

# دوكاب Ducab

## **FlamBICC ANZ Cables**

**COMPLETE FIRE SOLUTION CABLES**



حلول متقدمة للكابلات من خلال التقنية والابداع  
Advanced Cable Solutions Through Technology and Innovation

**BICC**



## FLAMBICC ANZ FIRE PERFORMANCE CABLES

Ducab FlamBICC ANZ cables are single and multicore Fire Performance power & control cables which are designed as per AS/NZS 5000.1 standard & fire/mechanical tested as per AS/NZS 3013 standard according to WS52W & WS51W testing classifications.

Ducab FlamBICC ANZ Cables are approved by EXOVA WARRINGTONFIRE AUS PTY LTD (EXOVA), and are suitable for use in emergency safety circuits to maintain circuit integrity in presence of fire up to two hours at extreme temperature of 1050° C.

These cables are rated as 110° C for increased current rating and made with special Low Smoke Zero Halogen (LSZH) material which does not emit thick smoke thus ensuring light transmittance and does not emit toxic halogen fumes in the event of fire. Accordingly, these cables are fit to use in confined spaces and high people density areas such as hospitals, airports and other public premises.

### CONSTRUCTION

- Conductor : Plain annealed copper flexible conductor complying with AS/NZS 1125, class 5.
- Primary Insulation : Mica Glass Tape.
- Secondary Insulation : Cross Linked, Halogen Free, Flame Retardant, X-HF-110.
- Outer Sheath : Thermoplastic, Low Smoke, Halogen Free, HFS-110-TP.

### CHARACTERISTICS

|                             |  |
|-----------------------------|--|
| General                     | FlamBICC ANZ cables are designed for laying in conduit or on trays where fire resistance is of paramount importance. |
| Approvals                   | EXOVA Warringtonfire   |
| Voltage grade               | 0.6/1 (1.2) kV   |
| Cable operating temperature | 110°C maximum  |
| Core colours                | Red, White, Blue, Black, Green/Yellow.   |
| Packaging                   | 1000 / 500 drum; Other packaging and lengths available on request  |
| Key Applications:           | Fixed installations in power and lighting circuits at working voltages up to and including 0.6/1 (1.2) kV            |





## TECHNICAL DATA

0.6/1kV, Class 5, Copper Conductor, Mica Glass Taped, X-HF-110 Insulated, HFS-110-TP Outer Sheathed, Electric Cable Conforming to AS/NZS 5000.1 & AS/NZS 3013 specification.

| Nominal cross-sectional area of Conductor | Nominal thickness of Insulation (Main Core) | Nominal thickness of Sheath | Approximate Overall Diameter | Approximate Cable Net Weight | Maximum DC resistance at 20°C | Classification to AS/NZS 3013 |
|---|---|-----------------------------|------------------------------|------------------------------|-------------------------------|-------------------------------|
| mm <sup>2</sup>                           | mm  | mm                          | mm                           | kg/km                        | Ω/Km                          | WS Rating                     |
| 1x6                                       | 0.7   | 1.4                         | 9.2                          | 138                          | 3.3                           | WS52W                         |
| 1x10                                      | 0.7   | 1.4                         | 10.2                         | 188                          | 1.91                          | WS52W                         |
| 1x16                                      | 0.7   | 1.4                         | 11.2                         | 252                          | 1.21                          | WS52W                         |
| 1x25                                      | 0.9   | 1.4                         | 13.1                         | 365                          | 0.78                          | WS52W                         |
| 1x35                                      | 0.9   | 1.4                         | 14.4                         | 459                          | 0.554                         | WS52W                         |
| 1x50                                      | 1   | 1.4                         | 16.1                         | 621                          | 0.386                         | WS52W                         |
| 1x70                                      | 1.1   | 1.41                        | 18                           | 841                          | 0.272                         | WS52W                         |
| 1x95                                      | 1.1   | 1.5                         | 19.9                         | 1060                         | 0.206                         | WS52W                         |
| 1x120                                     | 1.2   | 1.52                        | 21.7                         | 1310                         | 0.161                         | WS52W                         |
| 1x150                                     | 1.4   | 1.6                         | 23.2                         | 1596                         | 0.129                         | WS52W                         |
| 1x185                                     | 1.6   | 1.7                         | 26.2                         | 2033                         | 0.106                         | WS52W                         |
| 1x240                                     | 1.7   | 1.8                         | 29.2                         | 2531                         | 0.0801                        | WS52W                         |
| 1x300                                     | 1.8   | 1.8                         | 32.1                         | 3158                         | 0.0641                        | WS52W                         |
| 1x400                                     | 2   | 2                           | 36.2                         | 4092                         | 0.0486                        | WS52W                         |
| 1x500                                     | 2.2   | 2.1                         | 39.1                         | 5111                         | 0.0384                        | WS52W                         |
| 1x630                                     | 2.4   | 2.2                         | 43                           | 6210                         | 0.0283                        | WS52W                         |



