

Product recommendations for renewable energy applications

PMA conduits, braids, fittings and accessories in renewable energy generation applications



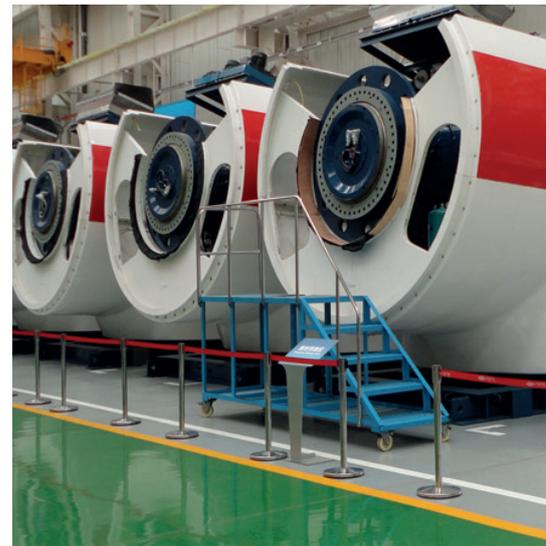
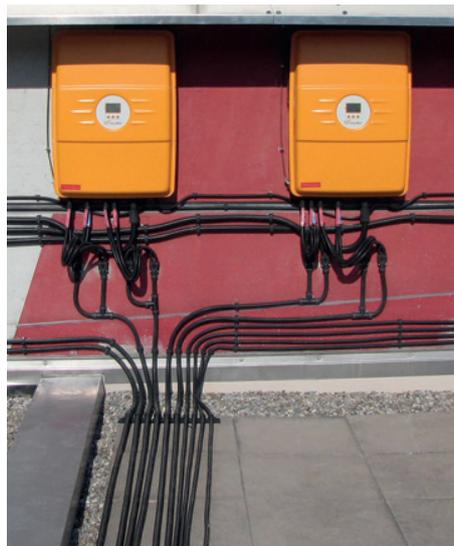
PMA conduits, braids, fittings and accessories in renewable energy generation applications:

- Special products for renewable energy applications
- Numerous worldwide approvals
- Ingress Protection according to IEC 60529 IP66/IP68/IP69
- Extensive range of accessories
- Proven performance many years service in demanding applications

Conduits

Outdoor applications requiring the highest resistance to UV and weathering.

- **XSOL:** PA12/PA6 – Medium-duty conduit for dynamic and static applications
 - Excellent compression and impact strengths under all climatic conditions
 - Excellent flexibility and resistance to fatigue
 - Excellent UV resistance, weathering and ageing characteristics
 - Black outer layer, green inner layer
 - Wear indicator
 - UL Recognised
- **XVCS1H:** PA6/Polyolefin – Heavy-duty multilayer conduit for static applications
 - Excellent compression and impact strengths under all climatic conditions
 - Very good UV resistance, weathering and ageing characteristics
 - Low friction inner layer facilitates the introduction of cables
 - Resistant to build up of fungus and moulds
 - Resistant to damage due to rodents
 - Black outer layer, green inner layer
 - Wear indicator
- **XVCS2H:** PA12/Polyolefin – Heavy-duty multilayer conduit for static applications
 - Excellent compression and impact strengths under all climatic conditions
 - Excellent UV resistance, weathering and ageing characteristics
 - Low friction inner layer facilitates the introduction of cables
 - Resistant to build up of fungus and moulds
 - Resistant to damage due to rodents
 - Black outer layer, green inner layer
 - Wear indicator
- **VCS:** PA6 – Heavy-duty monolayer conduit for static applications
 - Excellent compression and impact strengths under all climatic conditions
 - Very good UV resistance, weathering and ageing characteristics
 - Resistant to build up of fungus and moulds
 - Resistant to damage due to rodents
 - Black recommended for external applications
 - UL Recognised (UR)



Indoor applications with high mechanical strength and flexibility

- **PCL:** PA6 – Medium-duty monolayer conduit for static and lightly dynamic applications
 - Very good UV resistance, weathering and ageing characteristics
 - Very good flexibility and resistance to fatigue
 - UL94 V2 flammability rating
 - UL Recognised (UR)
- **LLPA:** PA6 – Medium-duty monolayer conduit for largely static applications with occasional bending
 - Very good flexibility and resistance to fatigue
 - UL94 V2 flammability rating
 - UL Recognised (UR)

Divisible System Conduits for retrofit and repairs

- **PACOF:** PA6 – Medium-duty conduit preferably for static applications
 - Can be opened and closed along their length at any time
 - Good compression strength
 - UL94 V0 flammability rating
 - Ingress protection to IP40
 - Compatible with PMA divisible fittings (BLNO), locknuts (BLN) but also with standard PMA Fittings allowing repairs using existing fittings
- **PPCOF:** PP – Medium-duty conduit preferably for static applications
 - Can be opened and closed along their length at any time
 - Ingress protection to IP40
 - UL94 V2 flammability rating
 - Good chemical resistance characteristics
 - Compatible with PMA divisible fittings (BLNO), locknuts (BLN) but also with standard PMA Fittings allowing repairs using existing fittings

Fittings

External Applications with high sealing requirements

Fittings specified to IP68 & IP69 according to IEC 60529 for high sealing requirements and high pressure cleaning processes.

