



PMA

PMAFLEX | Conduits | Cable protection



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PMAFIX | Connectors | Safety and sealing systems



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PMA - corrugated conduits, connectors, system support, accessories

- Wide range of tubes
- Long service life of the tubes especially through millions of reverse bending cycles (I-PIST)
- UL-approved products
- PMAFIX safety locking system



PMA-Program - Wide selection of tubes and systems

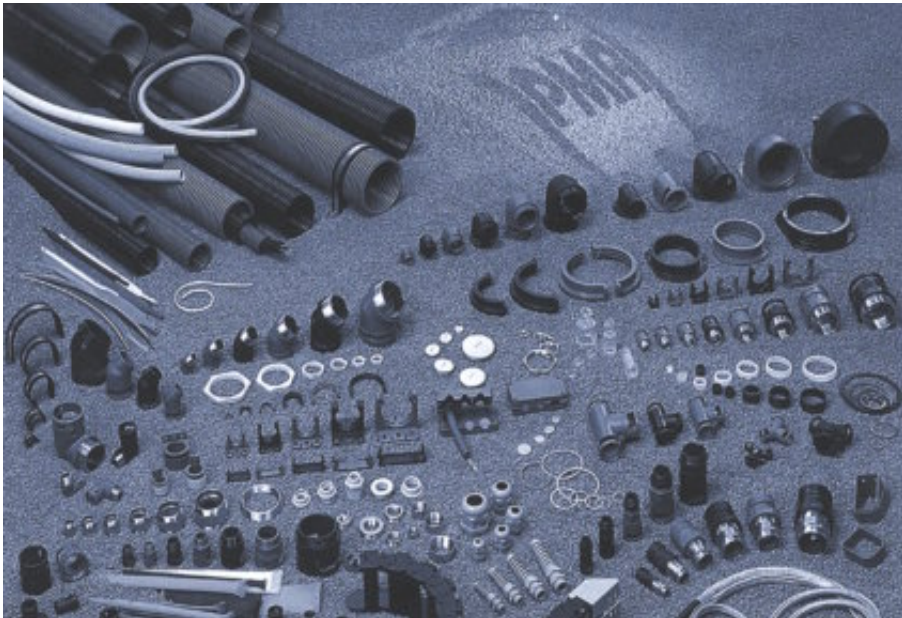
The PMA cable protection system is applied wherever the mechanical protection of electrical wires and cables is required. Very flexible types of conduits are especially suitable for the additional protection of leads in E-ChainSystems® if required. By combining technical excellence with rigorous international safety standards, PMA meets the demands of industry worldwide - specialising in applications from the machine building industries to high tech manufacturing; heavy plant and vehicle construction; fiber optics, solar energy and robotic applications with high speed and millions of reversed bending cycles.

PMAFLEX - Conduits

PMAFLEX covers different conduit types for a variety of applications in cable protection. The PMAFLEX range offers conduits for technically demanding applications and special requirements. Conduit sizes range from 4.5 mm to 125 mm diameters, from lightweight to heavyweight, and pliable to highly flexible. Standard colours are black and grey. Many conduits are specially approved, e.g. CSA, UL Recognition, NF, SNCF, DB, etc.

PMAFI - Connectors

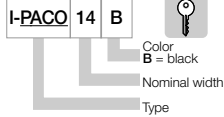
The designation PMAFIX describes a very large range of connectors for PMA conduits with the patented PMA safety clip system. Connectors are available for ingress protection IP66 and IP68. IP66 connectors are fitted with a preinstalled universal safety clip which ensures a quick "push-in" installation. IP68 connectors for increased requirements will be delivered with a special conduit seal cap.




PMAFLEX Conduits PACO - flexible, medium, divisible

The PMA COFLEX conduit type PACO has been created for **retrofit and pre-loomed applications**. New cables can be added without the need for re-wiring or re-threading within the **building of machines and installations**. Further, this product will be used increasingly in **vehicle manufacturing and building construction**. Divisible connectors and locknuts are available for this product group. **Features:** ● Specially modified polyamide 6, good closure up to IP50 ● Self-extinguishing, free of halogen and cadmium ● Temperature range: -40 °C to 100 °C; **Short-term** to 130 °C ● **Chemical resistance:** To fuels, mineral oils, fats, alkalies, weak acids and bases etc.

Part No. structure



! I-PACO - is suitable
■ for static use only!

Part No.	Conduit size NW	Inside Ø d1 [mm]	Outside Ø d2 [mm]	stat.** R [mm]	PU [m]
black					
I-PACO-10B	10	8.9	13.6	55	50
I-PACO-14B	14	12.9	18.7	75	50
I-PACO-20B	20	19.8	25.9	105	50
I-PACO-23B	23	23.7	31.3	125	50
I-PACO-37B	37	31.7	41.9	170	25
I-PACO-45B	45	43.1	54.2	180	25
I-PACO-70B	70	66.0	79.8	300	10


TN - Divisible connectors, PG

These divisible connectors are suitable for repairs or where cable protection systems are installed **after wiring** has taken place in the **machine building and installation industry**. Further, these products will be used increasingly in the **vehicle building and building construction**. **Features:** ● Specially formulated polyamide ● IP50, self-extinguishing, free of halogen, phosphor and cadmium ● Very good impact strength ● Temperature range: -30 °C to 100 °C; **Short-term** 130 °C

Part No.	Thread	Fits to conduit COFLEX NW	Inside Ø d1 [mm]	Wrench-Size	Dimensions length [mm]
black	PG				
I-BTNO-P0910	9	10	9.0	19.0	28.0
I-BTNO-P1314	13.5	14	13.0	24.0	35.0
I-BTNO-P2120	21	20	20.0	32.0	34.0
I-BTNO-P2923	29	23	31.0	41.0	42.0
I-BTNO-P2937	29	37	31.0	50.0	50.0


GTN - Divisible lock nuts, PG

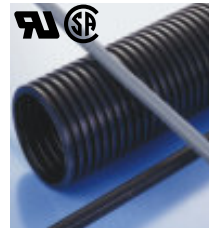
These divisible lock nuts are used in connection with the connectors **TN** for repairs or where cable protection systems are **installed after wiring** has taken place in the machine building and **installation industry**. Further, these products will be used increasingly in the **vehicle building and building construction**. **Features:** ● Specially formulated polyamide ● Self-extinguishing, free of halogen, phosphor and cadmium ● Very good impact strength ● Temperature range: -30 °C to 100 °C; **Short-term** 130 °C

