

# Flam-Guard 100 Range

## 6491F / Fire Resistant Single Core Cable

Class 2 Stranded Copper/ MICA Taped Conductors /  
XLPE Low Smoke Zero Halogen Sheath

### Application

Single core fire resistant cable designed for use in steel conduit installations in which the conduit provides mechanical protection. Designed for use in fire evacuation systems such as fire detection, fire alarm and emergency lighting circuits.

Manufactured with Low Smoke Zero Halogen (LSZH) insulation, making it suitable for installations in public buildings where, in the event of fire, smoke and acid gas evolution would pose a hazard to public life and equipment.



### Cable Description

Class 2 stranded copper wire,

Mica Tape wrapping over conductors,

Low smoke zero halogen cross linked polyethylene (XLPE)

**N.B.** In the event of fire, the gases evolved from this cable are free from Halogen and the design is optimised to limit the quantity and cleanliness of the smoke evolved during this period. Although the acronym HFFR is applied to the sheath material, the terms LSOH, HFFR and HFFR are also applicable.

### Insulation Colours

Red, Black, White, Green/Yellow, Blue, Brown, Violet,  
Grey, Orange, Pink (other colours available upon request)

### Third party Accreditation



Cables are tested and approved by  
LPCB (Loss Prevention Certification Board)

### Physical Characteristics

| Nominal Cross-Sectional Area (mm <sup>2</sup> ) | Nominal Radial Thickness (mm) | Nominal Insulated Diameter (mm) | Maximum Insulated Diameter (mm) | Maximum Conductor Resistance at 20°C (ohms/km) | Nominal Weight (kg/km) |
|---|-------------------------------|---------------------------------|---------------------------------|--|------------------------|
| 1.5   | 0.70                          | 3.10                            | 3.40                            | 12.10  | 21                     |
| 2.5   | 0.80                          | 3.60                            | 4.10                            | 7.41   | 25                     |
| 4.0   | 0.80                          | 4.20                            | 4.70                            | 4.61   | 50                     |
| 6.0   | 0.80                          | 4.70                            | 5.40                            | 3.08   | 70                     |
| 10.0  | 1.00                          | 6.10                            | 7.00                            | 1.83   | 120                    |
| 16.0  | 1.00                          | 7.20                            | 8.00                            | 1.15   | 180                    |

## Mechanical Characteristics

| Characteristics              | Unit     | Value |
|------------------------------|----------|-------|
| Max Conductor Temperature    | °C       | 90    |
| Min Operating Temperature    | °C       | -25   |
| Min Installation Temperature | °C       | 0     |
| Max Installation Temperature | °C       | 80    |
| Minimum Bend Radius          | Diameter | 6D    |

## Electrical Characteristics - General

| Characteristics      | Unit | Value    |
|----------------------|------|----------|
| Voltage Rating       | V    | 600/1000 |
| Voltage Test at 20°C | kV   | 2.5      |
| Current Rating Table | -    | 4E1      |

## Electrical Characteristics – Current Carrying Capacity

| CONDUCTOR CROSS-SECTIONAL AREA | REFERENCE METHOD A (ENCLOSED IN CONDUIT THERMALLY INSULATING WALL ETC) |                                  | REFERENCE METHOD B (ENCLOSED IN CONDUIT ON A WALL OR IN TRUNKING ETC) |                                 | REFERENCE METHOD C (CLIPPED DIRECT)                 |  | REFERENCE METHOD F (IN FREE AIR ON A PERFORATED CABLE TRAY HORIZONTAL OR VERTICAL) |                                 |                                    |   |            |          |
|--------------------------------|--|----------------------------------|---|---------------------------------|---|--|--|---------------------------------|------------------------------------|---|------------|----------|
|                                | 2 CABLES, SINGLE - PHASE AC OR DC                                      | 3 OR 4 CABLES, SINGLE - PHASE AC | 2 CABLES, SINGLE - PHASE AC OR DC                                     | 3 OR 4 CABLES, THREE - PHASE AC | 2 CABLES, SINGLE - PHASE AC OR DC FLAT AND TOUCHING | 3 OR 4 CABLES, THREE - PHASE AC FLAT AND TOUCHING OR TREFOIL | TOUCHING   |                                 |                                    | SPACED BY ONE DIAMETER  |            |          |
|                                |  |                                  |   |                                 |   |  | 2 CABLES, SINGLE - PHASE AC OR DC FLAT   | 3 CABLES, THREE - PHASE AC FLAT | 3 CABLES, THREE - PHASE AC TREFOIL | 2 CABLES, SINGLE PHASE AC OR DC OR 3 CABLES THREE - PHASE AC FLAT |            |          |
|                                |  |                                  |   |                                 |   |  |  |                                 |                                    |   | HORIZONTAL | VERTICAL |
| 1                              | 2  | 3                                | 4   | 5                               | 6   | 7  | 8  | 9                               | 10                                 | 11  | 12         |          |
| (mm <sup>2</sup> )             | (A)  | (A)                              | (A)   | (A)                             | (A)   | (A)  | (A)  | (A)                             | (A)                                | (A)   | (A)        |          |
| 1.5                            | 19   | 17                               | 23  | 20                              | 25  | 23   | -  | -                               | -                                  | -   | -          |          |
| 2.5                            | 26   | 23                               | 31  | 28                              | 34  | 31   | -  | -                               | -                                  | -   | -          |          |
| 4                              | 35   | 31                               | 42  | 37                              | 46  | 41   | -  | -                               | -                                  | -   | -          |          |
| 6                              | 45   | 40                               | 54  | 48                              | 59  | 54   | -  | -                               | -                                  | -   | -          |          |
| 10                             | 61   | 54                               | 75  | 66                              | 81  | 74   | -  | -                               | -                                  | -   | -          |          |
| 16                             | 81   | 73                               | 100   | 88                              | 109   | 99   | -  | -                               | -                                  | -   | -          |          |

The above is in accordance with 18<sup>th</sup> edition of the IET wiring regulations.

## Fire Performance

| Test                            | Test Method        | Comment   |
|---------------------------------|--------------------|-----------|
| Circuit Integrity Test          | BS 6387 C,W,Z      | Compliant |
| Fire Resistance Test            | IEC 60331-21:1999  | Compliant |
| Single Cable Vertical Burn Test | BS EN 60332-1:2004 | Compliant |
| Acid Gas Emission               | BS EN 60754-1:2014 | Compliant |
| Smoke Emission                  | BS EN 61034-2:2005 | Compliant |