

Product Type ARMM & ARFF - (Metallic Adaptors)

Ex d : Ex e : Ex nR : Ex ta : IP66 : IP68
Class I Div 1 : AEx e : AEx ta

Part No's:

| | | | | | |
|----------|----------|-----------|----------|----------|----------|
| A | R | MM | O | B | F |
| | | FF | 1 | S | |
| | | | 3 | A | |

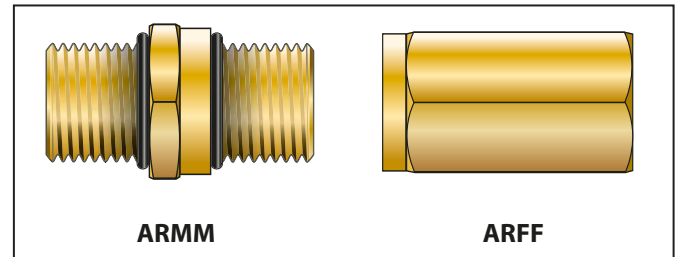


"ARMM & ARFF" Series Certified Adaptors provide a method of matching electrical thread forms on Ex equipment whilst maintaining Ex d, Ex e, Ex tb and Ex nR methods of explosion protection. Approved for use in mining (except Aluminium) and surface installations, they maintain IP66 & IP68 for IEC type applications and Class I Division 1 and NEMA 4X for CEC type applications. All external metric threads are fitted with a nitrile O-ring as standard.

Compliance Standard: EN 60079-0, EN 60079-1, EN 60079-7, EN 60079-15, EN 60079-31
IEC 60079-0, IEC 60079-1, IEC 60079-7, IEC 60079-15, IEC 60079-31 & 60529
C22.2 (see certificate), UL514B, UL1203, ANSI/UL 60079-0/1/7, ISA 60079-31, UL 50E

Certification:

| | |
|------------------|--|
| ATEX | I M2 II 2GD Exd I Mb / Ex d IIC Gb / Exe I Mb / Ex e IIC Gb / Ex ta IIIC Da II 3G Ex nR IIC Gc |
| IECEX | Ex d I Mb / Ex d IIC Gb / Exe I Mb / Ex e IIC Gb / Ex ta IIIC Da / Ex nR IIC Gc |
| CEC - Canada | Class I Zone 1 Ex d IIC / Ex e IIC / Class II Zone 21 Ex tb IIIC Class I Division 1, Groups A, B, C & D Class II Division 1, Groups E, F & G Class III, Enclosure Type 4X |
| NEC - USA | Class I Zone 1 AEx d IIC Gb / AEx e IIC Gb / Class II Zone 21 AEx tb IIIC Db Class I Division 1, Groups A, B, C & D Class II Division 1, Groups E, F & G Class III, Enclosure Type 4X |
| EAC | Exd IU / Exd IICu / Exe IU / Exe IIU / ExnR IIU |
| INMETRO - Brazil | Ex d I Mb / Ex d IIC Gb / Exe I Mb / Ex e IIC Gb / Ex tb IIIC Db / Ex nR IIC Gc |
| SAC - China | Ex d IIC / Ex e IIC |
| UKRAINE | Exd IU / Exd IICu / Exe IU / Exe IIU |
| CCoE - India | Ex d IIC Gb / Ex e IIC Gc |
| ABS | Specified ABS Rules |
| LLOYD'S | Enclosure Systems (Part 1B) |
| RMRS | Part XI of Rules for sea-going ships (ed.2014) |



Example Part Numbering

ARMM1BF/NP/M20/M25

| ARMM or ARFF | ARMM = Male x Male - ARFF = Female x Female |
|--------------|--|
| 1 | No IP O-ring (0) - Nitrile (1) - Silicone (3) |
| B | Brass (B) - Stainless Steel (S) - Aluminium (A) |
| F | Ex d & Ex e certification including Marine Approvals |
| NP | Nickel Plated |
| M20 | Male or Female Entry Thread |
| M25 | Male or Female Entry Thread |

ARFF part numbers will always contain the "0" as this product cannot be fitted with O-rings
For ARMM always quote the smallest thread first so the product is an Adaptor not Reducer
Accessories are available for ARMM series

Certificate No.

