



PMA

PMA Overview

PMAFLEX | Conduits | Cable protection



Product	Description
PMA conduits	
PACO	Flexible, medium, split
PPCO	Very flexible, medium, split
TN	Split connectors, PG
GTN	Split lock nuts, PG
VCS	Flexible, heavy
PIS/PIH	Highly flexible, medium
CYL	Very flexible, medium

PMAFIX | Connectors | Safety and sealing systems



Product	Description
PMA connectors	
IP66 - stat., IP54 dyn.	Universal safety clip
IP68 - stat., IP67 dyn.	Oval clip
PMAFIX / PMAFLEX	Connectors
PMAFIX connectors VW	90° elbow, metric & PG
PMAFIX connectors VA	45° elbow, metric & PG
PMAFIX connectors VN	Straight, metric
PMAFIX connectors VN	Straight, PG
PMAFIX connectors VB	90° curved elbow, metric & PG
PMAFIX connectors VO	Flange 90°

PMA | Accessories



Product	Description
PMA accessories	
PMAFIX FH-O	One-piece system support
PMA VH	System supports
PMA GPS	One-piece system supports
PMA MN	Hexagonal lock nuts, metric & PG
PMA SGB	Tube clamps
PMA 514	Plug screws, metric & PG

PMA Protective Corrugated Tubing

Tubes, connectors, system supports, and accessories

Advantages of PMA

- Wide range of tubes
- Long service life of the tubes especially through millions of reverse bending cycles
- UL-recognized products available
- Outstanding tear-out resistance of the connections
- PMAFIX safety locking system



igus® Energy Chain® System E4 combined with PMAFLEX protective tubing and igus Chainflex® CF9

PMA™ protective hoses can be used in applications requiring flexible protection for electrical wires and cables. They also provide outstanding protection for cables within Energy Chain Systems®. Simple applications include general mechanical and automotive engineering systems. Advanced applications include chemical plant technology with temperatures ranging

between -200°F and 482°F, to robots that undergo several million cycles at high speeds. PMA protective tubes are subjected to extensive testing including resistance to impact, reverse bending fatigue, peak load, heat aging, cold wind, self-extinguishing, and tear out resistance.





PACO - medium sized, flexible, split

The PMA COFLEX conduit type PACO has been created for retrofit and pre-loomed applications. New cables can be added to existing arrangements without the need for re-wiring or re-threading within the building of machines and installations. This product is suitable for vehicle manufacturing and building construction. Split connectors and locknuts are available for this product group.

Temperature range:

-40°F to +212°F (-40°C to +100°C), or a short time up to +266°F (+130°C)

Features:

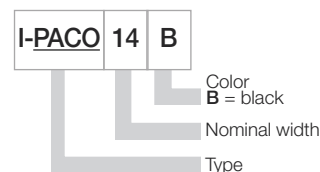
- specially modified PA6 (polyamide 6)
- good closure up to IP50
- self-extinguishing
- halogen-free and cadmium-free

Chemical resistance:

- fuels
- mineral oils
- fats
- alkalis
- weak acids and bases, etc.

Part No. (Black)	Inside diameter (mm)	Outside diameter (mm)	Radius (stat.) (mm)	Nominal Width	Suitable for PG	Maximum Coil Length (m)
I-PACO-10B	8.9	13.6	55	10	09	50
I-PACO-14B	12.9	18.7	75	14	13.5	50
I-PACO-20B	19.8	25.9	105	20	21	50
I-PACO-23B	23.7	31.3	125	23	29	50
I-PACO-37B	31.7	41.9	170	37	29	25
I-PACO-45B	43.1	54.2	180	45	—	25

Part No. structure



! I-PACO is suitable for static use only!



PPCO - medium sized, very flexible, split

The PMA COFLEX conduit type PPCO has been created for retrofit and pre-loomed applications. New cables can be added to existing arrangements without the need for re-wiring or re-threading within the building of machines and installations. This product is suitable for vehicle manufacturing and building construction. Split connectors and locknuts are available for this product group.

Temperature range:

-4°F to +203°F (-20 °C to +95 °C), or a short time up to +248°F (+120°C)

Features:

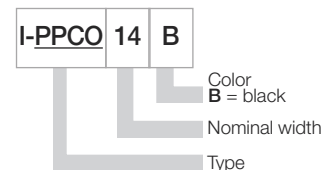
- specially modified polypropylene
- good closure up to IP50
- self-extinguishing,

Chemical resistance:

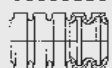
- fuels
- mineral oils
- fats
- alkalis
- acids, etc.

