



FLAME-X 950 SERIES 2e 300/500 V

BS 7629-1, BS 6387, BS 5839-1, BS 8519

— “Enhanced” grade fire resistant electric cables having low emission of smoke and corrosive gases when affected by fire



Applications:

For use in installations emergency lighting and evacuation systems, fire and smoke detection systems, air-conditioning and alarm systems, automatic elevator doors, computer control rooms, emergency evacuation communicators. Recommended for systems, in particular building types, in which cables might need to operate correctly during a fire for periods in excess of those normally required for single phase evacuation of a building. Cables meeting the enhanced requirement should be used in buildings greater than 30 m in height, or with four or more evacuation zones, or for example hospitals, where there are progressive horizontal evacuation arrangements, or where a risk assessment identifies a possible need.

Construction

Conductors	Plain annealed copper solid class 1 and stranded class 2 acc. to BS EN 60228
Primary insulation	Fire resistant mica tape with a glass cloth
Insulation	Special cross-linked heat resistant compound type EI2 acc. to BS EN 50363-1
Screen	Aluminium tape and uninsulated circuit protective conductor
Uninsulated circuit protective conductor	Tinned annealed copper conductor of the same nominal cross-sectional area and of the same class as the insulated conductors
Outer sheath	Thermoplastic zero halogen low smoke compound type LTS 3 acc. to BS 7655-6.1
Colour of sheath	Red or white. Other colours are available on special request.
Core identification	2 core + EOC: brown, blue 3 core + EOC: brown, black, grey 4 core + EOC: blue, brown, black, grey

Characteristics

Core identification	+70°C
Maximum conductor operating temperature	-40°C
Lowest installation temperature	0°C
Maximum short-circuit conductor temperature	+250°C
Minimum bending radius	6 × D (D - overall cable diameter)

Fire performance

Fire resistance	BS 7629-1	ENHANCED 120 Complies with the PH 120 ENHANCED fire resistant cable described in Clause 26.2 of BS 5839-1
	BS 6387	Category C – resistance to fire: 3 h at 950°C Category W – resistance to fire with water: 15 min at 650°C plus 15 min with water spray Category Z – resistance to fire with mechanical shock: 15 min at 950°C
	BS EN 50200	Class PH120 (resistance to fire, with mechanical shock: 120min)
	BS 8434-2	120min
	BS 5266-1	
	BS 8519	Clause 11: Category 3
Flame propagation	BS EN 60332-1-2 (IEC 60332-1-2) and BS EN 60332-3-24 (IEC 60332-3-24)	
Smoke density	BS EN 61034-2 (IEC 61034-2)	
Gases evolved during combustion	BS EN 60754-1:2014 (IEC 61754-1): HCl content < 0.5% BS EN 60754-2:2014 (IEC 60754-2): pH ≥ 4,3; conductivity ≤ 10 μSmm ⁻¹	

Technical and Electrical Characteristic

Number and cross-sectional area of conductor	Conductor class	Nominal cross-sectional area of protective conductor ECC	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C	Maximum ECC conductor resistance at 20°C
n × mm²		mm²	mm	kg/km	Ω/km	Ω/km
2x1RE+ECC	1	1	8.0	78	18.1	18.2
2x1.5RE+ECC	1	1.5	8.9	101	12.1	12.2
2x1.5RM+ECC	2	1.5	9.3	104	12.1	12.2
2x2.5RE+ECC	1	2.5	10.2	144	7.41	7.56
2x2.5RM+ECC	2	2.5	10.7	150	7.41	7.56
2x4RM+ECC	2	4	12.0	206	4.61	4.70
2x6RM+ECC*	2	6	13.5	276	3.08	3.11
3x1.5RE+ECC	1	1.5	9.4	127	12.1	12.2
3x1.5RM+ECC	2	1.5	9.8	131	12.1	12.2
3x2.5RE+ECC	1	2.5	10.9	182	7.41	7.56
3x2.5RM+ECC	2	2.5	11.4	189	7.41	7.56
3x4RM+ECC	2	4	12.7	260	4.61	4.70

Technical and Electrical Characteristic

Number and cross-sectional area of conductor	Conductor class	Nominal cross-sectional area of protective conductor ECC	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C	Maximum ECC conductor resistance at 20°C
n × mm²		mm²	mm	kg/km	Ω/km	Ω/km
4x1,5RE+ECC	1	1,5	10,6	161	12,1	12,2
4x1,5RM+ECC	2	1,5	11,3	168	12,1	12,2
4x2,5RE+ECC	1	2,5	12,6	232	7,41	7,56
4x2,5RM+ECC	2	2,5	13,5	243	7,41	7,56
4x4RM+ECC	2	4	14,3	328	4,61	4,70

* without standards, without certificate

Current Ratings and Voltage Drop

Ambient air temperature: 30°C. Conductor operating temperature: 70°C. Installation as specified in Appendix 4 of BS 7671 IET Wiring Regulations

Reference Method 1

(clipped direct)

Nominal area of conductor	1 two core cable* single phase A.C. or D.C.		1 three-core or 1 four-core cable*. three-phase A.C.	
	Current rating	Volts drop per ampere par metre	Current rating	Volts drop per ampere par metre
mm²	A	mV/m	A	mV/m
1.0	15	44	13.5	38
1.5	19.5	29	17.5	25
2.5	27	18	24	15
4.0	36	11	32	9.5

* with protective conductor

Reference Method 3

(enclosed in conduit on a wall or ceiling, or in trunking)

Nominal area of conductor	1 two core cable* single phase A.C. or D.C.		1 three-core or 1 four-core cable*. three-phase A.C.	
	Current rating	Volts drop per ampere par metre	Current rating	Volts drop per ampere par metre
mm²	A	mV/m	A	mV/m
1.0	13	44	11.5	38
1.5	16.5	29	15	25
2.5	23	18	20	15
4.0	30	11	27	9.5

Rating factors for ambient temperature

Ambient temperature, °C	25	30	35	40	45	50
Rating factor	1.03	1.00	0.94	0.87	0.79	0.71

Correction factors for groups

Number of cables in grouping	2	3	4	5	6	7	8	9	10
Rating factor	0.80	0.70	0.65	0.60	0.57	0.54	0.52	0.50	0.48