

## TECHNICAL DATA SHEET

# PMAFIX Pro - NKNZ-M/P - Strain relief fitting

## Straight, metric thread

**PMA**



IP68 & IP69, two piece metal thread strain relief fitting for flexible non-metallic conduit



### Applications:

- In railway vehicle and heavy machine construction
- For separation of damp and dry areas

### Features & Benefits:

- Very high impact resistance - even at very low temperatures
- With integrated strain relief for optimal ingress protection at the cable (up to IP68 / 10 bar)
- High connection strength - to conduit and mating parts on thread side
- Easy push-in assembly - guarantees correct installation
- Screwdriver required for dismantling - impeding unauthorized or accidental opening
- Space-saving construction - no additional room required for dismantling
- Universal - fits both conduit profiles - fine (T) and coarse (G)

### Ingress protection:

- IP66, IP68 & IP69 (EN/IEC 60529)  
Even when the conduit connection is continually in motion
- IP68 (up to 10 bar at the cable)

### Materials:

- Fitting body: high-grade, specially formulated polyamide 6
- Fitting locking and sealing element: made from specially formulated, polyamide 6 and crosslinked polyester elastomer
- Thread: nickel-plated brass
- Sealing insert: TPE-V

### Compatible with:

- PMAFLEX Pro Conduits
- PMAFLEX Multilayer Conduits
- PMAFLEX Conduits
- PMA Smart Line Conduits

### Conforms to:

- EN 45545-2 HL3 (R22 & R23)
- NFPA 130
- UL 94 (V0)
- UL 1696 (UL file E80294)

### Weathering resistance:

- Very good UV resistance and weathering characteristics

### Colour:

- Black

### Chemical properties:

- Please refer to [www.pma.ch](http://www.pma.ch)  
(Technical Information / Chemical Resistance)

### Environmental properties:

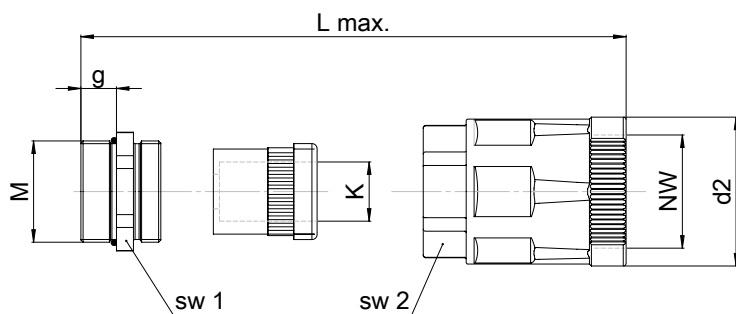
- Free from halogens and cadmium
- RoHS and REACH compliant

