



PMA Main Catalogue | March 2016

Flexible cable protection systems For applications with high requirements

PMA

Flexible cable protection systems

For applications with high requirements

Company profile	1
PMA Conduits	2
PMAFIX Pro Connectors	3
PMAFIX Connectors	4
Special Products	5
Accessories	6
PMA JUMBO SIZES Conduits and connectors	7
PMA Divisible System	8
PMA Smart Line Connectors	9
PMAJACK Plastic and metal meshes	10
Technical annex	11

Company profile

A swiss company with a global presence

Company profile

A swiss company with a global presence

1/2

1

Areas of applications

Mechanical engineering

1/4

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.



Setting new standards and trends

Customer needs are a top priority at PMA, 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 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 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 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 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 product portfolio provides safe, dependable, forward-looking solutions or will develop them specially for you to meet your individual needs.

PMA Conduits



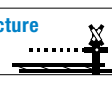








For diverse applications and technical requirements

PMA Conduits

Conduit guide	2/2
PMA Conduits – Overview	2/7
Part number codes	2/8
PMAFLEX Pro	2/9
PMAFLEX	2/11
PMAFLEX Multilayer	2/19
PMAFLEX PLus	2/21
PMA Divisible System	2/23
PMA Smart Line	2/24

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	XPCL	XR90	XSOL	XVCS1H	XVCS2H	CUS	PUS	VUS	PACOF	PPCOF	LLPA	LLPF	LLPO	
static						●		●														●					●		◆	●	●	●	●	●
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outdoor																							●	◆	●	●	●	◆	●	◆	◆	●	●	
indoor				●												●	●					◆	◆	●	●	●	◆	●		●		●		
outdoor									◆	◆													●	◆	●	●	●	◆						
static							◆																●	◆	●			◆						
static		◆			●	◆									◆									●	◆	●	◆		◆					
		2/9	2/9	2/10	2/10	2/11	2/11	2/12	2/13	2/13	2/14	2/14	2/15	2/15	2/16	2/16	2/17	2/17	2/18	2/18	2/19	④	2/19	2/20	2/20	2/21	2/21	2/22	2/23	2/23	2/24	2/25	2/25	

④ Please see catalogue Automation Products

Key
 ● recommended
 ◆ suitable (application details to be considered)

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.

	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	XPCL	XR90	XSOL	XVCS1H	XVCS2H	CUS	PUS	VUS	PACOF	PPCOF	LLPA	LLPF	LLPO
Min. (-)	-50	-25	-25	-100	-40	-40	-50	-50	-50	-50	-25	-60	-40	-40	-40	-50	-40	-40	-50	-40	-50	-50	-50	-40	-50	-50	-40	-20	-40	-40	-20	
Max. (+)	135	95	95	170	105	90	105	95	95	60	95	95	50	150	105	105	105	105	105	105	95	95	90	90	105	95	105	105	105	105	105	90
(+)	180	120	120	200	160	150	160	150	150	-	150	130	-	-	160	160	160	160	160	160	150	150	120	120	160	150	160	160	150	160	160	130
	07	10	10	10	07	07	07	07	07	10	07	07	17	10	10	10	07	07	07	12	17	12	12	12	17	17	17	07	07	07	07	07
	48	48	48	48	125	95	125	95	48	48	125	95	70	29	48	125	95	125	48	48	48	48	48	48	48	48	48	70	70	125	48	48
	10	12	12	12	10	10	10	10	10	12	10	10	20	12	12	12	10	10	10	16	20	16	16	16	20	20	20	10	10	10	10	10
	50	50	50	50	146	106	146	106	50	50	146	106	80	32	50	146	106	146	50	50	50	50	50	50	50	50	50	80	80	146	50	50

Key
 correct



PMA Conduits

Overview

Conduits to protect 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. All conduits are REACH and RoHS compliant.



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:

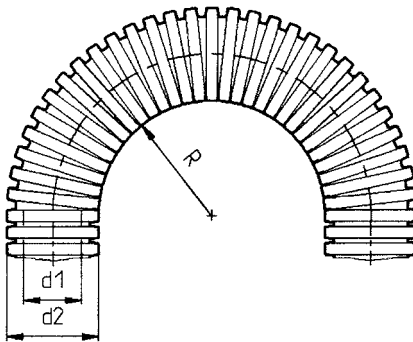
T = Fine profile

D = Fine profile

G = Coarse profile

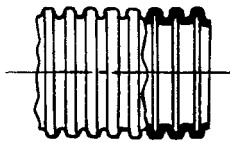
Type

Multilayer conduit

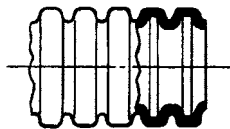


Stat. radius = Lowest recommended bending radius for static (fixed) installation

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



Fine profile T
Tight bending radius



Coarse profile G
High pull-out strength

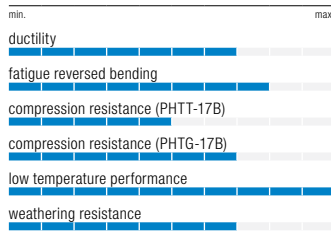
PMA Conduits

PMAFLEX Pro



PHT

PHT-Index



Approvals



PHT

highly flexible, medium/heavy-duty

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

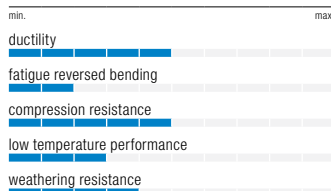
Order No. black	Conduit size		Inside ∅	Outside ∅	Stat./Dyn. radius	PU meter
	NW	metric				
PHTT-07B	07	10	6.2 mm	10.0 mm	15/40 mm	50
PHTT-10B	10	12	9.6 mm	13.0 mm	20/55 mm	50
PHTT-12B	12	16	12.0 mm	15.8 mm	30/65 mm	50
PHTT-17B	17	20	16.2 mm	21.2 mm	40/70 mm	50
PHTT-23B	23	25	22.6 mm	28.5 mm	45/95 mm	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

PLU-Index



Approvals



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 ∅	Outside ∅	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

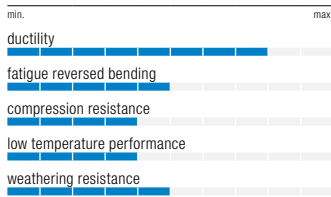
PMAFLEX Pro

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

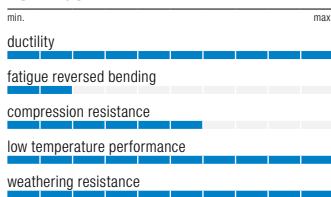
Order No. black	Order No. grey	Conduit size		Inside Ø	Outside Ø	Stat. radius	PU meter
		NW	metric				
POHT-10B	POHT-10S	10	12	9.2 mm	13.0 mm	13.0 mm	50
POHT-12B	POHT-12S	12	16	11.8 mm	15.8 mm	15.8 mm	50
POHG-17B	POHG-17S	17	20	15.7 mm	21.2 mm	21.2 mm	50
POHG-23B	POHG-23S	23	25	22.0 mm	28.5 mm	28.5 mm	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

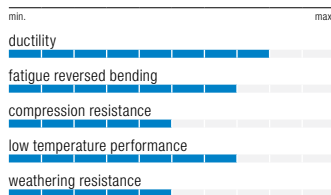
PMA Conduits

PMAFLEX



CYL

CYL-Index



Approvals



CYL

very flexible, medium-duty

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

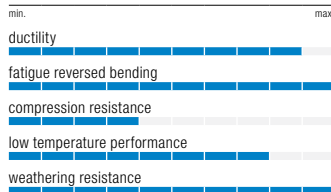
	Order No. black	Order No. grey	Conduit size		Inside Ø	Outside Ø	Stat. radius	PU meter
			NW	metric				
cRU US	CYLT-07B	CYLT-07S	07	10	6.2 mm	10.0 mm	15 mm	50
	CYLT-10B	CYLT-10S	10	12	9.6 mm	13.0 mm	20 mm	50
	CYLT-12B	CYLT-12S	12	16	12.0 mm	15.8 mm	30 mm	50
	CYLT-17B	CYLT-17S	17	20	16.2 mm	21.2 mm	40 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

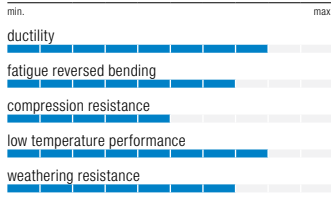
PMAFLEX

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	Outside	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

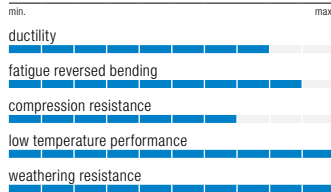
PMA Conduits

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

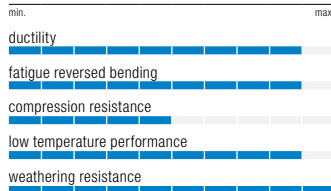
	Order No. black	Order No. grey	Conduit size		Inside ∅	Outside ∅	Stat./Dyn. radius	PU meter
			NW	metric				
	PCST-07B	PCST-07S	07	10	6.0 mm	10.0 mm	15/40 mm	50
	PCST-10B	PCST-10S	10	12	9.2 mm	13.0 mm	20/50 mm	50
	PCST-12B	PCST-12S	12	16	11.8 mm	15.8 mm	25/70 mm	50
	PCST-17B	PCST-17S	17	20	16.0 mm	21.2 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

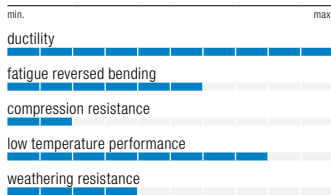
PMAFLEX

2



PEL

PEL-Index



PEL

highly flexible, light-duty, soft

- For electrical cabinets and appliance construction

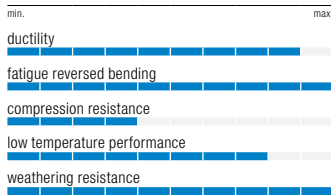
Order No. grey	Order No. grey, slit	Conduit size		Inside	Outside	Stat. radius	PU meter
		NW	metric	∅	∅		
PELT-10S	PELT-10SL	10	12	9.7 mm	12.7 mm	20 mm	50
PELT-12S	PELT-12SL	12	16	11.5 mm	15.5 mm	30 mm	50
PELT-17S	PELT-17SL	17	20	16.0 mm	20.9 mm	35 mm	50
PELT-23S	PELT-23SL	23	25	22.5 mm	27.5 mm	40 mm	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



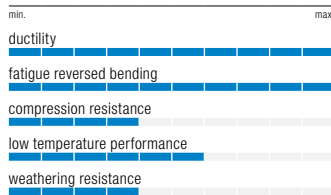
PMA Conduits

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

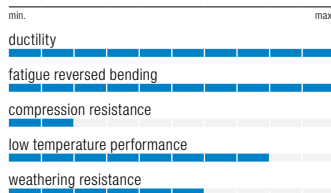
Order No. black	Conduit size		Inside ∅	Outside ∅	Stat./Dyn. radius	PU meter
	NW	metric				
POST-10B	10	12	9.6 mm	13.0 mm	20/50 mm	50
POST-12B	12	16	11.9 mm	15.8 mm	30/70 mm	50
POST-17B	17	20	16.2 mm	21.2 mm	35/75 mm	50
POST-23B	23	25	22.6 mm	28.5 mm	40/100 mm	50
POST-29B	29	32	29.0 mm	34.5 mm	50/120 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

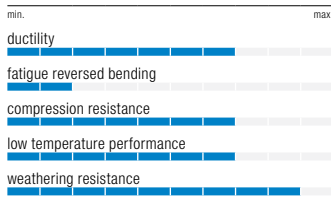
PMAFLEX

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

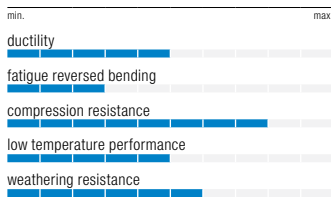
Order No. transparent	Conduit size NW metric		Inside Ø	Outside Ø	Stat. radius	PU meter
PVDT-10P	10	12	9.5 mm	12.6 mm	20 mm	50
PVDT-12P	12	16	11.8 mm	15.5 mm	30 mm	50
PVDT-17P	17	20	16.0 mm	20.8 mm	40 mm	50
PVDT-23P	23	25	22.6 mm	28.0 mm	45 mm	50
PVDT-29P	29	32	29.0 mm	34.1 mm	50 mm	50

- 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

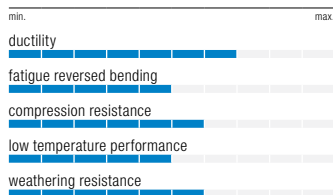
PMA Conduits

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

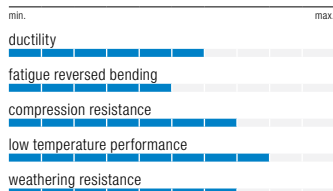
Order No. black	Order No. grey	Conduit size		Inside Ø	Outside Ø	Stat. radius	PU meter
		NW	metric				
VAMLT-10B	VAMLT-10S	10	12	9.6 mm	13.0 mm	20 mm	50
VAMLT-12B	VAMLT-12S	12	16	12.0 mm	15.8 mm	30 mm	50
VAMLG-17B	VAMLG-17S	17	20	15.3 mm	21.2 mm	40 mm	50
VAMLG-23B	VAMLG-23S	23	25	22.6 mm	28.5 mm	45 mm	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 Ø	Outside Ø	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
cRU ^{us}	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

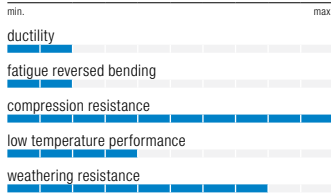
PMAFLEX

2



VOH

VOH-Index



VOH

pliable, very heavy-duty

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

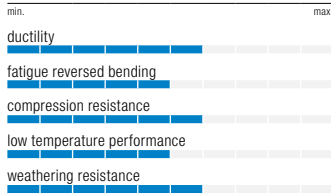
Order No. black	Order No. grey	Conduit size		Inside Ø	Outside Ø	Stat. radius	PU meter
		NW	metric				
VOHD-07B	VOHD-07S	07	10	5.8 mm	10.0 mm	30 mm	50
VOHD-10B	VOHD-10S	10	12	9.0 mm	13.0 mm	35 mm	50
VOHD-12B	VOHD-12S	12	16	11.6 mm	15.8 mm	40 mm	50
VOHG-17B	VOHG-17S	17	20	14.5 mm	21.0 mm	60 mm	50
VOHG-23B	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



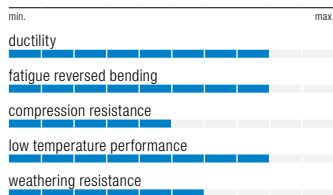
PMA Conduits

PMAFLEX Multilayer



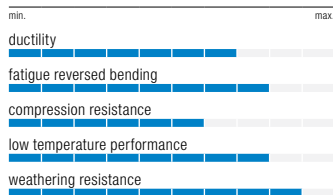
XPCL

XPCL-Index



XSOL

XSOL-Index



Approvals



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



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

PMA Conduits

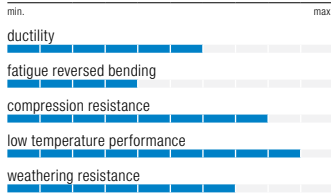
PMAFLEX Multilayer

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

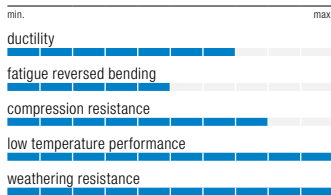
– Easy layouting through:
– High conduit ductility and formability
– Low friction inner layer facilitates cable insertion
– Excellent impact characteristics at low temperatures

– 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

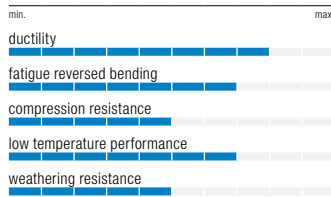
PMA Conduits

PMAFLEX PLus



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)

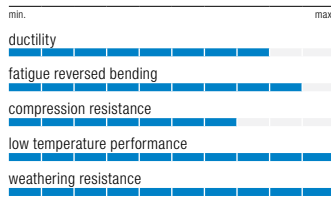
Order No. black	Order No. grey	Conduit size			Inside Ø	Outside Ø	Stat. radius	PU meter/ft
		Inch	NW	metric				
CUSG-17B	CUSG-17S	½	17	20	15.2 mm	21.2 mm	40 mm	31/100
CUSG-23B	CUSG-23S	¾	23	25	21.9 mm	28.5 mm	45 mm	31/100
CUSG-29B	CUSG-29S	1	29	32	27.6 mm	34.5 mm	55 mm	31/100
CUSG-36B	CUSG-36S	1 ¼	36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

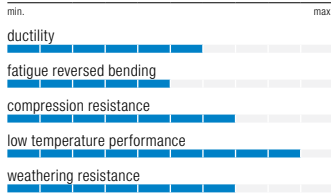
PMAFLEX Plus

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

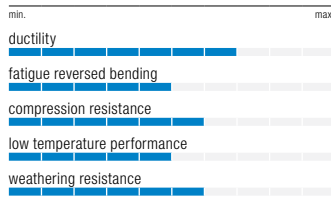
PMA Conduits

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

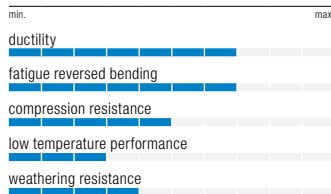
Order No. black	Conduit size		Inside ∅	Outside ∅	Stat. radius	PU meter
	NW	metric				
PACOF-07B	07	10	5.6 mm	10.0 mm	30 mm	50
PACOF-10B	10	12	8.5 mm	12.8 mm	33 mm	50
PACOF-12B	12	16	11.0 mm	15.6 mm	35 mm	50
PACOF-17B	17	20	15.5 mm	21.1 mm	45 mm	50
PACOF-23B	23	25	22.1 mm	28.4 mm	70 mm	50
PACOF-29B	29	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

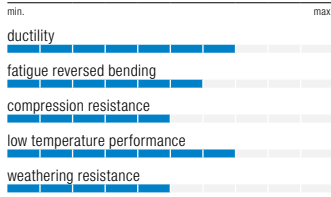
PMA Smart Line

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					
UL US	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
	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

UL 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

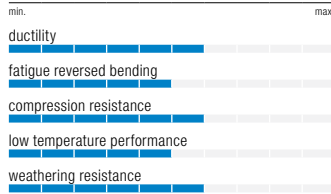
PMA Conduits

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

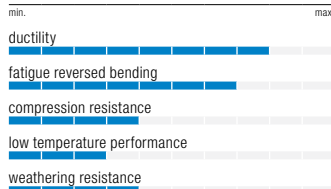
LLPFG-17A	LLPFG-17S	17	20	G	15.8 mm	21.2 mm	40 mm	50
LLPFG-23A	LLPFG-23S	23	25	G	21.9 mm	28.5 mm	45 mm	50
LLPFG-29A	LLPFG-29S	29	32	G	27.6 mm	34.5 mm	55 mm	50
LLPFG-36A	LLPFG-36S	36	40	G	36.0 mm	42.5 mm	60 mm	30
LLPFG-48A	LLPFG-48S	48	50	G	47.0 mm	54.5 mm	70 mm	30

- 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

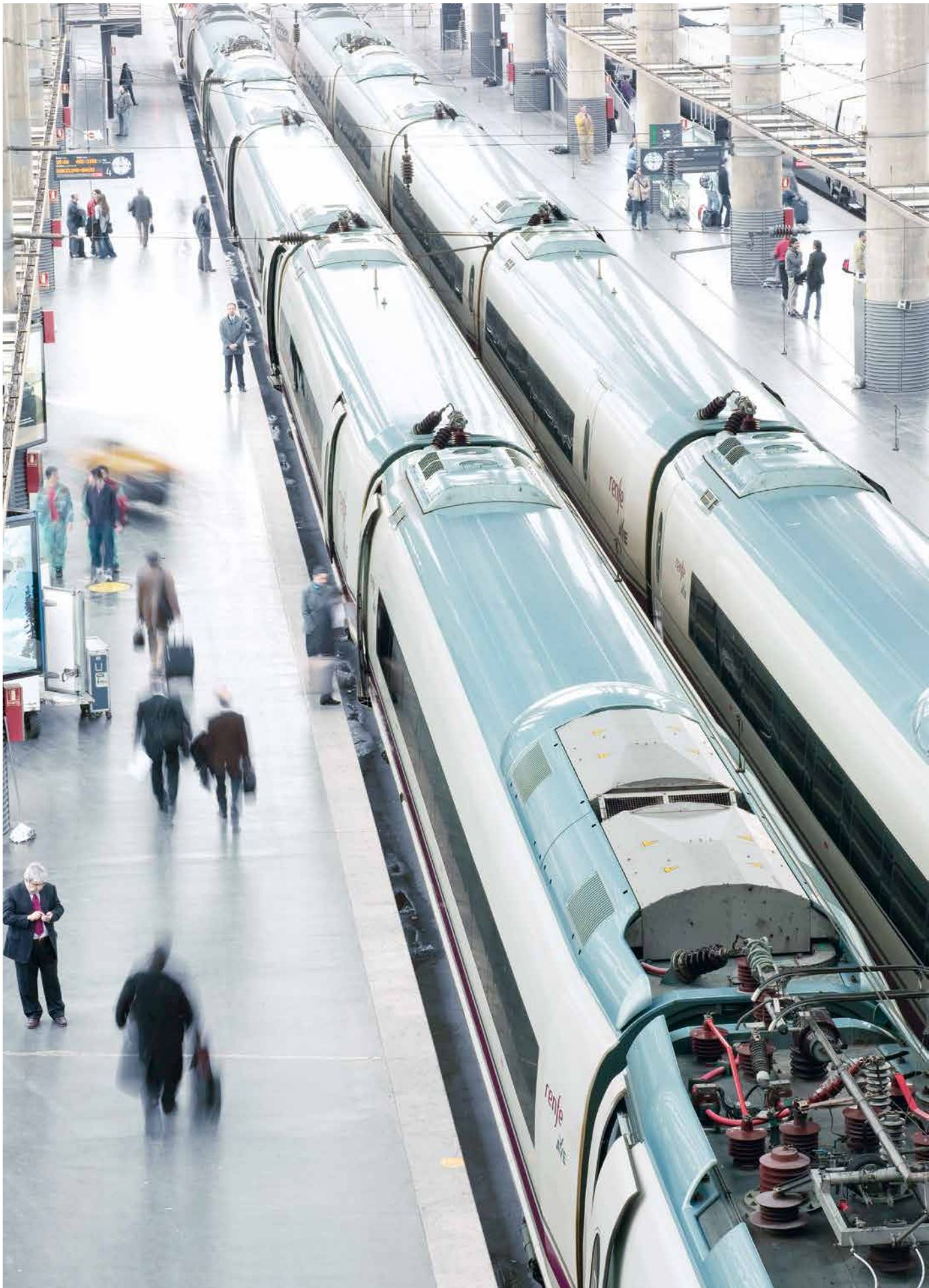
- Specially modified polyolefine
- Excellent reversed bending characteristics
- Good flammability characteristics
- Very good resistance against acids and hydrolysis
- Free from halogens, REACH + RoHS compliant
- Temperature range: –20 °C to +90 °C, short-term to +130 °C

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

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

3

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

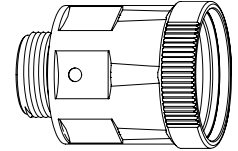
Colour:

N = Black with metal thread

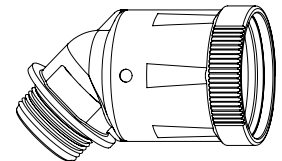
M = Grey with metal thread

B = Black

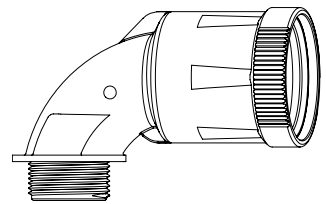
Connector series



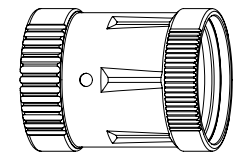
N = Straight



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

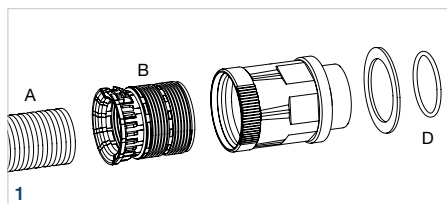
Type	PMA code
With O-ring groove (MIL C 5015)	G

Table 2
Thread codes

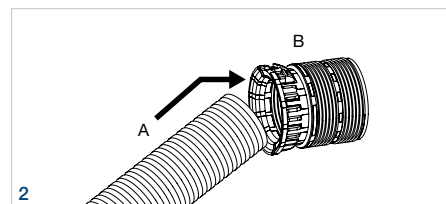
Thread metric	PMA code
M12x1.5	M12
M16x1.5	M16
M20x1.5	M20
M25x1.5	M25
M32x1.5	M32
M40x1.5	M40
M50x1.5	M50
M63x1.5	M63

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

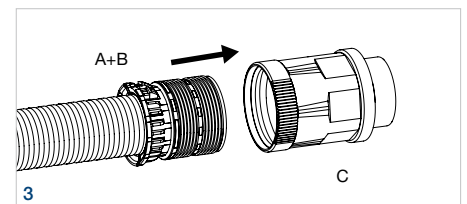
Installation IP68 + IP69K



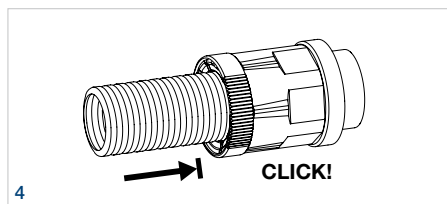
- A = Corrugated conduit
- B = Sealing and locking element
- C = Fitting body
- D = Thread seal (O-ring or glat gasket*)



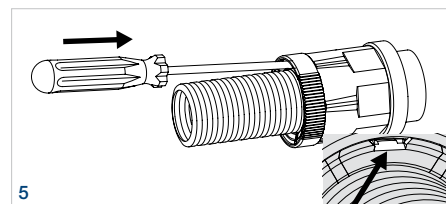
Place corrugated conduit (A) at a slight angle against the sealing element (B), then push right into the end.



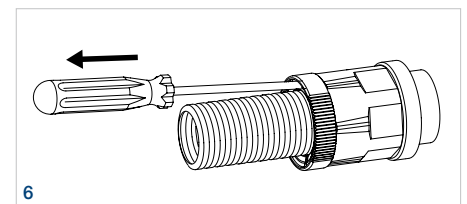
Push the conduit and sealing element (A+B) together into the outer body of the fitting (C). Water or a lubricating agent can help facilitate the push-in process.



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.

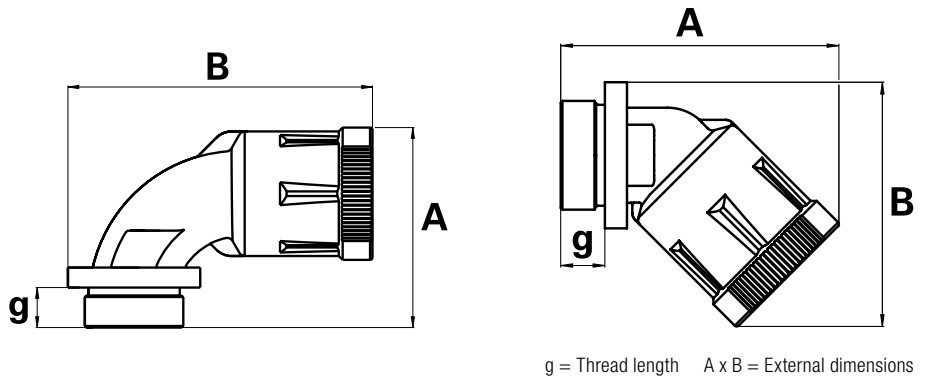


Pull the conduit and screwdriver out of the fitting together keeping the screwdriver parallel to the conduit.

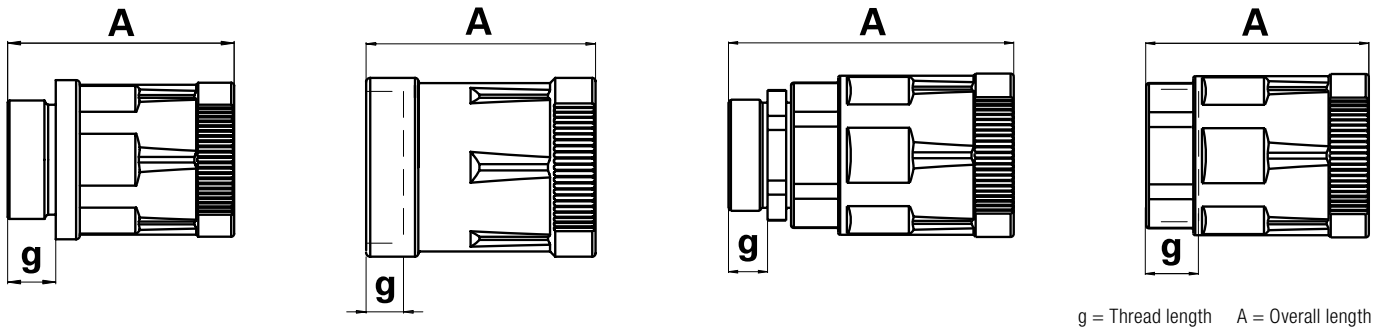
* Ensure to follow O-ring manufacturers guidelines when using O-rings for sealing purposes.