## TECHNICAL DATA

0.6/1kV, Class 5, Copper Conductor, Mica Glass Taped, X-HF-110 Insulated, HFS-110-TP Outer Sheathed, Electric Cable Conforming to AS/NZS 5000.1 & AS/NZS 3013 specification.

| Nominal cross-sectional area of Conductor | Nominal thickness of Insulation (Main Core) | Nominal thickness of Sheath | Approximate Overall Diameter | Approximate Cable Net Weight | Maximum DC resistance at 20°C | Classification to AS/NZS 3013 |
|---|---|-----------------------------|------------------------------|------------------------------|-------------------------------|-------------------------------|
| mm <sup>2</sup>                           | mm  | mm                          | mm                           | kg/km                        | Ω/Km                          | WS Rating                     |
| 2x0.75                                    | 0.7   | 1.8                         | 10.5                         | 145                          | 26                            | WS51W                         |
| 2x1.5                                     | 0.7   | 1.8                         | 11.4                         | 176                          | 13.3                          | WS51W                         |
| 2x2.5                                     | 0.7   | 1.8                         | 12.4                         | 219                          | 7.98                          | WS51W                         |
| 2x1.5 + 1.5E                              | 0.7   | 1.8                         | 12                           | 193                          | 13.3                          | WS52W                         |
| 2x2.5 + 2.5E                              | 0.7   | 1.8                         | 13.1                         | 245                          | 7.98                          | WS52W                         |
| 2x4 + 2.5E                                | 0.7   | 1.8                         | 14.2                         | 287                          | 4.95/7.98                     | WS52W                         |
| 2x4 + 4E                                  | 0.7   | 1.8                         | 14.2                         | 309                          | 4.95                          | WS52W                         |
| 2x6 + 2.5E                                | 0.7   | 1.8                         | 15.5                         | 340                          | 3.3/7.98                      | WS52W                         |
| 2x6 + 6E                                  | 0.7   | 1.8                         | 15.5                         | 391                          | 3.3                           | WS52W                         |
| 2x10 + 4E                                 | 0.7   | 1.8                         | 18.7                         | 484                          | 1.91/4.95                     | WS52W                         |
| 2x10 + 10E                                | 0.7   | 1.8                         | 18.7                         | 572                          | 1.91                          | WS52W                         |
| 2x16 + 6E                                 | 0.7   | 1.8                         | 20.8                         | 771                          | 1.21/3.3                      | WS52W                         |
| 2x16 + 16E                                | 0.7   | 1.8                         | 20.8                         | 803                          | 1.21                          | WS52W                         |
| 2x25 + 6E                                 | 0.9   | 1.8                         | 25                           | 1061                         | 0.78/3.3                      | WS52W                         |
| 2x25 + 25E                                | 0.9   | 1.8                         | 25                           | 1343                         | 0.78                          | WS52W                         |
| 2x35 + 10E                                | 0.9   | 1.8                         | 27.8                         | 1322                         | 0.554/1.91                    | WS52W                         |
| 2x50 + 16E                                | 1   | 1.8                         | 31.5                         | 1743                         | 0.386/1.21                    | WS52W                         |
| 2x70 + 25E                                | 1.1   | 1.8                         | 35.6                         | 3149                         | 0.272/0.78                    | WS52W                         |
| 2x95 + 25E                                | 1.1   | 1.9                         | 39.5                         | 2599                         | 0.206/0.78                    | WS52W                         |
| 2x120 + 35E                               | 1.2   | 2                           | 43.5                         | 3250                         | 0.161/0.554                   | WS52W                         |
| 2x150 + 50E                               | 1.4   | 2.1                         | 46.7                         | 4071                         | 0.129/0.386                   | WS52W                         |
| 2x185 + 70E                               | 1.6   | 2.3                         | 53                           | 5263                         | 0.106/0.272                   | WS52W                         |
| 2x240 + 95E                               | 1.7   | 2.4                         | 59                           | 6565                         | 0.0801/0.206                  | WS52W                         |