| | |
|------------------|-------------------------------------|
| ATEX | SIRA 09ATEX1322X & SIRA 09ATEX4323X |
| IECEX | IECEX SIR 09.0131X |
| CEC - Canada | CSA 2310046 |
| NEC - USA | CSA 2310046 |
| EAC | RU C-GB.F506.B.00098 |
| INMETRO - Brazil | NCC 13.2189 X |
| SAC - China | NEPSI GYJ16.1404X |
| UKRAINE | UA.TR.047.C.0408-13 & 2937 |
| CCoE - India | PESO P365300/9 & P365300/12 |
| ABS | 14-LD1183401-PDA |
| LLOYD'S | 10/00056(E1) |
| RMRS | 14.02755.315 |

IP Rating: IP66 & IP68 (100 metres for 7 days) & NEMA 4X

Impact Resistance: 20Nm (Aluminium 7Nm)

Operating Temperature:
O-ring - None -100°C to +400°C
O-ring - Nitrile -30°C to +100°C
O-ring - Silicone -60°C to +200°C

Materials: Brass, Stainless Steel or Aluminium

Plating: Electroless Nickel

Male and Female Thread References and Size information can be found on page TR-1 of our product catalogue.
Adaptor and Reducer size information is available on pages TR-2 & TR-3 of our product catalogue.

Male and female threads are manufactured in accordance with:-
ISO Metric threads to ISO 965-1, ISO 965-3, BS3643 and IEC 60423
NPT and NPS threads are in accordance to ANSI B1.20.1
PG threads to DIN40430
ET threads to Imperial Conduit BS31
ISO Pipe Parallel to ISO 228 and BS2779 (BSPP, G, R, PF & Tpy 6)
ISO Pipe Taper to ISO 7-1 and BS21 (BSPT, Gc, Gk, Rk, PT & Kmpy 6)

- Notes:**
- Assembly instructions must be read prior to installation and adhered to in full.
 - For Ex d applications female threads must comply with clause 5.3 of IEC 60079-1.
 - For Ex nR applications parallel entry threads must be installed with a suitable entry thread seal.
 - ATEX / IECEX versions are supplied as standard.
 - Additional approvals must be requested at time of order.
 - Where applicable, the standard O-ring material is nitrile. Other options are available upon request.
 - Aluminium versions are not suitable for Group I Mining applications.

AR Series Metallic Adaptor & Reducers - Size Reference

| MALE SIZE | METRIC FEMALE SIZES | | | | | | | | | | | | | |
|-----------|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | M16 | M20 | M25 | M32 | M40 | M50 | M63 | M75 | M80 | M85 | M90 | M100 | M110 | M120 |
| Metric | | | | | | | | | | | | | | |
| M16 | A01 | A01 | | | | | | | | | | | | |
| M20 | R02 | A02 | A03 | A05 | | | | | | | | | | |
| M25 | R05 | R05 | A04 | A05 | A06 | | | | | | | | | |
| M32 | R07 | R07 | R07 | A05 | A06 | A08 | | | | | | | | |
| M40 | R09 | R09 | R09 | R09 | A07 | A08 | A11 | | | | | | | |
| M50 | R12 | R12 | R12 | R12 | R12 | A09 | A11 | A12 | | | | | | |
| M63 | R14 | R14 | R14 | R14 | R14 | R14 | A11 | A12 | A13 | A14 | | | | |
| M75 | R16 | R16 | R16 | R16 | R16 | R16 | R16 | A12 | A13 | A14 | A14 | A15 | | |
| M80 | R16 | R16 | R16 | R16 | R16 | R16 | R16 | A12 | A13 | A14 | A14 | A15 | | |
| M85 | R17 | R17 | R17 | R17 | R17 | R17 | R17 | R17 | A13 | A14 | A14 | A15 | | |
| M90 | R17 | R17 | R17 | R17 | R17 | R17 | R17 | R17 | A14 | A14 | A15 | A16 | | |
| M100 | R18 | R18 | R18 | R18 | R18 | R18 | R18 | R18 | R18 | R18 | A15 | A16 | A17 | |
| M110 | R19 | R19 | R19 | R19 | R19 | R19 | R19 | R19 | R19 | R19 | R19 | A16 | A17 | |
| M120 | R20 | R20 | R20 | R20 | R20 | R20 | R20 | R20 | R20 | R20 | R20 | R20 | A17 | |
| NPT | | | | | | | | | | | | | | |
| ½" | R01* | A01* | A03 | A05 | | | | | | | | | | |
| ¾" | R03* | R03* | A03* | A05 | A06 | | | | | | | | | |
| 1" | R06* | R06* | R06* | A05* | A06 | A08 | | | | | | | | |
| 1¼" | R08* | R08* | R08* | R08* | A06* | A08 | A11 | | | | | | | |
| 1½" | R10* | R10* | R10* | R10* | R10* | A08* | A11 | A12 | | | | | | |
| 2" | R13 | R13 | R13 | R13 | R13 | R13 | A11 | A12 | A13 | A14 | | | | |
| 2½" | R15 | R15 | R15 | R15 | R15 | R15 | R15 | A12 | A13 | A14 | A14 | | | |
| 3" | R16* | R16* | R16* | R16* | R16* | R16* | R16* | R16* | A13* | A14 | A14 | A15 | A16 | A17 |
| 3 ½" | R17* | R17* | R17* | R17* | R17* | R17* | R17* | R17* | R17* | R17* | R17* | A15 | A16 | A17 |
| 4" | R19* | R19* | R19* | R19* | R19* | R19* | R19* | R19* | R19* | R19* | R19* | R19* | A16 | A17 |
| 5" | R21* | R21* | R21* | R21* | R21* | R21* | R21* | R21* | R21* | R21* | R21* | R21* | R21* | R21* |
| PG | | | | | | | | | | | | | | |
| PG9 | A01 | A01 | | | | | | | | | | | | |
| PG11 | A01 | A02 | A03 | | | | | | | | | | | |
| PG13.5 | R02 | A02 | A03 | A05 | | | | | | | | | | |
| PG16 | R04 | A03 | A03 | A05 | | | | | | | | | | |
| PG21 | R07 | R07 | A05 | A05 | A06 | | | | | | | | | |
| PG29 | R08 | R08 | R08 | R08 | A06 | A08 | | | | | | | | |
| PG36 | R11 | R11 | R11 | R11 | R11 | A08 | A11 | | | | | | | |
| PG42 | R13 | R13 | R13 | R13 | R13 | A10 | A11 | A12 | | | | | | |
| PG48 | R14 | R14 | R14 | R14 | R14 | A11 | A12 | | | | | | | |