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		Thread length	Overall length
				NW	metric		
	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 NW metric		Thread length	Overall length
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

General technical details	4/3
Part number codes	4/5
Size codes	4/6
Installation	4/7
Connectors: metric/polyamide thread	4/9
Connectors: metric/metal thread	4/12
Connectors: PG/polyamide thread	4/19
Connectors: PG/metal thread	4/23
Connectors: GAS/polyamide thread	4/26
Connectors: NPT/polyamide thread	4/27
Swivel connectors	4/28
Connectors: female thread	4/29
Flanges	4/29
Y and T pieces	4/34
Conduit adapters	4/34



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. It is also possible to upgrade to IP69K by retrofitting water impact protection.

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, disassembly is 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

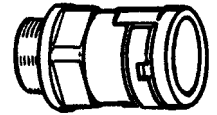
PMAFIX type:

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

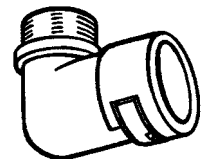
Colour:

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

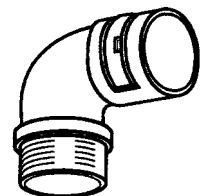
Connector series



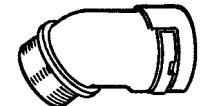
Serie N



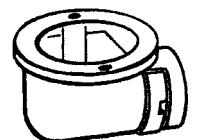
Serie W



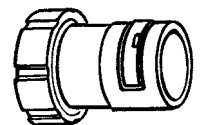
Serie B



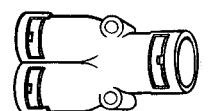
Serie A



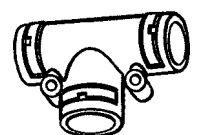
Serie O



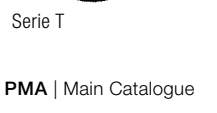
Serie I



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 UTO/UTS	S

4

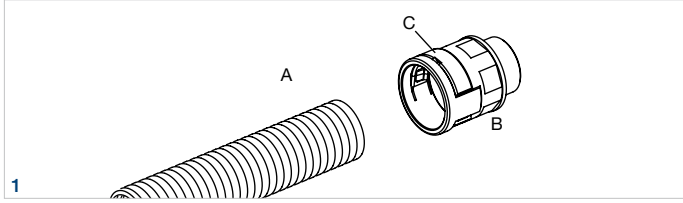
Table 2

Thread codes

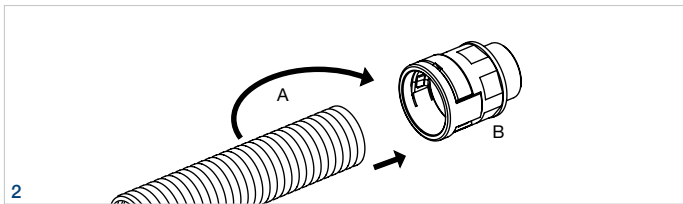
Thread metric	PMA code	Thread PG	PMA code	Thread Gas	PMA code	Thread NPT	PMA code	Thread UN	PMA code
		PG07	P07	G ¼	G00				
M12 x 1.5	M12	PG09	P09	G ⅜	G01				
M16 x 1.5	M16	PG11	P11	G ½	G02	N ½	N02	½–28 UNEF	U12
M20 x 1.5	M20	PG13.5	P13	G ¾	G04	N ¾	N04	⅜–24 UNEF	U13
		PG16	P16	G 1	G06	N 1	N06	⅝–24 UNEF	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
								19/16–18 UNEF	U29
								1¼–18 UNEF	U30
								15/16–18 UNEF	U32
								13/8–18 UNEF	U34
		17/16–18 UNEF	U35						
				15/8–18 UNEF	U40				
				19/4–18 UNS	U43				
				2–18 UNS	U50				
				2¼–16 UN	U56				
				2¾–12 UN	U57				
				2½–12 UN	U62				

PMAFIX Installation

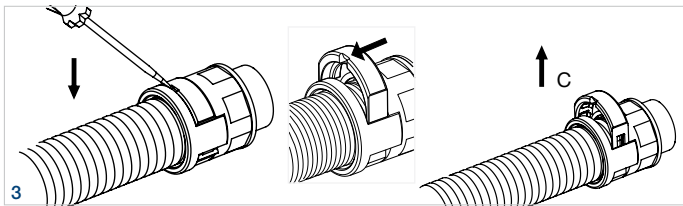
Installation IP66



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



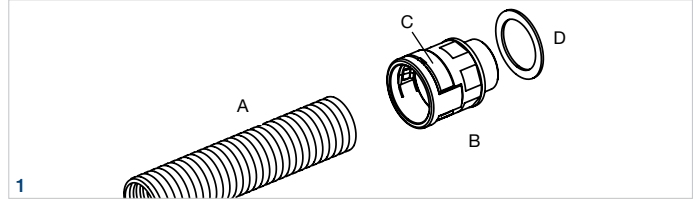
2
Push in the conduit (A) with a slight twist until the stop.



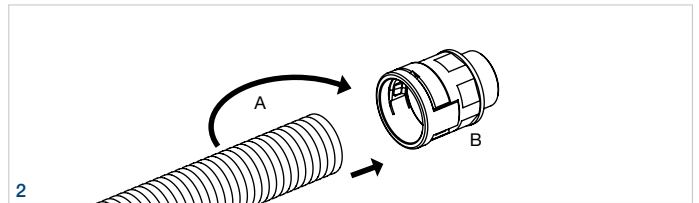
3
To re-open use a screwdriver.
The screwdriver slot in the oval clip (C) should be on the conduit side.

Locking clip pre-installed in all IP66 connectors.

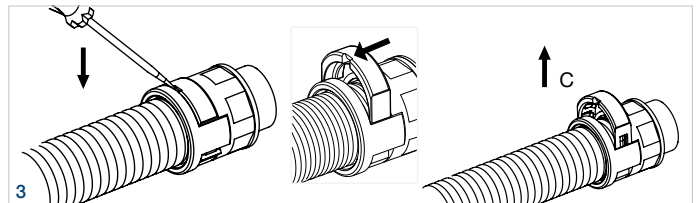
Installation IP68GT



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.

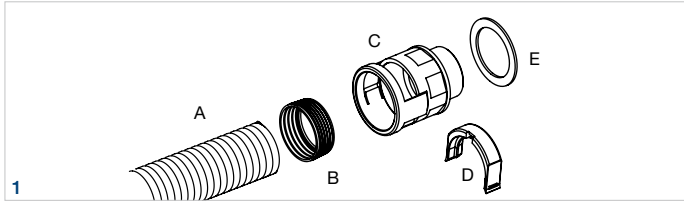
Pre-installed sealing cap and locking clip in all IP68GT connectors.

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

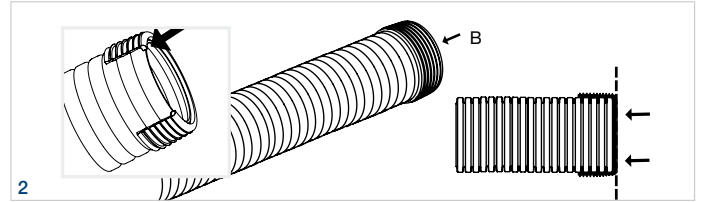
PMAFIX Installation

Installation IP68 (IP69K)

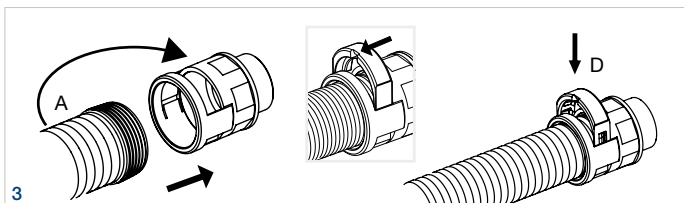
4



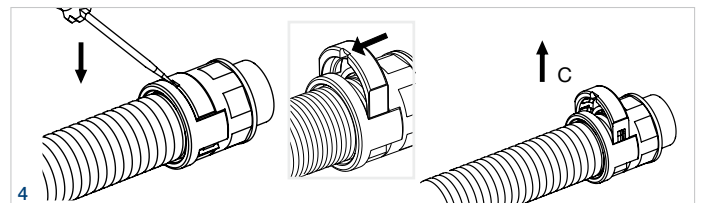
A = Conduit
B = Sealing cap
C = Fitting
D = Oval clip
E = Thread seal
(O-ring or flat seal*)



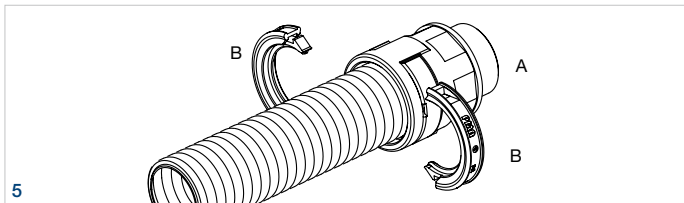
Push sealing cap (B) completely onto the conduit in order to achieve IP68.



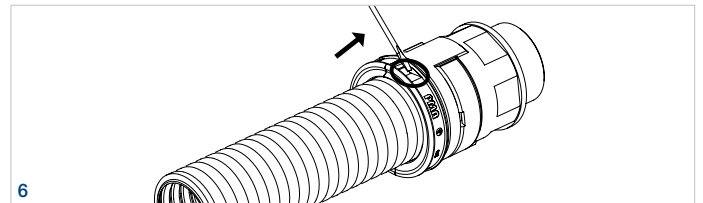
Push in the conduit (A) with a slight twist until the stop. Insert oval clip (D) in the locking element window and click into place. Screwdriver slot in the oval clip should be on conduit side.



To re-open use a screwdriver.



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



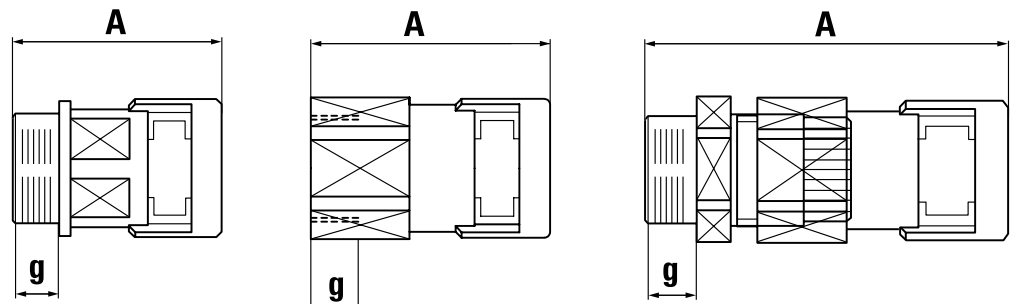
To re-open use a screwdriver.

*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.

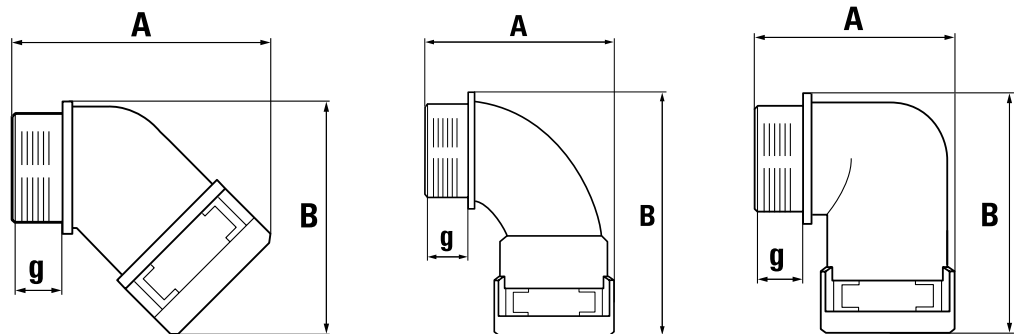
PMAFIX

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 NW 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

4

Approvals



VNDZ/VNZ

Connector straight with strain relief, metric thread

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

Order No. IP66	Order No. IP68	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



VA

Approvals



VA

Connector 45° elbow, 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	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

- 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		Thread length	Overall length
			NW	metric		
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	7.0–10.5 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

4

Approvals



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		Terminal range	Thread length	Overall length
				NW	metric			
NVNZ-M120S/P1-L	NVNZ-M120R/P-L	DE-M120/P1	M12 x 1.5	10	12	4.0–6.5 mm	15.0 mm	66.5 mm
NVNZ-M120S/P3-L		DE-M120/P3	M12 x 1.5	10	12	6.5–9.5 mm	15.0 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	15.0 mm	58.5 mm
NVNZ-M160S/P2-L		DE-M160/P2	M16 x 1.5	10	12	5.0–8.0 mm	15.0 mm	58.5 mm
NVNZ-M160S/P3-L		DE-M160/P3	M16 x 1.5	10	12	6.5–9.5 mm	15.0 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	15.0 mm	62.5 mm
NVNZ-M202S/P3-L		DE-M202/P3	M20 x 1.5	12	16	6.5–9.5 mm	15.0 mm	62.5 mm
NVNZ-M202S/P4-L		DE-M202/P4	M20 x 1.5	12	16	7.0–10.5 mm	15.0 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	15.0 mm	68.5 mm
NVNZ-M207S/P4-L		DE-M207/P4	M20 x 1.5	17	20	7.0–10.5 mm	15.0 mm	68.5 mm
NVNZ-M207S/P5-L		DE-M207/P5	M20 x 1.5	17	20	9.0–13.0 mm	15.0 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	15.0 mm	69.0 mm
NVNZ-M257S/P6-L		DE-M257/P6	M25 x 1.5	17	20	11.5–15.5 mm	15.0 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	15.0 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	15.0 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	15.0 mm	91.0 mm
NVNZ-M329S/P3-L		DE-M329/P3	M32 x 1.5	29	32	17.0–20.5 mm	15.0 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	15.0 mm	80.0 mm
NVNZ-M409S/P4-L		DE-M409/P4	M40 x 1.5	29	32	20.0–25.0 mm	15.0 mm	80.0 mm
NVNZ-M409S/P5-L		DE-M409/P5	M40 x 1.5	29	32	24.0–28.0 mm	15.0 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	15.0 mm	94.5 mm
NVNZ-M506S/P3-L		DE-M506/P3	M50 x 1.5	36	40	32.0–36.0 mm	15.0 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	15.0 mm	97.0 mm
NVNZ-M508S/P3-L		DE-M508/P3	M50 x 1.5	48	50	36.0–40.0 mm	15.0 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	15.0 mm	95.5 mm
NVNZ-M638S/P2-L		DE-M638/P2	M63 x 1.5	48	50	39.0–44.0 mm	15.0 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.

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 ⁴	Order No. IP68, grey ⁴	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 metric		Terminal range	Thread length	Overall length
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 length	External dimensions
BVWD-P07MGT-11	BVWV-P07M	07	07	10	32.0 x 35.0 mm
BVWD-P07MGT-8	–	07	07	10	29.0 x 35.0 mm
BVWD-P070GT-11	BVWV-P070	07	10	12	34.0 x 39.5 mm
BVWD-P070GT-8	–	07	10	12	31.0 x 39.5 mm
BVWD-P072GT-11	BVWV-P072	07	12	16	38.5 x 44.5 mm
BVWD-P072GT-8	–	07	12	16	35.5 x 44.5 mm
BVWD-P09MGT-11	BVWV-P09M	09	07	10	32.0 x 36.5 mm
BVWD-P09MGT-8	–	09	07	10	29.0 x 36.5 mm
BVWD-P090GT-11	BVWV-P090	09	10	12	34.0 x 39.5 mm
BVWD-P090GT-8	–	09	10	12	31.0 x 39.5 mm
BVWD-P092GT-11	BVWV-P092	09	12	16	38.5 x 44.5 mm
BVWD-P092GT-8	–	09	12	16	35.5 x 44.5 mm
BVWD-P11MGT-11	BVWV-P11M	11	07	10	32.0 x 38.0 mm
BVWD-P11MGT-8	–	11	07	10	29.0 x 38.0 mm
BVWD-P110GT-11	BVWV-P110	11	10	12	34.0 x 41.0 mm
BVWD-P110GT-8	–	11	10	12	31.0 x 41.0 mm
BVWD-P112GT-11	BVWV-P112	11	12	16	38.5 x 46.0 mm
BVWD-P112GT-8	–	11	12	16	35.5 x 46.0 mm
BVWD-P13MGT-11	BVWV-P13M	13.5	07	10	32.0 x 39.5 mm
BVWD-P13MGT-8	–	13.5	07	10	29.0 x 39.5 mm
BVWD-P130GT-11	BVWV-P130	13.5	10	12	34.0 x 42.5 mm
BVWD-P130GT-8	–	13.5	10	12	31.0 x 42.5 mm
BVWD-P132GT-11	BVWV-P132	13.5	12	16	38.5 x 47.5 mm
BVWD-P132GT-8	–	13.5	12	16	35.5 x 47.5 mm
BVWD-P137GT-11	BVWV-P137	13.5	17	20	43.5 x 58.5 mm
BVWD-P137GT-8	–	13.5	17	20	40.5 x 58.5 mm
BVWD-P167GT-11	BVWV-P167	16	17	20	43.5 x 58.5 mm
BVWD-P167GT-8	–	16	17	20	40.5 x 58.5 mm
BVWD-P213GT	BVWV-P213	21	23	25	54.0 x 67.0 mm
BVWD-P299GT	BVWV-P299	29	29	32	61.5 x 74.5 mm
BVWD-P366GT	BVWV-P366	36	36	40	72.0 x 98.0 mm
BVWD-P488GT	BVWV-P488	48	48	50	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	Thread length	Overall length
BVND-G00MGT	BVNV-G00M	¼"	07	10	34.5 mm
BVND-G000GT	BVNV-G000	¼"	10	12	36.5 mm
BVND-G010GT	BVNV-G010	⅜"	10	12	36.5 mm
BVND-G012GT	BVNV-G012	⅜"	12	16	39.0 mm
BVND-G022GT	BVNV-G022	½"	12	16	41.0 mm
BVND-G027GT	BVNV-G027	½"	17	20	49.5 mm
BVND-G043GT	BVNV-G043	¾"	23	25	54.0 mm
BVND-G069GT	BVNV-G069	1"	29	32	56.0 mm
BVND-G076GT	BVNV-G076	1¼"	36	40	71.0 mm
BVND-G088GT	BVNV-G088	1½"	48	50	71.5 mm
BVND-G098GT	BVNV-G098	2"	48	50	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	Thread length	External dimensions
BVAD-G000GT	BVAV-G000	¼"	10	12	43.5 x 37.0 mm
BVAD-G012GT	BVAV-G012	⅜"	12	16	48.0 x 40.0 mm
BVAD-G027GT	BVAV-G027	½"	17	20	57.5 x 51.5 mm
BVAD-G043GT	BVAV-G043	¾"	23	25	67.0 x 60.0 mm
BVAD-G069GT	BVAV-G069	1"	29	32	73.5 x 67.0 mm
BVAD-G076GT	BVAV-G076	1¼"	36	40	91.5 x 85.5 mm
BVAD-G088GT	–	1½"	48	50	99.0 x 96.0 mm
BVAD-G098GT	BVAV-G098	2"	48	50	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	Thread length	External dimensions
BVWD-G00MGT	BVWV-G00M	¼"	07	10	32.0 x 36.5 mm
BVWD-G000GT	BVWV-G000	¼"	10	12	34.0 x 39.5 mm
BVWD-G010GT	BVWV-G010	⅜"	10	12	34.0 x 40.5 mm
BVWD-G012GT	BVWV-G012	⅜"	12	16	38.5 x 46.0 mm
BVWD-G022GT	BVWV-G022	½"	12	16	40.5 x 47.5 mm
BVWD-G027GT	BVWV-G027	½"	17	20	45.5 x 58.5 mm
BVWD-G043GT	BVWV-G043	¾"	23	25	56.0 x 66.5 mm
BVWD-G069GT	BVWV-G069	1"	29	32	64.5 x 73.5 mm
BVWD-G076GT	BVWV-G076	1¼"	36	40	77.0 x 96.0 mm
BVWD-G088GT	BVWV-G088	1½"	48	50	90.5 x 106.0 mm
BVWD-G098GT	BVWV-G098	2"	48	50	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	Order No. IP68	Thread NPT	Fits to conduit size NW metric		Thread length	Overall length
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	Order No. IP68	Thread NPT	Fits to conduit size NW metric		Thread length	External dimensions
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	Order No. IP68	Thread NPT	Fits to conduit size NW metric		Thread length	External dimensions
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		Width x Length x Depth	Screw sizes
		NW	metric		
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		Thread length	Overall length
			NW	metric		
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		Thread length	Overall length
		NW	metric		
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		Thread length	Overall length
			NW	metric		
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 1/16"-18	17	20-28	6.5 mm	55.5 mm
BVIDB-U293GT	BVIRB-U293	1 1/16"-18	23	20-28	6.5 mm	52.0 mm
BVIDB-U323GT	BVIRB-U323	1 1/16"-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 1/16"-18	23	20	9.8 mm	56.0 mm
	BVIRS-U323	1 1/16"-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 3/8"–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	outside	Thread length outside	Outside ∅	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

5



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	outside	Thread length outside	Outside ∅	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

Introduction	6/3
Flat gaskets	6/4
Clips	6/5
Water impact protection	6/5
Sealing caps	6/6
Reducers	6/6
Enlargers	6/7
Reducers	6/7
Plug screws	6/9
Lock nuts	6/10
System supports	6/12
Half-shells	6/12
System supports	6/13
Rails for system supports	6/13
Tube clamps	6/14
System supports	6/15
Conduit terminations	6/16
Abrasion protection sleeves	6/17
Tools	6/17



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	07	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

6



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 °C to +200 °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 °C to +200 °C
- Round form without O-ring, hexagonal form with O-ring

Accessories

Enlargers, reducers, PG



ME

ME

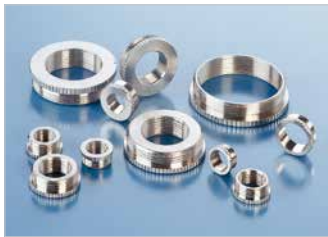
Enlarger, brass, PG thread

– 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 \varnothing	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	NW	metric	Width	Height	Depth
B GP-17	17	20	48 mm	66.0 mm	36.0 mm	
B GP-23	23	25	48 mm	66.0 mm	36.0 mm	
B GP-29	29	32	62 mm	66.0 mm	36.0 mm	
B GP-36	36	40	62 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	

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

- 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 NW metric		Inside ∅	Outside ∅	Length
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 NW metric		Clamping range	Length	Height
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

General technical details	7/3
PMAFLEX JUMBO Conduits	7/4
PMAGRIP Flange connectors	7/5
PMAGRIP Threaded connectors	7/7
Tube clamps	7/8
Conduit seal rings	7/8



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.

* All conduits are REACH and RoHS compliant



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-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

- 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)

7



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		Thread length	Outside Ø	Overall length
			NW	metric			
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		Thread length	Outside Ø	Overall length
			NW	metric			
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)

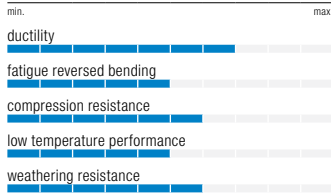


PMA Divisible System Conduits



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		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

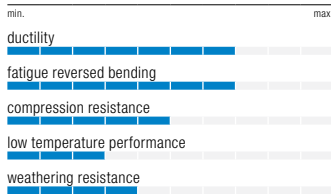
- Specially modified polyamide 6
- Can be opened and closed again in longitudinal direction any time
- Good ductility
- Good compression resistance
- Free from halogens, REACH + RoHS compliant
- Temperature range: –40 °C to +105 °C, short-term to +160 °C
- IP50

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		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
- 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

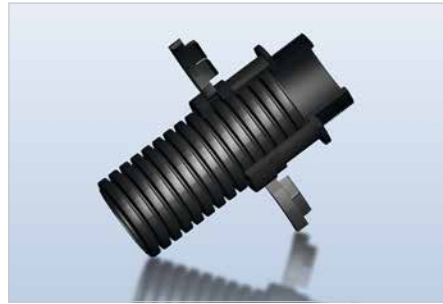
General technical details

IP66

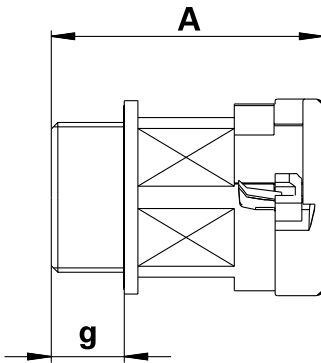
IP66 static

IP54 dynamic

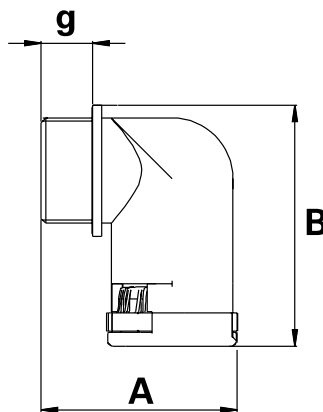
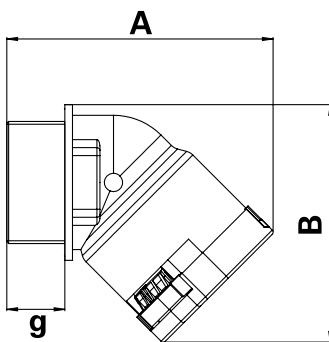
- One piece fitting
- Conical sealing method
- Integrated sealing lip in thread flange
- Easy "push-in" installation
- Ready for installation (Fitting gets delivered with engaged locking elements)



patent



g = Thread length A = Overall length



g = Thread length A x B = External dimensions

PMA Smart Line

Part number codes

Part number codes

A L N D - M 20 7

PMA Conduit code (Table 1)

Thread code (Table 2)

Thread type:

P = PG thread

M = Metric thread

Mode of ingress protection

IP66 static/IP54 dynamic

Serie:

N = Straight

A = 45° elbow

W = 90° elbow

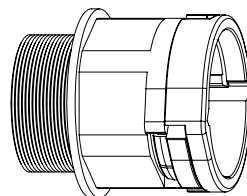
Type: PMA Smart Line

Colour:

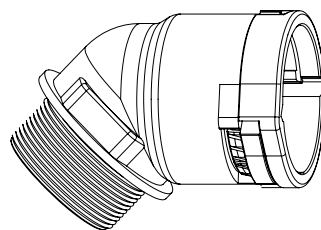
A = Black

S = Grey

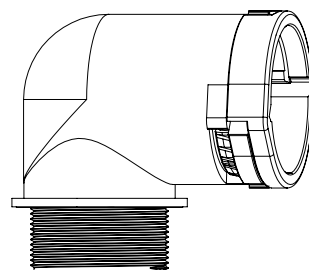
Connector series



N = Straight



A = 45° elbow



W = 90° elbow

PMA Smart Line

Size codes, installation

Table 1
Conduit codes

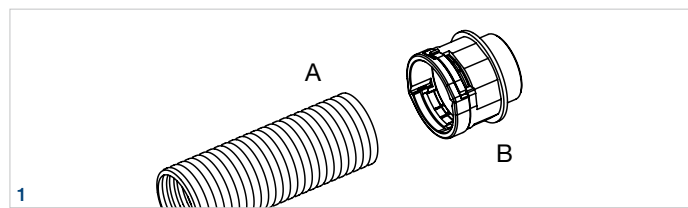
Nominal width	Metric size	PMA code
07	10	M
10	12	0
12	16	2
17	20	7
23	25	3
29	32	9
36	40	6
48	50	8

Table 2
Thread codes

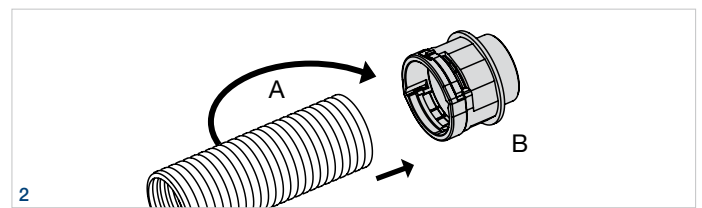
Thread metric	PMA code
M12 x 1.5	M12
M16 x 1.5	M16
M20 x 1.5	M20
M25 x 1.5	M25
M32 x 1.5	M32
M40 x 1.5	M40
M50 x 1.5	M50
M63 x 1.5	M63

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

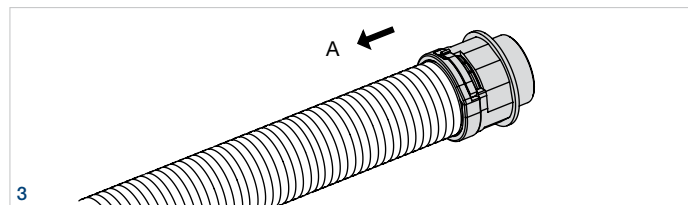
Installation IP66



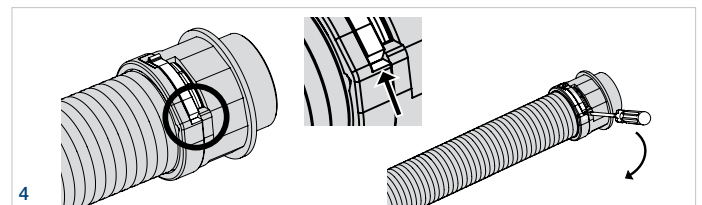
A = Conduit
B = Fitting



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		Thread length	External dimensions
			NW	metric		
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		Thread length	Overall length
			NW	metric		
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 Plastic and metal meshes

Braided Protection

PMAJACK Plastic and metal meshes

General technical details	10/3
Plastic braided hoses	10/4
Braid terminations	10/7
Connectors	10/7
Stainless steel braids	10/9
Tools	10/9
Connectors	10/10
Adapters	10/10
Special metal connectors	10/11



PMAJACK Plastic and metal meshes

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

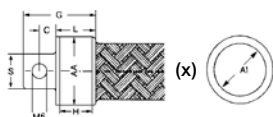
- For termination and fixation of plastic braided hoses
- Suitable for: F.66, C.66, L.66, F.PX, L.PX braids

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

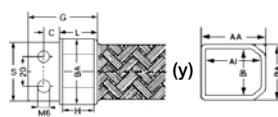
RER

x = with one mounting hole



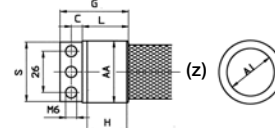
REV

y = with two mounting holes



RER

z = with three mounting holes



PMAJACK

Braid terminations, connectors



BREIR

BREIR

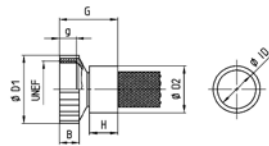
Connector for plastic braids, female thread

- 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 F.PX	L.66 L.PX							
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

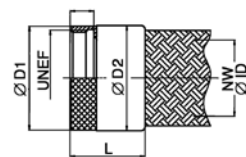
Connector for plastic braids, female thread

- 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. Ø	Operative range max. Ø
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



PMA-Tie-tool

PMA-Tie-tool

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 PMA-Tie-tool 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

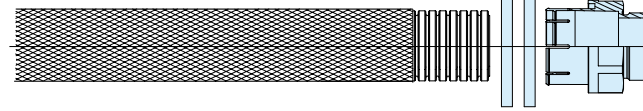
Connector for overbraided conduits, metric/PG metal thread

Order No. with jubilee clip	Thread metric	Fits to conduit size		Outside Ø x Length
		NW	metric	
MVEMD-M406/01	40 x 1.5	36	40	55.0 x 59.0 mm
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

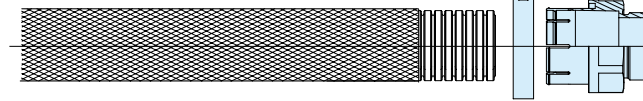
Order No. with jubilee clip	Thread PG	Fits to conduit size		Outside Ø x Length
		NW	metric	
MVEMD-P4856/01	48	56	68	80.0 x 72.0 mm

- 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.