## TECHNICAL DATA

0.6/1kV, Class 5, Copper Conductor, Mica Glass Taped, X-HF-110 Insulated, HFS-110-TP Outer Sheathed, Electric Cable Conforming to AS/NZS 5000.1 & AS/NZS 3013 specification.

| Nominal cross-sectional area of Conductor | Nominal thickness of Insulation (Main Core) | Nominal thickness of Sheath | Approximate Overall Diameter | Approximate Cable Net Weight | Maximum DC resistance at 20°C | Classification to AS/NZS 3013 |
|---|---|-----------------------------|------------------------------|------------------------------|-------------------------------|-------------------------------|
| mm <sup>2</sup>                           | mm  | mm                          | mm                           | kg/km                        | Ω/Km                          | WS Rating                     |
| 3x0.75                                    | 0.7   | 1.8                         | 11                           | 163                          | 26                            | WS51W                         |
| 3x1.5                                     | 0.7   | 1.8                         | 12                           | 203                          | 13.3                          | WS51W                         |
| 3x2.5                                     | 0.7   | 1.8                         | 13.1                         | 245                          | 7.98                          | WS51W                         |
| 3x1.5 + 1.5E                              | 0.7   | 1.8                         | 12.9                         | 226                          | 13.3                          | WS52W                         |
| 3x2.5 + 2.5E                              | 0.7   | 1.8                         | 14.2                         | 294                          | 7.98                          | WS52W                         |
| 3x4 + 2.5E                                | 0.7   | 1.8                         | 15.4                         | 335                          | 4.95/7.98                     | WS52W                         |
| 3x4 + 4E                                  | 0.7   | 1.8                         | 15.4                         | 375                          | 4.95                          | WS52W                         |
| 3x6 + 2.5E                                | 0.7   | 1.8                         | 16.8                         | 424                          | 3.3/7.98                      | WS52W                         |
| 3x6 + 6E                                  | 0.7   | 1.8                         | 16.8                         | 477                          | 3.3                           | WS52W                         |
| 3x10 + 4E                                 | 0.7   | 1.8                         | 20.4                         | 603                          | 1.91/4.95                     | WS52W                         |
| 3x10 + 10E                                | 0.7   | 1.8                         | 20.4                         | 718                          | 1.91                          | WS52W                         |
| 3x16 + 6E                                 | 0.7   | 1.8                         | 22.8                         | 843                          | 1.21/3.3                      | WS52W                         |
| 3x16 + 16E                                | 0.7   | 1.8                         | 22.8                         | 992                          | 1.21                          | WS52W                         |
| 3x25 + 6E                                 | 0.9   | 1.8                         | 27.5                         | 1338                         | 0.78/3.3                      | WS52W                         |
| 3x25 + 25E                                | 0.9   | 1.8                         | 27.5                         | 1637                         | 0.78                          | WS52W                         |
| 3x35 + 10E                                | 0.9   | 1.8                         | 30.6                         | 1722                         | 0.554/1.91                    | WS52W                         |
| 3x50 + 16E                                | 1   | 1.8                         | 34.7                         | 2272                         | 0.386/1.21                    | WS52W                         |
| 3x70 + 25E                                | 1.1   | 1.9                         | 39.5                         | 2773                         | 0.272/0.78                    | WS52W                         |
| 3x95 + 25E                                | 1.1   | 2                           | 43.8                         | 3422                         | 0.206/0.78                    | WS52W                         |
| 3x120 + 35E                               | 1.2   | 2.1                         | 48.5                         | 4283                         | 0.161/0.554                   | WS52W                         |
| 3x150 + 50E                               | 1.4   | 2.3                         | 52.1                         | 5321                         | 0.129/0.386                   | WS52W                         |
| 3x185 + 70E                               | 1.6   | 2.5                         | 59                           | 6848                         | 0.106/0.272                   | WS52W                         |
| 3x240 + 95E                               | 1.7   | 2.6                         | 66                           | 8545                         | 0.0801/0.206                  | WS52W                         |
| 3x300 + 120E                              | 1.8   | 2.8                         | 73.5                         | 10736                        | 0.0641/0.161                  | WS52W                         |



