



## “MESCOFIRE” FIRE SURVIVAL CABLES

### INTRODUCTION

Protection of human life in case of Fire in a public building and the **safety of equipment** and property is of paramount importance. Cables used in vital installations like power plants, continuous operating industries, hospitals, airports, underground railway stations, and crowded places are required to function even under fire conditions for a reasonable length of time to enable safe evacuation of people .

MESCOFIRE cables offer excellent solution to fulfill the stringent safety requirements of electrical installation in public environment.

### APPLICATIONS

1. Smoke detection, alarm system, and installation cables in crowded buildings, hospitals, hotels, underground railways etc.
2. Instrumentation, communication and signaling cables in Industrial complexes, offshore platforms and petrochemical plants.

### SPECIAL CHARACTERISTICS

The fire performance properties of MESCOFIRE fire resistant cables are listed as follows:

#### Fire Resistance

- Cables intended to survive fire must function even under the influence of a continuous fire.
- The fire test as per IEC - 331 is a stringent one. A cable sample of 1200 mm is placed over a burner and connected to a power supply of cable’s operating voltage. After a duration of **three hours** the fire and the power are switched off. 12 hours later the power is turned on again.
- The cable must be operational during the fire and when the power is turned on again.
- When the cables are tested as per the BS-6387 standard, actual conditions of water spray and mechanical shocks are simulated. The cable is subjected to fire with water spray and fire with mechanical shocks and must maintain circuit integrity.

To meet the requirement of fire survival MESCOFIRE cables are provided with a flame barrier mica tape. Mica tape used in MESCOFIRE cables has excellent thermal and electrical properties and it can withstand flame temperatures upto 1200°C.

TEST DESCRIPTION	DURATION	STANDARD
Resistance to fire alone	3 hours at 750°C	IEC-60331
Resistance to fire alone	3 hours at 950°C	BS-6387 category C
Resistance to fire alone with water	650°C for 15 minutes then 650°C with water spray for 15 minutes	BS-6387 category W
Resistance to fire with mechanical shock	650°C for 15 minutes with mechanical shock	BS-6387 category Z

MESCOFIRE cables meet all the above Requirement.

#### Toxic Gases

Concentration of toxic gases generated by fire depends on the material under combustion, oxygen available, temperature of the fire and ventilation systems. Some toxic gases are undetectable in low concentrations by human senses, hence can not be tasted, seen or smelt. However can be very quickly lethal. MESCOFIRE cables contain **Zero Halogen** materials and achieve complete toxicity benefits.

Specifications Requirement :IEC 754 Part 1 : < 0.5% gas.  
MESCOFIRE Typical Value : 0%.

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### Corrosive Gases

A large financial investment is outlaid in any building, so to protect the building and the equipment is also important.

To exemplify, a cable with 2.9 Kg of PVC insulation can produce 320 liters of Hydrochloric acid. These acids cause weakening of steel reinforcing of concrete. Electronic equipment may also be destroyed. The materials used in MESCOFIRE cables generate no corrosive gases.

Specification Requirement : IEC 60754 Part 2. Ph > 4.3  
MESCOFIRE Typical Values 6

### Low Smoke

The generation of smoke causes obstruction of exits and safe evacuation of people and fire fighting becomes greatly hampered. The amount of smoke produced in a fire depends primarily on the material type and quantity. A meter of burning cable containing around 0.85 Kg of PVC will produce complete obstruction in a room of 1000 m<sup>3</sup> within 5 minutes. MESCOFIRE cables contain Low Smoke materials to overcome this problem.

Specification Requirement : Minimum light transmittance - 60% min. As per IEC 61034 - 2  
MESCOFIRE Typical light transmittance - 80 %



3 Hours fire survival test as per IEC-331

### HIGHLIGHTS

MESCOFIRE Fire-resistant cables replace MICC cables and have certain advantages over the MIC cables.