Part No. (Black)	Inside diameter (mm)	Outside diameter (mm)	Radius (stat.) (mm)	Nominal width	Suitable for PG	Maximum Coil Length (m)
I-PPCO-10B	8.7	13.6	70	10	09	50
I-PPCO-14B	12.5	18.5	95	14	13.5	50
I-PPCO-20B	19.5	25.5	130	20	21	50
I-PPCO-23B	24.2	31.0	155	23	29	50
I-PPCO-37B	31.0	41.4	190	37	29	25
I-PPCO-45B	42.7	54.0	205	45	-	25

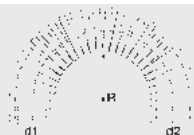
Part No. structure



Fine profile T - tight bending radius



Coarse profile G - high pull-out strength



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



TN - Split connectors, PG

These split 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.

Temperature range:

-22°F to +212°F (-30 °C to +100 °C), or a short time up to +266°F (+130°C)

Features:

- specially formulated polyamide
- IP50
- self-extinguishing
- free of halogen, cadmium and phosphor
- very good impact strength

PMA-COFIX TN: two-piece connector

Part No. PMA-COFIX	Inside (mm)	Length (mm)	Wrench Size (mm)	Thread PG	Suitable for PMA COFLEX NW
I-BTNO-P0910	09	28	19	9	10
I-BTNO-P1314	13	35	24	13.5	14
I-BTNO-P2120	20	34	32	21	20
I-BTNO-P2923	31	42	41	29	23
I-BTNO-P2937	31	50	50	29	37



GTN - Split lock nuts, PG

These split lock nuts are used in conjunction 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.

Temperature range:

-22°F to +212°F (-30 °C to +100 °C), or a short time up to +266°F (+130°C)

Features:

- specially formulated polyamide
- IP50
- self-extinguishing
- free of halogen, cadmium and phosphor
- very good impact strength

PMA-COFIX GTN: two-piece locking nut

Part No. PMA-COFIX	Height in. (mm)	Outside diameter (mm)	Thread PG	Suitable for PMA COFIX TN
I-BGTN-P0910	11	22	9	I-BTNO-P0910
I-BGTN-P1314	14	30	13.5	I-BTNO-P1314
I-BGTN-P2120	14	36	21	I-BTNO-P2120
I-BGTN-P2923	17	46	29	I-BTNO-P2923
I-BGTN-P2937	17	55	29	I-BTNO-P2937

igus® Energy Chain System®

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QuickSpec: <http://www.igus.com/quickspec>



PMAFLEX Conduits VCS - flexible, heavy

PMAFLEX VCS heavy conduit is characterized by high impact resistance at low temperatures and good weather resistance. These conduits find their application primarily in railway vehicle undercarriages, but are also well-suited to static applications in general construction of machinery or installations.

Temperature range:

-58°F to +221°F (-50 °C to +105 °C), or a short time up to +302°F (+150°C)

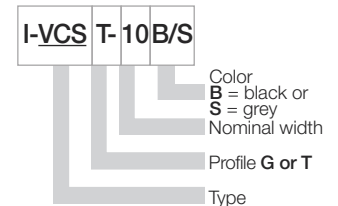
Features:

- specially modified PA6 (polyamide 6) for cold impact
- excellent mechanical properties also at low temperatures
- self-extinguishing
- halogen-free and cadmium-free

Chemical resistance:

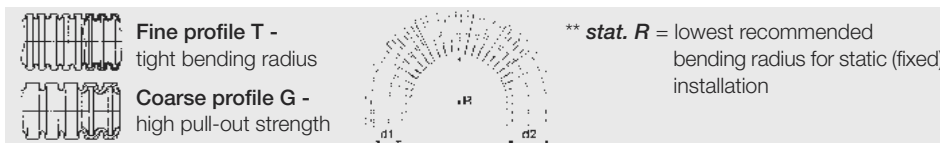
- fuels
- mineral oils
- fats
- alkalis
- weak acids and bases, etc.

Part No. structure



Part No. black	Part No. grey*	Conduit size NW	Conduit size metric	Inside diameter (mm)	Outside diameter (mm)	Radius (stat.)** (mm)	PU (m)
I-VCST-07B	I-VCST-07S	7	10	6.0	10.0	20	100
I-VCST-10B	I-VCST-10S	10	12	9.2	13.0	25	50
I-VCST-12B	I-VCST-12S	12	16	11.8	15.8	30	50
I-VCST-17B	I-VCST-17S	17	20	16.0	21.2	40	50
I-VCSG-17B	I-VCSG-17S	17	20	15.2	21.2	40	50
I-VCSG-23B	I-VCSG-23S	23	25	22.0	28.5	50	50
I-VCSG-29B	I-VCSG-29S	29	32	27.7	34.4	60	50
I-VCSG-36B	I-VCSG-36S	36	40	35.8	42.4	70	30
I-VCSG-48B	I-VCSG-48S	48	50	46.8	54.4	80	30
I-VCSG-56B	I-VCSG-56S	56	68	56.1	67.2	150	30
I-VCSG-70B	I-VCSG-70S	70	80	66.5	80.0	200	10
I-VCSG-95B	I-VCSG-95S	95	106	91.0	106.0	300	10

*Grey part is a special order, call igus® for availability



Fine profile T -
tight bending radius

Coarse profile G -
high pull-out strength

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

**I-VCST/VCSG -
is suitable for
static use only!**



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 intensive sunlight (UV).