**Product selection:**

| Part no.         |                  |                | Thread size | Conduit size | Cable clamping range in mm | Dimensions in mm (nom.) |       |      |     |     | Weight    | Packing unit |
|------------------|------------------|----------------|-------------|--------------|----------------------------|-------------------------|-------|------|-----|-----|-----------|--------------|
| System S (black) | System R (black) | Sealing insert | metric      | NW           | K                          | g                       | L     | d2   | SW1 | SW2 | kg/100pcs | pcs/PU       |
| NKNZ-M120/P1     | NKNZ-M120R/P     | EK 150p7       | M12x1.5     | 10           | 4.0 - 6.5                  | 5.0                     | 53.5  | 25.0 | 17  | 22  | 2.0       | 50           |
| NKNZ-M120/P2     |                  | EK 150p8       | M12x1.5     | 10           | 5.0 - 8.0                  | 5.0                     | 53.5  | 25.0 | 17  | 22  | 2.0       | 50           |
| NKNZ-M120/P3     |                  | EK 150p9       | M12x1.5     | 10           | 6.5 - 9.5                  | 5.0                     | 53.5  | 25.0 | 17  | 22  | 2.0       | 50           |
| NKNZ-M160/P1     | NKNZ-M160R/P     | E 150p7        | M16x1.5     | 10           | 4.0 - 6.5                  | 6.0                     | 54.5  | 25.0 | 18  | 22  | 3.0       | 50           |
| NKNZ-M160/P2     |                  | E 150p8        | M16x1.5     | 10           | 5.0 - 8.0                  | 6.0                     | 54.5  | 25.0 | 18  | 22  | 3.0       | 50           |
| NKNZ-M160/P3     |                  | E 150p9        | M16x1.5     | 10           | 6.5 - 9.5                  | 6.0                     | 54.5  | 25.0 | 18  | 22  | 3.0       | 50           |
| NKNZ-M202/P1     | NKNZ-M202R/P     | E 152p7        | M20x1.5     | 12           | 4.0 - 6.5                  | 6.5                     | 60.5  | 28.5 | 22  | 25  | 4.0       | 50           |
| NKNZ-M202/P3     |                  | E 152p9        | M20x1.5     | 12           | 6.5 - 9.5                  | 6.5                     | 60.5  | 28.5 | 22  | 25  | 4.0       | 50           |
| NKNZ-M202/P4     |                  | E 152p11       | M20x1.5     | 12           | 7.0 - 10.5                 | 6.5                     | 60.5  | 28.5 | 22  | 25  | 4.0       | 50           |
| NKNZ-M207/P3     | NKNZ-M207R/P     | E 152p9        | M20x1.5     | 17           | 6.5 - 9.5                  | 6.5                     | 66.5  | 35.0 | 22  | 32  | 4.5       | 50           |
| NKNZ-M207/P4     |                  | E 152p11       | M20x1.5     | 17           | 7.0 - 10.5                 | 6.5                     | 66.5  | 35.0 | 22  | 32  | 4.5       | 50           |
| NKNZ-M207/P5     |                  | E 152p13       | M20x1.5     | 17           | 9.0 - 13.0                 | 6.5                     | 66.5  | 35.0 | 22  | 32  | 4.5       | 50           |
| NKNZ-M257/P4     | NKNZ-M257R/P     | E 153p11       | M25x1.5     | 17           | 7.0 - 10.5                 | 7.5                     | 67.5  | 35.0 | 28  | 32  | 6.5       | 50           |
| NKNZ-M257/P5     |                  | E 153p13       | M25x1.5     | 17           | 9.0 - 13.0                 | 7.5                     | 67.5  | 35.0 | 28  | 32  | 6.5       | 50           |
| NKNZ-M257/P6     |                  | E 153p16       | M25x1.5     | 17           | 11.5-15.5                  | 7.5                     | 67.5  | 35.0 | 28  | 32  | 6.5       | 50           |
| NKNZ-M253/P5     | NKNZ-M253R/P     | EK 154p13      | M25x1.5     | 23           | 9.0 - 13.0                 | 7.5                     | 75.0  | 43.0 | 30  | 38  | 9.2       | 30           |
| NKNZ-M253/P6     |                  | EK 154p16      | M25x1.5     | 23           | 11.5-15.5                  | 7.5                     | 75.0  | 43.0 | 30  | 38  | 9.2       | 30           |
