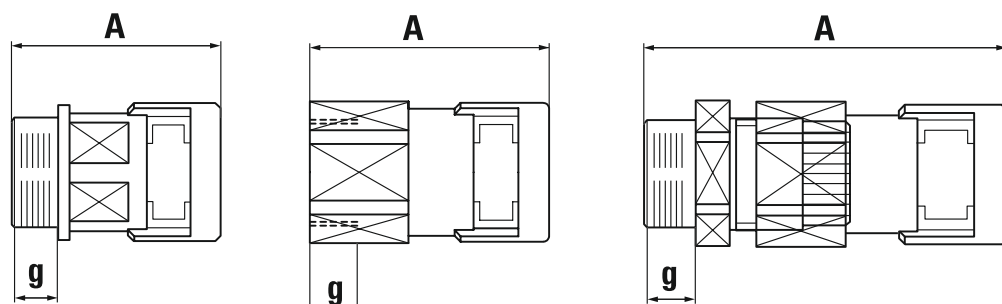
To re-open use a screwdriver.

*For safety reasons, oval clip will not fit if seal cap is not fully installed.

Ensure to follow O-ring manufacturers guidelines when using O-rings for sealing purposes.

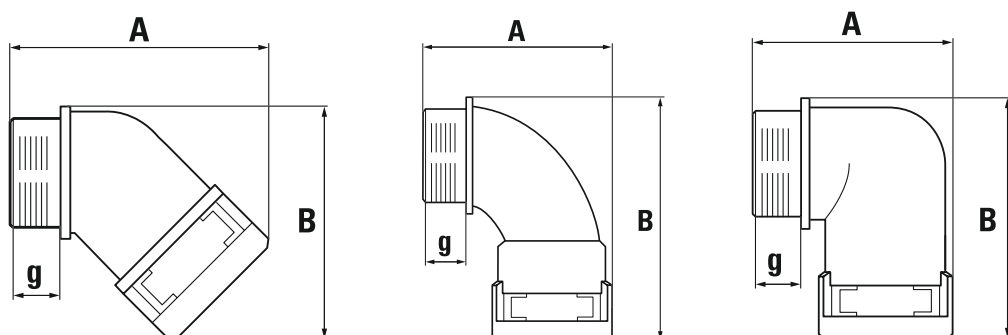
PMAFIX

Connectors metric, polyamide thread



g = Thread length A = Overall length

4



g = Thread length A x B = External dimensions



VN

VN

Connector straight, metric thread

– For cable protection systems in a wide range of applications

Order No. IP66	Order No. IP68	Thread metric	Fits to conduit size metric		Thread length	Overall length
BVND-M12MGT	BVNV-M12M	M12 x 1.5	07	10	11.0 mm	34.5 mm
BVND-M120GT	BVNV-M120	M12 x 1.5	10	12	11.0 mm	36.5 mm
BVND-M160GT	BVNV-M160	M16 x 1.5	10	12	11.0 mm	36.5 mm
BVND-M162GT	BVNV-M162	M16 x 1.5	12	16	11.0 mm	39.5 mm
BVND-M200GT	BVNV-M200	M20 x 1.5	10	12	11.0 mm	36.5 mm
BVND-M202GT	BVNV-M202	M20 x 1.5	12	16	11.0 mm	39.5 mm
BVND-M207GT	BVNV-M207	M20 x 1.5	17	20	11.0 mm	47.5 mm
BVND-M203GT	BVNV-M203	M20 x 1.5	23	25	11.0 mm	51.0 mm
BVND-M257GT	BVNV-M257	M25 x 1.5	17	20	12.0 mm	48.5 mm
BVND-M253GT	BVNV-M253	M25 x 1.5	23	25	12.0 mm	52.0 mm
BVND-M323GT	BVNV-M323	M32 x 1.5	23	25	15.0 mm	55.5 mm
BVND-M329GT	BVNV-M329	M32 x 1.5	29	32	15.0 mm	56.0 mm
BVND-M409GT	BVNV-M409	M40 x 1.5	29	32	19.0 mm	60.0 mm
BVND-M406GT	BVNV-M406	M40 x 1.5	36	40	19.0 mm	72.5 mm
BVND-M506GT	BVNV-M506	M50 x 1.5	36	40	19.0 mm	72.0 mm
BVND-M508GT	BVNV-M508	M50 x 1.5	48	50	19.0 mm	72.5 mm
BVND-M638GT	BVNV-M638	M63 x 1.5	48	50	19.0 mm	72.0 mm

Approvals



1 Please replace "B" for black with "S" for grey in front of the order no.

2 IP68GT available. Please add "GT" after the order no.

PMAFIX

Connectors metric, polyamide thread



VNDZ/VNZ

VNDZ/VNZ

Connector straight with strain relief, metric thread

- For machine and plant construction
- For separation of damp and dry areas

Order No. IP66 ¹	Order No. IP68 ^{1 3}	Thread metric	Fits to conduit size metric		Terminal range	Thread length	Overall length
BVNDZ-M160GT	–	M16 x 1.5	10	12	5.0–10.0 mm	8.0 mm	62.0 mm
BVNDZ-M162GT	BVNZ-M162S	M16 x 1.5	12	16	5.0–10.0 mm	8.0 mm	62.0 mm
BVNDZ-M207GT	BVNZ-M207S	M20 x 1.5	17	20	10.0–14.0 mm	8.0 mm	72.0 mm
BVNDZ-M253GT	BVNZ-M253S	M25 x 1.5	23	25	13.0–18.0 mm	8.0 mm	81.0 mm
BVNDZ-M329GT	BVNZ-M329S	M32 x 1.5	29	32	18.0–25.0 mm	10.0 mm	85.0 mm
BVNDZ-M406GT	BVNZ-M406S	M40 x 1.5	36	40	22.0–32.0 mm	10.0 mm	108.5 mm
BVNDZ-M508GT	BVNZ-M508S	M50 x 1.5	48	50	30.0–38.0 mm	12.0 mm	119.5 mm
BVNDZ-M638GT	BVNZ-M638S	M63 x 1.5	48	50	34.0–44.0 mm	12.0 mm	119.5 mm

- Integrated strain relief optimally holds and seals cables
- If several conductors are used with the connector multiple sealing inserts should be considered

Note

For several conductors multiple sealing inserts MDE are available

4

Approvals



VA

VA

Connector 45° elbow, metric thread

- For cable protection systems in a wide range of applications

Order No. IP66 ¹	Order No. IP68 ^{1 2}	Thread metric	Fits to conduit size metric		Thread length	External dimensions
BVAD-M120GT	–	M12 x 1.5	10	12	11.0 mm	43.5 x 37.0 mm
BVAD-M160GT	BVAV-M160	M16 x 1.5	10	12	11.0 mm	43.5 x 38.0 mm
BVAD-M162GT	BVAV-M162	M16 x 1.5	12	16	11.0 mm	48.0 x 40.0 mm
BVAD-M202GT	BVAV-M202	M20 x 1.5	12	16	11.0 mm	48.0 x 41.5 mm
BVAD-M207GT	BVAV-M207	M20 x 1.5	17	20	11.0 mm	55.5 x 51.5 mm
BVAD-M253GT	BVAV-M253	M25 x 1.5	23	25	12.0 mm	65.0 x 58.5 mm
BVAD-M329GT	BVAV-M329	M32 x 1.5	29	32	15.0 mm	73.5 x 66.5 mm
BVAD-M406GT	BVAV-M406	M40 x 1.5	36	40	19.0 mm	92.5 x 85.5 mm
BVAD-M506GT	BVAV-M506	M50 x 1.5	36	40	19.0 mm	92.5 x 89.5 mm
BVAD-M508GT	BVAV-M508	M50 x 1.5	48	50	19.0 mm	100.0 x 96.0 mm
BVAD-M638GT	BVAV-M638	M63 x 1.5	48	50	19.0 mm	100.0 x 104.0 mm

Approvals



- ¹ Please replace "B" for black with "S" for grey in front of the order no.
- ² IP68GT available. Please add "GT" after the order no.
- ³ IP68GT available. Please replace "S" at the end with "GT" (e.g. BVNZ-M207GT)

PMAFIX

Connectors metric, polyamide thread



VB

Approvals



VB

Connector 90° curved elbow, metric thread

– For cable protection systems in a wide range of applications

Order No. IP66 ①	Order No. IP68 ① ②	Thread metric	Fits to conduit size metric		Thread length	External dimensions
BVBD-M207GT	BVBV-M207	M20 x 1.5	17	20	11.0 mm	47.5 x 73.0 mm
BVBD-M257GT	BVBV-M257	M25 x 1.5	17	20	12.0 mm	48.5 x 76.0 mm
BVBD-M253GT	BVBV-M253	M25 x 1.5	23	25	12.0 mm	57.5 x 83.0 mm
BVBD-M323GT	BVBV-M323	M32 x 1.5	23	25	15.0 mm	61.0 x 87.5 mm
BVBD-M329GT	BVBV-M329	M32 x 1.5	29	32	15.0 mm	70.5 x 93.0 mm
BVBD-M409GT	BVBV-M409	M40 x 1.5	29	32	19.0 mm	74.5 x 98.5 mm
BVBD-M406GT	BVBV-M406	M40 x 1.5	36	40	19.0 mm	85.0 x 121.0 mm
BVBD-M506GT	BVBV-M506	M50 x 1.5	36	40	19.0 mm	85.0 x 125.0 mm
BVBD-M508GT	BVBV-M508	M50 x 1.5	48	50	19.0 mm	98.5 x 130.0 mm
BVBD-M638GT	BVBV-M638	M63 x 1.5	48	50	19.0 mm	98.5 x 138.0 mm

– Smooth elbow allows easy threading of wires and cables

Note

For smaller conduit sizes NW 10 to NW 12 appropriate standard elbows of type VW are also available



VW

Approvals



VW

Connector 90° elbow, metric thread

– For cable protection systems in a wide range of applications

Order No. IP66 ①	Order No. IP68 ① ②	Thread metric	Fits to conduit size metric		Thread length	External dimensions
BVWD-M12MGT	BVWV-M12M	M12 x 1.5	07	10	11.0 mm	32.0 x 35.0 mm
BVWD-M120GT	BVWV-M120	M12 x 1.5	10	12	11.0 mm	34.0 x 39.5 mm
BVWD-M160GT	BVWV-M160	M16 x 1.5	10	12	11.0 mm	34.0 x 40.5 mm
BVWD-M162GT	BVWV-M162	M16 x 1.5	12	16	11.0 mm	38.5 x 46.0 mm
BVWD-M200GT	–	M20 x 1.5	10	12	11.0 mm	34.0 x 42.5 mm
BVWD-M202GT	BVWV-M202	M20 x 1.5	12	16	11.0 mm	38.5 x 47.5 mm
BVWD-M207GT	BVWV-M207	M20 x 1.5	17	20	11.0 mm	43.5 x 58.5 mm
BVWD-M253GT	BVWV-M253	M25 x 1.5	23	25	12.0 mm	54.0 x 65.0 mm
BVWD-M329GT	BVWV-M329	M32 x 1.5	29	32	15.0 mm	64.5 x 73.0 mm
BVWD-M406GT	BVWV-M406	M40 x 1.5	36	40	19.0 mm	78.0 x 96.0 mm
BVWD-M508GT	BVWV-M508	M50 x 1.5	48	50	19.0 mm	91.5 x 106.0 mm

Note

For sizes NW 17 to NW 48 curved elbows of type VB are also available

① Please replace "B" for black with "S" for grey in front of the order no.

② IP68GT available. Please add "GT" after the order no.

PMAFIX

Connectors metric, metal thread



VNV

4

Approvals



VNV

Connector straight, metric metal thread

– For applications in railway vehicles and heavy machine construction

Order No. IP68, black ④	Order No. IP68, grey ④	Thread metric	Fits to conduit size NW		Thread length	Overall length
NVNV-M120-10	MVNV-M120-10	M12 x 1.5	10	12	10.0 mm	40.0 mm
NVNV-M120-5	MVNV-M120-5	M12 x 1.5	10	12	5.0 mm	35.0 mm
NVNV-M160-10	MVNV-M160-10	M16 x 1.5	10	12	10.0 mm	40.0 mm
NVNV-M160-5	MVNV-M160-5	M16 x 1.5	10	12	5.0 mm	35.0 mm
NVNV-M162-10	MVNV-M162-10	M16 x 1.5	12	16	10.0 mm	43.0 mm
NVNV-M162-5	MVNV-M162-5	M16 x 1.5	12	16	5.0 mm	38.0 mm
NVNV-M202-10	MVNV-M202-10	M20 x 1.5	12	16	10.0 mm	43.0 mm
NVNV-M202-6	MVNV-M202-6	M20 x 1.5	12	16	6.0 mm	39.0 mm
NVNV-M207-10	MVNV-M207-10	M20 x 1.5	17	20	10.0 mm	51.0 mm
NVNV-M207-6	MVNV-M207-6	M20 x 1.5	17	20	6.0 mm	47.0 mm
NVNV-M257-11	MVNV-M257-11	M25 x 1.5	17	20	11.0 mm	52.0 mm
NVNV-M257-7	MVNV-M257-7	M25 x 1.5	17	20	7.0 mm	48.0 mm
NVNV-M253-11	MVNV-M253-11	M25 x 1.5	23	25	11.0 mm	54.0 mm
NVNV-M253-7	MVNV-M253-7	M25 x 1.5	23	25	7.0 mm	50.0 mm
NVNV-M323-13	MVNV-M323-13	M32 x 1.5	23	25	13.0 mm	56.0 mm
NVNV-M323-8	MVNV-M323-8	M32 x 1.5	23	25	8.0 mm	51.0 mm
NVNV-M329-13	MVNV-M329-13	M32 x 1.5	29	32	13.0 mm	57.3 mm
NVNV-M329-8	MVNV-M329-8	M32 x 1.5	29	32	8.0 mm	52.3 mm
NVNV-M409-13	MVNV-M409-13	M40 x 1.5	29	32	13.0 mm	57.3 mm
NVNV-M409-8	MVNV-M409-8	M40 x 1.5	29	32	8.0 mm	52.3 mm
NVNV-M406-13	MVNV-M406-13	M40 x 1.5	36	40	13.0 mm	71.4 mm
NVNV-M406-8	MVNV-M406-8	M40 x 1.5	36	40	8.0 mm	66.4 mm
NVNV-M506-14	MVNV-M506-14	M50 x 1.5	36	40	14.0 mm	72.4 mm
NVNV-M506-9	MVNV-M506-9	M50 x 1.5	36	40	9.0 mm	67.4 mm
NVNV-M508-14	MVNV-M508-14	M50 x 1.5	48	50	14.0 mm	72.4 mm
NVNV-M508-9	MVNV-M508-9	M50 x 1.5	48	50	9.0 mm	67.4 mm
NVNV-M638-14	MVNV-M638-14	M63 x 1.5	48	50	14.0 mm	72.4 mm
NVNV-M638-10	MVNV-M638-10	M63 x 1.5	48	50	10.0 mm	68.4 mm

– High thread and system connection strength

④ IP68GT available. Please add "GT" prior to the thread length (for example NVNV-M120GT-10)

PMAFIX

Connectors with strain relief, metric, metal thread



VNZ

Approvals



VNZ

Connector straight with strain relief, metric metal thread

- For applications in railway vehicles and heavy machine construction
- For the separation of damp and dry areas

Order No. IP68 Compl., black ⑤	Order No. Fitting* ⑤	Order No. Insert	Thread metric	Fits to conduit size NW	Terminal range	Thread length	Overall length
NVNZ-M120S/P1	NVNZ-M120R/P	DE-M120/P1	M12 x 1.5	10	12	4.0–6.5 mm	48.5 mm
NVNZ-M120S/P2		DE-M120/P2	M12 x 1.5	10	12	5.0–8.0 mm	48.5 mm
NVNZ-M120S/P3		DE-M120/P3	M12 x 1.5	10	12	6.5–9.5 mm	48.5 mm
NVNZ-M160S/P1	NVNZ-M160R/P	DE-M160/P1	M16 x 1.5	10	12	4.0–6.5 mm	49.5 mm
NVNZ-M160S/P2		DE-M160/P2	M16 x 1.5	10	12	5.0–8.0 mm	49.5 mm
NVNZ-M160S/P3		DE-M160/P3	M16 x 1.5	10	12	6.5–9.5 mm	49.5 mm
NVNZ-M202S/P1	NVNZ-M202R/P	DE-M202/P1	M20 x 1.5	12	16	4.0–6.5 mm	54.0 mm
NVNZ-M202S/P3		DE-M202/P3	M20 x 1.5	12	16	6.5–9.5 mm	54.0 mm
NVNZ-M202S/P4		DE-M202/P4	M20 x 1.5	12	16	7.0–10.5 mm	54.0 mm
NVNZ-M207S/P3	NVNZ-M207R/P	DE-M207/P3	M20 x 1.5	17	20	6.5–9.5 mm	60.0 mm
NVNZ-M207S/P4		DE-M207/P4	M20 x 1.5	17	20	7.0–10.5 mm	60.0 mm
NVNZ-M207S/P5		DE-M207/P5	M20 x 1.5	17	20	9.0–13.0 mm	60.0 mm
NVNZ-M253S/P5	NVNZ-M253R/P	DE-M253/P5	M25 x 1.5	23	25	9.0–13.0 mm	72.5 mm
NVNZ-M253S/P6		DE-M253/P6	M25 x 1.5	23	25	11.5–15.5 mm	72.5 mm
NVNZ-M257S/P4	NVNZ-M257R/P	DE-M257/P4	M25 x 1.5	17	20	7.0–10.0 mm	61.5 mm
NVNZ-M257S/P5		DE-M257/P5	M25 x 1.5	17	20	9.0–13.0 mm	61.5 mm
NVNZ-M257S/P6		DE-M257/P6	M25 x 1.5	17	20	11.5–15.5 mm	61.5 mm
NVNZ-M323S/P4	NVNZ-M323R/P	DE-M323/P4	M32 x 1.5	23	25	14.0–18.0 mm	73.0 mm
NVNZ-M323S/P5	NVNZ-M323R1/P	DE-M323/P5	M32 x 1.5	23	25	17.0–20.5 mm	73.0 mm
NVNZ-M329S/P2	NVNZ-M329R/P	DE-M329/P2	M32 x 1.5	29	32	14.0–18.0 mm	73.0 mm
NVNZ-M329S/P3		DE-M329/P3	M32 x 1.5	29	32	17.0–20.5 mm	73.0 mm
NVNZ-M329S/P4		DE-M329/P4	M32 x 1.5	29	32	20.0–25.0 mm	73.0 mm
NVNZ-M406S/P1	NVNZ-M406R/P	DE-M406/P1	M40 x 1.5	36	40	20.0–25.0 mm	87.0 mm
NVNZ-M406S/P2		DE-M406/P2	M40 x 1.5	36	40	24.0–28.0 mm	87.0 mm
NVNZ-M409S/P1	NVNZ-M409R/P	DE-M409/P1	M40 x 1.5	29	32	11.5–15.5 mm	73.0 mm
NVNZ-M409S/P2		DE-M409/P2	M40 x 1.5	29	32	14.0–18.0 mm	73.0 mm
NVNZ-M409S/P3		DE-M409/P3	M40 x 1.5	29	32	17.0–20.5 mm	73.0 mm
NVNZ-M409S/P4		DE-M409/P4	M40 x 1.5	29	32	20.0–25.0 mm	73.0 mm
NVNZ-M409S/P5		DE-M409/P5	M40 x 1.5	29	32	24.0–28.0 mm	73.0 mm
NVNZ-M506S/P1	NVNZ-M506R/P	DE-M506/P1	M50 x 1.5	36	40	27.0–32.0 mm	89.5 mm
NVNZ-M506S/P3		DE-M506/P3	M50 x 1.5	36	40	32.0–36.0 mm	89.5 mm
NVNZ-M508S/P2	NVNZ-M508R/P	DE-M508/P2	M50 x 1.5	48	50	32.0–36.0 mm	92.0 mm
NVNZ-M508S/P3		DE-M508/P3	M50 x 1.5	48	50	36.0–40.0 mm	92.0 mm
NVNZ-M638S/P1	NVNZ-M638R/P	DE-M638/P1	M63 x 1.5	48	50	32.0–35.0 mm	90.5 mm
NVNZ-M638S/P2		DE-M638/P2	M63 x 1.5	48	50	39.0–44.0 mm	90.5 mm

*without insert

- Sealing inserts are made from TPE-V
- With integrated strain relief and optimal ingress protection at the cable (up to IP68/10 bar)
- High thread and system connection strength
- Temperature range sealing insert Pflitsch: –40 °C to +135 °C

Note

For several conductors multiple sealing inserts MDE are available. R/P version of fitting has to be used in combination with multiple sealing inserts.

⑤ IP68GT available. Please replace "S" or "R" with "GT" (e.g. NVNZ-M120GT/P1, NVNZ-M120GT/P)

PMAFIX

Connectors with strain relief, metric, long metal thread



VNZ

VNZ

Connector straight with strain relief, metric long metal thread

- For applications in railway vehicles and heavy machine construction
- For the separation of damp and dry areas

Order No. IP68 Compl., black ⁵	Order No. Fitting* ⁵	Order No. Insert	Thread metric	Fits to conduit size NW	Terminal range	Thread length	Overall length
NVNZ-M120S/P1-L	NVNZ-M120R/P-L	DE-M120/P1	M12 x 1.5	10	12	4.0–6.5 mm	66.5 mm
NVNZ-M120S/P3-L		DE-M120/P3	M12 x 1.5	10	12	6.5–9.5 mm	66.5 mm
NVNZ-M160S/P1-L	NVNZ-M160R/P-L	DE-M160/P1	M16 x 1.5	10	12	4.0–6.5 mm	58.5 mm
NVNZ-M160S/P2-L		DE-M160/P2	M16 x 1.5	10	12	5.0–8.0 mm	58.5 mm
NVNZ-M160S/P3-L		DE-M160/P3	M16 x 1.5	10	12	6.5–9.5 mm	58.5 mm
NVNZ-M202S/P1-L	NVNZ-M202R/P-L	DE-M202/P1	M20 x 1.5	12	16	4.0–6.5 mm	62.5 mm
NVNZ-M202S/P3-L		DE-M202/P3	M20 x 1.5	12	16	6.5–9.5 mm	62.5 mm
NVNZ-M202S/P4-L		DE-M202/P4	M20 x 1.5	12	16	7.0–10.5 mm	62.5 mm
NVNZ-M207S/P3-L	NVNZ-M207R/P-L	DE-M207/P3	M20 x 1.5	17	20	6.5–9.5 mm	68.5 mm
NVNZ-M207S/P4-L		DE-M207/P4	M20 x 1.5	17	20	7.0–10.5 mm	68.5 mm
NVNZ-M207S/P5-L		DE-M207/P5	M20 x 1.5	17	20	9.0–13.0 mm	68.5 mm
NVNZ-M257S/P5-L	NVNZ-M257R/P-L	DE-M257/P5	M25 x 1.5	17	20	9.0–13.0 mm	69.0 mm
NVNZ-M257S/P6-L		DE-M257/P6	M25 x 1.5	17	20	11.5–15.5 mm	69.0 mm
NVNZ-M323S/P4-L	NVNZ-M323R/P-L	DE-M323/P4	M32 x 1.5	23	25	14.0–18.0 mm	80.0 mm
NVNZ-M323S/P5-L	NVNZ-M323R1/P-L	DE-M323/P5	M32 x 1.5	23	25	17.0–20.5 mm	80.0 mm
NVNZ-M329S/P2-L	NVNZ-M329R/P-L	DE-M329/P2	M32 x 1.5	29	32	14.0–18.0 mm	91.0 mm
NVNZ-M329S/P3-L		DE-M329/P3	M32 x 1.5	29	32	17.0–20.5 mm	91.0 mm
NVNZ-M409S/P3-L	NVNZ-M409R/P-L	DE-M409/P3	M40 x 1.5	29	32	17.0–20.5 mm	80.0 mm
NVNZ-M409S/P4-L		DE-M409/P4	M40 x 1.5	29	32	20.0–25.0 mm	80.0 mm
NVNZ-M409S/P5-L		DE-M409/P5	M40 x 1.5	29	32	24.0–28.0 mm	80.0 mm
NVNZ-M506S/P1-L	NVNZ-M506R/P-L	DE-M506/P1	M50 x 1.5	36	40	27.0–32.0 mm	94.5 mm
NVNZ-M506S/P3-L		DE-M506/P3	M50 x 1.5	36	40	32.0–36.0 mm	94.5 mm
NVNZ-M508S/P2-L	NVNZ-M508R/P-L	DE-M508/P2	M50 x 1.5	48	50	32.0–36.0 mm	97.0 mm
NVNZ-M508S/P3-L		DE-M508/P3	M50 x 1.5	48	50	36.0–40.0 mm	97.0 mm
NVNZ-M638S/P1-L	NVNZ-M638R/P-L	DE-M638/P1	M63 x 1.5	48	50	32.0–35.0 mm	95.5 mm
NVNZ-M638S/P2-L		DE-M638/P2	M63 x 1.5	48	50	39.0–44.0 mm	95.5 mm

* without insert

- Sealing inserts are made from TPE-V
- With integrated strain relief and optimal ingress protection at the cable (up to IP68/10 bar)
- High thread and system connection strength
- Temperature range sealing insert Pflitsch: –40 °C to +135 °C

Note

For several conductors multiple sealing inserts MDE are available. R/P version of fitting has to be used in combination with multiple sealing inserts.