Part No.	Thread	Fits to COFLEX Connector	Wrench-Size	Dimensions height [mm]
black	PG			
I-BGTN-0910	9	I-BTNO-P0910	22.0	11.0
I-BGTN-1314	13.5	I-BTNO-P1314	30.0	14.0
I-BGTN-2120	21	I-BTNO-P2120	36.0	14.0
I-BGTN-2923	29	I-BTNO-P2923	46.0	17.0
I-BGTN-2937	29	I-BTNO-P2937	55.0	17.0

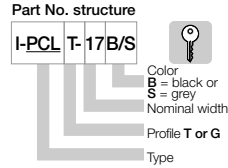


PMAFLEX Conduits PC - very flexible, medium

The PMAFLEX conduit type PCL is suitable for a wide range of applications in general machine building. Further more, this conduit type can be used in the vehicle building industry. The product is characterised by good weather resistance and applicability at low temperatures. **Features:** ● Specially modified polyamide 6/6.6 for cold impact ● Self-extinguishing ● Free of halogen and cadmium ● High impact strength also at low temperatures ● **Temperature range:** -50 °C to 105 °C; **Short-term** to 150 °C ● **Chemical resistance:** To fuels, mineral oils, fats, alkalies, weak acids and bases etc.



Part No. black	Part No. grey	Conduit size NW	Conduit size metric	Inside Ø d1 [mm]	Outside Ø d2 [mm]	stat.** R [mm]	PU [m]
I-PCLT-07B	I-PCLT-07S	7	10	6.2	10.0	15	50
I-PCLT-10B	I-PCLT-10S	10	12	9.6	13.0	20	50
I-PCLT-12B	I-PCLT-12S	12	16	12.0	15.8	30	50
I-PCLT-17B	I-PCLT-17S	17	20	16.2	21.2	40	50
I-PCLT-23B	I-PCLT-23S	23	25	22.6	28.5	45	50
I-PCLT-29B	I-PCLT-29S	29	32	29.0	34.5	55	50
I-PCLT-36B	I-PCLT-36S	36	40	36.5	42.5	60	30
I-PCLT-48B	I-PCLT-48S	48	50	47.5	54.5	70	30
I-PCLG-17B	I-PCLG-17S	17	20	15.3	21.2	40	50
I-PCLG-23B	I-PCLG-23S	23	25	21.9	28.5	45	50
I-PCLG-29B	I-PCLG-29S	29	32	27.6	34.5	55	50
I-PCLG-36B	I-PCLG-36S	36	40	36.0	42.5	60	30
I-PCLG-48B	I-PCLG-48S	48	50	47.0	54.5	70	30
I-PCLG-56B	I-PCLG-56S	56	68	56.3	67.2	130	30
I-PCLG-70B	I-PCLG-70S	70	80	67.5	80.0	160	30
I-PCLG-95B	I-PCLG-95S	95	106	91.5	106.0	210	30
I-PCLG-125B	I-PCLG-125S	125	146	126.5	146.5	450	6



I-PCLT/PCLG - is recommended for static use!
(moderate dynamic application possible)

PMA-Program

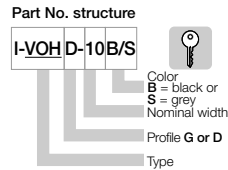
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Fax +49- (0) 22 03-96 49-222

PMAFLEX Conduits VOH - pliable, very heavy

The robust construction of PMAFLEX VOH conduit lends it outstanding impact and pull-out resistance. In the US market, this conduit type can also be used for exterior applications in machinery and installations (from 17 mm inside diameter). This product offers the greatest possible mechanical protection with good flammability properties. **Features:** ● Specially modified polyamide 6 ● Very good self-extinguishing properties ● Free of halogen and cadmium ● High impact strength and pull-out resistance ● High stiffness and compression strength ● Temperature range: -40 °C to 105 °C; **Short-term** to 150°C ● **Chemical resistance:** To fuels, mineral oils, fats, alkalies, weak acids and bases etc.



Part No. black	Part No. grey	Conduit size NW	Conduit size metric	Inside Ø d1 [mm]	Outside Ø d2 [mm]	stat.** R [mm]	PU [m]
I-VOHD-07B	I-VOHD-07S	7	10	5.8	10.0	20	100
I-VOHD-10B	I-VOHD-10S	10	12	9.0	13.0	25	50
I-VOHD-12B	I-VOHD-12S	12	16	11.6	15.8	30	50
I-VOHG-17B	I-VOHG-17S	17	20	14.5	21.0	40	50
I-VOHG-23B	I-VOHG-23S	23	25	21.1	28.5	50	50
I-VOHG-29B	I-VOHG-29S	29	32	26.6	34.5	60	50
I-VOHG-36B	I-VOHG-36S	36	40	35.0	42.5	70	30
I-VOHG-48B	I-VOHG-48S	48	50	46.5	54.5	80	30
I-VOHG-56B	I-VOHG-56S	56	68	55.5	67.2	135	10
I-VOHG-70B	I-VOHG-70S	70	80	67.0	80.0	200	10
I-VOHG-95B	I-VOHG-95S	95	106	90.5	106.0	300	10
I-VOHG-125B	I-VOHG-125S	125	146	126.0	146.5	480	6



I-VOHD/VOHG - is suitable for static use only!

igus® GmbH
51147 Cologne

Internet: www.igus.de
E-mail: info@igus.de




PMAFLEX Conduits PIS/PIH - highly flexible, medium

These highly flexible products are used primarily in automation applications and for connections subject to intense movements in general machinery construction. Their outstanding material properties make these conduits especially suitable for outdoor applications where they are exposed to intense sunlight (UV).

Features: ● Specially modified polyamide 12 ● **PIS:** medium-wall (nominal width 07 to 48) - **PIH:** heavy-wall (nominal width 56 to 125) ● Self-extinguishing ● Free of halogen and cadmium ● Good mechanical properties also at low temperatures ● **Temperature range:** -50 °C to 95 °C; **Short-term to 150 °C** ● **Chemical resistance:** To fuels, mineral oils, fats, alkalies, acids and bases etc.

