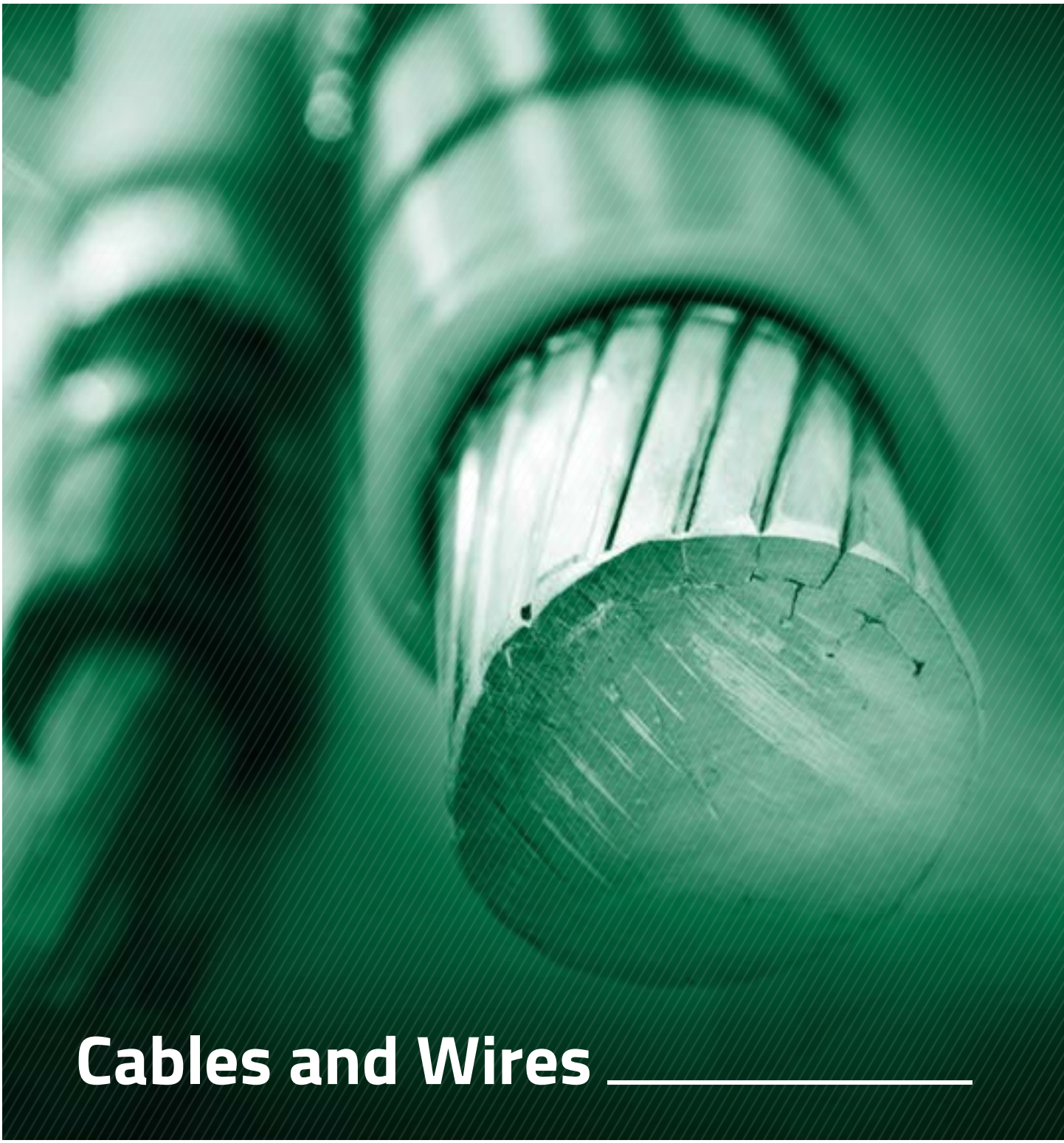
TFKable

Connecting globally



Cables and Wires

Copper Cable Company Limited

Copper Cable Company is the UK subsidiary of TELE-FONIKA Kable S.A., with offices and a warehouse centrally located in Leicestershire.

A major supplier to the UK and Eire of housewiring, low voltage, power and fire resistant cables for use in domestic, commercial offices, public buildings and utilities. In addition, we provide bespoke flexible rubber cable solutions for critical temporary power, submersible pumps and trailing cable applications.

For the telecommunications sector we supply copper and fibre data cables.

For all your cable requirements we have stock available for immediate despatch from our East Midlands warehouse, for larger quantity shipments we can also deliver directly from our factories where substantial stocks are held.

You can trust TELE-FONIKA Kable S.A., our factory management systems are approved to IS09001 for Quality, to ISO14001 for the protection of the Environment and OHSAS18001 for Occupational Health & Safety:

BASEC, LPCB Approvals

For your safety and peace of mind, our cables have been tested, verified and approved by the independent third party laboratories, including BASEC and LPCB:

Leading producer of cables and cable systems

TELE–FONIKA Kable Group has been present on the domestic and international cable industry market for more than 25 years. A stable development strategy based on a full diversification of outlets enabled the consolidation of our company in the world's leading cable companies with significant development potential.

Services and products provided by TF Kable find numerous applications in the most important industry sectors – they include more than 25,000 proven standard construction. Furthermore, they include a specialist assortment tailored to the individual needs of business partners.

Additionally, our production facilities (in Poland, Serbia and Ukraine), Bukowno-Poland recycling plant and commercial companies demonstrate a significant development potential. They are responsible for the geo-regional distribution of products, as well as modern fire test laboratory in the Krakow-Wielicka plant. This laboratory performs several hundred pre-tests of flammability per year. There is also a laboratory of high and extra high voltages in Bydgoszcz.

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Edition I

TFKable

FLAME-X 950

Fire Performance Cables

MAX +90°C

RoHS

BS 6387, IEC 60331-21
Cert No. 814c

FLAME-X 950 SERIES 1

(FLAME-X 950 Single) **600/1000V**

BS 8573,

Single core non-sheathed fire resistant cable having low emission of smoke and corrosive gases when affected by fire

APPLICATIONS

For use in fixed installations, where cable is protected by conduit or trunking. Fire resistant cables intended to provide circuit integrity in case of fire.

Standard length cable packing:	100 m in coils or on spools, or 500 m on drums. Other forms of packing and delivery are available on request.

CONSTRUCTION

Conductors:	Circular or compacted circular, stranded, annealed copper conductor, class 2 acc. to BS EN 60228
Primary insulation:	Fire resistant mica tape with a glass cloth
Insulation:	Special thermosetting LSOH compound of EI5 type acc. to BS EN 50363-5

CHARACTERISTICS

Core identification:	Green/yellow, blue, black, brown, grey, red, yellow. Other colours are available on special request.
Maximum conductor operating temperature:	+90°C
Lowest installation temperature:	-5°C
Maximum short-circuit conductor temperature:	+250°C
Minimum bending radius:	6 × D D – overall diameter of the cable

Fire performance

Fire resistance:	IEC 60331-21 BS 6387[1)]	Circuit integrity - tested 90 min. at 950°C 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
Flame propagation:	BS EN 60332-1-2	
Smoke density:	BS EN 61034-2	
Corrosive and acid gases emission:	BS EN 60754-1[2)] BS EN 60754-2[2)]	HCl content < 0.5% pH ≥ 4.3 & conductivity ≤ 10 µSmm^{-1}

[1)] Category C, W, Z for cables up to and including 95 mm2. Category C for cables above and including 120 mm^2.
[2)] BS EN 60754-1 & BS EN 60754-2 standards replace BS EN 50267-2-1

Approvals

LPCB	1,5 mm^2 to 500 mm^2 single-core

Technical and Electrical Characteristic

Nominal cross-sectional area of conductor	Radial thickness of insulation	Approximate overall diameter	Approximate net weight	Maximum resistance of conductor at temperature 20°C
mm^2	**mm**	**mm**	**mm**	**Ω/km**
1.5	0.7	3.90	25.3	12.1
2.5	0.8	4.60	38	7.41
4	0.8	5.10	53	4.61
6	0.8	5.40	71	3.08
10	1.0	6.70	116	1.83
16	1.0	7.80	173	1.15
25	1.2	9.60	270	0.727
35	1.2	10.60	361	0.524
50	1.4	12.30	490	0.387
70	1.4	13.70	683	0.268
95	1.6	16.10	942	0.193
120	1.6	17.50	1171	0.153
150	1.8	19.50	1445	0.124

Nominal cross-sectional area of conductor	Radial thickness of insulation	Approximate overall diameter	Approximate net weight	Maximum resistance of conductor at temperature 20°C
mm²	**mm**	**mm**	**mm**	**Ω/km**
185	2.0	21.40	1800	0.0991
240	2.2	24.3	2338	0.0754
300	2.4	26.50	2918	0.0601
400	2.6	29.60	3766	0.0470
500	2.8	33.20	4810	0.0366

Current Ratings and Voltage Drop

Nominal cross-sectional area of conductor	Short circuit current ratings (1 sec)	Current Rating* Two cables, single phase A.C. or D.C.	Current Rating* Three or four cables, three phase A.C.	Voltage Drop** Two cables D.C.	Voltage Drop** Two cables, single phase A.C.	Voltage Drop** Three or four cables, three phase A.C.
mm²	**Amps**	**Amps**	**Amps**	**mV/A/m**	**mV/A/m**	**mV/A/m**
1.5	210	22	19	31	31	27
2.5	350	30	26	19	19	16
4	570	40	35	12	12	10
6	850	51	45	7.9	7.9	6.8
10	1400	71	63	4.7	4.7	4.0
16	2200	95	85	2.9	2.9	2.5
25	3600	126	111	1.85	1.90	1.65
35	5000	156	138	1.35	1.35	1.15
50	6800	189	168	0.99	1.05	0.90
70	9800	240	214	0.68	0.75	0.65
95	13600	290	259	0.49	0.58	0.50
120	17200	336	299	0.39	0.48	0.42
150	21100	375	328	0.32	0.43	0.37
185	26500	426	370	0.25	0.37	0.32
240	34900	500	433	0.190	0.33	0.29
300	43700	573	493	0.155	0.31	0.27
400	55900	683	584	0.120	0.29	0.25
500	70600	783	666	0.093	0.28	0.24

* Installation reference method 3 (enclosed in conduit on a wall or in trunking etc.,) as per BS 7671, Appendix 4, Conductor operating temperature 90°C, Ambient temperature 30°C

** Installation reference methods 3 and 4 (enclosed in conduit, etc., in or on a wall) as per BS 7671, Appendix 4, Conductor operating temperature 90°C, Ambient temperature 30°C

Correction Factors for Ambient Temperature

Ambient Temperature, °C	25	30	35	40	45	50	55	60	65	70	75	80	85
Correction Factor	1.02	1.00	0.96	0.91	0.87	0.82	0.76	0.71	0.65	0.58	0.50	0.41	0.29

Correction Factors for Groups

Number of Circuits	2	3	4	5	6	7	8	9	10	12	14	16	18
Correction Factor	0.80	0.70	0.65	0.60	0.57	0.54	0.52	0.50	0.48	0.45	0.43	0.41	0.39

BS 7846
Cert No. 814a, 814f

FLAME-X 950 SERIES 2

(Flame-X 950 Standard) **300/500V**

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

Fire resistant screened cables having low emission of smoke and corrosive gases when affected by fire

APPLICATIONS

Installations emergency lighting and evacuation systems, fire and smoke detection systems, air-conditioning and alarm systems, automatic elevator doors, computer control rooms, offshore and marine emergency systems, emergency evacuation communicators.