| | NPT FEMALE SIZES | | | | | | | | | | |
|------|------------------|------|------|------|------|------|------|------|------|-----|----|
| | ½" | ¾" | 1" | 1¼" | 1½" | 2" | 2½" | 3" | 3½" | 4" | 5" |
| A18 | | | | | | | | | | | |
| A19 | A20 | A22 | | | | | | | | | |
| R05 | A21 | A22 | A23 | | | | | | | | |
| R07 | R07 | A22 | A23 | A24 | | | | | | | |
| R09 | R09 | R09 | A23 | A24 | A26 | | | | | | |
| R12 | R12 | R12 | R12 | A24 | A26 | A27 | | | | | |
| R14 | R14 | R14 | R14 | R14 | A26 | A27 | | | | | |
| R16 | R16 | R16 | R16 | R16 | R16 | A28 | A29 | A30 | | | |
| R16 | R16 | R16 | R16 | R16 | R16 | R16 | A29 | A30 | | | |
| R17 | R17 | R17 | R17 | R17 | R17 | R17 | A29 | A30 | | | |
| R17 | R17 | R17 | R17 | R17 | R17 | R17 | A29 | A30 | A31 | | |
| R18 | R18 | R18 | R18 | R18 | R18 | R18 | R18 | A30 | A31 | | |
| R19 | R19 | R19 | R19 | R19 | R19 | R19 | R19 | R19 | A31 | A33 | |
| R20 | R20 | R20 | R20 | R20 | R20 | R20 | R20 | R20 | A32 | A33 | |
| | | | | | | | | | | | |
| A18* | A20 | A22 | | | | | | | | | |
| R03* | A20* | A22 | A23 | | | | | | | | |
| R06* | R06* | A22* | A23 | A24 | | | | | | | |
| R08* | R08* | R08* | A23* | A24 | A26 | | | | | | |
| R10* | R10* | R10* | R10* | A24* | A26 | A27 | | | | | |
| R13 | R13 | R13 | R13 | R13 | A26 | A27 | A29 | | | | |
| R15 | R15 | R15 | R15 | R15 | R15 | A27 | A29 | A30 | | | |
| R16* | R16* | R16* | R16* | R16* | R16* | R16* | A29 | A30 | A31 | | |
| R17* | R17* | R17* | R17* | R17* | R17* | R17* | R17* | A30 | A31 | | |
| R19* | R19* | R19* | R19* | R19* | R19* | R19* | R19* | R19* | A31 | A33 | |
| R21* | R21* | R21* | R21* | R21* | R21* | R21* | R21* | R21* | R21* | A33 | |
| | | | | | | | | | | | |
| A18 | | | | | | | | | | | |
| A19 | A20 | | | | | | | | | | |
| A19 | A20 | A22 | | | | | | | | | |
| A20 | A20 | A22 | | | | | | | | | |
| R07 | A22 | A22 | A23 | | | | | | | | |
| R08 | R08 | A23 | A23 | A24 | | | | | | | |
| R11 | R11 | R11 | A24 | A24 | A26 | | | | | | |
| R13 | R13 | R13 | R13 | R13 | A26 | A27 | | | | | |
| R14 | R14 | R14 | R14 | R14 | A26 | A27 | | | | | |