Part No. structure

I-PIS	T-48	B/S
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Color
B = black or
S = grey
 Nominal width
 Profile **T** or **G**
 Type

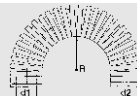
I-PIS/PIH is recommended for highly flexible application

Part No.	Part No.	Conduit	Conduit	Inside	Outside	stat.**/dyn.***	PU
black	grey	size NW	size metric	Ø d1 [mm]	Ø d2 [mm]	R [mm]	[m]
I-PIST-07B	I-PIST-07S	7	10	6.2	10.0	15 / 40	50
I-PIST-10B	I-PIST-10S	10	12	9.6	13.0	20 / 50	50
I-PIST-12B	I-PIST-12S	12	16	11.9	15.8	25 / 65	50
I-PIST-17B	I-PIST-17S	17	20	16.4	21.1	30 / 65	50
I-PIST-23B	I-PIST-23S	23	25	22.6	28.4	35 / 90	50
I-PIST-29B	I-PIST-29S	29	32	29.0	34.3	45 / 110	50
I-PIST-36B	I-PIST-36S	36	40	36.5	42.5	60 / 165	30
I-PIST-48B	I-PIST-48S	48	50	47.5	54.5	70 / 180	30
I-PISG-17B	-	17	20	15.2	21.1	30 / 80	50
I-PISG-23B	I-PISG-23S	23	25	21.7	28.4	40 / 100	50
I-PISG-29B	I-PISG-29S	29	32	27.4	34.3	50 / 120	50
I-PISG-36B	I-PISG-36S	36	40	35.8	42.3	60 / 180	30
I-PISG-48B	I-PISG-48S	48	50	46.7	54.2	70 / 200	30
I-PIHG-56B	I-PIHG-56S	56	68	56.3	67.2	110 / 270	30
I-PIHG-70B	I-PIHG-70S	70	80	67.2	79.6	150 / 350	30
I-PIHG-95B	I-PIHG-95S	95	106	91.3	106.0	170 / 450	30
I-PIHG-125B	I-PIHG-125S	125	146	126.5	146.5	350 / 580	20



Fine profile T -
tight bending radius

Coarse profile G -
high pull-out strength



** **stat. R** = lowest recommended bending radius for static (fixed) installation

*** **dyn. R** = lowest recommended bending radius for dynamic (flexible) installation



PMAFLEX Conduits CYL - very flexible, medium

PMA CYL ECONOMY conduit exhibits **very good flexibility** and is also suitable for low-temperature applications. These conduits are used primarily in construction of machinery and equipment. **Features:**

- Specially modified polyamide 6/6.6 for cold impact
- Self-extinguishing, free of halogen and cadmium
- Good impact strength also at low temperatures
- **Temperature range:** -40 °C to 105 °C; **Short-term** to 150 °C
- **Chemical resistance:** To fuels, mineral oils, fats, alkalies, weak acids and bases etc.



Part No.	Part No.	Conduit	Conduit	Inside	Outside	stat.**	PU
black	grey	size NW	size metric	Ø d1 [mm]	Ø d2 [mm]	R [mm]	[m]
I-CYLT-07B	I-CYLT-07S	7	10	6.2	10.0	15	50
I-CYLT-10B	I-CYLT-10S	10	12	9.6	13.0	20	50
I-CYLT-12B	I-CYLT-12S	12	16	12.0	15.8	30	50
I-CYLT-17B	I-CYLT-17S	17	20	16.2	21.2	40	50
I-CYLT-23B	I-CYLT-23S	23	25	22.6	28.5	40	50
I-CYLT-29B	I-CYLT-29S	29	32	29.0	34.5	50	50
I-CYLT-36B	I-CYLT-36S	36	40	36.5	42.5	60	30
I-CYLT-48B	I-CYLT-48S	48	50	47.5	54.5	70	30
I-CYLG-23B	I-CYLG-23S	23	25	21.9	28.5	45	50
I-CYLG-29B	I-CYLG-29S	29	32	27.6	34.5	55	50
I-CYLG-36B	I-CYLG-36S	36	40	36.0	42.5	60	30
I-CYLG-48B	I-CYLG-48S	48	50	47.0	54.5	70	30
I-CYLG-56B	-	56	68	56.3	67.2	120	30
I-CYLG-70B	-	70	80	68.0	80.0	160	30
I-CYLG-95B	-	95	106	91.9	106.0	210	10
I-CYLG-125B	-	125	146	126.5	146.5	450	6

Part No. structure

I-CYL T-29B/S

Color
B = black or
S = grey
 Nominal width
 Profile **T** or **G**
 Type

! I-CYLT/CYLG - is recommended for static use!

(moderate dynamic application possible)

PMA-Program

Phone +49- (0) 22 03-96 49-800
 Fax +49- (0) 22 03-96 49-222

igus® GmbH
 51147 Cologne

Internet: www.igus.de
 E-mail: info@igus.de

Fine profile T -
tight bending radius

Coarse profile G -
high pull-out strength

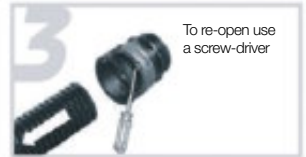
-R

**** stat. R** = lowest recommended bending radius for static (fixed) installation

***** dyn. R** = lowest recommended bending radius for dynamic (flexible) installation

IP66 - static, IP54 dynamic - universal safety clip

- One piece Fitting, sealing by cone
- Easy "push-in" installation
- Pre-installed safety clip AFN2
- Fits any type of conduit profile (T and G)
- Excellent pull-out strength
- Re-opening for safety reasons only possible with a screwdriver
- Clip pre-installed in all IP66 connectors


Installation

IP68 - static, IP67 dynamic - oval clip

- High sealing through additional seal cap
- For highest dynamic applications
- Fits any type of conduit profile (T and G)
- Excellent pull-out strength
- Re-opening for safety reasons only possible with a screwdriver


Installation


* 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

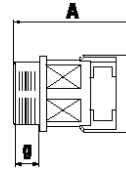
The designation **PMAFIX** describes a very large range of connectors for PMA conduits with the patented PMA safety clip system. Connectors are available for ingress protection IP66 and IP68. IP66 connectors are fitted with a preinstalled universal safety clip which ensures a quick "push-in" installation. IP68 connectors for increased requirements will be delivered with a special conduit seal cap.