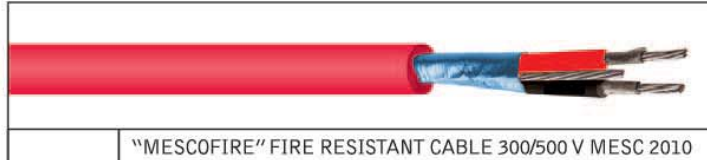
1. Fewer and less costly installation accessories required.
2. Easier to install than conventional MICC cables.
3. Preparation & termination time reduced to < 50%.
4. Cheaper than conventional fire resistant cables.
5. Can be made available in longer lengths.



## FIRE SURVIVAL CABLES

- LOW SMOKE
- FLAME RETARDANT
- HALOGEN FREE

### MULTICORE CONTROL CABLE FOR MEASUREMENT, CONTROL & SIGNALLING



"MESCOFIRE" FIRE RESISTANT CABLE 300/500 V MESC 2010

- **Conductor** : Stranded plain copper wire to IEC 228 Class 2.
- **Insulation** : Flame Barrier Mica tape + Halogen free, Low smoke thermoplastic material.
- **Assembly** : Cores laid in layers, wrapped with plastic binder if necessary.
- **Screening** : Screening with aluminum polyester tape with an overlap for 100% coverage with a tinned copper drain wire.
- **Sheath** : Halogen free, Low Smoke thermoplastic material. Sheath color Red. \*

Order No.	MESC CODE	Cores No.	Size sq. mm	Strand X Dia. No. x mm	Approx. O. D. mm	Approx. Weight Kg/km	Mutual Capacitance nF/km	Conductor Resistance Ohm/km	L/r ratio mH/W
F2001	0217-02C00100-UORD8-05	2	1.0	7 X 0.43	8.4	72	100	18.1	25
F2002	0217-03C00100-UORD8-05	3	1.0	7 X 0.43	9.2	97	100	18.1	25
F2003	0217-04C00100-UORD8-05	4	1.0	7 X 0.43	10.0	118	100	18.1	25
F2004	0217-05C00100-UORD8-05	5	1.0	7 X 0.43	11.1	145	100	18.1	25
F2005	0217-07C00100-UORD8-05	7	1.0	7 X 0.43	12.0	182	100	18.1	25
F2006	0217-09C00100-UORD8-05	9	1.0	7 X 0.43	14.6	235	100	18.1	25
F2007	0217-10C00100-UORD8-05	10	1.0	7 X 0.43	15.2	254	100	18.1	25
F2008	0217-12C00100-UORD8-05	12	1.0	7 X 0.43	15.7	290	100	18.1	25
F2009	0217-15C00100-UORD8-05	15	1.0	7 X 0.43	17.3	347	100	18.1	25
F2010	0217-16C00100-UORD8-05	16	1.0	7 X 0.43	17.7	379	100	18.1	25
F2011	0217-19C00100-UORD8-05	19	1.0	7 X 0.43	18.7	437	100	18.1	25
F2012	0217-02C00150-UORD8-05	2	1.5	7 X 0.53	9.4	94	105	12.1	25
F2013	0217-03C00150-UORD8-05	3	1.5	7 X 0.53	9.9	118	105	12.1	25
F2014	0217-04C00150-UORD8-05	4	1.5	7 X 0.53	10.7	144	105	12.1	25
F2015	0217-05C00150-UORD8-05	5	1.5	7 X 0.53	11.9	177	105	12.1	25
F2016	0217-07C00150-UORD8-05	7	1.5	7 X 0.53	12.9	226	105	12.1	25
F2017	0217-09C00150-UORD8-05	9	1.5	7 X 0.53	15.8	294	105	12.1	25
F2018	0217-10C00150-UORD8-05	10	1.5	7 X 0.53	16.4	317	105	12.1	25
F2019	0217-12C00150-UORD8-05	12	1.5	7 X 0.53	17.0	366	105	12.1	25
F2020	0217-15C00150-UORD8-05	15	1.5	7 X 0.53	19.2	459	105	12.1	25
F2021	0217-16C00150-UORD8-05	16	1.5	7 X 0.53	19.2	481	105	12.1	25
F2022	0217-19C00150-UORD8-05	19	1.5	7 X 0.53	20.2	553	105	12.1	25
F2023	0217-02C00250-UORD8-05	2	2.5	7 X 0.67	11.2	134	115	7.41	40
F2024	0217-03C00250-UORD8-05	3	2.5	7 X 0.67	11.9	173	115	7.41	40
F2025	0217-04C00250-UORD8-05	4	2.5	7 X 0.67	12.9	213	115	7.41	40
F2026	0217-05C00250-UORD8-05	5	2.5	7 X 0.67	14.2	258	115	7.41	40
F2027	0217-07C00250-UORD8-05	7	2.5	7 X 0.67	15.4	333	115	7.41	40
F2028	0217-09C00250-UORD8-05	9	2.5	7 X 0.67	18.9	430	115	7.41	40
F2029	0217-10C00250-UORD8-05	10	2.5	7 X 0.67	20.2	491	115	7.41	40
F2030	0217-12C00250-UORD8-05	12	2.5	7 X 0.67	20.8	562	115	7.41	40
F2031	0217-15C00250-UORD8-05	15	2.5	7 X 0.67	23.1	685	115	7.41	40
F2032	0217-16C00250-UORD8-05	16	2.5	7 X 0.67	23.1	720	115	7.41	40
F2033	0217-19C00250-UORD8-05	19	2.5	7 X 0.67	24.4	836	115	7.41	40