## TECHNICAL DATA

0.6/1kV, Class 5, Copper Conductor, Mica Glass Taped, X-HF-110 Insulated, HFS-110-TP Outer Sheathed, Electric Cable Conforming to AS/NZS 5000.1 & AS/NZS 3013 specification.

| Nominal cross-sectional area of Conductor | Nominal thickness of Insulation (Main Core) | Nominal thickness of Sheath | Approximate Overall Diameter | Approximate Cable Net Weight | Maximum DC resistance at 20°C | Classification to AS/NZS 3013 |
|---|---|-----------------------------|------------------------------|------------------------------|-------------------------------|-------------------------------|
| mm <sup>2</sup>                           | mm  | mm                          | mm                           | kg/km                        | Ω/Km                          | WS Rating                     |
| 4x0.75                                    | 0.7   | 1.8                         | 11.8                         | 188                          | 26                            | WS51W                         |
| 4x1.5                                     | 0.7   | 1.8                         | 12.9                         | 236                          | 13.3                          | WS51W                         |
| 4x2.5                                     | 0.7   | 1.8                         | 14.2                         | 294                          | 7.98                          | WS51W                         |
| 4x1.5 + 1.5E                              | 0.7   | 1.8                         | 14                           | 271                          | 13.3                          | WS52W                         |
| 4x2.5 + 2.5E                              | 0.7   | 1.8                         | 15.3                         | 348                          | 7.98                          | WS52W                         |
| 4x4 + 2.5E                                | 0.7   | 1.8                         | 16.7                         | 403                          | 4.95/7.98                     | WS52W                         |
| 4x4 + 4E                                  | 0.7   | 1.8                         | 16.7                         | 447                          | 4.95                          | WS52W                         |
| 4x6 + 2.5E                                | 0.7   | 1.8                         | 18.3                         | 523                          | 3.3/7.98                      | WS52W                         |
| 4x6 + 6E                                  | 0.7   | 1.8                         | 18.3                         | 576                          | 3.3                           | WS52W                         |
| 4x10 + 4E                                 | 0.7   | 1.8                         | 22.3                         | 769                          | 1.91/4.95                     | WS52W                         |
| 4x10 + 10E                                | 0.7   | 1.8                         | 22.3                         | 864                          | 1.91                          | WS52W                         |
| 4x16 + 6E                                 | 0.7   | 1.8                         | 25                           | 1047                         | 1.21/3.3                      | WS52W                         |
| 4x16 + 16E                                | 0.7   | 1.8                         | 25                           | 1202                         | 1.21                          | WS52W                         |
| 4x25 + 6E                                 | 0.9   | 1.8                         | 30.2                         | 1502                         | 0.78/3.3                      | WS52W                         |
| 4x25 + 25E                                | 0.9   | 1.8                         | 30.2                         | 1846                         | 0.78                          | WS52W                         |
| 4x35 + 10E                                | 0.9   | 1.8                         | 33.7                         | 1939                         | 0.554/1.91                    | WS52W                         |
| 4x50 + 16E                                | 1   | 1.9                         | 38.5                         | 2687                         | 0.386/1.21                    | WS52W                         |
| 4x70 + 25E                                | 1.1   | 2                           | 43.8                         | 3700                         | 0.272/0.78                    | WS52W                         |
| 4x95 + 25E                                | 1.1   | 2.2                         | 48.8                         | 4581                         | 0.206/0.78                    | WS52W                         |
| 4x120 + 35E                               | 1.2   | 2.3                         | 53.8                         | 5728                         | 0.161/0.554                   | WS52W                         |
| 4x150 + 50E                               | 1.4   | 2.5                         | 57.9                         | 7127                         | 0.129/0.386                   | WS52W                         |
| 4x185 + 70E                               | 1.6   | 2.7                         | 65.7                         | 9177                         | 0.106/0.272                   | WS52W                         |