Temperature range:

-58°F to +203°F (-50 °C to +95 °C), or a short time up to +302°F (+150°C)

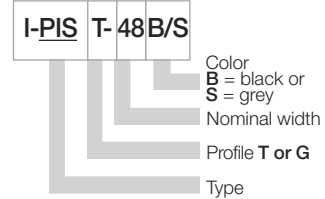
Features:

- specially modified polyamide 12
- **PIS: medium-wall (nominal width 07 to 48)**
- **PIH: heavy-wall (nominal width 56 to 125)**
- self-extinguishing
- halogen-free and cadmium-free
- good mechanical properties also at low temperatures

Chemical resistance:

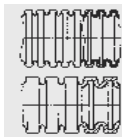
- fuels
- mineral oils
- fats
- alkalis
- acids etc.

Part No. structure



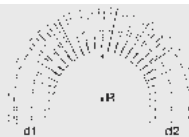
Part No. black	Part No. grey*	Conduit size NW	Conduit size metric	Inside diameter (mm)	Outside diameter (mm)	Radius stat.**/dyn.*** (mm)	PU (m)
I-PIST-07B	I-PIST-07S	7	10	6.2	10.0	15 / 40	50
I-PIST-10B	I-PIST-10S	10	12	9.6	13.0	20 / 50	50
I-PIST-12B	I-PIST-12S	12	16	11.9	15.8	25 / 65	50
I-PIST-17B	I-PIST-17S	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

*Grey part is a special order, call igus® for availability



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

I-PIS/PIH is recommended for highly flexible application

igus® Energy Chain System®

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 QuickSpec: <http://www.igus.com/quickspec>



PMAFLEX Conduits CYL - very flexible, medium, economy

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.

Temperature range:

-40°F to +221°F (-40 °C to +105 °C), or a short time up to +302°F (+150°C)

Features:

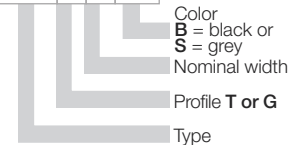
- specially modified polyamide 6/6.6 for cold impact
- good impact strength also at low temperatures
- self-extinguishing
- halogen-free and cadmium-free

Chemical resistance:

- fuels
- mineral oils
- fats
- alkalis
- weak acids and bases, etc.

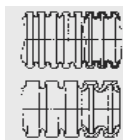
Part No. structure

I-CYL T-29B/S



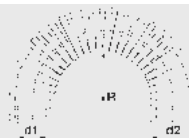
Part No. black	Part No. grey*	Conduit size NW	Conduit size metric	Inside diameter (mm)	Outside diameter (mm)	Radius (stat.)** (mm)	PU (m)
I-CYLT-07B	I-CYLT-07S	7	10	6.2	10.0	15	50
I-CYLT-10B	I-CYLT-10S	10	12	9.6	13.0	20	50
I-CYLT-12B	I-CYLT-12S	12	16	12.0	15.8	30	50
I-CYLT-17B	I-CYLT-17S	17	20	16.2	21.2	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

*Grey part is a special order, call igus® for availability



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

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

(moderate dynamic
application possible)

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

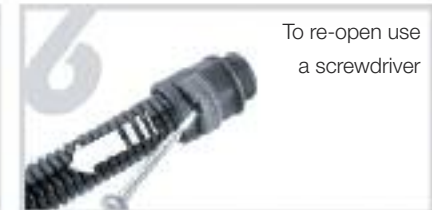


IP68 - static - oval clip

- 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

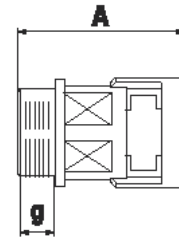
The designation **PMAFIX** describes a very large range of connectors for PMA conduits with the patented PMA safety clip system. Connectors are available for ingress protection IP66 and IP68. IP66 connectors are fitted with a preinstalled universal safety clip which ensures a quick "push-in" installation.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

