TECHNICAL DATA SHEET

# PMAFLEX - VAML - Corrugated Conduit

## Flexible, medium-grade

Conduit for fire safety sensitive applications in the passenger zone of rail vehicles

**Applications:**
- In passenger areas of railway vehicles

**Features & Benefits:**
- Highest fire safety specification
- Very good compression strength
- Good impact resistance
- Good flexibility
- Outstanding Self-extinguishing characteristics

**Materials:**
- High-grade, specially formulated polyamide 6

**Compatible with:**
- PMAFIX Pro, PMAFIX fittings
- PMAGRIP flange
- PMA accessories

**Temperature range:**
- –40°C ... +105°C continuous, +160°C short-term

**Conforms to:**
- EN 45545 HL3 (R22 & R23)
- NFPA 130

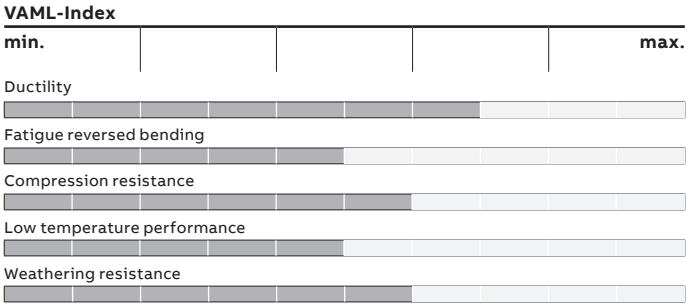
**Weathering resistance:**
- Very good UV resistance and weathering characteristics, particularly in black

**Colour:**
- Black
- Grey

**Chemical properties:**
- Please refer to www.pma.ch (Technical Information / Chemical Resistance)

**Environmental properties:**
- Free from halogens and cadmium
- RoHS and REACH compliant

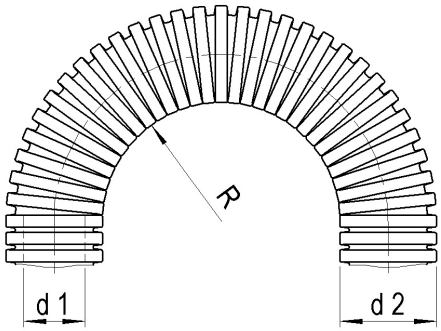
**VAML-Index**

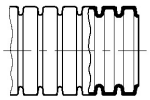


**Product selection:**

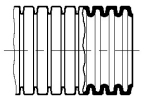
| Part no. | | Profile | Conduit size | | rec. fitting thread size | | Dimensions in mm (nom.) | | | Weight | Packing unit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| black | grey | T/G | NW | metric | PG | metric | d1 | d2 | stat. R | kg/100 m | metre |
| VAMLT-07B | VAMLT-07S | T | 7 | 10 | 7 | M12x1.5 | 6.7 | 10.0 | 15 | 2.2 | 50 |
| VAMLT-10B | VAMLT-10S | T | 10 | 12 | 9 | M12x1.5 | 9.7 | 12.8 | 20 | 2.8 | 50 |
| VAMLT-12B | VAMLT-12S | T | 12 | 16 | 11 | M16x1.5 | 12.1 | 15.6 | 25 | 3.8 | 50 |
| VAMLG-17B | VAMLG-17S | G | 17 | 20 | 16 | M20x1.5 | 15.8 | 21.1 | 40 | 6.3 | 50 |
| VAMLG-23B | VAMLG-23S | G | 23 | 25 | 21 | M25x1.5 | 21.9 | 28.4 | 50 | 9.9 | 50 |
| VAMLG-29B | VAMLG-29S | G | 29 | 32 | 29 | M32x1.5 | 27.9 | 34.5 | 60 | 13.3 | 50 |
| VAMLG-36B | VAMLG-36S | G | 36 | 40 | 36 | M40x1.5 | 36.2 | 42.4 | 75 | 16.0 | 30 |
| VAMLG-48B | VAMLG-48S | G | 48 | 50 | 48 | M50x1.5 | 47.0 | 54.5 | 90 | 22.8 | 30 |
| VAMLG-56B | VAMLG-56S | G | 56 | 68 | - | - | 56.9 | 67.5 | 120 | 33.0 | 30 |
| VAMLG-70B | VAMLG-70S | G | 70 | 80 | - | - | 68.0 | 79.6 | 140 | 46.0 | 10 |
| VAMLG-95B | VAMLG-95S | G | 95 | 106 | - | - | 92.5 | 107.0 | 190 | 66.0 | 10 |
| VAMLG-125B | VAMLG-125S | G | 125 | 146 | - | - | 126.9 | 146.0 | 260 | 85.0 | 6 |