Standard length cable packing:	500 or 1,000 m on drums. Other forms of packing and delivery are available on request.

CONSTRUCTION

Conductors:	Plain annealed copper solid class 1 (for 1 - 2.5 mm^2) and stranded class 2 (for 4 mm^2) acc. to BS EN 60228
Uninsulated circuit protective conductor:	Tinned annealed copper of the same nominal cross-sectional area and of the same class as the insulated conductors
Drain wire:	Tinned annealed copper wires class 2 acc. to BS EN 60228 (for cables with 7, 12, 19 – cores)
Insulation:	Special cross-linked heat resistant compound type EI2 acc. to BS EN 50363-1
Optional binder:	Non hygroscopic halogen free tape
Screen:	Aluminium/polyester laminated tape and uninsulated circuit protective conductor or drain wire
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 permissible when agreed with the manufacturer)
Core identification:	2 core + ECC: brown, blue 3 core + ECC: brown, black, grey 4 core + ECC: blue, brown, black, grey 7, 12, 19 – core + Drain wire: numbering or for identification by colour: in each layer: brown (starting core), black (reference core)

CHARACTERISTICS

Maximum conductor operating temperature:	+70°C
Minimum operating temperature (for fixed application) after installation without movement:	-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

Resistance to fire:	BS 6387 Category **C** – resistance to fire: 3 h at 950°C (IEC 60331) 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 PH30 (resistance to fire. with mechanical shock and with water: 30 min) BS 5839-1:2002 Clause 26.2d PH 30 Standard fire resistant cable
Flame propagation:	BS EN 60332-1-2 (IEC 60332-1-2) and BS EN 50266-2-2 (IEC 60332-3-22)
Smoke density:	BS EN 61034-2 (IEC 61034-2)
Gases evolved during combustion:	BS EN 50267-2-1 (IEC 61034-2): < 0.5% acid gas BS EN 50267-2-2 (IEC 60754-2): pH ≥ 4.3; conductivity ≤ 10 μSmm^{-1}

Approvals

LPCB	1,0 1.5, 2.5, 4 mm^2 – 2-core, 3-core, 4-core, 1.0, 1.5, 2.5 mm^2 – 7-core, 12-core, 1.5 mm^2 – 19-core
BASEC	1.0 mm^2 – 2-core, 1.5, 2.5, 4 mm^2 – 2-core, 3-core, 4-core, 1.5, 2.5 mm^2 – 7-core, 12-core, 1.5 mm^2 – 19-core

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**
2 × 1 RE + ECC	1	1	6.9	65	18.1	18.2
2 × 1.5 RE + ECC	1	1.5	7.8	86	12.1	12.2
2 × 1.5 RM + ECC*	2	1.5	8.2	91	12.1	12.2
2 × 2.5 RE + ECC	1	2.5	9.2	126	7.41	7.56
2 × 2.5 RM + ECC*	2	2.5	9.7	134	7.41	7.56
2 × 4 RM + ECC	2	4	10.9	187	4.61	4.70
2 × 6 RM + ECC*	2	6	12.0	251	3.08	3.11
3 × 1 RE + ECC**	1	1	7.3	81	18.1	18.2
3 × 1.5 RE + ECC	1	1.5	8.3	108	12.1	12.2
3 × 2.5 RE + ECC	1	2.5	9.7	160	7.41	7.56
3 × 4 RM + ECC	2	4	11.6	239	4.61	4.70
4 × 1 RE + ECC**	1	1	8.2	102	18.1	18.2
4 × 1.5 RE + ECC	1	1.5	9.5	138	12.1	12.2
4 × 1.5 RM + ECC*	1	1.5	10.2	147	12.1	12.2
4 × 2.5 RE + ECC	1	2.5	11.5	205	7.41	7.56
4 × 4 RM + ECC	2	4	14.6	310	4.61	4.70
7 × 1 RE**	1	0.5	10.4	150	18.1	36.7
7 × 1.5 RE	1	0.5	12.0	207	12.1	36.7
7 × 2.5 RE	1	0.5	13.9	300	7.41	36.7
12 × 1 RE**	1	0.5	13.6	247	18.1	36.7
12 × 1.5 RE	1	0.5	15.5	333	12.1	36.7
12 × 2.5 RE	1	0.5	18.3	496	7.41	36.7
19 × 1 RE*	1	0.5	15.7	356	18.1	36.7
19 × 1.5 RE	1	0.5	18.1	496	12.1	36.7

* based on norm. without certificate ** without standards

Current Ratings and Voltage Drop

Ambient air temperature: 30°C. Conductor operating temperature: 70°C.
Installation as specified in Appendix 4 of BS 7671 IEE 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
6.0	46	7.3	41	6.4

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
6.0	38	7.3	34	6.4

* with protective conductor

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

BS 7846
Cert No. 814b, 814g

FLAME-X 950 SERIES 2e

(Flame-X 950 Enhanced) **300/500V**

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

"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.

Standard length cable packing	500 or 1,000 m on drums. Other forms of packing and delivery are available on request.

CONSTRUCTION

Conductors:	Plain annealed copper solid class 1 (for 1 - 2.5 mm^2) and stranded class 2 (for 4 mm^2) acc. to BS EN 60228 and special request
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:	Helically applied aluminium / polyester 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 + ECC: brown, blue 3 core + ECC: brown, black, grey 4 core + ECC: blue, brown, black, grey

CHARACTERISTICS

Maximum conductor operating temperature:	+70°C
Minimum operating temperature (for fixed application) after installation without movement:	-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

Resistance to fire:	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 (IEC 60331) 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 EN 50200 - PH 120 BS 8434-2 - 120 min
Flame propagation:	BS EN 60332-1-2 (IEC 60332-1-2) and BS EN 50266-2-2 (IEC 60332-3-22)
Smoke density:	BS EN 61034-2 (IEC 61034-2)
Gases evolved during combustion:	BS EN 50267-2-1 (IEC 61034-2): < 0.5% acid gas BS EN 50267-2-2 (IEC 60754-2): pH³ 4.3; conductivity £ 10 µSmm^{-1}

Approvals

LPCB	1.0, 1.5, 2.5, 4 mm^2 – 2-core, 3-core, 4-core
BASEC	1.0 mm^2 – 2-core, 1.5, 2.5, 4 mm2 – 2-core, 3-core, 4-core,

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 20°C	Maximum ECC conductor resistance at 20°C
n × mm²		**mm²**	**mm**	**kg/km**	**Ω/km**	**Ω/km**
2 × 1 RE + ECC	1	1	8.1	77	18.1	18.2
2 × 1.5 RE + ECC	1	1.5	9.0	99	12.1	12.2
2 × 1.5 RM + ECC*	2	1.5	9.4	104	12.1	12.2
2 × 2.5 RE + ECC	1	2.5	10.4	142	7.41	7.56
2 × 2.5 RM + ECC*	2	2.5	10.9	148	7.41	7.56
2 × 4 RM + ECC	2	4	12.1	202	4.61	4.70
3 × 1 RE + ECC**	1	1	8.6	96	18.1	18.2
3 × 1.5 RE + ECC	1	1.5	9.6	126	12.1	12.2
3 × 2.5 RE + ECC	1	2.5	11.0	180	7.41	7.56
3 × 4 RM + ECC	2	4	12.9	258	4.61	4.70
4 × 1 RE + ECC**	1	1	9.5	121	18.1	18.2
4 × 1.5 RE + ECC	1	1.5	10.8	159	12.1	12.2
4 × 2.5 RE + ECC	1	2.5	12.8	230	7.41	7.56
4 × 2.5 RM + ECC*	2	2.5	13.7	242	7.41	7.56
4 × 4 RM + ECC	2	4	15.9	333	4.61	4.70

* based on norm, without certificate ** without standards

Current Ratings and Voltage Drop

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

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

* with protective conductor

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

BS 6387, IEC 60331-21
Cert No. 1354b, 1354d

FLAME-X 950 SERIES 3

600/1000V

Based on BS 7846, BS 6387

Fire resistant security power cable having low emission of smoke and corrosive gases when affected by fire

APPLICATIONS

Fire resistant cables for use in fixed installations in industrial areas, public buildings (as for example power plants, hospitals, shopping centres, theatres) and similar applications where maintenance of power supply during a fire is required for a defined period of time.

Standard length cable packing	500 or 1,000 m on drums. Other forms of packing and delivery are available on request.

CONSTRUCTION

Conductors:	Circular, circular compacted or shaped, stranded, annealed copper conductor, class 2 acc. to BS EN 60228
Primary insulation:	A suitable wrapping of mica tape with a glass cloth
Insulation:	Cable 1 to 16 mm^2 - special thermosetting low smoke zero halogen compound type EI5 acc. to BS 50363-5 Cable 25 to 1,000 mm^2 - cross-linked polyethylene (XLPE) of GP8 type acc. to BS 7655-1.3
Bedding:	Special low smoke zero halogen filling compound (only 2, 3, 4 cores)
Outer sheath:	Thermoplastic LSOH compound of LTS1 type acc. to BS 7655-6.1

CHARACTERISTICS

Nominal voltage:	0.6/1kV	
Colour of sheath:	Black. Other colours are available on special request.	
Core identification:	with green-yellow	without green-yellow
	1 core: green-yellow	black
	2 core: -	brown, blue
	3 core: green-yellow, blue, brown	brown, black, grey
	4 core: green-yellow, brown, black, grey	blue, brown, black, grey

Maximum conductor operating temperature:	+90°C
Lowest installation temperature:	0°C
Minimum operating temperature after installation without movement:	-40°C
Maximum short-circuit conductor temperature:	+250°C
Minimum bending radius:	6 × D for cables with circular copper conductors and 8 × D for cables with shaped copper conductors; D – overall diameter of the cable

Fire performance

Fire resistance: (additional TF test)	BS 7846 p. 17.4.2	Category **F2**
	IEC 60331-21	Circuit integrity - tested 90 min. at 950°C
	BS 6387[1)]	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
Flame propagation:	BS EN 60332-1-2	
	BS EN 60332-3-24	
Smoke density:	BS EN 61034-2	
Corrosive and acid gases emission:	BS EN 60754-1[2)]	HCl content < 0.5%
	BS EN 60754-2[2)]	pH ≥ 4.3 & conductivity ≤ 10 µSmm^{-1}