Table 1 - PMAFIX / PMAFLEX conduit code

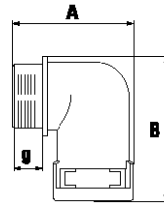
Nominal width	UK sizes	PMA code
7	10	M
10	12	0
12	16	2
17	20	7
23	25	3
29	32	9
36	40	6
48	50	8

Table 2 - Thread codes

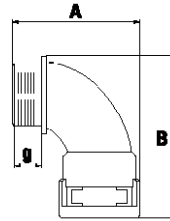
Thread metric	PMA code	Thread PG	PMA code
M12 x 1.5	M12	PG07	P07
M16 x 1.5	M16	PG09	P09
M20 x 1.5	M20	PG11	P11
M25 x 1.5	M25	PG13.5	P13
M32 x 1.5	M32	PG16	P16
M40 x 1.5	M40	PG21	P21
M50 x 1.5	M50	PG29	P29
M63 x 1.5	M63	PG36	P36
		PG42	P42
		PG48	P48



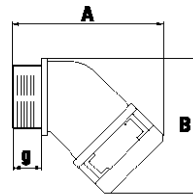
g = Thread length
A = Overall length



g = Thread length
A x B = External dimensions



g = Thread length
A x B = External dimensions



g = Thread length
A x B = External dimensions

PMA-Program

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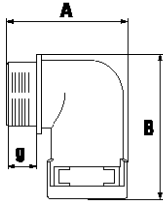
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51147 Cologne

Internet: www.igus.de
E-mail: info@igus.de



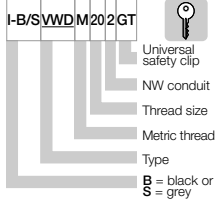
PMAFIX Connectors VW - 90° elbow, metric & PG

These PMAFIX connectors are used in a **wide range of applications**. Together with PMAFLEX conduits they offer the highest grade of safety and sealing. **Features:** ● High-grade formulated polyamide ● Self-extinguishing, free of halogen, phosphor and cadmium ● Excellent impact strength ● **Temperature range:** -40 °C to 105 °C; **Short-term** to 160 °C ● **Content of delivery IP66:** Fitting with pre-assembled universal safety clips (AFN2), **IP68:** Fitting with oval clips (OVN2), conduit and thread seal (NVN3, SVN4)

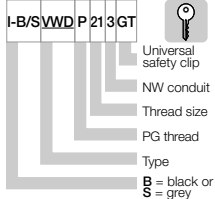


g = Thread length
 A x B = External dimensions

Part No. structure metric



Part No. structure PG



Part No. IP66	Part No. IP68	Thread		Fits to conduit size:		Thread length [mm]	External dim. [mm]
		metric	NW	metric			
I-□VWD-M12MGT	I-□VWV-M12M	M12 x 1.5	7	10	11.0	32.0 x 35.0	
I-□VWD-M120GT	I-□VWV-M120	M12 x 1.5	10	12	11.0	34.0 x 39.5	
I-□VWD-M160GT	I-□VWV-M160	M16 x 1.5	10	12	11.0	34.0 x 40.5	
I-□VWD-M162GT	I-□VWV-M162	M16 x 1.5	12	16	11.0	38.5 x 46.0	
I-□VWD-M202GT	I-□VWV-M202	M20 x 1.5	12	16	11.0	38.5 x 47.5	
I-□VWD-M207GT	I-□VWV-M207	M20 x 1.5	17	20	11.0	43.5 x 58.5	
I-□VWD-M253GT	I-□VWV-M253	M25 x 1.5	23	25	12.0	54.0 x 65.0	
I-□VWD-M329GT	I-□VWV-M329	M32 x 1.5	29	32	15.0	64.5 x 73.0	
I-□VWD-M406GT	I-□VWV-M406	M40 x 1.5	36	40	19.0	78.0 x 96.0	
I-□VWD-M508GT	I-□VWV-M508	M50 x 1.5	48	50	19.0	91.5 x 106.0	

Part No. IP66	Part No. IP68	Thread		Fits to conduit size:		Thread length [mm]	External dim. [mm]
		PG	NW	metric			
I-□VWD-P07MGT-11	I-□VWV-P07M	7	7	10	11.0	32.0 x 35.0	
I-□VWD-P070GT-11	I-□VWV-P070	7	10	12	11.0	34.0 x 39.5	
I-□VWD-P09MGT-11	-	9	7	10	11.0	32.0 x 36.5	
I-□VWD-P090GT-11	I-□VWV-P090	9	10	12	11.0	34.0 x 39.5	
I-□VWD-P092GT-11	I-□VWV-P092	9	12	16	11.0	38.5 x 44.5	
I-□VWD-P11MGT-11	-	11	7	10	11.0	32.0 x 38.0	
I-□VWD-P110GT-11	I-□VWV-P110	11	10	12	11.0	34.0 x 41.0	
I-□VWD-P112GT-11	I-□VWV-P112	11	12	16	11.0	38.5 x 46.0	
I-□VWD-P13MGT-11	-	13.5	7	10	11.0	32.0 x 39.5	
I-□VWD-P130GT-11	I-□VWV-P130	13.5	10	12	11.0	34.0 x 42.5	
I-□VWD-P132GT-11	I-□VWV-P132	13.5	12	16	11.0	38.5 x 47.5	
I-□VWD-P137GT-11	I-□VWV-P137	13.5	17	20	11.0	43.5 x 58.5	
I-□VWD-P167GT-11	I-□VWV-P167	16	17	20	11.0	43.5 x 58.5	
I-□VWD-P213GT	I-□VWV-P213	21	23	25	11.0	54.0 x 67.0	
I-□VWD-P299GT	I-□VWV-P299	29	29	32	12.0	61.5 x 74.5	
I-□VWD-P366GT	I-□VWV-P366	36	36	40	13.0	72.0 x 98.0	
I-□VWD-P488GT	I-□VWV-P488	48	48	50	13.0	85.5 x 111.0	

□ = Replace with "B" to order black or "S" to order grey
 For the sizes NW 17 to NW 48 curved elbows of type VB are available