- **Temperature range** : -20°C to + 90°C
- **Working voltage** : 300 / 500 Volts.
- **Test voltage** : 1000 Volts r.m.s. for 1 min.
- **Colour code** : 2 Core : Red & Black.  
: 3 Core : Red , Yellow , Blue  
: 4 Core : Red , Yellow , Blue & Black  
: 5 Core & above : Black with Number Print
- **Based on** : BS 5308/2

#### Fire Resistant Property

- 750 C for three hours to IEC 331.
- 950°C for three hours to BS 6387 Category C.
- Complies to BS 6387 Category W & Z.
- Flame Retardant to IEC 332-1.
- Flame Retardant to IEC 332-3 Cat. A, B & C.
- Passes Low Smoke Test as per IEC 1034.
- Passes Halogen content Test as per IEC 754-2.

Note :1. Armoured cables can be supplied on demand. 2. Other insulation or sheath colours available if required.

## FIRE SURVIVAL CABLES

- LOW SMOKE
- FLAME RETARDANT
- HALOGEN FREE

### MULTIPAIR INSTRUMENTATION, COMMUNICATION ALARM & DATA TRANSMISSION CABLE ( OVERALL SCREENED )



"MESCOFIRE" FIRE RESISTANT CABLE 300/500 V MES C 2010

- **Conductor** : Stranded plain copper wire to IEC 228 Class 2.
- **Insulation** : Flame Barrier Mica tape + Halogen free, Low smoke thermoplastic material.
- **Assembly** : Cores twisted into pairs and assembled pairs wrapped with plastic binder if necessary.
- **Screening** : Screening with aluminum polyester tape with an overlap for 100% coverage with a tinned copper drain wire.
- **Sheath** : Halogen free, Low Smoke thermoplastic material. Sheath color Red. \*