## TECHNICAL DATA

0.6/1kV, Class 5, Copper Conductor, Mica Glass Taped, X-HF-110 Insulated, HFS-110-TP Outer Sheathed, Electric Cable Conforming to AS/NZS 5000.1 & AS/NZS 3013 specification.

| Nominal cross-sectional area of Conductor | Nominal thickness of Insulation (Main Core) | Nominal thickness of Sheath | Approximate Overall Diameter | Approximate Cable Net Weight | Maximum DC resistance at 20°C | Classification to AS/NZS 3013 |
|---|---|-----------------------------|------------------------------|------------------------------|-------------------------------|-------------------------------|
| mm <sup>2</sup>                           | mm  | mm                          | mm                           | kg/km                        | Ω/Km                          | WS Rating                     |
| 6x1.5 + 1.5E                              | 0.7   | 1.8                         | 15                           | 345                          | 13.3/13.3                     | WS52W                         |
| 9x1.5 + 1.5E                              | 0.7   | 1.8                         | 18.5                         | 475                          | 13.3/13.3                     | WS52W                         |
| 11x1.5 + 1.5E                             | 0.7   | 1.8                         | 19.5                         | 535                          | 13.3/13.3                     | WS52W                         |
| 18x1.5 + 1.5E                             | 0.7   | 1.8                         | 22.5                         | 748                          | 13.3/13.3                     | WS52W                         |
| 23x1.5 + 1.5E                             | 0.7   | 1.8                         | 26                           | 930                          | 13.3/13.3                     | WS52W                         |
| 26x1.5 + 1.5E                             | 0.7   | 1.8                         | 26.5                         | 1010                         | 13.3/13.3                     | WS52W                         |
| 32x1.5 + 1.5E                             | 0.7   | 1.8                         | 28.5                         | 1190                         | 13.3/13.3                     | WS52W                         |
| 36x1.5 + 1.5E                             | 0.7   | 1.8                         | 29.5                         | 1290                         | 13.3/13.3                     | WS52W                         |
| 6x2.5 + 2.5E                              | 0.7   | 1.8                         | 16.5                         | 452                          | 7.98/7.98                     | WS52W                         |
| 9x2.5 + 2.5E                              | 0.7   | 1.8                         | 20.5                         | 627                          | 7.98/7.98                     | WS52W                         |
| 11x2.5 + 2.5E                             | 0.7   | 1.8                         | 21.5                         | 709                          | 7.98/7.98                     | WS52W                         |
| 18x2.5 + 2.5E                             | 0.7   | 1.8                         | 24.5                         | 1010                         | 7.98/7.98                     | WS52W                         |
| 23x2.5 + 2.5E                             | 0.7   | 1.8                         | 28.5                         | 1260                         | 7.98/7.98                     | WS52W                         |
| 26x2.5 + 2.5E                             | 0.7   | 1.8                         | 29.5                         | 1375                         | 7.98/7.98                     | WS52W                         |
| 32x2.5 + 2.5E                             | 0.7   | 1.8                         | 31.5                         | 1620                         | 7.98/7.98                     | WS52W                         |
| 36x2.5 + 2.5E                             | 0.7   | 1.8                         | 32.5                         | 1780                         | 7.98/7.98                     | WS52W                         |



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| Report Sponsor   | Issue Date |
|--|------------|
| Ducab<br>PO Box 11529<br>Dubai<br>United Arab Emirates | 15/12/2017 |

**Introduction**

This test certificate is to verify the element of construction described below was tested by this laboratory on behalf of the test sponsor in accordance with the stated test standard and achieved the results stated below.