1) Category C, W, Z for cables up to and including 500 mm^2.
2) BS EN 60754-1 & BS EN 60754-2 standards replace BS EN 50267-2-1

Approvals

LPCB	1 mm^2 to 1,000 mm^2 1-core and 1 mm^2 to 16 mm^2 2-core, 3-core, 4-core

Technical and Electrical Characteristic

Number and CSA of conductor	Nominal thickness of insulation	Nominal thickness of bedding	Nominal thickness of outer sheath	Approx. overall diameter	Approx. net weight of cables	Maximum conductor resistance at 20°C	Current rating single-phase A.C. or D.C.*		Voltage Drop D.C.*	Voltage Drop single-phase A.C.*	Short circuit rating (1 sec)
							Clipped direct	Free Air			
n × mm²	**mm**	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**	**Amp**	**Amp**	**mV/A/m**	**mV/A/m**	**kA**
1 × 1 RM	0.7	-	1.4	6.4	53	18.1	19	-	46	46	0.14
1 × 1.5 RM	0.7	-	1.4	6.7	61	12.1	25	-	31	31	0.21
1 × 2.5 RM	0.7	-	1.4	7.2	74	7.41	34	-	19	19	0.35
1 × 4 RM	0.7	-	1.4	7.7	93	4.61	46	-	12	12	0.57
1 × 6 RM	0.7	-	1.4	8	113	3.08	59	-	7.9	7.9	0.85
1 × 10 RM	0.7	-	1.5	9.1	162	1.83	81	-	4.7	4.7	1.4
1 × 16 RM	0.7	-	1.5	10.2	225	1.15	109	-	2.9	2.9	2.2
1 × 25 RM	0.9	-	1.6	12.2	325	0.727	143	135	1.85	1.85	3.5
1 × 35 RM	0.9	-	1.7	13.4	426	0.524	176	169	1.35	1.35	5
1 × 50 RM	0.9	-	1.8	15.1	563	0.387	228	207	0.99	1	7.1
1 × 70 RM	1.1	-	1.9	16.9	777	0.268	298	268	0.68	0.71	10
1 × 95 RM	1.1	-	2	19.1	1042	0.193	355	328	0.49	0.52	13.5
1 × 120 RM	1.2	-	2.1	20.9	1294	0.153	413	383	0.39	0.43	17.1
1 × 150 RM	1.4	-	2.2	23.1	1586	0.124	476	444	0.32	0.36	21.4
1 × 185 RM	1.6	-	2.4	25.4	1971	0.099	545	510	0.25	0.3	26.4
1 × 240 RM	1.7	-	2.6	28.3	2527	0.075	644	607	0.19	0.25	34.3
1 × 300 RM	1.8	-	2.6	30.5	3120	0.060	743	703	0.155	0.22	42.9
1 × 400 RM	2	-	2.8	34	4013	0.047	868	823	0.12	0.2	57.2
1 × 500 RM	2.2	-	3	38	5109	0.037	990	946	0.093	0.185	71.5
1 × 630 RM	2.4	-	3.2	43	6477	0.028	1130	1088	0.072	0.175	90.1
1 × 800 RM	2.6	-	3.4	48.1	8163	0.022	1288	1214	0.056	0.17	114.4
1 × 1000 RM	2.8	-	3.6	52	10100	0.018	1443	1349	0.045	0.165	134
2 × 1 RM	0.7	0.8	1.4	11.7	185	18.1	19	21	46	46	0.14
2 × 1.5 RM	0.7	0.8	1.4	12.2	208	12.1	24	26	31	31	0.21
2 × 2.5 RM	0.7	0.8	1.4	13.1	249	7.41	33	36	19	19	0.35
2 × 4 RM	0.7	0.8	1.4	14.1	304	4.61	45	49	12	12	0.57
2 × 6 RM	0.7	0.8	1.4	14.9	361	3.08	58	63	7-Sep	7.9	0.85

Number and CSA of conductor	Nominal thickness of insulation	Nominal thickness of bedding	Nominal thickness of outer sheath	Approx. overall diameter	Approx. net weight of cables	Maximum conductor resistance at 20°C	Current rating single-phase A.C. or D.C.*		Voltage Drop D.C.*	Voltage Drop single-phase A.C.*	Short circuit rating (1 sec)
							Clipped direct	Free Air			
n × mm²	**mm**	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**	**Amp**	**Amp**	**mV/A/m**	**mV/A/m**	**kA**
2 × 10 RM	0.7	0.8	1.5	16.9	497	1.83	80	86	4.7	4.7	1.4
2 × 16 RM	0.7	0.8	1.5	18.9	670	1.15	107	115	2.9	2.9	2.2
3 × 1 RM	0.7	0.8	1.4	12.2	203	18.1	17	18	-	40	0.14
3 × 1.5 RM	0.7	0.8	1.4	12.8	231	12.1	22	23	-	27	0.21
3 × 2.5 RM	0.7	0.8	1.4	13.8	281	7.41	30	32	-	16	0.35
3 × 4 RM	0.7	0.8	1.4	14.9	350	4.61	40	42	-	10	0.57
3 × 6 RM	0.7	0.8	1.4	15.7	423	3.08	52	54	-	6.8	0.85
3 × 10 RM	0.7	0.8	1.5	17.8	593	1.83	71	75	-	4	1.4
3 × 16 RM	0.7	0.8	1.6	20.2	826	1.15	96	100	-	2.5	2.2
4 × 1 RM	0.7	0.8	1.4	13.2	233	18.1	17	18	-	40	0.14
4 × 1.5 RM	0.7	0.8	1.4	13.9	268	12.1	22	23	-	27	0.21
4 × 2.5 RM	0.7	0.8	1.4	14.9	328	7.41	30	32	-	16	0.35
4 × 4 RM	0.7	0.8	1.4	16.2	414	4.61	40	42	-	10	0.57
4 × 6 RM	0.7	0.8	1.5	17.2	513	3.08	52	54	-	6.8	0.85
4 × 10 RM	0.7	0.8	1.5	19.4	718	1.83	71	76	-	4	1.4
4 × 16 RM	0.7	0.8	1.6	22.1	1010	1.15	96	100	-	2.5	2.2

Rating factors for air temperature

Ambient air temperature, °C	25	30	35	40	45	50	55	60
Rating factors	1.02	1.0	0.96	0.91	0.87	0.82	0.76	0.71

BS 7846
Cert No. 814d; 1354c

FLAME-X 950 SERIES 4

600/1000V

BS 7846 - F2

Armoured fire resistant electric power and control cable having low emission of smoke and corrosive gases when affected by fire

APPLICATIONS

Fire resistant armoured cables for use in fixed installations in industrial areas, public buildings (as for example power plants, hospitals, shopping centres, theatres) and similar applications where maintenance of power supply during a fire is required for a defined period of time.

Standard length cable packing:	500 or 1,000 m on drums. Other forms of packing and delivery are available on request.

CONSTRUCTION

Conductors:	Circular, circular compacted or shaped, stranded, annealed copper conductor, class 2 acc. to BS EN 60228
Primary insulation:	A suitable wrapping of mica tape with a glass cloth
Insulation:	Cross-linked polyethylene (XLPE) of GP8 type acc. to BS 7655-1.3
Bedding:	Special low smoke zero halogen (LSOH) compound
Armour:	Single layer of galvanized steel wires applied helically over the bedding
Outer sheath:	Thermoplastic halogen free compound (LSOH) of LTS1 type acc. to BS 7655-6.1

CHARACTERISTICS

Colour of sheath:	Black. Other colours are available on special request.
Core identification:	2 – core: brown, blue 3 – core: brown, black, grey 4 – core: blue, brown, black, grey
Maximum conductor operating temperature:	+90°C

Lowest installation temperature:	0°C
Minimum operating temperature after installation without movement:	-40°C
Maximum short-circuit conductor temperature:	+250°C
Fire resistance:	Category F2 acc. to BS 7846, BS 6387 – Category C, W, Z
Flame propagation:	BS EN 60332-1-2, EN 60332-3-24
Low smoke emission:	BS EN 61034-2
Low corrosive and acid gas emission:	BS EN 60754-1, HCl content < 0.5% BS EN 60754-2, pH ≥ 4.3 & conductivity £ 10 µSmm-1
Minimum bending radius:	6 × D for cables with circular copper conductors and 8 × D for cables with shaped copper conductors; D – overall diameter of the cable

Approvals

BASEC	25 mm² to 400 mm² 2-core, 3-core, 4-core and 1,5 mm² to 16 mm² 2-core, 3-core, 4-core
LPCB	1,5 mm² to 400 mm² 2-core, 3-core, 4-core and 1,5 mm² to 16 mm² 2-core, 3-core, 4-core

Technical and Electrical Characteristic

Number and CSA of conductor	Nominal thickness of insulation	Nominal thickness of outer sheath	Nominal diameter of armour wires	Approx. overall diameter	Approx. net weight of cables	Maximum conductor resistance at 20°C	Current rating single-phase A.C. or D.C. *		Voltage Drop D.C.*	Voltage Drop single-phase A.C.*
							Clipped direct	Free Air		
n × mm²	**mm**	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**	**Amp**	**Amp**	**mV/A/m**	**mV/A/m**
2 × 1.5	0.6	1.3	0.9	12.8	346	12.1	27	29	31.0	31.0
2 × 2.5	0.7	1.4	0.9	14.3	420	7.41	36	39	19.0	19.0
2 × 4	0.7	1.4	0.9	15.3	491	4.61	49	52	12.0	12.0
2 × 6	0.7	1.4	0.9	16.1	554	3.08	62	66	7.9	7.9
2 × 10	0.7	1.5	0.9	18.1	712	1.83	85	90	4.7	4.7
2 × 16	0.7	1.5	1.25	20.8	1032	1.15	110	115	2.9	2.9
2 × 25	0.9	1.6	1.25	24.8	1421	0.727	146	152	1.85	1.90
2 × 25	0.9	1.6	1.25	20.8	1097	0.727	146	152	1.85	1.90