- **PMAFIX Pro:** Fittings with metal thread for attachment of conduits to bulkheads, casings and connectors etc.
 - Sealing performance to IP68 and IP69 static and dynamic
 - NKNH (Straight), NKAH (45°), NKBH (90°)
- **PMAFIX Pro:** With cable strain relief element
 - For the relief of stress on cable terminations
 - Sealing performance to IP68 and IP69 static and dynamic
 - Zone separation for the prevention of condensation, IP68 along the cable
 - NKNZ (Straight), NKWZ (90°)
- **PMAFIX Pro:** Female thread
 - Fittings with metal and polyamide thread for the attachment of conduits to round connectors and other male threads
 - Sealing performance to IP68 and IP69 static and dynamic
 - NKIS (Metal thread), BKIHG (Polyamide thread)

Fittings for high requirements and standard applications

- **PMAFIX IP68:** Design ensures correct installation
 - Extremely wide range of fittings
 - Straight, 45°, 90° elbows
 - Male and female threads
 - Nickel plated brass or polyamide thread
 - Available with metric, PG, NPT, Gas, UNEF threads
 - Strain relief fittings also available
 - Available as single piece push-in component (GT)

- **PMAFIX IP66:** Simple push fit IP66 design
 - Extremely wide range of fittings
 - Straight, 45°, 90° elbows
 - Male and female threads
 - Polyamide thread
 - Available with metric, PG, NPT, Gas, UNEF threads
 - Strain relief fittings also available

Conduit fixations

- **BGPM & BGPMP** modular multiple conduit and cable clamping system
 - Flexible configuration for 1, 2, 3 or 4 conduits or cables of various sizes
- **BGPS** one piece stackable robust conduit clamp
- **BGH, BGL, SGB, SGS** – Omega and P single conduit clamps

Accessories

- **Y and T** junction elements are available to branch conduits in both the PMAFIX IP68 and PMAFIX IP66 series
- **SWA** swivel adapters can be used to relieve conduits from torsion forces in dynamic application
- **SCA** Positioning adapters can be used to adapt conduit exit angle
- **MAVI / MAVIK** IP68 special / positioning elbow adapter made from nickel-plated aluminium for optimal loom configuration especially in moving systems
- **WPS IP69** water impact protection for IP68 connectors in sizes NW10 to NW48 providing additional protection against high-pressure water jets

Braids

Cable bundling and abrasion protection

Braids for bundling and abrasion protection of cables and wires.

- **F.66:** PA6.6
 - Monofilament Ø 0.28 mm, optical coverage >90 %, highest abrasion resistance
- **C.66:** PA6.6
 - Monofilament Ø 0.28 mm, optical coverage >75 %, high abrasion resistance, flexible
- **L.66:** PA6.6
 - Monofilament Ø 0.25 mm, optical coverage >65 %, good abrasion resistance, highly flexible.
- **All PA6.6 braids are certified to:**
 - EN45545-2 HL3 according to R22 & R23
 - NFPA130 FPA130
 - UL94: V2

- **B.PX:** Polyester
 - Monofilament Ø 0.20 mm, optical coverage >50 %
 - Light braid with wide expansion range
 - Cables and wires can be fed out sideways
 - EN45545-2 HL3 according to R22 & R23
- **G.PX:** Polyester
 - Mono- and Multifilament
 - Open construction, 90° overlapping, allows fast introduction of cables and wires from the side
 - Individual wires can be fed out from the side if necessary
 - EN45545-2 HL3 according to R22 & R23

All PMA polyamide cable protection products demonstrate excellent resistance to oils, greases and other chemicals as well as the cleaning agents commonly used in the railway industry.

All PMA polyamide materials are self-extinguishing, free from halogens and cadmium. PMA RoHS, REACH and Conflict minerals confirmation documents can be supplied on request.

For installations in areas with high levels of vibration, PMA recommends the use of a thread locking and sealing compound to prevent threads becoming loose during operation. Users of PMA products should make their own evaluation to determine the suitability of each product for a specific application.

If PMA products are used in conjunction with cable protection products from other companies all product liability claims will be rejected.

For technical details and specifications please see our technical data sheets at www.pma.ch

Please contact PMA for further application specific technical support:

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