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## TECHNICAL DOCUMENTATION



## Instructions for 300/425 AMP 660/1100/3300 VOLT Restrained Range

| Catalogue Number | Description   |  |  |
|------------------|---|--|--|
| AF3#4&@*         | 300A 660/1100V Restrained Plug                            |  |  |
| AF3#6&@*         | 300A 1100/3300V 6P Restrained Plug                        |  |  |
| AF334%@*         | 300A 3300V Restrained Plug                                |  |  |
| AF4#4&@*         | 425A 660/1100V Restrained Plug                            |  |  |
| AF4#6%@*         | 425A 1100/3300V 6P Restrained Plug                        |  |  |
| AF434%@*         | 425A 3300V Restrained Plug.                               |  |  |
| AG3#4B           | 300A 660/1100/3300V Restrained Receptacle                 |  |  |
| AG3#4BQR         | 300A 660/1100/3300V Q/R Restrained Receptacle             |  |  |
| AG3#6B           | 300A 1100/3300V 6P Restrained Receptacle                  |  |  |
| AG3#6BQR         | 300A 1100/3300V Q/R 6P Restrained Receptacle              |  |  |
| AG334B           | 300A 3300V Restrained Receptacle                          |  |  |
| AG334BQR         | 300A 3300V Q/R Restrained Receptacle                      |  |  |
| AG4#4B           | 425A 660/1100V Restrained Receptacle                      |  |  |
| AG4#4BQR         | 425A 660/1100V Q/R Restrained Receptacle                  |  |  |
| AG4#6BQR         | 425A 1100/3300V Q/R 6P Restrained Receptacle              |  |  |
| AG434BQR         | 425A 3300V Q/R Restrained Receptacle                      |  |  |
| AH3#4B           | 300A 660/1100V Restrained Back to Back Receptacle         |  |  |
| AH3#4BQR         | 300A 660/1100V Q/R Restrained Back to Back Receptacle     |  |  |
| AH3#6B           | 300A 1100/3300V 6P Restrained Back to Back Receptacle     |  |  |
| AH3#6BQR         | 300A 1100/3300V Q/R 6P Restrained Back to Back Receptacle |  |  |
| AH334B           | 300A 3300V Restrained Back to Back Receptacle             |  |  |
| AH334BQR         | 300A 3300V Q/R Restrained Back to Back Receptacle         |  |  |
| AH4#4B           | 425A 660/1100V Restrained Back to Back Receptacle         |  |  |
| AH4#4BQR         | 425A 660/1100V Q/R Restrained Back to Back Receptacle     |  |  |
| AH4#6BQR         | 425A 1100/3300V Q/R 6P Restrained Back to Back Receptacle |  |  |
| AH434BQR         | 425A 3300V Q/R Restrained Back to Back Receptacle         |  |  |
| AR3#1R@          | 300A 660/1100V Restrained Dummy Plug                      |  |  |
| AR3#6R@          | 300A 1100V/3300 6P Restrained Dummy Plug                  |  |  |
| AR331S@          | 300A 3300V Restrained Dummy Plug                          |  |  |
| AR4#1R@          | 425A 660/1100V Restrained Dummy Plug                      |  |  |
| AR4#6R@          | 425A 1100V/3300 6P Restrained Dummy Plug                  |  |  |
| AR431S@          | 425A 3300V Restrained Dummy Plug                          |  |  |

#### Note:

#### Marking:

1. # Volts: 6=660V, 1=1100V, 3=3300V

% Interior: S = Solid DMC, T = Teflon/Stainless
 & Interior R = Rubber, T = Teflon/Stainless
 @ Nose Cone: S=ST. Steel, Blank=Bronze.

5. \* Gland: 3=Small, 4=large.