Number and CSA of conductor	Nominal thickness of insulation	Nominal thickness of outer sheath	Nominal diameter of armour wires	Approx. overall diameter	Approx. net weight of cables	Maximum conductor resistance at 20°C	Current rating single-phase A.C. or D.C. *		Voltage Drop D.C.*	Voltage Drop single-phase A.C.*
							Clipped direct	Free Air		
n × mm²	**mm**	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**	**Amp**	**Amp**	**mV/A/m**	**mV/A/m**
2 × 35	0.9	1.7	1.6	28.2	1944	0.524	180	188	1.35	1.35
2 × 35	0.9	1.7	1.6	23.5	1494	0.524	180	188	1.35	1.35
2 × 50	1.0	1.8	1.6	25.7	1830	0.387	219	228	0.98	1.00
2 × 70	1.1	1.9	1.6	28.7	2370	0.268	279	291	0.67	0.69
2 × 95	1.1	2.0	2.0	32.6	3239	0.193	338	354	0.49	0.52
2 × 120	1.2	2.1	2.0	35.1	3823	0.153	392	410	0.39	0.42
2 × 150	1.4	2.2	2.0	38.1	4534	0.124	451	472	0.31	0.35
2 × 185	1.6	2.4	2.5	42.9	5856	0.0991	515	539	0.25	0.29
2 × 240	1.7	2.5	2.5	46.7	7155	0.0754	607	636	0.195	0.24
2 × 300	1.8	2.6	2.5	50.7	8555	0.0601	698	732	0.155	0.21
3 × 1.5	0.6	1.3	0.9	13.4	377	12.1	210	23	25	27.0
3 × 2.5	0.7	1.4	0.9	15	465	7.41	350	31	33	16.0
3 × 4	0.7	1.4	0.9	16.1	544	4.61	570	42	44	10.0
3 × 6	0.7	1.4	0.9	16.9	628	3.08	850	53	56	6.8
3 × 10	0.7	1.5	1.25	19.7	944	1.83	1400	73	78	4.0
3 × 16	0.7	1.6	1.25	22.1	1215	1.15	2200	94	99	2.5
3 × 25	0.9	1.7	1.6	27.5	1887	0.727	3575	124	131	1.65
3 × 25	0.9	1.7	1.6	25	1637	0.727	3575	124	131	1.65
3 × 35	0.9	1.8	1.6	30	2314	0.524	5005	154	162	1.15
3 × 35	0.9	1.8	1.6	27.4	2025	0.524	5005	154	162	1.15
3 × 50	1.0	1.8	1.6	29.8	2472	0.387	7150	187	197	0.87
3 × 70	1.1	1.9	1.6	33.5	3237	0.268	10010	238	251	0.60
3 × 95	1.1	2.1	2.0	38	4434	0.193	13585	289	304	0.45
3 × 120	1.2	2.2	2.0	41.1	5287	0.153	17160	335	353	0.37
3 × 150	1.4	2.3	2.5	46.5	6768	0.124	21450	386	406	0.30
3 × 185	1.6	2.4	2.5	50.4	8094	0.0991	26455	441	463	0.26
3 × 240	1.7	2.6	2.5	55.4	10053	0.0754	34320	520	546	0.21
3 × 300	1.8	2.7	2.5	60.2	11949	0.0601	42900	599	628	0.185

Number and CSA of conductor	Nominal thickness of insulation	Nominal thickness of outer sheath	Nominal diameter of armour wires	Approx. overall diameter	Approx. net weight of cables	Maximum conductor resistance at 20°C	Current rating single-phase A.C. or D.C. *		Voltage Drop D.C.*	Voltage Drop single-phase A.C.*
							Clipped direct	Free Air		
n × mm²	**mm**	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**	**Amp**	**Amp**	**mV/A/m**	**mV/A/m**
3 × 400	2.0	2.9	2.5	66.8	14895	0.0470	57200	673	728	0.165
4 × 1.5	0.6	1.3	0.9	14.4	422	12.1	210	23	25	27.0
4 × 2.5	0.7	1.4	0.9	16.1	522	7.41	350	31	33	16.0
4 × 4	0.7	1.4	0.9	17.4	628	4.61	570	42	44	10.0
4 × 6	0.7	1.5	1.25	19.1	848	3.08	850	53	56	6.8
4 × 10	0.7	1.5	1.25	21.3	1091	1.83	1400	73	78	4.0
4 × 16	0.7	1.6	1.25	24	1440	1.15	2200	94	99	2.5
4 × 25	0.9	1.7	1.6	29.9	2240	0.727	3575	124	131	1.65
4 × 25	0.9	1.7	1.6	27.7	2028	0.727	3575	124	131	1.65
4 × 35	0.9	1.8	1.6	32.6	2769	0.524	5005	154	162	1.15
4 × 35	0.9	1.8	1.6	30.3	2491	0.524	5005	154	162	1.15
4 × 50	1.0	1.9	1.6	33.3	3111	0.387	7150	187	197	0.87
4 × 70	1.1	2.1	2.0	38.9	4418	0.268	10010	238	251	0.60
4 × 95	1.1	2.2	2.0	42.6	5607	0.193	13585	289	304	0.45
4 × 120	1.2	2.3	2.5	47.9	7216	0.153	17160	335	353	0.37
4 × 150	1.4	2.4	2.5	51.9	8559	0.124	21450	386	406	0.30
4 × 185	1.6	2.6	2.5	56.6	10275	0.0991	26455	441	463	0.26
4 × 240	1.7	2.7	2.5	62.4	12855	0.0754	34320	520	546	0.21
4 × 300	1.8	2.9	2.5	67.4	15307	0.0601	42900	599	628	0.185
4 × 400	2.0	3.2	3.15	77.0	19826	0.0470	57200	673	728	0.165

MAX +90°C | UV | RoHS | I | III | U | F120

BS 7846
Cert No. 1354a

FLAME-X 950 SERIES 6

600/1000V

BS 7846 - F120

Armoured fire resistant electric power and control cable having low emission of smoke and corrosive gases when affected by fire

APPLICATIONS

Enhanced fire resistant armoured cables for use in life safety and fire fighting systems of public buildings (hospitals, shopping centres, theatres, stadiums) and similar applications where maintenance of power supply during a fire is critical.

Standard length cable packing:	500 or 1,000 m on drums. Other forms of packing and delivery are available on request.

CONSTRUCTION

Conductors:	Circular, circular compacted or shaped stranded, annealed copper conductor, class 2 acc. to BS EN 60228
Primary insulation:	Fire resistant mica tape with a glass cloth
Insulation:	Cross-linked polyethylene (XLPE) of GP8 type acc. to BS 7655-1.3
Cable core:	Insulated conductors twisted together wrapped by fire resistance tape (optional also by polyester film)
Bedding:	Thermoplastic zero halogen low smoke compound (LSOH) wrapped by fire resistance tape
Armour:	Galvanized steel wires applied helically (optional polyester film over the armour)
Outer sheath:	Thermoplastic zero halogen low smoke compound of LTS1 type acc. to BS 7655-6.1

CHARACTERISTICS

Colour of sheath:	Black. Other colours are available on special request.
Core identification:	2 – core: brown, blue 3 – core: brown, black, grey 4 – core: blue, brown, black, grey
Maximum conductor operating temperature	+90°C
Lowest installation temperature:	0°C
Minimum operating temperature after installation without movement:	-40°C
Maximum short-circuit conductor temperature:	+250°C
Minimum bending radius:	6 × D for cables with circular copper conductors 8 × D for cables with shaped copper conductors D – overall diameter

Fire performance

Fire resistance:	BS 8491	Category F120
	BS 8519	Category 1, 2 and 3
Flame propagation:	BS EN 60332-1-2	
	BS EN 60332-3-24	
Smoke density:	BS EN 61034-2	
Corrosive and acid gases emission:	BS EN 60754-1[1)]	HCl content < 0.5%
	BS EN 60754-2[1)]	pH ≥ 4.3 & conductivity ≤ 10 μSmm^{-1}

1) BS EN 60754-1 & BS EN 60754-2 standards replace BS EN 50267-2-1

Approvals

BASEC	4 mm^2 to 16 mm^2 3-core, 4-core and 25 mm^2 to 400 mm^2 2-core, 3-core, 4-core;
LPCB	4 mm^2 to 16 mm^2 3-core, 4-core and 25 mm^2 to 400 mm^2 3-core, 4-core

Technical and Electrical Characteristic

Number and CSA of conductor	Nominal thickness of insulation	Nominal thickness of outer sheath	Nominal diameter of armour wires	Approx. overall diameter	Approx. net weight of cables	Maximum conductor resistance at 20°C	Current rating single-phase A.C. or D.C. *		Voltage Drop D.C.*	Voltage Drop single-phase A.C.*
							Clipped direct	Free Air		
n × mm²	**mm**	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**	**Amp**	**Amp**	**mV/A/m**	**mV/A/m**
2 × 4 RM	0.7	1.4	1.25	20.1	712	4.61	49	52	12.0	12.0
2 × 6 RM	0.7	1.4	1.25	20.1	744	3.08	62	66	7.9	7.9
2 × 10 RM	0.7	1.5	1.25	20.9	839	1.83	85	90	4.7	4.7
2 × 16 RM	0.7	1.5	1.25	22.9	1027	1.15	110	115	2.9	2.9
2 × 25 RM	0.9	1.6	1.25	26.4	1425	0.727	146	152	1.85	1.90
2 × 35 RM	0.9	1.7	1.6	29.8	1929	0.524	180	188	1.35	1.35
2 × 50 SM	1.0	1.8	1.6	27.1	1963	0.387	219	228	0.98	1.00
2 × 70 SM	1.1	1.9	1.6	31.0	2552	0.268	279	291	0.67	0.69
2 × 95 SM	1.1	2.0	2.0	34.0	3392	0.193	338	354	0.49	0.52
2 × 120 SM	1.2	2.1	2.0	36.5	4014	0.153	392	410	0.39	0.42
2 × 150 SM	1.4	2.2	2.0	39.5	4717	0.124	451	472	0.31	0.35
2 × 185 SM	1.6	2.4	2.5	44.3	6069	0.0991	515	539	0.25	0.29
2 × 240 SM	1.7	2.5	2.5	48.1	7390	0.0754	607	636	0.195	0.24
2 × 300 SM	1.8	2.6	2.5	52.1	8772	0.0601	698	732	0.155	0.21
2 × 400 SM	2.0	2.8	2.5	59.6	11120	0.047	787	847	0.120	0.19
3 × 4 RM	0.7	1.4	1.25	20.2	832	4.61	570	42	44	10.0
3 × 6 RM	0.7	1.4	1.25	20.1	803	3.08	850	53	56	6.8
3 × 10 RM	0.7	1.5	1.25	21.8	985	1.83	1400	73	78	4.0
3 × 16 RM	0.7	1.6	1.25	24.2	1241	1.15	2200	94	99	2.5
3 × 25 RM	0.9	1.7	1.6	29.1	1930	0.727	3575	124	131	1.65
3 × 35 RM	0.9	1.8	1.6	31.6	2328	0.524	5005	154	162	1.15
3 × 50 SM	1.0	1.8	1.6	31.2	2629	0.387	7150	187	197	0.87
3 × 70 SM	1.1	1.9	1.6	34.9	3394	0.268	10010	238	251	0.60
3 × 95 SM	1.1	2.1	2.0	39.4	4617	0.193	13585	289	304	0.45
3 × 120 SM	1.2	2.2	2.0	42.5	5486	0.153	17160	335	353	0.37
3 × 150 SM	1.4	2.3	2.5	47.9	7003	0.124	21450	386	406	0.30
3 × 185 SM	1.6	2.4	2.5	51.8	8352	0.0991	26455	441	463	0.26