| |
|----------------|
| Adaptor |
| Reducer |

ADAPTORS AND REDUCERS WITH NPT MALE THREADS ARE DESIGNED TO BE USED IN THREADED ENTRIES. IF REQUIRED WITH A SEALING WASHER FOR USE IN CLEARANCE HOLES WITH A LOCKNUT THESE ITEMS CAN BE MANUFACTURED FROM A LARGER HEXAGON SIZE TO PROVIDE A SUITABLE SEALING FACE.

AR Series Metallic Adaptor & Reducers - Size Reference & Dimensions

| MALE SIZE | PG FEMALE SIZES | | | | | | | | | |
|-----------|-----------------|------|------|--------|------|------|------|------|------|------|
| | PG7 | PG9 | PG11 | PG13.5 | PG16 | PG21 | PG29 | PG36 | PG42 | PG48 |
| Metric | | | | | | | | | | |
| M16 | R01 | A01 | A01 | A01 | | | | | | |
| M20 | R02 | R02 | A02 | A02 | A02 | A04 | | | | |
| M25 | R05 | R05 | R05 | R05 | A04 | A04 | A06 | | | |
| M32 | R07 | R07 | R07 | R07 | R07 | A05 | A06 | A08 | | |
| M40 | R09 | R09 | R09 | R09 | R09 | R09 | A07 | A08 | A10 | |
| M50 | R12 | R12 | R12 | R12 | R12 | R12 | R12 | A09 | A10 | A11 |
| M63 | R14 | R14 | R14 | R14 | R14 | R14 | R14 | R14 | R14 | A11 |
| M75 | R16 | R16 | R16 | R16 | R16 | R16 | R16 | R16 | R16 | R16 |
| M80 | R16 | R16 | R16 | R16 | R16 | R16 | R16 | R16 | R16 | R16 |
| M85 | R17 | R17 | R17 | R17 | R17 | R17 | R17 | R17 | R17 | R17 |
| M90 | R17 | R17 | R17 | R17 | R17 | R17 | R17 | R17 | R17 | R17 |
| M100 | R18 | R18 | R18 | R18 | R18 | R18 | R18 | R18 | R18 | R18 |
| M110 | R19 | R19 | R19 | R19 | R19 | R19 | R19 | R19 | R19 | R19 |
| M120 | R20 | R20 | R20 | R20 | R20 | R20 | R20 | R20 | R20 | R20 |
| NPT | | | | | | | | | | |
| ½" | R01* | R01* | A01* | A01* | A02 | A04 | | | | |
| ¾" | R03* | R03* | R03* | R03* | A03* | A04 | A06 | | | |
| 1" | R06* | R06* | R06* | R06* | R06* | A05* | A06 | A08 | | |
| 1¼" | R08* | R08* | R08* | R08* | R08* | R08* | A06* | A08 | A10 | |
| 1½" | R10* | R10* | R10* | R10* | R10* | R10* | R10* | A08* | A10 | A11 |
| 2" | R13 | R13 | R13 | R13 | R13 | R13 | R13 | R13 | R13 | A11 |
| 2½" | R15 | R15 | R15 | R15 | R15 | R15 | R15 | R15 | R15 | R15 |
| 3" | R16* | R16* | R16* | R16* | R16* | R16* | R16* | R16* | R16* | R16* |
| 3 ½" | R17* | R17* | R17* | R17* | R17* | R17* | R17* | R17* | R17* | R17* |
| 4" | R19* | R19* | R19* | R19* | R19* | R19* | R19* | R19* | R19* | R19* |
| 5" | R21* | R21* | R21* | R21* | R21* | R21* | R21* | R21* | R21* | R21* |
| PG | | | | | | | | | | |
| PG9 | A01 | A01 | A01 | A01 | | | | | | |
| PG11 | A01 | A01 | A01 | A01 | A02 | A04 | | | | |
| PG13.5 | R02 | R02 | A02 | A02 | A02 | A04 | | | | |
| PG16 | R04 | R04 | R04 | A03 | A03 | A04 | | | | |
| PG21 | R07 | R07 | R07 | R07 | R07 | A05 | A06 | | | |
| PG29 | R08 | R08 | R08 | R08 | R08 | R08 | A07 | A08 | | |
| PG36 | R11 | R11 | R11 | R11 | R11 | R11 | R11 | A08 | A10 | A11 |
| PG42 | R13 | R13 | R13 | R13 | R13 | R13 | R13 | R13 | A10 | A11 |
| PG48 | R14 | R14 | R14 | R14 | R14 | R14 | R14 | R14 | R14 | A11 |