Table 1 - PMAFIX / PMAFLEX conduit code

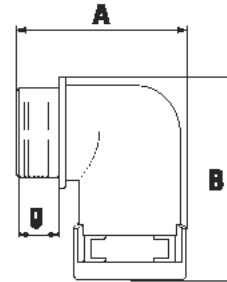
Nominal width	PMA code
7	M
10	0
12	2
17	7
23	3
29	9
36	6
48	8

Table 2 - Thread codes

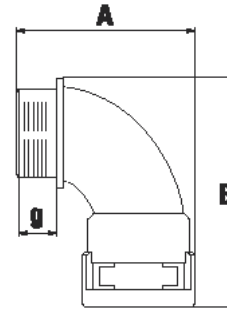
Thread metric	PMA code	Thread PG	PMA code
M12 x 1.5	M12	PG07	P07
M16 x 1.5	M16	PG09	P09
M20 x 1.5	M20	PG11	P11
-	-	PG13.5	P13
M25 x 1.5	M25	PG16	P16
M32 x 1.5	M32	PG21	P21
M40 x 1.5	M40	PG29	P29
M50 x 1.5	M50	PG36	P36
M63 x 1.5	M63	PG42	P42
		PG48	P48



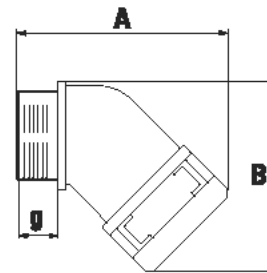
g = Thread length
A = Overall length



g = Thread length
A x B = External dimensions



g = Thread length
A x B = External dimensions

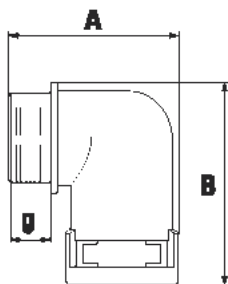


g = Thread length
A x B = External dimensions

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QuickSpec: <http://www.igus.com/quickspec>



g = Thread length

A x B = External dimensions

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.

Temperature range:

-40°F to +221°F (-40 °C to +105 °C), or a short time up to +320°F (+160°C)

Content of delivery IP66:

Fitting with pre-assembled universal safety clips (AFN2)

Content of delivery IP68:

Fitting with oval clips (OVN2), conduit and thread seal (NVN3, SVN4)

Features:

- high grade formulated polyamide
- excellent impact strength
- self-extinguishing
- free of halogen, phosphor and cadmium

Part No. IP66	Part No. IP68	Thread PG	Fits to conduit size:		Thread length [mm]	External dim. [mm]
			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

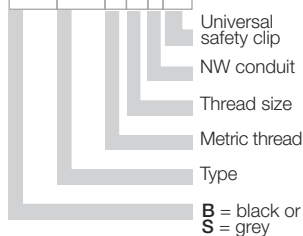
Fill in the blank with either "B" to order black or "S" to order grey*

For smaller conduit sizes NW 07 to NW 12 appropriate standard elbows of type VB are available

*Grey part is a special order, call igus® for availability

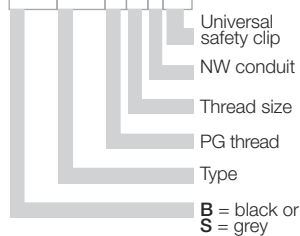
Part No. structure metric

I-B/SVWDM202GT



Part No. structure PG

I-B/SVWDP213GT





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.

Temperature range:

-40°F to +221°F (-40 °C to +105 °C), or a short time up to +320°F (+160°C)

Content of delivery IP66:

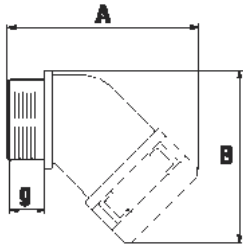
Fitting with pre-assembled universal safety clips (AFN2)

Content of delivery IP68:

Fitting with oval clips (OVN2), conduit and thread seal (NVN3, SVN4)

Features:

- high grade formulated polyamide
- excellent impact strength
- self-extinguishing
- free of halogen, phosphor and cadmium



g = Thread length

A x B = External dimensions

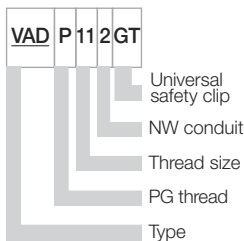
Part No. IP66	Part No. IP68	Thread metric	Fits to conduit size:		Thread length [mm]	External dim. [mm]
			NW	metric		
I-__VAD-M120GT	—	M12 x 1.5	10	12	11.0	43.5 x 37.0
I-__VAD-M160GT	I-__VAV-M160	M16 x 1.5	10	12	11.0	43.5 x 38.0
I-__VAD-M162GT	I-__VAV-M162	M16 x 1.5	12	16	11.0	48.0 x 40.0
I-__VAD-M202GT	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

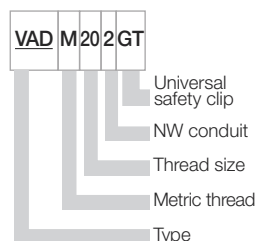
Fill in the blank with either "B" to order black or "S" to order grey*

*Grey part is a special order, call igus® for availability

Part No. structure PG



Part No. structure metric



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PMAFIX Connectors VN - straight, metric

These PMAFIX connectors are used in a wide range of applications. Together with PMAFLEX conduits they offer the highest grade of safety and sealing.