VEMD-RER

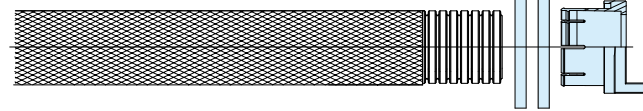
Adapter for overbraided conduits

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	-	48	50	66.0 x 66.0 x 53.0 mm

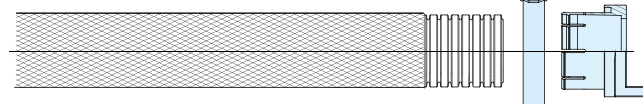
* Metal cable tie

- 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.



VEMD-RER

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

Introduction	11/2
Testing methods	11/3
Ingress protections	11/6
Table of thread dimensions	11/8
Comparison table	11/9
Torques	11/10
Application guidelines	11/11
Chemical resistance	11/12
Index	11/13
Important information	11/33

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 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

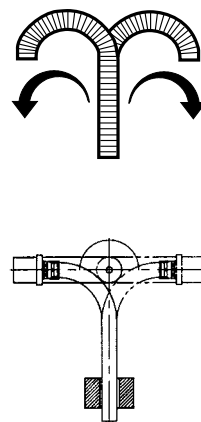
Technical annex

Testing methods IEC EN 61386

PMA DO 9.21-4425 IEC EN 61386

Reversed bending test with swinging movements

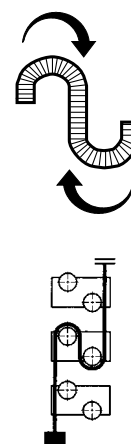
This standard is based on a cyclic reversed bending test (pivoting) of conduits under various conditions (temperature). The conduits are dynamically loaded and evaluated at the upper and lower application temperature limits. The test is performed based on IEC EN 61386. The minimum requirement corresponds 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.



PMA 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.



PMA 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.



PMA DO is a PMA in-house test.

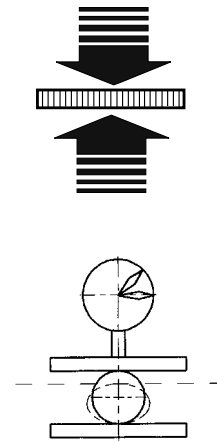
Technical annex

Testing methods IEC EN 61386

PMA DO 9.21-4320 IEC EN 61386

Peak load test

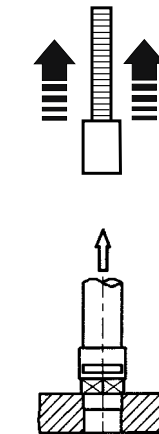
This standard describes the peak load test on conduits under standard ambient conditions (23 °C/50% relative humidity). The conduit is deformed by a defined amount between two plates. The restoring force established over a specific time (by relaxation of the conduit) describes the crushing pressure or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



PMA DO 9.21-4610 IEC EN 61386

Pull out test

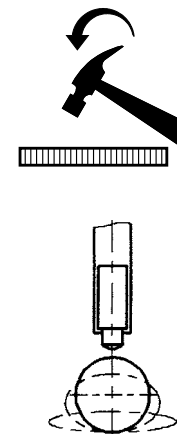
This standard defines the system pull-out test on conduits and connectors under standard ambient conditions (23 °C/ 50% relative humidity). The conduits are mounted with the appropriate system connectors. The pull-out strength of the system is determined in a tensile test.



PMA 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.



PMA DO is a PMA in-house test.

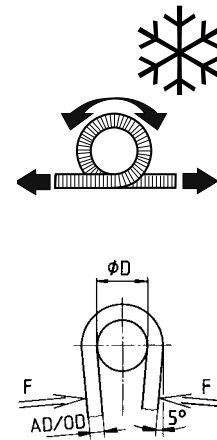
Technical annex

Testing methods IEC EN 61386

PMA DO 9.21-4380

Cold bending test

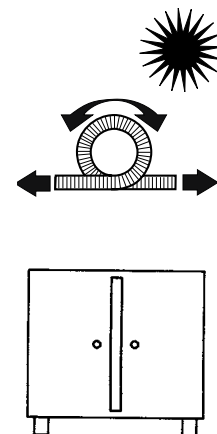
This standard describes a bending test on conduits at low temperatures. The specimens are stored in a controlled-climate cabinet at the specified test temperature. Loading is achieved by winding the specimen around a test mandrel with a defined diameter. The various products are classified based on the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



PMA DO 9.21-4360

Thermal ageing test

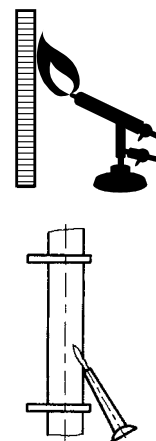
This standard describes a bending test on thermally aged specimens. The test conduits are stored in a controlled-climate oven at the specified test temperature. After removal from the oven, they are cooled to room temperature. Loading is achieved by winding the specimen around a test mandrel with a defined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



PMA 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.



PMA DO is a PMA in-house test.

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.

11



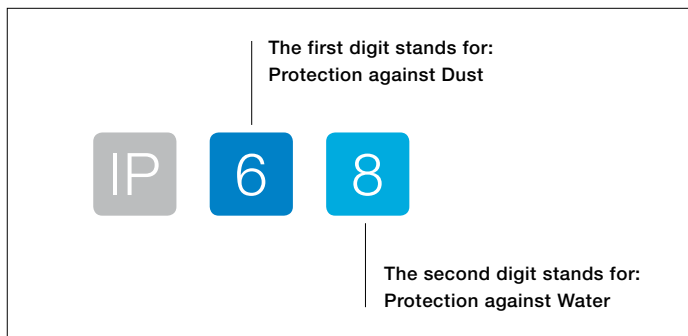
PMA products offer complete protection!



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

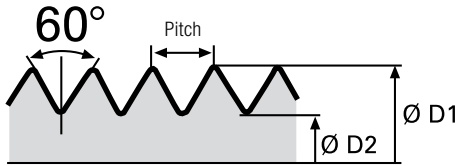
Degree of protection (water)

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-info@ch.abb.com

Technical annex

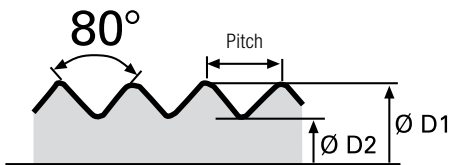
Table of thread dimensions



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



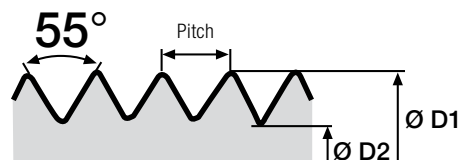
PG thread

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

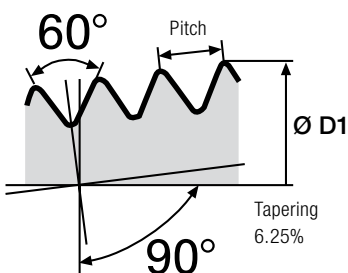
DIN 259 Bl. 3, ISO 228/1



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

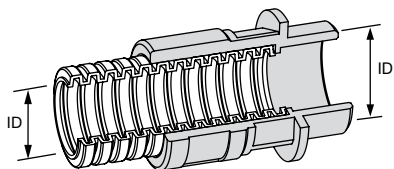
ANSI/ASME B 1.20



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

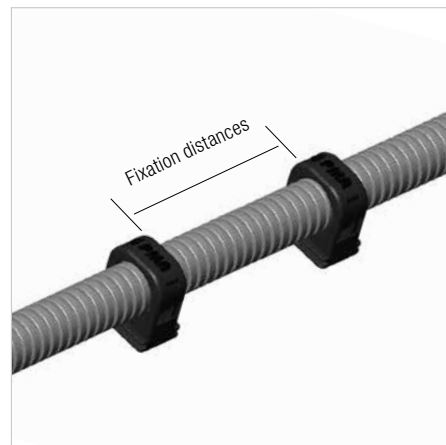
PMA AG recommends that cable protection systems be fastened with a spacing of **300 mm to 500 mm** between supports. This spacing can be varied depending on the application and location. This recommendation applies for all available dimensions. For larger diameters, the increased load due to the cables 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%)	HNO3	○	○	◆	○	●
Ozone	O3	◆	◆	◆	■	●
Paint thinner	–	●	●	■	○	●
Perchloroethylene	C2Cl4	◆	◆	◆	○	●
Paraffin	–	●	●	■	○	●
Phosphoric acid (10%)	H3O4P	■	◆	●	○	●
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

Index

Products in alphabetical order

Order No.	GID No.	Page	Order No.	GID No.	Page	Order No.	GID No.	Page
0709M	7TAA292550R0000	6/8	514-48	7TAA292690R0008	6/9	ALND-M506	7TAA292000R0035	9/7
0907M	7TAA292550R0001	6/8	514-M12	7TAA292690R0009	6/9	ALND-M508	7TAA292000R0036	9/7
0911M	7TAA292550R0002	6/8	514-M16	7TAA292690R0010	6/9	ALND-M638	7TAA292000R0037	9/7
0913M	7TAA292550R0003	6/8	514-M20	7TAA292690R0011	6/9	ALND-P070	7TAA292000R0038	9/8
1107M	7TAA292550R0004	6/8	514-M25	7TAA292690R0012	6/9	ALND-P090	7TAA292000R0039	9/8
1109M	7TAA292550R0005	6/8	514-M32	7TAA292690R0013	6/9	ALND-P092	7TAA292000R0040	9/8
1109N	7TAA292550R0006	6/6	514-M40	7TAA292690R0014	6/9	ALND-P110	7TAA292000R0041	9/8
1113M	7TAA292550R0007	6/8	514-M50	7TAA292690R0015	6/9	ALND-P112	7TAA292000R0042	9/8
1116M	7TAA292550R0008	6/8	514-M63	7TAA292690R0016	6/9	ALND-P132	7TAA292000R0043	9/8
1121M	7TAA292550R0009	6/8	AFN2-07GT	7TAA292700R0000	6/5	ALND-P137	7TAA292000R0044	9/8
1307M	7TAA292550R0010	6/8	AFN2-10GT	7TAA292700R0001	6/5	ALND-P167	7TAA292000R0045	9/8
1309M	7TAA292550R0011	6/8	AFN2-12GT	7TAA292700R0002	6/5	ALND-P213	7TAA292000R0046	9/8
1309N	7TAA292550R0012	6/6	AFN2-17GT	7TAA292700R0003	6/5	ALND-P299	7TAA292000R0047	9/8
1311M	7TAA292550R0013	6/8	AFN2-23GT	7TAA292700R0004	6/5	ALND-P366	7TAA292000R0048	9/8
1311N	7TAA292550R0014	6/6	AFN2-29GT	7TAA292700R0005	6/5	ALND-P488	7TAA292000R0049	9/8
1316M	7TAA292550R0015	6/8	AFN2-36GT	7TAA292700R0006	6/5	ALWD-M120	7TAA292000R0050	9/8
1321M	7TAA292550R0016	6/8	AFN2-48GT	7TAA292700R0007	6/5	ALWD-M160	7TAA292000R0051	9/8
1607M	7TAA292550R0017	6/8	ALAD-M120	7TAA292000R0000	9/7	ALWD-M162	7TAA292000R0052	9/8
1609M	7TAA292550R0018	6/8	ALAD-M160	7TAA292000R0001	9/7	ALWD-M202	7TAA292000R0053	9/8
1609N	7TAA292550R0019	6/6	ALAD-M162	7TAA292000R0002	9/7	ALWD-M207	7TAA292000R0054	9/8
1611M	7TAA292550R0020	6/8	ALAD-M202	7TAA292000R0003	9/7	ALWD-M253	7TAA292000R0055	9/8
1611N	7TAA292550R0021	6/6	ALAD-M207	7TAA292000R0004	9/7	ALWD-M257	7TAA292000R0056	9/8
1613M	7TAA292550R0022	6/8	ALAD-M253	7TAA292000R0005	9/7	ALWD-M323	7TAA292000R0057	9/8
1613N	7TAA292550R0023	6/6	ALAD-M257	7TAA292000R0006	9/7	ALWD-M329	7TAA292000R0058	9/8
1621M	7TAA292550R0024	6/8	ALAD-M323	7TAA292000R0007	9/7	ALWD-M406	7TAA292000R0059	9/8
1629M	7TAA292550R0025	6/8	ALAD-M329	7TAA292000R0008	9/7	ALWD-M409	7TAA292000R0060	9/8
2111M	7TAA292550R0026	6/8	ALAD-M406	7TAA292000R0009	9/7	ALWD-M506	7TAA292000R0061	9/8
2113M	7TAA292550R0027	6/8	ALAD-M409	7TAA292000R0010	9/7	ALWD-M508	7TAA292000R0062	9/8
2113N	7TAA292550R0028	6/6	ALAD-M506	7TAA292000R0011	9/7	ALWD-M638	7TAA292000R0063	9/8
2116M	7TAA292550R0029	6/8	ALAD-M508	7TAA292000R0012	9/7	ALWD-P070	7TAA292000R0064	9/9
2116N	7TAA292550R0030	6/6	ALAD-M638	7TAA292000R0013	9/7	ALWD-P090	7TAA292000R0065	9/9
2129M	7TAA292550R0031	6/8	ALAD-P090	7TAA292000R0014	9/9	ALWD-P092	7TAA292000R0066	9/9
2916M	7TAA292550R0032	6/8	ALAD-P112	7TAA292000R0015	9/9	ALWD-P110	7TAA292000R0067	9/9
2921M	7TAA292550R0033	6/8	ALAD-P132	7TAA292000R0016	9/9	ALWD-P112	7TAA292000R0068	9/9
2921N	7TAA292550R0034	6/6	ALAD-P137	7TAA292000R0017	9/9	ALWD-P130	7TAA292000R0069	9/9
2936M	7TAA292550R0035	6/8	ALAD-P167	7TAA292000R0018	9/9	ALWD-P132	7TAA292000R0070	9/9
3621M	7TAA292550R0036	6/8	ALAD-P213	7TAA292000R0019	9/9	ALWD-P137	7TAA292000R0071	9/9
3629M	7TAA292550R0037	6/8	ALAD-P299	7TAA292000R0020	9/9	ALWD-P167	7TAA292000R0072	9/9
3629N	7TAA292550R0038	6/6	ALAD-P366	7TAA292000R0021	9/9	ALWD-P213	7TAA292000R0073	9/9
4229M	7TAA292550R0039	6/8	ALAD-P488	7TAA292000R0022	9/9	ALWD-P299	7TAA292000R0074	9/9
4236M	7TAA292550R0040	6/8	ALND-M120	7TAA292000R0023	9/7	ALWD-P366	7TAA292000R0075	9/9
4248M	7TAA292550R0041	6/8	ALND-M160	7TAA292000R0024	9/7	ALWD-P488	7TAA292000R0076	9/9
4836M	7TAA292550R0042	6/8	ALND-M162	7TAA292000R0025	9/7	BAVD-12/10GT	7TAA292580R0000	4/34
4842M	7TAA292550R0043	6/8	ALND-M200	7TAA292000R0026	9/7	BAVD-17/10GT	7TAA292580R0001	4/34
514-07	7TAA292690R0000	6/9	ALND-M202	7TAA292000R0027	9/7	BAVD-17/12GT	7TAA292580R0002	4/34
514-09	7TAA292690R0001	6/9	ALND-M207	7TAA292000R0028	9/7	BAVD-23/10GT	7TAA292580R0003	4/34
514-11	7TAA292690R0002	6/9	ALND-M253	7TAA292000R0029	9/7	BAVD-23/12GT	7TAA292580R0004	4/34
514-13	7TAA292690R0003	6/9	ALND-M257	7TAA292000R0030	9/7	BAVD-23/17GT	7TAA292580R0005	4/34
514-16	7TAA292690R0004	6/9	ALND-M323	7TAA292000R0031	9/7	BAVD-29/10GT	7TAA292580R0006	4/34
514-21	7TAA292690R0005	6/9	ALND-M329	7TAA292000R0032	9/7	BAVD-29/12GT	7TAA292580R0007	4/34
514-29	7TAA292690R0006	6/9	ALND-M406	7TAA292000R0033	9/7	BAVD-29/17GT	7TAA292580R0008	4/34
514-36	7TAA292690R0007	6/9	ALND-M409	7TAA292000R0034	9/7	BAVD-29/23GT	7TAA292580R0009	4/34

Index

Products in alphabetical order

Order No.	GID No.	Page	Order No.	GID No.	Page	Order No.	GID No.	Page
BAVD-36/29GT	7TAA292580R0010	4/34	BGG-M6356	7TAA292860R0004	7/7	BKIHG-U217	7TAA292400R0029	3/11
BAVD-48/36GT	7TAA292580R0011	4/34	BGG-P3656	7TAA292860R0005	7/7	BKIHG-U242	7TAA292400R0030	3/11
BAVR-12/10	7TAA292580R0014	4/34	BGGV-56	7TAA292860R0006	7/6	BKIHG-U243	7TAA292400R0031	3/11
BAVR-17/10	7TAA292580R0015	4/34	BGGV-70	7TAA292860R0007	7/6	BKIHG-U247	7TAA292400R0032	3/11
BAVR-17/12	7TAA292580R0016	4/34	BGGV-95	7TAA292860R0008	7/6	BKIHG-U292	7TAA292400R0033	3/11
BAVR-23/10	7TAA292580R0017	4/34	BGH-23	7TAA292720R0014	6/14	BKIHG-U293	7TAA292400R0034	3/11
BAVR-23/12	7TAA292580R0018	4/34	BGH-29	7TAA292720R0015	6/14	BKIHG-U297	7TAA292400R0035	3/11
BAVR-23/17	7TAA292580R0019	4/34	BGH-36	7TAA292720R0016	6/14	BKIHG-U299	7TAA292400R0036	3/11
BAVR-29/10	7TAA292580R0020	4/34	BGH-48	7TAA292720R0017	6/14	BKIHG-U353	7TAA292400R0037	3/11
BAVR-29/12	7TAA292580R0021	4/34	BGH-56	7TAA292720R0018	6/14, 7/8	BKIHG-U357	7TAA292400R0038	3/11
BAVR-29/17	7TAA292580R0022	4/34	BGH-70	7TAA292720R0019	6/14, 7/8	BKIHG-U359	7TAA292400R0039	3/11
BAVR-29/23	7TAA292580R0023	4/34	BGH-95	7TAA292720R0020	6/14, 7/8	BKIHG-U433	7TAA292400R0040	3/11
BAVR-36/29	7TAA292580R0024	4/34	BGI-M7556	7TAA292860R0009	7/7	BKIHG-U439	7TAA292400R0041	3/11
BAVR-48/36	7TAA292580R0025	4/34	BGL-07	7TAA292720R0021	6/14	BKIHG-U503	7TAA292400R0042	3/11
BCT-10	7TAA292860R0045	6/16	BGL-10	7TAA292720R0022	6/14	BKIHG-U506	7TAA292400R0043	3/11
BCT-12	7TAA292860R0046	6/16	BGL-12	7TAA292720R0023	6/14	BKIHG-U508	7TAA292400R0044	3/11
BCT-17	7TAA292860R0047	6/16	BGL-17	7TAA292720R0024	6/14	BKIHG-U509	7TAA292400R0045	3/11
BCT-23	7TAA292860R0048	6/16	BGL-23	7TAA292720R0025	6/14	BKIHG-U566	7TAA292400R0046	3/11
BCT-29	7TAA292860R0049	6/16	BGL-29	7TAA292720R0026	6/14	BKIHG-U568	7TAA292400R0047	3/11
BCT-36	7TAA292860R0050	6/16	BGN-S12T	7TAA292680R0000	6/12	BLN-M16	7TAA292740R0000	8/5
BFH-07-0	7TAA292700R0009	6/13	BGN-S17G	7TAA292680R0001	6/12	BLN-M20	7TAA292740R0001	8/5
BFH-10-0	7TAA292700R0011	6/13	BGN-S17T	7TAA292680R0002	6/12	BLN-M25	7TAA292740R0002	8/5
BFH-12-0	7TAA292700R0012	6/13	BGN-S23G	7TAA292680R0003	6/12	BLN-M32	7TAA292740R0003	8/5
BFH-17-0	7TAA292700R0013	6/13	BGN-S23T	7TAA292680R0004	6/12	BLN-M40	7TAA292740R0004	8/5
BFH-23-0	7TAA292700R0015	6/13	BGN-S29G	7TAA292680R0005	6/12	BLN-M50	7TAA292740R0005	8/5
BFH-29-0	7TAA292700R0017	6/13	BGN-S29T	7TAA292680R0006	6/12	BLNO-M160	7TAA292740R0006	8/5
BFH-36-0	7TAA292700R0018	6/13	BGN-S36G	7TAA292680R0007	6/12	BLNO-M162	7TAA292740R0007	8/5
BFH-48-0	7TAA292700R0020	6/13	BGN-S36T	7TAA292680R0008	6/12	BLNO-M202	7TAA292740R0008	8/5
BFHS-00	7TAA292700R0022	6/13	BGN-S48G	7TAA292680R0009	6/12	BLNO-M207	7TAA292740R0009	8/5
BFHS-PH	7TAA292700R0024	6/13	BGN-S48T	7TAA292680R0010	6/12	BLNO-M253	7TAA292740R0010	8/5
BFHS-PH1	7TAA292700R0025	6/13	BGN-S70G	7TAA292680R0011	6/12	BLNO-M257	7TAA292740R0011	8/5
BFIL-P070	7TAA292610R0003	4/30	BGO-56	7TAA292860R0010	7/5	BLNO-M323	7TAA292740R0012	8/5
BFIL-P07M	7TAA292610R0004	4/30	BGO-70	7TAA292860R0011	7/5	BLNO-M329	7TAA292740R0013	8/5
BFIL-P090	7TAA292610R0005	4/30	BGO-95	7TAA292860R0012	7/5	BLNO-M406	7TAA292740R0014	8/5
BFIL-P112	7TAA292610R0006	4/30	BGOV-56	7TAA292860R0013	7/6	BLNO-M409	7TAA292740R0015	8/5
BFIL-P117	7TAA292610R0007	4/30	BGOV-70	7TAA292860R0014	7/6	BLNO-M508	7TAA292740R0016	8/5
BFIL-P132	7TAA292610R0008	4/30	BGOV-95	7TAA292860R0015	7/6	BLTO-070707	7TCA292000R4700	8/6
BFIL-P137	7TAA292610R0009	4/30	BGP-12/01	7TCA292000R6631	6/15	BLTO-101010	7TCA292000R4701	8/6
BFIL-P160	7TCA292000R0600	4/30	BGP-17	7TCA292000R6632	6/15	BLTO-121212	7TCA292000R4702	8/6
BFIL-P167	7TAA292610R0010	4/30	BGP-23	7TCA292000R6633	6/15	BLTO-171717	7TCA292000R4703	8/6
BFIL-P213	7TAA292610R0011	4/30	BGP-29	7TCA292000R6634	6/15	BLTO-232323	7TCA292000R4704	8/6
BFIL-P217	7TAA292610R0012	4/30	BGP-36	7TCA292000R6635	6/15	BLTO-292929	7TCA292000R4705	8/6
BFIL-P293	7TCA292000R0601	4/30	BGP-48	7TCA292000R6636	6/15	BLYO-100707	7TCA292000R4706	8/6
BFIL-P299	7TAA292610R0013	4/30	BGP-56G	7TAA292860R0026	6/15	BLYO-121010	7TCA292000R4707	8/6
BFIL-P363		4/30	BGPS-12/01	7TCA292000R5539	6/15	BLYO-171212	7TCA292000R4708	8/6
BFIL-P366	7TAA292610R0014	4/30	BGPS-17	7TAA292860R0027	6/15	BLYO-231717	7TCA292000R4709	8/6
BFIL-P369	7TCA292000R0602	4/30	BGPS-23	7TAA292860R0028	6/15	BLYO-292917	7TCA292000R4710	8/6
BFIL-P488	7TAA292610R0015	4/30	BGPS-29	7TAA292860R0029	6/15	BMN-07	7TAA292670R0008	6/10
BGG-125	7TAA292860R0000	7/5	BGPS-36	7TAA292860R0030	6/15	BMN-09	7TAA292670R0009	6/10
BGG-56	7TAA292860R0001	7/5	BGPS-48	7TAA292860R0031	6/15	BMN-11	7TAA292670R0010	6/10
BGG-70	7TAA292860R0002	7/5	BGPS-56	7TAA292860R0032	6/15	BMN-13	7TAA292670R0011	6/10
BGG-95	7TAA292860R0003	7/5	BKIHG-U212	7TAA292400R0028	3/11	BMN-16	7TAA292670R0012	6/10

Order No.	GID No.	Page
BMN-21	7TAA292670R0013	6/10
BMN-29	7TAA292670R0014	6/10
BMN-36	7TAA292670R0015	6/10
BMN-48	7TAA292670R0016	6/10
BMN-M12	7TAA292670R0020	6/10
BMN-M16	7TAA292670R0021	6/10
BMN-M20	7TAA292670R0022	6/10
BMN-M25	7TAA292670R0023	6/10
BMN-M32	7TAA292670R0024	6/10
BMN-M40	7TAA292670R0025	6/10
BMN-M50	7TAA292670R0026	6/10
BMN-M63	7TAA292670R0027	6/10
BREIR-U2916	7TAA292920R0007	10/8
BREIR-U3516	7TCA292000R0853	10/8
BSS-17	7TAA292850R0013	6/17
BSS-23	7TAA292850R0014	6/17
BSS-29	7TAA292850R0015	6/17
BSS-36	7TAA292850R0016	6/17
BSS-48	7TAA292850R0017	6/17
BSS-56G	7TAA292850R0018	6/17
BSV-70G	7TAA292850R0019	6/17
BVAD-G000GT	7TAA292150R0024	4/26
BVAD-G012GT	7TAA292150R0025	4/26
BVAD-G027GT	7TAA292150R0026	4/26
BVAD-G043GT	7TAA292150R0027	4/26
BVAD-G069GT	7TAA292150R0028	4/26
BVAD-G076GT	7TAA292150R0029	4/26
BVAD-G088GT	7TAA292150R0030	4/26
BVAD-G098GT	7TAA292150R0031	4/26
BVAD-M120GT	7TAA292150R0032	4/10
BVAD-M160GT	7TAA292150R0033	4/10
BVAD-M162GT	7TAA292150R0034	4/10
BVAD-M202GT	7TAA292150R0035	4/10
BVAD-M207GT	7TAA292150R0036	4/10
BVAD-M253GT	7TAA292150R0037	4/10
BVAD-M329GT	7TAA292150R0038	4/10
BVAD-M406GT	7TAA292150R0039	4/10
BVAD-M506GT	7TAA292150R0040	4/10
BVAD-M508GT	7TAA292150R0041	4/10
BVAD-M638GT	7TAA292150R0042	4/10
BVAD-N022GT	7TAA292150R0043	4/27
BVAD-N027GT	7TAA292150R0044	4/27
BVAD-N043GT	7TAA292150R0045	4/27
BVAD-N069GT	7TAA292150R0046	4/27
BVAD-N076GT	7TAA292150R0047	4/27
BVAD-N088GT	7TAA292150R0048	4/27
BVAD-N098GT		4/27
BVAD-P090GT	7TAA292150R0049	4/20
BVAD-P112GT	7TAA292150R0050	4/20
BVAD-P132GT	7TAA292150R0051	4/20
BVAD-P137GT	7TAA292150R0052	4/20
BVAD-P167GT	7TAA292150R0053	4/20