4

Approvals



⁵ IP68GT available. Please replace "S" or "R" with "GT" (e.g. NVNZ-M120GT/P1-L)

PMAFIX

Connectors metric, metal thread



VAV

Approvals



VAV

Connector 45° elbow, metric metal thread

– For applications in railway vehicles and heavy machine construction

Order No. IP68, black	Order No. IP68, grey	Thread metric	Fits to conduit size		Thread length	External dimensions
			NW	metric		
NVAV-M120-10	MVAV-M120-10	M12 x 1.5	10	12	10.0 mm	48.5 x 37.0 mm
NVAV-M120-5	MVAV-M120-5	M12 x 1.5	10	12	5.0 mm	43.5 x 37.0 mm
NVAV-M162-10	MVAV-M162-10	M16 x 1.5	12	16	10.0 mm	53.0 x 40.5 mm
NVAV-M162-5	MVAV-M162-5	M16 x 1.5	12	16	5.0 mm	48.0 x 40.5 mm
NVAV-M207-10	MVAV-M207-10	M20 x 1.5	17	20	10.0 mm	60.5 x 51.5 mm
NVAV-M207-6	MVAV-M207-6	M20 x 1.5	17	20	6.0 mm	56.5 x 51.5 mm
NVAV-M253-11	MVAV-M253-11	M25 x 1.5	23	25	11.0 mm	70.0 x 60.5 mm
NVAV-M253-7	MVAV-M253-7	M25 x 1.5	23	25	7.0 mm	66.0 x 60.5 mm
NVAV-M257-11	MVAV-M257-11	M25 x 1.5	17	20	11.0 mm	61.5 x 54.5 mm
NVAV-M323-13	MVAV-M323-13	M32 x 1.5	23	25	13.0 mm	72.0 x 64.5 mm
NVAV-M329-13	MVAV-M329-13	M32 x 1.5	29	32	13.0 mm	77.0 x 68.0 mm
NVAV-M329-8	MVAV-M329-8	M32 x 1.5	29	32	8.0 mm	72.0 x 68.0 mm
NVAV-M406-13	MVAV-M406-13	M40 x 1.5	36	40	13.0 mm	94.0 x 87.5 mm
NVAV-M406-8	MVAV-M406-8	M40 x 1.5	36	40	8.0 mm	89.0 x 87.5 mm
NVAV-M409-13	MVAV-M409-13	M40 x 1.5	29	32	13.0 mm	77.0 x 73.0 mm
NVAV-M506-14	MVAV-M506-14	M50 x 1.5	36	40	14.0 mm	95.0 x 92.5 mm
NVAV-M508-14	MVAV-M508-14	M50 x 1.5	48	50	14.0 mm	102.0 x 101.0 mm
NVAV-M508-9	MVAV-M508-9	M50 x 1.5	48	50	9.0 mm	97.0 x 101.0 mm
NVAV-M638-14	MVAV-M638-14	M63 x 1.5	48	50	14.0 mm	102.0 x 104.0 mm
NVAV-M638-10	MVAV-M638-10	M63 x 1.5	48	50	10.0 mm	98.0 x 104.0 mm

– High thread and system connection strength

④ IP68GT available. Please add "GT" prior to the thread length (e.g. NVAV-M120GT-10, NVBV-M120GT-10)

PMAFIX

Connectors metric, metal thread



VBV

4

Approvals



VBV

Connector 90° curved elbow, metric metal thread

– For applications in railway vehicles and heavy machine construction

Order No. IP68, black ⁴	Order No. IP68, grey ⁴	Thread metric	Fits to conduit size NW		Thread length	External dimensions
NVBV-M207-10	MVBV-M207-10	M20 x 1.5	17	20	10.0 mm	51.0 x 73.0 mm
NVBV-M207-6	MVBV-M207-6	M20 x 1.5	17	20	6.0 mm	47.0 x 73.0 mm
NVBV-M257-11	MVBV-M257-11	M25 x 1.5	17	20	11.0 mm	52.0 x 76.0 mm
NVBV-M257-7	MVBV-M257-7	M25 x 1.5	17	20	7.0 mm	48.0 x 76.0 mm
NVBV-M253-11	MVBV-M253-11	M25 x 1.5	23	25	11.0 mm	62.5 x 85.0 mm
NVBV-M253-7	MVBV-M253-7	M25 x 1.5	23	25	7.0 mm	58.5 x 85.0 mm
NVBV-M323-13	MVBV-M323-13	M32 x 1.5	23	25	13.0 mm	64.5 x 89.0 mm
NVBV-M323-8	MVBV-M323-8	M32 x 1.5	23	25	8.0 mm	59.5 x 89.0 mm
NVBV-M329-13	MVBV-M329-13	M32 x 1.5	29	32	13.0 mm	74.0 x 94.5 mm
NVBV-M329-8	MVBV-M329-8	M32 x 1.5	29	32	8.0 mm	69.0 x 94.5 mm
NVBV-M409-13	MVBV-M409-13	M40 x 1.5	29	32	13.0 mm	75.5 x 100.5 mm
NVBV-M409-8	MVBV-M409-8	M40 x 1.5	29	32	8.0 mm	70.5 x 100.5 mm
NVBV-M406-13	MVBV-M406-13	M40 x 1.5	36	40	13.0 mm	86.5 x 123.0 mm
NVBV-M406-8	MVBV-M406-8	M40 x 1.5	36	40	8.0 mm	81.5 x 123.0 mm
NVBV-M506-14	MVBV-M506-14	M50 x 1.5	36	40	14.0 mm	87.5 x 130.0 mm
NVBV-M506-9	MVBV-M506-9	M50 x 1.5	36	40	9.0 mm	82.5 x 130.0 mm
NVBV-M508-14	MVBV-M508-14	M50 x 1.5	48	50	14.0 mm	100.5 x 135.0 mm
NVBV-M508-9	MVBV-M508-9	M50 x 1.5	48	50	9.0 mm	95.5 x 135.0 mm
NVBV-M638-10	MVBV-M638-10	M63 x 1.5	48	50	14.0 mm	100.5 x 138.0 mm
NVBV-M638-14	MVBV-M638-14	M63 x 1.5	48	50	10.0 mm	96.5 x 138.0 mm

- High thread and system connection strength
- Smooth elbow allows easy threading of wires and cables

Note

Appropriate standard elbows of type VW are available for smaller conduit sizes NW 10 to NW 12

⁴ IP68GT available. Please add "GT" prior to the thread length (e.g. NVAV-M120GT-10, NVBV-M120GT-10)

PMAFIX

Connectors metric, metal thread



VVV

Approvals



VVV

Connector 90° elbow, metric metal thread

– For applications in railway vehicles and heavy machine construction

Order No. IP68, black ⁴	Order No. IP68, grey ⁴	Thread metric	Fits to conduit size NW metric		Thread length	External dimensions
NVWV-M120-10	MVWV-M120-10	M12 x 1.5	10	12	10.0 mm	37.5 x 39.5 mm
NVWV-M120-5	MVWV-M120-5	M12 x 1.5	10	12	5.0 mm	32.5 x 39.5 mm
NVWV-M160-10	MVWV-M160-10	M16 x 1.5	10	12	10.0 mm	37.5 x 41.5 mm
NVWV-M160-5	MVWV-M160-5	M16 x 1.5	10	12	5.0 mm	32.5 x 41.5 mm
NVWV-M162-10	MVWV-M162-10	M16 x 1.5	12	16	10.0 mm	42.0 x 46.5 mm
NVWV-M162-5	MVWV-M162-5	M16 x 1.5	12	16	5.0 mm	37.0 x 46.5 mm
NVWV-M202-10	MVWV-M202-10	M20 x 1.5	12	16	10.0 mm	42.0 x 49.0 mm
NVWV-M202-6	MVWV-M202-6	M20 x 1.5	12	16	6.0 mm	38.0 x 49.0 mm
NVWV-M207-10	MVWV-M207-10	M20 x 1.5	17	20	10.0 mm	47.0 x 58.5 mm
NVWV-M207-6	MVWV-M207-6	M20 x 1.5	17	20	6.0 mm	43.0 x 58.5 mm
NVWV-M253-11	MVWV-M253-11	M25 x 1.5	23	25	11.0 mm	59.0 x 67.0 mm
NVWV-M253-7	MVWV-M253-7	M25 x 1.5	23	25	7.0 mm	55.0 x 67.0 mm
NVWV-M329-13	MVWV-M329-13	M32 x 1.5	29	32	13.0 mm	68.0 x 74.5 mm
NVWV-M329-8	MVWV-M329-8	M32 x 1.5	29	32	8.0 mm	63.0 x 74.5 mm
NVWV-M406-13	MVWV-M406-13	M40 x 1.5	36	40	13.0 mm	80.5 x 98.0 mm
NVWV-M406-8	MVWV-M406-8	M40 x 1.5	36	40	8.0 mm	75.5 x 98.0 mm
NVWV-M508-14	MVWV-M508-14	M50 x 1.5	48	50	14.0 mm	95.5 x 111.0 mm
NVWV-M508-9	MVWV-M508-9	M50 x 1.5	48	50	9.0 mm	90.5 x 111.0 mm
NVWV-M638-14	MVWV-M638-14	M63 x 1.5	48	50	14.0 mm	94.5 x 114.0 mm
NVWV-M638-10	MVWV-M638-10	M63 x 1.5	48	50	10.0 mm	90.5 x 114.0 mm

– High thread and system connection strength

Note

Curved elbows of type VB are also available for sizes NW 17 to NW 48.

⁴ IP68GT available. Please add "GT" prior to the thread length (e.g. NVWV-M120GT-10)

PMAFIX

Connectors with strain relief, metric, metal thread



VWZ

4

Approvals



VWZ

Connector 90° elbow with strain relief, metric metal thread

- For applications in railway vehicles and heavy machine construction
- For the separation of damp and dry areas

Order No. IP68 Compl., black ⑤	Order No. Fitting* ⑤	Order No. Insert	Thread metric	Fits to conduit size		Terminal range	Thread length	Overall length
				NW	metric			
NVWZ-M160S/P1	NVWZ-M160R/P	DE-M160/P1	M16 x 1.5	10	12	4.0–6.5 mm	8.0 mm	65.0 mm
NVWZ-M160S/P2	–	DE-M160/P2	M16 x 1.5	10	12	5.0–8.0 mm	8.0 mm	65.0 mm
NVWZ-M160S/P3	–	DE-M160/P3	M16 x 1.5	10	12	6.5–9.5 mm	8.0 mm	65.0 mm
NVWZ-M202S/P1	NVWZ-M202R/P	DE-M202/P1	M20 x 1.5	12	16	4.0–6.5 mm	8.0 mm	74.5 mm
NVWZ-M202S/P3	–	DE-M202/P3	M20 x 1.5	12	16	6.5–9.5 mm	8.0 mm	74.5 mm
NVWZ-M202S/P4	–	DE-M202/P4	M20 x 1.5	12	16	7.0–10.5 mm	8.0 mm	74.5 mm
NVWZ-M207S/P1	NVWZ-M207R/P	DE-M207/P1	M20 x 1.5	17	20	4.0–6.5 mm	8.0 mm	81.0 mm
NVWZ-M207S/P3	–	DE-M207/P3	M20 x 1.5	17	20	6.5–9.5 mm	8.0 mm	81.0 mm
NVWZ-M207S/P4	–	DE-M207/P4	M20 x 1.5	17	20	7.0–10.5 mm	8.0 mm	81.0 mm
NVWZ-M207S/P5	–	DE-M207/P5	M20 x 1.5	17	20	9.0–13.0 mm	8.0 mm	81.0 mm
NVWZ-M257S/P5	NVWZ-M257R/P	DE-M257/P5	M25 x 1.5	17	20	9.0–13.0 mm	8.0 mm	84.0 mm
NVWZ-M257S/P6	–	DE-M257/P6	M25 x 1.5	17	20	11.5–15.5 mm	8.0 mm	84.0 mm
NVWZ-M323S/P4	–	DE-M323/P4	M32 x 1.5	23	25	14.0–18.0 mm	10.0 mm	102.0 mm

* without insert

- Straight connector: Specially formulated polyamide 6
- 90° elbow: Zinc diecast
- Female thread and locknut: Nickel-plated brass
- Pflitsch sealing insert: TPE-V
- With integrated strain relief and optimal ingress protection at the cable (up to IP68/10 bar)
- High thread and system connection strength
- Temperature range sealing insert Pflitsch: –40 °C to +135 °C

⑤ IP68GT available. Please replace "S" or "R" with "GT" (e.g. NVWZ-M160GT/P1)

PMAFIX

Connectors PG, polyamide thread



VN

Approvals



VN

Connector straight, PG thread

– For cable protection systems in a wide range of applications

Order No. IP66	Order No. IP68	Thread PG	Fits to conduit size NW metric		Thread length	Overall length
BVND-P07MGT-11	BVNV-P07M	07	07	10	11.0 mm	34.5 mm
BVND-P07MGT-8	–	07	07	10	8.0 mm	31.5 mm
BVND-P070GT-11	BVNV-P070	07	10	12	11.0 mm	36.5 mm
BVND-P070GT-8	–	07	10	12	8.0 mm	33.5 mm
BVND-P072GT-11	BVNV-P072	07	12	16	11.0 mm	39.0 mm
BVND-P072GT-8	–	07	12	16	8.0 mm	36.0 mm
BVND-P09MGT-11	BVNV-P09M	09	07	10	11.0 mm	34.5 mm
BVND-P09MGT-8	–	09	07	10	8.0 mm	31.5 mm
BVND-P090GT-11	BVNV-P090	09	10	12	11.0 mm	36.5 mm
BVND-P090GT-8	–	09	10	12	8.0 mm	33.5 mm
BVND-P092GT-11	BVNV-P092	09	12	16	11.0 mm	39.0 mm
BVND-P092GT-8	–	09	12	16	8.0 mm	36.0 mm
BVND-P097GT-11	BVNV-P097	09	17	20	11.0 mm	47.5 mm
BVND-P097GT-8	–	09	17	20	8.0 mm	44.5 mm
BVND-P11MGT-11	BVNV-P11M	11	07	10	11.0 mm	34.5 mm
BVND-P11MGT-8	–	11	07	10	8.0 mm	31.5 mm
BVND-P110GT-11	BVNV-P110	11	10	12	11.0 mm	36.5 mm
BVND-P110GT-8	–	11	10	12	8.0 mm	33.5 mm
BVND-P112GT-11	BVNV-P112	11	12	16	11.0 mm	39.0 mm
BVND-P112GT-8	–	11	12	16	8.0 mm	36.0 mm
BVND-P117GT-11	BVNV-P117	11	17	20	11.0 mm	47.5 mm
BVND-P117GT-8	–	11	17	20	8.0 mm	44.5 mm
BVND-P13MGT-11	BVNV-P13M	13.5	07	10	11.0 mm	34.5 mm
BVND-P13MGT-8	–	13.5	07	10	8.0 mm	31.5 mm
BVND-P130GT-11	BVNV-P130	13.5	10	12	11.0 mm	36.5 mm
BVND-P130GT-8	–	13.5	10	12	8.0 mm	33.5 mm
BVND-P132GT-11	BVNV-P132	13.5	12	16	11.0 mm	39.0 mm
BVND-P132GT-8	–	13.5	12	16	8.0 mm	36.0 mm
BVND-P137GT-11	BVNV-P137	13.5	17	20	11.0 mm	47.5 mm
BVND-P137GT-8	–	13.5	17	20	8.0 mm	44.5 mm
BVND-P160GT-11	–	16	10	12	11.0 mm	36.5 mm
BVND-P160GT-8	–	16	10	12	8.0 mm	33.5 mm
BVND-P162GT-11	BVNV-P162	16	12	16	11.0 mm	39.0 mm
BVND-P163GT-11	BVNV-P163	16	23	25	11.0 mm	51.0 mm
BVND-P163GT-8	–	16	23	25	8.0 mm	48.0 mm
BVND-P167GT-11	BVNV-P167	16	17	20	11.0 mm	47.5 mm
BVND-P167GT-8	–	16	17	20	8.0 mm	44.5 mm
BVND-P213GT	BVNV-P213	21	23	25	12.0 mm	52.0 mm
BVND-P296GT	BVNV-P296	29	36	40	12.0 mm	67.5 mm
BVND-P299GT	BVNV-P299	29	29	32	12.0 mm	53.0 mm
BVND-P366GT	BVNV-P366	36	36	40	13.0 mm	66.0 mm
BVND-P368GT	BVNV-P368	36	48	50	13.0 mm	68.5 mm
BVND-P428GT	BVNV-P428	42	48	50	13.0 mm	68.5 mm
BVND-P488GT	BVNV-P488	48	48	50	13.0 mm	66.5 mm

① Please replace “B” for black with “S” for grey in front of the order no.

② IP68GT available. Please add “GT” after the order no.

PMAFIX

Connectors PG, polyamide thread



VNDZ/VNZ

VNDZ/VNZ

Connector straight with strain relief, PG thread

- For machine and plant construction
- For separation of damp and dry areas

Order No. IP66	Order No. IP68	Thread PG	Fits to conduit size metric		Terminal range	Thread length	Overall length
BVNDZ-P090GT	BVNZ-P090S	09	10	12	4.0–8.0 mm	7.5 mm	56.0 mm
BVNDZ-P112GT	BVNZ-P112S	11	12	16	5.0–10.0 mm	8.0 mm	60.5 mm
BVNDZ-P132GT	BVNZ-P132S	13.5	12	16	6.0–12.0 mm	9.0 mm	62.0 mm
BVNDZ-P137GT	BVNZ-P137S	13.5	17	20	6.0–12.0 mm	9.0 mm	69.0 mm
BVNDZ-P167GT	BVNZ-P167S	16	17	20	10.0–14.0 mm	10.0 mm	72.0 mm
BVNDZ-P163GT	BVNZ-P163S	16	23	25	10.0–14.0 mm	10.0 mm	79.0 mm
BVNDZ-P213GT	BVNZ-P213S	21	23	25	13.0–18.0 mm	11.0 mm	82.0 mm
BVNDZ-P299GT	BVNZ-P299S	29	29	32	18.0–25.0 mm	11.0 mm	85.0 mm
BVNDZ-P366GT	BVNZ-P366S	36	36	40	22.0–32.0 mm	13.0 mm	112.0 mm
BVNDZ-P488GT	BVNZ-P488S	48	48	50	34.0–44.0 mm	14.0 mm	112.0 mm

- Integrated strain relief optimally holds and seals cables
- If several conductors are used with the connector multiple sealing inserts should be considered

Note

For several conductors multiple sealing inserts MDE are available.

4

Approvals



VA

VA

Connector 45° elbow, PG thread

- For cable protection systems in a wide range of applications

Order No. IP66	Order No. IP68	Thread PG	Fits to conduit size metric		Thread length	Overall length
BVAD-P090GT	BVAV-P090	09	10	12	11.0 mm	43.5 x 37.0 mm
BVAD-P112GT	BVAV-P112	11	12	16	11.0 mm	48.0 x 40.0 mm
BVAD-P132GT	BVAV-P132	13.5	12	16	11.0 mm	48.0 x 41.5 mm
BVAD-P137GT	BVAV-P137	13.5	17	20	11.0 mm	55.5 x 51.5 mm
BVAD-P167GT	BVAV-P167	16	17	20	11.0 mm	55.5 x 51.5 mm
BVAD-P213GT	BVAV-P213	21	23	25	11.0 mm	63.0 x 58.0 mm
BVAD-P299GT	BVAV-P299	29	29	32	12.0 mm	69.0 x 66.0 mm
BVAD-P366GT	BVAV-P366	36	36	40	13.0 mm	86.0 x 86.0 mm
BVAD-P488GT	BVAV-P488	48	48	50	13.0 mm	94.0 x 100.0 mm

Approvals



- 1 Please replace "B" for black with "S" for grey in front of the order no.
- 2 IP68GT available. Please add "GT" after the order no.
- 3 IP68GT available. Please replace "S" at the end with "GT" (e.g. BVNZ-P167GT)

PMAFIX

Connectors PG, polyamide thread



VB

Approvals



VB

Connector 90° curved elbow, PG thread

– For cable protection systems in a wide range of applications

Order No. IP66	Order No. IP68	Thread PG	Fits to conduit size NW		Thread length	External dimensions
B VBD-P167GT	B VBV-P167	16	17	20	11.0 mm	47.5 x 73.0 mm
B VBD-P213GT	B VBV-P213	21	23	25	12.0 mm	57.5 x 85.0 mm
B VBD-P299GT	B VBV-P299	29	29	32	12.0 mm	67.5 x 96.0 mm
B VBD-P366GT	B VBV-P366	36	36	40	13.0 mm	79.0 x 123.0 mm
B VBD-P488GT	B VBV-P488	48	48	50	13.0 mm	92.5 x 135.0 mm

– Smooth elbow allows easy threading of wires and cables

Note

For smaller conduit sizes NW 07 to NW 12 appropriate standard elbows of type VW are also available.

❶ Please replace “**B**” for black with “**S**” for grey in front of the order no.

❷ IP68GT available. Please add “GT” after the order no.

PMAFIX

Connectors PG, polyamide thread



VW

4

Approvals



VW

Connector 90° elbow, PG thread

– For cable protection systems in a wide range of applications

Order No. IP66	Order No. IP68	Thread PG	Fits to conduit size NW	Thread metric	Thread length	External dimensions
BVWD-P07MGT-11	BVWV-P07M	07	07	10	11.0 mm	32.0 x 35.0 mm
BVWD-P07MGT-8	–	07	07	10	8.0 mm	29.0 x 35.0 mm
BVWD-P070GT-11	BVWV-P070	07	10	12	11.0 mm	34.0 x 39.5 mm
BVWD-P070GT-8	–	07	10	12	8.0 mm	31.0 x 39.5 mm
BVWD-P072GT-11	BVWV-P072	07	12	16	11.0 mm	38.5 x 44.5 mm
BVWD-P072GT-8	–	07	12	16	8.0 mm	35.5 x 44.5 mm
BVWD-P09MGT-11	BVWV-P09M	09	07	10	11.0 mm	32.0 x 36.5 mm
BVWD-P09MGT-8	–	09	07	10	8.0 mm	29.0 x 36.5 mm
BVWD-P090GT-11	BVWV-P090	09	10	12	11.0 mm	34.0 x 39.5 mm
BVWD-P090GT-8	–	09	10	12	8.0 mm	31.0 x 39.5 mm
BVWD-P092GT-11	BVWV-P092	09	12	16	11.0 mm	38.5 x 44.5 mm
BVWD-P092GT-8	–	09	12	16	8.0 mm	35.5 x 44.5 mm
BVWD-P11MGT-11	BVWV-P11M	11	07	10	11.0 mm	32.0 x 38.0 mm
BVWD-P11MGT-8	–	11	07	10	8.0 mm	29.0 x 38.0 mm
BVWD-P110GT-11	BVWV-P110	11	10	12	11.0 mm	34.0 x 41.0 mm
BVWD-P110GT-8	–	11	10	12	8.0 mm	31.0 x 41.0 mm
BVWD-P112GT-11	BVWV-P112	11	12	16	11.0 mm	38.5 x 46.0 mm
BVWD-P112GT-8	–	11	12	16	8.0 mm	35.5 x 46.0 mm
BVWD-P13MGT-11	BVWV-P13M	13.5	07	10	11.0 mm	32.0 x 39.5 mm
BVWD-P13MGT-8	–	13.5	07	10	8.0 mm	29.0 x 39.5 mm
BVWD-P130GT-11	BVWV-P130	13.5	10	12	11.0 mm	34.0 x 42.5 mm
BVWD-P130GT-8	–	13.5	10	12	8.0 mm	31.0 x 42.5 mm
BVWD-P132GT-11	BVWV-P132	13.5	12	16	11.0 mm	38.5 x 47.5 mm
BVWD-P132GT-8	–	13.5	12	16	8.0 mm	35.5 x 47.5 mm
BVWD-P137GT-11	BVWV-P137	13.5	17	20	11.0 mm	43.5 x 58.5 mm
BVWD-P137GT-8	–	13.5	17	20	8.0 mm	40.5 x 58.5 mm
BVWD-P167GT-11	BVWV-P167	16	17	20	11.0 mm	43.5 x 58.5 mm
BVWD-P167GT-8	–	16	17	20	8.0 mm	40.5 x 58.5 mm
BVWD-P213GT	BVWV-P213	21	23	25	12.0 mm	54.0 x 67.0 mm
BVWD-P299GT	BVWV-P299	29	29	32	12.0 mm	61.5 x 74.5 mm
BVWD-P366GT	BVWV-P366	36	36	40	13.0 mm	72.0 x 98.0 mm
BVWD-P488GT	BVWV-P488	48	48	50	13.0 mm	85.5 x 111.0 mm

Note

For sizes NW 17 to NW 48 curved elbows of type VB are also available.

1 Please replace "B" for black with "S" for grey in front of the order no.

2 IP68GT available. Please add "GT" after the order no.

PMAFIX

Connectors PG, metal thread



VNV

Approvals



VNV

Connector straight, PG metal thread

– For applications in railway vehicles and heavy machine construction

Order No. IP68, black ②	Order No. IP68, grey ②	Thread PG	Fits to conduit size NW		Thread length	Overall length
NVNV-P090	MVNV-P090	09	10	12	12.0 mm	42.0 mm
NVNV-P112	MVNV-P112	11	12	16	12.0 mm	45.0 mm
NVNV-P137	MVNV-P137	13.5	17	20	13.0 mm	54.0 mm
NVNV-P167	MVNV-P167	16	17	20	13.0 mm	54.0 mm
NVNV-P213	MVNV-P213	21	23	25	14.0 mm	57.0 mm
NVNV-P293	MVNV-P293	29	23	25	14.0 mm	57.0 mm
NVNV-P299	MVNV-P299	29	29	32	14.0 mm	58.5 mm
NVNV-P366	MVNV-P366	36	36	40	17.0 mm	75.5 mm
NVNV-P488	MVNV-P488	48	48	50	17.0 mm	75.5 mm

– High thread and system connection strength

② IP68GT available. Please add "GT" after the order no.