Number and CSA of conductor	Nominal thickness of insulation	Nominal thickness of outer sheath	Nominal diameter of armour wires	Approx. overall diameter	Approx. net weight of cables	Maximum conductor resistance at 20°C	Current rating single-phase A.C. or D.C. *		Voltage Drop D.C.*	Voltage Drop single-phase A.C.*
							Clipped direct	Free Air		
n × mm²	**mm**	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**	**Amp**	**Amp**	**mV/A/m**	**mV/A/m**
3 × 240 SM	1.7	2.6	2.5	56.8	10299	0.0754	34320	520	546	0.21
3 × 300 SM	1.8	2.7	2.5	61.6	12262	0.0601	42900	599	628	0.185
3 × 400 SM	2.0	2.9	2.5	68.9	15520	0.0470	57200	673	728	0.165
4 × 4 RM	0.7	1.4	1.25	20.1	869	4.61	570	42	44	10.0
4 × 6 RM	0.7	1.5	1.25	21.2	906	3.08	850	53	56	6.8
4 × 10 RM	0.7	1.5	1.25	23.4	1140	1.83	1400	73	78	4.0
4 × 16 RM	0.7	1.6	1.25	26.1	1466	1.15	2200	94	99	2.5
4 × 25 RM	0.9	1.7	1.6	31.5	2261	0.727	3575	124	131	1.65
4 × 35 RM	0.9	1.8	1.6	34.2	2752	0.524	5005	154	162	1.15
4 × 50 SM	1.0	1.9	1.6	34.7	3271	0.387	7150	187	197	0.87
4 × 70 SM	1.1	2.1	2.0	40.3	4605	0.268	10010	238	251	0.60
4 × 95 SM	1.1	2.2	2.0	44.0	5789	0.193	13585	289	304	0.45
4 × 120 SM	1.2	2.3	2.5	49.3	7460	0.153	17160	335	353	0.37
4 × 150 SM	1.4	2.4	2.5	53.3	8785	0.124	21450	386	406	0.30
4 × 185 SM	1.6	2.6	2.5	58.0	10528	0.0991	26455	441	463	0.26
4 × 240 SM	1.7	2.7	2.5	63.8	13141	0.0754	34320	520	546	0.21
4 × 300 SM	1.8	2.9	2.5	68.8	15622	0.0601	42900	599	628	0.185

TFKable

Wiring Cables

6491X/H07V-U
6491X/H07V-R

450/750V

BS EN 50525-2-31

Single core PVC insulated non sheathed cables for general purposes

APPLICATIONS

Installation in surface mounted or embedded conduits, or similar closed systems. Suitable for fixed protected installation in, or on, lighting or controlgear for voltages up to 1000V a.c. or, up to 750V d.c. to earth.

Standard length cable packing:	50 m of 100 m in rings or on spools, or 500 m on drums. Other forms of packing and delivery are available on request.

CONSTRUCTION

Conductors:	Annealed copper conductor class 1 solid (H07V-U), class 2 stranded (H07V-R)
Primary insulation:	PVC compound type TI 1
Colour of insulation:	green/yellow, blue, black, brown, grey, orange, pink, red, turquoise, violet, white

CHARACTERISTICS

Maximum conductor operating temperature:	+70°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-5°C
Maximum short-circuit conductor temperature:	+160°C
Test voltage:	2500V

Fire performance

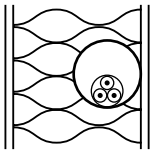
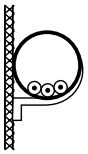
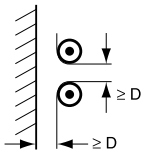
Flame retardant:	EN 60332-1-2
CPR – class reaction to fire (acc EN 50575):	Eca

Technical and Electrical Characteristics

Number and cross-sectional area of conductor	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C	Minimum insulation resistance at temperature 70°C
n × mm²	**mm**	**kg/km**	**Ω/km**	**MΩ.km**
H07V-U				
1,5	2,7	20	12,1	0,011
2,5	3,3	31	7,41	0,010
4	3,7	45	4,61	0,0087
6	4,2	63	3,08	0,0074
10	5,4	105	1,83	0,0072
H07V-R				
1,5	3,0	21	12,1	10
2,5	3,6	33	7,41	0,0099
4	4,1	48	4,61	0,0082
6	4,5	66	3,08	0,0070
10	5,8	110	1,83	0,0067
16	6,8	167	1,15	0,0056
25	8,5	262	0,727	0,0053
35	9,6	353	0,524	0,0046
50	11,3	480	0,387	0,0046
70	12,6	672	0,268	0,0040
95	15,0	932	0,193	0,0039
120	16,4	1158	0,153	0,0035
150	18,4	1432	0,124	0,0035
185	20,3	1789	0,0991	0,0035
240	23,2	2325	0,0754	0,0034

Current ratings acc. to IEC 60364-5-523

Permissible operating temperature at conductor: 70°C; ambient temperature: 30°C

Cross-sectional area of conductor					
	Single core cables in insulating tubes, in a thermally insulated walls		Single core cables in insulating tubes on a wall		In open air *
Number of loaded cores	2	3	2	3	1
Cross-section, mm²	**Current ratings in Ampere (A)**				
1	-	-	-	-	19
1,5	14,5	13,5	17,5	15,5	24
2,5	19,5	18	24	21	32
4	26	24	32	28	42
6	34	31	41	36	54
10	46	42	57	50	73
16	61	56	76	68	98
25	80	73	101	89	129
35	99	89	125	110	158
50	119	108	151	134	198
70	151	136	192	171	245
95	182	164	232	207	292
120	210	188	269	239	344
150	240	216	-	-	391
185	273	245	-	-	448
240	321	286	-	-	528

* Current rating acc. to VDE 0298-4, ambient temperature: 30°C

Convention factors for deviating ambient temperature

Ambient Temperature, °C	10	15	20	25	30	35	40	45	50	55	60
Conversion factors	1,22	1,17	1,12	1,06	1,00	0,94	0,87	0,79	0,71	0,61	0,50

6491B/H07Z-U 6491B/H07Z-R

450/750V

BS EN 50525-3-41

Single core non-sheathed cables with low emission of smoke and corrosive gases

APPLICATIONS

Single core, non-sheathed cables are suitable particularly for situations in which low emission of smoke and corrosive gases is required in the case of burning.
Single core, non-sheathed cables are intended for installation in surface mounted or embedded conduits, or similar closed systems. Suitable for fixed protected installation in, or on, lighting and control gear for voltages up to 1000 V a.c. or, up to 750V d.c .to earth

Standard length cable packing	50 m of 100 m in rings or on spools, or 500 m on drums. Other forms of packing and delivery are available on request.

CONSTRUCTION

Conductors:	annealed copper conductor class 1 solid (H07Z-U), class 2 stranded (H07Z-R) acc. to EN 60228
Insulation:	special thermosetting low smoke zero halogen compound type EI5 acc. to EN 50363-5
Colour of insulation:	green/yellow, blue, black, brown, grey, orange, pink, red, turquoise, violet, white

CHARACTERISTICS

Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-5°C
Maximum short-circuit conductor temperature:	+250°C
Test voltage:	2500V
Flame propagation	EN 60332-1-2, EN 60332-3-24
Smoke emission:	EN 61034-2
Corrosive and acid gas emission of insulation:	BS EN 60754-2, pH ≥ 4,3 & conductivity ≤ 10 μSmm^{-1} BS EN 60754-1, HCL ≤ 0,5%

Approvals

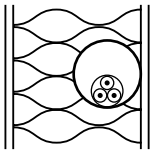
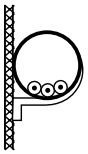
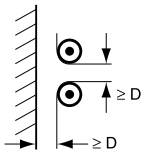
BASEC

Technical and Electrical Characteristics

Number and cross-sectional area of conductor	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C	Minimum insulation resistance at temperature 90°C
n × mm²	**mm**	**kg/km**	**Ω/km**	**MΩ.km**
H07Z-U				
1,5	2,8	19	12,1	0,011
2,5	3,3	30	7,41	0,010
4	3,8	45	4,61	0,0085
6	4,3	63	3,08	0,0070
10	5,5	105	1,83	0,0070
H07Z-R				
1,5	3,0	21	12,1	0,010
2,5	3,6	32	7,41	0,0090
4	4,1	47	4,61	0,0077
6	4,7	67	3,08	0,0065
10	6,0	111	1,83	0,0065
16	7,0	168	1,15	0,0050
25	8,7	263	0,727	0,0050
35	9,8	356	0,524	0,0043
50	11,6	478	0,387	0,0043
70	13,3	674	0,268	0,0035
95	15,6	932	0,193	0,0035
120	17,2	1155	0,153	0,0032
150	18,4	1421	0,124	0,0032
185	20,3	1774	0,0991	0,0032
240	23,2	2307	0,0754	0,0032
300	25,4	2886	0,0601	0,0030

Current ratings acc. to IEC 60364-5-523

Permissible operating temperature at conductor: 90°C; ambient temperature: 30°C

Cross-sectional area of conductor					
	Single core cables in insulating tubes, in a thermally insulated walls		Single core cables in insulating tubes on a wall		In open air *
Number of loaded cores	2	3	2	3	1
Cross-section, mm²	**Current ratings in Ampere (A)**				
1,5	19	17	23	20	24
2,5	26	23	31	28	32
4	35	31	42	37	42
6	45	40	54	48	54
10	61	54	75	66	73
16	81	73	100	88	98
25	106	95	133	117	129
35	131	117	164	144	158
50	158	141	198	175	198
70	200	179	253	222	245
95	241	216	306	269	292
120	278	249	354	312	344
150	318	285	-	-	391
185	362	324	-	-	448
240	424	380	-	-	528
300	486	435	-	-	608

* Current rating acc. to VDE 0298-4, ambient temperature: 30°C

Convention factors for deviating ambient temperature

Ambient Temperature, °C	10	15	20	25	35	40	45	50	55	60	65
Conversion factors	1,15	1,12	1,08	1,04	0,96	0,91	0,87	0,82	0,76	0,71	0,65

6241Y, 6242Y, 6243Y

300/500V

BS 6004:2012 table 4

PVC insulated and PVC sheathed flat cable with circuit protective conductor (CPC)

APPLICATIONS

for fixed installation in dry or damp premises. Suitable for installation in walls, on boards and in channels or embedded in plaster.

Standard length cable packing	100 m coils or 500 m on drums. Other forms of packing and delivery are available on request.