Order No.	GID No.	Page
BVAD-P213GT	7TAA292150R0054	4/20
BVAD-P299GT	7TAA292150R0055	4/20
BVAD-P366GT	7TAA292150R0056	4/20
BVAD-P488GT	7TAA292150R0057	4/20
BVAV-G000	7TAA292150R0058	4/26
BVAV-G012	7TAA292150R0059	4/26
BVAV-G027	7TAA292150R0060	4/26
BVAV-G043	7TAA292150R0061	4/26
BVAV-G069	7TAA292150R0062	4/26
BVAV-G076	7TAA292150R0063	4/26
BVAV-G098	7TAA292150R0064	4/26
BVAV-M160	7TAA292150R0065	4/10
BVAV-M162	7TAA292150R0066	4/10
BVAV-M202	7TAA292150R0067	4/10
BVAV-M207	7TAA292150R0068	4/10
BVAV-M253	7TAA292150R0069	4/10
BVAV-M329	7TAA292150R0070	4/10
BVAV-M406	7TAA292150R0071	4/10
BVAV-M506	7TAA292150R0072	4/10
BVAV-M508	7TAA292150R0073	4/10
BVAV-M638	7TAA292150R0074	4/10
BVAV-N022	7TAA292150R0075	4/27
BVAV-N027	7TAA292150R0076	4/27
BVAV-N043	7TAA292150R0077	4/27
BVAV-N069	7TAA292150R0078	4/27
BVAV-N076	7TAA292150R0079	4/27
BVAV-N088	7TAA292150R0080	4/27
BVAV-N098	7TAA292150R0081	4/27
BVAV-P090	7TAA292150R0082	4/20
BVAV-P112	7TAA292150R0083	4/20
BVAV-P132	7TAA292150R0084	4/20
BVAV-P137	7TAA292150R0085	4/20
BVAV-P167	7TAA292150R0086	4/20
BVAV-P213	7TAA292150R0087	4/20
BVAV-P299	7TAA292150R0088	4/20
BVAV-P366	7TAA292150R0089	4/20
BVAV-P488	7TAA292150R0090	4/20
BVBD-M207GT	7TAA292150R0091	4/11
BVBD-M253GT	7TAA292150R0092	4/11
BVBD-M257GT	7TAA292150R0093	4/11
BVBD-M323GT	7TAA292150R0094	4/11
BVBD-M329GT	7TAA292150R0095	4/11
BVBD-M406GT	7TAA292150R0096	4/11
BVBD-M409GT	7TAA292150R0097	4/11
BVBD-M506GT	7TAA292150R0098	4/11
BVBD-M508GT	7TAA292150R0099	4/11
BVBD-M638GT	7TAA292150R0100	4/11
BVBD-P167GT	7TAA292150R0101	4/21
BVBD-P213GT	7TAA292150R0102	4/21
BVBD-P299GT	7TAA292150R0103	4/21
BVBD-P366GT	7TAA292150R0104	4/21
BVBD-P488GT	7TAA292150R0105	4/21

Order No.	GID No.	Page
BVBV-M207	7TAA292150R0106	4/11
BVBV-M253	7TAA292150R0107	4/11
BVBV-M257	7TAA292150R0108	4/11
BVBV-M323	7TAA292150R0109	4/11
BVBV-M329	7TAA292150R0110	4/11
BVBV-M406	7TAA292150R0111	4/11
BVBV-M409	7TAA292150R0112	4/11
BVBV-M506	7TAA292150R0113	4/11
BVBV-M508	7TAA292150R0114	4/11
BVBV-M638	7TAA292150R0115	4/11
BVBV-P167	7TAA292150R0116	4/21
BVBV-P213	7TAA292150R0117	4/21
BVBV-P299	7TAA292150R0118	4/21
BVBV-P366	7TAA292150R0119	4/21
BVBV-P488	7TAA292150R0120	4/21
BVH-17-000	7TAA292700R0027	6/12
BVH-17-010	7TAA292700R0028	6/12
BVH-17-020	7TAA292700R0029	6/12
BVH-23-000	7TAA292700R0030	6/12
BVH-23-010	7TAA292700R0031	6/12
BVH-23-020	7TAA292700R0032	6/12
BVH-29-000	7TAA292700R0033	6/12
BVH-29-010	7TAA292700R0034	6/12
BVH-29-020	7TAA292700R0035	6/12
BVH-36-000	7TAA292700R0036	6/12
BVH-36-010	7TAA292700R0037	6/12
BVH-36-020	7TAA292700R0038	6/12
BVH-48-000	7TAA292700R0039	6/12
BVH-48-010	7TAA292700R0040	6/12
BVH-48-020	7TAA292700R0041	6/12
BVID-M12MGT	7TAA292610R0016	4/29
BVID-M160GT	7TAA292610R0017	4/29
BVID-M162GT	7TAA292610R0018	4/29
BVID-M207GT	7TAA292610R0019	4/29
BVID-M253GT	7TAA292610R0020	4/29
BVID-M329GT	7TAA292610R0021	4/29
BVID-M406GT	7TAA292610R0022	4/29
BVID-M508GT	7TAA292610R0023	4/29
BVID-M638GT	7TAA292610R0024	4/29
BVIDA-U150GT	7TAA292610R0025	4/31
BVIDA-U152GT	7TAA292610R0026	4/31
BVIDA-U15MGT	7TAA292610R0027	4/31
BVIDA-U180GT	7TAA292610R0028	4/31
BVIDA-U182GT	7TAA292610R0029	4/31
BVIDA-U187GT	7TAA292610R0030	4/31
BVIDA-U232GT	7TAA292610R0031	4/31
BVIDA-U233GT	7TAA292610R0032	4/31
BVIDA-U237GT	7TAA292610R0033	4/31
BVIDA-U343GT	7TAA292610R0034	4/31
BVIDA-U347GT	7TAA292610R0035	4/31
BVIDA-U402GT	7TAA292610R0036	4/31
BVIDA-U403GT	7TAA292610R0037	4/31

Index

Products in alphabetical order

Order No.	GID No.	Page	Order No.	GID No.	Page	Order No.	GID No.	Page
BVIDA-U407GT	7TAA292610R0038	4/31	BVIRA-U347	7TAA292610R0090	4/31	BVIVG-U628	7TCA292000R1039	4/32
BVIDB-U162GT	7TAA292610R0039	4/31	BVIRA-U402	7TAA292610R0091	4/31	BVND-G000GT	7TAA292150R0127	4/26
BVIDB-U202GT	7TAA292610R0040	4/31	BVIRA-U403	7TAA292610R0092	4/31	BVND-G00MGT	7TAA292150R0128	4/26
BVIDB-U232GT	7TAA292610R0041	4/31	BVIRA-U407	7TAA292610R0093	4/31	BVND-G010GT	7TAA292150R0129	4/26
BVIDB-U237GT	7TAA292610R0042	4/31	BVIRB-U162	7TAA292610R0094	4/31	BVND-G012GT	7TAA292150R0130	4/26
BVIDB-U267GT	7TAA292610R0043	4/31	BVIRB-U202	7TAA292610R0095	4/31	BVND-G022GT	7TAA292150R0131	4/26
BVIDB-U293GT	7TAA292610R0044	4/31	BVIRB-U232	7TAA292610R0096	4/31	BVND-G027GT	7TAA292150R0132	4/26
BVIDB-U297GT	7TAA292610R0045	4/31	BVIRB-U237	7TAA292610R0097	4/31	BVND-G043GT	7TAA292150R0133	4/26
BVIDB-U323GT	7TAA292610R0046	4/31	BVIRB-U267	7TAA292610R0098	4/31	BVND-G069GT	7TAA292150R0134	4/26
BVIDB-U353GT	7TAA292610R0047	4/31	BVIRB-U293	7TAA292610R0099	4/31	BVND-G076GT	7TAA292150R0135	4/26
BVIDB-U357GT	7TAA292610R0048	4/31	BVIRB-U297	7TAA292610R0100	4/31	BVND-G088GT	7TAA292150R0136	4/26
BVIDB-U359GT	7TAA292610R0049	4/31	BVIRB-U323	7TAA292610R0101	4/31	BVND-G098GT	7TAA292150R0137	4/26
BVIDG-U212GT	7TAA292610R0050	4/32	BVIRB-U353	7TAA292610R0102	4/31	BVND-M120GT	7TAA292150R0138	4/9
BVIDG-U217GT	7TAA292610R0051	4/32	BVIRB-U357	7TAA292610R0103	4/31	BVND-M12MGT	7TAA292150R0139	4/9
BVIDG-U242GT	7TAA292610R0052	4/32	BVIRB-U359	7TAA292610R0104	4/31	BVND-M160GT	7TAA292150R0140	4/9
BVIDG-U247GT	7TAA292610R0053	4/32	BVIRS-U162	7TCA292000R0041	4/31	BVND-M162GT	7TAA292150R0141	4/9
BVIDG-U293GT	7TAA292610R0054	4/32	BVIRS-U202	7TCA292000R0042	4/31	BVND-M200GT	7TAA292150R0142	4/9
BVIDG-U297GT	7TAA292610R0055	4/32	BVIRS-U237	7TCA292000R0043	4/31	BVND-M202GT	7TAA292150R0144	4/9
BVIDG-U353GT	7TAA292610R0056	4/32	BVIRS-U267	7TCA292000R0044	4/31	BVND-M203GT	7TAA292150R0146	4/9
BVIDG-U357GT	7TAA292610R0057	4/32	BVIRS-U293	7TCA292000R0045	4/31	BVND-M207GT	7TAA292150R0147	4/9
BVIDG-U359GT	7TAA292610R0058	4/32	BVIRS-U323	7TCA292000R0046	4/31	BVND-M253GT	7TAA292150R0149	4/9
BVIDG-U433GT	7TAA292610R0059	4/32	BVIRS-U359	7TCA292000R0047	4/31	BVND-M257GT	7TAA292150R0150	4/9
BVIDG-U436GT	7TAA292610R0060	4/32	BVIVG-U152	7TAA292610R0105	4/32	BVND-M323GT	7TAA292150R0152	4/9
BVIDG-U439GT	7TAA292610R0061	4/32	BVIVG-U187	7TAA292610R0106	4/32	BVND-M329GT	7TAA292150R0154	4/9
BVIDG-U506GT	7TAA292610R0062	4/32	BVIVG-U210	7TAA292610R0107	4/32	BVND-M406GT	7TAA292150R0156	4/9
BVIDG-U509GT	7TAA292610R0063	4/32	BVIVG-U212	7TAA292610R0108	4/32	BVND-M409GT	7TAA292150R0157	4/9
BVIDG-U566GT	7TAA292610R0064	4/32	BVIVG-U217	7TAA292610R0109	4/32	BVND-M506GT	7TAA292150R0159	4/9
BVIDG-U569GT	7TAA292610R0065	4/32	BVIVG-U242	7TAA292610R0110	4/32	BVND-M508GT	7TAA292150R0160	4/9
BVIR-M160	7TAA292610R0066	4/29	BVIVG-U243	7TAA292610R0111	4/32	BVND-M638GT	7TAA292150R0161	4/9
BVIR-M162	7TAA292610R0067	4/29	BVIVG-U247	7TAA292610R0112	4/32	BVND-N022GT	7TAA292150R0162	4/27
BVIR-M202	7TAA292610R0068	4/29	BVIVG-U292	7TAA292610R0113	4/32	BVND-N027GT	7TAA292150R0163	4/27
BVIR-M207	7TAA292610R0069	4/29	BVIVG-U293	7TAA292610R0114	4/32	BVND-N043GT	7TAA292150R0164	4/27
BVIR-M253	7TAA292610R0070	4/29	BVIVG-U297	7TAA292610R0115	4/32	BVND-N069GT	7TAA292150R0165	4/27
BVIR-M257	7TAA292610R0071	4/29	BVIVG-U299	7TAA292610R0116	4/32	BVND-N076GT	7TAA292150R0166	4/27
BVIR-M329	7TAA292610R0072	4/29	BVIVG-U349	7TCA292000R1035	4/32	BVND-N088GT	7TAA292150R0167	4/27
BVIR-M406	7TAA292610R0073	4/29	BVIVG-U352	7TAA292610R0169	4/32	BVND-N098GT	7TAA292150R0168	4/27
BVIR-M508	7TAA292610R0074	4/29	BVIVG-U353	7TAA292610R0117	4/32	BVND-P070GT-11	7TAA292150R0169	4/19
BVIR-M638	7TAA292610R0075	4/29	BVIVG-U356	7TAA292610R0118	4/32	BVND-P070GT-8	7TAA292150R0170	4/19
BVIR-P070	7TAA292610R0076	4/30	BVIVG-U357	7TAA292610R0119	4/32	BVND-P072GT-11	7TAA292150R0171	4/19
BVIR-P090	7TAA292610R0077	4/30	BVIVG-U359	7TAA292610R0120	4/32	BVND-P072GT-8	7TAA292150R0172	4/19
BVIR-P112	7TAA292610R0078	4/30	BVIVG-U433	7TAA292610R0121	4/32	BVND-P07MGT-11	7TAA292150R0173	4/19
BVIR-P167	7TAA292610R0079	4/30	BVIVG-U436	7TAA292610R0122	4/32	BVND-P07MGT-8	7TAA292150R0174	4/19
BVIRA-U150	7TAA292610R0080	4/31	BVIVG-U437	7TAA292610R0123	4/32	BVND-P090GT-11	7TAA292150R0176	4/19
BVIRA-U152	7TAA292610R0081	4/31	BVIVG-U439	7TAA292610R0124	4/32	BVND-P090GT-8	7TAA292150R0177	4/19
BVIRA-U15M	7TAA292610R0082	4/31	BVIVG-U503	7TAA292610R0125	4/32	BVND-P092GT-11	7TAA292150R0178	4/19
BVIRA-U180	7TAA292610R0083	4/31	BVIVG-U506	7TAA292610R0126	4/32	BVND-P092GT-8	7TCA292000R1057	4/19
BVIRA-U182	7TAA292610R0084	4/31	BVIVG-U508	7TAA292610R0127	4/32	BVND-P097GT-11	7TAA292150R0179	4/19
BVIRA-U187	7TAA292610R0085	4/31	BVIVG-U509	7TAA292610R0128	4/32	BVND-P097GT-8	7TCA292000R5693	4/19
BVIRA-U232	7TAA292610R0086	4/31	BVIVG-U563	7TAA292610R0129	4/32	BVND-P09MGT-11	7TAA292150R0180	4/19
BVIRA-U233	7TAA292610R0087	4/31	BVIVG-U566	7TAA292610R0130	4/32	BVND-P09MGT-8	7TCA292000R1058	4/19
BVIRA-U237	7TAA292610R0088	4/31	BVIVG-U568	7TAA292610R0131	4/32	BVND-P110GT-11	7TAA292150R0181	4/19
BVIRA-U343	7TAA292610R0089	4/31	BVIVG-U569	7TAA292610R0132	4/32	BVND-P110GT-8	7TAA292150R0182	4/19

Order No.	GID No.	Page
BVND-P112GT-11	7TAA292150R0183	4/19
BVND-P112GT-8	7TAA292150R0184	4/19
BVND-P117GT-11	7TAA292150R0185	4/19
BVND-P117GT-8	7TCA292000R1060	4/19
BVND-P11MGT-11	7TAA292150R0186	4/19
BVND-P11MGT-8	7TCA292000R5694	4/19
BVND-P130GT-11	7TAA292150R0187	4/19
BVND-P130GT-8	7TCA292000R1061	4/19
BVND-P132GT-11	7TAA292150R0188	4/19
BVND-P132GT-8	7TCA292000R1062	4/19
BVND-P137GT-11	7TAA292150R0189	4/19
BVND-P137GT-8	7TCA292000R1064	4/19
BVND-P13MGT-11	7TAA292150R0190	4/19
BVND-P13MGT-8	7TCA292000R1065	4/19
BVND-P160GT-11	7TAA292150R0191	4/19
BVND-P160GT-8	7TCA292000R5695	4/19
BVND-P162GT-11	7TAA292150R0192	4/19
BVND-P163GT-11	7TAA292150R0193	4/19
BVND-P163GT-8	7TCA292000R1066	4/19
BVND-P167GT-11	7TAA292150R0194	4/19
BVND-P167GT-8	7TAA292150R0195	4/19
BVND-P213GT	7TAA292150R0196	4/19
BVND-P296GT	7TAA292150R0197	4/19
BVND-P299GT	7TAA292150R0198	4/19
BVND-P366GT	7TAA292150R0199	4/19
BVND-P368GT	7TAA292150R0200	4/19
BVND-P428GT	7TAA292150R0201	4/19
BVND-P488GT	7TAA292150R0202	4/19
BVNDZ-M160GT	7TAA292150R0204	4/10
BVNDZ-M162GT	7TAA292150R0205	4/10
BVNDZ-M207GT	7TAA292150R0206	4/10
BVNDZ-M253GT	7TAA292150R0207	4/10
BVNDZ-M329GT	7TAA292150R0208	4/10
BVNDZ-M406GT	7TAA292150R0209	4/10
BVNDZ-M508GT	7TAA292150R0210	4/10
BVNDZ-M638GT	7TAA292150R0211	4/10
BVNDZ-P090GT	7TAA292150R0212	4/20
BVNDZ-P112GT	7TAA292150R0213	4/20
BVNDZ-P132GT	7TAA292150R0214	4/20
BVNDZ-P137GT	7TAA292150R0215	4/20
BVNDZ-P163GT	7TAA292150R0216	4/20
BVNDZ-P167GT	7TAA292150R0217	4/20
BVNDZ-P213GT	7TAA292150R0218	4/20
BVNDZ-P299GT	7TAA292150R0219	4/20
BVNDZ-P366GT	7TAA292150R0220	4/20
BVNDZ-P488GT	7TAA292150R0221	4/20
BVNR-RE12	7TAA292150R0222	5/4
BVNR-RE12-24	7TAA292150R0223	5/4
BVNR-RE1317	7TAA292150R0224	5/4
BVNR-RE1317-28	7TAA292150R0225	5/4
BVNR-RE17	7TAA292150R0226	5/4
BVNR-RE17-28	7TAA292150R0227	5/4

Order No.	GID No.	Page
BVNR-RE23	7TAA292150R0229	5/4
BVNR-RE23-32	7TAA292150R0230	5/4
BVNR-RE29	7TAA292150R0232	5/4
BVNR-RE29-44	7TAA292150R0233	5/4
BVNR-RE36	7TAA292150R0235	5/4
BVNR-RE36-50	7TAA292150R0236	5/4
BVNR-RE48	7TAA292150R0238	5/4
BVNR-RE48-65	7TAA292150R0239	5/4
BVNR-REM162	7TAA292150R0240	5/4
BVNR-REM162-24	7TAA292150R0241	5/4
BVNR-REM187	7TAA292150R0242	5/4
BVNR-REM187-28	7TAA292150R0243	5/4
BVNR-REM207	7TAA292150R0244	5/4
BVNR-REM207-28	7TAA292150R0245	5/4
BVNR-REM253	7TAA292150R0246	5/4
BVNR-REM253-32	7TAA292150R0247	5/4
BVNR-REM329	7TAA292150R0248	5/4
BVNR-REM329-44	7TAA292150R0249	5/4
BVNR-REM406	7TAA292150R0250	5/4
BVNR-REM406-50	7TAA292150R0251	5/4
BVNR-REM508	7TAA292150R0252	5/4
BVNR-REM508-65	7TAA292150R0253	5/4
BVNV-G000	7TAA292150R0256	4/26
BVNV-G00M	7TAA292150R0257	4/26
BVNV-G010	7TAA292150R0258	4/26
BVNV-G012	7TAA292150R0259	4/26
BVNV-G022	7TAA292150R0260	4/26
BVNV-G027	7TAA292150R0261	4/26
BVNV-G043	7TAA292150R0262	4/26
BVNV-G069	7TAA292150R0263	4/26
BVNV-G076	7TAA292150R0264	4/26
BVNV-G088	7TAA292150R0265	4/26
BVNV-G098	7TAA292150R0266	4/26
BVNV-M120	7TAA292150R0267	4/9
BVNV-M12M	7TAA292150R0268	4/9
BVNV-M160	7TAA292150R0269	4/9
BVNV-M162	7TAA292150R0270	4/9
BVNV-M200	7TAA292150R0272	4/9
BVNV-M202	7TAA292150R0273	4/9
BVNV-M203	7TAA292150R0274	4/9
BVNV-M207	7TAA292150R0275	4/9
BVNV-M253	7TAA292150R0277	4/9
BVNV-M257	7TAA292150R0279	4/9
BVNV-M323	7TAA292150R0281	4/9
BVNV-M329	7TAA292150R0282	4/9
BVNV-M406	7TAA292150R0283	4/9
BVNV-M409	7TAA292150R0284	4/9
BVNV-M506	7TAA292150R0285	4/9
BVNV-M508	7TAA292150R0286	4/9
BVNV-M638	7TAA292150R0287	4/9
BVNV-N022	7TAA292150R0289	4/27
BVNV-N027	7TAA292150R0290	4/27

Order No.	GID No.	Page
BVNV-N043	7TAA292150R0291	4/27
BVNV-N069	7TAA292150R0292	4/27
BVNV-N076	7TAA292150R0293	4/27
BVNV-N088	7TAA292150R0294	4/27
BVNV-N098	7TAA292150R0295	4/27
BVNV-P070	7TAA292150R0296	4/19
BVNV-P072	7TCA292000R1118	4/19
BVNV-P07M	7TAA292150R0297	4/19
BVNV-P090	7TAA292150R0298	4/19
BVNV-P092	7TAA292150R0299	4/19
BVNV-P097	7TAA292150R1288	4/19
BVNV-P09M	7TAA292150R0300	4/19
BVNV-P110	7TAA292150R0301	4/19
BVNV-P112	7TAA292150R0302	4/19
BVNV-P117	7TAA292150R0303	4/19
BVNV-P11M	7TAA292150R0304	4/19
BVNV-P130	7TAA292150R0305	4/19
BVNV-P132	7TAA292150R0306	4/19
BVNV-P137	7TAA292150R0307	4/19
BVNV-P13M	7TAA292150R0308	4/19
BVNV-P162	7TAA292150R0309	4/19
BVNV-P163	7TCA292000R1137	4/19
BVNV-P167	7TAA292150R0310	4/19
BVNV-P213	7TAA292150R0311	4/19
BVNV-P296	7TAA292150R0312	4/19
BVNV-P299	7TAA292150R0313	4/19
BVNV-P366	7TAA292150R0314	4/19
BVNV-P368	7TCA292000R1147	4/19
BVNV-P428	7TAA292150R0315	4/19
BVNV-P488	7TAA292150R0316	4/19
BVNZ-M162S	7TAA292150R0317	4/10
BVNZ-M207S	7TAA292150R0318	4/10
BVNZ-M253S	7TAA292150R0319	4/10
BVNZ-M329S	7TAA292150R0320	4/10
BVNZ-M406S	7TAA292150R0321	4/10
BVNZ-M508S	7TAA292150R0322	4/10
BVNZ-M638S	7TAA292150R0323	4/10
BVNZ-P090S	7TAA292150R0327	4/20
BVNZ-P112S	7TAA292150R0328	4/20
BVNZ-P132S	7TAA292150R0329	4/20
BVNZ-P137S	7TAA292150R0330	4/20
BVNZ-P163S	7TAA292150R0331	4/20
BVNZ-P167S	7TAA292150R0332	4/20
BVNZ-P213S	7TAA292150R0333	4/20
BVNZ-P299S	7TAA292150R0334	4/20
BVNZ-P366S	7TAA292150R0335	4/20
BVNZ-P488S	7TAA292150R0336	4/20
BVOD-P167GT	7TAA292150R0337	4/29
BVOD-P213GT	7TAA292150R0338	4/29
BVOD-P299GT	7TAA292150R0339	4/29
BVOD-P366GT	7TAA292150R0340	4/29
BVOD-P488GT	7TAA292150R0341	4/29

Index

Products in alphabetical order

Order No.	GID No.	Page	Order No.	GID No.	Page	Order No.	GID No.	Page
BVOV-P167	7TAA292150R0342	4/29	BVWD-M508GT	7TAA292150R0385	4/11	BVWV-M12M	7TAA292150R0426	4/11
BVOV-P213	7TAA292150R0343	4/29	BVWD-N022GT	7TAA292150R0386	4/27	BVWV-M160	7TAA292150R0427	4/11
BVOV-P299	7TAA292150R0344	4/29	BVWD-N027GT	7TAA292150R0387	4/27	BVWV-M162	7TAA292150R0428	4/11
BVOV-P366	7TAA292150R0345	4/29	BVWD-N043GT	7TAA292150R0388	4/27	BVWV-M202	7TAA292150R0429	4/11
BVOV-P488	7TAA292150R0346	4/29	BVWD-N069GT	7TAA292150R0389	4/27	BVWV-M207	7TAA292150R0430	4/11
BVSGD-1212GT	7TAA292300R0000	5/4	BVWD-N076GT	7TAA292150R0390	4/27	BVWV-M253	7TAA292150R0431	4/11
BVSGD-1717GT	7TAA292300R0001	5/4	BVWD-N088GT	7TAA292150R0391	4/27	BVWV-M329	7TAA292150R0432	4/11
BVSGD-2323GT	7TAA292300R0002	5/4	BVWD-N098GT	7TAA292150R0392	4/27	BVWV-M406	7TAA292150R0433	4/11
BVSGD-2929GT	7TAA292300R0003	5/4	BVWD-P070GT-11	7TAA292150R0393	4/22	BVWV-M508	7TAA292150R0434	4/11
BVSGD-3636GT	7TAA292300R0004	5/4	BVWD-P070GT-8	7TCA292000R1233	4/22	BVWV-N022	7TAA292150R0435	4/27
BVSGD-4848GT	7TAA292300R0005	5/4	BVWD-P072GT-11	7TAA292150R0394	4/22	BVWV-N027	7TAA292150R0436	4/27
BVSGR-1212	7TAA292300R0006	5/4	BVWD-P072GT-8	7TCA292000R5702	4/22	BVWV-N043	7TAA292150R0437	4/27
BVSGR-1717	7TAA292300R0007	5/4	BVWD-P07MGT-11	7TAA292150R0395	4/22	BVWV-N069	7TAA292150R0438	4/27
BVSGR-2323	7TAA292300R0008	5/4	BVWD-P07MGT-8	7TCA292000R5703	4/22	BVWV-N076	7TAA292150R0439	4/27
BVSGR-2929	7TAA292300R0009	5/4	BVWD-P090GT-11	7TAA292150R0396	4/22	BVWV-N088	7TAA292150R0440	4/27
BVSGR-3636	7TAA292300R0010	5/4	BVWD-P090GT-8	7TCA292000R1236	4/22	BVWV-N098	7TAA292150R0441	4/27
BVSGR-4848	7TAA292300R0011	5/4	BVWD-P092GT-11	7TAA292150R0397	4/22	BVWV-P070	7TAA292150R0442	4/22
BVTD-101010GT	7TAA292150R1292	4/34	BVWD-P092GT-8	7TCA292000R5704	4/22	BVWV-P072	7TCA292000R5709	4/22
BVTD-121212GT	7TAA292150R1293	4/34	BVWD-P09MGT-11	7TAA292150R0398	4/22	BVWV-P07M	7TAA292150R0443	4/22
BVTD-171717GT	7TAA292150R1294	4/34	BVWD-P09MGT-8	7TCA292000R5705	4/22	BVWV-P090	7TAA292150R0444	4/22
BVTD-232323GT	7TAA292150R0347	4/34	BVWD-P110GT-11	7TAA292150R0399	4/22	BVWV-P092	7TAA292150R0445	4/22
BVTD-292929GT	7TAA292150R0348	4/34	BVWD-P110GT-8	7TCA292000R1238	4/22	BVWV-P09M	7TAA292150R0446	4/22
BVTD-363636GT	7TAA292150R0349	4/34	BVWD-P112GT-11	7TAA292150R0400	4/22	BVWV-P110	7TAA292150R0447	4/22
BVTD-484848GT	7TAA292150R0350	4/34	BVWD-P112GT-8	7TAA292150R0401	4/22	BVWV-P112	7TAA292150R0448	4/22
BVTR-101010	7TAA292150R0351	4/34	BVWD-P11MGT-11	7TAA292150R0402	4/22	BVWV-P11M	7TCA292000R1259	4/22
BVTR-121212	7TAA292150R0353	4/34	BVWD-P11MGT-8	7TCA292000R5706	4/22	BVWV-P130	7TAA292150R0449	4/22
BVTR-171717	7TAA292150R0355	4/34	BVWD-P130GT-11	7TAA292150R0403	4/22	BVWV-P132	7TAA292150R0450	4/22
BVTR-232323	7TAA292150R0358	4/34	BVWD-P130GT-8	7TCA292000R1239	4/22	BVWV-P137	7TAA292150R0451	4/22
BVTR-292929	7TAA292150R0359	4/34	BVWD-P132GT-11	7TAA292150R0404	4/22	BVWV-P13M	7TCA292000R1265	4/22
BVTR-363636	7TAA292150R0361	4/34	BVWD-P132GT-8	7TCA292000R1240	4/22	BVWV-P167	7TAA292150R0452	4/22
BVTR-484848	7TAA292150R0363	4/34	BVWD-P137GT-11	7TAA292150R0405	4/22	BVWV-P213	7TAA292150R0453	4/22
BVWD-G000GT	7TAA292150R0364	4/26	BVWD-P137GT-8	7TAA292150R0406	4/22	BVWV-P299	7TAA292150R0454	4/22
BVWD-G00MGT	7TAA292150R0365	4/26	BVWD-P13MGT-11	7TAA292150R0407	4/22	BVWV-P366	7TAA292150R0455	4/22
BVWD-G010GT	7TAA292150R0366	4/26	BVWD-P13MGT-8	7TCA292000R5707	4/22	BVWV-P488	7TAA292150R0456	4/22
BVWD-G012GT	7TAA292150R0367	4/26	BVWD-P167GT-11	7TAA292150R0408	4/22	BVYD-100707GT	7TAA292150R0457	4/34
BVWD-G022GT	7TAA292150R0368	4/26	BVWD-P167GT-8	7TAA292150R0409	4/22	BVYD-121010GT	7TAA292150R0458	4/34
BVWD-G027GT	7TAA292150R0369	4/26	BVWD-P213GT	7TAA292150R0410	4/22	BVYD-171212GT	7TAA292150R0459	4/34
BVWD-G043GT	7TAA292150R0370	4/26	BVWD-P299GT	7TAA292150R0411	4/22	BVYD-231717GT	7TAA292150R0460	4/34
BVWD-G069GT	7TAA292150R0371	4/26	BVWD-P366GT	7TAA292150R0412	4/22	BVYD-292323GT	7TAA292150R0461	4/34
BVWD-G076GT	7TAA292150R0372	4/26	BVWD-P488GT	7TAA292150R0413	4/22	BVYD-362929GT	7TAA292150R0462	4/34
BVWD-G088GT	7TAA292150R0373	4/26	BVWV-G000	7TAA292150R0414	4/26	BVYD-483636GT	7TAA292150R0463	4/34
BVWD-G098GT	7TAA292150R0374	4/26	BVWV-G00M	7TAA292150R0415	4/26	BVYR-100707	7TAA292150R0464	4/34
BVWD-M120GT	7TAA292150R0375	4/11	BVWV-G010	7TAA292150R0416	4/26	BVYR-121010	7TAA292150R0465	4/34
BVWD-M12MGT	7TAA292150R0376	4/11	BVWV-G012	7TAA292150R0417	4/26	BVYR-171212	7TAA292150R0466	4/34
BVWD-M160GT	7TAA292150R0377	4/11	BVWV-G022	7TAA292150R0418	4/26	BVYR-231717	7TAA292150R0467	4/34
BVWD-M162GT	7TAA292150R0378	4/11	BVWV-G027	7TAA292150R0419	4/26	BVYR-292323	7TAA292150R0468	4/34
BVWD-M200GT	7TAA292150R0379	4/11	BVWV-G043	7TAA292150R0420	4/26	BVYR-362929	7TAA292150R0469	4/34
BVWD-M202GT	7TAA292150R0380	4/11	BVWV-G069	7TAA292150R0421	4/26	BVYR-483636	7TAA292150R0470	4/34
BVWD-M207GT	7TAA292150R0381	4/11	BVWV-G076	7TAA292150R0422	4/26	C.66.10GR	7TAA292910R0000	10/4
BVWD-M253GT	7TAA292150R0382	4/11	BVWV-G088	7TAA292150R0423	4/26	C.66.10SW	7TAA292910R0001	10/4
BVWD-M329GT	7TAA292150R0383	4/11	BVWV-G098	7TAA292150R0424	4/26	C.66.12GR	7TAA292910R0002	10/4
BVWD-M406GT	7TAA292150R0384	4/11	BVWV-M120	7TAA292150R0425	4/11	C.66.12SW	7TAA292910R0003	10/4