Temperature range:

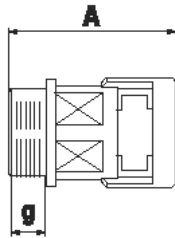
-40°F to +221°F (-40 °C to +105 °C), or a short time up to +320°F (+160°C)

Content of delivery IP66:

Fitting with pre-assembled universal safety clips (AFN2)

Content of delivery IP68:

Fitting with oval clips (OVN2), conduit and thread seal (NVN3, SVN4)



Features:

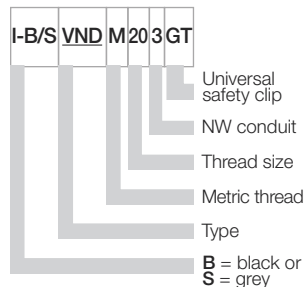
- high grade formulated polyamide
- excellent impact strength
- self-extinguishing
- free of halogen, phosphor and cadmium

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

Fill in the blank with either "B" to order black or "S" to order grey*

*Grey part is a special order, call igus® for availability

Part No. structure metric





PMAFIX Connectors VN - straight, 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.

Temperature range:

-40°F to +221°F (-40 °C to +105 °C), or a short time up to +320°F (+160°C)

Content of delivery IP66:

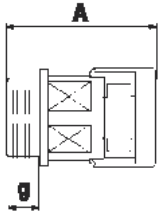
Fitting with pre-assembled universal safety clips (AFN2)

Content of delivery IP68:

Fitting with oval clips (OVN2), conduit and thread seal (NVN3, SVN4)

Features:

- high grade formulated polyamide
- excellent impact strength
- self-extinguishing
- free of halogen, phosphor and cadmium



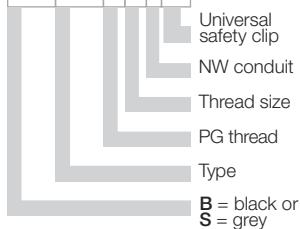
Part No. IP66	Part No. IP68	Thread PG	Fits to conduit size:		Thread length [mm]	Overall length [mm]
			NW	metric		
I-__VND-P07MGT-11	I-__VNV-P07M	7	7	10	11.0	34.5
I-__VND-P070GT-11	I-__VNV-P070	7	10	12	11.0	36.5
I-__VND-P072GT-11	—	7	12	16	11.0	39.0
I-__VND-P09MGT-11	I-__VNV-P09M	9	7	10	11.0	34.5
I-__VND-P090GT-11	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

Fill in the blank with either "B" to order black or "S" to order grey*

*Grey part is a special order, call igus® for availability

Part No. structure PG

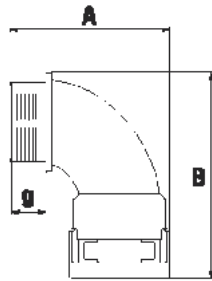
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g = Thread length

A x B = External dimensions

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.

Temperature range:

-40°F to +221°F (-40 °C to +105 °C), or a short time up to +320°F (+160°C)

Content of delivery IP66:

Fitting with pre-assembled universal safety clips (AFN2)

Content of delivery IP68:

Fitting with oval clips (OVN2), conduit and thread seal (NVN3, SVN4)

Features:

- high grade formulated polyamide
- excellent impact strength
- self-extinguishing
- free of halogen, phosphor and cadmium

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

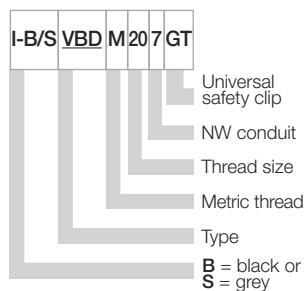
Part No. IP66	Part No. IP68	Thread metric	Fits to conduit size:		Thread length [mm]	External dim. [mm]
			NW	metric		
I-_VBD-P167GT	I-_VBV-P167	16	17	20	11.0	47.4 x 73.0
I-_VBD-P213GT	I-_VBV-P213	21	23	25	12.0	57.5 x 85.0
I-_VBD-P299GT	I-_VBV-P299	29	29	32	12.0	67.5 x 96.0
I-_VBD-P366GT	I-_VBV-P366	36	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