| Referenced Reports | Report Date | Test Standard                    |
|--------------------|-------------|----------------------------------|
| EWFA 49581000a.3   | 12/01/2018  | AS/NZS 3013:2005, Appendix A & B |
| EWFA 49581100a.2   | 12/01/2018  | AS/NZS 3013:2005, Appendix D & E |

| Description of Assessed Cable |   |
|-------------------------------|---|
| <b>Cable Description</b>      | <ul style="list-style-type: none"> <li>Screened multicore cable comprising 3 cores, 10mm<sup>2</sup> conductor, and 1 Earth, 4mm<sup>2</sup> conductor.</li> <li>Cable overall outer diameter of nominal 19.4mm.</li> <li>Test bending radius of cable: 155mm on the inside of the bend.</li> <li>Mechanical testing temperature range: -25°C to 110°C.</li> <li>Refer to the referenced reports for a full description of tested cable.</li> </ul> |
| <b>Cable Configuration</b>    | The cable was tested as a single cable for Appendix A & B with two bends of 90° at a bending radius of 155mm. The cable was positioned in the cable tray with a metallic cable tie fixing the cable to the tray at the centre of the two directional changes; otherwise plastic cable ties were used. Refer to the referenced test reports for a full description of cable configuration.   |

| Cable Classification                           |   |             |                      |
|--|---|-------------|----------------------|
| Cable Description                              | Product Code  | Cable Group | Cable Classification |
| 3C(10mm <sup>2</sup> ) + E (4mm <sup>2</sup> ) | Ducab C BICC Electric Cable<br>0.6/1kV 3C × 10mm <sup>2</sup> + 1E × 4mm <sup>2</sup><br>(Design 1) | 2           | WS52W                |

**Notes**

**THIS CERTIFICATE IS PROVIDED FOR GENERAL INFORMATION ONLY AND DOES NOT COMPLY WITH THE REGULATORY REQUIREMENTS FOR EVIDENCE OF COMPLIANCE.**

Reference should be made to the relevant test report to determine the applicability of the test result to a proposed installation. The results of these fire tests may be used to assess fire hazard, but it should be recognised that a single test method will not provide a full assessment of fire hazard under all conditions.

|                          |   |                   |              |
|--------------------------|---|-------------------|--------------|
| <b>TESTING AUTHORITY</b> | Exova Warringtonfire Aus Pty Ltd  |                   |              |
| <b>Address</b>           | PO Box 4282 DANDENONG SOUTH VIC 3164<br>Unit 2, 409-411 Hammond Road DANDENONG VIC 3175 |                   |              |
| <b>Phone</b>             | 61 (0)3 9767 1000   |                   |              |
| <b>ABN</b>               | 81 050 241 524  |                   |              |
| <b>Email / Home Page</b> | <a href="http://www.exova.com">www.exova.com</a>  |                   |              |
| <b>Authorisation</b>     | Prepared By:  | Reviewed By:      | Reviewed By: |
|                          |   |                   |              |
|                          | Kai Loh   | Anthony Rosamilia | Patrick Chan |



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| Ducab<br>PO Box 11529<br>Dubai<br>United Arab Emirates | 8/01/2018  |

**Introduction**

This test certificate is to verify the element of construction described below was tested by this laboratory on behalf of the test sponsor in accordance with the stated test standard and achieved the results stated below.

| Referenced Reports    | Report Date | Test Standard                    |
|-----------------------|-------------|----------------------------------|
| EWFA 49581000b.2      | 8/01/2018   | AS/NZS 3013:2005, Appendix A & B |
| EWFA Mech 49581100b.1 | 8/01/2018   | AS/NZS 3013:2005, Appendix D & E |