Order No.	GID No.	Page
C.66.16GR	7TAA292910R0004	10/4
C.66.16SW	7TAA292910R0005	10/4
C.66.20GR	7TAA292910R0006	10/4
C.66.20SW	7TAA292910R0007	10/4
C.66.25GR	7TAA292910R0008	10/4
C.66.25SW	7TAA292910R0009	10/4
C.66.30GR	7TAA292910R0010	10/4
C.66.30SW	7TAA292910R0011	10/4
C.66.40GR	7TAA292910R0012	10/4
C.66.40SW	7TAA292910R0013	10/4
C.66.45SW	7TAA292910R0014	10/4
CUSG-17B	7TAA292490R0000	2/21
CUSG-17S	7TCA292000R1523	2/21
CUSG-23B	7TAA292490R0001	2/21
CUSG-23S	7TAA292490R0002	2/21
CUSG-29B	7TAA292490R0003	2/21
CUSG-29S		2/21
CUSG-36B	7TAA292490R0004	2/21
CUSG-36S		2/21
CUSG-48B	7TAA292490R0005	2/21
CUSG-48S		2/21
CYLG-125B	7TAA292360R0000	2/11, 7/4
CYLG-125S	7TAA292360R0001	2/11, 7/4
CYLG-23B	7TAA292240R0008	2/11
CYLG-23S	7TAA292240R0009	2/11
CYLG-29B	7TAA292240R0010	2/11
CYLG-29S	7TAA292240R0011	2/11
CYLG-36B	7TAA292240R0012	2/11
CYLG-36S	7TAA292240R0013	2/11
CYLG-48B	7TAA292240R0014	2/11
CYLG-48S	7TAA292240R0015	2/11
CYLG-56B	7TAA292360R0002	2/11, 7/4
CYLG-56S	7TAA292360R0003	2/11, 7/4
CYLG-70B	7TAA292360R0004	2/11, 7/4
CYLG-70S	7TAA292360R0006	2/11, 7/4
CYLG-95B	7TAA292360R0008	2/11, 7/4
CYLG-95S	7TAA292360R0010	2/11, 7/4
CYLT-07B	7TAA292240R0018	2/11
CYLT-07S	7TAA292240R0019	2/11
CYLT-10B	7TAA292240R0020	2/11
CYLT-10S	7TAA292240R0021	2/11
CYLT-12B	7TAA292240R0022	2/11
CYLT-12S	7TAA292240R0023	2/11
CYLT-17B	7TAA292240R0024	2/11
CYLT-17S	7TAA292240R0025	2/11
CYLT-23B	7TAA292240R0026	2/11
CYLT-23S	7TAA292240R0027	2/11
CYLT-29B	7TAA292240R0028	2/11
CYLT-29S	7TAA292240R0029	2/11
CYLT-36B	7TAA292240R0030	2/11
CYLT-36S	7TAA292240R0031	2/11
CYLT-48B	7TAA292240R0032	2/11

Order No.	GID No.	Page
CYLT-48S	7TAA292240R0033	2/11
DE-M120/P1	7TAA292790R0000	3/8
DE-M120/P2	7TAA292790R0001	3/8
DE-M120/P3	7TAA292790R0002	3/8
DE-M160/P1	7TAA292790R0003	3/8, 4/18
DE-M160/P2	7TAA292790R0004	3/8, 4/18
DE-M160/P3	7TAA292790R0005	3/8, 4/18
DE-M202/P1	7TAA292790R0006	3/8, 4/18
DE-M202/P3	7TAA292790R0007	3/8, 4/18
DE-M202/P4	7TAA292790R0008	3/8, 4/18
DE-M207/P1	7TCA292000R5727	4/18
DE-M207/P3	7TAA292790R0009	3/8, 4/18
DE-M207/P4	7TAA292790R0010	3/8, 4/18
DE-M207/P5	7TAA292790R0011	3/8, 4/18
DE-M253/P5	7TCA292000R1613	3/8
DE-M253/P6	7TCA292000R1614	3/8
DE-M257/P4	7TCA292000R0151	3/8
DE-M257/P5	7TAA292790R0012	3/8, 4/18
DE-M257/P6	7TAA292790R0013	3/8, 4/18
DE-M323/P2	7TCA292000R1617	3/8
DE-M323/P4	7TAA292790R0014	3/8, 4/18
DE-M323/P5	7TAA292790R0015	3/8
DE-M329/P2	7TAA292790R0016	3/8
DE-M329/P3	7TAA292790R0018	3/8
DE-M329/P4	7TAA292790R0019	3/8
DE-M406/P1	7TCA292000R1618	3/8
DE-M406/P2	7TCA292000R1619	3/8
DE-M409/P1	7TAA292790R0020	3/8
DE-M409/P2	7TAA292790R0021	3/8
DE-M409/P3	7TCA292000R1621	3/8
DE-M409/P4	7TAA292790R0022	3/8
DE-M409/P5	7TAA292790R0023	3/8
DE-M506/P1	7TAA292790R0024	3/8
DE-M506/P3	7TAA292790R0025	3/8
DE-M508/P2	7TAA292790R0026	3/8
DE-M508/P3	7TAA292790R0027	3/8
DE-M638/P1	7TAA292790R0028	3/8
DE-M638/P2	7TAA292790R0029	3/8
DE-P090/P1		4/24
DE-P090/P3	7TAA292790R0030	4/24
DE-P110/P1	7TAA292790R0031	4/24
DE-P110/P3	7TAA292790R0032	4/24
DE-P112/P1	7TAA292790R0033	4/24
DE-P112/P3	7TAA292790R0034	4/24
DE-P112/P4	7TAA292790R0035	4/24
DE-P167/P3	7TAA292790R0036	4/24
DE-P167/P4	7TAA292790R0037	4/24
DE-P167/P5	7TAA292790R0038	4/24
DE-P167/P6	7TAA292790R0039	4/24
DE-P213/P1		4/24
DE-P213/P4	7TAA292790R0040	4/24
DE-P213/P5	7TAA292790R0041	4/24

Order No.	GID No.	Page
DE-P299/P3	7TAA292790R0042	4/24
DE-P299/P4	7TAA292790R0043	4/24
DE-P299/P5	7TAA292790R0044	4/24
DE-P366/P1	7TAA292790R0045	4/24
DE-P366/P2	7TAA292790R0046	4/24
DE-P366/P3	7TAA292790R0047	4/24
DE-P488/P1	7TAA292790R0048	4/24
DE-P488/P2		4/24
ESDG-56B	7TCA292000R7720	2/11
ESDG-70B	7TCA292000R7722	2/11
ESDG-95B	7TCA292000R1850	2/11
ESDT-07B	7TAA292240R0049	2/11
ESDT-10B	7TAA292240R0050	2/11
ESDT-12B	7TAA292240R0051	2/11
ESDT-17B	7TAA292240R0052	2/11
ESDT-23B	7TAA292240R0053	2/11
ESDT-29B	7TAA292240R0054	2/11
ESDT-36B	7TAA292240R0055	2/11
ESDT-48B	7TAA292240R0056	2/11
EWZ-02	7TAA292880R0000	6/17
EWZ-03	7TAA292880R0001	6/17
F.304.10	7TAA292910R0015	10/9
F.304.12	7TAA292910R0016	10/9
F.304.17	7TAA292910R0017	10/9
F.304.23	7TAA292910R0018	10/9
F.304.29	7TAA292910R0019	10/9
F.304.36	7TAA292910R0020	10/9
F.304.48	7TAA292910R0021	10/9
F.66.04GR	7TAA292910R0024	10/4
F.66.04SW	7TAA292910R0025	10/4
F.66.06GR	7TAA292910R0026	10/4
F.66.06SW	7TAA292910R0027	10/4
F.66.08GR	7TAA292910R0028	10/4
F.66.08SW	7TAA292910R0029	10/4
F.66.10GR	7TAA292910R0030	10/4
F.66.10SW	7TAA292910R0031	10/4
F.66.12GR	7TAA292910R0032	10/4
F.66.12SW	7TAA292910R0033	10/4
F.66.16GR	7TAA292910R0034	10/4
F.66.16SW	7TAA292910R0035	10/4
F.66.20GR	7TAA292910R0036	10/4
F.66.20SW	7TAA292910R0037	10/4
F.66.25GR	7TAA292910R0038	10/4
F.66.25SW	7TAA292910R0039	10/4
F.66.30GR	7TAA292910R0040	10/4
F.66.30SW	7TAA292910R0041	10/4
F.66.40GR	7TAA292910R0042	10/4
F.66.40SW	7TAA292910R0043	10/4
F.66.50GR	7TAA292910R0044	10/4
F.66.50SW	7TAA292910R0045	10/4
F.66.70GR	7TAA292910R0046	10/4
F.66.70SW	7TAA292910R0047	10/4

Index

Products in alphabetical order

Order No.	GID No.	Page	Order No.	GID No.	Page	Order No.	GID No.	Page
F.PX.04GR	7TAA292910R0065	10/5	GMN-M20	7TAA292670R0065	6/10	LLPA-07S	7TAA292030R0001	2/24
F.PX.06GR	7TAA292910R0066	10/5	GMN-M25	7TAA292670R0066	6/10	LLPA-10A	7TAA292030R0002	2/24
F.PX.08GR	7TAA292910R0067	10/5	GMN-M32	7TAA292670R0067	6/10	LLPA-10S	7TAA292030R0003	2/24
F.PX.10GR	7TAA292910R0068	10/5	GMN-M40	7TAA292670R0068	6/10	LLPA-12A	7TAA292030R0005	2/24
F.PX.12GR	7TAA292910R0069	10/5	GMN-M50	7TAA292670R0069	6/10	LLPA-12S	7TAA292030R0006	2/24
F.PX.16GR	7TAA292910R0070	10/5	GMN-M63	7TAA292670R0070	6/10	LLPA-17A	7TAA292030R0007	2/24
F.PX.20GR	7TAA292910R0071	10/5	HSG-00	7TAA292880R0004	10/9	LLPA-17S	7TAA292030R0008	2/24
F.PX.25GR	7TAA292910R0072	10/5	HSG-00-SB	7TAA292880R0005	10/9	LLPA-23A	7TAA292030R0009	2/24
F.PX.30GR	7TAA292910R0073	10/5	KNH2-NW10	7TAA292560R0000	3/12	LLPA-23S	7TAA292030R0010	2/24
F.PX.40GR	7TAA292910R0074	10/5	KNH2-NW12	7TAA292560R0001	3/12	LLPA-29A	7TAA292030R0011	2/24
FP-38	7TAA292880R0002	6/18	KNH2-NW17	7TAA292560R0002	3/12	LLPA-29S	7TAA292030R0012	2/24
FP-52	7TAA292880R0003	6/18	KNH2-NW23	7TAA292560R0003	3/12	LLPA-36A	7TAA292030R0013	2/24
G.PX.05SW	7TAA292910R0075	10/6	KNH2-NW29	7TAA292560R0004	3/12	LLPA-36S	7TAA292030R0014	2/24
G.PX.08SW	7TAA292910R0076	10/6	KNH2-NW36	7TAA292560R0005	3/12	LLPA-48A	7TAA292030R0015	2/24
G.PX.10SW	7TAA292910R0077	10/6	KNH2-NW48	7TAA292560R0006	3/12	LLPA-48S	7TAA292030R0016	2/24
G.PX.13SW	7TAA292910R0078	10/6	L.66.04GR	7TAA292910R0175	10/5	LLPAG-125A	7TAA292030R0017	2/24
G.PX.16SW	7TAA292910R0079	10/6	L.66.04SW	7TAA292910R0176	10/5	LLPAG-125S	7TAA292030R0018	2/24
G.PX.19SW	7TAA292910R0080	10/6	L.66.08GR	7TAA292910R0177	10/5	LLPAG-17A	7TAA292030R0019	2/24
G.PX.25SW	7TAA292910R0081	10/6	L.66.08SW	7TAA292910R0178	10/5	LLPAG-17S	7TAA292030R0020	2/24
G.PX.29SW	7TAA292910R0082	10/6	L.66.10GR	7TAA292910R0179	10/5	LLPAG-23A	7TAA292030R0021	2/24
G.PX.32SW	7TAA292910R0083	10/6	L.66.10SW	7TAA292910R0180	10/5	LLPAG-23S	7TAA292030R0022	2/24
G.PX.38SW	7TAA292910R0084	10/6	L.66.16GR	7TAA292910R0181	10/5	LLPAG-29A	7TAA292030R0023	2/24
G.PX.50SW	7TAA292910R0085	10/6	L.66.16SW	7TAA292910R0182	10/5	LLPAG-29S	7TAA292030R0024	2/24
GMM-07	7TAA292670R0028	6/11	L.66.20GR	7TAA292910R0183	10/5	LLPAG-36A	7TAA292030R0025	2/24
GMM-09	7TAA292670R0029	6/11	L.66.20SW	7TAA292910R0184	10/5	LLPAG-36S	7TAA292030R0026	2/24
GMM-11	7TAA292670R0030	6/11	L.66.25GR	7TAA292910R0185	10/5	LLPAG-48A	7TAA292030R0027	2/24
GMM-13	7TAA292670R0032	6/11	L.66.25SW	7TAA292910R0186	10/5	LLPAG-48S	7TAA292030R0028	2/24
GMM-16	7TAA292670R0034	6/11	L.66.30GR	7TAA292910R0187	10/5	LLPAG-56A	7TAA292030R0029	2/24
GMM-21	7TAA292670R0035	6/11	L.66.30SW	7TAA292910R0188	10/5	LLPAG-56S	7TAA292030R0030	2/24
GMM-29	7TAA292670R0037	6/11	L.66.40GR	7TAA292910R0189	10/5	LLPAG-70A	7TAA292030R0031	2/24
GMM-36	7TAA292670R0038	6/11	L.66.40SW	7TAA292910R0190	10/5	LLPAG-70S	7TAA292030R0032	2/24
GMM-42	7TAA292670R0039	6/11	L.66.50GR	7TAA292910R0191	10/5	LLPAG-95A	7TAA292030R0033	2/24
GMM-48	7TAA292670R0040	6/11	L.66.50SW	7TAA292910R0192	10/5	LLPAG-95S	7TAA292030R0034	2/24
GMM-M12	7TAA292670R0041	6/11	L.PX.04GR	7TAA292910R0193	10/6	LLPF-07A	7TAA292030R0035	2/25
GMM-M16	7TAA292670R0043	6/11	L.PX.04SW	7TAA292910R0194	10/6	LLPF-07S	7TAA292030R0036	2/25
GMM-M20	7TAA292670R0045	6/11	L.PX.08GR	7TAA292910R0195	10/6	LLPF-10A	7TAA292030R0037	2/25
GMM-M25	7TAA292670R0047	6/11	L.PX.08SW	7TAA292910R0196	10/6	LLPF-10S	7TAA292030R0038	2/25
GMM-M32	7TAA292670R0049	6/11	L.PX.10GR	7TAA292910R0197	10/6	LLPF-12A	7TAA292030R0039	2/25
GMM-M40	7TAA292670R0051	6/11	L.PX.10SW	7TAA292910R0198	10/6	LLPF-12S	7TAA292030R0040	2/25
GMM-M50	7TAA292670R0052	6/11	L.PX.16GR	7TAA292910R0199	10/6	LLPF-17A	7TAA292030R0041	2/25
GMM-M63	7TAA292670R0053	6/11	L.PX.16SW	7TAA292910R0200	10/6	LLPF-17S	7TAA292030R0042	2/25
GMN-07	7TAA292670R0054	6/10	L.PX.20GR	7TAA292910R0201	10/6	LLPF-23A	7TAA292030R0043	2/25
GMN-09	7TAA292670R0055	6/10	L.PX.20SW	7TAA292910R0202	10/6	LLPF-23S	7TAA292030R0044	2/25
GMN-11	7TAA292670R0056	6/10	L.PX.25GR	7TAA292910R0203	10/6	LLPF-29A	7TAA292030R0045	2/25
GMN-13	7TAA292670R0057	6/10	L.PX.25SW	7TAA292910R0204	10/6	LLPF-29S	7TAA292030R0046	2/25
GMN-16	7TAA292670R0058	6/10	L.PX.30GR	7TAA292910R0205	10/6	LLPFG-17A	7TAA292030R0048	2/25
GMN-21	7TAA292670R0059	6/10	L.PX.30SW	7TAA292910R0206	10/6	LLPFG-17S	7TAA292030R0049	2/25
GMN-29	7TAA292670R0060	6/10	L.PX.40GR	7TAA292910R0207	10/6	LLPFG-23A	7TAA292030R0050	2/25
GMN-36	7TAA292670R0061	6/10	L.PX.40SW	7TAA292910R0208	10/6	LLPFG-23S	7TAA292030R0051	2/25
GMN-48	7TAA292670R0062	6/10	L.PX.50GR	7TAA292910R0209	10/6	LLPFG-29A	7TAA292030R0052	2/25
GMN-M12	7TAA292670R0063	6/10	L.PX.50SW	7TAA292910R0210	10/6	LLPFG-29S	7TAA292030R0053	2/25
GMN-M16	7TAA292670R0064	6/10	LLPA-07A	7TAA292030R0000	2/24	LLPFG-36A	7TAA292030R0054	2/25

Order No.	GID No.	Page
LLPFG-36S	7TAA292030R0055	2/25
LLPFG-48A	7TAA292030R0056	2/25
LLPFG-48S	7TAA292030R0057	2/25
LLPO-07A	7TAA292030R0075	2/25
LLPO-07S	7TAA292030R0076	2/25
LLPO-10A	7TAA292030R0077	2/25
LLPO-10S	7TAA292030R0078	2/25
LLPO-12A	7TAA292030R0079	2/25
LLPO-12S	7TAA292030R0080	2/25
LLPO-17A	7TAA292030R0081	2/25
LLPO-17S	7TAA292030R0082	2/25
LLPO-23A	7TAA292030R0083	2/25
LLPO-23S	7TAA292030R0084	2/25
LLPO-29A	7TAA292030R0085	2/25
LLPO-29S	7TAA292030R0086	2/25
LLPO-36A	7TAA292030R0087	2/25
LLPO-36S	7TAA292030R0088	2/25
LLPO-48A	7TAA292030R0089	2/25
LLPO-48S	7TAA292030R0090	2/25
M12M16M	7TAA292550R0044	6/7
M16M12M	7TAA292550R0045	6/7
M16M12M/6	7TAA292550R0046	6/7
M16M20M	7TAA292550R0047	6/7
M20M12M	7TAA292550R0048	6/7
M20M12M/6	7TAA292550R0049	6/7
M20M16M	7TAA292550R0050	6/7
M20M16M/6	7TAA292550R0051	6/7
M20M25M	7TAA292550R0052	6/7
M25M16M	7TAA292550R0053	6/7
M25M16M/6	7TAA292550R0054	6/7
M25M20M	7TAA292550R0055	6/7
M25M20M/6	7TAA292550R0056	6/7
M25M32M	7TAA292550R0057	6/7
M32M20M	7TAA292550R0058	6/7
M32M20M/6	7TAA292550R0059	6/7
M32M25M	7TAA292550R0060	6/7
M32M25M/6	7TAA292550R0061	6/7
M32M40M	7TAA292550R0062	6/7
M40M25M	7TAA292550R0063	6/7
M40M25M/6	7TAA292550R0064	6/7
M40M32M	7TAA292550R0065	6/7
M40M32M/6	7TAA292550R0066	6/7
M40M50M	7TAA292550R0067	6/7
M50M32M	7TAA292550R0069	6/7
M50M32M/6	7TAA292550R0070	6/7
M50M40M	7TAA292550R0071	6/7
M50M40M/6	7TAA292550R0072	6/7
M50M63M	7TAA292550R0073	6/7
M63M40M	7TCA292000R2520	6/7
M63M40M/6	7TCA292000R162	6/7
M63M50M	7TAA292550R0074	6/7
M63M50M/6	7TAA292550R0075	6/7

Order No.	GID No.	Page
MAVI-M20/01	7TAA292660R0000	5/6
MAVI-M25/01	7TAA292660R0001	5/6
MAVI-M32/01	7TAA292660R0002	5/6
MAVI-M40/01	7TAA292660R0003	5/6
MAVI-M50/01	7TAA292660R0004	5/6
MAVI-M63/01	7TAA292660R0005	5/6
MAVIK-M20/01	7TAA292660R0006	5/6
MAVIK-M25/01	7TAA292660R0007	5/6
MAVIK-M32/01	7TAA292660R0008	5/6
MAVIK-M40/01	7TAA292660R0009	5/6
MAVIK-M50/01	7TAA292660R0010	5/6
MAVIK-M63/01	7TAA292660R0011	5/6
MKAH-M120-10	7TAA292400R0062	3/10
MKAH-M160-10	7TAA292400R0063	3/10
MKAH-M162-10	7TAA292400R0064	3/10
MKAH-M202-10	7TAA292400R0065	3/10
MKAH-M207-10	7TAA292400R0066	3/10
MKAH-M253-11	7TAA292400R0067	3/10
MKAH-M257-11	7TAA292400R0068	3/10
MKAH-M323-13	7TAA292400R0069	3/10
MKAH-M329-13	7TAA292400R0070	3/10
MKAH-M406-13	7TAA292400R0071	3/10
MKAH-M409-13	7TAA292400R0072	3/10
MKAH-M506-14	7TAA292400R0073	3/10
MKAH-M508-14	7TAA292400R0074	3/10
MKAH-M638-14	7TAA292400R0075	3/10
MKBH-M120-10	7TAA292400R0076	3/10
MKBH-M160-10	7TAA292400R0077	3/10
MKBH-M162-10	7TAA292400R0078	3/10
MKBH-M202-10	7TAA292400R0079	3/10
MKBH-M207-10	7TAA292400R0080	3/10
MKBH-M253-11	7TAA292400R0081	3/10
MKBH-M257-11	7TAA292400R0082	3/10
MKBH-M323-13	7TAA292400R0083	3/10
MKBH-M329-13	7TAA292400R0084	3/10
MKBH-M406-13	7TAA292400R0085	3/10
MKBH-M409-13	7TAA292400R0086	3/10
MKBH-M506-14	7TAA292400R0087	3/10
MKBH-M508-14	7TAA292400R0088	3/10
MKBH-M638-14	7TAA292400R0089	3/10
MKNH-M120-10	7TAA292400R0090	3/7
MKNH-M160-10	7TAA292400R0091	3/7
MKNH-M162-10	7TAA292400R0092	3/7
MKNH-M202-10	7TAA292400R0093	3/7
MKNH-M207-10	7TAA292400R0094	3/7
MKNH-M253-11	7TAA292400R0095	3/7
MKNH-M257-11	7TAA292400R0096	3/7
MKNH-M323-13	7TAA292400R0097	3/7
MKNH-M329-13	7TAA292400R0098	3/7
MKNH-M406-13	7TAA292400R0099	3/7
MKNH-M409-13	7TAA292400R0100	3/7
MKNH-M506-14	7TAA292400R0101	3/7

Order No.	GID No.	Page
MKNH-M508-14	7TAA292400R0102	3/7
MKNH-M638-14	7TAA292400R0103	3/7
MONK-M162	7TCA292000R4711	10/11
MONK-M207	7TCA292000R4712	10/11
MONK-M253	7TCA292000R4713	10/11
MONK-M329	7TCA292000R4714	10/11
MONK-M406	7TCA292000R4715	10/11
MONK-M508	7TCA292000R4716	10/11
MPNK-M160	7TCA292000R4717	5/5
MPNK-M162	7TCA292000R4718	5/5
MPNK-M207	7TCA292000R4719	5/5
MPNK-M253	7TCA292000R4720	5/5
MPNK-M329	7TCA292000R4721	5/5
MREIR-U3529	7TCA292000R2699	10/8
MVAV-M120-10	7TAA292150R0471	4/15
MVAV-M120-5	7TAA292150R0472	4/15
MVAV-M162-10	7TAA292150R0473	4/15
MVAV-M162-5	7TAA292150R0474	4/15
MVAV-M207-10	7TAA292150R0475	4/15
MVAV-M207-6	7TAA292150R0476	4/15
MVAV-M253-11	7TAA292150R0477	4/15
MVAV-M253-7	7TAA292150R0478	4/15
MVAV-M257-11		4/15
MVAV-M323-13		4/15
MVAV-M329-13	7TAA292150R0479	4/15
MVAV-M329-8	7TAA292150R0480	4/15
MVAV-M406-13	7TAA292150R0481	4/15
MVAV-M406-8	7TAA292150R0482	4/15
MVAV-M409-13		4/15
MVAV-M506-14		4/15
MVAV-M508-14	7TAA292150R0483	4/15
MVAV-M508-9	7TAA292150R0484	4/15
MVAV-M638-10	7TAA292150R0485	4/15
MVAV-M638-14	7TAA292150R0486	4/15
MVAV-P090	7TAA292150R0487	4/25
MVAV-P112	7TAA292150R0488	4/25
MVAV-P137	7TAA292150R0489	4/25
MVAV-P167	7TAA292150R0490	4/25
MVAV-P213	7TAA292150R0491	4/25
MVAV-P299	7TAA292150R0492	4/25
MVAV-P366	7TAA292150R0493	4/25
MVAV-P488	7TAA292150R0494	4/25
MVBV-M207-10	7TAA292150R0495	4/16
MVBV-M207-6	7TAA292150R0496	4/16
MVBV-M253-11	7TAA292150R0497	4/16
MVBV-M253-7	7TAA292150R0498	4/16
MVBV-M257-11	7TAA292150R0499	4/16
MVBV-M257-7	7TAA292150R0500	4/16
MVBV-M323-13	7TAA292150R0501	4/16
MVBV-M323-8	7TAA292150R0502	4/16
MVBV-M329-13	7TAA292150R0503	4/16
MVBV-M329-8	7TAA292150R0504	4/16