CONSTRUCTION

Conductors:	Annealed copper, solid class 1 (RE) or stranded conductor class 2 (RM) acc. to BS EN 60228
Insulation:	Special PVC compound type TI1 acc. to BS EN 50363-3
Sheath:	Special PVC compound type 6 acc. to BS 7655-4.2

CHARACTERISTICS

Colour of sheath:	grey, white or other agreed
Core identification:	single core: brown or blue twin core: brown and blue, or for 2 x 1,0 and 2 x 1,5 cables , brown and brown 3-core: brown, black (centre core) and grey
Maximum conductor operating temperature:	+70°C
Lowest ambient temperature for fixed installation:	-30°C
Lowest installation temperature:	-5°C
Maximum short-circuit conductor temperature:	+160°C
Minimum bending radius:	6 × D, D – overall diameter
Test voltage:	2000V

Reaction to fire

Flame retardant:	EN 60332-1-2
CPR – reaction to fire class (acc. to EN 50575):	Eca

Approvals

BASEC

Technical and Electrical Characteristics

Number and cross-sectional area of conductor	Number of wires in conductor	Nominal thickness of insulation	Nominal thickness of sheath	Cross-sectional area of protective conductor	Approximate overall dimensions	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C
n × mm²	**n**	**mm**	**mm**	**mm²**	**mm x mm**	**kg/km**	**Ω/km**
1x1RE	1	0,6	0,9	1RE	4,1x5,2	43	18,1/18,1
1x1,5RE	1	0,7	0,9	1RE	4,6x5,7	52	12,1/18,1
2x1RE	1	0,6	0,9	1RE	4,1x7,5	65	18,1/18,1
2x1,5RE	1	0,7	0,9	1RE	4,8x8,4	83	12,1/18,1
2x2,5RE	1	0,8	1,0	1,5RE	5,3x10,0	121	7,41/12,1
2x4RM	7	0,8	1,0	1,5RE	6,1x11,6	156	4,61/12,1
2x6RM	7	0,8	1,1	2,5RE	6,7x12,9	222	3,08/7,41
2x10RM	7	1,0	1,2	4RM	8,2x16,5	357	1,83/4,61
2x16RM	7	1,0	1,3	6RM	9,4x19,1	516	1,15/3,08
3x1RE	1	0,6	0,9	1RE	4,1x9,8	88	18,1/18,1
3x1,5RE	1	0,7	0,9	1RE	4,6x11,2	113	12,1/18,1
3x2,5RE	1	0,8	1,0	1,5RE	5,3x13,4	167	7,41/12,1
3x4RM	7	0,8	1,1	1,5RE	6,1x15,7	233	4,61/12,1
3x6RM	7	0,8	1,1	2,5RE	6,7x17,4	311	3,08/7,41
3x10RM	7	1,0	1,2	4RM	8,2x22,2	501	1,83/4,61
3x16RM	7	1,0	1,3	6RM	9,4x25,9	727	1,15/3,08

6241B, 6242B, 6243B

300/500V

BS 7211:2012 table 5

Thermosetting insulated and LSOH sheathed flat cable with circuit protective conductor (CPC), low smoke halogen free

APPLICATIONS

for fixed installation in dry or damp premises. Suitable for installation in walls, on a wall or ceiling, or embedded in plaster. Particularly for situations in which low emission of smoke and corrosive gases is required in the case of burning. These cable are not intended to provide circuit integrity in case of fire.

Standard length cable packing	100 m coils or 500 m on drums. Other forms of packing and delivery are available on request.

CONSTRUCTION

Conductors:	Annealed copper, solid class 1 (RE) or stranded conductor class 2 (RM) acc. to BS EN 60228
Insulation:	Thermosetting compound XLPE type GP8 acc. to BS 7655-1.3
Sheath:	LSOH compound type LTS2 acc. to BS 7655-6.1

CHARACTERISTICS

Colour of sheath:	white or other agreed
Core identification:	single core: brown or blue twin core: brown and blue, or for 2 x 1,0 and 2 x 1,5 cables , brown and brown 3-core: brown, black (centre core) and grey
Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-30°C
Lowest installation temperature:	-5°C
Maximum short-circuit conductor temperature:	+250°C
Minimum bending radius:	6 × D, D – overall diameter
Test voltage:	2000V

Fire performance

Flame retardant:	EN 60332-1-2, EN 60332-3-24
CPR – class reaction to fire (acc EN 50575):	Dca-s2,d1,a1
Corrosive and acid gas emission:	BS EN 60754-2, pH ≥ 4,3 & conductivity ≤ 10 μSmm^{-1} BS EN 60754-1, HCL ≤ 0,5%
Smoke emission:	BS EN 61034-2

Approvals

BASEC

Technical and Electrical Characteristics

Number and cross-sectional area of conductor	Number of wires in conductor	Nominal thickness of insulation	Nominal thickness of sheath	Cross-sectional area of protective conductor	Approximate overall dimensions	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C
n × mm²	**n**	**mm**	**mm**	**mm²**	**mm x mm**	**kg/km**	**Ω/km**
1x1RE	1	0,7	0,9	1RE	4,3x5,7	42	18,1/18,1
1x1,5RE	1	0,7	0,9	1RE	4,6x5,7	48	12,1/18,1
2x1RE	1	0,7	0,9	1RE	4,3x7,9	64	18,1/18,1
2x1,5RE	1	0,7	0,9	1RE	4,6x8,4	76	12,1/18,1
2x2,5RE	1	0,7	1,0	1,5RE	5,1x9,6	107	7,41/12,1
2x4RM	7	0,7	1,0	1,5RE	5,9x11,2	148	4,61/12,1
2x6RM	7	0,7	1,1	2,5RE	6,5x12,5	202	3,08/7,41
2x10RM	7	0,7	1,2	4RM	7,6x15,3	313	1,83/4,61
2x16RM	7	0,7	1,3	6RM	8,8x17,9	464	1,15/3,08
3x1RE	1	0,7	0,9	1RE	4,3x10,4	85	18,1/18,1
3x1,5RE	1	0,7	0,9	1RE	4,6x11,2	103	12,1/18,1
3x2,5RE	1	0,7	1,0	1,5RE	5,1x12,8	141	7,41/12,1

Electrical Characteristics

Number and cross-sectional area of conductor	Current rating single-phase A.C. or D.C. *				Voltage Drop DC	Voltage Drop single-phase AC
	Enclosed in conduit in thermally insulating wall	Enclosed in conduit on a wall or in trunking	Clipped direct	Free air or on a perforated cable tray etc, horizontal or vertical		
n × mm²	**Amp**	**Amp**	**Amp**	**Amp**	**mV/A/m**	**mV/A/m**
1x1RE	14,5	17	19	21	46	46
1x1,5RE	18,5	22	24	26	31	31
2x1RE	14,5	17	19	21	46	46
2x1,5RE	18,5	22	24	26	31	31
2x2,5RE	25	30	33	36	19	19
2x4RM	33	40	45	49	12	12
2x6RM	42	51	58	63	7,9	7,9
2x10RM	57	69	80	86	4,7	4,7
2x16RM	76	91	107	115	2,9	2,9
3x1RE	13	15	17	18	-	40
3x1,5RE	16,5	19,5	22	23	-	27
3x2,5RE	22	26	30	32	-	16

*acc to BS 7671 table 4E2A & 4E2B

6181Y

300/500V

Double Insulated Surface Wiring Cable

APPLICATIONS

Fixed Installation in dry or damp areas for domestic and light industrial wiring

Standard length cable packing	500 m or 1000 m on drums. Other forms of packing and delivery are available on request.

CONSTRUCTION

Conductors:	Annealed copper, solid class 1 (RE) or stranded conductor class 2 (RM) acc. to BS EN 60228
Insulation:	Special PVC compound type TI1 acc. to BS EN 50363-3
Sheath:	Special PVC compound type 6 acc. to BS 7655-4.2

CHARACTERISTICS

Colour of sheath:	grey, blue, brown, white or other agreed
Core identification:	brown or blue
Maximum conductor operating temperature:	+70°C
Lowest ambient temperature for fixed installation:	-30°C
Lowest installation temperature:	-5°C
Maximum short-circuit conductor temperature:	+160°C
Minimum bending radius:	6 × D, D – overall diameter
Test voltage:	2000V

Fire performance

Flame retardant:	EN 60332-1-2
CPR – class reaction to fire (acc EN 50575):	Eca

Approvals

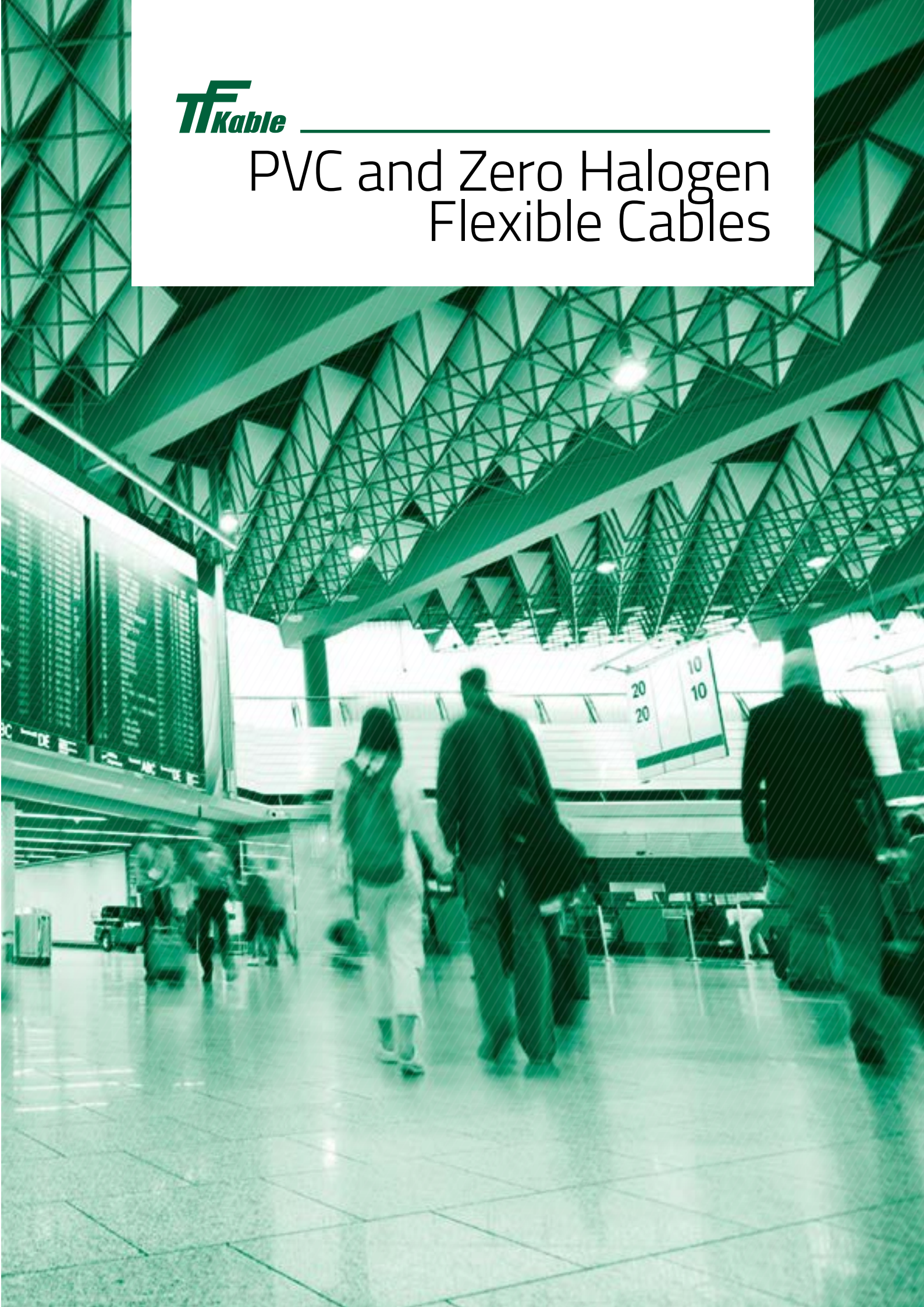
BASEC

Technical and Electrical Characteristics

Number and cross-sectional area of conductor	Class of conductor	Nominal thickness of insulation	Nominal thickness of sheath	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C
n × mm²		**mm**	**mm**	**mm**	**kg/km**	**Ω/km**
1x1RE	1	0,6	0,8	3,9	26	18,1
1x1,5RE	1	0,7	0,8	4,4	34	12,1
1x2,5RE	1	0,8	0,8	4,9	47	7,41
1x4RM	2	0,8	0,9	5,9	71	4,61
1x6RM	2	0,8	0,9	6,3	90	3,08
1x10RM	2	1,0	0,9	7,6	140	1,83
1x16RM	2	1,0	1,0	8,8	206	1,15
1x25RM	2	1,2	1,1	10,7	314	0,727
1x35RM	2	1,2	1,1	11,8	411	0,524