Fill in the blank with either "B" to order black or "S" to order grey*

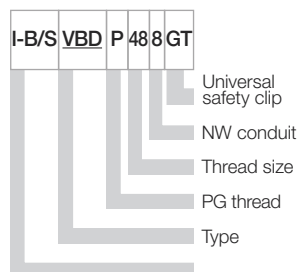
*Grey part is a special order, call igus® for availability

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

Part No. structure metric



Part No. structure PG





PMAFIX Connectors VO - Flange 90°

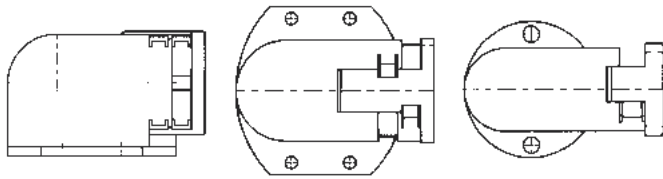
These PMAFIX connectors are used in a wide range of applications. Together with PMAFLEX conduits they offer the highest grade of safety and sealing.

Content of delivery IP66:

Fitting with pre-assembled universal safety clips (AFN2), flange seal (FG04)

Content of delivery IP68:

Fitting with oval clips (OVN2), conduit and thread seal (NVN3, FG04)

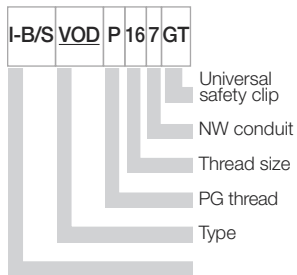


Part No. IP66	Part No. IP68	Fits to conduit size:		Dimensions width x length x depth	Fixing screws
		NW	metric		
I-__VOD-P167GT	I-__VOV-P167	17	20	46.0 x 66.0 x 35.5	2 x M5
I-__VOD-P213GT	I-__VOV-P213	23	25	65.5 x 70.0 x 43.0	2 x M6
I-__VOD-P299GT	I-__VOV-P299	29	32	67.0 x 78.0 x 49.5	4 x M6
I-__VOD-P366GT	I-__VOV-P366	36	40	85.0 x 102.0 x 65.5	4 x M6
I-__VOD-P488GT	I-__VOV-P488	48	50	86.0 x 119.0 x 77.5	4 x M6

Fill in the blank with either "B" to order black or "S" to order grey*

*Grey part is a special order, call igus® for availability

Part No. structure PG



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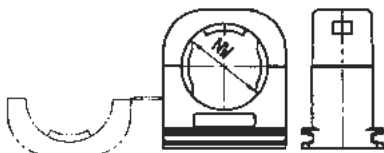


PMAFIX FH-0 - One-piece system supports

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.

Temperature range:

-40°F to +221°F (-40 °C to +105 °C), or a short time up to +320°F (+160°C)



Features:

- high grade formulated polyamide
- excellent impact strength
- self-extinguishing
- free of halogen, phosphor and cadmium

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



PMAFIX VH - System supports

These PMACLIP system supports are designed for support and guidance of PMA conduits with fine or coarse profile and can be used in all machine building and installation applications. The system is safe against turning/movement and offers maximum security with the additional safety clip, variable assembly due to six hole fastening and optimal strain relief due to integrated rib.

Temperature range:

-40°F to +221°F (-40 °C to +105 °C), or a short time up to +320°F (+160°C)

Features:

- high grade formulated polyamide
- excellent impact strength
- self-extinguishing
- free of halogen, phosphor and cadmium

Part No. Support only	Part No. Locking clip	Part No. Complete	Fits to conduit size:		Dimensions width x length x depth	Fixing screw
			NW	metric		
I-BVH-07	BVH-07-020	BVH-07-000	7	10	17.0 x 21.5 x 20.0	1 x M4
I-BVH-10	BVH-10-020	BVH-10-000	10	12	20.5 x 24.5 x 20.0	1 x M5
I-BVH-12	BVH-12-020	BVH-12-000	12	16	24.0 x 27.0 x 20.0	1 x M5
I-BVH-17	BVH-17-020	BVH-17-000	17	20	35.0 x 36.0 x 36.0	6 x M5
I-BVH-23	BVH-23-020	BVH-23-000	23	25	35.0 x 44.0 x 36.0	6 x M5
I-BVH-29	BVH-29-020	BVH-29-000	29	32	46.0 x 52.0 x 40.0	6 x M5
I-BVH-36	BVH-36-020	BVH-36-000	36	40	53.0 x 58.0 x 60.0	6 x M5
I-BVH-48	BVH-48-020	BVH-48-000	48	50	66.0 x 72.0 x 60.0	6 x M5



PMAFIX GPS - One-piece System supports for stacking

The PMAFIX system supports for stacking are specially designed for increased mechanical requirements in the traction and heavy machine building industries. The one-piece systems supports offer a clasp for easy pre-mounting and final assembly. Fixation in standard rails type C and strain relief due to gripping around the conduit. In addition these products are partially stackable.