Index

Products in alphabetical order

Order No.	GID No.	Page	Order No.	GID No.	Page	Order No.	GID No.	Page
MVBV-M406-13	7TAA292150R0505	4/16	MVNV-P137	7TAA292150R0550	4/23	NKAH-M406-13	7TAA292400R0113	3/10
MVBV-M406-8	7TAA292150R0506	4/16	MVNV-P167	7TAA292150R0551	4/23	NKAH-M409-13	7TAA292400R0114	3/10
MVBV-M409-13	7TAA292150R0507	4/16	MVNV-P213	7TAA292150R0552	4/23	NKAH-M506-14	7TAA292400R0115	3/10
MVBV-M409-8	7TAA292150R0508	4/16	MVNV-P293	7TAA292150R0553	4/23	NKAH-M508-14	7TAA292400R0116	3/10
MVBV-M506-14	7TAA292150R0509	4/16	MVNV-P299	7TAA292150R0554	4/23	NKAH-M638-14	7TAA292400R0117	3/10
MVBV-M506-9	7TAA292150R0510	4/16	MVNV-P366	7TAA292150R0555	4/23	NKBH-M120-10	7TAA292400R0118	3/10
MVBV-M508-14	7TAA292150R0511	4/16	MVNV-P488	7TAA292150R0556	4/23	NKBH-M160-10	7TAA292400R0119	3/10
MVBV-M508-9	7TAA292150R0512	4/16	MVWV-M120-10	7TAA292150R0557	4/17	NKBH-M162-10	7TAA292400R0120	3/10
MVBV-M638-10	7TAA292150R0513	4/16	MVWV-M120-5	7TAA292150R0558	4/17	NKBH-M202-10	7TAA292400R0121	3/10
MVBV-M638-14	7TAA292150R0514	4/16	MVWV-M160-10	7TAA292150R0559	4/17	NKBH-M207-10	7TAA292400R0122	3/10
MVBV-P167	7TAA292150R0515	4/25	MVWV-M160-5	7TAA292150R0560	4/17	NKBH-M253-11	7TAA292400R0123	3/10
MVBV-P213	7TAA292150R0516	4/25	MVWV-M162-10	7TAA292150R0561	4/17	NKBH-M257-11	7TAA292400R0124	3/10
MVBV-P299	7TAA292150R0517	4/25	MVWV-M162-5	7TAA292150R0562	4/17	NKBH-M323-13	7TAA292400R0125	3/10
MVBV-P366	7TAA292150R0518	4/25	MVWV-M202-10	7TAA292150R0563	4/17	NKBH-M329-13	7TAA292400R0126	3/10
MVBV-P488	7TAA292150R0519	4/25	MVWV-M202-6	7TAA292150R0564	4/17	NKBH-M406-13	7TAA292400R0127	3/10
MVEMD-M406/01	7TCA292000R2747	10/10	MVWV-M207-10	7TAA292150R0565	4/17	NKBH-M409-13	7TAA292400R0128	3/10
MVEMD-M508/01	7TCA292000R2748	10/10	MVWV-M207-6	7TAA292150R0566	4/17	NKBH-M506-14	7TAA292400R0129	3/10
MVEMD-M6356/01	7TCA292000R2749	10/10	MVWV-M253-11	7TAA292150R0567	4/17	NKBH-M508-14	7TAA292400R0130	3/10
MVEMD-P4856/01	7TCA292000R2750	10/10	MVWV-M253-7	7TAA292150R0568	4/17	NKBH-M638-14	7TAA292400R0131	3/10
MVEMD-RER6	7TCA292000R2751	10/10	MVWV-M329-13	7TAA292150R0569	4/17	NKIS-M162	7TAA292400R0132	3/12
MVEMD-RER6/01	7TCA292000R2752	10/10	MVWV-M329-8	7TAA292150R0570	4/17	NKIS-M207	7TAA292400R0133	3/12
MVEMD-RER8	7TCA292000R2753	10/10	MVWV-M406-13	7TAA292150R0571	4/17	NKIS-M253	7TAA292400R0134	3/12
MVNV-M120-10	7TAA292150R0520	4/12	MVWV-M406-8	7TAA292150R0572	4/17	NKIS-M329	7TAA292400R0135	3/12
MVNV-M120-5	7TAA292150R0521	4/12	MVWV-M508-14	7TAA292150R0573	4/17	NKIS-M406	7TAA292400R0136	3/12
MVNV-M160-10	7TAA292150R0522	4/12	MVWV-M508-9	7TAA292150R0574	4/17	NKIS-M508	7TAA292400R0137	3/12
MVNV-M160-5	7TAA292150R0523	4/12	MVWV-M638-10	7TAA292150R0575	4/17	NKIS-M638	7TAA292400R0138	3/12
MVNV-M162-10	7TAA292150R0524	4/12	MVWV-M638-14	7TAA292150R0576	4/17	NKNH-M120-10	7TAA292400R0139	3/7
MVNV-M162-5	7TAA292150R0525	4/12	MVWV-P090	7TAA292150R0577	4/25	NKNH-M160-10	7TAA292400R0140	3/7
MVNV-M202-10	7TAA292150R0526	4/12	MVWV-P112	7TAA292150R0578	4/25	NKNH-M162-10	7TAA292400R0141	3/7
MVNV-M202-6	7TAA292150R0527	4/12	MVWV-P137	7TAA292150R0579	4/25	NKNH-M202-10	7TAA292400R0142	3/7
MVNV-M207-10	7TAA292150R0528	4/12	MVWV-P167	7TAA292150R0580	4/25	NKNH-M207-10	7TAA292400R0143	3/7
MVNV-M207-6	7TAA292150R0529	4/12	MVWV-P213	7TAA292150R0581	4/25	NKNH-M253-11	7TAA292400R0144	3/7
MVNV-M253-11	7TAA292150R0530	4/12	MVWV-P299	7TAA292150R0582	4/25	NKNH-M257-11	7TAA292400R0145	3/7
MVNV-M253-7	7TAA292150R0531	4/12	MVWV-P366	7TAA292150R0583	4/25	NKNH-M323-13	7TAA292400R0146	3/7
MVNV-M257-11	7TAA292150R0532	4/12	MVWV-P488	7TAA292150R0584	4/25	NKNH-M329-13	7TAA292400R0147	3/7
MVNV-M257-7	7TAA292150R0533	4/12	NFN3-07	7TAA292800R0000	6/6	NKNH-M406-13	7TAA292400R0148	3/7
MVNV-M323-13	7TAA292150R0534	4/12	NFN3-09	7TAA292800R0001	6/6	NKNH-M409-13	7TAA292400R0149	3/7
MVNV-M323-8	7TAA292150R0535	4/12	NFN3-11	7TAA292800R0002	6/6	NKNH-M506-14	7TAA292400R0150	3/7
MVNV-M329-13	7TAA292150R0536	4/12	NFN3-16	7TAA292800R0003	6/6	NKNH-M508-14	7TAA292400R0151	3/7
MVNV-M329-8	7TAA292150R0537	4/12	NFN3-21	7TAA292800R0004	6/6	NKNH-M638-14	7TAA292400R0152	3/7
MVNV-M406-13	7TAA292150R0538	4/12	NFN3-29	7TAA292800R0005	6/6	NKNZ-M120/P1	7TAA292400R0153	3/8
MVNV-M406-8	7TAA292150R0539	4/12	NFN3-36	7TAA292800R0006	6/6	NKNZ-M120/P2	7TAA292400R0154	3/8
MVNV-M409-13	7TAA292150R0540	4/12	NFN3-48	7TAA292800R0007	6/6	NKNZ-M120/P3	7TAA292400R0155	3/8
MVNV-M409-8	7TAA292150R0541	4/12	NKAH-M120-10	7TAA292400R0104	3/10	NKNZ-M120R/P		3/8
MVNV-M506-14	7TAA292150R0542	4/12	NKAH-M160-10	7TAA292400R0105	3/10	NKNZ-M160/P1	7TAA292400R0156	3/8
MVNV-M506-9	7TAA292150R0543	4/12	NKAH-M162-10	7TAA292400R0106	3/10	NKNZ-M160/P1-L		3/9
MVNV-M508-14	7TAA292150R0544	4/12	NKAH-M202-10	7TAA292400R0107	3/10	NKNZ-M160/P2	7TAA292400R0157	3/8
MVNV-M508-9	7TAA292150R0545	4/12	NKAH-M207-10	7TAA292400R0108	3/10	NKNZ-M160/P2-L		3/9
MVNV-M638-10	7TAA292150R0546	4/12	NKAH-M253-11	7TAA292400R0109	3/10	NKNZ-M160/P3	7TAA292400R0158	3/8
MVNV-M638-14	7TAA292150R0547	4/12	NKAH-M257-11	7TAA292400R0110	3/10	NKNZ-M160/P3-L	7TCA292000R5581	3/9
MVNV-P090	7TAA292150R0548	4/23	NKAH-M323-13	7TAA292400R0111	3/10	NKNZ-M160R/P	7TCA292000R0183	3/8
MVNV-P112	7TAA292150R0549	4/23	NKAH-M329-13	7TAA292400R0112	3/10	NKNZ-M160R/P-L		3/9

Order No.	GID No.	Page
NKNZ-M202/P1	7TAA292400R0161	3/8
NKNZ-M202/P1-L	7TCA292000R0184	3/9
NKNZ-M202/P3	7TAA292400R0162	3/8
NKNZ-M202/P3-L		3/9
NKNZ-M202/P4	7TAA292400R0163	3/8
NKNZ-M202/P4-L		3/9
NKNZ-M202R/P	7TCA292000R0185	3/8
NKNZ-M202R/P-L		3/9
NKNZ-M207/P3	7TAA292400R0165	3/8
NKNZ-M207/P3-L	7TCA292000R0186	3/9
NKNZ-M207/P4	7TAA292400R0166	3/8
NKNZ-M207/P4-L		3/9
NKNZ-M207/P5	7TAA292400R0167	3/8
NKNZ-M207/P5-L		3/9
NKNZ-M207R/P	7TCA292000R6163	3/8
NKNZ-M207R/P-L	7TCA292000R0187	3/9
NKNZ-M253/P5	7TCA292000R0188	3/8
NKNZ-M253/P6	7TCA292000R0189	3/8
NKNZ-M253R/P	7TCA292000R6152	3/8
NKNZ-M253R1/P		3/8
NKNZ-M257/P4		3/8
NKNZ-M257/P5	7TAA292400R0172	3/8
NKNZ-M257/P5-L	7TAA292400R0173	3/9
NKNZ-M257/P6	7TAA292400R0174	3/8
NKNZ-M257/P6-L	7TCA292000R0190	3/9
NKNZ-M257R/P	7TCA292000R0191	3/8
NKNZ-M257R/P-L		3/9
NKNZ-M323/P2	7TCA292000R0192	3/8
NKNZ-M323/P2-L	7TCA292000R0193	3/9
NKNZ-M323/P4	7TAA292400R0177	3/8
NKNZ-M323/P4-L	7TCA292000R0194	3/9
NKNZ-M323/P5	7TAA292400R0178	3/8
NKNZ-M323/P5-L		3/9
NKNZ-M323R/P	7TAA292400R0179	3/8
NKNZ-M323R/P-L		3/9
NKNZ-M323R1/P	7TAA292400R0180	3/8
NKNZ-M323R1/P-L		3/9
NKNZ-M329/P2	7TCA292000R0195	3/8
NKNZ-M329/P2-L		3/9
NKNZ-M329/P3	7TCA292000R6029	3/8
NKNZ-M329/P3-L		3/9
NKNZ-M329/P4	7TCA292000R0196	3/8
NKNZ-M329R/P		3/8
NKNZ-M329R/P-L		3/9
NKNZ-M406/P1	7TCA292000R5867	3/8
NKNZ-M406/P2	7TCA292000R0197	3/8
NKNZ-M406R/P	7TCA292000R6071	3/8
NKNZ-M409/P1		3/8
NKNZ-M409/P2		3/8
NKNZ-M409/P3	7TCA292000R6028	3/8
NKNZ-M409/P3-L		3/9
NKNZ-M409/P4	7TAA292400R0187	3/8

Order No.	GID No.	Page
NKNZ-M409/P4-L	7TCA292000R0198	3/9
NKNZ-M409/P5	7TAA292400R0188	3/8
NKNZ-M409/P5-L		3/9
NKNZ-M409R/P	7TAA292400R0189	3/8
NKNZ-M409R/P-L	7TCA292000R0199	3/9
NKNZ-M506/P1	7TAA292400R0192	3/8
NKNZ-M506/P1-L		3/9
NKNZ-M506/P3	7TAA292400R0193	3/8
NKNZ-M506/P3-L		3/9
NKNZ-M506R/P	7TCA292000R0200	3/8
NKNZ-M506R/P-L	7TCA292000R0201	3/9
NKNZ-M508/P2	7TAA292400R0196	3/8
NKNZ-M508/P2-L		3/9
NKNZ-M508/P3	7TAA292400R0197	3/8
NKNZ-M508/P3-L		3/9
NKNZ-M508R/P	7TCA292000R0202	3/8
NKNZ-M508R/P-L		3/9
NKNZ-M638/P1	7TAA292400R0200	3/8
NKNZ-M638/P1-L		3/9
NKNZ-M638/P2	7TAA292400R0201	3/8
NKNZ-M638/P2-L		3/9
NKNZ-M638R/P		3/8
NKNZ-M638R/P-L		3/9
NSBV-M207-10	7TAA292150R0585	4/28
NSBV-M253-11	7TAA292150R0586	4/28
NSBV-M329-13	7TAA292150R0587	4/28
NSBV-M406-13	7TAA292150R0588	4/28
NSBV-M409-13	7TCA292000R2945	4/28
NSBV-M508-14	7TAA292150R0589	4/28
NSBV-M638-14	7TAA292150R0590	4/28
NSBV-P167-6.5	7TAA292150R0591	4/28
NSBV-P213-7	7TAA292150R0592	4/28
NSBV-P299-8	7TAA292150R0593	4/28
NSBV-P366-9	7TAA292150R0594	4/28
NSBV-P488-10	7TAA292150R0595	4/28
NSNV-M120-10	7TCA292000R5954	4/28
NSNV-M162-10	7TCA292000R5955	4/28
NSNV-M207-10	7TCA292000R5956	4/28
NSNV-M253-11	7TCA292000R5957	4/28
NSNV-M329-13	7TCA292000R5958	4/28
NSNV-M329-7	7TCA292000R5959	4/28
NSNV-M406-13	7TCA292000R5960	4/28
NSNV-M406-7	7TCA292000R5961	4/28
NSNV-M409-13	7TCA292000R5962	4/28
NSNV-M508-14	7TCA292000R5963	4/28
NSNV-M638-14	7TCA292000R5964	4/28
NVAV-M120-10	7TAA292150R0596	4/15
NVAV-M120-5	7TAA292150R0597	4/15
NVAV-M162-10	7TAA292150R0598	4/15
NVAV-M162-5	7TAA292150R0599	4/15
NVAV-M207-10	7TAA292150R0600	4/15
NVAV-M207-6	7TAA292150R0601	4/15

Order No.	GID No.	Page
NVAV-M253-11	7TAA292150R0602	4/15
NVAV-M253-7	7TAA292150R0603	4/15
NVAV-M257-11	7TAA292150R0604	4/15
NVAV-M323-13	7TAA292150R0605	4/15
NVAV-M329-13	7TAA292150R0606	4/15
NVAV-M329-8	7TAA292150R0607	4/15
NVAV-M406-13	7TAA292150R0608	4/15
NVAV-M406-8	7TAA292150R0609	4/15
NVAV-M409-13	7TAA292150R0610	4/15
NVAV-M506-14	7TAA292150R0611	4/15
NVAV-M508-14	7TAA292150R0612	4/15
NVAV-M508-9	7TAA292150R0613	4/15
NVAV-M638-10	7TAA292150R0614	4/15
NVAV-M638-14	7TAA292150R0615	4/15
NVAV-P090	7TAA292150R0616	4/25
NVAV-P112	7TAA292150R0617	4/25
NVAV-P137	7TAA292150R0618	4/25
NVAV-P167	7TAA292150R0619	4/25
NVAV-P213	7TAA292150R0620	4/25
NVAV-P299	7TAA292150R0621	4/25
NVAV-P366	7TAA292150R0622	4/25
NVAV-P488	7TAA292150R0623	4/25
NVAV-M207-10	7TAA292150R0624	4/16
NVAV-M207-6	7TAA292150R0625	4/16
NVAV-M253-11	7TAA292150R0626	4/16
NVAV-M253-7	7TAA292150R0627	4/16
NVAV-M257-11	7TAA292150R0628	4/16
NVAV-M257-7	7TAA292150R0629	4/16
NVAV-M323-13	7TAA292150R0630	4/16
NVAV-M323-8	7TAA292150R0631	4/16
NVAV-M329-13	7TAA292150R0632	4/16
NVAV-M329-8	7TAA292150R0633	4/16
NVAV-M406-13	7TAA292150R0634	4/16
NVAV-M406-8	7TAA292150R0635	4/16
NVAV-M409-13	7TAA292150R0636	4/16
NVAV-M409-8	7TAA292150R0637	4/16
NVAV-M506-14	7TAA292150R0638	4/16
NVAV-M506-9	7TAA292150R0639	4/16
NVAV-M508-14	7TAA292150R0640	4/16
NVAV-M508-9	7TAA292150R0641	4/16
NVAV-M638-10	7TAA292150R0642	4/16
NVAV-M638-14	7TAA292150R0643	4/16
NVAV-P167	7TAA292150R0644	4/25
NVAV-P213	7TAA292150R0645	4/25
NVAV-P299	7TAA292150R0646	4/25
NVAV-P366	7TAA292150R0647	4/25
NVAV-P488	7TAA292150R0648	4/25
NVAV-M120	7TAA292610R0133	4/29
NVAV-M160	7TCA292000R0215	4/29
NVAV-M162	7TAA292610R0134	4/29
NVAV-M207	7TAA292610R0135	4/29
NVAV-M253	7TAA292610R0136	4/29

Index

Products in alphabetical order

Order No.	GID No.	Page	Order No.	GID No.	Page	Order No.	GID No.	Page
NVIR-M329	7TAA292610R0137	4/29	NVNV-P137	7TAA292150R0679	4/23	NVNZ-M323S/P4	7TAA292150R0745	4/13
NVIR-M406	7TAA292610R0138	4/29	NVNV-P167	7TAA292150R0680	4/23	NVNZ-M323S/P4-L	7TAA292150R0746	4/14
NVIR-M508	7TAA292610R0139	4/29	NVNV-P213	7TAA292150R0681	4/23	NVNZ-M323S/P5	7TAA292150R0747	4/13
NVIR-M638	7TAA292610R0140	4/29	NVNV-P293	7TAA292150R0682	4/23	NVNZ-M323S/P5-L	7TAA292150R0748	4/14
NVIZR-P07M	7TAA292610R0141	4/30	NVNV-P299	7TAA292150R0683	4/23	NVNZ-M329R/P	7TCA292000R0278	4/13
NVIZR-P090	7TAA292610R0142	4/30	NVNV-P366	7TAA292150R0684	4/23	NVNZ-M329R/P-L	7TAA292150R0749	4/14
NVIZR-P110	7TAA292610R0143	4/30	NVNV-P488	7TAA292150R0685	4/23	NVNZ-M329S/P2	7TAA292150R0752	4/13
NVIZR-P112	7TAA292610R0144	4/30	NVNZ-M120R/P	7TAA292150R0686	4/13	NVNZ-M329S/P2-L	7TAA292150R0753	4/14
NVIZR-P137	7TCA292000R0216	4/30	NVNZ-M120R/P-L		4/14	NVNZ-M329S/P3	7TAA292150R0754	4/13
NVIZR-P167	7TAA292610R0145	4/30	NVNZ-M120S/P1	7TAA292150R0689	4/13	NVNZ-M329S/P3-L	7TAA292150R0755	4/14
NVIZR-P213	7TAA292610R0146	4/30	NVNZ-M120S/P1-L	7TCA292000R0254	4/14	NVNZ-M329S/P4	7TAA292150R0756	4/13
NVIZR-P299	7TAA292610R0147	4/30	NVNZ-M120S/P2	7TAA292150R0690	4/13	NVNZ-M406R/P	7TAA292150R0757	4/13
NVIZR-P366	7TAA292610R0148	4/30	NVNZ-M120S/P3	7TAA292150R0691	4/13	NVNZ-M406S/P1	7TAA292150R0760	4/13
NVIZR-P488	7TAA292610R0149	4/30	NVNZ-M120S/P3-L	7TCA292000R0255	4/14	NVNZ-M406S/P2	7TAA292150R0761	4/13
NVN3-07	7TAA292800R0008	6/6	NVNZ-M160R/P	7TAA292150R0692	4/13	NVNZ-M409R/P	7TAA292150R0762	4/13
NVN3-09	7TAA292800R0009	6/6	NVNZ-M160R/P-L	7TAA292150R0693	4/14	NVNZ-M409R/P-L	7TAA292150R0763	4/14
NVN3-11	7TAA292800R0010	6/6	NVNZ-M160S/P1	7TAA292150R0696	4/13	NVNZ-M409S/P1	7TAA292150R0766	4/13
NVN3-16	7TAA292800R0011	6/6	NVNZ-M160S/P1-L	7TAA292150R0697	4/14	NVNZ-M409S/P2	7TAA292150R0767	4/13
NVN3-21	7TAA292800R0012	6/6	NVNZ-M160S/P2	7TAA292150R0698	4/13	NVNZ-M409S/P3	7TCA292000R0288	4/13
NVN3-29	7TAA292800R0013	6/6	NVNZ-M160S/P2-L	7TAA292150R0699	4/14	NVNZ-M409S/P3-L	7TAA292150R0768	4/14
NVN3-36	7TAA292800R0014	6/6	NVNZ-M160S/P3	7TAA292150R0700	4/13	NVNZ-M409S/P4	7TAA292150R0769	4/13
NVN3-48	7TAA292800R0015	6/6	NVNZ-M160S/P3-L	7TAA292150R0701	4/14	NVNZ-M409S/P4-L	7TAA292150R0770	4/14
NVNV-M120-10	7TAA292150R0649	4/12	NVNZ-M202R/P	7TAA292150R0704	4/13	NVNZ-M409S/P5	7TAA292150R0771	4/13
NVNV-M120-5	7TAA292150R0650	4/12	NVNZ-M202R/P-L	7TAA292150R0705	4/14	NVNZ-M409S/P5-L	7TAA292150R0772	4/14
NVNV-M160-10	7TAA292150R0651	4/12	NVNZ-M202S/P1	7TAA292150R0708	4/13	NVNZ-M506R/P	7TAA292150R0773	4/13
NVNV-M160-5	7TAA292150R0652	4/12	NVNZ-M202S/P1-L	7TAA292150R0709	4/14	NVNZ-M506R/P-L	7TAA292150R0774	4/14
NVNV-M162-10	7TAA292150R0653	4/12	NVNZ-M202S/P3	7TAA292150R0710	4/13	NVNZ-M506S/P1	7TAA292150R0777	4/13
NVNV-M162-5	7TAA292150R0654	4/12	NVNZ-M202S/P3-L	7TAA292150R0711	4/14	NVNZ-M506S/P1-L	7TAA292150R0778	4/14
NVNV-M202-10	7TAA292150R0655	4/12	NVNZ-M202S/P4	7TAA292150R0712	4/13	NVNZ-M506S/P3	7TAA292150R0779	4/13
NVNV-M202-6	7TAA292150R0656	4/12	NVNZ-M202S/P4-L	7TAA292150R0713	4/14	NVNZ-M506S/P3-L	7TAA292150R0780	4/14
NVNV-M207-10	7TAA292150R0657	4/12	NVNZ-M207R/P	7TAA292150R0714	4/13	NVNZ-M508R/P	7TAA292150R0781	4/13
NVNV-M207-6	7TAA292150R0658	4/12	NVNZ-M207R/P-L	7TAA292150R0715	4/14	NVNZ-M508R/P-L	7TAA292150R0782	4/14
NVNV-M253-11	7TAA292150R0659	4/12	NVNZ-M207S/P3	7TAA292150R0718	4/13	NVNZ-M508S/P2	7TAA292150R0785	4/13
NVNV-M253-7	7TAA292150R0660	4/12	NVNZ-M207S/P3-L	7TAA292150R0719	4/14	NVNZ-M508S/P2-L	7TAA292150R0786	4/14
NVNV-M257-11	7TAA292150R0661	4/12	NVNZ-M207S/P4	7TAA292150R0720	4/13	NVNZ-M508S/P3	7TAA292150R0787	4/13
NVNV-M257-7	7TAA292150R0662	4/12	NVNZ-M207S/P4-L	7TAA292150R0721	4/14	NVNZ-M508S/P3-L	7TAA292150R0788	4/14
NVNV-M323-13	7TAA292150R0663	4/12	NVNZ-M207S/P5	7TAA292150R0722	4/13	NVNZ-M638R/P	7TAA292150R0789	4/13
NVNV-M323-8	7TAA292150R0664	4/12	NVNZ-M207S/P5-L	7TAA292150R0723	4/14	NVNZ-M638R/P-L	7TAA292150R0790	4/14
NVNV-M329-13	7TAA292150R0665	4/12	NVNZ-M253R/P	7TAA292150R0724	4/13	NVNZ-M638S/P1	7TAA292150R0793	4/13
NVNV-M329-8	7TAA292150R0666	4/12	NVNZ-M253S/P5	7TAA292150R0728	4/13	NVNZ-M638S/P1-L	7TAA292150R0794	4/14
NVNV-M406-13	7TAA292150R0667	4/12	NVNZ-M253S/P6	7TAA292150R0729	4/13	NVNZ-M638S/P2	7TAA292150R0795	4/13
NVNV-M406-8	7TAA292150R0668	4/12	NVNZ-M257R/P	7TAA292150R0730	4/13	NVNZ-M638S/P2-L	7TAA292150R0796	4/14
NVNV-M409-13	7TAA292150R0669	4/12	NVNZ-M257R/P-L	7TAA292150R0731	4/14	NVNZ-P090R/P	7TAA292150R0803	4/24
NVNV-M409-8	7TAA292150R0670	4/12	NVNZ-M257S/P4	7TAA292150R0734	4/13	NVNZ-P090S/P1	7TCA292000R0296	4/24
NVNV-M506-14	7TAA292150R0671	4/12	NVNZ-M257S/P5	7TAA292150R0735	4/13	NVNZ-P090S/P3	7TAA292150R0806	4/24
NVNV-M506-9	7TAA292150R0672	4/12	NVNZ-M257S/P5-L	7TAA292150R0736	4/14	NVNZ-P110R/P	7TAA292150R0809	4/24
NVNV-M508-14	7TAA292150R0673	4/12	NVNZ-M257S/P6	7TAA292150R0737	4/13	NVNZ-P110S/P1	7TAA292150R0812	4/24
NVNV-M508-9	7TAA292150R0674	4/12	NVNZ-M257S/P6-L	7TAA292150R0738	4/14	NVNZ-P110S/P3	7TAA292150R0813	4/24
NVNV-M638-10	7TAA292150R0675	4/12	NVNZ-M323R/P	7TAA292150R0739	4/13	NVNZ-P112R/P	7TAA292150R0816	4/24
NVNV-M638-14	7TAA292150R0676	4/12	NVNZ-M323R/P-L	7TAA292150R0740	4/14	NVNZ-P112S/P1	7TAA292150R0819	4/24
NVNV-P090	7TAA292150R0677	4/23	NVNZ-M323R1/P	7TAA292150R0741	4/13	NVNZ-P112S/P3	7TAA292150R0820	4/24
NVNV-P112	7TAA292150R0678	4/23	NVNZ-M323R1/P-L	7TAA292150R0742	4/14	NVNZ-P112S/P4	7TAA292150R0821	4/24

Order No.	GID No.	Page
NVNZ-P160R/P		4/24
NVNZ-P160S/P1	7TAA292150R0822	4/24
NVNZ-P167R/P	7TAA292150R0825	4/24
NVNZ-P167S/P3	7TAA292150R0828	4/24
NVNZ-P167S/P4	7TAA292150R0829	4/24
NVNZ-P167S/P5	7TAA292150R0830	4/24
NVNZ-P167S/P6	7TAA292150R0831	4/24
NVNZ-P213R/P	7TAA292150R0834	4/24
NVNZ-P213R1/P	7TAA292150R0836	4/24
NVNZ-P213S/P1	7TCA292000R0301	4/24
NVNZ-P213S/P4	7TAA292150R0839	4/24
NVNZ-P213S/P5	7TAA292150R0840	4/24
NVNZ-P299R/P	7TAA292150R0843	4/24
NVNZ-P299S/P3	7TAA292150R0846	4/24
NVNZ-P299S/P4	7TAA292150R0847	4/24
NVNZ-P299S/P5	7TAA292150R0848	4/24
NVNZ-P366R/P	7TAA292150R0851	4/24
NVNZ-P366S/P1	7TAA292150R0854	4/24
NVNZ-P366S/P2	7TAA292150R0855	4/24
NVNZ-P366S/P3	7TAA292150R0856	4/24
NVNZ-P488R/P	7TAA292150R0859	4/24
NVNZ-P488S/P1	7TAA292150R0862	4/24
NVNZ-P488S/P2	7TAA292150R0863	4/24
NVWV-M120-10	7TAA292150R0864	4/17
NVWV-M120-5	7TAA292150R0865	4/17
NVWV-M160-10	7TAA292150R0866	4/17
NVWV-M160-5	7TAA292150R0867	4/17
NVWV-M162-10	7TAA292150R0868	4/17
NVWV-M162-5	7TAA292150R0869	4/17
NVWV-M202-10	7TAA292150R0870	4/17
NVWV-M202-6	7TAA292150R0871	4/17
NVWV-M207-10	7TAA292150R0872	4/17
NVWV-M207-6	7TAA292150R0873	4/17
NVWV-M253-11	7TAA292150R0874	4/17
NVWV-M253-7	7TAA292150R0875	4/17
NVWV-M329-13	7TAA292150R0876	4/17
NVWV-M329-8	7TAA292150R0877	4/17
NVWV-M406-13	7TAA292150R0878	4/17
NVWV-M406-8	7TAA292150R0879	4/17
NVWV-M508-14	7TAA292150R0880	4/17
NVWV-M508-9	7TAA292150R0881	4/17
NVWV-M638-10	7TAA292150R0882	4/17
NVWV-M638-14	7TAA292150R0883	4/17
NVWV-P090	7TAA292150R0884	4/25
NVWV-P112	7TAA292150R0885	4/25
NVWV-P137	7TAA292150R0886	4/25
NVWV-P167	7TAA292150R0887	4/25
NVWV-P213	7TAA292150R0888	4/25
NVWV-P299	7TAA292150R0889	4/25
NVWV-P366	7TAA292150R0890	4/25
NVWV-P488	7TAA292150R0891	4/25
NVWZ-M160R/P	7TAA292150R0892	4/18