TFKable

PVC and Zero Halogen Flexible Cables



FIX +70°C -40°C | MIN -5°C | CE | RoHS | CPR Eca

218-Y, H03VV-F, 03VV-F*
219-Y, H03VVH2-F, 03VVH2-F*
300/300V

BS EN 50525-2-11

PVC insulated and sheathed flexible cords

APPLICATIONS

In domestic premises, kitchens, offices; for household appliances, including in damp premises; for medium duties (eg. washing machines, spin dryers, and refrigerators).

Standard length cable packing	500 or 1000 m on drums. Other forms of packing and delivery are available on request.

CONSTRUCTION

Conductors:	Annealed copper, class 5 flexible conductor acc. to EN 60228
Insulation:	PVC type TI2
Sheath:	PVC type TM2

CHARACTERISTICS

Colour of sheath:	white, black, grey
Core identification:	2-core: blue, brown 3-core: green-yellow, blue, brown 4-core: green-yellow, brown, black, grey 5-core*: green-yellow, blue, brown, black, grey
Maximum conductor operating temperature:	+70°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-5°C
Maximum short-circuit conductor temperature:	+150°C
Minimum bending radius:	6 × D, D – overall diameter
Test voltage:	2000V

*based on norm

Fire performance

Flame retardant:	EN 60332-1-2
CPR – class reaction to fire (acc. EN 50575):	Eca

Approvals

BASEC

Technical and Electrical Characteristics

Number and cross-sectional area of conductor	Maximum diameter of wires in conductor	Nominal thickness of insulation	Nominal thickness of sheath	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C
n × mm²	**mm**	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**
H03VV-F, 03VV-F*						
2x0,5	0,21	0,5	0,6	5,0	34	39,0
2x0,75	0,21	0,5	0,6	5,4	41	26,0
2x1*	0,21	0,5	0,6	5,6	47	19,5
2x1,5*	0,25	0,5	0,9	6,8	70	13,3
3x0,5	0,21	0,5	0,6	5,3	40	39,0
3x0,75	0,21	0,5	0,6	5,7	50	26,0
3x1*	0,21	0,5	0,6	5,9	58	19,5
3x1,5*	0,25	0,5	0,9	7,2	85	13,3
4x0,5	0,21	0,5	0,6	5,8	49	39,0
4x0,75	0,21	0,5	0,6	6,3	61	26,0
5x0,5*	0,21	0,5	0,7	6,56	62	26,0
5x0,75*	0,21	0,5	0,7	7,1	79	26,0
H03VVH2-F, 03VVH2-F*						
2x0,5	0,21	0,5	0,6	3,1 x 5,1	25	39,0
2x0,75	0,21	0,5	0,6	3,3 x 5,4	31	26,0
2x1*	0,21	0,5	0,6	3,4 x 5,6	36	19,5
2x1,5*	0,25	0,6	0,8	4,3 x 7,0	55	13,3

*based on norm

Current rating

Cross-section	Current ratings	
	Single phase	Three phase
mm²	**A**	**A**
0,5	3	3
0,75	6	6

These values apply to the majority of cases. Further information should be sought in unusual cases e.g.:

- when high ambient temperatures are involved, ie. above 30°C
- where long lengths are used
- where ventilation is restricted

where the cords are used for other purposes, eg. internal wiring of apparatus.

MAX+90°C MIN -5°C CE RoHS

209-Y, H03V2V2-F, 03V2V2-F* H03V2V2H2-F

300/300V

BS EN 50525-2-11

Heat resistant PVC insulated and sheathed flexible cords

APPLICATIONS

In domestic premises, kitchens, offices; in high ambient temperatures for household appliances, including in damp premises; for medium duties (eg. washing machines, spin dryers, and refrigerators).

Standard length cable packing	500 or 1000 m on drums. Other forms of packing and delivery are available on request.

CONSTRUCTION

Conductors:	Annealed copper, class 5 flexible conductor acc. to EN 60228
Insulation:	Heat resistant PVC 90°C type TI3
Sheath:	Heat resistant PVC 90°C type TM3

CHARACTERISTICS

Colour of sheath:	white, black, grey
Core identification:	2-core: blue, brown 3-core: green-yellow, blue, brown 4-core: green-yellow, brown, black, grey
Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-30°C
Lowest installation temperature:	-5°C
Maximum short-circuit conductor temperature:	+150°C
Minimum bending radius:	6 × D, D – overall diameter
Max. permissible tensile stress with cable grip for Cu-conductor:	50 N/mm²
Test voltage:	2000V

Fire performance

Flame retardant:	EN 60332-1-2

Technical and Electrical Characteristics

Number and cross-sectional area of conductor	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C
n × mm²	**mm**	**kg/km**	**Ω/km**
H03V2V2-F, 03V2V2-F*			
2 x 0.5	5	34	39
2 x 0.75	5.4	42	26
2 x 1*	5.6	48	19.5
H03V2V2-F, 03V2V2-F*			
3 x 0.5	5.3	41	39
3 x 0.75	5.7	50	26
3 x 1*	5.9	58	19.5
4 x 0.5	5.8	49	39
4 x 0.75	6.3	62	26
4 x 1*	6.7	75	19.5
H03V2V2H2-F			
2 x 0.5	3.1 x 5.0	26	39
2 x 0.75	3.3 x 5.4	32	26

*based on norm

Current rating

Cross-section	Current ratings	
	Single phase	Three phase
mm²	**A**	**A**
0,5	3	3
0,75	6	6
1	10	10

For ambient temperature 30°C

FIX +70°C -40°C | MIN -5°C | CE | RoHS | CPR Eca

318-Y, H05VV-F, 05VV-F*
319-Y, H05VVH2-F, 05VVH2-F*
300/500V

BS EN 50525-2-11,

PVC insulated and sheathed flexible cords

APPLICATIONS

In domestic premises, kitchens, offices; for household appliances, including in damp premises; for medium duties (eg. washing machines, spin dryers, and refrigerators).

Standard length cable packing	500 or 1000 m on drums. Other forms of packing and delivery are available on request.

CONSTRUCTION

Conductors:	Annealed copper, class 5 flexible conductor acc. to EN 60228
Insulation:	PVC type TI2
Sheath:	PVC type TM2

CHARACTERISTICS

Colour of sheath:	white, black-UV resistant, grey
Core identification:	2-core: blue, brown 3-core: green-yellow, blue, brown 4-core: green-yellow, brown, black, grey 5-core*: green-yellow, blue, brown, black, grey 6 and more: green-yellow, + core black with white numbering
Maximum conductor operating temperature:	+70°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-5°C
Maximum short-circuit conductor temperature:	+150°C
Minimum bending radius:	6 × D, D – overall diameter
Test voltage:	2000V

Fire performance

Flame retardant:	EN 60332-1-2
CPR – class reaction to fire (acc. EN 50575):	Eca

Technical and Electrical Characteristics

Number and cross-sectional area of conductor	Maximum diameter of wires in conductor	Nominal thickness of insulation	Nominal thickness of sheath	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C
n × mm²	**mm**	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**
H05VV-F, 05VV-F*						
2x0,5*	0,21	0,6	0,8	5,8	43	39,0
2x0,75	0,21	0,6	0,8	6,2	51	26,0
2x1	0,21	0,6	0,8	6,4	57	19,5
2x1,5	0,26	0,7	0,8	7,4	78	13,3
2x2,5	0,26	0,8	1,0	9,2	122	7,98
2x4	0,31	0,8	1,1	10,3	165	4,95
2x6*	0,31	0,8	1,2	11,7	223	3,30
3x0,5*	0,21	0,6	0,8	6,1	50	39,0
3x0,75	0,21	0,6	0,8	6,6	61	26,0
3x1	0,21	0,6	0,8	6,8	69	19,5
3x1,5	0,26	0,7	0,9	8,1	98	13,3
3x2,5	0,26	0,8	1,1	9,9	153	7,98
3x4	0,31	0,8	1,2	11,1	209	4,95
3x6*	0,31	0,8	1,2	12,4	279	3,30
4x0,5*	0,21	0,6	0,8	6,7	60	39,0
4x0,75	0,21	0,6	0,8	7,2	73	26,0
4x1	0,21	0,6	0,9	7,6	87	19,5
4x1,5	0,26	0,7	1	9,0	124	13,3
4x2,5	0,26	0,8	1,1	10,8	187	7,98
4x4	0,31	0,8	1,2	12,2	257	4,95
4x6*	0,31	0,8	1,3	13,8	351	3,30

Number and cross-sectional area of conductor	Maximum diameter of wires in conductor	Nominal thickness of insulation	Nominal thickness of sheath	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C
n × mm²	**mm**	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**
5x0,5*	0,21	0,6	0,8	7,3	73	39,0
5x0,75	0,21	0,6	0,9	8,0	93	26,0
5x1	0,21	0,6	0,9	8,3	106	19,5
5x1,5	0,26	0,7	1,1	10,0	156	13,3
5x2,5	0,26	0,8	1,2	12,1	235	7,98
5x4	0,31	0,8	1,4	13,7	329	4,95
5x6*	0,31	0,8	1,3	15,1	434	3,30
6x1*	0,21	0,6	1,0	9,2	130	19,5
6x1,5*	0,21	0,7	1,1	10,9	185	13,3
7*0,5*	0,21	0,6	0,8	5,8	43	39,0
7x0,75*	0,21	0,6	1,0	8,9	118	26,0
7x1*	0,21	0,6	1,0	9,2	136	19,5
7x1,5*	0,26	0,7	1,2	11,1	199	13,3
7x4*	0,31	0,8	1,3	14,8	409	4,95
8x1,5*	0,26	0,7	1,2	11,8	222	13,3
10x1*	0,21	0,6	1,2	12,0	203	19,5
10x1,5*	0,26	0,7	1,3	14,2	287	13,3
12x1,5*	0,26	0,7	1,3	14,7	325	13,3
15x1,5*	0,26	0,7	1,3	16,2	402	13,3
16x1*	0,21	0,6	1,3	13,8	297	19,5
16x1,5*	0,26	0,7	1,3	16,2	415	13,3
19x1*	0,21	0,6	1,3	14,6	337	19,5
19x1,5*	0,26	0,7	1,3	17,1	473	13,3
24x1*	0,21	0,6	1,3	16,9	423	19,5
24x1,5*	0,26	0,7	1,5	20,4	611	13,3
H05VVH2-F, 05VVH2-F*						
2x0,75	0,21	0,6	0,8	3,9 x 6,2	39	26,0