PMAFIX

Connectors PG, with strain relief, long metal thread



VNZ

4

Approvals



VNZ

Connector straight with strain relief, PG metal thread

- For applications in railway vehicles and heavy machine construction
- For the separation of damp and dry areas

Order No. IP68 Compl., black ⑤	Order No. Fitting* ⑤	Order No. Insert	Thread PG	Fits to conduit size NW	Terminal range	Thread length	Overall length
NVNZ-P090S/P1	NVNZ-P090R/P	DE-P090/P1	09	10	12	4.0–6.5 mm	49.5 mm
NVNZ-P090S/P3	–	DE-P090/P3	09	10	12	6.5–9.5 mm	49.5 mm
NVNZ-P110S/P1	NVNZ-P110R/P	DE-P110/P1	11	10	12	4.0–6.5 mm	52.0 mm
NVNZ-P110S/P3	–	DE-P110/P3	11	10	12	6.5–9.5 mm	52.0 mm
NVNZ-P112S/P1	NVNZ-P112R/P	DE-P112/P1	11	12	16	4.0–6.5 mm	53.5 mm
NVNZ-P112S/P3	–	DE-P112/P3	11	12	16	6.5–9.5 mm	53.5 mm
NVNZ-P112S/P4	–	DE-P112/P4	11	12	16	7.0–10.5 mm	53.5 mm
NVNZ-P160S/P1	NVNZ-P160R/P	DE-P110/P1	16	10	12	4.0–6.5 mm	52.5 mm
NVNZ-P167S/P3	NVNZ-P167R/P	DE-P167/P3	16	17	20	6.5–9.5 mm	61.0 mm
NVNZ-P167S/P4	–	DE-P167/P4	16	17	20	7.0–10.5 mm	61.0 mm
NVNZ-P167S/P5	–	DE-P167/P5	16	17	20	9.0–13.0 mm	61.0 mm
NVNZ-P167S/P6	–	DE-P167/P6	16	17	20	11.5–15.5 mm	61.0 mm
NVNZ-P213S/P1	NVNZ-P213R/P	DE-P213/P1	21	23	25	7.0–10.5 mm	72.0 mm
NVNZ-P213S/P4	–	DE-P213/P4	21	23	25	14.0–18.0 mm	72.0 mm
NVNZ-P213S/P5	NVNZ-P213R1/P	DE-P213/P5	21	23	25	17.0–20.5 mm	72.0 mm
NVNZ-P299S/P3	NVNZ-P299R/P	DE-P299/P3	29	29	32	17.0–20.5 mm	73.5 mm
NVNZ-P299S/P4	–	DE-P299/P4	29	29	32	20.0–25.0 mm	73.5 mm
NVNZ-P299S/P5	–	DE-P299/P5	29	29	32	24.0–28.0 mm	73.5 mm
NVNZ-P366S/P1	NVNZ-P366R/P	DE-P366/P1	36	36	40	27.0–32.0 mm	88.0 mm
NVNZ-P366S/P2	–	DE-P366/P2	36	36	40	29.0–34.0 mm	88.0 mm
NVNZ-P366S/P3	–	DE-P366/P3	36	36	40	32.0–36.0 mm	88.0 mm
NVNZ-P488S/P1	NVNZ-P488R/P	DE-P488/P1	48	48	50	32.0–35.0 mm	90.5 mm
NVNZ-P488S/P2	–	DE-P488/P2	48	48	50	39.0–44.0 mm	90.5 mm

* without insert

- Sealing inserts are made from TPE-V
- With integrated strain relief and optimal ingress protection at the cable (up to IP68/10 bar)

- High thread and system connection strength
- Temperature range sealing insert Pflitsch: –40 °C to +135 °C

Note

For several conductors multiple sealing inserts MDE are available. R/P version of fitting has to be used in combination with multiple sealing inserts.

⑤ IP68GT available. Please replace "S" or "R" with "GT" (e.g. NVNZ-P112GT/P1)

PMAFIX

Connectors PG, metal thread



VAV

Approvals



VAV

Connector 45° elbow, PG metal thread

– For applications in railway vehicles and heavy machine construction

Order No. IP68, black ②	Order No. IP68, grey ②	Thread PG	Fits to conduit size NW metric		Thread length	External dimensions
NVAV-P090	MVAV-P090	09	10	12	12.0 mm	50.5 x 37.0 mm
NVAV-P112	MVAV-P112	11	12	16	12.0 mm	55.0 x 40.5 mm
NVAV-P137	MVAV-P137	13.5	17	20	13.0 mm	63.5 x 50.0 mm
NVAV-P167	MVAV-P167	16	17	20	13.0 mm	63.5 x 50.0 mm
NVAV-P213	MVAV-P213	21	23	25	14.0 mm	73.0 x 60.5 mm
NVAV-P299	MVAV-P299	29	29	32	14.0 mm	78.0 x 68.0 mm
NVAV-P366	MVAV-P366	36	36	40	17.0 mm	98.0 x 87.5 mm
NVAV-P488	MVAV-P488	48	48	50	17.0 mm	105.0 x 101.0 mm

– High thread and system connection strength



VBV

Approvals



VBV

Connector 90° curved elbow, PG metal thread

– For applications in railway vehicles and heavy machine construction

Order No. IP68, black ②	Order No. IP68, grey ②	Thread PG	Fits to conduit size NW metric		Thread length	External dimensions
NVBV-P167	MVBV-P167	16	17	20	13.0 mm	54.0 x 73.0 mm
NVBV-P213	MVBV-P213	21	23	25	14.0 mm	65.5 x 85.0 mm
NVBV-P299	MVBV-P299	29	29	32	14.0 mm	75.0 x 96.0 mm
NVBV-P366	MVBV-P366	36	36	40	17.0 mm	90.5 x 123.0 mm
NVBV-P488	MVBV-P488	48	48	50	17.0 mm	103.5 x 135.0 mm

– High thread and system connection strength
– Smooth elbow allows easy threading of wires and cables

Note

For smaller conduit sizes NW 10 to NW 12 appropriate standard elbows of type VW are also available.



VWV

Approvals



VWV

Connector 90° elbow, PG metal thread

– For applications in railway vehicles and heavy machine construction

Order No. IP68, black ②	Order No. IP68, grey ②	Thread PG	Fits to conduit size NW metric		Thread length	External dimensions
NVWV-P090	MVWV-P090	09	10	12	12.0 mm	39.5 x 39.5 mm
NVWV-P112	MVWV-P112	11	12	16	12.0 mm	45.5 x 45.0 mm
NVWV-P137	MVWV-P137	13.5	17	20	13.0 mm	50.0 x 58.5 mm
NVWV-P167	MVWV-P167	16	17	20	13.0 mm	50.0 x 58.5 mm
NVWV-P213	MVWV-P213	21	23	25	14.0 mm	62.0 x 67.0 mm
NVWV-P299	MVWV-P299	29	29	32	14.0 mm	69.0 x 74.5 mm
NVWV-P366	MVWV-P366	36	36	40	17.0 mm	83.5 x 98.0 mm
NVWV-P488	MVWV-P488	48	48	50	17.0 mm	96.5 x 111.0 mm

– High thread and system connection strength

Note

Curved elbows of type VB are also available for sizes NW 17 to NW 48.

② IP68GT available. Please add "GT" after the order no.

PMAFIX

Connectors GAS, polyamide thread



VN

VN

Connector straight, GAS thread

– For cable protection systems in a wide range of applications

Order No. IP66	Order No. IP68	Thread GAS	Fits to conduit size NW metric		Thread length	Overall length
BVND-G00MGT	BVNV-G00M	¼"	07	10	11.0 mm	34.5 mm
BVND-G000GT	BVNV-G000	¼"	10	12	11.0 mm	36.5 mm
BVND-G010GT	BVNV-G010	⅜"	10	12	11.0 mm	36.5 mm
BVND-G012GT	BVNV-G012	⅜"	12	16	11.0 mm	39.0 mm
BVND-G022GT	BVNV-G022	½"	12	16	13.0 mm	41.0 mm
BVND-G027GT	BVNV-G027	½"	17	20	13.0 mm	49.5 mm
BVND-G043GT	BVNV-G043	¾"	23	25	14.0 mm	54.0 mm
BVND-G069GT	BVNV-G069	1"	29	32	15.0 mm	56.0 mm
BVND-G076GT	BVNV-G076	1¼"	36	40	18.0 mm	71.0 mm
BVND-G088GT	BVNV-G088	1½"	48	50	18.0 mm	71.5 mm
BVND-G098GT	BVNV-G098	2"	48	50	18.0 mm	71.5 mm

4

Approvals



VA

VA

Connector 45° elbow, GAS thread

– For cable protection systems in a wide range of applications

Order No. IP66	Order No. IP68	Thread GAS	Fits to conduit size NW metric		Thread length	External dimensions
BVAD-G000GT	BVAV-G000	¼"	10	12	11.0 mm	43.5 x 37.0 mm
BVAD-G012GT	BVAV-G012	⅜"	12	16	11.0 mm	48.0 x 40.0 mm
BVAD-G027GT	BVAV-G027	½"	17	20	13.0 mm	57.5 x 51.5 mm
BVAD-G043GT	BVAV-G043	¾"	23	25	14.0 mm	67.0 x 60.0 mm
BVAD-G069GT	BVAV-G069	1"	29	32	15.0 mm	73.5 x 67.0 mm
BVAD-G076GT	BVAV-G076	1¼"	36	40	18.0 mm	91.5 x 85.5 mm
BVAD-G088GT	–	1½"	48	50	18.0 mm	99.0 x 96.0 mm
BVAD-G098GT	BVAV-G098	2"	48	50	18.0 mm	99.0 x 101.0 mm

Approvals



VW

VW

Connector 90° elbow, GAS thread

– For cable protection systems in a wide range of applications

Order No. IP66	Order No. IP68	Thread GAS	Fits to conduit size NW metric		Thread length	External dimensions
BVWD-G00MGT	BVWV-G00M	¼"	07	10	11.0 mm	32.0 x 36.5 mm
BVWD-G000GT	BVWV-G000	¼"	10	12	11.0 mm	34.0 x 39.5 mm
BVWD-G010GT	BVWV-G010	⅜"	10	12	11.0 mm	34.0 x 40.5 mm
BVWD-G012GT	BVWV-G012	⅜"	12	16	11.0 mm	38.5 x 46.0 mm
BVWD-G022GT	BVWV-G022	½"	12	16	13.0 mm	40.5 x 47.5 mm
BVWD-G027GT	BVWV-G027	½"	17	20	13.0 mm	45.5 x 58.5 mm
BVWD-G043GT	BVWV-G043	¾"	23	25	14.0 mm	56.0 x 66.5 mm
BVWD-G069GT	BVWV-G069	1"	29	32	15.0 mm	64.5 x 73.5 mm
BVWD-G076GT	BVWV-G076	1¼"	36	40	18.0 mm	77.0 x 96.0 mm
BVWD-G088GT	BVWV-G088	1½"	48	50	18.0 mm	90.5 x 106.0 mm
BVWD-G098GT	BVWV-G098	2"	48	50	18.0 mm	90.5 x 111.0 mm

Approvals



1 Please replace "B" for black with "S" for grey in front of the order no.

2 IP68GT available. Please add "GT" after the order no.

PMAFIX

Connectors NPT, polyamide thread



VN

Approvals



VN

Connector straight, NPT thread

– For cable protection systems in a wide range of applications

Order No. IP66 ①	Order No. IP68 ① ②	Thread NPT	Fits to conduit size		Thread length	Overall length
			NW	metric		
BVND-N022GT	BVNV-N022	½"	12	16	13.0 mm	41.5 mm
BVND-N027GT	BVNV-N027	½"	17	20	13.0 mm	49.5 mm
BVND-N043GT	BVNV-N043	¾"	23	25	14.0 mm	54.0 mm
BVND-N069GT	BVNV-N069	1"	29	32	15.0 mm	56.0 mm
BVND-N076GT	BVNV-N076	1¼"	36	40	18.0 mm	71.0 mm
BVND-N088GT	BVNV-N088	1½"	48	50	18.0 mm	71.5 mm
BVND-N098GT	BVNV-N098	2"	48	50	18.0 mm	71.5 mm



VA

Approvals



VA

Connector 45° elbow, NPT thread

– For cable protection systems in a wide range of applications

Order No. IP66 ①	Order No. IP68 ① ②	Thread NPT	Fits to conduit size		Thread length	External dimensions
			NW	metric		
BVAD-N022GT	BVAV-N022	½"	12	16	13.0 mm	50.0 x 41.5 mm
BVAD-N027GT	BVAV-N027	½"	17	20	13.0 mm	57.5 x 51.5 mm
BVAD-N043GT	BVAV-N043	¾"	23	25	14.0 mm	67.0 x 60.0 mm
BVAD-N069GT	BVAV-N069	1"	29	32	15.0 mm	73.5 x 67.0 mm
BVAD-N076GT	BVAV-N076	1¼"	36	40	18.0 mm	91.5 x 85.5 mm
BVAD-N088GT	BVAV-N088	1½"	48	50	18.0 mm	99.0 x 96.0 mm
BVAD-N098GT	BVAV-N098	2"	48	50	18.0 mm	99.0 x 101.0 mm



VW

Approvals



VW

Connector 90° elbow, NPT thread

– For cable protection systems in a wide range of applications

Order No. IP66 ①	Order No. IP68 ① ②	Thread NPT	Fits to conduit size		Thread length	External dimensions
			NW	metric		
BVWD-N022GT	BVWV-N022	½"	12	16	13.0 mm	40.5 x 47.5 mm
BVWD-N027GT	BVWV-N027	½"	17	20	13.0 mm	45.5 x 58.5 mm
BVWD-N043GT	BVWV-N043	¾"	23	25	14.0 mm	56.0 x 66.5 mm
BVWD-N069GT	BVWV-N069	1"	29	32	15.0 mm	64.5 x 73.5 mm
BVWD-N076GT	BVWV-N076	1¼"	36	40	18.0 mm	77.0 x 96.0 mm
BVWD-N088GT	BVWV-N088	1½"	48	50	18.0 mm	90.5 x 106.0 mm
BVWD-N098GT	BVWV-N098	2"	48	50	18.0 mm	90.5 x 111.0 mm

① Please replace "B" for black with "S" for grey in front of the order no.

② IP68GT available. Please add "GT" after the order no.

PMAFIX

Swivel connectors, metric/PG metal thread



SBV

4

SBV

Swivel connector 90° curved elbow, metric/PG metal thread

- For applications with high technical requirements mainly in machine building
- Suitable for occasional rotation

Order No. IP68, black ④	Thread metric	Fits to conduit size metric		Thread length	External dimensions
NSBV-M207-10	M20 x 1.5	17	20	10.0 mm	62.5 x 74.5 mm
NSBV-M253-11	M25 x 1.5	23	25	11.0 mm	73.0 x 87.5 mm
NSBV-M329-13	M32 x 1.5	29	32	13.0 mm	86.5 x 98.0 mm
NSBV-M406-13	M40 x 1.5	36	40	13.0 mm	98.5 x 127.5 mm
NSBV-M409-13	M40 x 1.5	29	32	13.0 mm	86.5 x 98.0 mm
NSBV-M508-14	M50 x 1.5	48	50	14.0 mm	113.5 x 139.0 mm
NSBV-M638-14	M63 x 1.5	48	50	14.0 mm	110.0 x 139.0 mm

Order No. IP68, black ④	Thread PG	Fits to conduit size metric		Thread length	External dimensions
NSBV-P167-6.5	16	17	20	6.5 mm	58.0 x 74.5 mm
NSBV-P213-7	21	23	25	7.0 mm	69.0 x 87.5 mm
NSBV-P299-8	29	29	32	8.0 mm	80.0 x 98.0 mm
NSBV-P366-9	36	36	40	9.0 mm	91.5 x 127.5 mm
NSBV-P488-10	48	48	50	10.0 mm	106.0 x 139.0 mm

- Thread and integrated swivel adapter made from nickel-plated brass
- High thread and system connection strength
- Smooth elbow allows easy threading of wires and cables



SNV

SNV

Swivel Connector, straight, IP68 metric metal thread

- For applications with high technical requirements mainly in machine building

Order No. black ④	Thread metric	Conduit size NW	Dimensions							
			g	L	H	SW	Ø ID	Ø D max.	Ø e	
NSNV-M120-10	M12 x 1.5	10	10.0 mm	50.5 mm	25.0 mm	20 mm	7.0 mm	20.0 mm	22.0 mm	
NSNV-M162-10	M16 x 1.5	12	10.0 mm	53.5 mm	25.0 mm	24 mm	10.0 mm	23.5 mm	26.0 mm	
NSNV-M207-10	M20 x 1.5	17	10.0 mm	62.5 mm	26.0 mm	30 mm	15.0 mm	29.5 mm	33.0 mm	
NSNV-M253-11	M25 x 1.5	23	11.0 mm	67.5 mm	27.5 mm	36 mm	20.5 mm	37.0 mm	40.0 mm	
NSNV-M329-13	M32 x 1.5	29	13.0 mm	72.0 mm	31.0 mm	46 mm	27.5 mm	44.0 mm	50.0 mm	
NSNV-M329-7	M32 x 1.5	29	7.0 mm	66.0 mm	25.0 mm	46 mm	27.5 mm	44.0 mm	50.0 mm	
NSNV-M406-13	M40 x 1.5	36	13.0 mm	85.5 mm	32.5 mm	60 mm	35.0 mm	53.5 mm	64.0 mm	
NSNV-M406-7	M40 x 1.5	36	7.0 mm	79.5 mm	26.5 mm	60 mm	35.0 mm	53.5 mm	64.0 mm	
NSNV-M409-13	M40 x 1.5	29	13.0 mm	72.0 mm	31.0 mm	46 mm	29.5 mm	44.0 mm	50.0 mm	
NSNV-M508-14	M50 x 1.5	48	14.0 mm	87.5 mm	34.0 mm	70 mm	44.0 mm	66.0 mm	77.0 mm	
NSNV-M638-14	M63 x 1.5	48	14.0 mm	84.0 mm	30.5 mm	70 mm	50.0 mm	66.0 mm	77.0 mm	

- Specially formulated polyamide 6
- Thread and integrated swivel adapter made from nickel-plated brass
- Very high impact resistance
- High thread and system connection strength
- Suitable for occasional rotation
- Easy introduction of wires and cables
- Vibration-proof connection to PMAFLEX conduits
- Very good chemical properties
- Free from halogens and cadmium
- Fits both conduit profiles – fine (T) and coarse (G)
- IP68, IP69K

④ IP68GT available. Please add "GT" prior to the thread length (for example NSBV-M329GT-13)

PMAFIX

Flanges, connectors with female, metric thread



VO

VO

Flange 90°

– For cable protection systems in a wide range of applications

Order No. IP66 ①	Order No. IP68 ① ②	Fits to conduit size metric		Width x Length x Depth	Screw sizes
		NW			
BVOD-P167GT	BVOV-P167	17	20	46.0 x 66.0 x 35.5 mm	2 x M5
BVOD-P213GT	BVOV-P213	23	25	65.5 x 70.0 x 43.0 mm	2 x M6
BVOD-P299GT	BVOV-P299	29	32	67.0 x 78.0 x 49.5 mm	4 x M6
BVOD-P366GT	BVOV-P366	36	40	85.0 x 102.0 x 65.5 mm	4 x M6
BVOD-P488GT	BVOV-P488	48	50	86.0 x 119.0 x 77.5 mm	4 x M6

– Flange seal FG04 made from EPDM,
flange seal FG04/01 made from NBR

– Temperature range with FG04:
–40 °C to +105 °C

– Temperature range with FG04/01:
–25 °C to +70 °C



VI

VI

Connector straight, female metric thread

– For cable protection systems in a wide range of applications

Order No. IP66, black	Order No. IP68, black ②	Thread metric	Fits to conduit size metric		Thread length	Overall length
			NW			
BVID-M12MGT	–	M12 x 1.5	07	10	8.0 mm	32.0 mm
BVID-M160GT	BVIR-M160	M16 x 1.5	10	12	8.0 mm	33.5 mm
BVID-M162GT	BVIR-M162	M16 x 1.5	12	16	8.0 mm	36.5 mm
–	BVIR-M202	M20 x 1.5	12	16	8.0 mm	36.5 mm
BVID-M207GT	BVIR-M207	M20 x 1.5	17	20	8.0 mm	44.5 mm
BVID-M253GT	BVIR-M253	M25 x 1.5	23	25	8.0 mm	48.5 mm
–	BVIR-M257	M25 x 1.5	17	20	8.0 mm	44.5 mm
BVID-M329GT	BVIR-M329	M32 x 1.5	29	32	10.0 mm	51.5 mm
BVID-M406GT	BVIR-M406	M40 x 1.5	36	40	10.0 mm	65.5 mm
BVID-M508GT	BVIR-M508	M50 x 1.5	48	50	10.0 mm	65.5 mm
BVID-M638GT	BVIR-M638	M63 x 1.5	48	50	10.0 mm	65.5 mm

– VID: IP66 static/IP54 dynamic, conduit side
VIR: IP68 static/IP67 dynamic, conduit side

– No seal on female thread side

Approvals



VIR

VIR

Connector straight, female metric metal thread

– For applications in railway vehicles and heavy machine construction

Order No. IP68, black ②	Thread metric	Fits to conduit size metric		Thread length	Overall length
		NW			
NVIR-M120	M12 x 1.5	10	12	7.5 mm	35.0 mm
NVIR-M160	M16 x 1.5	10	12	9.0 mm	40.5 mm
NVIR-M162	M16 x 1.5	12	16	9.0 mm	42.0 mm
NVIR-M207	M20 x 1.5	17	20	10.0 mm	50.0 mm
NVIR-M253	M25 x 1.5	23	25	10.0 mm	56.0 mm
NVIR-M329	M32 x 1.5	29	32	11.0 mm	55.5 mm
NVIR-M406	M40 x 1.5	36	40	13.0 mm	71.0 mm
NVIR-M508	M50 x 1.5	48	50	15.0 mm	75.0 mm
NVIR-M638	M63 x 1.5	48	50	17.5 mm	76.0 mm

– High thread and system connection strengths

– VIR: IP68 static/IP67 dynamic, conduit side
– No seal on female thread side

Approvals



① Please replace "B" for black with "S" for grey in front of the order no.

② IP68GT available. Please add "GT" after the order no.

PMAFIX

Connector straight, PG female thread



FIL/VIR

4

FIL/VIR

Connector straight, female PG thread

– For cable protection systems in a wide range of applications

Order No. IP67, black	Order No. IP68, black ²	Thread PG	Fits to conduit size NW metric		Thread length	Overall length
BFIL-P07M	–	07	07	10	8.0 mm	29.0 mm
BFIL-P070	–	07	10	12	8.0 mm	34.5 mm
–	BVIR-P070	07	10	12	8.0 mm	33.5 mm
BFIL-P090	–	09	10	12	8.0 mm	32.5 mm
–	BVIR-P090	09	10	12	8.0 mm	33.5 mm
BFIL-P112	–	11	12	16	8.0 mm	32.5 mm
–	BVIR-P112	11	12	16	8.0 mm	36.5 mm
BFIL-P117	–	11	17	20	8.0 mm	35.0 mm
BFIL-P132	–	13.5	12	16	8.0 mm	32.5 mm
BFIL-P137	–	13.5	17	20	8.0 mm	33.5 mm
BFIL-P160	–	16	10	12	7.0 mm	37.0 mm
BFIL-P167	–	16	17	20	8.0 mm	33.5 mm
–	BVIR-P167	16	17	20	8.0 mm	44.5 mm
BFIL-P217	–	21	17	20	10.5 mm	35.5 mm
BFIL-P213	–	21	23	25	8.0 mm	39.0 mm
BFIL-P293	–	29	23	25	9.0 mm	42.0 mm
BFIL-P299	–	29	29	32	9.0 mm	43.0 mm
BFIL-P363	–	36	23	25	12.0 mm	51.0 mm
BFIL-P369	–	36	29	32	16.0 mm	52.0 mm
BFIL-P366	–	36	36	25	13.0 mm	64.0 mm
BFIL-P488	–	48	48	50	13.0 mm	65.0 mm

– VIR: IP68 static/IP67 dynamic, conduit side
 FIL: IP67 static/IP65 dynamic, conduit side
 – No seal on female thread side



VIZR

VIZR

Connector straight, female PG metal thread

– For applications in railway vehicles and heavy machine construction

Order No. IP68, black ²	Thread PG	Fits to conduit size NW metric		Thread length	Overall length
NVIZR-P07M	07	07	10	6.0 mm	35.0 mm
NVIZR-P090	09	10	12	9.0 mm	38.5 mm
NVIZR-P110	11	10	12	9.0 mm	41.0 mm
NVIZR-P112	11	12	16	9.0 mm	42.0 mm
NVIZR-P137	13.5	17	20	8.0 mm	46.5 mm
NVIZR-P167	16	17	20	9.5 mm	48.0 mm
NVIZR-P213	21	23	25	10.0 mm	58.0 mm
NVIZR-P299	29	29	32	12.5 mm	57.0 mm
NVIZR-P366	36	36	40	13.0 mm	76.0 mm
NVIZR-P488	48	48	50	14.0 mm	75.0 mm

– High thread and system connection strengths
 – VIZR: IP68 static/IP67 dynamic, conduit side
 – No seal on female thread side

² IP68GT available. Please add "GT" after the order no.