Order No.	MES C CODE	Pairs No.	Size sq. mm	Strand X Dia. No x mm	Approx. O. D. mm	Approx. Weight Kg/km	Mutual Capacitance nF/km	Conductor Resistance Ohm/km	L/r ratio mH/W
F2034	0217-02P00100-U0RD8-05	2	1.0	7 X 0.43	13.0	142	100	18.4	25
F2035	0217-03P00100-U0RD8-05	3	1.0	7 X 0.43	13.2	178	100	18.4	25
F2036	0217-04P00100-U0RD8-05	4	1.0	7 X 0.43	15.0	228	100	18.4	25
F2037	0217-05P00100-U0RD8-05	5	1.0	7 X 0.43	16.5	275	100	18.4	25
F2038	0217-07P00100-U0RD8-05	7	1.0	7 X 0.43	18.9	358	100	18.4	25
F2039	0217-10P00100-U0RD8-05	10	1.0	7 X 0.43	22.5	504	100	18.4	25
F2040	0217-12P00100-U0RD8-05	12	1.0	7 X 0.43	24.3	586	100	18.4	25
F2041	0217-15P00100-U0RD8-05	15	1.0	7 X 0.43	27.2	734	100	18.4	25
F2042	0217-20P00100-U0RD8-05	20	1.0	7 X 0.43	30.8	936	100	18.4	25
F2043	0217-02P00150-U0RD8-05	2	1.5	7 X 0.53	14.0	170	100	12.3	25
F2044	0217-03P00150-U0RD8-05	3	1.5	7 X 0.53	14.2	218	100	12.3	25
F2045	0217-04P00150-U0RD8-05	4	1.5	7 X 0.53	16.2	282	100	12.3	2
F2046	0217-05P00150-U0RD8-05	5	1.5	7 X 0.53	17.8	339	100	12.3	25
F2047	0217-07P00150-U0RD8-05	7	1.5	7 X 0.53	20.5	448	100	12.3	25
F2048	0217-10P00150-U0RD8-05	10	1.5	7 X 0.53	24.4	634	100	12.3	25
F2049	0217-12P00150-U0RD8-05	12	1.5	7 X 0.53	26.4	741	100	12.3	25
F2050	0217-15P00150-U0RD8-05	15	1.5	7 X 0.53	29.5	925	100	12.3	25

- **Temperature range** : -20°C to + 90°C
- **Working voltage** : 300 / 500 Volts.
- **Test voltage** : 1000 Volts r.m.s. for 1 min.
- **Colour code** : Black and White with number Print on each core.
- **Based pm** : BS 5308/2

#### Fire Resistant Property

750°C for three hours to IEC 331.  
 950°C for three hours to BS 6387 Category C.  
 Complies to BS 6387 Category W & Z.  
 Flame Retardant to IEC 332-1.  
 Flame Retardant to IEC 332-3 Cat. A, B & C.  
 Passes Low Smoke Test as per IEC 1034.  
 Passes Halogen content Test as per IEC 754-2.

Note :1. Armoured cables can be supplied on demand. 2. Other insulation or sheath colours available if required.



## FIRE SURVIVAL CABLES

- LOW SMOKE
- FLAME RETARDANT
- HALOGEN FREE

### MULTIPAIR INSTRUMENTATION, COMMUNICATION ALARM & DATA TRANSMISSION CABLE ( INDIVIDUAL & OVERALL SCREENED )



- Conductor : Stranded plain copper wire to IEC 228 Class 2.
- Insulation : Flame Barrier Mica tape + Halogen free, Low smoke thermoplastic material.
- Individual & Overall Screened) : Core Twisted into pair, shielded with aluminum mylar tape and tinned copper drain wire. Individual shielded pair assembled and the entire assembly is shielded by aluminum mylar tape and tinned copper drain wire.
- Sheath : Halogen free low Smoke thermoplastic material. Sheath colour Red. \*