Our customer service dept. or local distribution partner will be pleased to help you concerning product availability and lead time



Coarse profile **G**



Fine profile **T**

stat. R. = min. bending radius for static (fixed) installation

| Mechanical Properties: | Value: | Test parameters: | Test method: |
|---|---|---|---|
| Impact strength | > 6 J | (+23°C) | PMA DO 9.21-4330 |
| | class 3, > 2 J | (-45°C) | IEC EN 61386 |
| | class 4, > 6 J | (-15°C) | IEC EN 61386 |
| | class 5, > 20 J | (+23°C) | IEC EN 61386 |
| | | | |
| Compression strength | > 200 N | (50 x 50 mm) | PMA DO 9.21-4320 |
| | > 400 N | (100 x 100 mm) | PMA DO 9.21-4320 |
| | class 2 | | IEC EN 61386 |
| | | | |
| Resistance to fatigue | > 20‘000 cycles | | PMA DO 9.21-4420 |
| | > 40‘000 cycles | | PMA DO 9.21-4425 |
| | > 5‘000 cycles | (-25°C) | IEC EN 61386-23 |
| | pliable | (-45°C) | IEC EN 61386-22 |
| | | | |
| Pull-out resistance conduit - fitting series | | | |
| PMAFIX Pro | > 380 N | | PMA DO 9.21-4610 |
| PMAFIX IP68 | > 350 N | | PMA DO 9.21-4610 |
| PMAFIX IP66 | > 300 N | | PMA DO 9.21-4610 |
| PMAFIX Pro, PMAFIX IP66 | class 1 | | IEC EN 61386 |
| PMAFIX IP68 | class 2 | | IEC EN 61386 |

Note: Testing at 23°C, 50% r.h., conduit nominal width 17, unless otherwise stated

| Thermal properties: | Value: | Test parameters: | Test method: |
|---|---|---|---|
| Continuous application temperature | –40 ... +105°C | | PMA DO 9.21-4510 |
| Upper application temperature | +120°C | (20‘000 h) | PMA DO 9.21-4360 |
| Short-term | +160°C | (168 h) | PMA DO 9.21-4360 |
| Application temperature range | –45 ... +105°C | | IEC EN 61386 |

| Fire safety properties: | Value: | Test parameters: | Test method: |
|---|---|---|---|
| Fire performance | non flame-propagating | | IEC EN 61386 |
| | | | |
| Fire hazard level | HL3 | | EN 45545-2 (R22) |
| Oxygen index | > 32 % | | EN ISO 4589-2 |
| Smoke density | < 150 Ds max. | | EN ISO 5659-2 (25 kW/m2) |
| Toxicity | < 0.75 $CIT_{NLP}$ | | NF X 70-100-1/-2: (600°C) |
| | | | |
| Fire hazard level | HL3 | | EN 45545-2 (R23) |
| Oxygen index | > 32 % | | EN ISO 4589-2 |
| Smoke density | < 300 Ds max. | | EN ISO 5659-2 (25 kW/m2) |
| Toxicity | < 1.5 $CIT_{NLP}$ | | NF X 70-100-1/-2: (600°C) |
| | | | |
| Fire performance NFPA 130: | | | NFPA 130 |
| - Flammability | compliant | | ASTM E 162 |
| - Smoke density | compliant | | ASTM E 662 |
| | | | |
| Heat and visible smoke | 28.51 MJ/kg | | ASTM E 1354 |
| Smoke emission toxicity | compliant | | Bombardier SMP 800-C |
| Smoke emission toxicity | compliant | | Boeing BSS 7239 |

Note: Requirement sets (R22 & R23) apply for conduit sizes up to and including NW48

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