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#### **Installation**

- Confirm components suitable for application e.g. thimbles and grommets suitable for the conductors and cable.
- Plug fitting cable preparation.
  - 1. Slide the gland cap, grommet and plug body along the cable.
  - 2. Prepare the cable to the dimensions given in the strip back table.
  - 3. Crimp or solder the thimbles to the phase, pilot and earth cores.

#### Plug fitting

- 4. Fit the conductors to the appropriate location securing in place with screw through socket where appropriate.
- 5. Assemble the plug, ensuring the interior rotation conforms to AS/NZS1299.
- 6. Then fit dust cap (F-264L). Care should be taken not to damage the earth sleeve flamepath.
- 7. Slide the grommet into position and bolt the gland cap firmly to the body.
- 8. Note: The certified drawings form a part of the user instructions. Refer to them for further details.

#### Receptacle fitting

- For Receptacle mounting dimensions refer to AS/NZS1299. The flange flamepath used to assemble the receptacle and Exd enclosure with minimum width 12.5mm and maximum gap 0.4mm
- 10. Attach to enclosure via special fasteners.
- 11. The special fasteners and/or nuts shall be minimum grade 4.6 (yield stress 240MPa) or for stainless steel minimum grade A\*-70 (Yield stress 450MPa)

#### • Connection of Protective Earthing Conductors

- This range of plugs and receptacles has facility for earthing conductors up to 95 mm<sup>2</sup>
- It is the responsibility of the installer to determine and fit the correct sized earth conductors

#### Use

Isolate power before connecting or disconnecting.

#### **Assembly**

- Ensure sockets are clean and serviceable.
- Correct pin alignment.
- Insert plug using receptacle operating mechanism.
- NB. For quick release mechanism, ensure the locking button is fully home.

#### **Disassembly**

- To remove plug from receptacle, utilise the operating mechanism.
- NB. For quick release, lift the locking button first.
- Fit dust cover to plug and receptacle.

#### **Conditions of Use**

- Some flameproof joints (flamepath) have dimensions that are different than the values given in table1 of IEC60079.1. Refer to the manufacture's drawings for details.
- The special fasteners used to assemble the plug and gland shall be minimum grade 4.6 (yield stress 240MPa) or for stainless steel minimum grade A\*-70 (Yield stress 450MPa).

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#### Maintenance

- Inspection shall include cleanliness and compliance with certification documentation.
- Check as per AS/NZS 2290.1

#### **Overhaul and Repair**

- To be carried out by suitable workshop.
- It is recommended that the equipment is overhauled at intervals that do not exceed the requirements of AS/NZS2290.1.

#### **Certification Details:**

Certified to: IEC 60079-0:2017: IEC 60079-1:2015;

AS/NZS 1299:2009 (incorporating amendment No.1)

Certificate of Conformity: IECEx ExTC 22.0037X and ANZEx 22.4181

Type of Protection: Ex db I Mb

Type: (AS/NZS 1299) Type A

Ingress Protection: IP66/68 (2 metres for 30 minutes) for Restrained Plug, Restrained

Back to Back Receptacle, Restrained Receptacle, Gland Adapter.