PMAFIX Connectors VN - straight, metric & PG

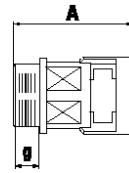
These **PMAFIX** connectors are used in a **wide range of applications**. Together with **PMAFLEX** conduits they offer the highest grade of safety and sealing. **Features:** ● High-grade formulated polyamide ● Self-extinguishing, free of halogen, phosphor and cadmium ● Excellent impact strength ● **Temperature range:** -40 °C to 105 °C; **Short-term** to 160 °C ● **Content of delivery IP66:** Fitting with pre-assembled universal safety clips (AFN2), **IP68:** Fitting with oval clips (OVN2), conduit and thread seal (NVN3, SVN4)



Part No. IP66	Part No. IP68	Thread metric	Fits to conduit size:		Thread length [mm]	Overall length [mm]
			NW	metric		
I-□VND-M12MGT	I-□VNV-M12M	M12 x 1.5	7	10	11.0	34.5
I-□VND-M120GT	I-□VNV-M120	M12 x 1.5	10	12	11.0	36.5
I-□VND-M160GT	I-□VNV-M160	M16 x 1.5	10	12	11.0	36.5
I-□VND-M162GT	I-□VNV-M162	M16 x 1.5	12	16	11.0	39.5
I-□VND-M202GT	I-□VNV-M202	M20 x 1.5	12	16	11.0	39.5
I-□VND-M207GT	I-□VNV-M207	M20 x 1.5	17	20	11.0	47.5
I-□VND-M257GT	I-□VNV-M257	M25 x 1.5	17	20	12.0	48.5
I-□VND-M253GT	I-□VNV-M253	M25 x 1.5	23	25	12.0	52.0
I-□VND-M323GT	I-□VNV-M323	M32 x 1.5	23	25	15.0	55.5
I-□VND-M329GT	I-□VNV-M329	M32 x 1.5	29	32	15.0	56.0
I-□VND-M409GT	I-□VNV-M409	M40 x 1.5	29	32	19.0	60.0
I-□VND-M406GT	I-□VNV-M406	M40 x 1.5	36	40	19.0	72.5
I-□VND-M506GT	I-□VNV-M506	M50 x 1.5	36	40	19.0	72.0
I-□VND-M508GT	I-□VNV-M508	M50 x 1.5	48	50	19.0	72.5
I-□VND-M638GT	I-□VNV-M638	M63 x 1.5	48	50	19.0	72.0

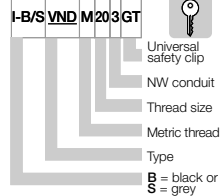
Part No. IP66	Part No. IP68	Thread PG	Fits to conduit size:		Thread length [mm]	Overall length [mm]
			NW	metric		
I-□VND-P07MGT-11	I-□VNV-P07M	7	7	10	11.0	34.5
I-□VND-P070GT-11	I-□VNV-P070	7	10	12	11.0	36.5
I-□VND-P072GT-11	-	7	12	16	11.0	39.0
I-□VND-P09MGT-11	I-□VNV-P09M	9	7	10	11.0	34.5
I-□VND-P090GT-11	I-□VNV-P090	9	10	12	11.0	36.5
I-□VND-P092GT-11	I-□VNV-P092	9	12	16	11.0	39.0
I-□VND-P097GT-11	I-□VNV-P097	9	17	20	11.0	47.5
I-□VND-P11MGT-11	I-□VNV-P11M	11	7	10	11.0	34.5
I-□VND-P110GT-11	I-□VNV-P110	11	10	12	11.0	36.5
I-□VND-P112GT-11	I-□VNV-P112	11	12	16	11.0	39.0
I-□VND-P117GT-11	I-□VNV-P117	11	17	20	11.0	47.5
I-□VND-P13MGT-11	-	13.5	7	10	11.0	34.5
I-□VND-P130GT-11	I-□VNV-P130	13.5	10	12	11.0	36.5
I-□VND-P132GT-11	I-□VNV-P132	13.5	12	16	11.0	39.0
I-□VND-P137GT-11	I-□VNV-P137	13.5	17	20	11.0	47.5
I-□VND-P160GT-11	-	16	10	12	11.0	36.5
I-□VND-P162GT-11	I-□VNV-P162	16	12	16	11.0	39.0
I-□VND-P167GT-11	I-□VNV-P167	16	17	20	11.0	47.5
I-□VND-P163GT-11	I-□VNV-P163	16	23	25	11.0	51.0
I-□VND-P213GT	I-□VNV-P213	21	23	25	12.0	52.0
I-□VND-P299GT	I-□VNV-P299	29	29	32	12.0	53.0
I-□VND-P296GT	I-□VNV-P296	29	36	40	12.0	67.5
I-□VND-P366GT	I-□VNV-P366	36	36	40	13.0	66.0
I-□VND-P368GT	-	36	48	50	13.0	68.5
I-□VND-P428GT	I-□VNV-P428	42	48	50	13.0	68.5
I-□VND-P488GT	I-□VNV-P488	48	48	50	13.0	66.5

□ = Replace with "B" to order black or "S" to order grey

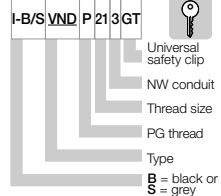


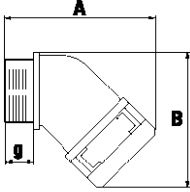
g = Thread length
A = Overall length

Part No. structure metric



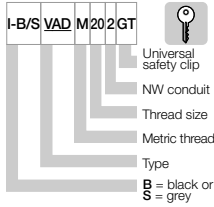
Part No. structure PG



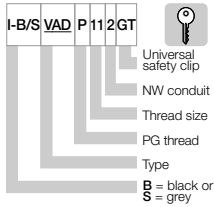


g = Thread length
 A x B = External dimensions

Part No. structure metric



Part No. structure PG



PMAFIX Connectors VA - 45° elbow, metric & PG

These PMAFIX connectors are used in a **wide range of applications**. Together with PMAFLEX conduits they offer the highest grade of safety and sealing. **Features:** ● High-grade formulated polyamide, thread made of nickel-plated brass ● Self-extinguishing, free of halogen, phosphor and cadmium ● Excellent impact strength ● **Temperature range:** -40 °C to 105 °C; **Short-term** to 160 °C ● **Content of delivery IP66:** Fitting with pre-assembled universal safety clips (AFN2), **IP68:** Fitting with oval clips (OVN2), conduit and thread seals (NVN3, SVN4)