Temperature range:

-40°F to +221°F (-40 °C to +105 °C), or a short time up to +320°F (+160°C)

Features:

- high grade formulated polyamide
- excellent impact strength
- self-extinguishing
- free of halogen, phosphor and cadmium

Stacking options

The following nominal widths can be combined for stacking:

- NW 17 with NW23
- NW 29 with NW 36
- NW 48 with NW 56

Part No. fine profile	Fits to conduit size			Dimensions		
	NW	metric	DIN-NW	width	height	depth
BGPS-17	17	20	2	70.0	45.0	30.0
BGPS-23	23	25	2	70.0	45.0	30.0
BGPS-29	29	32	3	85.0	60.0	30.0
BGPS-36	36	40	3	85.0	60.0	30.0
BGPS-48	48	50	4	115.0	90.0	30.0
BGPS-56	56	-	4	115.0	90.0	30.0

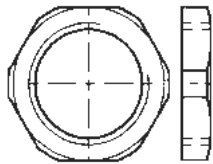


PMA MN - Hexagonal Lock Nuts, metric & PG

These hexagonal lock nuts are suitable for a wide range of applications. High torque guarantees a safe connection of the system. Made of reinforced polyamide glass fiber

Temperature range:

-40°F to +221°F (-40 °C to +105 °C), or a short time up to +302°F (+150°C)



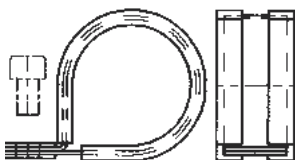
Part No. black	Part No. grey	Fits to thread: metric	Wrench size	Dimensions height
I-BMN-M12	I-GMN-M12	M12 x 1.5	17.0	5.0
I-BMN-M16	I-GMN-M16	M16 x 1.5	22.0	5.0
I-BMN-M20	I-GMN-M20	M20 x 1.5	27.0	6.0
I-BMN-M25	I-GMN-M25	M25 x 1.5	32.0	6.0
I-BMN-M32	I-GMN-M32	M32 x 1.5	41.0	7.0
I-BMN-M40	I-GMN-M40	M40 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: PG	Wrench size	Dimensions height
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	5.3
I-BMN-13	I-GMN-13	13.5	27.0	6.3
I-BMN-16	I-GMN-16	16	30.0	6.3
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

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Internet: <http://www.igus.com>
email: sales@igus.com
QuickSpec: <http://www.igus.com/quickspec>



PMA SGB - Tube clamps

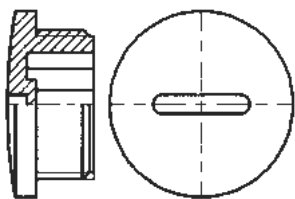
These tube clamps are used for the mounting and smooth connection to the PMA conduits in the general machine and installation applications. They are especially suitable for the mounting of static conduits.

Temperature range: -58°F to +221°F (-50 °C to +105 °C)

Features:

- galvanized steel according to DIN 3016
- Elastomer free of halogen

Part No.	Fits to conduit size		Dimensions width [mm]	Fixing screw
	NW	metric		
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.

Temperature range: -4°F to +212°F (-20 °C to +100 °C), or a short time up to +302°F (+150°C)

Features:

- product with metric thread: PA-GF
- product with PG thread: PS
- free of halogen, phosphor and cadmium
- IP54

Part No.	Fits to thread		Outside Ø [mm]	Total length [mm]	Thread length [mm]
	metric				
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 Ø [mm]	Total length [mm]	Thread length [mm]
	PG				
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		68.0	16.0	12.0



PMA Connectors - Accessories

PMA

igus® Energy Chain System®

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11.23

Standard Corrugated Conduits						
Products		CYL PA6 90	VCS PA6 90	PIS PA12	FH	VH
Tube size: metric	width [mm]	Very flexible, medium wall corrugated conduits	Flexible, very heavy corrugated conduits	Highly flexible medium wall corrugated conduits	PMACLIP - one-piece system support	PMACLIP two-piece system support
10	07	CYLT-07* –	VCST-07* –	PIST-07* –	*FH-07-0	*VH-17-000
12	10	CYLT-10* –	VCST-10* –	PIST-10* –	*FH-10-0	*VH-23-000
16	12	CYLT-12* –	VCST-12* –	PIST-12* –	*FH-12-0	*VH-29-000
20	17	CYLT-17* –	VCST-17* –	PIST-17* –	*FH-17-0	*VH-36-000
25	23	CYLT-23* CYLG-23*	– VCSG-23*	PIST-23* PISG-23*	*FH-23-0	*VH-48-000
32	29	CYLT-29* CYLG-29*	– VCSG-29*	PIST-29* PISG-29*	*FH-29-0	
40	36	CYLT-36* CYLG-36*	– VCSG-36*	PIST-36* PISG-36*	*FH-36-0	
50	48	CYLT-48* CYLG-48*	– VCSG-48*	PIST-48* PISG-48*	*FH-48-0	
			VCSG-56*			
			VCSG-70*			
			VCSG-95*			