IP66 only for Dummy Plug

#### **Certification Nameplate Details:**

| TYPICAL 300/425A MOUNTING<br>BRACKET RATING PLATE DETAILS | TYPICAL 300/425A RESTRAINED PLUG<br>RATING PLATE DETAILS   |                                 | TYPICAL 300/425A 6 PIN RESTRAINED PLUG RATING PLATE DETAILS               |                                 |
|---|--|---------------------------------|---|---------------------------------|
| CMI<br>AV3<br>300/425A                                    | M.I.P.<br>AF%@*<br>& AMPS   | 3 = 300A                        | M.I.P.<br>AF%@*<br>& AMPS  | 3 = 300A                        |
| Ex db I Mb  |  | 4 = 425A                        |   | 4 = 425A                        |
| IECEx ExTC 22.0037X<br>ANZEx 22.4181                      | # VOLTS  | 6 = 660V<br>1 = 1100V           | # VOLTS   | 1 = 1100V<br>3 = 3300V          |
| TYPE A BATCH. xxxxx                                       | % INTERIOR   | 3 = 3300V<br>R = RUBBER         | % INTERIOR  | R = RUBBER<br>T =               |
|   |  | S = SOLID DMC                   | TEFLON/STAINLESS  |                                 |
|   | T = TEFLON/STAINLESS   |                                 | @ NOSE CONE   | S = St, Steel<br>BLANK = BRONZE |
|   | @ NOSE CONE  | S = St, Steel<br>BLANK = BRONZE | * GLAND   | 3 = SMALL<br>4 = LARGE          |
|   | * GLAND  | 3 = SMALL<br>4 = LARGE          | IP66/68<br>Ex db I Mb   |                                 |
|   | IP66/68  |                                 | IECEx ExTC 22.0037X   |                                 |
|   | Ex db   Mb<br>IECEx ExTC 22.0037X<br>ANZEx 22.4181<br>TYPE A<br>S.O. xxxxx-xx<br>WARNING<br>DO NOT SEPARATE WHEN ENERGIZED |                                 | ANZEX 22.4181 TYPE A S.O. xxxxx-xx WARNING DO NOT SEPARATE WHEN ENERGIZED |                                 |
|   |  |                                 |   |                                 |
|   |  |                                 |   |                                 |
|   |  |                                 |   |                                 |

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TESTING & CERTIFICATION IECEx ExTC 22.0037X-0 ANZEx 22.4181-0

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|                                  |  | T                                 |
|----------------------------------|--|-----------------------------------|
| TYPICAL 300/425A RESTRAINED PLUG | TYPICAL 300/425A RESTRAINED  | TYPICAL 300/425A 6 PIN RESTRAINED |
| (INT GLAND) RATING PLATE DETAILS | RECEPTACLE RATING PLATE DETAILS  | RECEPTACLE RATING PLATE DETAILS   |
| M.I.P. AFS & AMPS               | M.I.P. AG&#4B & AMPS</td><td>M.I.P. AG&#6B & AMPS</td></tr><tr><td>DO NOT SEPARATE WHEN ENERGIZED</td><td>WARNING<br>DO NOT SEPARATE WHEN ENERGIZED</td><td colspan=2>DO NOT SEPARATE WHEN ENERGIZED</td></tr><tr><td></td><td>DO NOT SEPARATE WHEN ENERGIZED</td><td></td></tr><tr><th>TYPICAL 300/425A RESTRAINED BACK<br>TO BACK RECEPTACLE RATING<br>PLATE DETAILS</th><th>TYPICAL 300/425A 6 PIN RESTRAINED<br>BACK TO BACK RECEPTACLE RATING<br>PLATE DETAILS</th><th colspan=2>TYPICAL 300/425A RESTRAINED<br>DUMMY PLUG RATING PLATE<br>DETAILS</th></tr><tr><td>M.I.P. AH&#4B & AMPS</td><td>M.I.P. AH&#6B & AMPS</td><td>M.I.P.  AR&#1%@ & AMPS</td></tr><tr><td>TYPICAL 300/425A 6 PIN RESTRAINED</td><td></td><td></td></tr><tr><td>DUMMY PLUG RATING PLATE DETAILS</td><td></td><td></td></tr><tr><td>M.I.P.  AR&#6R@ & AMPS  4 = 425A  # VOLTS  1 = 1100V  3 = 3300V  @ NOSE CONE  BLANK = BRONZE  IP66 Ex db I Mb IECEX EXTC 22.0037X</td><td></td><td></td></tr></tbody></table> |                                   |

#### Refer to Instruction TRP-2-2 for additional detailed instructions

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DO NOT SEPARATE WHEN ENERGIZED