Order No.	GID No.	Page
NVWZ-M160S/P1	7TAA292150R0893	4/18
NVWZ-M160S/P2	7TAA292150R0894	4/18
NVWZ-M160S/P3	7TAA292150R0895	4/18
NVWZ-M202R/P	7TAA292150R0896	4/18
NVWZ-M202S/P1	7TAA292150R0897	4/18
NVWZ-M202S/P3	7TAA292150R0898	4/18
NVWZ-M202S/P4	7TAA292150R0899	4/18
NVWZ-M207R/P	7TAA292150R0900	4/18
NVWZ-M207S/P1	7TCA292000R3285	4/18
NVWZ-M207S/P3	7TAA292150R0901	4/18
NVWZ-M207S/P4	7TAA292150R0902	4/18
NVWZ-M207S/P5	7TAA292150R0903	4/18
NVWZ-M257R/P	7TAA292150R0904	4/18
NVWZ-M257S/P5	7TAA292150R0905	4/18
NVWZ-M257S/P6	7TAA292150R0906	4/18
NVWZ-M323S/P4	7TCA292000R3286	4/18
OVN2-07	7TAA292700R0042	6/5
OVN2-10	7TAA292700R0043	6/5
OVN2-12	7TAA292700R0044	6/5
OVN2-17	7TAA292700R0045	6/5
OVN2-23	7TAA292700R0046	6/5
OVN2-29	7TAA292700R0047	6/5
OVN2-36	7TAA292700R0048	6/5
OVN2-48	7TAA292700R0049	6/5
PACOF-07B	7TAA292730R0000	2/23, 8/4
PACOF-10B	7TAA292730R0001	2/23, 8/4
PACOF-12B	7TAA292730R0002	2/23, 8/4
PACOF-17B	7TAA292730R0004	2/23, 8/4
PACOF-23B	7TAA292730R0006	2/23, 8/4
PACOF-29B	7TAA292730R0008	2/23, 8/4
PACOF-36B	7TAA292730R0009	2/23, 8/4
PACOF-48B	7TAA292730R0010	2/23, 8/4
PACOF-70B	7TAA292730R0011	2/23, 8/4
PCLG-125B	7TAA292360R0011	2/12, 7/4
PCLG-125S	7TAA292360R0012	2/12, 7/4
PCLG-17B	7TAA292240R0059	2/12
PCLG-17S	7TAA292240R0060	2/12
PCLG-23B	7TAA292240R0062	2/12
PCLG-23S	7TAA292240R0063	2/12
PCLG-29B	7TAA292240R0065	2/12
PCLG-29S	7TAA292240R0066	2/12
PCLG-36B	7TAA292240R0069	2/12
PCLG-36S	7TAA292240R0071	2/12
PCLG-48B	7TAA292240R0073	2/12
PCLG-48S	7TAA292240R0075	2/12
PCLG-56B	7TAA292360R0013	2/12, 7/4
PCLG-56S	7TAA292360R0015	2/12, 7/4
PCLG-70B	7TAA292360R0017	2/12, 7/4
PCLG-70S	7TAA292360R0019	2/12, 7/4
PCLG-95B	7TAA292360R0021	2/12, 7/4
PCLG-95S	7TAA292360R0023	2/12, 7/4
PCLT-07B	7TAA292240R0076	2/12

Order No.	GID No.	Page
PCLT-07S	7TAA292240R0077	2/12
PCLT-10B	7TAA292240R0078	2/12
PCLT-10S	7TAA292240R0079	2/12
PCLT-12B	7TAA292240R0080	2/12
PCLT-12S	7TAA292240R0081	2/12
PCLT-17B	7TAA292240R0083	2/12
PCLT-17S	7TAA292240R0085	2/12
PCLT-23B	7TAA292240R0086	2/12
PCLT-23S	7TAA292240R0088	2/12
PCLT-29B	7TAA292240R0089	2/12
PCLT-29S	7TAA292240R0091	2/12
PCLT-36B	7TAA292240R0092	2/12
PCLT-36S	7TCA292000R3533	2/12
PCLT-48B	7TCA292000R3535	2/12
PCLT-48S	7TCA292000R3536	2/12
PCSG-17B	7TAA292240R0093	2/13
PCSG-17S	7TAA292240R0094	2/13
PCSG-23B	7TAA292240R0096	2/13
PCSG-23S	7TAA292240R0098	2/13
PCSG-29B	7TAA292240R0099	2/13
PCSG-29S	7TAA292240R0100	2/13
PCSG-36B	7TAA292240R0101	2/13
PCSG-36S	7TAA292240R0102	2/13
PCSG-48B	7TAA292240R0103	2/13
PCSG-48S	7TAA292240R0104	2/13
PCSG-56B	7TAA292360R0025	2/13, 7/4
PCSG-56S	7TAA292360R0026	2/13, 7/4
PCSG-70B	7TAA292360R0027	2/13, 7/4
PCSG-70S	7TCA292000R0303	2/13, 7/4
PCSG-95B	7TAA292360R0029	2/13, 7/4
PCSG-95S	7TAA292360R0030	2/13, 7/4
PCSLG-17B	7TAA292240R0105	2/13
PCSLG-17S	7TCA292000R5792	2/13
PCSLG-23B	7TAA292240R0106	2/13
PCSLG-23S	7TCA292000R5793	2/13
PCSLG-29B	7TAA292240R0107	2/13
PCSLG-29S	7TCA292000R5794	2/13
PCSLG-36B	7TAA292240R0108	2/13
PCSLG-36S	7TCA292000R5795	2/13
PCSLG-48B	7TAA292240R0109	2/13
PCSLG-48S	7TCA292000R5796	2/13
PCSLT-07B	7TAA292240R0110	2/13
PCSLT-07S	7TCA292000R5797	2/13
PCSLT-10B	7TAA292240R0111	2/13
PCSLT-10S	7TCA292000R5798	2/13
PCSLT-12B	7TAA292240R0112	2/13
PCSLT-12S	7TCA292000R5799	2/13
PCSLT-17B	7TAA292240R0113	2/13
PCSLT-17S	7TCA292000R5800	2/13
PCST-07B	7TAA292240R0115	2/13
PCST-07S	7TAA292240R0116	2/13
PCST-10B	7TAA292240R0117	2/13

Index

Products in alphabetical order

Order No.	GID No.	Page	Order No.	GID No.	Page	Order No.	GID No.	Page
PCST-10S	7TAA292240R0118	2/13	PIST-12S	7TAA292240R0158	2/14	POHT-10S	7TAA292430R0028	2/10
PCST-12B	7TAA292240R0119	2/13	PIST-17B	7TAA292240R0160	2/14	POHT-12B	7TAA292430R0029	2/10
PCST-12S	7TAA292240R0120	2/13	PIST-17S	7TAA292240R0161	2/14	POHT-12S	7TAA292430R0030	2/10
PCST-17B	7TAA292240R0121	2/13	PIST-23B	7TAA292240R0163	2/14	POSG-29B	7TCA292000R5823	2/15
PCST-17S	7TAA292240R0122	2/13	PIST-23S	7TAA292240R0164	2/14	POSG-36B	7TCA292000R3749	2/15
PELT-10S	7TAA292240R0123	2/14	PIST-29B	7TAA292240R0165	2/14	POSG-48B	7TCA292000R3750	2/15
PELT-10SL	7TAA292240R0124	2/14	PIST-29S	7TAA292240R0166	2/14	POSG-70B	7TAA292900R0008	2/15
PELT-12S	7TAA292240R0125	2/14	PIST-36B	7TAA292240R0167	2/14	POSG-95B	7TCA292000R0304	2/15
PELT-12SL	7TAA292240R0126	2/14	PIST-36S	7TAA292240R0168	2/14	POST-10B	7TAA292240R0171	2/15
PELT-17S	7TAA292240R0127	2/14	PIST-48B	7TAA292240R0169	2/14	POST-12B	7TAA292240R0172	2/15
PELT-17SL	7TAA292240R0128	2/14	PIST-48S	7TAA292240R0170	2/14	POST-17B	7TAA292240R0173	2/15
PELT-23S	7TAA292240R0131	2/14	PLRG-17B	7TCA292000R6231	2/18	POST-23B	7TAA292240R0174	2/15
PELT-23SL	7TAA292240R0132	2/14	PLRG-17S	7TCA292000R6259	2/18	POST-29B	7TAA292240R0175	2/15
PELT-29S	7TAA292240R0133	2/14	PLRG-23B	7TCA292000R6232	2/18	POST-36B	7TAA292240R0176	2/15
PELT-29SL	7TAA292240R0134	2/14	PLRG-23S	7TCA292000R6260	2/18	POST-48B	7TAA292240R0177	2/15
PELT-36S	7TAA292240R0135	2/14	PLRG-29B	7TCA292000R6233	2/18	PPCOF-07B	7TAA292730R0012	2/23, 8/4
PELT-36SL	7TAA292240R0136	2/14	PLRG-29S	7TCA292000R6261	2/18	PPCOF-10B	7TAA292730R0013	2/23, 8/4
PELT-48S	7TAA292240R0137	2/14	PLRG-36B	7TCA292000R6234	2/18	PPCOF-12B	7TAA292730R0014	2/23, 8/4
PELT-48SL	7TAA292240R0138	2/14	PLRG-36S	7TCA292000R6262	2/18	PPCOF-17B	7TAA292730R0016	2/23, 8/4
PHTG-17B	7TAA292430R0000	2/9	PLRG-48B	7TCA292000R6235	2/18	PPCOF-23B	7TAA292730R0018	2/23, 8/4
PHTG-23B	7TAA292430R0001	2/9	PLRG-48S	7TCA292000R6263	2/18	PPCOF-29B	7TAA292730R0020	2/23, 8/4
PHTG-29B	7TAA292430R0002	2/9	PLRT-07B	7TCA292000R6236	2/18	PPCOF-36B	7TAA292730R0021	2/23, 8/4
PHTG-36B	7TAA292430R0003	2/9	PLRT-07S	7TCA292000R6264	2/18	PPCOF-48B	7TAA292730R0022	2/23, 8/4
PHTG-48B	7TAA292430R0004	2/9	PLRT-10B	7TCA292000R6237	2/18	PPCOF-70B	7TAA292730R0023	2/23, 8/4
PHTT-07B	7TAA292430R0005	2/9	PLRT-10S	7TCA292000R6265	2/18	PSXG-23B	7TAA292430R0032	2/10
PHTT-10B	7TAA292430R0006	2/9	PLRT-12B	7TCA292000R6238	2/18	PSXG-29B	7TAA292430R0033	2/10
PHTT-12B	7TAA292430R0007	2/9	PLRT-12S	7TCA292000R6266	2/18	PSXG-36B	7TAA292430R0034	2/10
PHTT-17B	7TAA292430R0008	2/9	PLUG-17B	7TAA292430R0010	2/9	PSXG-48B	7TAA292430R0035	2/10
PHTT-23B	7TAA292430R0009	2/9	PLUG-23B	7TAA292430R0011	2/9	PSXT-10B	7TAA292430R0036	2/10
PIHG-125B	7TAA292360R0031	2/14, 7/4	PLUG-29B	7TAA292430R0012	2/9	PSXT-12B	7TAA292430R0037	2/10
PIHG-125S	7TAA292360R0032	2/14, 7/4	PLUG-36B	7TAA292430R0013	2/9	PSXT-17B	7TCA292000R0305	2/10
PIHG-56B	7TAA292360R0033	2/14, 7/4	PLUG-48B	7TAA292430R0014	2/9	PUEG-56B	7TAA292360R0043	2/15, 7/4
PIHG-56S	7TAA292360R0034	2/14, 7/4	PLUT-10B	7TAA292430R0015	2/9	PUEG-70B	7TAA292360R0044	2/15, 7/4
PIHG-70B	7TAA292360R0036	2/14, 7/4	PLUT-12B	7TAA292430R0016	2/9	PUET-23B	7TAA292900R0004	2/15
PIHG-70S	7TAA292360R0038	2/14, 7/4	PMA-Tie-tool	7TCA292000R3742	10/9	PUET-29B	7TAA292900R0005	2/15
PIHG-95B	7TAA292360R0040	2/14, 7/4	PMACUT-38	7TAA292880R0006	6/18	PUET-36B	7TAA292900R0006	2/15
PIHG-95S	7TAA292360R0042	2/14, 7/4	PMACUT-52	7TAA292880R0007	6/18	PUET-48B	7TAA292900R0007	2/15
PISG-17B	7TAA292240R0139	2/14	PMACUT-NW125	7TAA292880R0011	6/18	PUSG-17B	7TAA292490R0006	2/21
PISG-17S	7TAA292240R0140	2/14	PMACUT-NW56	7TAA292880R0008	6/18	PUSG-17S		2/21
PISG-23B	7TAA292240R0142	2/14	PMACUT-NW70	7TAA292880R0009	6/18	PUSG-23B	7TAA292490R0007	2/21
PISG-23S	7TAA292240R0143	2/14	PMACUT-NW95	7TAA292880R0010	6/18	PUSG-23S		2/21
PISG-29B	7TAA292240R0144	2/14	POHG-17B	7TAA292430R0017	2/10	PUSG-29B	7TAA292490R0008	2/21
PISG-29S	7TAA292240R0145	2/14	POHG-17S	7TAA292430R0018	2/10	PUSG-29S		2/21
PISG-36B	7TAA292240R0147	2/14	POHG-23B	7TAA292430R0019	2/10	PUSG-36B	7TAA292490R0009	2/21
PISG-36S	7TAA292240R0149	2/14	POHG-23S	7TAA292430R0020	2/10	PUSG-36S		2/21
PISG-48B	7TAA292240R0151	2/14	POHG-29B	7TAA292430R0021	2/10	PUSG-48B	7TAA292490R0010	2/21
PISG-48S	7TAA292240R0152	2/14	POHG-29S	7TAA292430R0022	2/10	PUSG-48S		2/21
PIST-07B	7TAA292240R0153	2/14	POHG-36B	7TAA292430R0023	2/10	PVDT-10P	7TAA292240R0178	2/16
PIST-07S	7TAA292240R0154	2/14	POHG-36S	7TAA292430R0024	2/10	PVDT-12P	7TAA292240R0179	2/16
PIST-10B	7TAA292240R0155	2/14	POHG-48B	7TAA292430R0025	2/10	PVDT-17P	7TAA292240R0180	2/16
PIST-10S	7TAA292240R0156	2/14	POHG-48S	7TAA292430R0026	2/10	PVDT-23P	7TAA292240R0181	2/16
PIST-12B	7TAA292240R0157	2/14	POHT-10B	7TAA292430R0027	2/10	PVDT-29P	7TCA292000R3817	2/16

Order No.	GID No.	Page
RKS-07	7TAA292150R0907	6/16
RKS-10	7TAA292150R0908	6/16
RKS-12	7TAA292150R0909	6/16
RKS-17	7TAA292150R0910	6/16
RKS-23	7TAA292150R0911	6/16
RKS-29	7TAA292150R0912	6/16
RKS-36	7TAA292150R0913	6/16
RKS-48	7TAA292150R0914	6/16
RKS-56	7TAA292150R0915	6/16
SCA-M16-10	7TAA292630R0000	5/7
SCA-M20-10	7TAA292630R0001	5/7
SCA-M25-11	7TAA292630R0002	5/7
SCA-M32-13	7TAA292630R0003	5/7
SCA-M40-13	7TAA292630R0004	5/7
SCA-M50-14	7TAA292630R0005	5/7
SCA-M63-14	7TAA292630R0006	5/7
SCA-P09	7TAA292630R0007	5/7
SCA-P11	7TAA292630R0008	5/7
SCA-P16	7TAA292630R0009	5/7
SCA-P21	7TAA292630R0010	5/7
SCA-P29	7TAA292630R0011	5/7
SCA-P36	7TAA292630R0012	5/7
SCA-P48	7TAA292630R0013	5/7
SFH-07-0	7TAA292700R0050	6/13
SFH-10-0	7TAA292700R0051	6/13
SFH-12-0	7TAA292700R0052	6/13
SFH-17-0	7TAA292700R0053	6/13
SFH-23-0	7TAA292700R0054	6/13
SFH-29-0	7TAA292700R0055	6/13
SFH-36-0	7TAA292700R0056	6/13
SFH-48-0	7TAA292700R0057	6/13
SFHS-00	7TAA292700R0058	6/13
SFHS-PH	7TAA292700R0060	6/13
SFHS-PH1	7TAA292700R0061	6/13
SGB-07	7TAA292720R0027	6/14
SGB-09	7TAA292720R0029	6/14
SGB-11	7TAA292720R0031	6/14
SGB-16	7TAA292720R0036	6/14
SGB-21	7TAA292720R0039	6/14
SGB-29	7TAA292720R0043	6/14
SGB-36	7TAA292720R0044	6/14
SGB-48	7TAA292720R0046	6/14
SGG-125	7TAA292860R0033	7/5
SGG-56	7TAA292860R0034	7/5
SGG-70	7TAA292860R0035	7/5
SGG-95	7TAA292860R0036	7/5
SGG-M6356	7TCA292000R4106	7/7
SGG-P3656	7TCA292000R4107	7/7
SGH-23	7TAA292720R0047	6/14
SGH-29	7TAA292720R0048	6/14
SGH-36	7TAA292720R0049	6/14
SGH-48	7TAA292720R0050	6/14

Order No.	GID No.	Page
SGH-56	7TAA292720R0051	6/14, 7/8
SGH-70	7TAA292720R0052	6/14, 7/8
SGH-95	7TAA292720R0053	6/14, 7/8
SGI-M7556	7TCA292000R4118	7/7
SGL-07	7TAA292720R0054	6/14
SGL-10	7TAA292720R0055	6/14
SGL-12	7TAA292720R0056	6/14
SGL-17	7TAA292720R0057	6/14
SGL-23	7TAA292720R0058	6/14
SGL-29	7TAA292720R0059	6/14
SGO-56	7TAA292860R0037	7/5
SGO-70	7TAA292860R0038	7/5
SGO-95	7TAA292860R0039	7/5
SGO3-125	7TAA292980R0000	7/8
SGO3-56	7TAA292980R0001	7/8
SGO3-70	7TAA292980R0002	7/8
SGO3-95	7TAA292980R0003	7/8
SGP-12/01	7TCA292000R6638	6/15
SGP-17	7TCA292000R6637	6/15
SGP-23	7TCA292000R6639	6/15
SGP-29	7TCA292000R6640	6/15
SGP-36	7TCA292000R6641	6/15
SGP-48	7TCA292000R6643	6/15
SGP-56G	7TCA292000R4132	6/15
SGS-125	7TAA292720R0060	7/8
SGS-36	7TAA292720R0061	7/8
SGS-48	7TAA292720R0062	7/8
SGS-56	7TAA292720R0063	7/8
SGS-70	7TAA292720R0064	7/8
SGS-95	7TAA292720R0065	7/8
SLAD-M120	7TAA292000R0098	9/7
SLAD-M160	7TAA292000R0099	9/7
SLAD-M162	7TAA292000R0100	9/7
SLAD-M202	7TAA292000R0101	9/7
SLAD-M207	7TAA292000R0102	9/7
SLAD-M253	7TAA292000R0103	9/7
SLAD-M257	7TAA292000R0104	9/7
SLAD-M323	7TAA292000R0105	9/7
SLAD-M329	7TAA292000R0106	9/7
SLAD-M406	7TAA292000R0107	9/7
SLAD-M409	7TAA292000R0108	9/7
SLAD-M506	7TAA292000R0109	9/7
SLAD-M508	7TAA292000R0110	9/7
SLAD-M638	7TAA292000R0111	9/7
SLAD-P090	7TAA292000R0112	9/9
SLAD-P112	7TAA292000R0113	9/9
SLAD-P132	7TAA292000R0114	9/9
SLAD-P137	7TAA292000R0115	9/9
SLAD-P167	7TAA292000R0116	9/9
SLAD-P213	7TAA292000R0117	9/9
SLAD-P299	7TAA292000R0118	9/9
SLAD-P366	7TAA292000R0119	9/9

Order No.	GID No.	Page
SLAD-P488	7TAA292000R0120	9/9
SLND-M120	7TAA292000R0121	9/7
SLND-M160	7TAA292000R0122	9/7
SLND-M162	7TAA292000R0123	9/7
SLND-M200	7TAA292000R0124	9/7
SLND-M202	7TAA292000R0125	9/7
SLND-M207	7TAA292000R0126	9/7
SLND-M253	7TAA292000R0127	9/7
SLND-M257	7TAA292000R0128	9/7
SLND-M323	7TAA292000R0129	9/7
SLND-M329	7TAA292000R0130	9/7
SLND-M406	7TAA292000R0131	9/7
SLND-M409	7TAA292000R0132	9/7
SLND-M506	7TAA292000R0133	9/7
SLND-M508	7TAA292000R0134	9/7
SLND-M638	7TAA292000R0135	9/7
SLND-P070	7TAA292000R0136	9/8
SLND-P090	7TAA292000R0137	9/8
SLND-P092	7TAA292000R0138	9/8
SLND-P110	7TAA292000R0139	9/8
SLND-P112	7TAA292000R0140	9/8
SLND-P132	7TAA292000R0141	9/8
SLND-P137	7TAA292000R0142	9/8
SLND-P167	7TAA292000R0143	9/8
SLND-P213	7TAA292000R0144	9/8
SLND-P299	7TAA292000R0145	9/8
SLND-P366	7TAA292000R0146	9/8
SLND-P488	7TAA292000R0147	9/8
SLWD-M120	7TAA292000R0148	9/8
SLWD-M160	7TAA292000R0149	9/8
SLWD-M162	7TAA292000R0150	9/8
SLWD-M202	7TAA292000R0151	9/8
SLWD-M207	7TAA292000R0152	9/8
SLWD-M253	7TAA292000R0153	9/8
SLWD-M257	7TAA292000R0154	9/8
SLWD-M323	7TAA292000R0155	9/8
SLWD-M329	7TAA292000R0156	9/8
SLWD-M406	7TAA292000R0157	9/8
SLWD-M409	7TAA292000R0158	9/8
SLWD-M506	7TAA292000R0159	9/8
SLWD-M508	7TAA292000R0160	9/8
SLWD-M638	7TAA292000R0161	9/8
SLWD-P070	7TAA292000R0162	9/9
SLWD-P090	7TAA292000R0163	9/9
SLWD-P092	7TAA292000R0164	9/9
SLWD-P110	7TAA292000R0165	9/9
SLWD-P112	7TAA292000R0166	9/9
SLWD-P130	7TAA292000R0167	9/9
SLWD-P132	7TAA292000R0168	9/9
SLWD-P137	7TCA292000R4141	9/9
SLWD-P167	7TAA292000R0169	9/9
SLWD-P213	7TAA292000R0170	9/9

Index

Products in alphabetical order

Order No.	GID No.	Page	Order No.	GID No.	Page	Order No.	GID No.	Page
SLWD-P299	7TAA292000R0171	9/9	SVAV-M162	7TAA292150R0978	4/10	SVBV-P299	7TAA292150R1029	4/21
SLWD-P366	7TAA292000R0172	9/9	SVAV-M202	7TAA292150R0979	4/10	SVBV-P366	7TAA292150R1030	4/21
SLWD-P488	7TAA292000R0173	9/9	SVAV-M207	7TAA292150R0980	4/10	SVBV-P488	7TAA292150R1031	4/21
SRER-06	7TAA292920R0008	10/7	SVAV-M253	7TAA292150R0981	4/10	SVH-17-000	7TAA292700R0063	6/12
SRER-16	7TAA292920R0009	10/7	SVAV-M329	7TAA292150R0982	4/10	SVH-17-010	7TAA292700R0064	6/12
SRER-21	7TAA292920R0010	10/7	SVAV-M406	7TAA292150R0983	4/10	SVH-17-020	7TAA292700R0065	6/12
SRER-29	7TAA292920R0011	10/7	SVAV-M506	7TAA292150R0984	4/10	SVH-23-000	7TAA292700R0066	6/12
SRER-50	7TAA292920R0012	10/7	SVAV-M508	7TAA292150R0985	4/10	SVH-23-010	7TAA292700R0067	6/12
SREV-40	7TAA292920R0013	10/7	SVAV-M638	7TAA292150R0986	4/10	SVH-23-020	7TAA292700R0068	6/12
SVAD-G000GT	7TAA292150R0938	4/26	SVAV-N022	7TAA292150R0987	4/27	SVH-29-000	7TAA292700R0069	6/12
SVAD-G012GT	7TAA292150R0939	4/26	SVAV-N027	7TAA292150R0988	4/27	SVH-29-010	7TAA292700R0070	6/12
SVAD-G027GT	7TAA292150R0940	4/26	SVAV-N043	7TAA292150R0989	4/27	SVH-29-020	7TAA292700R0071	6/12
SVAD-G043GT	7TAA292150R0941	4/26	SVAV-N069	7TAA292150R0990	4/27	SVH-36-000	7TAA292700R0072	6/12
SVAD-G069GT	7TAA292150R0942	4/26	SVAV-N076	7TAA292150R0991	4/27	SVH-36-010	7TAA292700R0073	6/12
SVAD-G076GT	7TAA292150R0943	4/26	SVAV-N088	7TAA292150R0992	4/27	SVH-36-020	7TAA292700R0074	6/12
SVAD-G088GT		4/26	SVAV-N098		4/27	SVH-48-000	7TAA292700R0075	6/12
SVAD-G098GT	7TAA292150R0944	4/26	SVAV-P090	7TAA292150R0993	4/20	SVH-48-010	7TAA292700R0076	6/12
SVAD-M120GT	7TAA292150R0945	4/10	SVAV-P112	7TAA292150R0994	4/20	SVH-48-020	7TAA292700R0077	6/12
SVAD-M160GT	7TAA292150R0946	4/10	SVAV-P132	7TAA292150R0995	4/20	SVN4-07	7TAA292640R0000	6/4
SVAD-M162GT	7TAA292150R0947	4/10	SVAV-P137	7TAA292150R0996	4/20	SVN4-09	7TAA292640R0001	6/4
SVAD-M202GT	7TAA292150R0948	4/10	SVAV-P167	7TAA292150R0997	4/20	SVN4-11	7TAA292640R0002	6/4
SVAD-M207GT	7TAA292150R0949	4/10	SVAV-P213	7TAA292150R0998	4/20	SVN4-13	7TAA292640R0003	6/4
SVAD-M253GT	7TAA292150R0950	4/10	SVAV-P299	7TAA292150R0999	4/20	SVN4-16	7TAA292640R0004	6/4
SVAD-M329GT	7TAA292150R0951	4/10	SVAV-P366	7TAA292150R1000	4/20	SVN4-21	7TAA292640R0005	6/4
SVAD-M406GT	7TAA292150R0952	4/10	SVAV-P488	7TAA292150R1001	4/20	SVN4-29	7TAA292640R0006	6/4
SVAD-M506GT	7TAA292150R0953	4/10	SVBD-M207GT	7TAA292150R1002	4/11	SVN4-36	7TAA292640R0007	6/4
SVAD-M508GT	7TAA292150R0954	4/10	SVBD-M253GT	7TAA292150R1003	4/11	SVN4-42	7TAA292640R0008	6/4
SVAD-M638GT	7TAA292150R0955	4/10	SVBD-M257GT	7TAA292150R1004	4/11	SVN4-48	7TAA292640R0009	6/4
SVAD-N022GT	7TAA292150R0956	4/27	SVBD-M323GT	7TAA292150R1005	4/11	SVN4-G00	7TAA292640R0010	6/4
SVAD-N027GT	7TAA292150R0957	4/27	SVBD-M329GT	7TAA292150R1006	4/11	SVN4-G01	7TAA292640R0011	6/4
SVAD-N043GT	7TAA292150R0958	4/27	SVBD-M406GT	7TAA292150R1007	4/11	SVN4-G02	7TAA292640R0012	6/4
SVAD-N069GT	7TAA292150R0959	4/27	SVBD-M409GT	7TAA292150R1008	4/11	SVN4-G04	7TAA292640R0013	6/4
SVAD-N076GT	7TAA292150R0960	4/27	SVBD-M506GT	7TAA292150R1009	4/11	SVN4-G06	7TAA292640R0014	6/4
SVAD-N088GT	7TAA292150R0961	4/27	SVBD-M508GT	7TAA292150R1010	4/11	SVN4-G07	7TAA292640R0015	6/4
SVAD-N098GT		4/27	SVBD-M638GT	7TAA292150R1011	4/11	SVN4-G08	7TAA292640R0016	6/4
SVAD-P090GT	7TAA292150R0962	4/20	SVBD-P167GT	7TAA292150R1012	4/21	SVN4-G09	7TAA292640R0017	6/4
SVAD-P112GT	7TAA292150R0963	4/20	SVBD-P213GT	7TAA292150R1013	4/21	SVN4-M12	7TAA292640R0018	6/4
SVAD-P132GT	7TCA292000R4203	4/20	SVBD-P299GT	7TAA292150R1014	4/21	SVN4-M12/02	7TAA292640R0019	6/4
SVAD-P137GT	7TAA292150R0964	4/20	SVBD-P366GT	7TAA292150R1015	4/21	SVN4-M16	7TAA292640R0020	6/4
SVAD-P167GT	7TAA292150R0965	4/20	SVBD-P488GT	7TAA292150R1016	4/21	SVN4-M16/02	7TAA292640R0021	6/4
SVAD-P213GT	7TAA292150R0966	4/20	SVBV-M207	7TAA292150R1017	4/11	SVN4-M20	7TAA292640R0022	6/4
SVAD-P299GT	7TAA292150R0967	4/20	SVBV-M253	7TAA292150R1018	4/11	SVN4-M20/02	7TAA292640R0023	6/4
SVAD-P366GT	7TAA292150R0968	4/20	SVBV-M257	7TAA292150R1019	4/11	SVN4-M25	7TAA292640R0024	6/4
SVAD-P488GT	7TAA292150R0969	4/20	SVBV-M323	7TAA292150R1020	4/11	SVN4-M25/01	7TCA292000R4288	6/4
SVAV-G000	7TAA292150R0970	4/26	SVBV-M329	7TAA292150R1021	4/11	SVN4-M25/02	7TAA292640R0025	6/4
SVAV-G012	7TAA292150R0971	4/26	SVBV-M406	7TAA292150R1022	4/11	SVN4-M32	7TAA292640R0026	6/4
SVAV-G027	7TAA292150R0972	4/26	SVBV-M409	7TAA292150R1023	4/11	SVN4-M32/02	7TAA292640R0027	6/4
SVAV-G043	7TAA292150R0973	4/26	SVBV-M506	7TAA292150R1024	4/11	SVN4-M40	7TAA292640R0028	6/4
SVAV-G069	7TAA292150R0974	4/26	SVBV-M508	7TAA292150R1025	4/11	SVN4-M40/01	7TCA292000R4289	6/4
SVAV-G076	7TAA292150R0975	4/26	SVBV-M638	7TAA292150R1026	4/11	SVN4-M40/02	7TAA292640R0029	6/4
SVAV-G098	7TAA292150R0976	4/26	SVBV-P167	7TAA292150R1027	4/21	SVN4-M50	7TAA292640R0030	6/4
SVAV-M160	7TAA292150R0977	4/10	SVBV-P213	7TAA292150R1028	4/21	SVN4-M50/01	7TCA292000R4290	6/4