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

T or D = fine profile

G = coarse profile







Standard Corrugated Conduits						
Products		CYL PA6 90	VCS PA6 90	PIS PA12	FH	VH
Tube size: metric	width [mm]	Very flexible, medium wall corrugated conduits	Flexible, very heavy corrugated conduits	Highly flexible medium wall corrugated conduits	PMACLIP - one-piece system support	PMACLIP two-piece system support
10	07	CYLT-07* –	VCST-07* –	PIST-07* –	*FH-07-0	*VH-17-000
12	10	CYLT-10* –	VCST-10* –	PIST-10* –	*FH-10-0	*VH-23-000
16	12	CYLT-12* –	VCST-12* –	PIST-12* –	*FH-12-0	*VH-29-000
20	17	CYLT-17* –	VCST-17* –	PIST-17* –	*FH-17-0	*VH-36-000
25	23	CYLT-23* CYLG-23*	– VCSG-23*	PIST-23* PISG-23*	*FH-23-0	*VH-48-000
32	29	CYLT-29* CYLG-29*	– VCSG-29*	PIST-29* PISG-29*	*FH-29-0	
40	36	CYLT-36* CYLG-36*	– VCSG-36*	PIST-36* PISG-36*	*FH-36-0	
50	48	CYLT-48* CYLG-48*	– VCSG-48*	PIST-48* PISG-48*	*FH-48-0	
			VCSG-56*			
			VCSG-70*			
			VCSG-95*			

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

PMAFIX							
Products		IP66 - VN 90°	IP66 - VA 90°	IP66 - VW 90°	IP66 - VB 90°	IP68 - VNZ 90°	MN
Thread Typ		PMAFIX straight	PMAFIX 45° angle	PMAFIX 90° angle	PMAFIX 90° elbow angle	Straight with strain relief	PMA 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

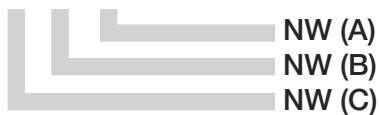
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PMAFIX						
Products		IP66 - VOD 90°	IP66 - VY 90°	IP66 - FT/VT 90°	IP66 - FV 90°	SGB
Tube size: metric width [mm]		PMAFIX flange 90°	PMAFIX Y-distribution piece	PMAFIX T-distribution piece	PMAFIX V-distribution piece	PMAFIX-tube clamps
10	07	–	–	–	–	SGB-07
12	10	–	*VYD-100707GT	*FTD-101010GT	*FVD-100707GT	SGB-09
16	12	–	*VYD-121010GT	*FTD-121212GT	*FVD-121010GT	SGB-11
20	17	*VOD-P167GT	*VYD-171212GT	*FTD-171717GT	*FVD-171212GT	SGB-16
25	23	*VOD-P213GT	*VYD-231717GT	*FTD-232323GT	*FVD-231717GT	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

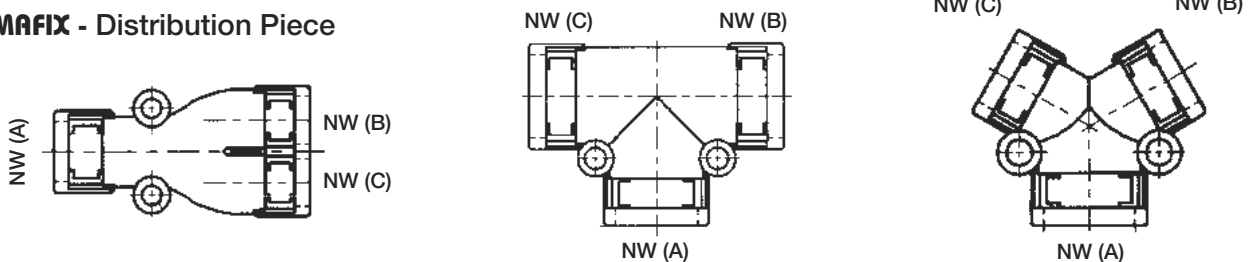
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PMAFIX - Order Example

XXXX-10 07 07 XX



PMAFIX - Distribution Piece





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