PMAFIX

Connectors with female, UNEF thread



VI

VI

Connector straight, UNEF female thread for AMP connectors

– For cable protection systems in a wide range of applications

Order No. IP66, black	Order No. IP68, black ²	Thread UNEF	Fits to conduit size NW metric		Thread length	Overall length
BVIDA-U15MGT	BVIRA-U15M	5/8"-24	07	10	8.0 mm	31.5 mm
BVIDA-U150GT	BVIRA-U150	5/8"-24	10	12	8.0 mm	33.5 mm
BVIDA-U152GT	BVIRA-U152	5/8"-24	12	16	8.0 mm	36.5 mm
BVIDA-U180GT	BVIRA-U180	3/4"-20	10	12	8.0 mm	33.5 mm
BVIDA-U182GT	BVIRA-U182	3/4"-20	12	16	8.0 mm	36.5 mm
BVIDA-U187GT	BVIRA-U187	3/4"-20	17	20	8.0 mm	44.5 mm
BVIDA-U232GT	BVIRA-U232	1 1/16"-20	12	16	8.0 mm	38.5 mm
BVIDA-U237GT	BVIRA-U237	1 1/16"-20	17	20	8.0 mm	46.5 mm
BVIDA-U233GT	BVIRA-U233	1 1/16"-20	23	25	8.0 mm	48.5 mm
BVIDA-U347GT	BVIRA-U347	1 3/8"-18	17	20	8.0 mm	46.5 mm
BVIDA-U343GT	BVIRA-U343	1 3/8"-18	23	25	8.0 mm	48.5 mm
BVIDA-U402GT	BVIRA-U402	1 5/8"-18	12	16	7.0 mm	55.5 mm
BVIDA-U407GT	BVIRA-U407	1 5/8"-18	17	20	7.0 mm	61.5 mm
BVIDA-U403GT	BVIRA-U403	1 5/8"-18	23	25	7.0 mm	60.5 mm

- Suitable for the AMP connector serie CPC
- No seal on female thread side
- VIDA: IP66 static/IP54 dynamic, conduit side
- VIRA: IP68 static/IP67 dynamic, conduit side



VI

VI

Connector straight, UNEF female thread for Souriau connectors

– For cable protection systems in a wide range of applications

Order No. IP66, black	Order No. IP68, black ²	Thread UNEF	Fits to NW	Shell size UTG-6	Thread length	Overall length
BVIDB-U162GT	BVIRB-U162	1 1/16"-24	12	12-8	4.0 mm	43.5 mm
BVIDB-U202GT	BVIRB-U202	1 1/16"-20	12	14-12	4.5 mm	44.0 mm
BVIDB-U232GT	BVIRB-U232	1 1/16"-20	12	16-19	4.5 mm	49.0 mm
BVIDB-U237GT	BVIRB-U237	1 1/16"-20	17	16-19	4.5 mm	52.0 mm
BVIDB-U267GT	BVIRB-U267	1 1/16"-18	17	18-23	4.5 mm	52.0 mm
BVIDB-U297GT	BVIRB-U297	1 3/16"-18	17	20-28	6.5 mm	55.5 mm
BVIDB-U293GT	BVIRB-U293	1 3/16"-18	23	20-28	6.5 mm	52.0 mm
BVIDB-U323GT	BVIRB-U323	1 3/16"-18	23	22-35	6.5 mm	52.0 mm
BVIDB-U357GT	BVIRB-U357	1 7/16"-18	17	24-48	6.5 mm	58.5 mm
BVIDB-U353GT	BVIRB-U353	1 7/16"-18	23	24-48	6.5 mm	54.0 mm
BVIDB-U359GT	BVIRB-U359	1 7/16"-18	29	24-48	6.5 mm	50.5 mm

- Suitable for the Souriau connector series UTG-6/ITT Cannon Trident
- VIDB: IP66 static/IP54 dynamic, conduit side
- VIRB: IP68 static/IP67 dynamic, conduit side
- No seal on female thread side

	BVIRS-U162	1 1/16"-24	12	12	9.4 mm	47.5 mm
	BVIRS-U202	1 1/16"-20	12	14	9.4 mm	47.5 mm
	BVIRS-U237	1 1/16"-20	17	16	10.0 mm	56.0 mm
	BVIRS-U267	1 1/16"-18	17	18	9.2 mm	55.5 mm
	BVIRS-U293	1 3/16"-18	23	20	9.8 mm	56.0 mm
	BVIRS-U323	1 3/16"-18	23	22	9.8 mm	56.0 mm
	BVIRS-U359	1 7/16"-18	29	24	9.7 mm	55.5 mm

- Suitable for the Souriau connector series UTO and UTS
- VIRS: IP68 static/IP67 dynamic, conduit side
- No seal on female thread side

² IP68GT available. Please add "GT" after the order no.

PMAFIX

Connectors with female, UN thread



VI

4

VI

Connector straight, UN female thread for MIL-C5015

– For applications in machine, vehicle and traction building industries

Order No. IP66, black	Order No. IP68, black ²	Thread UN	Fits to conduit size NW metric		Thread length	Overall length
–	BVIVG-U152	5/8"–24 UNEF	12	16	8.0 mm	36.5 mm
–	BVIVG-U187	3/4"–20 UNEF	17	20	9.0 mm	46.5 mm
–	BVIVG-U210	7/8"–20 UNEF	10	07	9.0 mm	37.0 mm
BVIDG-U212GT	BVIVG-U212	7/8"–20 UNEF	12	16	9.0 mm	38.5 mm
BVIDG-U217GT	BVIVG-U217	7/8"–20 UNEF	17	20	9.0 mm	46.5 mm
BVIDG-U242GT	BVIVG-U242	1"–20 UNEF	12	16	9.0 mm	40.5 mm
–	BVIVG-U243	1"–20 UNEF	23	25	9.0 mm	55.0 mm
BVIDG-U247GT	BVIVG-U247	1"–20 UNEF	17	20	9.0 mm	47.5 mm
–	BVIVG-U292	1 1/16"–18 UNEF	12	16	9.0 mm	40.5 mm
BVIDG-U293GT	BVIVG-U293	1 1/16"–18 UNEF	23	25	9.0 mm	55.0 mm
BVIDG-U297GT	BVIVG-U297	1 1/16"–18 UNEF	17	20	9.0 mm	47.5 mm
–	BVIVG-U299	1 3/16"–18 UNEF	29	32	9.0 mm	47.0 mm
–	BVIVG-U349	1 3/8"–18 UNEF	29	32	9.0 mm	52.0 mm
–	BVIVG-U352	1 7/16"–18 UNEF	12	16	9.0 mm	39.0 mm
BVIDG-U353GT	BVIVG-U353	1 7/16"–18 UNEF	23	25	9.0 mm	52.0 mm
–	BVIVG-U356	1 7/16"–18 UNEF	36	40	9.0 mm	63.0 mm
BVIDG-U357GT	BVIVG-U357	1 7/16"–18 UNEF	17	20	9.0 mm	46.5 mm
BVIDG-U359GT	BVIVG-U359	1 7/16"–18 UNEF	29	29	9.0 mm	52.0 mm
BVIDG-U433GT	BVIVG-U433	1 3/4"–18 UNS	23	25	10.0 mm	52.0 mm
BVIDG-U436GT	BVIVG-U436	1 3/4"–18 UNS	36	40	10.0 mm	62.5 mm
–	BVIVG-U437	1 3/4"–18 UNS	17	20	10.0 mm	46.5 mm
BVIDG-U439GT	BVIVG-U439	1 3/4"–18 UNS	29	32	10.0 mm	51.5 mm
–	BVIVG-U503	2"–18 UNS	23	25	10.0 mm	51.5 mm
BVIDG-U506GT	BVIVG-U506	2"–18 UNS	36	40	10.0 mm	62.5 mm
–	BVIVG-U508	2"–18 UNS	48	50	10.0 mm	64.5 mm
BVIDG-U509GT	BVIVG-U509	2"–18 UNS	29	32	10.0 mm	55.0 mm
–	BVIVG-U563	2 1/4"–16 UN	23	25	10.0 mm	51.0 mm
BVIDG-U566GT	BVIVG-U566	2 1/4"–16 UN	36	40	10.0 mm	62.0 mm
–	BVIVG-U568	2 1/4"–16 UN	48	50	10.0 mm	64.0 mm
BVIDG-U569GT	BVIVG-U569	2 1/4"–16 UN	29	32	10.0 mm	51.0 mm
–	BVIVG-U628	2 1/2"–16 UN	48	50	10.0 mm	64.0 mm

– Suitable for MIL connector series C5015

– VIDG: IP66 static/IP54 dynamic,
conduit- and thread side

VIVG: IP68 static/IP67 dynamic,
conduit- and thread side

– No seal on female thread side

² IP68GT available. Please add "GT" after the order no.

PMAFIX

Connectors with female fine-metric thread



FI

FI

Connector straight, fine-metric female thread, transparent

– In machine and vehicle building, in connection with electronic sensors

Order No. IP67, transparent	Thread fine-metric	Fits to conduit size metric		Thread length	Overall length
TFIL-F08M	M8 x 1.0	07	10	6.5 mm	29.5 mm
TFIL-F12M	M12 x 1.0	07	10	6.0 mm	56.0 mm
TFIL-F18M	M18 x 1.0	07	10	6.0 mm	56.5 mm
TFIL-F30M	M30 x 1.5	07	10	6.0 mm	56.5 mm
TFIL-F120	M12 x 1.0	10	12	6.0 mm	57.0 mm
TFIL-F180	M18 x 1.0	10	12	6.0 mm	57.0 mm
TFIL-F300	M30 x 1.5	10	12	6.0 mm	57.0 mm

- Light emitting diodes are recognisable through the connector
- FIL: IP67 static/IP65 dynamic, conduit side
- No seal on female thread side

PMAFIX

Y, T pieces, conduit adapters



VY

VY

Y piece

Order No. IP66 ①	Order No. IP68 ① ②	1 x conduit size		2 x conduit sizes	
		NW	metric	NW	metric
BVYD-100707GT	BVYR-100707	10	12	07	10
BVYD-121010GT	BVYR-121010	12	16	10	12
BVYD-171212GT	BVYR-171212	17	20	12	16
BVYD-231717GT	BVYR-231717	23	25	17	20
BVYD-292323GT	BVYR-292323	29	32	23	25
BVYD-362929GT	BVYR-362929	36	40	29	32
BVYD-483636GT	BVYR-483636	48	50	36	40

– Sizes can be adapted with AV conduit adapters to fit smaller conduit dimensions



VT

VT

T piece

Order No. IP66 ①	Order No. IP68 ① ②	3 x conduit sizes	
		NW	metric
BVTD-101010GT	BVTR-101010	10	12
BVTD-121212GT	BVTR-121212	12	16
BVTD-171717GT	BVTR-171717	17	20
BVTD-232323GT	BVTR-232323	23	25
BVTD-292929GT	BVTR-292929	29	32
BVTD-363636GT	BVTR-363636	36	40
BVTD-484848GT	BVTR-484848	48	50

– Sizes can be adapted with AV conduit adapters to fit smaller conduit dimensions



AV

AV

Conduit adapter

– Allows conduit size reduction of PMA connectors, particularly of T and Y pieces

Order No. IP66, black	Order No. IP68, black	Fits to fitting for		Fits to conduit size		Overall length
		NW	metric	NW	metric	
BAVD-12/10GT	BAVR-12/10	12	16	10	12	46.0 mm
BAVD-17/10GT	BAVR-17/10	17	20	10	12	53.0 mm
BAVD-17/12GT	BAVR-17/12	17	20	12	16	54.0 mm
BAVD-23/10GT	BAVR-23/10	23	25	10	12	54.0 mm
BAVD-23/12GT	BAVR-23/12	23	25	12	16	53.0 mm
BAVD-23/17GT	BAVR-23/17	23	25	17	20	62.0 mm
BAVD-29/10GT	BAVR-29/10	29	32	10	12	56.5 mm
BAVD-29/12GT	BAVR-29/12	29	32	12	16	55.0 mm
BAVD-29/17GT	BAVR-29/17	29	32	17	20	61.0 mm
BAVD-29/23GT	BAVR-29/23	29	32	23	25	64.0 mm
BAVD-36/29GT	BAVR-36/29	36	40	29	32	81.0 mm
BAVD-48/36GT	BAVR-48/36	48	50	36	40	88.5 mm

① Please replace "B" for black with "S" for grey in front of the order no.

② IP68GT available. Please add "GT" after the order no.

Special products

Meet the demands of our customers

Special products

Introduction	5/3
Connections	5/4
Connection splices	5/4
Metal connectors	5/5
Elbow adapters	5/6
Swivel and positioning adapters	5/7



Special products Introduction

Meet the demands of our customers. Besides the standard products we also provide custom built solutions with special productions of fittings and conduits, support in planning as well as technical service.

This can cover an adaptation of our standard products to the individual customer demands or the construction and realisation of fittings and conduits which fulfill project specific requirements. We always try to meet the demands of our customers and to offer our best service.



Special products

Connections, connection splices, metric, PG



VNR-REM

VNR-REM

Connection to solid metal tube, metric/PG

– Quick connection of solid metal tubes with flexible PMA conduits

Order No. IP68 without clamp ① ②	Order No. IP68 with clamp ① ②	Fits to conduit size		Steel tube metric	Inside Ø	Overall length
		NW	metric			
BVNR-REM162	BVNR-REM162-24	12	16	M16	16.0 mm	54.0 mm
BVNR-REM187	BVNR-REM187-28	17	20	M18	18.5 mm	65.0 mm
BVNR-REM207	BVNR-REM207-28	17	20	M20	20.0 mm	65.0 mm
BVNR-REM253	BVNR-REM253-32	23	25	M25	26.0 mm	71.0 mm
BVNR-REM329	BVNR-REM329-44	29	32	M32	32.0 mm	71.0 mm
BVNR-REM406	BVNR-REM406-50	36	40	M40	40.0 mm	90.0 mm
BVNR-REM508	BVNR-REM508-65	48	50	M50	50.0 mm	90.0 mm

Order No. IP68 without clamp ① ②	Order No. IP68 with clamp ① ②	Fits to conduit size		Steel tube PG	Inside Ø	Overall length
		NW	metric			
BVNR-RE12	BVNR-RE12-24	12	16	PG11	18.5 mm	56.0 mm
BVNR-RE1317	BVNR-RE1317-28	17	20	PG13	20.4 mm	65.0 mm
BVNR-RE17	BVNR-RE17-28	17	20	PG16	22.5 mm	65.0 mm
BVNR-RE23	BVNR-RE23-32	23	25	PG21	28.5 mm	71.0 mm
BVNR-RE29	BVNR-RE29-44	29	32	PG29	37.0 mm	71.0 mm
BVNR-RE36	BVNR-RE36-50	36	40	PG36	47.0 mm	84.0 mm
BVNR-RE48	BVNR-RE48-65	48	50	PG48	59.3 mm	90.0 mm

– Jubilee clip made of galvanised bright steel

– Available with or without jubilee clip

– IP68 on corrugated conduit side, on tube side up to IP68 with sealant



VSG

VSG

Connection splice for flexible conduits

– Designed for optimal connection of PMA conduits

Order No. IP66 ①	Order No. IP68 ①	Fits to conduit size		Outside Ø	Overall length
		NW	metric		
BVSGD-1212GT	BVSGR-1212	12	16	23.5 mm	66.0 mm
BVSGD-1717GT	BVSGR-1717	17	20	29.5 mm	87.0 mm
BVSGD-2323GT	BVSGR-2323	23	25	37.0 mm	103.0 mm
BVSGD-2929GT	BVSGR-2929	29	32	44.0 mm	100.0 mm
BVSGD-3636GT	BVSGR-3636	36	40	53.5 mm	130.0 mm
BVSGD-4848GT	BVSGR-4848	48	50	66.0 mm	133.0 mm

① Please replace "B" for black with "S" for grey in front of the order no.

② IP68GT available. Please add "GT" to order no. or insert before clamp size (e.g. BVNR-REM162GT, BVNR-REM162GT-24)

Special products

Metal connectors, metric



MPNK

MPNK

Metal connector for PMA conduits, metric thread

- For high temperature applications
- Suitable for high mechanical loads

Order No. metal	Thread metric	Fits to conduit size NW	Fits to conduit size profile	Inside \varnothing min.	Thread length
MPNK-M160	M16 x 1.5	10	T	12.0 mm	12.0 mm
MPNK-M162	M16 x 1.5	12	T	12.0 mm	12.0 mm
MPNK-M207	M20 x 1.5	17	T	15.8 mm	14.0 mm
MPNK-M253	M25 x 1.5	23	G	19.0 mm	15.0 mm
MPNK-M329	M32 x 1.5	29	G	26.5 mm	18.0 mm

- Nickel-plated brass
- Seals made from silicon
- Easy introduction of wires and cables
- Vibration-proof connection to PMAFLEX conduits
- Very good chemical properties
- IP68

Special products

Elbow adapters, metric



MAVI

MAVI

Special 45° elbow adapter, metric thread

- Where a certain cable outlet angle is required
- In connection with PMA connectors, especially connectors with strain relief VNZ
- Enables different mounting positions:
 - With a lock nut behind a clearance hole
 - In threaded holes (lock nut on MAVI side for positioning)
 - With SCA spin-coupler

Order No.	Thread metric inside	Thread metric outside	Thread length outside	Outside Ø	Overall length
MAVI-M20/01	M20 x 1.5	M20 x 1.5	10.0 mm	35.0 mm	45.0 mm
MAVI-M25/01	M25 x 1.5	M25 x 1.5	11.0 mm	39.0 mm	51.0 mm
MAVI-M32/01	M32 x 1.5	M32 x 1.5	13.0 mm	46.0 mm	54.0 mm
MAVI-M40/01	M40 x 1.5	M40 x 1.5	13.0 mm	55.0 mm	62.0 mm
MAVI-M50/01	M50 x 1.5	M50 x 1.5	14.0 mm	65.0 mm	75.0 mm
MAVI-M63/01	M63 x 1.5	M63 x 1.5	14.0 mm	80.0 mm	84.0 mm

- Nickel-plated aluminium (other materials e.g. stainless steel or nickel-plated brass available on request)
- High thread and system connection strength
- IP68 static/IP67 dynamic
- Temperature range: –60 °C to +105 °C

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MAVIK

MAVIK

Positioning 45° elbow adapter, metric thread

- Where a certain cable outlet angle is required
- In connection with PMA connectors, especially connectors with strain relief VNZ
- The counter nut allows accurate positioning of the outlet direction in threaded holes

Order No.	Thread metric inside	Thread metric outside	Thread length outside	Outside Ø	Overall length
MAVIK-M20/01	M20 x 1.5	M20 x 1.5	10.0 mm	35.0 mm	52.0 mm
MAVIK-M25/01	M25 x 1.5	M25 x 1.5	11.0 mm	39.0 mm	58.0 mm
MAVIK-M32/01	M32 x 1.5	M32 x 1.5	13.0 mm	46.0 mm	61.0 mm
MAVIK-M40/01	M40 x 1.5	M40 x 1.5	13.0 mm	55.0 mm	69.5 mm
MAVIK-M50/01	M50 x 1.5	M50 x 1.5	14.0 mm	65.0 mm	83.0 mm
MAVIK-M63/01	M63 x 1.5	M63 x 1.5	14.0 mm	80.0 mm	92.0 mm

- Adapter made from nickel-plated aluminium (other materials e.g. stainless steel or nickel-plated brass available on request), counter nut made from nickel-plated brass
- High thread and system connection strength
- IP68 static/IP67 dynamic
- Temperature range: –60 °C to +105 °C

Special products

Swivel and positioning adapters, metric, PG



SWA

SWA

Swivel adapter with special sealing, metric/PG metal thread

- Allow PMA connectors to swivel freely in applications where such movement is occasionally necessary
- In connection with PMA connectors with metal thread

Order No.	Thread metric	Thread length	Outside Ø	Overall length
SWA-M16-10	M16 x 1.5	10.0 mm	23.0 mm	37.5 mm
SWA-M20-10	M20 x 1.5	10.0 mm	27.0 mm	38.5 mm
SWA-M25-11	M25 x 1.5	11.0 mm	32.0 mm	41.0 mm
SWA-M32-13	M32 x 1.5	13.0 mm	45.0 mm	46.5 mm
SWA-M40-13	M40 x 1.5	13.0 mm	55.0 mm	47.5 mm
SWA-M50-14	M50 x 1.5	14.0 mm	59.0 mm	49.5 mm
SWA-M63-14	M63 x 1.5	14.0 mm	75.0 mm	52.0 mm

Order No.	Thread PG	Thread length	Outside Ø	Overall length
SWA-P09	09	15.0 mm	23.0 mm	44.5 mm
SWA-P11	11	15.0 mm	27.0 mm	45.5 mm
SWA-P16	16	15.0 mm	32.0 mm	48.0 mm
SWA-P21	21	15.0 mm	40.0 mm	51.0 mm
SWA-P29	29	15.0 mm	50.0 mm	52.0 mm
SWA-P36	36	15.0 mm	59.0 mm	55.0 mm
SWA-P48	48	15.0 mm	70.0 mm	55.0 mm

- Nickel-plated brass
- With thread edge protection
- IP68 and IP69K
- Temperature range: –40 °C to +105 °C



SCA

SCA

Positioning adapter, metric/PG metal thread

- Allows easy positioning of elbow connectors with metal thread
- In connection with PMA connectors with metal thread (Metric: Metal long thread)

Order No.	Thread metric	Thread length	Outside Ø	Overall length
SCA-M16-10	M16 x 1.5	10.0 mm	22.0 mm	32.0 mm
SCA-M20-10	M20 x 1.5	10.0 mm	26.0 mm	33.0 mm
SCA-M25-11	M25 x 1.5	11.0 mm	32.0 mm	35.0 mm
SCA-M32-13	M32 x 1.5	13.0 mm	39.0 mm	39.5 mm
SCA-M40-13	M40 x 1.5	13.0 mm	50.0 mm	41.0 mm
SCA-M50-14	M50 x 1.5	14.0 mm	59.0 mm	43.5 mm
SCA-M63-14	M63 x 1.5	14.0 mm	75.0 mm	45.5 mm

Order No.	Thread PG	Thread length	Outside Ø	Overall length
SCA-P09	09	12.0 mm	22.0 mm	35.0 mm
SCA-P11	11	12.0 mm	26.0 mm	36.0 mm
SCA-P16	16	13.0 mm	29.0 mm	38.0 mm
SCA-P21	21	14.0 mm	39.0 mm	41.0 mm
SCA-P29	29	14.0 mm	44.0 mm	42.5 mm
SCA-P36	36	17.0 mm	59.0 mm	49.0 mm
SCA-P48	48	17.0 mm	69.0 mm	50.5 mm

- Nickel-plated brass
- High fastening torque
- With thread edge protection
- IP68 and IP69K
- Temperature range: –40 °C to +105 °C

Accessories

For flexible and application friendly solutions

Accessories

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Accessories Introduction

For flexible and application friendly solutions. PMA offers a vast array of practical accessories in order to complete the PMA cable protection system.

We offer lock nuts produced from polyamide or metal, thread reducers and enlargers, conduit adapters, swivel adapters as well as different mounting clips for conduits. All this practical products will help to create the PMA line for our customers even more flexible and application friendly.



Accessories

Flat gaskets, metric, PG, GAS



SVN4

SVN4

Flat thread gasket, metric/PG/GAS

- For sealing of polyamide or metal threads of PMA fittings
- For ingress protection at the thread up to IP68
- For solid sealing of uneven rough contact areas around the thread hole or when no constructive measures for O-Rings are provided

Order No.	Fits to thread metric	Inside Ø	Outside Ø	Thickness
SVN4-M12	M12 x 1.5	12.0 mm	20.0 mm	1.5 mm
SVN4-M12/02	M12 x 1.5	12.0 mm	23.0 mm	1.5 mm
SVN4-M16	M16 x 1.5	16.0 mm	22.0 mm	1.5 mm
SVN4-M16/02	M16 x 1.5	16.0 mm	25.0 mm	1.5 mm
SVN4-M20	M20 x 1.5	20.0 mm	27.0 mm	1.5 mm
SVN4-M20/02	M20 x 1.5	20.0 mm	33.0 mm	1.5 mm
SVN4-M25	M25 x 1.5	25.0 mm	35.0 mm	1.5 mm
SVN4-M25/01	M25 x 1.5	25.0 mm	31.0 mm	1.5 mm
SVN4-M25/02	M25 x 1.5	25.0 mm	39.0 mm	1.5 mm
SVN4-M32	M32 x 1.5	32.0 mm	43.0 mm	1.5 mm
SVN4-M32/02	M32 x 1.5	32.0 mm	49.0 mm	1.5 mm
SVN4-M40	M40 x 1.5	40.0 mm	55.0 mm	1.5 mm
SVN4-M40/01	M40 x 1.5	40.0 mm	51.0 mm	1.5 mm
SVN4-M40/02	M40 x 1.5	40.0 mm	64.0 mm	1.5 mm
SVN4-M50	M50 x 1.5	50.0 mm	69.0 mm	1.5 mm
SVN4-M50/01	M50 x 1.5	50.0 mm	59.0 mm	1.5 mm
SVN4-M50/02	M50 x 1.5	50.0 mm	74.0 mm	1.5 mm
SVN4-M63	M63 x 1.5	63.0 mm	75.0 mm	1.5 mm

Order No.	Fits to thread PG	Inside Ø	Outside Ø	Thickness
SVN4-07	07	12.5 mm	16.5 mm	1.5 mm
SVN4-09	09	15.2 mm	20.0 mm	1.5 mm
SVN4-11	11	18.6 mm	24.0 mm	1.5 mm
SVN4-13	13.5	20.4 mm	31.0 mm	1.5 mm
SVN4-16	16	22.5 mm	31.0 mm	1.5 mm
SVN4-21	21	28.3 mm	37.0 mm	1.5 mm
SVN4-29	29	37.0 mm	48.0 mm	1.5 mm
SVN4-36	36	47.0 mm	57.0 mm	1.5 mm
SVN4-42	42	54.0 mm	60.0 mm	1.5 mm
SVN4-48	48	59.3 mm	69.0 mm	1.5 mm

Order No.	Fits to thread GAS	Inside Ø	Outside Ø	Thickness
SVN4-G00	¼"	13.2 mm	20.0 mm	1.5 mm
SVN4-G01	⅜"	16.7 mm	22.0 mm	1.5 mm
SVN4-G02	½"	21.0 mm	28.0 mm	1.5 mm
SVN4-G04	¾"	26.5 mm	34.0 mm	1.5 mm
SVN4-G06	1"	33.3 mm	42.0 mm	1.5 mm
SVN4-G07	1¼"	41.9 mm	53.0 mm	1.5 mm
SVN4-G08	1½"	47.8 mm	62.0 mm	1.5 mm
SVN4-G09	2"	59.6 mm	69.0 mm	1.5 mm

– NBR reinforced with aramide fibres (asbestos-free)

– Temperature range: –50 °C to +200 °C, short-term to +350 °C

Note

Depending on flange sizes flat thread gaskets can have different widths. Please indicate fitting for which gasket is needed for replacement orders.

