

## FR3013 flexible fire rated power cable

### Single core

#### Construction:

Flexible bare copper class 5 fine wire stranding, glass mica tape, cross-linked, halogen free, flame-retardant compound type X-HF-110 acc. to AS/NZS 3808, red low smoke halogen-free type HSF-110TP metre marked sheath to AS/NZS 3808.

#### Bending Radius:

8 x cable diameter

#### Nominal Voltage:

600/1000V

#### Temperature Range:

-40°C - 110°C

#### Features, Rating and Approvals:

- Flexibility for easy installation
- REACH and RoHS compliant
- Halogen free acc. to IEC 60754-1
- UV-resistant

**Flame-retardant:** AS/NZS 1660.5.1; IEC 60332-3-22 Cat. A; IEC 60332-1

#### Cable circuit integrity:

AS/NZS 1660.5.5; IEC 60331; BS 6387, Cat. C.W.Z

#### Wiring system circuit integrity:

AS/NZS 3013, Cat. WS52W

**Smoke density:** AS/NZS 1660.5.2; IEC 61034-2

#### Halogen acid gas content:

AS/NZS 1660.5.3, IEC 60754-1

#### Gases evolved during combustion:

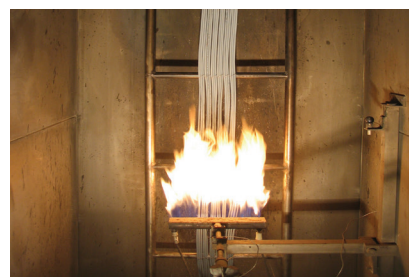
AS/NZS 1660.5.4, IEC 60754-2

#### Core Colour Coding:

- Single Cores : Natural
- 2 core + earth : Red, Black, Green/ Yellow
- 4 core + earth : Red, White, Blue, Black, Green/Yellow

#### Outer Sheath Colour:

Red



#### Installation Guidance

It is the responsibility of the installing contractor to ensure FR cables are installed in accordance with the relevant standards and regulations for fire rated areas.

#### Single Core

| Part No. | Nominal conductor area mm <sup>2</sup> | Approx. overall Ø mm | Approx. weight kg/km |
|----------|----------------------------------------|----------------------|----------------------|
| FR1X16R  | 1 x 16                                 | 10.3                 | 215                  |
| FR1X25R  | 1 x 25                                 | 11.9                 | 311                  |
| FR1X35R  | 1 x 35                                 | 12.7                 | 403                  |
| FR1X50R  | 1 x 50                                 | 14.9                 | 558                  |
| FR1X70R  | 1 x 70                                 | 16.9                 | 761                  |
| FR1X95R  | 1 x 95                                 | 19.2                 | 983                  |
| FR1X120R | 1 x 120                                | 20.5                 | 1222                 |
| FR1X150R | 1 x 150                                | 23.0                 | 1522                 |
| FR1X185R | 1 x 185                                | 25.8                 | 1855                 |
| FR1X240R | 1 x 240                                | 27.5                 | 2365                 |
| FR1X300R | 1 x 300                                | 31.5                 | 2945                 |
| FR1X400R | 1 x 400                                | 34.1                 | 3810                 |
| FR1X500R | 1 x 500                                | 39.3                 | 4811                 |
| FR1X630R | 1 x 630                                | 44.4                 | 6366                 |

# Data

## Flame propagation tests

### IEC 60332: Test on electrical cables under fire conditions

Part 1 : Test on a single vertical insulated wires or cable

Part 3 : Test on bunched wires and cables under fire condition

The propagation of fires along cable runs is influenced by a number of factors but in particular is relative to the total volume of combustible material in the cable run.

IEC 60332-3 details 3 test categories to test different amount of combustible material contained in a one metre sample bunched cable.

- |                |   |                                                                                                                                                                   |
|----------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IEC 60332-3-22 | - | The number of test pieces required to provide a total volume of 7 litres of non-metallic material shall be bunched on a ladder exposed to flame for 40 minutes.   |
| IEC 60332-3-23 | - | The number of test pieces required to provide a total volume of 3.5 litres of non-metallic material shall be bunched on a ladder exposed to flame for 40 minutes. |
| IEC 60332-3-24 | - | The number of test pieces required to provide a total volume of 1.5 litres of non-metallic material shall be bunched on a ladder exposed to flame for 20 minutes. |

The cable specimens are placed vertically next to each other and then exposed to the flame for a specified duration. After the burning has ceased, the charred or affected portion should not exceed a height of 2.5 meters.

## Acid gas emission tests

### IEC 60754: Test on gases evolved during combustion of electric cables

Part 1 : Determination of the amount of halogen acid gas

Part 2 : Determination of degree of acidity of gases evolved during the combustion of materials taken from electric cables by measuring pH and conductivity

IEC 60754-1 specifies a method in determining the amount of halogen acid gas, other than hydrofluoric acid, evolved during the combustion of materials based on halogenated polymers and compounds containing halogenated additives taken from electric cables. This standard requires the amount of halogen acid evolved is less than 5mg/g of hydrochloric acid.

IEC 60754-2 specifies a method in determining the degree of acidity of gases evolved during the combustion of materials taken from electric cables by measuring pH and conductivity. This standard requires the weighted pH value of not less than 4.3 when related to 1 litre of water, and the weighted value of conductivity should not exceed 10µS/mm.

## Smoke emission tests

### IEC 61034: Measurement of smoke density of electric cables burning under defined condition

The 3 meter cube test determines the amount of smoke from electric cables during fire conditions. A one-meter length of cable is placed in a 3m<sup>2</sup> enclosure, and exposed to a beam of light through a clear window. This light travels across the enclosure to a photocell connected to recording equipment in the window on the other end. A fire is then generated within the container and the minimum light transmission recorded. This standard requires a minimum light transmission value greater than 60% is acceptable.

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