Order No.	GID No.	Page
SVN4-M50/O2	7TAA292640R0031	6/4
SVN4-M63	7TAA292640R0032	6/4
SVND-G000GT	7TAA292150R1032	4/26
SVND-G00MGT	7TAA292150R1033	4/26
SVND-G010GT	7TAA292150R1034	4/26
SVND-G012GT	7TAA292150R1035	4/26
SVND-G022GT	7TAA292150R1036	4/26
SVND-G027GT	7TAA292150R1037	4/26
SVND-G043GT	7TAA292150R1038	4/26
SVND-G069GT	7TAA292150R1039	4/26
SVND-G076GT	7TAA292150R1040	4/26
SVND-G088GT	7TAA292150R1041	4/26
SVND-G098GT	7TAA292150R1042	4/26
SVND-M120GT	7TAA292150R1043	4/9
SVND-M12MGT	7TAA292150R1044	4/9
SVND-M160GT	7TAA292150R1045	4/9
SVND-M162GT	7TAA292150R1046	4/9
SVND-M200GT	7TAA292150R1047	4/9
SVND-M202GT	7TAA292150R1048	4/9
SVND-M203GT		4/9
SVND-M207GT	7TAA292150R1049	4/9
SVND-M253GT	7TAA292150R1050	4/9
SVND-M257GT	7TAA292150R1051	4/9
SVND-M323GT	7TAA292150R1052	4/9
SVND-M329GT	7TAA292150R1053	4/9
SVND-M406GT	7TAA292150R1054	4/9
SVND-M409GT	7TAA292150R1055	4/9
SVND-M506GT	7TAA292150R1056	4/9
SVND-M508GT	7TAA292150R1057	4/9
SVND-M638GT	7TAA292150R1058	4/9
SVND-N022GT	7TAA292150R1059	4/27
SVND-N027GT	7TAA292150R1060	4/27
SVND-N043GT	7TAA292150R1061	4/27
SVND-N069GT	7TAA292150R1062	4/27
SVND-N076GT	7TAA292150R1063	4/27
SVND-N088GT	7TAA292150R1064	4/27
SVND-N098GT		4/27
SVND-P070GT-11	7TAA292150R1065	4/19
SVND-P070GT-8		4/19
SVND-P072GT-11	7TAA292150R1066	4/19
SVND-P072GT-8		4/19
SVND-P07MGT-11	7TAA292150R1067	4/19
SVND-P07MGT-8	7TAA292150R1068	4/19
SVND-P090GT-11	7TAA292150R1069	4/19
SVND-P090GT-8	7TAA292150R1070	4/19
SVND-P092GT-11	7TAA292150R1071	4/19
SVND-P092GT-8		4/19
SVND-P097GT-11	7TAA292150R1072	4/19
SVND-P097GT-8		4/19
SVND-P09MGT-11	7TAA292150R1073	4/19
SVND-P09MGT-8		4/19
SVND-P110GT-11	7TAA292150R1074	4/19

Order No.	GID No.	Page
SVND-P110GT-8		4/19
SVND-P112GT-11	7TAA292150R1075	4/19
SVND-P112GT-8	7TCA292000R4299	4/19
SVND-P117GT-11	7TAA292150R1076	4/19
SVND-P117GT-8		4/19
SVND-P11MGT-11	7TAA292150R1077	4/19
SVND-P11MGT-8		4/19
SVND-P130GT-11	7TAA292150R1078	4/19
SVND-P130GT-8	7TCA292000R4300	4/19
SVND-P132GT-11	7TAA292150R1079	4/19
SVND-P132GT-8	7TCA292000R4301	4/19
SVND-P137GT-11	7TAA292150R1080	4/19
SVND-P137GT-8		4/19
SVND-P13MGT-11	7TCA292000R4302	4/19
SVND-P13MGT-8		4/19
SVND-P160GT-11		4/19
SVND-P160GT-8		4/19
SVND-P162GT-11	7TAA292150R1081	4/19
SVND-P163GT-11	7TAA292150R1082	4/19
SVND-P163GT-8		4/19
SVND-P167GT-11	7TAA292150R1083	4/19
SVND-P167GT-8	7TCA292000R4303	4/19
SVND-P213GT	7TAA292150R1084	4/19
SVND-P296GT	7TCA292000R4304	4/19
SVND-P299GT	7TAA292150R1085	4/19
SVND-P366GT	7TAA292150R1086	4/19
SVND-P368GT	7TCA292000R4305	4/19
SVND-P428GT	7TCA292000R4306	4/19
SVND-P488GT	7TAA292150R1087	4/19
SVNDZ-M160GT	7TCA292000R4310	4/10
SVNDZ-M162GT	7TAA292150R1088	4/10
SVNDZ-M207GT	7TAA292150R1089	4/10
SVNDZ-M253GT	7TAA292150R1090	4/10
SVNDZ-M329GT	7TAA292150R1091	4/10
SVNDZ-M406GT	7TAA292150R1092	4/10
SVNDZ-M508GT	7TAA292150R1093	4/10
SVNDZ-M638GT	7TAA292150R1094	4/10
SVNDZ-P090GT	7TAA292150R1095	4/20
SVNDZ-P112GT	7TAA292150R1096	4/20
SVNDZ-P132GT	7TAA292150R1097	4/20
SVNDZ-P137GT	7TAA292150R1098	4/20
SVNDZ-P163GT	7TAA292150R1099	4/20
SVNDZ-P167GT	7TAA292150R1100	4/20
SVNDZ-P213GT	7TAA292150R1101	4/20
SVNDZ-P299GT	7TAA292150R1102	4/20
SVNDZ-P366GT	7TAA292150R1103	4/20
SVNDZ-P488GT	7TAA292150R1104	4/20
SVNR-RE12	7TAA292150R1105	5/4
SVNR-RE12-24	7TAA292150R1106	5/4
SVNR-RE1317		5/4
SVNR-RE1317-28		5/4
SVNR-RE17	7TAA292150R1107	5/4

Order No.	GID No.	Page
SVNR-RE17-28	7TAA292150R1108	5/4
SVNR-RE23	7TAA292150R1109	5/4
SVNR-RE23-32	7TAA292150R1110	5/4
SVNR-RE29	7TAA292150R1111	5/4
SVNR-RE29-44	7TAA292150R1112	5/4
SVNR-RE36	7TAA292150R1113	5/4
SVNR-RE36-50	7TAA292150R1114	5/4
SVNR-RE48	7TAA292150R1115	5/4
SVNR-RE48-65	7TAA292150R1116	5/4
SVNR-REM162		5/4
SVNR-REM162-24		5/4
SVNR-REM187		5/4
SVNR-REM187-28		5/4
SVNR-REM207		5/4
SVNR-REM207-28		5/4
SVNR-REM253		5/4
SVNR-REM253-32		5/4
SVNR-REM329		5/4
SVNR-REM329-44		5/4
SVNR-REM406		5/4
SVNR-REM406-50		5/4
SVNR-REM508		5/4
SVNR-REM508-65		5/4
SVNV-G000	7TAA292150R1119	4/26
SVNV-G00M	7TAA292150R1120	4/26
SVNV-G010	7TAA292150R1121	4/26
SVNV-G012	7TAA292150R1122	4/26
SVNV-G022	7TAA292150R1123	4/26
SVNV-G027	7TAA292150R1124	4/26
SVNV-G043	7TAA292150R1125	4/26
SVNV-G069	7TAA292150R1126	4/26
SVNV-G076	7TAA292150R1127	4/26
SVNV-G088	7TAA292150R1128	4/26
SVNV-G098	7TAA292150R1129	4/26
SVNV-M120	7TAA292150R1130	4/9
SVNV-M12M	7TAA292150R1131	4/9
SVNV-M160	7TAA292150R1132	4/9
SVNV-M162	7TAA292150R1133	4/9
SVNV-M200	7TCA292000R5837	4/9
SVNV-M202	7TAA292150R1134	4/9
SVNV-M203		4/9
SVNV-M207	7TAA292150R1135	4/9
SVNV-M253	7TAA292150R1136	4/9
SVNV-M257	7TAA292150R1137	4/9
SVNV-M323	7TAA292150R1138	4/9
SVNV-M329	7TAA292150R1139	4/9
SVNV-M406	7TAA292150R1140	4/9
SVNV-M409	7TAA292150R1141	4/9
SVNV-M506	7TAA292150R1142	4/9
SVNV-M508	7TAA292150R1143	4/9
SVNV-M638	7TAA292150R1144	4/9
SVNV-N022	7TAA292150R1145	4/27

Index

Products in alphabetical order

Order No.	GID No.	Page	Order No.	GID No.	Page	Order No.	GID No.	Page
SVNV-N027	7TAA292150R1146	4/27	SVOD-P488GT	7TAA292150R1186	4/29	SVWD-M406GT	7TAA292150R1216	4/11
SVNV-N043	7TAA292150R1147	4/27	SVOV-P167	7TAA292150R1187	4/29	SVWD-M508GT	7TAA292150R1217	4/11
SVNV-N069	7TAA292150R1148	4/27	SVOV-P213	7TAA292150R1188	4/29	SVWD-N022GT	7TAA292150R1218	4/27
SVNV-N076	7TAA292150R1149	4/27	SVOV-P299	7TAA292150R1189	4/29	SVWD-N027GT	7TAA292150R1219	4/27
SVNV-N088	7TAA292150R1150	4/27	SVOV-P366	7TAA292150R1190	4/29	SVWD-N043GT	7TAA292150R1220	4/27
SVNV-N098		4/27	SVOV-P488	7TAA292150R1191	4/29	SVWD-N069GT	7TAA292150R1221	4/27
SVNV-P070	7TAA292150R1151	4/19	SVSGD-1212GT	7TAA292300R0012	5/4	SVWD-N076GT	7TAA292150R1222	4/27
SVNV-P072	7TCA292000R4330	4/19	SVSGD-1717GT	7TAA292300R0013	5/4	SVWD-N088GT	7TAA292150R1223	4/27
SVNV-P07M	7TAA292150R1152	4/19	SVSGD-2323GT	7TAA292300R0014	5/4	SVWD-N098GT	7TAA292150R1224	4/27
SVNV-P090	7TAA292150R1153	4/19	SVSGD-2929GT	7TAA292300R0015	5/4	SVWD-P070GT-11	7TAA292150R1225	4/22
SVNV-P092	7TAA292150R1154	4/19	SVSGD-3636GT	7TAA292300R0016	5/4	SVWD-P070GT-8		4/22
SVNV-P097	7TCA292000R4333	4/19	SVSGD-4848GT	7TAA292300R0017	5/4	SVWD-P072GT-11		4/22
SVNV-P09M	7TCA292000R4334	4/19	SVSGR-1212	7TAA292300R0018	5/4	SVWD-P072GT-8		4/22
SVNV-P110	7TCA292000R4335	4/19	SVSGR-1717	7TAA292300R0019	5/4	SVWD-P07MGT-11	7TAA292150R1226	4/22
SVNV-P112	7TAA292150R1155	4/19	SVSGR-2323	7TAA292300R0020	5/4	SVWD-P07MGT-8		4/22
SVNV-P117	7TAA292150R1156	4/19	SVSGR-2929	7TAA292300R0021	5/4	SVWD-P090GT-11	7TAA292150R1227	4/22
SVNV-P11M	7TAA292150R1157	4/19	SVSGR-3636	7TAA292300R0022	5/4	SVWD-P090GT-8	7TCA292000R4397	4/22
SVNV-P130	7TCA292000R4339	4/19	SVSGR-4848	7TAA292300R0023	5/4	SVWD-P092GT-11	7TCA292000R4398	4/22
SVNV-P132	7TAA292150R1158	4/19	SVTD-101010GT	7TAA292150R1295	4/34	SVWD-P092GT-8		4/22
SVNV-P137	7TAA292150R1159	4/19	SVTD-121212GT	7TAA292150R1296	4/34	SVWD-P09MGT-11	7TCA292000R4399	4/22
SVNV-P13M	7TCA292000R4342	4/19	SVTD-171717GT	7TAA292150R1297	4/34	SVWD-P09MGT-8		4/22
SVNV-P162	7TCA292000R4343	4/19	SVTD-232323GT	7TAA292150R1192	4/34	SVWD-P110GT-11	7TAA292150R1228	4/22
SVNV-P163	7TCA292000R4345	4/19	SVTD-292929GT	7TAA292150R1291	4/34	SVWD-P110GT-8		4/22
SVNV-P167	7TAA292150R1160	4/19	SVTD-363636GT	7TAA292150R1193	4/34	SVWD-P112GT-11	7TAA292150R1229	4/22
SVNV-P213	7TAA292150R1161	4/19	SVTD-484848GT		4/34	SVWD-P112GT-8	7TCA292000R4400	4/22
SVNV-P296	7TCA292000R4349	4/19	SVTR-101010	7TCA292000R0306	4/34	SVWD-P11MGT-11	7TCA292000R4401	4/22
SVNV-P299	7TAA292150R1162	4/19	SVTR-121212	7TCA292000R0308	4/34	SVWD-P11MGT-8		4/22
SVNV-P366	7TAA292150R1163	4/19	SVTR-171717	7TCA292000R0310	4/34	SVWD-P130GT-11	7TAA292150R1230	4/22
SVNV-P368	7TCA292000R4353	4/19	SVTR-232323	7TAA292150R1194	4/34	SVWD-P130GT-8	7TCA292000R4402	4/22
SVNV-P428	7TCA292000R4354	4/19	SVTR-292929	7TCA292000R0312	4/34	SVWD-P132GT-11	7TAA292150R1231	4/22
SVNV-P488	7TAA292150R1164	4/19	SVTR-363636	7TAA292150R1195	4/34	SVWD-P132GT-8	7TCA292000R4403	4/22
SVNZ-M162S	7TAA292150R1165	4/10	SVTR-484848	7TCA292000R0313	4/34	SVWD-P137GT-11	7TAA292150R1232	4/22
SVNZ-M207S	7TAA292150R1166	4/10	SVWD-G000GT	7TAA292150R1196	4/26	SVWD-P137GT-8		4/22
SVNZ-M253S	7TAA292150R1167	4/10	SVWD-G00MGT	7TAA292150R1197	4/26	SVWD-P13MGT-11	7TCA292000R4404	4/22
SVNZ-M329S	7TAA292150R1168	4/10	SVWD-G010GT	7TAA292150R1198	4/26	SVWD-P13MGT-8		4/22
SVNZ-M406S	7TAA292150R1169	4/10	SVWD-G012GT	7TAA292150R1199	4/26	SVWD-P167GT-11	7TAA292150R1233	4/22
SVNZ-M508S	7TAA292150R1170	4/10	SVWD-G022GT	7TAA292150R1200	4/26	SVWD-P167GT-8	7TCA292000R4405	4/22
SVNZ-M638S	7TAA292150R1171	4/10	SVWD-G027GT	7TAA292150R1201	4/26	SVWD-P213GT	7TAA292150R1234	4/22
SVNZ-P090S	7TAA292150R1172	4/20	SVWD-G043GT	7TAA292150R1202	4/26	SVWD-P299GT	7TAA292150R1235	4/22
SVNZ-P112S	7TAA292150R1173	4/20	SVWD-G069GT	7TAA292150R1203	4/26	SVWD-P366GT	7TAA292150R1236	4/22
SVNZ-P132S	7TAA292150R1174	4/20	SVWD-G076GT	7TAA292150R1204	4/26	SVWD-P488GT	7TAA292150R1237	4/22
SVNZ-P137S	7TAA292150R1175	4/20	SVWD-G088GT	7TAA292150R1205	4/26	SVWV-G000	7TAA292150R1238	4/26
SVNZ-P163S	7TAA292150R1176	4/20	SVWD-G098GT	7TAA292150R1206	4/26	SVWV-G00M	7TAA292150R1239	4/26
SVNZ-P167S	7TAA292150R1177	4/20	SVWD-M120GT	7TAA292150R1207	4/11	SVWV-G010	7TAA292150R1240	4/26
SVNZ-P213S	7TAA292150R1178	4/20	SVWD-M12MGT	7TAA292150R1208	4/11	SVWV-G012	7TAA292150R1241	4/26
SVNZ-P299S	7TAA292150R1179	4/20	SVWD-M160GT	7TAA292150R1209	4/11	SVWV-G022	7TAA292150R1242	4/26
SVNZ-P366S	7TAA292150R1180	4/20	SVWD-M162GT	7TAA292150R1210	4/11	SVWV-G027	7TAA292150R1243	4/26
SVNZ-P488S	7TAA292150R1181	4/20	SVWD-M200GT	7TAA292150R1211	4/11	SVWV-G043	7TAA292150R1244	4/26
SVOD-P167GT	7TAA292150R1182	4/29	SVWD-M202GT	7TAA292150R1212	4/11	SVWV-G069	7TAA292150R1245	4/26
SVOD-P213GT	7TAA292150R1183	4/29	SVWD-M207GT	7TAA292150R1213	4/11	SVWV-G076	7TAA292150R1246	4/26
SVOD-P299GT	7TAA292150R1184	4/29	SVWD-M253GT	7TAA292150R1214	4/11	SVWV-G088	7TAA292150R1247	4/26
SVOD-P366GT	7TAA292150R1185	4/29	SVWD-M329GT	7TAA292150R1215	4/11	SVWV-G098	7TAA292150R1248	4/26

Order No.	GID No.	Page
SVVW-M120	7TAA292150R1249	4/11
SVVW-M12M	7TAA292150R1250	4/11
SVVW-M160	7TAA292150R1251	4/11
SVVW-M162	7TAA292150R1252	4/11
SVVW-M202	7TAA292150R1253	4/11
SVVW-M207	7TAA292150R1254	4/11
SVVW-M253	7TAA292150R1255	4/11
SVVW-M329	7TAA292150R1256	4/11
SVVW-M406	7TAA292150R1257	4/11
SVVW-M508	7TAA292150R1258	4/11
SVVW-N022	7TAA292150R1259	4/27
SVVW-N027	7TAA292150R1260	4/27
SVVW-N043	7TAA292150R1261	4/27
SVVW-N069	7TAA292150R1262	4/27
SVVW-N076	7TAA292150R1263	4/27
SVVW-N088	7TAA292150R1264	4/27
SVVW-N098		4/27
SVVW-P070	7TCA292000R4407	4/22
SVVW-P072	7TCA292000R4409	4/22
SVVW-P07M	7TAA292150R1265	4/22
SVVW-P090	7TAA292150R1266	4/22
SVVW-P092	7TCA292000R4412	4/22
SVVW-P09M	7TCA292000R4414	4/22
SVVW-P110	7TCA292000R4415	4/22
SVVW-P112	7TAA292150R1267	4/22
SVVW-P11M	7TCA292000R4417	4/22
SVVW-P130	7TCA292000R4418	4/22
SVVW-P132	7TCA292000R4420	4/22
SVVW-P137	7TCA292000R4422	4/22
SVVW-P13M	7TCA292000R4424	4/22
SVVW-P167	7TAA292150R1268	4/22
SVVW-P213	7TAA292150R1269	4/22
SVVW-P299	7TAA292150R1270	4/22
SVVW-P366	7TAA292150R1271	4/22
SVVW-P488	7TAA292150R1272	4/22
SVYD-100707GT	7TAA292150R1273	4/34
SVYD-121010GT	7TAA292150R1274	4/34
SVYD-171212GT	7TAA292150R1275	4/34
SVYD-231717GT	7TAA292150R1276	4/34
SVYD-292323GT	7TAA292150R1277	4/34
SVYD-362929GT	7TAA292150R1278	4/34
SVYD-483636GT	7TAA292150R1279	4/34
SVYR-100707	7TAA292150R1280	4/34
SVYR-121010	7TAA292150R1281	4/34
SVYR-171212	7TAA292150R1282	4/34
SVYR-231717	7TAA292150R1283	4/34
SVYR-292323	7TAA292150R1284	4/34
SVYR-362929	7TAA292150R1285	4/34
SVYR-483636	7TAA292150R1286	4/34
SWA-M16-10	7TAA292590R0000	5/7
SWA-M20-10	7TAA292590R0001	5/7
SWA-M25-11	7TAA292590R0002	5/7

Order No.	GID No.	Page
SWA-M32-13	7TAA292590R0003	5/7
SWA-M40-13	7TAA292590R0004	5/7
SWA-M50-14	7TAA292590R0005	5/7
SWA-M63-14	7TAA292590R0006	5/7
SWA-P09	7TAA292590R0007	5/7
SWA-P11	7TAA292590R0008	5/7
SWA-P16	7TAA292590R0009	5/7
SWA-P21	7TAA292590R0010	5/7
SWA-P29	7TAA292590R0011	5/7
SWA-P36	7TAA292590R0012	5/7
SWA-P48	7TAA292590R0013	5/7
TFIL-F08M	7TAA292610R0160	4/33
TFIL-F120	7TAA292610R0161	4/33
TFIL-F12M	7TAA292610R0162	4/33
TFIL-F180	7TAA292610R0163	4/33
TFIL-F18M	7TAA292610R0164	4/33
TFIL-F300	7TAA292610R0165	4/33
TFIL-F30M	7TAA292610R0166	4/33
VAMG-17B	7TAA292240R0195	2/16
VAMG-17S	7TAA292240R0196	2/16
VAMG-23B	7TAA292240R0197	2/16
VAMG-23S	7TAA292240R0198	2/16
VAMG-29B	7TAA292240R0199	2/16
VAMG-29S	7TAA292240R0200	2/16
VAMG-36B	7TAA292240R0201	2/16
VAMG-36S	7TAA292240R0202	2/16
VAMG-48B	7TAA292240R0203	2/16
VAMG-48S	7TAA292240R0204	2/16
VAMLG-125B	7TAA292360R0046	2/17
VAMLG-125S	7TAA292360R0047	2/17
VAMLG-17B	7TAA292240R0205	2/17
VAMLG-17S	7TAA292240R0206	2/17
VAMLG-23B	7TAA292240R0207	2/17
VAMLG-23S	7TAA292240R0208	2/17
VAMLG-29B	7TAA292240R0209	2/17
VAMLG-29S	7TAA292240R0210	2/17
VAMLG-36B	7TAA292240R0211	2/17
VAMLG-36S	7TAA292240R0212	2/17
VAMLG-48B	7TAA292240R0213	2/17
VAMLG-48S	7TAA292240R0214	2/17
VAMLG-56B	7TAA292360R0048	2/17
VAMLG-56S	7TAA292360R0049	2/17
VAMLG-70B	7TAA292360R0050	2/17
VAMLG-70S	7TAA292360R0051	2/17
VAMLG-95B	7TAA292360R0052	2/17
VAMLG-95S	7TAA292360R0053	2/17
VAMLT-10B	7TAA292240R0217	2/17
VAMLT-10S	7TAA292240R0218	2/17
VAMLT-12B	7TAA292240R0219	2/17
VAMLT-12S	7TAA292240R0220	2/17
VAMT-10B	7TAA292240R0223	2/16
VAMT-10S	7TAA292240R0224	2/16

Order No.	GID No.	Page
VAMT-12B	7TAA292240R0225	2/16
VAMT-12S	7TAA292240R0226	2/16
VCSG-17B	7TAA292240R0230	2/17
VCSG-17S	7TAA292240R0231	2/17
VCSG-23B	7TAA292240R0232	2/17
VCSG-23S	7TAA292240R0233	2/17
VCSG-29B	7TAA292240R0234	2/17
VCSG-29S	7TAA292240R0235	2/17
VCSG-36B	7TAA292240R0236	2/17
VCSG-36S	7TAA292240R0237	2/17
VCSG-48B	7TAA292240R0238	2/17
VCSG-48S	7TAA292240R0239	2/17
VCSG-56B	7TAA292360R0054	2/17, 7/4
VCSG-56S	7TAA292360R0055	2/17, 7/4
VCSG-70B	7TAA292360R0056	2/17, 7/4
VCSG-70S	7TAA292360R0057	2/17, 7/4
VCSG-95B	7TAA292360R0058	2/17, 7/4
VCSG-95S	7TAA292360R0059	2/17, 7/4
VCST-07B	7TAA292240R0240	2/17
VCST-07S	7TAA292240R0241	2/17
VCST-10B	7TAA292240R0242	2/17
VCST-10S	7TAA292240R0243	2/17
VCST-12B	7TAA292240R0244	2/17
VCST-12S	7TAA292240R0245	2/17
VCST-17B	7TAA292240R0246	2/17
VCST-17S	7TAA292240R0247	2/17
VOHD-07B	7TAA292240R0248	2/18
VOHD-07S	7TAA292240R0249	2/18
VOHD-10B	7TAA292240R0250	2/18
VOHD-10S	7TAA292240R0251	2/18
VOHD-12B	7TAA292240R0252	2/18
VOHD-12S	7TAA292240R0253	2/18
VOHG-125B	7TAA292360R0060	2/18, 7/4
VOHG-125S	7TAA292360R0061	2/18, 7/4
VOHG-17B	7TAA292240R0255	2/18
VOHG-17S	7TAA292240R0257	2/18
VOHG-23B	7TAA292240R0259	2/18
VOHG-23S	7TAA292240R0261	2/18
VOHG-29B	7TAA292240R0263	2/18
VOHG-29S	7TAA292240R0265	2/18
VOHG-36B	7TAA292240R0266	2/18
VOHG-36S	7TAA292240R0267	2/18
VOHG-48B	7TAA292240R0269	2/18
VOHG-48S	7TAA292240R0271	2/18
VOHG-56B	7TAA292360R0062	2/18, 7/4
VOHG-56S	7TAA292360R0063	2/18, 7/4
VOHG-70B	7TAA292360R0064	2/18, 7/4
VOHG-70S	7TAA292360R0065	2/18, 7/4
VOHG-95B	7TAA292360R0066	2/18, 7/4
VOHG-95S	7TAA292360R0067	2/18, 7/4
VUSG-17B	7TAA292490R0011	2/22
VUSG-17S		2/22

Index

Products in alphabetical order

Order No.	GiD No.	Page
VUSG-23B	7TAA292490R0012	2/22
VUSG-23S		2/22
VUSG-29B	7TAA292490R0013	2/22
VUSG-29S		2/22
VUSG-36B	7TAA292490R0014	2/22
VUSG-36S		2/22
VUSG-48B	7TAA292490R0015	2/22
VUSG-48S		2/22
WPS-NW10	7TAA292650R0000	6/5
WPS-NW12	7TAA292650R0001	6/5
WPS-NW17	7TAA292650R0002	6/5
WPS-NW23	7TAA292650R0003	6/5
WPS-NW29	7TAA292650R0004	6/5
WPS-NW36	7TAA292650R0005	6/5
WPS-NW48	7TAA292650R0006	6/5
XPCLG-17BB	7TAA292240R0290	2/19
XPCLG-17SB	7TAA292240R0291	2/19
XPCLG-23BB	7TAA292240R0292	2/19
XPCLG-23SB	7TAA292240R0293	2/19
XPCLG-29BB	7TAA292240R0294	2/19
XPCLG-29SB	7TAA292240R0295	2/19
XPCLG-36BB	7TAA292240R0296	2/19
XPCLG-36SB	7TAA292240R0297	2/19
XPCLG-48BB	7TAA292240R0298	2/19
XPCLG-48SB	7TAA292240R0299	2/19
XPCLT-10BB	7TCA292000R0334	2/19
XPCLT-10SB		2/19
XPCLT-12BB	7TAA292240R0300	2/19
XPCLT-12SB	7TAA292240R0301	2/19
XPCLT-17BB	7TAA292240R0302	2/19
XPCLT-17SB		2/19
XSOLG-17BG	7TAA292240R0303	2/19
XSOLG-23BG	7TAA292240R0304	2/19
XSOLG-29BG	7TAA292240R0305	2/19
XSOLG-36BG	7TAA292240R0306	2/19
XSOLG-48BG	7TAA292240R0307	2/19
XSOLT-10BG	7TCA292000R0335	2/19
XSOLT-12BG	7TAA292240R0314	2/19
XVCS1H-12BG	7TAA292240R0315	2/20
XVCS1H-17BG	7TAA292240R0316	2/20
XVCS1H-23BG	7TAA292240R0317	2/20
XVCS1H-29BG	7TAA292240R0318	2/20
XVCS1H-36BG	7TAA292240R0319	2/20
XVCS1H-48BG	7TAA292240R0320	2/20
XVCS2H-12BG	7TCA292000R4679	2/20
XVCS2H-17BG	7TCA292000R4681	2/20
XVCS2H-23BG	7TCA292000R4682	2/20
XVCS2H-29BG	7TCA292000R4683	2/20
XVCS2H-36BG	7TCA292000R4684	2/20
XVCS2H-48BG	7TCA292000R4685	2/20

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