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

Part No. IP66	Part No. IP68	Thread PG	Fits to conduit size:		Thread length [mm]	External dim. [mm]
			NW	metric		
I-□VAD-P090GT	I-□VAV-P090	9	10	12	11.0	43.5 x 37.0
I-□VAD-P112GT	I-□VAV-P112	11	12	16	11.0	48.0 x 40.0
I-□VAD-P132GT	I-□VAV-P132	13.5	12	16	11.0	48.0 x 41.5
I-□VAD-P137GT	I-□VAV-P137	13.5	17	20	11.0	55.0 x 50.0
I-□VAD-P167GT	I-□VAV-P167	16	17	20	11.0	55.0 x 51.5
I-□VAD-P213GT	I-□VAV-P213	21	23	25	12.0	67.0 x 59.0
I-□VAD-P299GT	I-□VAV-P299	29	29	32	12.0	69.0 x 67.0
I-□VAD-P366GT	I-□VAV-P366	36	36	40	13.0	86.0 x 86.0
I-□VAD-P488GT	I-□VAV-P488	48	48	50	13.0	93.0 x 99.0

□ = Replace with "B" to order black or "S" to order grey

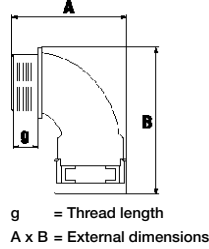


PMAFIX Connectors VB - 90° curved elbow, metric & PG

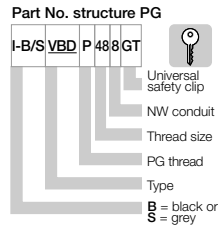
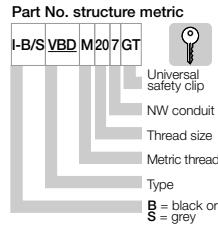
These PMAFIX connectors are used in a **wide range of applications**. Together with PMAFLEX conduits they offer the highest grade of safety and sealing. **Features:** ● High-grade formulated polyamide ● Self-extinguishing, free of halogen, phosphor and cadmium ● Excellent impact strength ● **Temperature range:** -40 °C to 105 °C; **Short-term** to 160 °C ● **IP66:** Fitting with pre-assembled universal safety clips (AFN2) ● **IP68:** Fitting with oval clips (OVN2), conduit and thread seal (NVN3,SVN4)



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



Part No. IP66	Part No. IP68	Thread PG	Fits to conduit size:		Thread length [mm]	External dim. [mm]
			NW	metric		
I-□VBD-P167GT	I-□VBV-P167	16	17	20	11.0	47.4 x 73.0
I-□VBD-P213GT	I-□VBV-P213	21	23	25	12.0	57.5 x 85.0
I-□VBD-P299GT	I-□VBV-P299	29	29	32	12.0	67.5 x 96.0
I-□VBD-P366GT	I-□VBV-P366	36	36	40	13.0	79.0 x 123.0
I-□VBD-P488GT	I-□VBV-P488	48	48	50	13.0	92.5 x 135.0



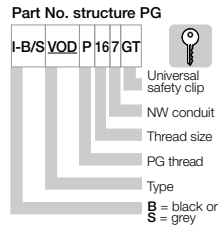
□ = Replace with "B" to order black or "S" to order grey. For smaller conduit sizes NW 07 to NW 12 appropriate standard elbows of type VW are available

PMAFIX Connectors VO - flange 90°

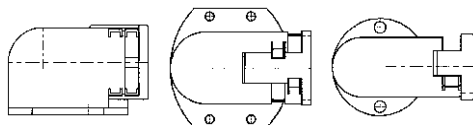
These PMAFIX connectors are used in a **wide range of applications**. Together with PMAFLEX conduits they offer the highest grade of safety and sealing. **Features:** ● IP66: Fitting with pre-assembled universal safety clips (AFN2), flange seal (OR) ● IP68: Fitting with oval clips (OVN2), conduit and flange seal (NVN3, OR)



Part No. IP66	Part No. IP68	Fits to conduit size:		Dimensions width x length x depth	Fixing screws
		NW	metric		
I-□VOD-P167GT	I-□VOV-P167	17	20	45.0 x 66.0 x 34.0	2 x M5
I-□VOD-P213GT	I-□VOV-P213	23	25	63.0 x 70.0 x 42.0	2 x M6
I-□VOD-P299GT	I-□VOV-P299	29	32	67.0 x 78.0 x 48.0	4 x M6
I-□VOD-P366GT	I-□VOV-P366	36	40	85.0 x 102.0 x 64.0	4 x M6
I-□VOD-P488GT	I-□VOV-P488	48	50	86.0 x 119.0 x 76.0	4 x M6



□ = Replace with "B" to order black or "S" to order grey



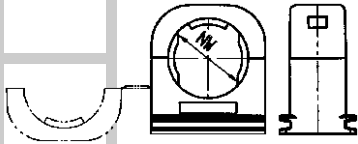


PMAFIX FH-0 - one-piece system supports

The **one-piece PMACLIP** system support is designed for fixation of **PMAFLEX** conduits. This product can be used in all **machine and installation applications** for easy assembly of the PMA system.