Accessories

Locking clips, water impact protection



AFN2

AFN2

Universal safety clip

- Pre-installed in PMA connectors IP66 and IP68GT
- Allows simple push-in assembly of PMA conduits

Order No. dark grey	Fits to conduit size		Width	Length	Thickness
	NW	profile			
AFN2-07GT	07	G + T	14.0 mm	14.0 mm	7.0 mm
AFN2-10GT	10	G + T	17.5 mm	17.0 mm	8.0 mm
AFN2-12GT	12	G + T	20.5 mm	20.0 mm	7.3 mm
AFN2-17GT	17	G + T	26.5 mm	22.0 mm	8.0 mm
AFN2-23GT	23	G + T	34.0 mm	27.5 mm	11.8 mm
AFN2-29GT	29	G + T	40.5 mm	32.0 mm	11.8 mm
AFN2-36GT	36	G + T	50.0 mm	39.0 mm	9.5 mm
AFN2-48GT	48	G + T	62.0 mm	47.0 mm	9.5 mm



OVN2

OVN2

Oval clip

- Provides reliable fixation of PMA conduits within PMA IP68 fittings

Order No. dark grey	Fits to conduit size		Width	Length	Thickness
	NW	profile			
OVN2-07	07	G + T	14.0 mm	14.0 mm	6.0 mm
OVN2-10	10	G + T	17.5 mm	17.0 mm	7.0 mm
OVN2-12	12	G + T	21.0 mm	19.0 mm	6.0 mm
OVN2-17	17	G + T	26.5 mm	22.5 mm	7.0 mm
OVN2-23	23	G + T	34.0 mm	27.5 mm	10.5 mm
OVN2-29	29	G + T	40.5 mm	32.0 mm	10.5 mm
OVN2-36	36	G + T	49.5 mm	39.0 mm	8.5 mm
OVN2-48	48	G + T	62.0 mm	47.0 mm	8.5 mm



WPS

WPS

Water impact protection

- Increased protection of PMAFIX fittings against water jet impact – increased protection up to IP69K
- For increased ingress protection requirements regarding high pressure/steam jet cleaning

Order No. black	Fits to conduit size		Outside	Thickness
	NW	profile	∅	
WPS-NW10	10	G + T	22.0 mm	8.0 mm
WPS-NW12	12	G + T	26.0 mm	8.0 mm
WPS-NW17	17	G + T	33.0 mm	8.0 mm
WPS-NW23	23	G + T	40.0 mm	9.0 mm
WPS-NW29	29	G + T	47.0 mm	9.5 mm
WPS-NW36	36	G + T	59.0 mm	10.0 mm
WPS-NW48	48	G + T	71.0 mm	10.0 mm

- Based on PMAFIX IP68 system
- Two-piece water impact protection with click cap
- Retrofit installation possible

Accessories

Sealing caps, reducers



NVN3

NVN3

Sealing cap, reinforced

- In connection with PMAFIX connectors („V“ series) and PMA corrugated conduits
- For ingress protection IP68 static/IP67 dynamic

Order No.	Fits to conduit size		Length
	NW	metric	
NVN3-07	07	10	9.0 mm
NVN3-09	10	12	9.0 mm
NVN3-11	12	16	12.0 mm
NVN3-16	17	23	16.5 mm
NVN3-21	23	25	13.0 mm
NVN3-29	29	32	14.0 mm
NVN3-36	36	40	17.5 mm
NVN3-48	48	50	17.5 mm

- Specially modified polyesterelastomer
- Free from halogens and cadmium
- Fits both conduit profiles – fine (T) and coarse (G)
- Temperature range: –40 °C to +105 °C

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NFN3

NFN3

Sealing cap

- In connection with PMAFIX connectors („F“ series) and PMA corrugated conduits
- For ingress protection IP67 static/IP65 dynamic

Order No.	Fits to conduit size		Length
	NW	metric	
NFN3-07	07	10	9.0 mm
NFN3-09	10	12	9.0 mm
NFN3-11	12	16	9.0 mm
NFN3-16	17	23	9.0 mm
NFN3-21	23	25	9.0 mm
NFN3-29	29	32	9.0 mm
NFN3-36	36	40	11.0 mm
NFN3-48	48	50	11.0 mm

- Specially modified polyesterelastomer
- Free from halogens and cadmium
- Fits conduit profiles – fine (T) and coarse (G)
- Temperature range: –40 °C to +105 °C



NR

NR

Reducer, PG

- Reduction of threaded or clearance holes to smaller PG thread sizes

Order No.	Thread outside PG	Thread inside PG	Length	Inside Ø	Outside Ø
1109N	11	09	22.5 mm	10.5 mm	24.5 mm
1309N	13.5	09	15.0 mm	10.0 mm	26.0 mm
1311N	13.5	11	24.0 mm	11.5 mm	26.0 mm
1609N	16	09	16.0 mm	10.0 mm	29.0 mm
1611N	16	11	16.0 mm	11.5 mm	29.0 mm
1613N	16	13.5	27.0 mm	13.5 mm	29.0 mm
2113N	21	13.5	16.0 mm	13.5 mm	35.5 mm
2116N	21	16	16.0 mm	15.5 mm	35.5 mm
2921N	29	21	17.0 mm	22.0 mm	43.0 mm
3629N	36	29	24.0 mm	30.5 mm	54.0 mm

- High-grade, glass fibre reinforced Polyamid 6
- Temperature range: –30 °C to +100 °C

Accessories

Enlargers, reducers, metric



ME

ME

Enlarger, brass, metric thread

- For enlargement of an existing thread

Order No.	Thread outside metric	Thread outside length	Thread inside metric	Thread inside length	Wrench size	Inside \varnothing	Overall length
M12M16M	M12 x 1.5	5.0 mm	M16 x 1.5	7.0 mm	18 mm	8.0 mm	16.0 mm
M16M20M	M16 x 1.5	5.0 mm	M20 x 1.5	7.5 mm	22 mm	12.0 mm	16.5 mm
M20M25M	M20 x 1.5	6.0 mm	M25 x 1.5	8.0 mm	27 mm	15.0 mm	18.5 mm
M25M32M	M25 x 1.5	7.0 mm	M32 x 1.5	9.0 mm	34 mm	21.0 mm	20.5 mm
M32M40M	M32 x 1.5	8.0 mm	M40 x 1.5	10.0 mm	42 mm	26.0 mm	23.5 mm
M40M50M	M40 x 1.5	8.0 mm	M50 x 1.5	13.0 mm	52 mm	34.0 mm	30.0 mm
M50M63M	M50 x 1.5	9.0 mm	M63 x 1.5	16.0 mm	65 mm	44.0 mm	32.5 mm

- Nickel-plated brass
- Hexagonal form
- Temperature range: $-60\text{ }^{\circ}\text{C}$ to $+200\text{ }^{\circ}\text{C}$



MR

MR

Reducer, brass, metric thread

- Reduction of threaded or clearance holes to smaller thread sizes

Order No. standard	Order No. hexagonal	Thread outside metric	Thread inside metric
M16M12M	M16M12M/6	M16 x 1.5	M12 x 1.5
M20M12M	M20M12M/6	M20 x 1.5	M12 x 1.5
M20M16M	M20M16M/6	M20 x 1.5	M16 x 1.5
M25M16M	M25M16M/6	M25 x 1.5	M16 x 1.5
M25M20M	M25M20M/6	M25 x 1.5	M20 x 1.5
M32M20M	M32M20M/6	M32 x 1.5	M20 x 1.5
M32M25M	M32M25M/6	M32 x 1.5	M25 x 1.5
M40M25M	M40M25M/6	M40 x 1.5	M25 x 1.5
M40M32M	M40M32M/6	M40 x 1.5	M32 x 1.5
M50M32M	M50M32M/6	M50 x 1.5	M32 x 1.5
M50M40M	M50M40M/6	M50 x 1.5	M40 x 1.5
M63M40M	M63M40M/6	M63 x 1.5	M40 x 1.5
M63M50M	M63M50M/6	M63 x 1.5	M50 x 1.5

- Nickel-plated brass
- Temperature range: $-60\text{ }^{\circ}\text{C}$ to $+200\text{ }^{\circ}\text{C}$
- Round form without O-ring, hexagonal form with O-ring

Accessories

Enlargers, reducers, PG



ME

ME

Enlarger, brass, PG thread

– For enlargement of an existing thread

Order No. metal, standard	Thread outside PG length	Thread inside PG length	Outside Ø	Overall length		
0709M	07	5.0 mm	09	7.0 mm	17.0 mm	15.0 mm
0911M	09	6.0 mm	11	7.0 mm	20.0 mm	16.5 mm
0913M	09	6.0 mm	13	7.5 mm	22.0 mm	17.5 mm
1113M	11	6.0 mm	13	8.0 mm	22.0 mm	17.5 mm
1116M	11	6.5 mm	16	8.5 mm	24.0 mm	19.0 mm
1121M	11	6.5 mm	21	10.0 mm	30.0 mm	21.0 mm
1316M	13.5	6.5 mm	16	7.5 mm	24.0 mm	19.0 mm
1321M	13.5	6.5 mm	21	8.5 mm	30.0 mm	21.0 mm
1621M	16	6.5 mm	21	8.5 mm	30.0 mm	21.0 mm
1629M	16	6.5 mm	29	11.0 mm	39.0 mm	22.5 mm
2129M	21	7.0 mm	29	11.5 mm	39.0 mm	23.0 mm
2936M	29	8.0 mm	36	12.0 mm	50.0 mm	27.5 mm
4248M	42	10.0 mm	48	17.0 mm	64.0 mm	33.0 mm

– Nickel-plated brass

– Temperature range: –60 °C to +200 °C



MR

MR

Reducer, brass, PG thread

– Reduction of threaded or clearance holes to smaller thread sizes

Order No. metal, standard	Thread outside PG length	Thread inside PG	Outside Ø	Overall length	
0907M	09	6.0 mm	07	17.0 mm	8.5 mm
1107M	11	6.0 mm	07	20.0 mm	8.5 mm
1109M	11	6.0 mm	09	20.0 mm	8.5 mm
1307M	13.5	6.5 mm	07	22.0 mm	9.0 mm
1309M	13.5	6.5 mm	09	22.0 mm	9.0 mm
1311M	13.5	6.5 mm	11	22.0 mm	9.0 mm
1607M	16	6.5 mm	07	24.0 mm	9.5 mm
1609M	16	6.5 mm	09	24.0 mm	9.5 mm
1611M	16	6.5 mm	11	24.0 mm	9.5 mm
1613M	16	6.5 mm	13.5	24.0 mm	9.5 mm
2111M	21	7.0 mm	11	30.0 mm	10.0 mm
2113M	21	7.0 mm	13.5	30.0 mm	10.0 mm
2116M	21	7.0 mm	16	30.0 mm	10.0 mm
2916M	29	8.0 mm	16	39.0 mm	11.5 mm
2921M	29	8.0 mm	21	39.0 mm	11.5 mm
3621M	36	9.0 mm	21	50.0 mm	12.5 mm
3629M	36	9.0 mm	29	50.0 mm	12.5 mm
4229M	42	10.0 mm	29	57.0 mm	14.0 mm
4236M	42	10.0 mm	36	57.0 mm	14.0 mm
4836M	48	10.0 mm	36	64.0 mm	14.0 mm
4842M	48	10.0 mm	42	64.0 mm	14.0 mm

– Nickel-plated brass

– Temperature range: –60 °C to +200 °C

Accessories

Plug screws, metric, PG



514

514

Plug screw, metric/PG thread

– For closing off unused threaded holes

Order No. grey	Fits to thread metric	Outside Ø	Height	Thread length
514-M12	M12 x 1.5	15.0 mm	10.0 mm	6.0 mm
514-M16	M16 x 1.5	20.0 mm	10.5 mm	6.0 mm
514-M20	M20 x 1.5	24.0 mm	10.5 mm	6.0 mm
514-M25	M25 x 1.5	30.0 mm	13.0 mm	8.0 mm
514-M32	M32 x 1.5	37.0 mm	13.5 mm	8.0 mm
514-M40	M40 x 1.5	46.0 mm	14.0 mm	8.0 mm
514-M50	M50 x 1.5	56.0 mm	16.5 mm	10.0 mm
514-M63	M63 x 1.5	70.0 mm	17.0 mm	12.0 mm

Order No. grey	Fits to thread PG	Outside Ø	Height	Thread length
514-07	07	15.0 mm	10.0 mm	6.0 mm
514-09	09	19.0 mm	10.0 mm	6.0 mm
514-11	11	22.0 mm	10.0 mm	6.0 mm
514-13	13.5	25.0 mm	10.0 mm	6.0 mm
514-16	16	27.0 mm	10.0 mm	6.0 mm
514-21	21	33.0 mm	12.5 mm	8.0 mm
514-29	29	44.5 mm	13.0 mm	8.0 mm
514-36	36	55.5 mm	15.0 mm	10.0 mm
514-48	48	69.5 mm	17.0 mm	12.0 mm

- Polyamide 6 glass fibre reinforced
- Free from halogens and cadmium
- IP54
- Temperature range: –30 °C to +100 °C

Accessories

Lock nuts, metric, PG



MN

MN

Hexagonal lock nut, polyamide, metric/PG thread

Order No. black	Order No. grey	Fits to thread metric	Wrench size	Height
BMN-M12	GMN-M12	M12 x 1.5	17 mm	5.0 mm
BMN-M16	GMN-M16	M16 x 1.5	22 mm	5.0 mm
BMN-M20	GMN-M20	M20 x 1.5	26 mm	5.6 mm
BMN-M25	GMN-M25	M25 x 1.5	32 mm	6.0 mm
BMN-M32	GMN-M32	M32 x 1.5	41 mm	7.0 mm
BMN-M40	GMN-M40	M40 x 1.5	50 mm	7.0 mm
BMN-M50	GMN-M50	M50 x 1.5	60 mm	8.0 mm
BMN-M63	GMN-M63	M63 x 1.5	75 mm	8.0 mm

Order No. black	Order No. grey	Fits to thread PG	Wrench size	Height
BMN-07	GMN-07	07	19 mm	5.0 mm
BMN-09	GMN-09	09	22 mm	5.0 mm
BMN-11	GMN-11	11	24 mm	5.0 mm
BMN-13	GMN-13	13.5	27 mm	6.0 mm
BMN-16	GMN-16	16	30 mm	6.0 mm
BMN-21	GMN-21	21	36 mm	7.0 mm
BMN-29	GMN-29	29	46 mm	7.0 mm
BMN-36	GMN-36	36	60 mm	8.0 mm
BMN-48	GMN-48	48	70 mm	8.0 mm

- Glass fibre reinforced Polyamid 6
- High tightening torques

Accessories

Lock nuts, metric, PG



MM

MM

Hexagonal lock nut, brass, metric/PG thread

Order No.	Fits to thread metric	Wrench size	Height (min.)
GMM-M12	M12 x 1.5	15 mm	2.8 mm
GMM-M16	M16 x 1.5	19 mm	2.8 mm
GMM-M20	M20 x 1.5	24 mm	3.0 mm
GMM-M25	M25 x 1.5	30 mm	3.5 mm
GMM-M32	M32 x 1.5	36 mm	4.0 mm
GMM-M40	M40 x 1.5	46 mm	4.5 mm
GMM-M50	M50 x 1.5	60 mm	5.0 mm
GMM-M63	M63 x 1.5	70 mm	5.5 mm

Order No.	Fits to thread PG	Wrench size	Height (min.)
GMM-07	07	15 mm	2.8 mm
GMM-09	09	18 mm	2.8 mm
GMM-11	11	21 mm	3.0 mm
GMM-13	13.5	23 mm	3.0 mm
GMM-16	16	26 mm	3.0 mm
GMM-21	21	32 mm	3.5 mm
GMM-29	29	41 mm	4.0 mm
GMM-36	36	51 mm	5.0 mm
GMM-42	42	60 mm	5.0 mm
GMM-48	48	64 mm	5.5 mm

- Nickel-plated brass
- maximum possible torque
- Safe system connection

Accessories

System supports, half-shells



VH

VH

System support

– For applications in machine building and installation

Order No. Support ①	Order No. Clip ①	Order No. Complete ①	Fits to conduit size metric		Width x Height x Depth	Fixing screws
BVH-17-010	BVH-17-020	BVH-17-000	17	20	35 x 36 x 36 mm	6 x M5
BVH-23-010	BVH-23-020	BVH-23-000	23	25	35 x 44 x 36 mm	6 x M5
BVH-29-010	BVH-29-020	BVH-29-000	29	32	46 x 52 x 40 mm	6 x M5
BVH-36-010	BVH-36-020	BVH-36-000	36	40	53 x 58 x 60 mm	6 x M5
BVH-48-010	BVH-48-020	BVH-48-000	48	50	66 x 72 x 60 mm	6 x M5

- Optimal axial strain relief due to integrated rib
- Variable fixation possible due to six holes, safe against turning
- With safety lid suitable for overhead installation
- High retention forces

6



GN

GN

Half shell

– For conduit fixation in conjunction with beam systems, particularly in traction and machine applications

Order No. fine profile, black	Order No. coarse profile, black	Fits to conduit size metric		Outside Ø	Width
BGN-S12T	–	12	16	26.5 mm	34.0 mm
BGN-S17T	BGN-S17G	17	20	32.0 mm	34.0 mm
BGN-S23T	BGN-S23G	23	25	39.5 mm	34.0 mm
BGN-S29T	BGN-S29G	29	32	47.0 mm	34.0 mm
BGN-S36T	–	36	40	55.0 mm	36.5 mm
–	BGN-S36G	36	40	55.0 mm	34.0 mm
BGN-S48T	–	48	50	66.5 mm	36.5 mm
–	BGN-S48G	48	50	66.5 mm	34.0 mm
–	BGN-S70G	70	80	93.5 mm	38.0 mm

- Fixes conduit against axial movements
- Allows radial turning of conduit
- Especially suitable for dynamic applications due to rounded edges

① Please replace "B" for black with "S" for grey in front of the order no.

Accessories

System supports, rails for system supports



FH-0

FH-0

System support, one-piece

- For applications in machine building and installation

Order No. black	Order No. grey	Fits to conduit size		Width x Height x Depth	Fixing screw
		NW	metric		
BFH-07-0	SFH-07-0	07	10	17.0 x 21.5 x 20.0 mm	1 x M4
BFH-10-0	SFH-10-0	10	12	20.5 x 24.5 x 20.0 mm	1 x M5
BFH-12-0	SFH-12-0	12	16	24.0 x 27.0 x 20.0 mm	1 x M5
BFH-17-0	SFH-17-0	17	20	30.0 x 34.0 x 20.0 mm	1 x M6
BFH-23-0	SFH-23-0	23	25	38.5 x 42.0 x 20.0 mm	1 x M6
BFH-29-0	SFH-29-0	29	32	45.5 x 48.0 x 20.0 mm	1 x M6
BFH-36-0	SFH-36-0	36	40	55.5 x 56.0 x 20.0 mm	1 x M6
BFH-48-0	SFH-48-0	48	50	67.5 x 68.0 x 20.0 mm	1 x M6

- Optimal axial strain relief due to integrated rib
- Suitable for overhead installations due to safety lid
- High retention forces
- Quick mounting due to single hole fixing
- Fits to rail for system support FHS



FHS

FHS

Rail for system support

- For flexible assembly of one-piece system supports and/or fixation of various conduit sizes

Order No. black	Order No. grey	Fits to system supports	Length x Height x Depth
BFHS-00	SFHS-00	FH-NW-0	275.0 x 15.5 x 25.0
Additional position supports or distance spacers			
BFHS-PH	SFHS-PH	Position support with screws	
BFHS-PH1	SFHS-PH1	Distance spacers	

- Glass fibre reinforced polyamide 6
- Extremely robust construction
- High stiffness
- Positioning and distance spacers available

Accessories

Tube clamps



GL

GL

Tube clamp, one-piece

- Used in general machine and installation applications

Order No. black	Order No. grey	Fits to conduit size		Width	Fixing screw
		NW	metric		
BGL-07	SGL-07	07	10	25.0 mm	1 x M4
BGL-10	SGL-10	10	12	27.0 mm	1 x M4
BGL-12	SGL-12	12	16	31.0 mm	1 x M4
BGL-17	SGL-17	17	20	39.5 mm	1 x M5
BGL-23	SGL-23	23	25	49.0 mm	1 x M5
BGL-29	SGL-29	29	32	57.0 mm	1 x M6

- Integrated rib provides axial strain relief
- Allows turning of the conduit, thus avoiding torsion stresses
- Pre-fixation on the conduit possible

6



GH

GH

Tube clamp, one-piece

- Used in general machine and installation applications

Order No. black	Order No. grey	Fits to conduit size		Width	Fixing screws
		NW	metric		
BGH-23	SGH-23	23	25	16.0 mm	2 x M5
BGH-29	SGH-29	29	32	19.0 mm	2 x M6
BGH-36	SGH-36	36	40	24.0 mm	2 x M6
BGH-48	SGH-48	48	50	24.0 mm	2 x M6
BGH-56	SGH-56	56	68	26.0 mm	2 x M8
BGH-70	SGH-70	70	80	30.0 mm	2 x M8
BGH-95	SGH-95	95	106	30.0 mm	2 x M8

- Integrated rib provides axial strain relief
- Allows turning of the conduit, thus avoiding torsion stresses
- Pre-fixation on the conduit possible
- Allows solid fixation with 2 screws



SGB

SGB

Tube clamp

- For fixation of static conduits

Order No.	Fits to conduit size		Width	Fixing screw
	NW	metric		
SGB-07	07	10	13.0 mm	1 x M4
SGB-09	10	12	13.0 mm	1 x M4
SGB-11	12	16	13.0 mm	1 x M4
SGB-16	17	20	16.0 mm	1 x M5
SGB-21	23	25	16.0 mm	1 x M5
SGB-29	29	32	19.0 mm	1 x M6
SGB-36	36	40	19.0 mm	1 x M6
SGB-48	48	50	19.0 mm	1 x M6

- Galvanized steel
- Elastomer profile (EPDM) free from halogens
- Smooth connection to PMA conduits
- Good resistance to ozone and ageing
- Temperature range: –40 °C to +120 °C

Accessories

System supports



GPS

GPS

System support, one-piece, stackable

- In railway vehicle construction, heavy machine building industry and other applications with increased mechanical requirements

Order No.	Fits to conduit size		DIN-NW	Width	Height	Depth
	NW	metric				
BGPS-12/01 *	12	16	2	70.0 mm	51.0 mm	30.0 mm
BGPS-17	17	20	2	70.0 mm	51.0 mm	30.0 mm
BGPS-23	23	25	2	70.0 mm	51.0 mm	30.0 mm
BGPS-29	29	32	3	85.0 mm	65.0 mm	30.0 mm
BGPS-36	36	40	3	85.0 mm	65.0 mm	30.0 mm
BGPS-48	48	50	4	115.0 mm	92.5 mm	30.0 mm
BGPS-56	56	68	4	115.0 mm	92.5 mm	30.0 mm

* This size will be delivered with a half-shell insert

- Heavy design, high retention forces
- Applicable with standard metal C rails
- Clasp for easy pre-mounting and final assembly
- Especially suitable for dyn. applic. due to rounded edges
- The following nominal widths can be combined for stacking: NW 12 with NW 17 + 23, NW 17 with NW 23, NW 29 with NW 36, NW 48 with NW 56
- Content of delivery: System support and 2 screws for securing of the lid (optional); without mounting accessories



GP

GP

System support, stackable

- In railway vehicle construction, heavy machine building industry and other applications with increased mechanical requirements

Order No.	Fits to conduit size		Width	Height	Depth
	NW	metric			
B GP-17	17	20	47.5 mm	66.0 mm	36.0 mm
B GP-23	23	25	47.5 mm	66.0 mm	36.0 mm
B GP-29	29	32	61.5 mm	66.0 mm	36.0 mm
B GP-36	36	40	61.5 mm	66.0 mm	36.0 mm
B GP-48	48	50	76.0 mm	66.0 mm	36.0 mm
B GP-56G	56	68	87.0 mm	78.0 mm	36.0 mm

- Variable stacking possibilities, due to the "Block"-system a high rigidity is guaranteed
- Fixes conduit against axial movements
- Allows radial turning of conduit
- Especially suitable for dyn. applic. due to rounded edges
- Variety of support possibilities
- Content of delivery: System support with assembling screws; without mounting accessories

① Please replace "B" for black with "S" for grey in front of the order no.

Accessories

Conduit terminations



RKS

RKS

Conduit terminal sleeve

- For clean conduit end termination where no fitting is required

Order No. black	Fits to conduit size metric		Inside \varnothing	Outside \varnothing	Length
	NW				
RKS-07	07	10	4.5 mm	12.5 mm	16.0 mm
RKS-10	10	12	8.0 mm	15.5 mm	16.0 mm
RKS-12	12	16	10.0 mm	19.0 mm	20.0 mm
RKS-17	17	20	13.0 mm	24.0 mm	21.0 mm
RKS-23	23	25	20.0 mm	32.0 mm	22.0 mm
RKS-29	29	32	25.0 mm	38.0 mm	22.0 mm
RKS-36	36	40	33.0 mm	46.0 mm	25.0 mm
RKS-48	48	50	45.0 mm	58.0 mm	25.0 mm
RKS-56	56	68	54.0 mm	71.0 mm	28.0 mm

6



CT

CT

Conduit termination

- For sealing of cables and wires at the exit from PMA corrugated conduits
- Avoids ingress of dirt and liquids
- Can be fixed additionally with cable ties

Order No. black	Fits to conduit size metric		Clamping range	Length	Height
	NW				
BCT-10	10	12	4–8 mm	28.0 mm	13.0 mm
BCT-12	12	16	5–9 mm	35.0 mm	16.0 mm
BCT-17	17	20	7–14 mm	42.0 mm	21.0 mm
BCT-23	23	25	14–22 mm	51.0 mm	28.0 mm
BCT-29	29	32	16–22 mm	53.0 mm	34.0 mm
BCT-36	36	40	16–29 mm	55.0 mm	42.0 mm

- Neoprene rubber
- Temperature range: –30 °C to +120 °C

Accessories

Abrasion protection sleeves, tools



SS/SV

SS/SV

Abrasion protection sleeve

- Abrasion protection for corrugated conduits in positions exposed to chafing
- Increases the life time of moving conduits

Order No. black	Fits to conduit size NW metric		Outside ∅	Length
BSS-17	17	20	42.0 mm	22.0 mm
BSS-23	23	25	49.0 mm	26.0 mm
BSS-29	29	32	55.0 mm	26.0 mm
BSS-36	36	40	63.0 mm	30.0 mm
BSS-48	48	50	75.0 mm	30.0 mm
BSS-56G	56	68	90.0 mm	33.0 mm
BSV-70G	70	80	108.0 mm	60.0 mm



EWZ

EWZ

Draw-in tool

- Suitable for drawing in cables or wires into PMA Divisible System conduits or other slit conduits
- Designed in a handy shape and equipped with a practical hand grip for wedging or with hole for direct holding of the wires

Order No. black with hole	Order No. black with handle	Fits to conduit size NW	Width x Length x Depth
EWZ-02	EWZ-03	7.5-34	117.7 x 45.2 x 71.9 mm

- Polyamide 6.6
- Colour: black

Accessories Tools



PMACUT

PMACUT

Cutting tool for conduits, NW 07–48

- Can be used to cut all PMA conduits
- Enables a precise and straight cut around the corrugation

Order No. Cutting tool	Order No. Spare blade	Cutting range	For conduit size NW
PMACUT-38	FP-38	0–38 mm	07–29
PMACUT-52	FP-52	0–52 mm	23–48

- Metal
- Colour: Red

6



PMACUT

PMACUT

Cutting tool for conduits, NW 56–125

- Can be used to cut all PMA conduits with large nominal widths
- Enables a precise and straight cut at the top of the corrugation
- High level of safety through retractable blade

Order No. Cutting tool	For conduit size		Length x Width x Depth
	NW	metric	
PMACUT-NW56	56	68	337 x 101 x 15 mm
PMACUT-NW70	70	80	350 x 110 x 15 mm
PMACUT-NW95	95	106	400 x 142 x 20 mm
PMACUT-NW125	125	146	443 x 182 x 20 mm

- Aluminium

PMA JUMBO SIZES

Conduit and Fittings in large sizes

PMA JUMBO SIZES

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PMA JUMBO SIZES

General technical details

Larger sizes for big solutions. When you need conduits with larger sizes for your cable protection, we provide you with a comprehensive selection of large size conduits including connectors and flanges.