| Description of Assessed Cable |  |
|-------------------------------|--|
| <b>Cable Description</b>      | <ul style="list-style-type: none"> <li>Screened single core cable, 35mm<sup>2</sup> conductor.</li> <li>Cable overall outer diameter of nominal 13.9mm.</li> <li>Test bending radius of cable: 112mm on the inside of the bend.</li> <li>Mechanical testing temperature range: -25°C to 110°C.</li> <li>Refer to the referenced reports for a full description of tested cable.</li> </ul> |
| <b>Cable Configuration</b>    | The cable was tested as a single cable for Appendix A & B with two bends of 90° at a bending radius of 112mm. The cable was positioned in the cable tray with a metallic cable tie fixing the cable to the tray at the centre of the two directional changes; otherwise plastic cable ties were used. Refer to the referenced test reports for a full description of cable configuration.  |

| Cable Classification   |  |             |                      |
|------------------------|--|-------------|----------------------|
| Cable Description      | Product Code                                       | Cable Group | Cable Classification |
| 1C(35mm <sup>2</sup> ) | Ducab 0.6/1kV 1C × 35mm <sup>2</sup><br>(Design 1) | 1           | WS52W                |

**Notes**

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Reference should be made to the relevant test report to determine the applicability of the test result to a proposed installation. The results of these fire tests may be used to assess fire hazard, but it should be recognised that a single test method will not provide a full assessment of fire hazard under all conditions.

|                          |   |                   |              |
|--------------------------|---|-------------------|--------------|
| <b>TESTING AUTHORITY</b> | Exova Warringtonfire Aus Pty Ltd  |                   |              |
| <b>Address</b>           | PO Box 4282 DANDENONG SOUTH VIC 3164<br>Unit 2, 409-411 Hammond Road DANDENONG VIC 3175 |                   |              |
| <b>Phone</b>             | 61 (0)3 9767 1000   |                   |              |
| <b>ABN</b>               | 81 050 241 524  |                   |              |
| <b>Email / Home Page</b> | <a href="http://www.exova.com">www.exova.com</a>  |                   |              |
| <b>Authorisation</b>     | Prepared By:  | Reviewed By:      | Reviewed By: |
|                          |   |                   |              |
|                          | Kai Loh   | Anthony Rosamilia | Patrick Chan |



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| Ducab<br>PO Box 11529<br>Dubai<br>United Arab Emirates | 5/01/2018  |

**Introduction**

This test certificate is to verify the element of construction described below was tested by this laboratory on behalf of the test sponsor in accordance with the stated test standard and achieved the results stated below.

| Referenced Reports    | Report Date | Test Standard                    |
|-----------------------|-------------|----------------------------------|
| EWFA 49581200c.2      | 8/01/2018   | AS/NZS 3013:2005, Appendix A & B |
| EWFA Mech 49581300c.1 | 8/01/2018   | AS/NZS 3013:2005, Appendix D & E |

| Description of Assessed Cable |  |
|-------------------------------|--|
| <b>Cable Description</b>      | <ul style="list-style-type: none"> <li>Screened multicore cable comprising 3 cores + earth, 1.5mm<sup>2</sup> conductor.</li> <li>Cable overall outer diameter of nominal 12.9mm.</li> <li>Test bending radius of cable: 103mm on the inside of the bend.</li> <li>Mechanical testing temperature range: -25°C to 110°C.</li> <li>Refer to the referenced reports for a full description of tested cable.</li> </ul> |
| <b>Cable Configuration</b>    | The cable was tested as a single cable for Appendix A & B with two bends of 90° at a bending radius of 103mm. The cable was positioned in the cable tray with a metallic cable tie fixing the cable to the tray at the centre of the two directional changes; otherwise plastic cable ties were used. Refer to the referenced test reports for a full description of cable configuration.                            |

| Cable Classification         |   |             |                      |
|------------------------------|---|-------------|----------------------|
| Cable Description            | Product Code  | Cable Group | Cable Classification |
| 3C + E (1.5mm <sup>2</sup> ) | Ducab C BICC Electric Cable 0.6/1kV<br>3C + E × 1.5mm <sup>2</sup> (Design 2) | 3           | WS52W                |

**Notes**

**THIS CERTIFICATE IS PROVIDED FOR GENERAL INFORMATION ONLY AND DOES NOT COMPLY WITH THE REGULATORY REQUIREMENTS FOR EVIDENCE OF COMPLIANCE.**