Features: ● High-grade formulated polyamide ● Self-extinguishing, free of halogen, phosphor and cadmium ● Excellent impact strength ● **Temperature range:** -40 °C to 105 °C; **Short-term** 160 °C

Part No. black	Part No. grey	Fits to conduit size:		Dimensions width x length x depth	Fixing screw
		NW	metric		
I-BFH-07-0	I-SFH-07-0	7	10	17.0 x 21.5 x 20.0	1 x M4
I-BFH-10-0	I-SFH-10-0	10	12	20.5 x 24.5 x 20.0	1 x M5
I-BFH-12-0	I-SFH-12-0	12	16	24.0 x 27.0 x 20.0	1 x M5
I-BFH-17-0	I-SFH-17-0	17	20	30.0 x 34.0 x 20.0	1 x M6
I-BFH-23-0	I-SFH-23-0	23	25	38.5 x 42.0 x 20.0	1 x M6
I-BFH-29-0	I-SFH-29-0	29	32	45.5 x 48.0 x 20.0	1 x M6
I-BFH-36-0	I-SFH-36-0	36	40	55.5 x 56.0 x 20.0	1 x M6
I-BFH-48-0	I-SFH-48-0	48	50	67.5 x 68.0 x 20.0	1 x M6

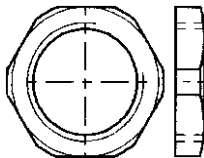


PMA MN - hexagonal lock nuts, metric & PG

These hexagonal lock nuts are suitable for a wide range of applications. High torque guarantees a safe connection of the system. **Features:** ● Polyamide glass fiber reinforced ● **Temperature range:** -40 °C to 105 °C; **Short-term** 150 °C

Part No. black	Part No. grey	Fits to thread:	Wrench size	Dimensions height
		metric		
I-BMN-M12	I-GMN-M12	M12 x 1.5	17.0	5.0
I-BMN-M16	I-GMN-M16	M16 x 1.5	22.0	5.0
I-BMN-M20	I-GMN-M20	M20 x 1.5	27.0	6.0
I-BMN-M25	I-GMN-M25	M25 x 1.5	32.0	6.0
I-BMN-M32	I-GMN-M32	M32 x 1.5	41.0	7.0
I-BMN-M40	I-GMN-M40	M40 x 1.5	50.0	7.0
I-BMN-M50	I-GMN-M50	M50 x 1.5	60.0	8.0
I-BMN-M63	I-GMN-M63	M63 x 1.5	75.0	8.0

Part No. black	Part No. grey	Fits to thread:	Wrench size	Dimensions height
		PG		
I-BMN-07	I-GMN-07	7	19.0	5.0
I-BMN-09	I-GMN-09	9	22.0	5.0
I-BMN-11	I-GMN-11	11	24.0	5.0
I-BMN-13	I-GMN-13	13.5	27.0	6.0
I-BMN-16	I-GMN-16	16	30.0	6.0
I-BMN-21	I-GMN-21	21	36.0	7.0
I-BMN-29	I-GMN-29	29	46.0	7.0
I-BMN-36	I-GMN-36	36	60.0	8.0
I-BMN-48	I-GMN-48	48	70.0	8.0



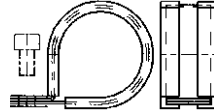
PMA SGB - tube clamps

These tube clamps are used for the mounting and smooth connection to the PMA conduits in the general machine and installation constructions. They are especially suitable for the mounting of static conduits.

Features: ● Galvanized steel according to DIN 3016 ● Elastomer free of halogen ● **Temperature range:** -50 °C bis 105 °C



Part No.	Fits to conduit size	Fits to conduit size	Dimensions	Fixing screw
	NW	metric	width [mm]	
I-SGB-07	7	10	13.0	1 x M4
I-SGB-09	10	12	13.0	1 x M4
I-SGB-11	12	16	13.0	1 x M4
I-SGB-16	17	20	16.0	1 x M5
I-SGB-21	23	25	16.0	1 x M5
I-SGB-29	29	32	19.0	1 x M6
I-SGB-36	36	40	19.0	1 x M6
I-SGB-48	48	50	19.0	1 x M6



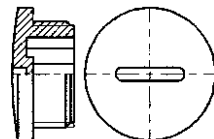
PMA 514 - plug screws, metric & PG

These plug screws are suitable for an accurate termination where no thread holes in casing and distribution boxes are needed. **Features:** ● Product with metric thread: **PA-GF** - Product with PG thread: **PS** ● Free of halogen, phosphor and cadmium ● IP54 ● **Temperature range:** -20 °C to 60 °C; **Short-term** 100 °C



Part No.	Fits to thread	Outside	Total length	Thread length
	metric	Ø [mm]	[mm]	[mm]
I-514-M12	M12 x 1.5	15.0	8.0	6.0
I-514-M16	M16 x 1.5	20.0	9.0	6.0
I-514-M20	M20 x 1.5	24.0	9.5	6.0
I-514-M25	M25 x 1.5	30.0	11.5	8.0
I-514-M32	M32 x 1.5	37.0	12.0	8.0
I-514-M40	M40 x 1.5	46.0	13.0	8.0
I-514-M50	M50 x 1.5	56.0	15.0	10.0
I-514-M63	M63 x 1.5	70.0	17.0	12.0

Part No.	Fits to thread	Outside	Total length	Thread length
	PG	Ø [mm]	[mm]	[mm]
I-514-07	7	15.0	8.0	6.0
I-514-09	9	19.0	9.5	6.5
I-514-11	11	22.0	10.0	6.5
I-514-13	13.5	25.0	10.0	6.5
I-514-16	16	27.0	10.0	6.5
I-514-21	21	33.0	12.0	8.0
I-514-29	29	44.0	11.5	8.0
I-514-36	36	55.0	14.0	10.0
I-514-48	48	69.0	16.0	12.0





igus® E-ChainSystems®

Standard Corrugated Conduits						
Products		PCL PA6	CYL PA6	VOH PA6	PIS PA12	FH
Tube size:		Very flexible, medium wall	Very flexible, medium wall	Flexible, very heavy	Highly flexible medium wall	PMACLIP - one-piece system support
metric	width [mm]	corrugated conduits	corrugated conduits	corrugated conduits	corrugated conduits	
10	07	PCLT-07* -	CYLT-07* -	VDHD-07* -	PIST-07* -	*FH-07-0
12	10	PCLT-10* -	CYLT-10* -	VOHD-10* -	PIST-10* -	*FH-10-0
16	12	PCLT-12* -	CYLT-12* -	VOHD-12* -	PIST-12* -	*FH-12-0
20	17	PCLT-17* PCLG-17*	CYLT-17* -	- VOHG-17*	PIST-17* PISG-17*	*FH-17-0
25	23	PCLT-23* PCLG-23*	CYLT-23* CYLG-23*	- VOHG-23*	PIST-23* PISG-23*	*FH-23-0
32	29	PCLT-29* PCLG-29*	CYLT-29* CYLG-29*	- VOHG-29*	PIST-29* PISG-29*	*FH-29-0
40	36	PCLT-36* PCLG-36*	CYLT-36* CYLG-36*	- VOHG-36*	PIST-36* PISG-36*	*FH-36-0
50	48	PCLT-48* PCLG-48*	CYLT-48* CYLG-48*	- VOHG-48*	PIST-48* PISG-48*	*FH-48-0