The PMA JUMBO product line includes a range of large size cable protection products. Seven different conduit types using a variety of raw materials to provide optimal performance in various applications and compatible fittings.

- PMA JUMBO conduits polyamide and polyurethane conduits in the large nominal width sizes NW56, 70, 95, 125 (PA6 conduits – PCL, CYL, VCS, VOH) (PA12 conduits – PIS, PCS) (PU conduits – PUE)
- PMAGRIP flange and threaded fittings plus accessories BGG (straight), BGO (90°) flange fittings achieve a sealing rating of IP50 and IP65 with a conduit sealing ring BGGV (straight), BGOV (90°) flange fittings achieve a sealing rating of IP68

Material

- Conduits made from specially formulated PA6, PA12 and PU
- Fittings made from specially formulated polyamide 6
- Self-extinguishing
- Free from halogens, REACH + ROHS compliant
- Very good chemical properties
- Temperature range:
PA6 –40 °C to +105 °C, short-term to +160 °C
PA12 –40 °C to +95 °C, short-term to +150 °C
PU –60 °C to +50°C

Characteristics

- Excellent conduit pull-out strength
- High impact resistance
- All PMA Jumbo conduits have a coarse (G) profile
- The conduit types PIS and VCS are UL recognized in jumbo sizes for use with the flange type fittings.



PMA JUMBO SIZES

Conduits, large sizes



PMAFLEX JUMBO Conduits

Approvals



PMAFLEX JUMBO Conduits

Order No. black	Order No. grey	Conduit size		Inside	Outside	Stat./Dyn. radius	PU meter
		NW	metric	∅	∅		
PCLG-56B	PCLG-56S	56	68	56.3 mm	67.2 mm	130/- mm	30
PCLG-70B	PCLG-70S	70	80	67.5 mm	80.0 mm	160/- mm	10
PCLG-95B	PCLG-95S	95	106	91.5 mm	106.0 mm	210/- mm	10
PCLG-125B	PCLG-125S	125	146	126.5 mm	146.5 mm	450/- mm	6
PIHG-56B	PIHG-56S	56	68	56.3 mm	67.2 mm	110/270 mm	30
PIHG-70B	PIHG-70S	70	80	67.2 mm	79.6 mm	150/350 mm	30
PIHG-95B	PIHG-95S	95	106	91.3 mm	106.0 mm	170/450 mm	30
PIHG-125B	PIHG-125S	125	146	126.5 mm	146.5 mm	350/480 mm	20
VOHG-56B	VOHG-56S	56	68	55.5 mm	67.2 mm	135/- mm	10
VOHG-70B	VOHG-70S	70	80	67.0 mm	80.0 mm	200/- mm	10
VOHG-95B	VOHG-95S	95	106	90.5 mm	106.0 mm	300/- mm	10
VOHG-125B	VOHG-125S	125	146	126.0 mm	146.5 mm	480/- mm	6
VCSG-56B	VCSG-56S	56	68	56.1 mm	67.2 mm	150/- mm	30
VCSG-70B	VCSG-70S	70	80	66.5 mm	80.0 mm	200/- mm	10
VCSG-95B	VCSG-95S	95	106	91.0 mm	106.0 mm	300/- mm	10
PCSG-56B	PCSG-56S	56	68	56.1 mm	67.2 mm	130/280 mm	30
PCSG-70B	PCSG-70S	70	80	66.5 mm	80.0 mm	170/360 mm	10
PCSG-95B	PCSG-95S	95	106	91.0 mm	106.0 mm	250/470 mm	10
PUEG-56B	-	56	68	56.3 mm	67.2 mm	90/170 mm	30
PUEG-70B	-	70	80	68.2 mm	80.5 mm	100/220 mm	30
CYLG-56B	CYLG-56S	56	68	56.3 mm	67.2 mm	120/- mm	30
CYLG-70B	CYLG-70S	70	80	68.0 mm	80.0 mm	160/- mm	10
CYLG-90B	CYLG-95S	95	106	91.9 mm	106.0 mm	210/- mm	10
CYLG-125B	CYLG-125S	125	146	126.5 mm	146.5 mm	450/- mm	6

- For further conduits and other sizes see conduit guide

PMA JUMBO SIZES

PMAGRIP Flange connectors



GG

Approvals



GG

Flange straight

– Ingress protection: IP50 without conduit seal ring (IP65 with conduit seal ring)

Order No. black	Order No. grey	Fits to conduit size		Width	Height	Depth
		NW	metric			
BGG-56	SGG-56	56	68	82.0 mm	97.0 mm	42.0 mm
BGG-70	SGG-70	70	80	97.0 mm	114.0 mm	48.0 mm
BGG-95	SGG-95	95	106	126.0 mm	146.0 mm	53.0 mm
BGG-125	SGG-125	125	146	–	194.0 mm	79.0 mm

- Flange seal FG04 made from EPDM, standard for indoor and outdoor applications
- Flange seal FG04/01 made from NBR, optional for indoor applications with special chemical requirements

- Temperature range with FG04: –40 °C to +105 °C
- Temperature range with FG04/01: –25 °C to +70 °C

- Content of delivery: Flange part, fixation clamps (incl. 2 screws), flange seal (FG04 or FG04/01), conduit seal ring (optional for IP65)



GO

Approvals



GO

Flange 90° elbow

– Ingress protection: IP50 without conduit seal ring (IP65 with conduit seal ring)

Order No. black	Order No. grey	Fits to conduit size		Width	Height	Depth
		NW	metric			
BGO-56	SGO-56	56	68	82.0 mm	97.0 mm	101.0 mm
BGO-70	SGO-70	70	80	97.0 mm	114.0 mm	115.0 mm
BGO-95	SGO-95	95	106	126.0 mm	146.0 mm	149.0 mm

- Flange seal FG04 made from EPDM, standard for indoor and outdoor applications
- Flange seal FG04/01 made from NBR, optional for indoor applications with special chemical requirements

- Temperature range with FG04: –40 °C to +105 °C
- Temperature range with FG04/01: –25 °C to +70 °C

- Content of delivery: Flange part, fixation clamps (incl. 2 screws), flange seal (FG04 or FG04/01), conduit seal ring (optional for IP65)

PMA JUMBO SIZES

PMAGRIP Flange connectors



GGV

Approvals



GGV

Flange straight

- In railway vehicle construction as well as in a wide range of industrial applications with high sealing and safety requirements

Order No. black, IP68	Fits to conduit size		Width	Height	Depth
	NW	metric			
BGGV-56	56	68	82.0 mm	97.0 mm	42.0 mm
BGGV-70	70	80	97.0 mm	114.0 mm	48.0 mm
BGGV-95	95	106	126.0 mm	146.0 mm	53.0 mm

- Flange seal FGO4 made from EPDM, standard for indoor and outdoor applications
- Flange seal FGO4/01 made from NBR on request, optional for indoor applications with special chemical requirements
- Ingress protection: IP68, IP69K with conduit sealing NVN3
- Temperature range with FGO4: -40 °C to +105 °C
- Temperature range with FGO4/01: -25 °C to +70 °C
- If the application temperature is above 70 °C we recommend to use an additional internal conduit support sleeve (BES)
- Content of delivery: Flange part, fixation clamps (incl. 2 screws), conduit seal (NVN3), flange seal (FGO4 or FGO4/01)

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GOV

Approvals



GOV

Flange 90° elbow

- In railway vehicle construction as well as in a wide range of industrial applications with high sealing and safety requirements

Order No. black, IP68	Fits to conduit size		Width	Height	Depth
	NW	metric			
BGOV-56	56	68	82.0 mm	97.0 mm	101.0 mm
BGOV-70	70	80	97.0 mm	114.0 mm	115.0 mm
BGOV-95	95	106	126.0 mm	146.0 mm	149.0 mm

- Flange seal FGO4 made from EPDM, standard for indoor and outdoor applications
- Flange seal FGO4/01 made from NBR on request, optional for indoor applications with special chemical requirements
- Ingress protection: IP68, IP69K with conduit sealing NVN3
- Temperature range with FGO4: -40 °C to +105 °C
- Temperature range with FGO4/01: -25 °C to +70 °C
- If the application temperature is above 70 °C we rec. to use an additional internal conduit support sleeve (BES)
- Content of delivery: Flange part, fixation clamps (incl. 2 screws), conduit seal (NVN3), flange seal (FGO4 or FGO4/01)

PMA JUMBO SIZES

PMAGRIP threaded connectors



GG

GG

Connector straight with locking clamps, metric/PG thread

– Ingress protection: IP50 without conduit seal ring (IP65 with conduit seal ring)

Order No. black	Order No. grey	Thread	Fits to conduit size metric		Thread length	Outside Ø	Overall length
BGG-M6356	SGG-M6356	M63 x 1.5	56	68	18.0 mm	98.0 mm	57.5 mm
BGG-P3656	SGG-P3656	PG 36	56	68	18.0 mm	98.0 mm	57.3 mm

– Content of delivery: Threaded part, fixation clamps (incl. 2 screws), conduit seal ring (optional for IP65)



GI

GI

Connector straight with locking clamps, metric female thread

– Ingress protection: IP50 without conduit seal ring (IP65 with conduit seal ring)

Order No. black	Order No. grey	Thread	Fits to conduit size metric		Thread length	Outside Ø	Overall length
BGI-M7556	SGI-M7556	M75 x 1.5	56	68	15.0 mm	98.0 mm	53.3 mm

– Content of delivery: Threaded part, fixation clamps (incl. 2 screws), conduit seal ring (optional for IP65)

PMA JUMBO SIZES

Tube clamps, conduit seal rings, large size accessories



GH

GH

Tube clamp, one-piece

– For general machine and installation applications

Order No. black	Order No. grey	Fits to conduit size		Width	Fixing screw
		NW	metric		
BGH-56	SGH-56	56	68	26.0 mm	2 x M8
BGH-70	SGH-70	70	80	30.0 mm	2 x M8
BGH-95	SGH-95	95	106	30.0 mm	2 x M8

– Integrated rib provides axial strain relief
– Allows turning of the conduit thus avoiding torsion stresses

– Pre-fixation on the conduit possible
– Allows solid fixation with 2 screws

– For other sizes of BGH tube clamps please see page 6/14



SGS

SGS

Tube clamp

– For fixation of static conduits

Order No.	Fits to conduit size		Width x Height x Depth	Fixing screw
	NW	metric		
SGS-36	36	40	80.0 x 48.0 x 19.0 mm	2 x M6
SGS-48	48	50	94.0 x 58.0 x 19.0 mm	2 x M6
SGS-56	56	68	118.0 x 72.0 x 24.0 mm	2 x M8
SGS-70	70	80	130.0 x 85.0 x 24.0 mm	2 x M8
SGS-95	95	106	156.0 x 110.0 x 24.0 mm	2 x M8
SGS-125	125	146	200.0 x 152.0 x 24.0 mm	2 x M8

– Galvanized steel
– Elastomer profile (EPDM) free from halogens

– Smooth connection to PMA conduits
– Good resistance to ozone and ageing
– Temperature range: –40 °C to +120 °C



SGO3

SGO3

Conduit seal ring

– Used at the conduit end for sealing between the PMAGRIP flanges GG/GO/GI and PMA JUMBO conduits

Order No.	Fits to conduit size		Inside	Outside	Thickness
	NW	metric	∅	∅	
SGO3-56	56	68	49.5 mm	61.0 mm	1.5 mm
SGO3-70	70	80	61.5 mm	74.0 mm	1.5 mm
SGO3-95	95	106	86.0 mm	102.0 mm	1.5 mm
SGO3-125	125	146	122.0 mm	142.0 mm	2.0 mm

– Nitrile rubber NBR
– Temperature range: –40 °C to +105 °C

PMA Divisible System

Repairs without disconnecting cables

PMA Divisible System

General technical details	8/3
Conduits	8/4
Connectors	8/5
Lock nuts	8/5
T and Y pieces	8/6



PMA Divisible System

General technical details

One-piece Divisible System. The ideal solution for repairs, retrofit and pre-loomed applications. Equally all PMA conduits are compatible.

PMA offers a divisible system based upon PMA standard nominal widths.

This allows free combination of the PACOF and PPCOF divisible conduits with PMAFIX Pro, PMAFIX and PMA Smart Line fittings. Using the PMA Divisible System Fittings repairs can be easily made to existing installations without disconnecting cables. Equally all PMA conduits – also slit – are compatible with the fittings of the divisible system.

Material

- Conduits made from spec. formulated PA 6 and Polypropylene
- Fittings made from specially formulated polyamide 6
- Colour: Black
- Free from halogens, REACH + ROHS compliant
- Temperature range:
Conduits: $-40\text{ }^{\circ}\text{C}$ to $+160\text{ }^{\circ}\text{C}$
Connectors: $-40\text{ }^{\circ}\text{C}$ to min. $+100\text{ }^{\circ}\text{C}$

Characteristics

- Fast installation
- Conduit can be installed in fitting prior to closing the fitting
- High impact resistance
- High conduit pull-out strength
- Fits conduit profiles – fine (T) and coarse (G)

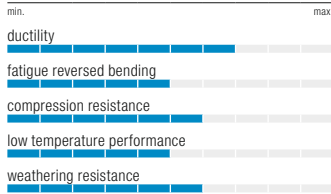


PMA Divisible System Conduits



PACOF

PACOF-Index



PACOF

flexible, divisible

- For machine building and plant construction
- For trouble-free retrofitting and applicable for repairs

Order No. black	Conduit size NW	metric	Inside Ø	Outside Ø	Stat. radius	PU meter
PACOF-07B	07	10	5.6 mm	10.0 mm	30 mm	50
PACOF-10B	10	12	8.5 mm	12.8 mm	33 mm	50
PACOF-12B	12	16	11.0 mm	15.6 mm	35 mm	50
PACOF-17B	17	20	15.5 mm	21.1 mm	45 mm	50
PACOF-23B	23	25	22.1 mm	28.4 mm	70 mm	50
PACOF-29B	29	32	27.2 mm	34.5 mm	120 mm	50
PACOF-36B	36	40	32.0 mm	42.4 mm	145 mm	30
PACOF-48B	48	50	43.9 mm	54.1 mm	150 mm	30
PACOF-70B	70	80	62.0 mm	79.0 mm	190 mm	10

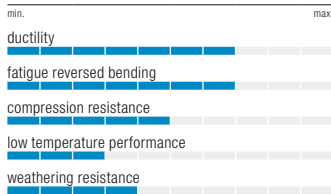
- Specially modified polyamide 6
- Can be opened and closed again in longitudinal direction any time
- Good ductility
- Good compression resistance
- Free from halogens, REACH + ROHS compliant
- Temperature range: –40 °C to +105 °C, short-term to +160 °C
- IP50

8



PPCOF

PPCOF-Index



PPCOF

flexible, divisible

- For machine building and plant construction
- For trouble-free retrofitting and applicable for repairs

Order No. black	Conduit size NW	metric	Inside Ø	Outside Ø	Stat. radius	PU meter
PPCOF-07B	07	10	5.6 mm	10.0 mm	25 mm	50
PPCOF-10B	10	12	8.5 mm	12.8 mm	28 mm	50
PPCOF-12B	12	16	11.0 mm	15.6 mm	35 mm	50
PPCOF-17B	17	20	15.1 mm	21.1 mm	45 mm	50
PPCOF-23B	23	25	22.1 mm	28.4 mm	60 mm	50
PPCOF-29B	29	32	26.6 mm	34.5 mm	100 mm	50
PPCOF-36B	36	40	31.8 mm	42.4 mm	120 mm	30
PPCOF-48B	48	50	43.9 mm	54.1 mm	140 mm	30
PPCOF-70B	70	80	60.5 mm	78.0 mm	200 mm	10

- Specially modified polypropylene PP
- Can be opened and closed again in longitudinal direction any time
- Good reversed bending resistance
- Temperature range: –20 °C to +105 °C, short-term to +150 °C
- IP50

PMA Divisible System

Connectors, lock nuts



LNO, patent

LNO

Divisible connector straight, one-piece, metric thread

- Compatible with PMA standard, slit and divisible conduits with standard nominal widths
- In industries, plant construction, machine building as well as in house and electrical installations
- For retrofit installation or repair

Order No. black, IP54	Thread metric	Fits to conduit size NW metric		Thread length	Overall length
BLNO-M160	M16 x 1.5	10	12	13.0 mm	37.5 mm
BLNO-M162	M16 x 1.5	12	16	13.0 mm	39.5 mm
BLNO-M202	M20 x 1.5	12	16	13.0 mm	39.5 mm
BLNO-M207	M20 x 1.5	17	20	13.0 mm	43.5 mm
BLNO-M257	M25 x 1.5	17	20	14.0 mm	44.5 mm
BLNO-M253	M25 x 1.5	23	25	14.0 mm	52.5 mm
BLNO-M323	M32 x 1.5	23	25	17.0 mm	56.0 mm
BLNO-M329	M32 x 1.5	29	32	17.0 mm	61.0 mm
BLNO-M409	M40 x 1.5	29	32	21.0 mm	65.0 mm
BLNO-M406	M40 x 1.5	36	40	22.0 mm	74.5 mm
BLNO-M508	M50 x 1.5	48	50	22.0 mm	80.5 mm

- IP54
- Special: Push-in installation of conduit into pre-installed fitting also possible



LN

LN

Divisible lock nut, metric thread

- Compatible with divisible PMA connectors, type BLNO
- For retrofit installation or repair

Order No. black	Thread metric	Fits with divisible connector		Outside ∅	Width
BLN-M16	M16 x 1.5	BLNO-M160	BLNO-M162	21.5 mm	8.0 mm
BLN-M20	M20 x 1.5	BLNO-M202	BLNO-M207	29.0 mm	8.0 mm
BLN-M25	M25 x 1.5	BLNO-M257	BLNO-M253	35.5 mm	9.0 mm
BLN-M32	M32 x 1.5	BLNO-M323	BLNO-M329	44.5 mm	12.0 mm
BLN-M40	M40 x 1.5	BLNO-M409	BLNO-M406	53.5 mm	15.0 mm
BLN-M50	M50 x 1.5	BLNO-M508		69.5 mm	15.0 mm

- Temperature range: -40 °C to +100 °C, short-term: +130 °C

PMA Divisible System

T, Y pieces



LTO, patent

LTO

Divisible T piece, one-piece

- Compatible with PMA standard, slit and divisible conduits with standard nominal widths
- In industries, plant construction, machine building as well as in house and electrical installations
- For retrofit installation or repair

Order No. black, IP40	3x conduit sizes	
	NW	metric
BLTO-070707	07	10
BLTO-101010	10	12
BLTO-121212	12	16
BLTO-171717	17	20
BLTO-232323	23	25
BLTO-292929	29	32

- IP40
- Conduit can be installed in fitting prior to closing the fitting



LYO

LYO

Divisible Y piece, one-piece

- Compatible with PMA standard, slit and divisible conduits with standard nominal widths
- In industries, plant construction, machine building as well as in house and electrical installations
- For retrofit installation or repair

Order No. black, IP40	1x conduit size		2x conduit sizes	
	NW	metric	NW	metric
BLYO-100707	10	12	07	10
BLYO-121010	12	16	10	12
BLYO-171212	17	20	12	16
BLYO-231717	23	25	17	20
BLYO-292917	17	20	29	32

- IP40
- Conduit can be installed in fitting prior to closing the fitting

PMA Smart Line Connectors

Modern, versatile and attractive

PMA Smart Line Connectors

General technical details	9/3
Part number codes	9/5
Size codes	9/6
Installation	9/6
Connectors: metric/polyamide thread	9/7
Connectors: PG/polyamide thread	9/8



PMA Smart Line IP66

General technical details

Modern, versatile and attractive. Functional and modern design at an excellent value for money. Suitable for machine building, installation and construction industries.

One-piece design, IP66 protection and simple, fast installation are the outstanding features of the Smart Line. Other characteristics including a modern, functional design and an excellent price/performance ratio make this product line a very attractive solution.

Material

- Fittings made from specially formulated polyamide 6
- Self-extinguishing
- Free from halogens, REACH + ROHS compliant
- Temperature range:
-45 °C to +105 °C, short-term to +150 °C

Characteristics

- High impact resistance
- Good conduit pull-out strength
- Vibration-proof connection to PMA conduits
- Fits conduit profiles – fine (T) and coarse (G)
- To avoid accidental opening, disassembling only possible with a screwdriver



PMA Smart Line

General technical details

IP66

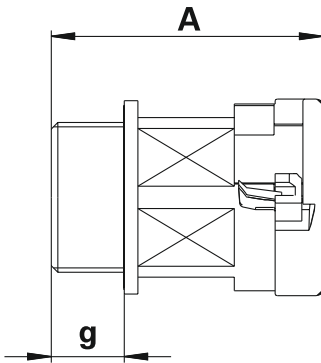
IP66 static

IP54 dynamic

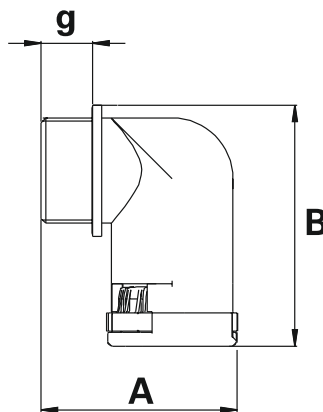
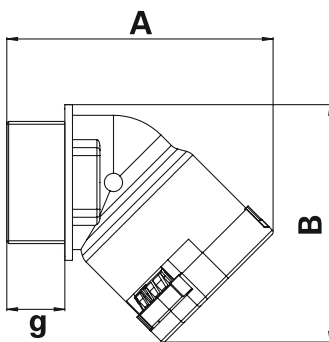
- One piece fitting
- Conical sealing method
- Integrated sealing lip in thread flange
- Easy "push-in" installation
- Ready for installation (Fitting gets delivered with engaged locking elements)



patent



g = Thread length A = Overall length

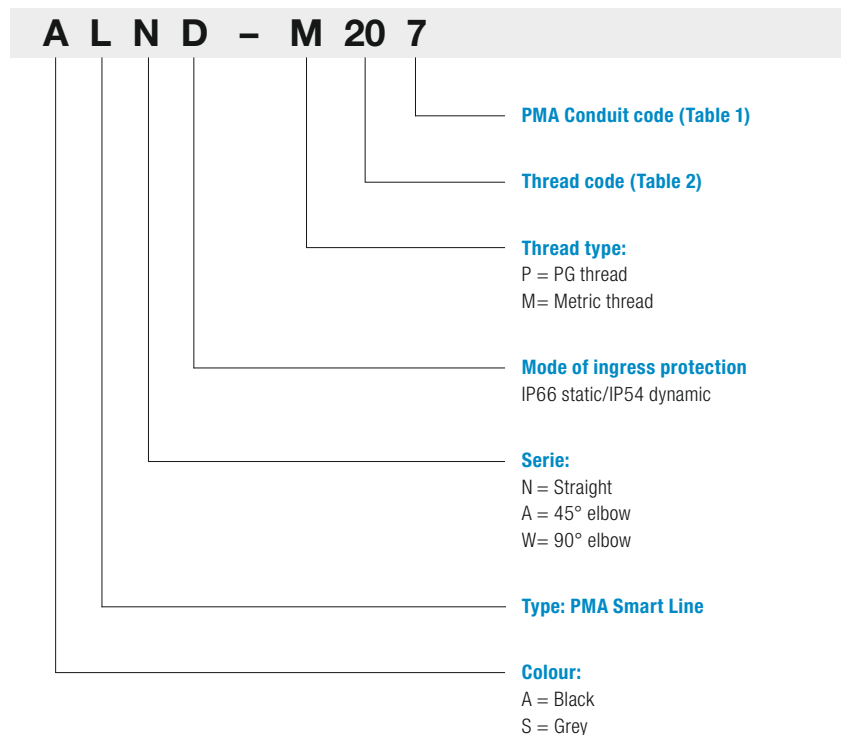


g = Thread length A x B = External dimensions

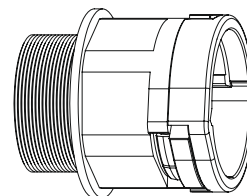
PMA Smart Line

Part number codes

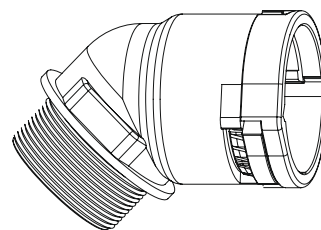
Part number codes



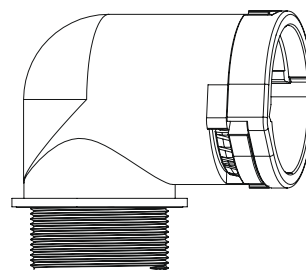
Connector series



N = Straight



A = 45° elbow



W = 90° elbow

PMA Smart Line

Size codes, installation

Table 1
Conduit codes

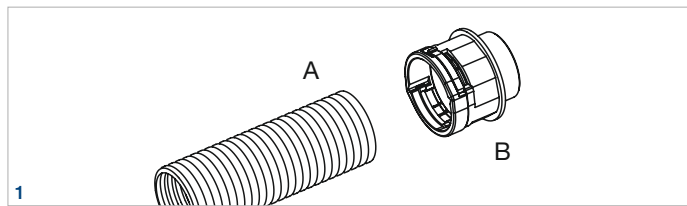
Nominal width	Metric size	PMA code
07	10	M
10	12	0
12	16	2
17	20	7
23	25	3
29	32	9
36	40	6
48	50	8

Table 2
Thread codes

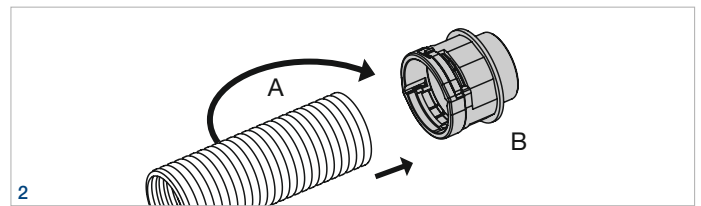
Thread metric	PMA code
M12 x 1.5	M12
M16 x 1.5	M16
M20 x 1.5	M20
M25 x 1.5	M25
M32 x 1.5	M32
M40 x 1.5	M40
M50 x 1.5	M50
M63 x 1.5	M63

Thread PG	PMA code
PG07	P07
PG09	P09
PG11	P11
PG13.5	P13
PG16	P16
PG21	P21
PG29	P29
PG36	P36
PG48	P48

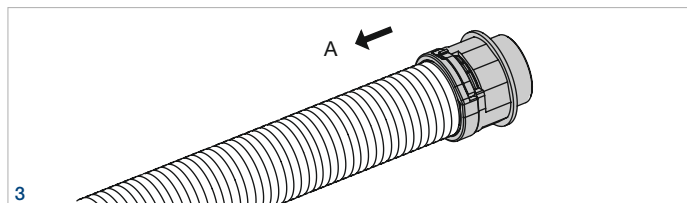
Installation IP66



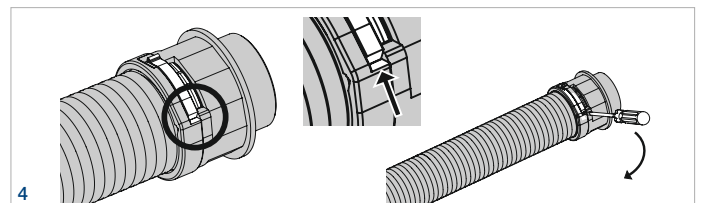
A = Conduit
B = Fitting



Push in the conduit (A) with a slight twist until the stop.