| NKNZ-M323/P2     | NKNZ-M323R/P     | E 154p13       | M32x1.5     | 23           | 9.0 - 13.0                 | 8.0                     | 76.0  | 43.0 | 35  | 38  | 11.0      | 30           |
| NKNZ-M323/P4     |                  | E 154p18       | M32x1.5     | 23           | 14.0-18.0                  | 8.0                     | 76.0  | 43.0 | 35  | 38  | 11.0      | 30           |
| NKNZ-M323/P5     | *NKNZ-M323R1/P   | E 154p20       | M32x1.5     | 23           | 17.0 - 20.5                | 8.0                     | 76.0  | 43.0 | 35  | 38  | 11.0      | 30           |
| NKNZ-M329/P2     | NKNZ-M329R/P     | EK 155p18      | M32x1.5     | 29           | 14.0 - 18.0                | 8.0                     | 83.0  | 51.5 | 40  | 46  | 15.5      | 20           |
| NKNZ-M329/P3     |                  | EK 155p20      | M32x1.5     | 29           | 17.0-20.5                  | 8.0                     | 83.0  | 51.5 | 40  | 46  | 15.5      | 20           |
| NKNZ-M329/P4     |                  | EK 155p25      | M32x1.5     | 29           | 20.0-25.0                  | 8.0                     | 83.0  | 51.5 | 40  | 46  | 15.5      | 20           |
| NKNZ-M409/P1     | NKNZ-M409R/P     | E 155p16       | M40x1.5     | 29           | 11.5-15.5                  | 8.0                     | 83.0  | 51.5 | 43  | 46  | 17.5      | 20           |
| NKNZ-M409/P2     |                  | E 155p18       | M40x1.5     | 29           | 14.0-18.0                  | 8.0                     | 83.0  | 51.5 | 43  | 46  | 17.5      | 20           |
| NKNZ-M409/P3     |                  | E 155p20       | M40x1.5     | 29           | 17.0-20.5                  | 8.0                     | 83.0  | 51.5 | 43  | 46  | 17.5      | 20           |
| NKNZ-M409/P4     |                  | E 155p25       | M40x1.5     | 29           | 20.0-25.0                  | 8.0                     | 83.0  | 51.5 | 43  | 46  | 17.5      | 20           |
| NKNZ-M409/P5     |                  | E 155p28       | M40x1.5     | 29           | 24.0-28.0                  | 8.0                     | 83.0  | 51.5 | 43  | 46  | 17.5      | 20           |
| NKNZ-M406/P1     | NKNZ-M406R/P     | E 156p25HF     | M40x1.5     | 36           | 20.0-25.0                  | 9.0                     | 87.5  | 60.5 | 50  | 55  | 23.2      | 20           |
| NKNZ-M406/P2     |                  | EK 156p28      | M40x1.5     | 36           | 24.0-28.0                  | 9.0                     | 87.5  | 60.5 | 50  | 55  | 23.2      | 20           |
| NKNZ-M406/P4     |                  | EK 156P34      | M40x1.5     | 36           | 29.0-34.0                  | 9.0                     | 87.5  | 60.5 | 50  | 55  | 23.2      | 20           |
| NKNZ-M406/P5     |                  | EK 156P36      | M40x1.5     | 36           | 32.0-36.0                  | 9.0                     | 87.5  | 60.5 | 50  | 55  | 23.2      | 20           |
| NKNZ-M506/P1     | NKNZ-M506R/P     | E 156p32       | M50x1.5     | 36           | 27.0-32.0                  | 10.0                    | 90.0  | 60.5 | 54  | 55  | 25.0      | 20           |
| NKNZ-M506/P3     |                  | E 156p36       | M50x1.5     | 36           | 32.0-36.0                  | 10.0                    | 90.0  | 60.5 | 54  | 55  | 25.0      | 20           |
| NKNZ-M508/P2     | NKNZ-M508R/P     | E 157p36HF     | M50x1.5     | 48           | 32.0-36.0                  | 10.0                    | 100.0 | 72.5 | 57  | 60  | 26.5      | 10           |
| NKNZ-M508/P3     |                  | E 157p40HF     | M50x1.5     | 48           | 36.0-40.0                  | 10.0                    | 100.0 | 72.5 | 57  | 60  | 26.5      | 10           |
| NKNZ-M638/P1     | NKNZ-M638R/P     | E 158pm1x35    | M63x1.5     | 48           | 32.0-35.0                  | 10.0                    | 100.0 | 75.0 | 68  | 70  | 42.5      | 10           |
| NKNZ-M638/P2     |                  | E 158p44       | M63x1.5     | 48           | 39.0-44.0                  | 10.0                    | 100.0 | 75.0 | 68  | 70  | 42.5      | 10           |