Order No.	MESC CODE	Pairs	Size sq. mm	Strand X No. Dia. No. x mm	Approx. O. D. mm	Approx. Weight Kg/km	Mutual Capacitance nF/km	Conductor Resistance Ohm/km	L/r ratio mH/W
F4001	0417-02P00100-U0RD8-05	2	1.0	7 X 0.43	11.7	150	100	18.4	25
F4002	0417-03P00100-U0RD8-05	3	1.0	7 X 0.43	13.7	204	100	18.4	25
F4003	0417-04P00100-U0RD8-05	4	1.0	7 X 0.43	15.6	263	100	18.4	25
F4004	0417-05P00100-U0RD8-05	5	1.0	7 X 0.43	17.1	315	100	18.4	25
F4005	0417-07P00100-U0RD8-05	7	1.0	7 X 0.43	20.1	434	100	18.4	25
F4006	0417-10P00100-U0RD8-05	10	1.0	7 X 0.43	23.4	586	100	18.4	25
F4007	0417-12P00100-U0RD8-05	12	1.0	7 X 0.43	25.3	684	100	18.4	25
F4008	0417-15P00100-U0RD8-05	15	1.0	7 X 0.43	28.3	586	100	18.4	25
F4009	0417-20P00100-U0RD8-05	20	1.0	7 X 0.43	32.1	1099	100	18.4	25
F4010	0417-02P00150-U0RD8-05	2	1.5	7 X 0.53	14.3	188	100	12.3	25
F4011	0417-03P00150-U0RD8-05	3	1.5	7 X 0.53	14.8	246	100	12.3	25
F4012	0417-04P00150-U0RD8-05	4	1.5	7 X 0.53	16.8	317	100	12.3	25
F4013	0417-05P00150-U0RD8-05	5	1.5	7 X 0.53	18.5	384	100	12.3	25
F4014	0417-07P00150-U0RD8-05	7	1.5	7 X 0.53	21.7	528	100	12.3	25
F4015	0417-10P00150-U0RD8-05	10	1.5	7 X 0.53	25.3	716	100	12.3	25
F4016	0417-12P00150-U0RD8-05	12	1.5	7 X 0.53	27.4	839	100	12.3	25
F4017	0417-15P00150-U0RD8-05	15	1.5	7 X 0.53	30.7	1053	100	12.3	25

- Temperature range : -20°C to + 90°C
- Working voltage : 300 / 500 Volts.
- Test voltage : 1000 Volts r.m.s. for 1 min.
- Colour code : Black and White core with pair number on each core.
- Based on : BS 5308/2

#### Fire Resistant Property

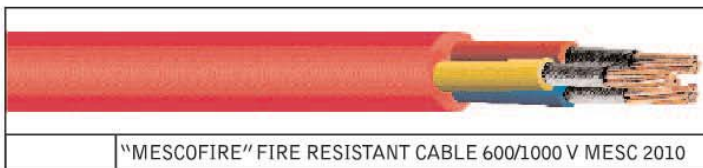
750°C for three hours to IEC 331.  
 950°C for three hours to BS 6387 Category C.  
 Complies to BS 6387 Category W & Z.  
 Flame Retardant to IEC 332-1.  
 Flame Retardant to IEC 332-3 Cat. A, B & C.  
 Passes Low Smoke Test as per IEC 1034.  
 Passes Halogen content Test as per IEC 754-2.

Note :1. Armoured cables can be supplied on demand. 2. Other insulation or sheath colours available if required.

## FIRE SURVIVAL CABLES

- LOW SMOKE ● FLAME RETARDANT ● HALOGEN FREE

### LOW VOLTAGE POWER & CONTROL CABLE FOR INSTALLATION



- **Conductor** : Stranded plain copper wire to IEC 228 Class 2.
- **Insulation** : Flame Barrier Mica tape + Halogen free, Low smoke thermoplastic material.
- **Assembly** : Cores laid in layers, wrapped with plastic binder if necessary.
- **Sheath** : Halogen free, Low Smoke thermoplastic material. Sheath color Red. \*