* = replaced by "B" for black or "S" for gray

T or D = fine profile

G = coarse profile

Phone +49- (0) 22 03-96 49-800
Fax +49- (0) 22 03-96 49-222

Standard Corrugated Conduits						
Products		PCL PA6	CYL PA6	VOH PA6	PIS PA12	FH
Tube size:		Very flexible, medium wall	Very flexible, medium wall	Flexible, very heavy	Highly flexible medium wall	PMACLIP - one-piece system support
metric	width [mm]	corrugated conduits	corrugated conduits	corrugated conduits	corrugated conduits	system support
10	07	PCLT-07* -	CYLT-07* -	VDHD-07* -	PIST-07* -	*FH-07-0
12	10	PCLT-10* -	CYLT-10* -	VOHD-10* -	PIST-10* -	*FH-10-0
16	12	PCLT-12* -	CYLT-12* -	VOHD-12* -	PIST-12* -	*FH-12-0
20	17	PCLT-17* PCLG-17*	CYLT-17* -	- VOHG-17*	PIST-17* PISG-17*	*FH-17-0
25	23	PCLT-23* PCLG-23*	CYLT-23* CYLG-23*	- VOHG-23*	PIST-23* PISG-23*	*FH-23-0
32	29	PCLT-29* PCLG-29*	CYLT-29* CYLG-29*	- VOHG-29*	PIST-29* PISG-29*	*FH-29-0
40	36	PCLT-36* PCLG-36*	CYLT-36* CYLG-36*	- VOHG-36*	PIST-36* PISG-36*	*FH-36-0
50	48	PCLT-48* PCLG-48*	CYLT-48* CYLG-48*	- VOHG-48*	PIST-48* PISG-48*	*FH-48-0

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igus® GmbH
51147 Cologne

JUMBO Corrugated Conduits PMAGRIP						
Products		PCLG PA6	PIHG PA12	BGG	BGO	SGS
Tube size:		Very flexible, medium wall	Highly flexible medium wall	PMAGRIP- straight	PMAGRIP- 90° angle	PMAGRIP- tube clamps
Width [mm]		corrugated conduits	corrugated conduits			
56		PCLG-56*	PIHG-56*	*GG-56	*GO-56	SGS-56
70		PCLG-70*	PIHG-70*	*GG-70	*GO-70	SGS-70
95		PCLG-95*	PIHG-95*	*GG-95	*GO-95	SGS-95
125		PCLG-125*	PIHG-125*	*GG-125	-	SGS-125

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G = coarse profile

Internet: www.igus.de
E-mail: info@igus.de



PMAFIX						
Products	IP66 - VN 9A	IP66 - VA 9A	IP66 - VW 9A	IP66 - VB	IP68 - VN2 9A	MN
Thread	PMAFIX	PMAFIX	PMAFIX	PMAFIX	Straight with	PMA
Typ	straight	45° angle	90° angle	90° elbow angle	strain relief	hexagonal lock nuts
M12x1.5	*VND-M12MGT	-	*VWD-M12MGT	-	-	*MN-M12
M12x1.5	*VND-M120GT	*VAD-M120GT	*VWD-M120GT	-	-	*MN-M12
M16x1.5	*VND-M162GT	*VAD-M162GT	*VWD-M162GT	-	*VNZ-M162S	*MN-M16
M20x1.5	*VND-M207GT	*VAD-M207GT	*VWD-M207GT	*VBD-M207GT	*VNZ-M207S	*MN-M20
M25x1.5	*VND-M253GT	*VAD-M253GT	*VWD-M253GT	*VBD-M253GT	*VNZ-M253S	*MN-M25
M32x1.5	*VND-M329GT	*VAD-M329GT	*VWD-M329GT	*VBD-M329GT	*VNZ-M329S	*MN-M32
M40x1.5	*VND-M406GT	*VAD-M406GT	*VWD-M406GT	*VBD-M406GT	*VNZ-M406S	*MN-M40
M50x1.5	*VND-M508GT	*VAD-M508GT	*VWD-M508GT	*VBD-M508GT	*VNZ-M508S	*MN-M50

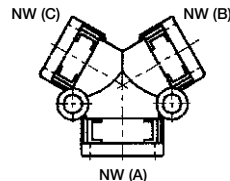
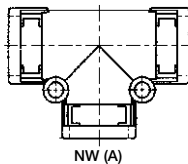
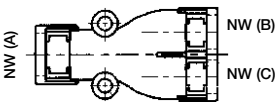
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PMAFIX						
Products	IP66 - VOD 9A	IP66 - VV 9A	IP66 - FT/VT 9A	IP66 - FV 9A	SGB	
Tube size:	PMAFIX	PMAFIX	PMAFIX	PMAFIX	PMAFIX-	
metric	flange 90°	Y-distribution	T-distribution	V-distribution	tube clamps	
width		piece	piece	piece		
[mm]						
10	07	-	-	-	SGB-07	
12	10	-	*VYD-100707GT	*FTD-101010GT	SGB-09	
16	12	-	*VYD-121010GT	*FTD-121212GT	SGB-11	
20	17	*VOD-P167GT	*VYD-171212GT	*FTD-171717GT	SGB-16	
25	23	*VOD-P213GT	*VYD-231717GT	*FTD-232323GT	SGB-21	
32	29	*VOD-P299GT	*VYD-292323GT	*FTD-292929GT	SGB-29	
40	36	*VOD-P366GT	*VYD-362929GT	*FTD-363636GT	SGB-36	
50	48	*VOD-P488GT	*VYD-483636GT	-	SGB-48	

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PMAFIX - Order example

XXXX-10 07 07 XX



Please note: Since January 2003 are only complete packaging units available on request!

PMA-Program

Phone +49- (0) 22 03-96 49-800
Fax +49- (0) 22 03-96 49-222

igus® GmbH
51147 Cologne

Internet: www.igus.de
E-mail: info@igus.de