Pull back the conduit (A) slightly to ensure the locking mechanism is fully engaged.



To disengage the locking mechanism use a size 1 screwdriver.

PMA Smart Line

Connectors, metric, polyamide thread



LND, patent

LND

Connector straight, metric thread

Order No. black, IP66	Order No. grey, IP66	Thread metric	Fits to conduit size NW metric		Thread length	Overall length
ALND-M120	SLND-M120	M12 x 1.5	10	12	11.0 mm	34.0 mm
ALND-M160	SLND-M160	M16 x 1.5	10	12	11.0 mm	34.0 mm
ALND-M162	SLND-M162	M16 x 1.5	12	16	11.0 mm	38.0 mm
ALND-M200	SLND-M200	M20 x 1.5	10	12	11.0 mm	34.0 mm
ALND-M202	SLND-M202	M20 x 1.5	12	16	11.0 mm	38.0 mm
ALND-M207	SLND-M207	M20 x 1.5	17	20	11.0 mm	41.0 mm
ALND-M257	SLND-M257	M25 x 1.5	17	20	12.0 mm	42.0 mm
ALND-M253	SLND-M253	M25 x 1.5	23	25	12.0 mm	45.5 mm
ALND-M323	SLND-M323	M32 x 1.5	23	25	15.0 mm	48.5 mm
ALND-M329	SLND-M329	M32 x 1.5	29	32	15.0 mm	50.5 mm
ALND-M409	SLND-M409	M40 x 1.5	29	32	19.0 mm	54.5 mm
ALND-M406	SLND-M406	M40 x 1.5	36	40	19.0 mm	60.5 mm
ALND-M506	SLND-M506	M50 x 1.5	36	40	19.0 mm	61.0 mm
ALND-M508	SLND-M508	M50 x 1.5	48	50	19.0 mm	61.0 mm
ALND-M638	SLND-M638	M63 x 1.5	48	50	19.0 mm	61.0 mm



LAD, patent

LAD

Connector 45° elbow, metric thread

Order No. black, IP66	Order No. grey, IP66	Thread metric	Fits to conduit size NW metric		Thread length	External dimensions
ALAD-M120	SLAD-M120	M12 x 1.5	10	12	11.0 mm	42.5 x 33.0 mm
ALAD-M160	SLAD-M160	M16 x 1.5	10	12	11.0 mm	42.5 x 35.0 mm
ALAD-M162	SLAD-M162	M16 x 1.5	12	16	11.0 mm	47.5 x 39.5 mm
ALAD-M202	SLAD-M202	M20 x 1.5	12	16	11.0 mm	47.5 x 41.5 mm
ALAD-M207	SLAD-M207	M20 x 1.5	17	20	11.0 mm	54.0 x 46.0 mm
ALAD-M257	SLAD-M257	M25 x 1.5	17	20	12.0 mm	55.0 x 48.5 mm
ALAD-M253	SLAD-M253	M25 x 1.5	23	25	12.0 mm	63.5 x 55.5 mm
ALAD-M323	SLAD-M323	M32 x 1.5	23	25	15.0 mm	67.0 x 60.0 mm
ALAD-M329	SLAD-M329	M32 x 1.5	29	32	15.0 mm	72.5 x 63.5 mm
ALAD-M409	SLAD-M409	M40 x 1.5	29	32	19.0 mm	76.5 x 66.5 mm
ALAD-M406	SLAD-M406	M40 x 1.5	36	40	19.0 mm	87.5 x 78.0 mm
ALAD-M506	SLAD-M506	M50 x 1.5	36	40	19.0 mm	88.0 x 82.0 mm
ALAD-M508	SLAD-M508	M50 x 1.5	48	50	19.0 mm	97.5 x 88.0 mm
ALAD-M638	SLAD-M638	M63 x 1.5	48	50	19.0 mm	97.5 x 94.5 mm

PMA Smart Line

Connectors, metric and PG, polyamide thread



LWD, patent

LWD

Connector 90° elbow, metric thread

Order No. black, IP66	Order No. grey, IP66	Thread metric	Fits to conduit size metric		Thread length	External dimensions
			NW			
ALWD-M120	SLWD-M120	M12 x 1.5	10	12	11.0 mm	33.0 x 36.5 mm
ALWD-M160	SLWD-M160	M16 x 1.5	10	12	11.0 mm	33.0 x 38.5 mm
ALWD-M162	SLWD-M162	M16 x 1.5	12	16	11.0 mm	37.5 x 43.0 mm
ALWD-M202	SLWD-M202	M20 x 1.5	12	16	11.0 mm	37.5 x 45.0 mm
ALWD-M207	SLWD-M207	M20 x 1.5	17	20	11.0 mm	42.0 x 50.5 mm
ALWD-M257	SLWD-M257	M25 x 1.5	17	20	12.0 mm	43.0 x 53.0 mm
ALWD-M253	SLWD-M253	M25 x 1.5	23	25	12.0 mm	52.5 x 59.0 mm
ALWD-M323	SLWD-M323	M32 x 1.5	23	25	15.0 mm	56.0 x 62.5 mm
ALWD-M329	SLWD-M329	M32 x 1.5	29	32	15.0 mm	62.5 x 69.0 mm
ALWD-M409	SLWD-M409	M40 x 1.5	29	32	19.0 mm	66.5 x 72.0 mm
ALWD-M406	SLWD-M406	M40 x 1.5	36	40	19.0 mm	76.0 x 83.0 mm
ALWD-M506	SLWD-M506	M50 x 1.5	36	40	19.0 mm	76.0 x 87.0 mm
ALWD-M508	SLWD-M508	M50 x 1.5	48	50	19.0 mm	89.0 x 92.5 mm
ALWD-M638	SLWD-M638	M63 x 1.5	48	50	19.0 mm	89.0 x 99.0 mm



LND, patent

LND

Connector straight, PG thread

Order No. black, IP66	Order No. grey, IP66	Thread PG	Fits to conduit size metric		Thread length	Overall length
			NW			
ALND-P070*	SLND-P070*	07	10	12	7.0 mm	44.0 mm
ALND-P090	SLND-P090	09	10	12	11.0 mm	34.0 mm
ALND-P092*	SLND-P092*	09	12	16	8.0 mm	50.0 mm
ALND-P110	SLND-P110	11	10	12	8.0 mm	45.5 mm
ALND-P112	SLND-P112	11	12	16	11.0 mm	38.0 mm
ALND-P132	SLND-P132	13.5	12	16	11.0 mm	38.0 mm
ALND-P137	SLND-P137	13.5	17	20	11.0 mm	41.0 mm
ALND-P167	SLND-P167	16	17	20	11.0 mm	41.0 mm
ALND-P213	SLND-P213	21	23	25	12.0 mm	45.5 mm
ALND-P299	SLND-P299	29	29	32	12.0 mm	47.5 mm
ALND-P366	SLND-P366	36	36	40	13.0 mm	54.5 mm
ALND-P488	SLND-P488	48	48	50	13.0 mm	55.0 mm

* These products will be delivered with a thread adapter.

PMA Smart Line

Connectors, PG, polyamide thread



LAD, patent

LAD

Connector 45° elbow, PG thread

Order No. black, IP66	Order No. grey, IP66	Thread PG	Fits to conduit size		Thread length	External dimensions
			NW	metric		
ALAD-P090	SLAD-P090	09	10	12	11.0 mm	42.5 x 34.0 mm
ALAD-P112	SLAD-P112	11	12	16	11.0 mm	47.5 x 40.0 mm
ALAD-P132	SLAD-P132	13.5	12	16	11.0 mm	47.5 x 41.5 mm
ALAD-P137	SLAD-P137	13.5	17	20	11.0 mm	54.0 x 46.0 mm
ALAD-P167	SLAD-P167	16	17	20	11.0 mm	54.0 x 47.0 mm
ALAD-P213	SLAD-P213	21	23	25	12.0 mm	63.5 x 57.5 mm
ALAD-P299	SLAD-P299	29	29	32	12.0 mm	69.5 x 65.0 mm
ALAD-P366	SLAD-P366	36	36	40	13.0 mm	81.5 x 80.0 mm
ALAD-P488	SLAD-P488	48	48	50	13.0 mm	91.5 x 93.0 mm



LWD, patent

LWD

Connector 90° elbow, PG thread

Order No. black, IP66	Order No. grey, IP66	Thread PG	Fits to conduit size		Thread length	External dimensions
			NW	metric		
ALWD-P070*	SLWD-P070*	07	10	12	7.0 mm	42.0 x 37.5 mm
ALWD-P090	SLWD-P090	09	10	12	11.0 mm	32.5 x 37.5 mm
ALWD-P092*	SLWD-P092*	09	12	16	8.0 mm	48.0 x 43.5 mm
ALWD-P110*	SLWD-P110*	11	10	12	8.0 mm	44.0 x 40.0 mm
ALWD-P112	SLWD-P112	11	12	16	11.0 mm	36.5 x 43.5 mm
ALWD-P130*	SLWD-P130*	13.5	10	12	9.0 mm	37.5 x 40.0 mm
ALWD-P132	SLWD-P132	13.5	12	16	11.0 mm	36.5 x 45.0 mm
ALWD-P137	SLWD-P137	13.5	17	20	11.0 mm	41.0 x 50.5 mm
ALWD-P167	SLWD-P167	16	17	20	11.0 mm	41.0 x 51.5 mm
ALWD-P213	SLWD-P213	21	23	25	12.0 mm	52.0 x 61.0 mm
ALWD-P299	SLWD-P299	29	29	32	12.0 mm	58.5 x 70.5 mm
ALWD-P366	SLWD-P366	36	36	40	13.0 mm	70.0 x 85.0 mm
ALWD-P488	SLWD-P488	48	48	50	13.0 mm	83.0 x 97.5 mm

*These products will be delivered with a thread adapter.

PMAJACK

Braided Protection

PMAJACK

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Connectors	10/10
Adapters	10/10
Special metal connectors	10/11



PMAJACK

General technical details

Braided Protection. Polyamide, polyester and steel braids – an alternative way to bundle and protect electrical cables.

Plastic braids manufactured from polyester and polyamide filaments – the other alternative solution for protecting and bundling cables.

This PMA cable protection system provides simple bundling and abrasion protection for cables and wires.

Various braid types to fulfill different requirements complemented by a range of braid terminations for simple and clean assembly.

Material

- Braids made from polyamide 6.6 or polyester
- Terminations made from PA 6, aluminium or brass
- Free from halogens, REACH + ROHS compliant

Characteristics

- Flammability of braids min. UL 94 V2
- Braid design: Following DIN 65 164 part 1+2



PMAJACK

Plastic braided hoses




F.66

F.66

Braided hose

- Monofile Ø: 0.28 mm for increased abrasion properties
- Coverage: > 90 %

	Order No. black	Order No. grey	NW	Fits to termination	Weight nom. per 100 m	Operative range min. Ø	Operative range max. Ø
	F.66.04SW	F.66.04GR	04	–	0.4 kg	3.0 mm	7.0 mm
	F.66.06SW	F.66.06GR	06	SRER-06	0.6 kg	5.0 mm	8.0 mm
	F.66.08SW	F.66.08GR	08	SRER-06	0.8 kg	7.0 mm	10.0 mm
	F.66.10SW	F.66.10GR	10	SRER-06	1.0 kg	9.0 mm	13.0 mm
	F.66.12SW	F.66.12GR	12	SRER-06	1.4 kg	11.0 mm	16.0 mm
	F.66.16SW	F.66.16GR	16	SRER-16	1.7 kg	15.0 mm	21.0 mm
	F.66.20SW	F.66.20GR	20	SRER-16	2.0 kg	20.0 mm	26.0 mm
	F.66.25SW	F.66.25GR	25	SRER-21/SRER-29	2.4 kg	24.0 mm	31.0 mm
	F.66.30SW	F.66.30GR	30	SRER-21/SRER-29	3.5 kg	28.0 mm	38.0 mm
	F.66.40SW	F.66.40GR	40	SRER-29	4.2 kg	38.0 mm	49.0 mm
	F.66.50SW	F.66.50GR	50	SREV-40/SRER-50	5.1 kg	48.0 mm	65.0 mm
	F.66.70SW	F.66.70GR	70	SREV-40/SRER-50	4.9 kg	48.0 mm	85.0 mm

- Polyamide 6.6
- Specifications: DIN 5510 (S4/SR2/ST2), NF F 16-101/ 102 (I3/F2), UL-File E 125 619, EN45545-2 HL3
- Temperature range: –55 °C to +135 °C, short-term to +160 °C

Approvals



C.66

C.66

Braided hose

- Monofile Ø: 0.28 mm for increased abrasion properties
- Coverage: > 75 %

Order No. black	Order No. grey	NW	Fits to termination	Weight nom. per 100 m	Operative range min. Ø	Operative range max. Ø
C.66.10SW	C.66.10GR	10	SRER-06	0.7 kg	8.0 mm	14.0 mm
C.66.12SW	C.66.12GR	12	SRER-06/SRER-16	0.9 kg	9.0 mm	18.0 mm
C.66.16SW	C.66.16GR	16	SRER-06/SRER-16	1.2 kg	11.0 mm	22.0 mm
C.66.20SW	C.66.20GR	20	SRER-16/SRER-21	1.4 kg	14.0 mm	26.0 mm
C.66.25SW	C.66.25GR	25	SRER-16/SRER-21	1.4 kg	18.0 mm	28.0 mm
C.66.30SW	C.66.30GR	30	SRER-21/SRER-29	2.5 kg	25.0 mm	43.0 mm
C.66.40SW	C.66.40GR	40	SRER-29	2.5 kg	30.0 mm	52.0 mm
C.66.45SW	–	45	SREV-40/SRER-50	4.0 kg	40.0 mm	73.0 mm

- Polyamide 6.6
- Specifications: DIN 5510 (S4/SR2/ST2), NF F 16-101/102 (I3/F2), EN45545-2 HL3
- Temperature range: –55 °C to +135 °C, short-term to +160 °C

PMAJACK

Plastic braided hoses



L.66

L.66

Braided hose

- Monofile Ø: 0.25 mm
- Coverage: > 65 %

Order No. black	Order No. grey	NW	Fits to termination	Weight nom. per 100 m	Operative range min. Ø	Operative range max. Ø
L.66.04SW	L.66.04GR	04	–	0.4 kg	4.0 mm	5.0 mm
L.66.08SW	L.66.08GR	08	SRER-06	0.5 kg	5.0 mm	10.0 mm
L.66.10SW	L.66.10GR	10	SRER-06	0.8 kg	7.0 mm	13.0 mm
L.66.16SW	L.66.16GR	16	SRER-16	0.9 kg	11.0 mm	20.0 mm
L.66.20SW	L.66.20GR	20	SRER-16	1.4 kg	17.0 mm	33.0 mm
L.66.25SW	L.66.25GR	25	SRER-21/SRER-29	1.5 kg	21.0 mm	34.0 mm
L.66.30SW	L.66.30GR	30	SRER-21/SRER-29	1.8 kg	25.0 mm	45.0 mm
L.66.40SW	L.66.40GR	40	SRER-29	1.9 kg	31.0 mm	55.0 mm
L.66.50SW	L.66.50GR	50	SREV-40/SRER-50	3.2 kg	58.0 mm	70.0 mm

- Polyamide 6.6
- Specifications: DIN 5510 (S4/SR2/ST2), NF F 16-101/102 (I3/F2), EN45545-2 HL3
- Temperature range: –55 °C to +135 °C, short-term to +160 °C



F.PX

F.PX

Braided hose

- Monofile Ø: 0.28 mm for increased abrasion properties
- Coverage: > 90 %

Order No. grey	NW	Fits to termination	Weight nom. per 100 m	Operative range min. Ø	Operative range max. Ø
F.PX.04GR	04	–	0.3 kg	3.0 mm	7.0 mm
F.PX.06GR	06	SRER-06	0.5 kg	5.0 mm	8.0 mm
F.PX.08GR	08	SRER-06	0.7 kg	7.0 mm	10.0 mm
F.PX.10GR	10	SRER-06	0.8 kg	9.0 mm	13.0 mm
F.PX.12GR	12	SRER-06	1.1 kg	11.0 mm	16.0 mm
F.PX.16GR	16	SRER-16	1.3 kg	15.0 mm	21.0 mm
F.PX.20GR	20	SRER-16/SRER-21	1.5 kg	20.0 mm	26.0 mm
F.PX.25GR	25	SRER-16/SRER-21	2.0 kg	24.0 mm	31.0 mm
F.PX.30GR	30	SRER-21/SRER-29	2.9 kg	28.0 mm	38.0 mm
F.PX.40GR	40	SREV-40	3.1 kg	38.0 mm	49.0 mm

- Polyester
- Specifications: DIN 5510 (S4/SR2/ST2), NF F 16-101/102 (I1/F2), EN45545-2 HL3
- Temperature range: –50 °C to +120 °C, short-term to +150 °C

PMAJACK

Plastic braided hoses



L.PX

L.PX

Braided hose

- Monofile Ø: 0.22 mm
- Coverage: > 65 %

Order No. black	Order No. grey	NW	Fits to termination	Weight nom. per 100 m	Operative range min. Ø	Operative range max. Ø
L.PX.04SW	L.PX.04GR	04	–	0.4 kg	3.0 mm	8.0 mm
L.PX.08SW	L.PX.08GR	08	SRER-06	0.5 kg	5.0 mm	10.0 mm
L.PX.10SW	L.PX.10GR	10	SRER-06	0.7 kg	7.0 mm	14.0 mm
L.PX.16SW	L.PX.16GR	16	SRER-16	0.8 kg	11.0 mm	20.0 mm
L.PX.20SW	L.PX.20GR	20	SRER-16	1.2 kg	19.0 mm	28.0 mm
L.PX.25SW	L.PX.25GR	25	SRER-21/SRER-29	1.4 kg	21.0 mm	34.0 mm
L.PX.30SW	L.PX.30GR	30	SRER-21/SRER-29	1.7 kg	25.0 mm	40.0 mm
L.PX.40SW	L.PX.40GR	40	SRER-29	1.7 kg	31.0 mm	55.0 mm
L.PX.50SW	L.PX.50GR	50	SREV-40/SRER-50	2.7 kg	40.0 mm	68.0 mm

- Polyester
- Specifications: DIN 5510 (S4/SR2/ST2), NF F 16-101/102 (I1/F2), EN45545-2 HL3
- Temperature range: –50 °C to +120 °C, short-term to +150 °C



G.PX

G.PX

Open braided hose

- Open, self winding construction
- For retrofit installation
- Overlapping: 90° (+40°/–25°)

Order No. black	NW	Packing unit PU/m	Weight nom. per 100 m	Recommended range min. Ø	Recommended range max. Ø
G.PX.05SW	05	25	1.6 kg	4.5 mm	5.5 mm
G.PX.08SW	08	25	2.0 kg	7.0 mm	9.0 mm
G.PX.10SW	10	25	2.3 kg	9.0 mm	11.0 mm
G.PX.13SW	13	25	2.5 kg	11.5 mm	13.0 mm
G.PX.16SW	16	25	3.4 kg	14.5 mm	17.5 mm
G.PX.19SW	19	25	3.8 kg	17.0 mm	21.0 mm
G.PX.25SW	25	25	4.8 kg	22.5 mm	27.5 mm
G.PX.29SW	29	25	5.3 kg	26.0 mm	32.0 mm
G.PX.32SW	32	25	6.1 kg	29.0 mm	35.0 mm
G.PX.38SW	38	25	8.3 kg	34.0 mm	42.0 mm
G.PX.50SW	50	25	8.7 kg	45.0 mm	55.0 mm

- Polyester
- Specifications: DIN 5510 (S4/SR2/ST2), NF F 16-101/102 (I3/F2), EN45545-2 HL3
- Temperature range: –55 °C to +150 °C

PMAJACK

Braid terminations, connectors



RER/REV

RER/REV

Braid termination

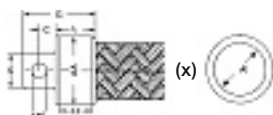
- For termination and fixation of plastic braided hoses
- Suitable for: F.66, C.66, L.66, F.PX, L.PX braids

Order No. grey	NW	AI	AA	BI	BA	H	L	G	S	C
SRER-06 (x)	06	6.5 mm	13 mm	-	-	13 mm	21 mm	33 mm	13 mm	6 mm
SRER-16 (x)	16	16 mm	24 mm	-	-	15 mm	25 mm	39 mm	15 mm	7 mm
SRER-21 (x)	21	22 mm	32 mm	-	-	20 mm	29 mm	43 mm	15 mm	7 mm
SRER-29 (z)	29	30 mm	40 mm	-	-	18 mm	29 mm	43 mm	39 mm	7 mm
SRER-50 (z)	50	50 mm	61 mm	-	-	18 mm	29 mm	43 mm	50 mm	7 mm
SREV-40 (y)	40	47 mm	58 mm	34 mm	44 mm	20 mm	24 mm	44 mm	38 mm	10 mm

- Polyamide 6
- For exact braid and termination fitting configuration please refer to PMAJACK data sheets

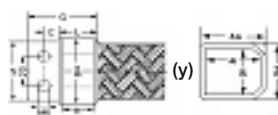
RER

x = with one mounting hole



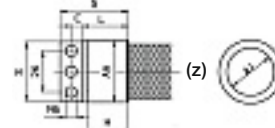
REV

y = with two mounting holes



RER

z = with three mounting holes



PMAJACK

Braid terminations, connectors



BREIR

BREIR

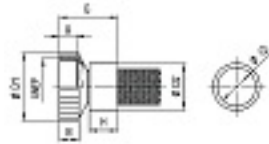
Connector for plastic braids, female thread

- For round connectors
- Suitable for: F.66, C.66, L.66, F.PX, L.PX braids

Order No. black	NW	Thread size UNEF	Fits to PMAJACK			Ø D1	Ø ID	B	G	g	H	Ø D2
			F.66	C.66	L.66							
BREIR-U2916	16	1 $\frac{1}{16}$ –18	12–20	12–25	16–25	36.2 mm	20.5 mm	10.5 mm	36.5 mm	9 mm	15 mm	25 mm
BREIR-U3516	16	1 $\frac{1}{16}$ –18	12–20	12–25	16–25	42.5 mm	20.5 mm	11.5 mm	37.5 mm	9 mm	15 mm	25 mm

– Polyamide 6

BREIR



MREIR

MREIR

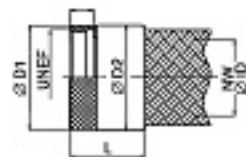
Connector for plastic braids, female thread

- For round connectors
- Suitable for: F.66, C.66, L.66, F.PX, L.PX braids

Order No. black	NW	Thread size UNEF	Fits to PMAJACK			g	Ø D1	Ø D2	L	Ø ID
			F.66	C.66	F.PX					
MREIR-U3529	29	1 $\frac{1}{16}$ –18	25–40	30+40	25–40	29 mm	40.0 mm	40.5 mm	37.5 mm	30.0 mm

– Black anodized aluminium

MREIR



PMAJACK

Stainless steel braids, tools



F.304

F.304

Stainless steel braided hose

- Surface coverage: >90%

Order No.	Braid specification	Fits to conduit size NW	Operative range min. ∅	Operative range max. ∅
F.304.10	24 x 7 x 0.3	10	10.0 mm	18.0 mm
F.304.12	24 x 8 x 0.3	12	10.0 mm	24.0 mm
F.304.17	24 x 12 x 0.3	17	15.0 mm	28.0 mm
F.304.23	36 x 9 x 0.3	23	21.0 mm	34.0 mm
F.304.29	36 x 11 x 0.3	29	25.0 mm	40.0 mm
F.304.36	36 x 9 x 0.4	36	32.0 mm	47.0 mm
F.304.48	48 x 10 x 0.4	48	55.0 mm	80.0 mm

- Temperature range: –70 °C to +1000 °C



BAND-IT

BAND-IT

Clamping tool for metal cable ties

- Handtool, self locking for speedy application
- Allows easy strapping of metal cable ties "Band-It"
- For long lasting fixation without deformation

Order No.	For Band-It width
PMA-Tie-tool	6.35 mm

- Stainless steel
- Colour: Black



HSG

HSG

Hot cutting tool

- For quick and easy cutting of plastic braidings
- Smallest hot cutting tool for permanent use
- With fixed edge (working area 30 mm)

Order No. Hot cutting tool	Order No. Spare cutting tape
HSG-00	HSG-00-SB

- Voltage: 230 V–50 Hz (115 V–60 Hz)
- Performance: 40 W
- Length of the connecting lead: 2 m

PMAJACK

Connectors, adapters



VEMD

VEMD

Connector for overbraided conduits, metric/PG metal thread

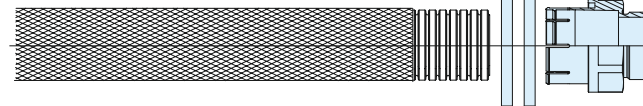
Order No. with Band-It*	Order No. with jubilee clip	Thread metric	Fits to conduit size		Outside Ø x Length
			NW	metric	
MVEMD-M406	MVEMD-M406/01	40 x 1.5	36	40	55.0 x 59.0 mm
MVEMD-M508	MVEMD-M508/01	40 x 1.5	48	50	65.0 x 62.0 mm
–	MVEMD-M6356/01	63 x 1.5	56	68	80.0 x 72.0 mm

Order No. with Band-It*	Order No. with jubilee clip	Thread PG	Fits to conduit size		Outside Ø x Length
			NW	metric	
–	MVEMD-P4856/01	48	56	68	80.0 x 72.0 mm

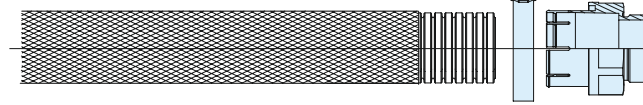
* Metal cable tie

- Nickel-plated aluminium
- IP66 up to IP68 on request

VEMD with metal cable tie "Band-It"



VEMD with jubilee clip



Content of delivery includes blue marked products.