ADAPTORS

Metric x Metric / Metric x PG / PG x Metric / PG x PG

| AR Adaptor Details | A1 | A2 | A3 | A4 | A5 | A6 | A7 | A8 | A9 | A10 | A11 | A12 | A13 | A14 | A15 | A16 | A17 |
|-----------------------------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|
| A/F Dim (Min) | 23.4 | 27.0 | 30.0 | 31.8 | 37.6 | 44.5 | 47.2 | 55.9 | 57.2 | 61.2 | 69.9 | 90.2 | 104.8 | 104.8 | 114.3 | 120.7 | 140.0 |
| A/C Dim (Min) | 25.7 | 29.7 | 33.0 | 35.0 | 41.4 | 48.9 | 51.9 | 61.5 | 62.9 | 67.3 | 76.8 | 99.2 | 99.2 | 115.3 | 125.7 | 132.8 | 154.0 |
| Nominal Protrusion Length * | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | 23.5 | 23.5 | 23.5 | 23.5 | 23.5 | 29.0 | 29.0 | 29.0 | 29.0 | 29.0 |

Metric x NPT / NPT x NPT / PG x NPT

| AR Adaptor Details | A18 | A19 | A20 | A21 | A22 | A23 | A24 | A25 | A26 | A27 | A28 | A29 | A30 | A31 | A32 | A33 |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|
| A/F Dim (Min) | 23.4 | 27.0 | 30.0 | 31.8 | 37.6 | 47.2 | 55.9 | 57.2 | 69.9 | 80.0 | 90.2 | 104.8 | 114.3 | 127.0 | 133.0 | 160.0 |
| A/C Dim (Min) | 25.7 | 29.7 | 33.0 | 35.0 | 41.4 | 51.9 | 61.5 | 62.9 | 76.9 | 88.0 | 99.2 | 115.3 | 125.7 | 139.7 | 146.3 | 176.0 |
| Nominal Protrusion Length ** | 26.0 | 26.0 | 26.0 | 26.0 | 31.0 | 31.0 | 32.0 | 32.0 | 32.0 | 44.4 | 44.4 | 46.0 | 47.3 | 48.5 | 48.5 | 53.7 |

REDUCERS

Metric / NPT / PG

| AR Reducer Details | R01 | R02 | R03 | R04 | R05 | R06 | R07 | R08 | R09 | R10 | R11 | R12 | R13 | R14 | R15 | R16 | R17 | R18 | R19 | R20 | R21 |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|
| A/F Dim (Min) | 23.4 | 27.0 | 27.9 | 30.0 | 31.8 | 34.9 | 37.6 | 44.5 | 47.2 | 52.1 | 55.9 | 57.2 | 61.2 | 69.9 | 80.0 | 90.2 | 104.8 | 114.3 | 120.7 | 133.4 | 146.0 |
| A/C Dim (Min) | 25.7 | 29.7 | 30.7 | 33.0 | 35.0 | 38.4 | 41.4 | 48.9 | 51.9 | 57.3 | 61.5 | 62.9 | 67.3 | 76.8 | 88.0 | 99.2 | 115.3 | 125.7 | 132.8 | 146.7 | 160.7 |
| Nominal Protrusion Length ** | 12.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 11.0 | 11.0 | 11.0 | 11.0 | 11.0 | 11.0 | 11.0 | 11.0 | 11.0 | 12.0 | 12.0 |

* Stated nominal protrusion lengths do not take into account if any form of IP seal (o-ring / washer) is used in conjunction with the entry thread

** Due to the nature of tapered threads the nominal protrusion length may be further away from the enclosure wall than the stated figure