Reference should be made to the relevant test report to determine the applicability of the test result to a proposed installation. The results of these fire tests may be used to assess fire hazard, but it should be recognised that a single test method will not provide a full assessment of fire hazard under all conditions.

|                          |   |              |              |
|--------------------------|---|--------------|--------------|
| <b>TESTING AUTHORITY</b> | Exova Warringtonfire Aus Pty Ltd  |              |              |
| <b>Address</b>           | PO Box 4282 DANDENONG SOUTH VIC 3164<br>Unit 2, 409-411 Hammond Road DANDENONG VIC 3175 |              |              |
| <b>Phone</b>             | 61 (0)3 9767 1000   |              |              |
| <b>ABN</b>               | 81 050 241 524  |              |              |
| <b>Email / Home Page</b> | <a href="http://www.exova.com">www.exova.com</a>  |              |              |
| <b>Authorisation</b>     | Prepared By:  | Reviewed By: | Reviewed By: |
|                          |   |              |              |
|                          | Anthony Rosamilia   | Kai Loh      | Patrick Chan |



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|                                  |                                   |
|----------------------------------|-----------------------------------|
| <b>EWFA Test Certificate No.</b> | <b>SFC49581300d.1</b> Page 1 of 1 |
|----------------------------------|-----------------------------------|

| Report Sponsor   | Issue Date |
|--|------------|
| Ducab<br>PO Box 11529<br>Dubai<br>United Arab Emirates | 8/01/2018  |

**Introduction**

This test certificate is to verify the element of construction described below was tested by this laboratory on behalf of the test sponsor in accordance with the stated test standard and achieved the results stated below.

| Referenced Reports    | Report Date | Test Standard                    |
|-----------------------|-------------|----------------------------------|
| EWFA 49581200d.2      | 8/01/2018   | AS/NZS 3013:2005, Appendix A & B |
| EWFA Mech 49581300d.1 | 8/01/2018   | AS/NZS 3013:2005, Appendix D & E |

| Description of Assessed Cable |  |
|-------------------------------|--|
| <b>Cable Description</b>      | <ul style="list-style-type: none"> <li>Screened multicore cable comprising 2 cores, 0.75mm<sup>2</sup> conductor.</li> <li>Cable overall outer diameter of nominal 10.1mm.</li> <li>Test bending radius of cable: 81mm on the inside of the bend.</li> <li>Mechanical testing temperature range: -25°C to 110°C.</li> <li>Refer to the referenced reports for a full description of tested cable.</li> </ul> |
| <b>Cable Configuration</b>    | The cable was tested as a single cable for Appendix A & B with two bends of 90° at a bending radius of 81mm. The cable was positioned in the cable tray with a metallic cable tie fixing the cable to the tray at the centre of the two directional changes; otherwise plastic cable ties were used. Refer to the referenced test reports for a full description of cable configuration.                     |

| Cable Classification     |  |             |                      |
|--------------------------|--|-------------|----------------------|
| Cable Description        | Product Code   | Cable Group | Cable Classification |
| 2C(0.75mm <sup>2</sup> ) | Ducab C BICC Electric Cable<br>0.6/1kV 2C × 0.75mm <sup>2</sup> (Design 2) | 4           | WS51W                |

**Notes**

**THIS CERTIFICATE IS PROVIDED FOR GENERAL INFORMATION ONLY AND DOES NOT COMPLY WITH THE REGULATORY REQUIREMENTS FOR EVIDENCE OF COMPLIANCE.**

Reference should be made to the relevant test report to determine the applicability of the test result to a proposed installation. The results of these fire tests may be used to assess fire hazard, but it should be recognised that a single test method will not provide a full assessment of fire hazard under all conditions.

|                          |   |              |              |
|--------------------------|---|--------------|--------------|
| <b>TESTING AUTHORITY</b> | Exova Warringtonfire Aus Pty Ltd  |              |              |
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| <b>Authorisation</b>     | Prepared By:  | Reviewed By: | Reviewed By: |
|                          |   |              |              |
|                          | Anthony Rosamilia   | Kai Loh      | Patrick Chan |



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