\* R1 version has to be used in combination with multiple sealing inserts.

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

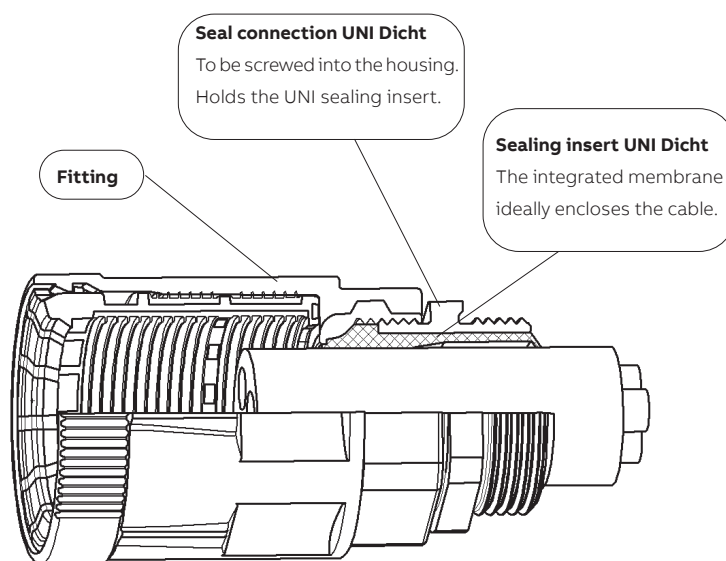


### Sealing system

Graduation of the clamping area in the UNI sealing system achieves optimal transfer of the clamping force to the cables. Distribution of the pressure through the sealing insert avoids damage to the cables. At the same time optimal sealing and strain relief are provided. Even when not completely tightened the sealing insert membrane offers sealing to IP54.

Temperature range sealing insert Pflitsch:  $-40 \dots +135 \text{ }^{\circ}\text{C}$

If several conductors are used with the connector multiple sealing inserts should be considered.



| Mechanical Properties:       | Value:                            | Test parameters:                | Test method: |
|------------------------------|-----------------------------------|---------------------------------|--------------|
| Tensile modulus              | 1'200 ... 3'700 N/mm <sup>2</sup> |                                 | ISO 527      |
| Tensile strength             | 45 ... 65 N/mm <sup>2</sup>       |                                 | ISO 527      |
| Notched bar impact test      | 4 ... 20 kJ/m <sup>2</sup>        |                                 | ISO 180/1C   |
| Vibration and shock standard | Cat. 2                            | IEC 61373, IEC 60068-2-27 / -64 |              |

| Thermal properties:                | Value:         | Test parameters: | Test method:     |
|------------------------------------|----------------|------------------|------------------|
| Continuous application temperature | -50 ... +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 |

| Fire safety properties: | Value:                | Test parameters: | Test method:   |
|-------------------------|-----------------------|------------------|----------------|
| Fire performance        | non flame-propagating |                  | IEC EN 61386-1 |
| Flame class             | V0                    |                  | UL 94          |

|                   |                           |  |                                       |
|-------------------|---------------------------|--|---------------------------------------|
| 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/m <sup>2</sup> ) |
| Toxicity          | < 0.75 CIT <sub>NLP</sub> |  | 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/m <sup>2</sup> ) |
| Toxicity          | < 1.5 CIT <sub>NLP</sub> |  | 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  | 26.00 MJ/kg |  | ASTM E 1354          |
| Smoke emission toxicity | compliant   |  | Bombardier SMP 800-C |
| Smoke emission toxicity | compliant   |  | Boeing BSS 7239      |

Note: Fire safety properties only applicable for PMA raw material

#### Content of delivery:

- System S: Fitting body
- Locking and sealing element (KNH2)
- Pflitsch double thread element with pre-installed O-ring (OR)
- Pflitsch sealing insert

- System R: Fitting body
- Locking and sealing element (KNH2)
- Pflitsch double thread element with pre-installed O-ring (OR)

#### Assembly instructions:

- Please consider the appropriate assembly instructions on [www.pma.ch](http://www.pma.ch)
- For information about the locking and sealing element please see data sheet No. 26990 for KNH2

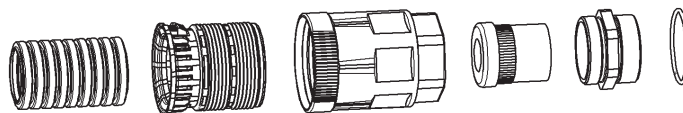


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