ANZEx 22.4181 TYPE A S.O. xxxxx-xx WARNING











### **TECHNICAL DOCUMENTATION**

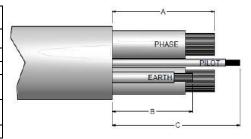
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# Additional Instructions for 300/425 AMP 660/1100/3300 VOLT Restrained Range

TRP-2-2

#### **Cable Strip Back Dimensions**

| Strip Back Dimensions (mm)                                 |           |           |           |  |  |  |
|--|-----------|-----------|-----------|--|--|--|
|  | A (Phase) | B (Earth) | C (Pilot) |  |  |  |
| AF314R3 /AF364R3 / AF414R3 / AF464R3                       | 110       | 1 55      | 155       |  |  |  |
| AF314R4 /AF364R4 / AF414R4 / AF464R4                       | 130       | 180       | 120       |  |  |  |
| AF334S3 / AF434S3 / AF316R3 / AF336R3<br>AF416R3 / AF436R3 | 128       | 120       | 130       |  |  |  |
| AF334S4 / AF434S4 / AF316R4 / AF336R4<br>AF416R4 / AF436R4 | 158       | 150       | 100       |  |  |  |
| AF314S / AF364S  | 145       | 165       | 120       |  |  |  |



Note- Cables with semi conductive phase screening shall have the semi conductive screen removed back to the outer sheath.

#### Fitting of Cables

Note: The torque specified in the certification drawings is for the sealing test where the gland is tightened onto a steel mandrel.

- Cable fitting and testing shall be in compliance with AS/NZS 1747
- AS/NZS 1747:2022 sets out the method of cable installation and subsequent testing.
- Selection of thimbles
  - a. Thimbles shall be sized so that the internal diameter of the thimble is within 1mm of the stripped conductor diameter.
- Grommet sizing
  - a. Grommets shall be sized to the cable being used
  - b. The grommet shall preferably be a conformal fit that fits tightly onto the cable.
  - c. Grommets that fit loosely, will prevent the cable been effectively sealed in the gland.
- For guidance only, CMI recommend minimum torque settings for fitting cables to the range of 300/425A
   Restrained Plugs and Receptacle, Gland & Bracket
  - a. This recommended minimum torque for the gland bolt / screw is: 18NM

#### Note:

- A suitable calibrated Torque Wrench shall be used for this process
- Initial testing of cable installation to gland:
  - a. Undertake a "Twist Test" as outlined in AS/NZS 1747:2022.
  - b. Undertake other tests as outlined in AS/NZS 1747:2022.
- Testing of plug / cable complete.
- Undertake the required tests as outlined in AS/NZS 1747:2022.

#### Fitting of Sockets to Cable Thimbles

- The following maximum torques shall be applied when screwing the sockets to the cable thimbles
  - Main (Phase) Sockets
    - o 6.5 ~ 8Nm torque
  - Pilot Socket
    - 2.5 ~ 3 Nm torque

#### Note:

A suitable calibrated Torque Wrench (recommended ¼ inch size) shall be used for this process

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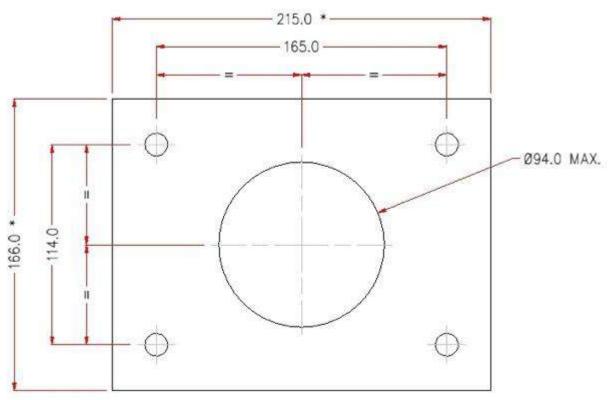




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#### 300/425A Receptacle Mounting Details



Dimensions shown is the Enclosure Machining Area. Untaleranced dimensions ±0.25

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