Order No.	MESC CODE	Cores No.	Size sq. mm	Strand X Dia. No. x mm	Approx. O. D. mm	Approx. Weight Kg/km
F1001	7417-02C00150-U0RD8-00	2	1.5	7 X 0.53	11.3	163
F1002	7417-03C00150-U0RD8-00	3	1.5	7 X 0.53	11.9	190
F1003	7417-04C00150-U0RD8-00	4	1.5	7 X 0.53	12.8	222
F1004	7417-02C00250-U0RD8-00	2	2.5	7 X 0.67	12.1	197
F1005	7417-03C00250-U0RD8-00	3	2.5	7 X 0.67	12.8	234
F1006	7417-04C00250-U0RD8-00	4	2.5	7 X 0.67	13.8	276
F1007	7417-02C00400-U0RD8-00	2	4.0	7 X 0.85	14.1	276
F1008	7417-03C00400-U0RD8-00	3	4.0	7 X 0.85	14.9	330
F1009	7417-04C00400-U0RD8-00	4	4.0	7 X 0.85	16.2	396
F1010	7417-02C00600-U0RD8-00	2	6.0	7 X 1.04	15.2	339
F1011	7417-03C00600-U0RD8-00	3	6.0	7 X 1.04	16.1	413
F1012	7417-04C00600-U0RD8-00	4	6.0	7 X 1.04	17.5	498
F1013	7417-02C01000-U0RD8-00	2	10.0	7 X 1.35	17.1	464
F1014	7417-03C01000-U0RD8-00	3	10.0	7 X 1.35	18.1	573
F1015	7417-04C01000-U0RD8-00	4	10.0	7 X 1.35	19.8	703

- **Temperature range** : -20°C to + 90°C
- **Working voltage** : 600 / 1000 Volts.
- **Test voltage** : 3500 Volts r.m.s. for 1 min.
- **Colour code** : 2 Core : Red & Black.  
: 3 Core : Red , Yellow , Blue  
: 4 Core : Red , Yellow , Blue & Black
- **Based on** : IEC 60502

#### Fire Resistant Property

750°C for three hours to IEC 331.  
950°C for three hours to BS 6387 Category C.  
Complies to BS 6387 Category W & Z.  
Flame Retardant to IEC 332-1.  
Flame Retardant to IEC 332-3 Cat. A, B & C.  
Passes Low Smoke Test as per IEC 1034.  
Passes Halogen content Test as per IEC 754-2.

Note :1. Armoured cables can be supplied on demand. 2. Other insulation or sheath colours available if required.



## FIRE SURVIVAL CABLES

- LOW SMOKE
- FLAME RETARDANT
- HALOGEN FREE

**SINGLE CORE CABLE FOR INSTALLATION IN BUILDINGS,  
POWER PLANTS & REFINERIES**



- **Conductor** : Bunched plain copper wire to IEC 228 Class 5.
- **Insulation** : Flame Barrier Mica Tape + Halogen Free Low Smoke thermoplastic material.colour red \*.

Order No.	MESC CODE	Cores No.	Size No. sq. mm	Strand X Dia. No x mm	Approx. O. D. mm	Approx. Weight Kg/km
F1016	5187-01C00150-UORD8-00	1	1.5	30 X 0.25	3.5	23
F1017	5187-01C00250-UORD8-00	1	2.5	50 X 0.25	4.1	35
F1018	5187-01C00400-UORD8-00	1	4.0	56 X 0.30	4.7	50
F1019	5187-01C00600-UORD8-00	1	6.0	84 X 0.30	5.3	70
F1020	5187-01C01000-UORD8-00	1	10.0	80 X 0.40	6.6	114

- **Temperature Range** : -20°C to + 90°C
- **Working Voltage** : 1000 Volts.
- **Test Voltage** : 2500 Volts r.m.s. for 5 min.
- **Conductor resistance** : to IEC 228 Class 5.
- **Based on** : BS 6004

**Fire Resistant Property**  
 750C for three hours to IEC 331.  
 950C for three hours to BS 6387 Category C.  
 Complies to BS 6387 Category W & Z.  
 Flame Retardant to IEC 332-1.  
 Flame Retardant to IEC 332-3 Cat. A, B & C.  
 Passes Low Smoke Test as per IEC 1034.  
 Passes Halogen content Test as per IEC 754-2.

Note :1. Other insulation or sheath colours available if required.