10



VEMD-RER

VEMD-RER

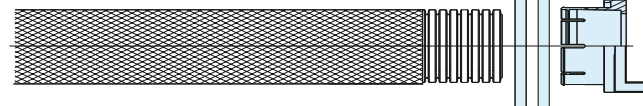
Adapter for overbraided conduits

Order No. with Band-It*	Order No. with jubilee clip	Fits to conduit size		Width x Height x Length
		NW	metric	
MVEMD-RER6	MVEMD-RER6/01	36	40	54.0 x 54.0 x 53.0 mm
MVEMD-RER8	MVEMD-RER8/01	48	50	66.0 x 66.0 x 53.0 mm

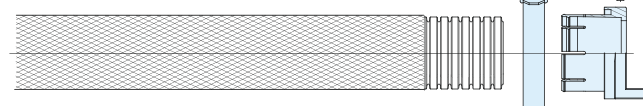
* Metal cable tie

- Nickel-plated aluminium
- IP66 on conduit side

VEMD-RER with metal cable tie "Band-It"



VEMD-RER with jubilee clip



Content of delivery includes blue marked products.

PMAJACK

Special metal connectors



MONK

MONK

Metal connector for overbraided conduits, metric thread

- For termination of overbraided conduits
- For high temperature applications and applications in areas with hot metal shavings and flying sparks

Order No. metal	Thread metric	Fits to conduit size NW	Fits to conduit profile	Inside \varnothing min.	Thread length
MONK-M162	M16 x 1.5	12	T	12.0 mm	12.0 mm
MONK-M207	M20 x 1.5	17	T	16.0 mm	14.0 mm
MONK-M253	M25 x 1.5	23	G	19.0 mm	15.0 mm
MONK-M329	M32 x 1.5	29	G	26.5 mm	18.0 mm
MONK-M406	M40 x 1.5	36	G	35.0 mm	15.0 mm
MONK-M508	M50 x 1.5	48	G	45.0 mm	16.0 mm

- Nickel-plated brass
- Seals made from silicon

Technical annex

Technical annex

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Technical annex

Introduction

Conforms with standards. Intensive research and testing is the reason PMA continues to set new standards and trends in cable protection.

PMA products conform to worldwide standards and regulations.

As a pioneer in the field of cable protection, we have always given high priority to our own testing facilities, and we have consciously introduced stringent in-house standards. This approach has enabled PMA AG to exercise a significant influence on the development of international standards. Standards committees with responsibility for cable systems regularly ask our company to provide advice or participate as an active member.

High quality product from A–Z

From basic items to high-tech products, all of our products meet the most stringent quality requirements.

Some of the outstanding are:

- Resistance to temperature, weathering, UV radiation and chemical agents
- High system pull-out resistance
- Excellent fire protection characteristics (flammability, smoke density and toxicity)
- Excellent system ingress protection up to IP68 and IP69K
- Extremely long service life
- Conformance to all major international product standards

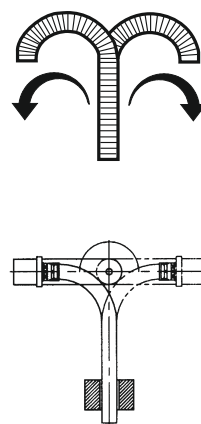
Technical annex

Testing methods IEC EN 61386

DO 9.21-4425 IEC EN 61386

Reversed bending test with swinging movements

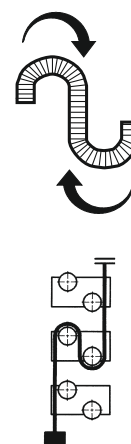
This standard is based on a cyclic reversed bending test (pivoting) of conduits under various conditions (temperature). The conduits are dynamically loaded and evaluated at the upper and lower application temperature limits. The test is performed based on IEC EN 61386. The minimum requirement corresponds to the specifications of IEC EN 61386. For PMA, the test is not considered completed for final evaluation until cracking or fracture. The number of cycles to fracture determines the fatigue strength of the conduit.



DO 9.21-4420

Reversed bending test

This standard describes a cyclic reversed bending test with additional tensile loading (lifting) on flexible conduits under standard ambient conditions (23 °C/50% relative humidity). The conduit is loaded until fracture. The number of cycles to fracture determines the fatigue strength of the conduit.



DO 9.21-4220

Reversed bending test

This standard describes a cyclic bending test (rotation in an oval pattern) on flexible conduits under standard ambient conditions (23 °C/50% relative humidity). The conduit is tested until failure. The number of cycles to fracture determines the fatigue strength of the conduit.



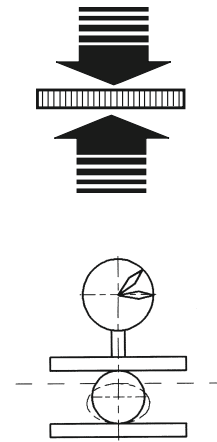
Technical annex

Testing methods IEC EN 61386

DO 9.21-4320 IEC EN 61386

Peak load test

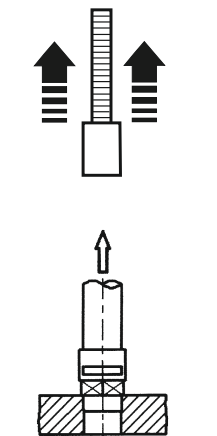
This standard describes the peak load test on conduits under standard ambient conditions (23 °C/50% relative humidity). The conduit is deformed by a defined amount between two plates. The restoring force established over a specific time (by relaxation of the conduit) describes the crushing pressure or compressive strength.



DO 9.21-4610 IEC EN 61386

Pull out test

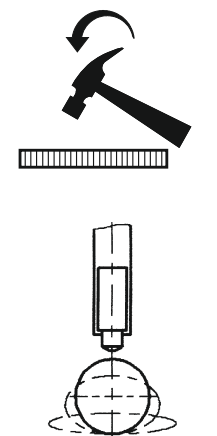
This standard defines the system pull-out test on conduits and connectors under standard ambient conditions (23 °C/ 50% relative humidity). The conduits are mounted with the appropriate system connectors. The pull-out strength of the system is determined in a tensile test.



DO 9.21-4330 IEC EN 61386

Impact test

This standard describes the impact strength test on conduits at various temperatures. The specimen is placed on a steel plate, centred under an impact head with a defined profile. The impact head impacts the centre of the specimen surface. In contrast to international specifications, deformation behaviour (buckling) is determining rather than fracture behaviour. The impact test is considered to be passed if no fracture or cracking can be detected after the impact, as well as no excessive permanent deformation of the conduit in accordance with PMA specifications.



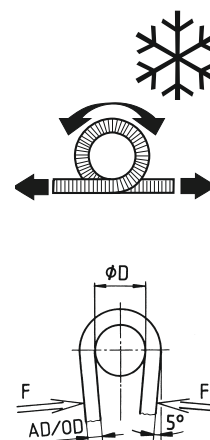
Technical annex

Testing methods IEC EN 61386

DO 9.21-4380

Cold bending test

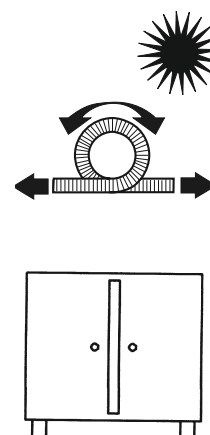
This standard describes a bending test on conduits at low temperatures. The specimens are stored in a controlled-climate cabinet at the specified test temperature. Loading is achieved by winding the specimen around a test mandrel with a defined diameter. The various products are classified based on the mandrel diameter which can be achieved.



DO 9.21-4360

Thermal ageing test

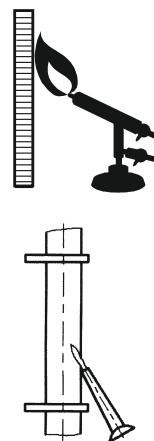
This standard describes a bending test on thermally aged specimens. The test conduits are stored in a controlled-climate oven at the specified test temperature. After removal from the oven, they are cooled to room temperature. Loading is achieved by winding the specimen around a test mandrel with a defined diameter. The various products are classified based on the mandrel diameter which can be achieved.



DO 9.21-4430 IEC EN 61386

Self-extinguishing

This standard describes a flame test on conduits based on international specifications. The conduit is exposed to a defined flame from a standard burner. The time of ignition, flame propagation behaviour as well as time of extinguishing after removal of the flame source are significant parameters for evaluating the flame behaviour of the products.



Technical annex

Ingress protections IEC 60529

Ingress protection (IP) according to IEC 60529/DIN 40050

Ingress protection (IP)




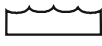


A standard to classify product performance regarding ingress protection.

Different number – different protection!

For example, products classified as IPx8 are not automatically protected against jet water! Immersion tests for classifications IPx7 and IPx8 differ from the tests for protection against jet water for IPx6, IPx5, or IPx4.

Therefore PMA cable protection systems are tested regarding different sealing requirements.

PMA Products

			PMAFIX Pro	PMAFIX IP68 + WPS	PMAFIX IP68/IP68GT	PMAFIX IP66	PMA Smart Line
	IPx4	Splash water from all directions	●	●	●	●	●
	IPx5	Jet water at any angle	●	●	●	●	●
	IPx6	Powerful jet water from any angle	●	●	●	●	●
	IPx7	Submersion (1 m, 30 min.)	●	●	●	–	–
	IPx8	Submersion at time and pressure >IPx7	●	●	●	–	–
	IPx9K	High pressure (up to 100 bar, 80 °C) water from any angle	●	●*	●*	●*	●*

* EN 60529/DIN 40050 can be fulfilled without WPS (Water impact protection ring). PMA recommends the use of the WPS ring for trouble free practical applications.

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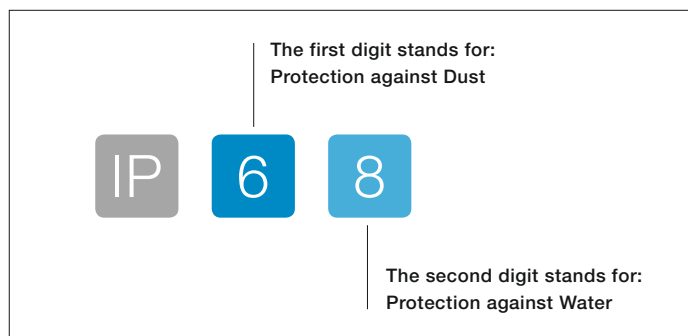
PMA products offer complete protection!



Up to 100 bar

Technical annex

Ingress protections IEC 60529



Dust

Protection against contact and penetration of foreign objects

Degree of protection (contact/foreign bodies)

0	No protection	No contact protection, no protection against solid particles and bodies.
1	Protection against large foreign bodies	Protection against large contact area with hands and foreign bodies with $\varnothing > 50$ mm.
2	Protection against medium foreign bodies	Protection against contact with fingers, protection against foreign bodies $\varnothing > 12.5$ mm.
3	Protection against small foreign bodies	Protection against tool contact foreign bodies, wires or the like with $\varnothing > 2.5$ mm.
4	Protection against foreign grains	See 3, but $\varnothing > 1$ mm.
5	Dust-protected	Full contact protection. Protection against dust deposits inside.
6	Dust-tight	Full contact protection. Protection against dust penetration.

Water

Protection against fluids

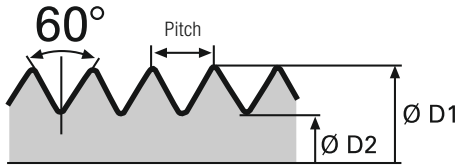
Degree of protection (water)

0	No protection	No protection against water.
1	Protection against dripping water	Protection against vertical water drops.
2	Protection against inclined water drops	Protection against inclined water drops (any \sphericalangle up to 15° to vertical line).
3	Protection against spray-water	Protection against spray water from an \sphericalangle of 60° to vertical line.
4	Protection against splash-water	Protection against splash water from all directions.
5	Protection against water jets	Protection against water jets from any \sphericalangle .
6	Protection against powerful water jets	Protection against powerful water jets from any \sphericalangle .
7	Protection against immersion	Protection against water penetration 1 m below water.
8	Protection against submersion	Protection against pressure water for an indefinite time (customer tailored).
9K	Protection against high pressure cleaning	Protection against water from any \sphericalangle with high pressure.

Compliance certified by a independent test laboratory. Official approval documents available on request: pma-ch.info@tnb.com

Technical annex

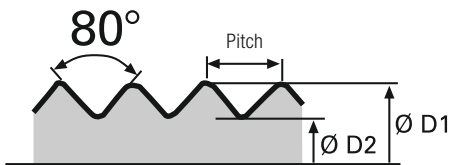
Table of thread dimensions



Metric fine thread

EN 60423

Metric	Pitch	Ø D1	Ø D2	Hole -0/+0.3
12	1.5 mm	12 mm	10.16 mm	12.0 mm
16	1.5 mm	16 mm	14.16 mm	16.0 mm
20	1.5 mm	20 mm	18.16 mm	20.0 mm
25	1.5 mm	25 mm	23.16 mm	25.0 mm
32	1.5 mm	32 mm	30.16 mm	32.0 mm
40	1.5 mm	40 mm	38.16 mm	40.0 mm
50	1.5 mm	50 mm	48.16 mm	50.0 mm
63	1.5 mm	63 mm	61.16 mm	63.0 mm



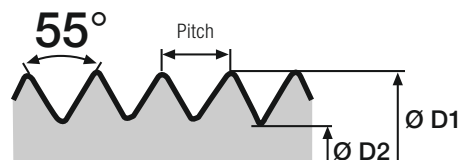
PG thread

DIN 40430

PG	Pitch	Ø D1	Ø D2	Hole
07	1.270 mm	12.5 mm	11.28 mm	12.7 mm
09	1.411 mm	15.2 mm	13.86 mm	15.4 mm
11	1.411 mm	18.6 mm	17.26 mm	18.8 mm
13	1.411 mm	20.4 mm	19.06 mm	20.7 mm
16	1.411 mm	22.5 mm	21.16 mm	22.8 mm
21	1.588 mm	28.3 mm	26.78 mm	28.6 mm
29	1.588 mm	37.0 mm	35.48 mm	37.4 mm
36	1.588 mm	47.0 mm	45.48 mm	47.5 mm
48	1.588 mm	59.3 mm	57.78 mm	59.8 mm

GAS pipe thread

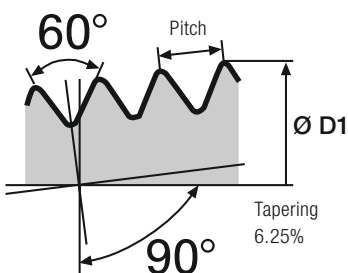
DIN 259 Bl. 3, ISO 228/1



GAS	Pitch	Ø D1	Ø D2	Hole
1/4"	1.337 mm	13.157 mm	11.445 mm	13.4 mm
3/8"	1.337 mm	16.662 mm	14.950 mm	17.0 mm
1/2"	1.814 mm	20.955 mm	18.631 mm	21.3 mm
3/4"	1.814 mm	26.441 mm	24.117 mm	26.8 mm
1"	2.309 mm	33.249 mm	30.291 mm	33.7 mm
1 1/4"	2.309 mm	41.910 mm	38.952 mm	42.4 mm
1 1/2"	2.309 mm	47.803 mm	44.845 mm	48.3 mm
2"	2.309 mm	59.614 mm	56.656 mm	60.2 mm

American standard taper pipe thread

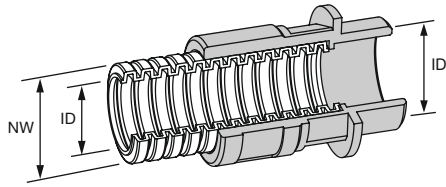
ANSI/ASME B 1.20



NPT	Pitch	Ø D1	Hole D2
1/4"	1.411 mm	13.716 mm	13.9 mm
3/8"	1.411 mm	17.145 mm	17.4 mm
1/2"	1.814 mm	21.336 mm	21.6 mm
3/4"	1.814 mm	26.670 mm	26.9 mm
1"	2.209 mm	33.401 mm	33.7 mm
1 1/4"	2.209 mm	42.164 mm	42.4 mm
1 1/2"	2.209 mm	48.260 mm	48.5 mm
2"	2.209 mm	60.325 mm	60.6 mm

Technical annex

Comparison table



Inside diameter threads to inside diameter conduits.

Conduit

Nominal width NW		
Standard	metric	Inside \varnothing nom.
07	10	6.2
10	12	9.6
10	12	9.6
12	16	12.0
12	16	12.0
17	20	16.2
17	20	16.2
23	25	22.6
23	25	22.6
29	32	29.0
29	32	29.0
36	40	36.5
36	40	36.5
48	50	47.5
48	50	47.5

Connector metric

Inside diameter mm (nom.) ID		
Thread size	Metal thread	Polyamide thread
M12	–	8.0
M12	5.7	8.0
M16	9.6	11.0
M16	9.7	11.0
M20	13.5	13.0
M20	13.5	14.6
M25	18.3	19.0
M25	18.4	19.0
M32	24.2	24.0
M32	25.4	26.0
M40	31.4	32.0
M40	32.6	32.0
M50	39.5	39.0
M50	41.5	42.0
M63	51.4	53.0

Conduit

Nominal width NW		
Standard	metric	Inside \varnothing nom.
07	10	6.2
10	12	9.6
12	16	12.0
–	–	–
17	20	16.2
23	25	22.6
29	32	29.0
36	40	36.5
–	–	–
48	50	47.5

Connector PG

Inside diameter mm (nom.) ID		
Thread size	Metal thread (nom.)	Polyamide thread (nom.)
PG07	–	8.0
PG09	9.5	10.0
PG11	12.5	13.0
PG13.5	14.5	14.5
PG16	16.5	17.5
PG21	22.0	22.5
PG29	30.0	30.5
PG36	40.0	37.5
PG42	–	46.0
PG48	49.5	50.0

Technical annex

Torques

Recommended torques for PMA fittings

For threaded bore holes and with lock nuts

Thread	Metal* [Nm]	Polyamide** [Nm]	Thread	Metal* [Nm]	Polyamide [Nm]
M12	4.0	1.5	PG07	3.5	1.5
M16	4.0	3.0	PG09	4.0	1.5
M20	6.0	4.0	PG11	6.0	2.0
M25	8.0	6.0	PG13.5	6.0	2.5
M32	10.0	8.0	PG16	7.0	4.0
M40	15.0	9.0	PG21	8.0	5.0
M50	15.0	10.0	PG29	10.0	9.0
M63	15.0	10.0	PG36	15.0	15.0
			PG48	15.0	15.0

* Thread combination: Metal + metal

** Thread combination: Metal + polyamide or polyamide + polyamide

Strain relief fittings

According to EN 50262

Thread	Metal NVNZ-Mxxxx NKNZ-Mxxxx [Nm] EN	Metal NVNZ-Mxxxx/P NKNZ-Mxxxx/P [Nm]	Polyamide S/BVNZ-Mxxxx [Nm] EN
M12	5.0	6.0	0.9
M16	5.0	8.0	3.0
M20	7.5	10.0	4.0
M25	10.0	10.0	7.5
M32	15.0	15.0	10.0
M40	20.0	20.0	10.0
M50	20.0	20.0	10.0
M63	20.0	20.0	10.0

Note

These values were gauged at standard climate (23 °C/50% relative humidity).

According to DIN VDE 0619

Thread	Metal NVNZ-Pxxxx [Nm]	Metal NVNZ-Pxxxx/P [Nm]	Polyamide S/BVNZ-Pxxxx [Nm]
PG07	6.25	6.0	2.5
PG09	6.25	8.0	3.75
PG11	6.25	10.0	3.75
PG13.5	6.25	10.0	3.75
PG16	7.5	10.0	5.0
PG21	10.0	15.0	7.5
PG29	10.0	20.0	7.5
PG36	10.0	30.0	7.5
PG48	10.0	40.0	7.5

Technical annex

Applications engineering information

Fill factor, relevant guidelines

The question of conduit capacity or fill factor arises in the use of cable protection systems. This describes the extent to which a conduit can or should be filled with cables and/or conductors based on the available cross-sectional area.

In all cases, PMA recommends that a conduit **capacity of 70%** not be exceeded. (Application-specific procedures and standards must also be considered.)

This ensures that operation is not unnecessarily impaired by increased friction between the individual conductors in dynamically moving systems. In addition, subsequent installation of additional conductors and/or cables is also possible if necessary.



Wiring installation: fixation

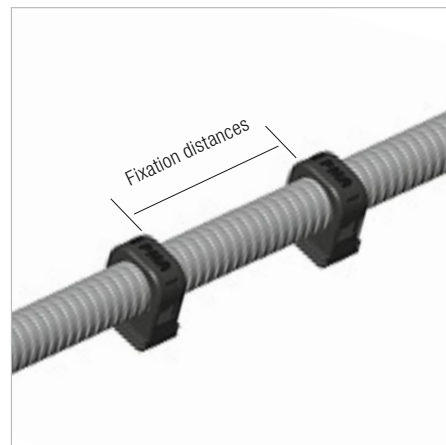
PMA AG recommends that cable protection systems be fastened with a spacing of **300 mm to 500 mm** between supports. This spacing can be varied depending on the application and location. This recommendation applies for all available dimensions. For larger diameters, the increased load due to the cables and conductors in the conduit is accounted for by adherence to the support spacing. PMA supplies suitable system supports for various strength requirements and applications.

European standard **EN 50343:2003-5.15** "Railway applications – Rolling stock – Rules for installation of cabling" specifies the following spacing between supports for fastening conductors:

Horizontal wiring: 300 mm

Vertical wiring: 500 mm

(Application specific guidelines and standards should also be considered.)



Technical annex

Chemical resistance

Resistance against	Chemical formula	PA6, Polyamide 6 PA6.6, Polyamide 6.6	PA12, Polyamide 12 PA11, Polyamide 11	PP, Polypropylene PE, Polyethylene	TPU	PFA PVDF
Acetic acid (10%)	C2H4O2	■	◆	●	○	●
Acetone	C3H6O	●	●	●	○	●
Ammonia (30%)	NH3	●	●	●	○	●
Benzine	–	●	●	◆	■	●
Brake fluid	–	●	●	●	○	●
Caustic soda	NaOH	●	●	●	■	●
Ethyl alcohol (40%)	C2H6O	●	●	●	■	●
Glycol	C2H6O2	●	●	●	○	●
Hydrochloric acid (10%)	HCL	○	■	●	○	●
Methanol	CH4O	◆	●	●	■	●
Methyl ethyl ketone	C4H8O	●	●	●	○	●
Nitric acid (10%)	HN03	○	○	◆	○	●
Ozone	O3	◆	◆	◆	■	●
Paint thinner	–	●	●	■	○	●
Perchloroethylene	C2Cl4	◆	◆	◆	○	●
Paraffin	–	●	●	■	○	●
Phosphoric acid (10%)	H304P	■	◆	●	○	●
Sea water	–	●	●	●	◆	●
Soap solution	–	●	●	●	◆	●
Sodium chloride	NaCl	●	●	●	●	●
Sulphuric acid (10%)	H2SO4	■	◆	●	○	●
Toluene	C7H8	●	●	■	○	●
Trichlorethylene	C2HCl3	■	◆	○	○	●
Turpentine	–	●	●	○	○	●
Urine	–	●	●	●	●	●

Resistance against oils and greases	Chemical formula	PA6, Polyamide 6 PA6.6, Polyamide 6.6	PA12, Polyamide 12 PA11, Polyamide 11	PP, Polypropylene PE, Polyethylene	TPU	PFA PVDF
Cutting oils*	–	●	●	◆	■	●
Diesel oil	–	●	●	◆	◆	●
ASTM Oil Nr. 3	–	●	●	◆	■	●
Fuel oil	–	●	●	◆	■	●
Hydraulic oils*	–	●	●	◆	■	●
Mineral oils	–	●	●	◆	●	●
Spark-erosion liquids	–	●	●	◆	■	●
Skydrol	–	■	◆	◆	○	●
Transformer oils*	–	●	●	◆	■	●

* Synthetic additives can affect the oil resistance of plastics. Please contact PMA for further information.

Important

The chemical resistance of plastic products is also dependant on factors such as temperature, amount of time exposed to chemicals (e.g. occasional contact or immersed) as well as the concentration of the specific chemicals. The stated chemical resistances are valid for a temperature of 20 °C. The chemical resistance table above serves only as a guide for the use of polyamide products in conjunction with the listed chemicals. Each specific application should be controlled for suitability by the end-user.

Key

- Excellent resistance/suitable for permanent contact
- ◆ Resistant/suitable for occasional contact
- Relatively resistant/suitable for short-term contact
- Not recommended

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