Number and cross-sectional area of conductor	Maximum diameter of wires in conductor	Nominal thickness of insulation	Nominal thickness of sheath	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C
n × mm²	**mm**	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**
2x1	0,21	0,6	0,8	4,0 x 6,4	44	19,5
2x1,5*	0,26	0,8	0,8	4,7 x 7,8	63	13,3
2x2,5*	0,26	0,8	1,0	5,6 x 8,8	90	7,98

*based on norm

Current rating

Cross-section	Current ratings	
	Single phase	Three phase
mm²	**A**	**A**
0,5	3	3
0,75	6	6
1	10	10
1,5	16	16
2,5	25	20
4	32	25

These values apply to the majority of cases. Further information should be sought in unusual cases eg.:

- when high ambient temperatures are involved, ie. above 30°C
- where long lengths are used
- where ventilation is restricted

where the cords are used for other purposes, eg. internal wiring of apparatus.

MAX+90°C MIN -5°C CE RoHS

309-Y, H05V2V2-F, 05V2V2-F*

300/500V

BS EN 50525-2-11

Heat resistant PVC insulated and sheathed flexible cords

APPLICATIONS

In domestic premises, kitchens, offices; in high ambient temperatures for household appliances, including in damp premises; for medium duties (eg. washing machines, spin dryers, and refrigerators).

Standard length cable packing	500 or 1000 m on drums. Other forms of packing and delivery are available on request.

CONSTRUCTION

Conductors:	Annealed copper, class 5 flexible conductor acc. to EN 60228
Insulation:	Heat resistant PVC 90°C type TI3
Sheath:	Heat resistant PVC 90°C type TM3

CHARACTERISTICS

Colour of sheath:	white, black-UV resistant, grey
Core identification:	2-core: blue, brown 3-core: green-yellow, blue, brown 4-core: green-yellow, brown, black, grey 5-core*: green-yellow, blue, brown, black, grey 6 and more: green-yellow, + black with white numbering
Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-30°C
Lowest installation temperature:	-5°C
Maximum short-circuit conductor temperature:	+150°C
Minimum bending radius:	6 × D, D – overall diameter
Max. permissible tensile stress with cable grip for Cu-conductor:	50 N/mm²
Test voltage:	2000V

Fire performance

Flame retardant:	EN 60332-1-2

Technical and Electrical Characteristics

Number and cross-sectional area of conductor	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C
n × mm²	**mm**	**kg/km**	**Ω/km**
H05V2V2-F, 05V2V2-F*			
2x0,5*	5,8	44	39
2x0,75	6,2	52	26
2x1	6,4	58	19,5
2x1,5	7,4	80	13,3
2x2,5	9,2	124	7,98
2x4	10,3	168	4,95
3x0,5*	6,1	51	39
3x0,75	6,6	62	26
3x1	6,8	70	19,5
3x1,5	8,1	100	13,3
3x2,5	9,9	155	7,98
3x4	11,1	212	4,95
4x0,5*	6,7	61	39
4x0,75	7,2	74	26
4x1	7,6	88	19,5
4x1,5	9,0	125	13,3
4x2,5	10,8	189	7,98
4x4	12,2	260	4,95
4x6*	13,8	355	3,3
5x0,5*	7,3	74	39
5x0,75	8,0	94	26
5x1	8,3	108	19,5
5x1,5	10,0	158	13,3

Number and cross-sectional area of conductor	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C
n × mm²	**mm**	**kg/km**	**Ω/km**
5x2,5	12,1	237	7,98
5x4	13,7	332	4,95
5x6*	15,1	438	3,3
6x0,5*	8,3	94	39
6x0,75*	8,9	115	26
7x1*	9,2	138	19,5
H05V2V2H2-F			
2x0,75	3,9 x 6,2	39	26,0
2x1	4,0 x 6,4	45	19,5

*based on norm

Current rating

Cross-section	Current ratings	
	Single phase	Three phase
mm²	**A**	**A**
0,5	3	3
0,75	6	6
1	10	10
1,5	16	16
2,5	25	20
4	32	25

These values apply to the majority of cases. Further information should be sought in unusual cases eg.:

- when high ambient temperatures are involved, ie. above 30°C
- where long lengths are used
- where ventilation is restricted

where the cords are used for other purposes, eg. internal wiring of apparatus.

MIN -25°C

RoHS

318(*)A

300/500V

BS 6004:2012

PVC insulated and sheathed flexible cords, low temperature arctic grade

APPLICATIONS

The cables are suitable for use on ELV systems (110 V centre tapped) on building sites in the UK; use with temporary traffic light systems when suitably protected; indoor use at low voltage (230 V). The cables are nor suitable for outdoor use at voltages greater than 110 V ELV. Yellow sheath for ELV and site services, etc. Blue sheath for temporary traffic lights, etc.

Standard length cable packing	500 or 1000 m on drums. Other forms of packing and delivery are available on request.

CONSTRUCTION

Conductors:	Annealed copper, class 5 flexible conductor acc. to EN 60228
Insulation:	Special PVC compound
Sheath:	Special PVC compound resistant to low temperature

CHARACTERISTICS

Core identification:	2-core:	blue, brown
	3-core:	green-yellow, blue, brown
	4-core:	green-yellow, brown, black, grey or green-yellow, blue, brown, black
	5-core*:	green-yellow, blue, brown, black, grey
Colour of sheath:	yellow or blue	
Maximum continuous conductor operating:	+60°C	
Maximum conductor short circuit (max. allowable time 5s):	+160°C	
Maximum cable surface:	+50°C	
Maximum storage:	+40°C	
Minimum installation and handling:	-25°C	
Minimum bending radius:	7.5 × D, D – overall diameter	
Test voltage (50Hz):	2000V	

Technical and Electrical Characteristics

Number and cross-sectional area of conductor	Maximum diameter of wires in conductor	Nominal thickness of insulation	Nominal thickness of sheath	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C
n × mm²	**mm**	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**
2 x 0.5	0.21	0.6	0.8	5.8	43	39
2 x 0.75	0.21	0.6	0.8	6.2	52	26
2 x 1	0.21	0.6	0.8	6.4	58	19.5
2 x 1.5	0.26	0.7	0.8	7.4	79	13.3
2 x 2.5	0.26	0.8	1	9.2	123	7.98
2 x 4	0.31	0.8	1.1	10.3	166	4.95
3 x 0.75	0.21	0.6	0.8	6.6	61	26
3 x 1	0.21	0.6	0.8	6.8	69	19.5
3 x 1.5	0.26	0.7	0.9	8.1	99	13.3
3 x 2.5	0.26	0.8	1.1	9.9	154	7.98
3 x 4	0.31	0.8	1.2	11.1	210	4.95
3 x 6*	0.31	0.8	1.2	12.4	280	3.3
4 x 0.75	0.21	0.6	0.8	7.2	74	26
4 x 1	0.21	0.6	0.9	7.6	88	19.5
4 x 1.5	0.26	0.7	1	9	124	13.3
4 x 2.5	0.26	0.8	1.1	10.8	188	7.98
4 x 4	0.31	0.8	1.2	12.2	259	4.95
5 x 0.75	0.21	0.6	0.9	8	93	26
5 x 1	0.21	0.6	0.9	8.3	107	19.5
5 x 1.5	0.26	0.7	1.1	10	156	13.3
5 x 2.5	0.26	0.8	1.2	12.1	236	7.98
5 x 4	0.31	0.8	1.4	13.7	330	4.95
4 x 0.75	0.21	0.6	0.8	7.2	74	26
4 x 1	0.21	0.6	0.9	7.6	88	19.5
4 x 1.5	0.26	0.7	1	9	124	13.3
4 x 2.5	0.26	0.8	1.1	10.8	188	7.98
4 x 4	0.31	0.8	1.2	12.2	259	4.95

Number and cross-sectional area of conductor	Maximum diameter of wires in conductor	Nominal thickness of insulation	Nominal thickness of sheath	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C
n × mm²	**mm**	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**
5 x 0.75	0.21	0.6	0.9	8	93	26
5 x 1	0.21	0.6	0.9	8.3	107	19.5
5 x 1.5	0.26	0.7	1.1	10	156	13.3
5 x 2.5	0.26	0.8	1.2	12.1	236	7.98
5 x 4	0.31	0.8	1.4	13.7	330	4.95

*based on norm

Current rating

Cross-section	Current ratings	
	Single phase	Three phase
mm²	**A**	**A**
0,75	6	6
1	10	10
1,5	16	16
2,5	25	20
4	32	25

For ambient temperature 30°C

318-B, H05Z1Z1-F, 05Z1Z1-F

300/500V

EN 50525-3-11

Halogen-free thermoplastic insulated and sheathed flexible cords

APPLICATIONS

In domestic premises, kitchens, offices; for household appliances, including in damp premises; for medium duties (eg. washing machines, spin dryers, and refrigerators).

Standard length cable packing	500 or 1000m on drums. Other forms of packing and delivery are available on request

CONSTRUCTION

Conductors:	annealed copper, class 5 flexible conductor acc. to EN 60228
Insulation:	thermoplastic halogen-free compound type TI6 acc. to EN 50363-7
Sheath:	thermoplastic halogen-free compound type TM7 acc. to EN 50363-8

CHARACTERISTICS

Colour of sheath:		white, black, grey	
Core identification:		acc. to HD 308 S2	
		without a green-yellow core	with a green-yellow core
	2-core:	blue, brown	–
	3-core:	brown, black, grey	green-yellow, blue, brown
	4-core	blue, brown, black, grey	green-yellow, brown, black, grey
	5-core:	blue, brown, black, grey, black	green-yellow, blue, brown, black, grey
	7 cores	all cores black with white numbering	green-yellow + cores black with white numbering
Maximum operating temperature:		+70°C	
Lowest ambient temperature for fixed installation:		-40°C	

Lowest installation temperature:	-5°C
Maximum short-circuit conductor temperature:	+150°C
Minimum bending radius:	7,5 x D, D – overall diameter
Test voltage:	2000V
Flame retardant:	EN 60332-1-2
Smoke emission:	EN 61034-2
Gases evolved during combustion:	EN 50267-2-2 pH ≥ 4,3; conductivity ≤ 10 µS/mm

Technical and Electrical Characteristic

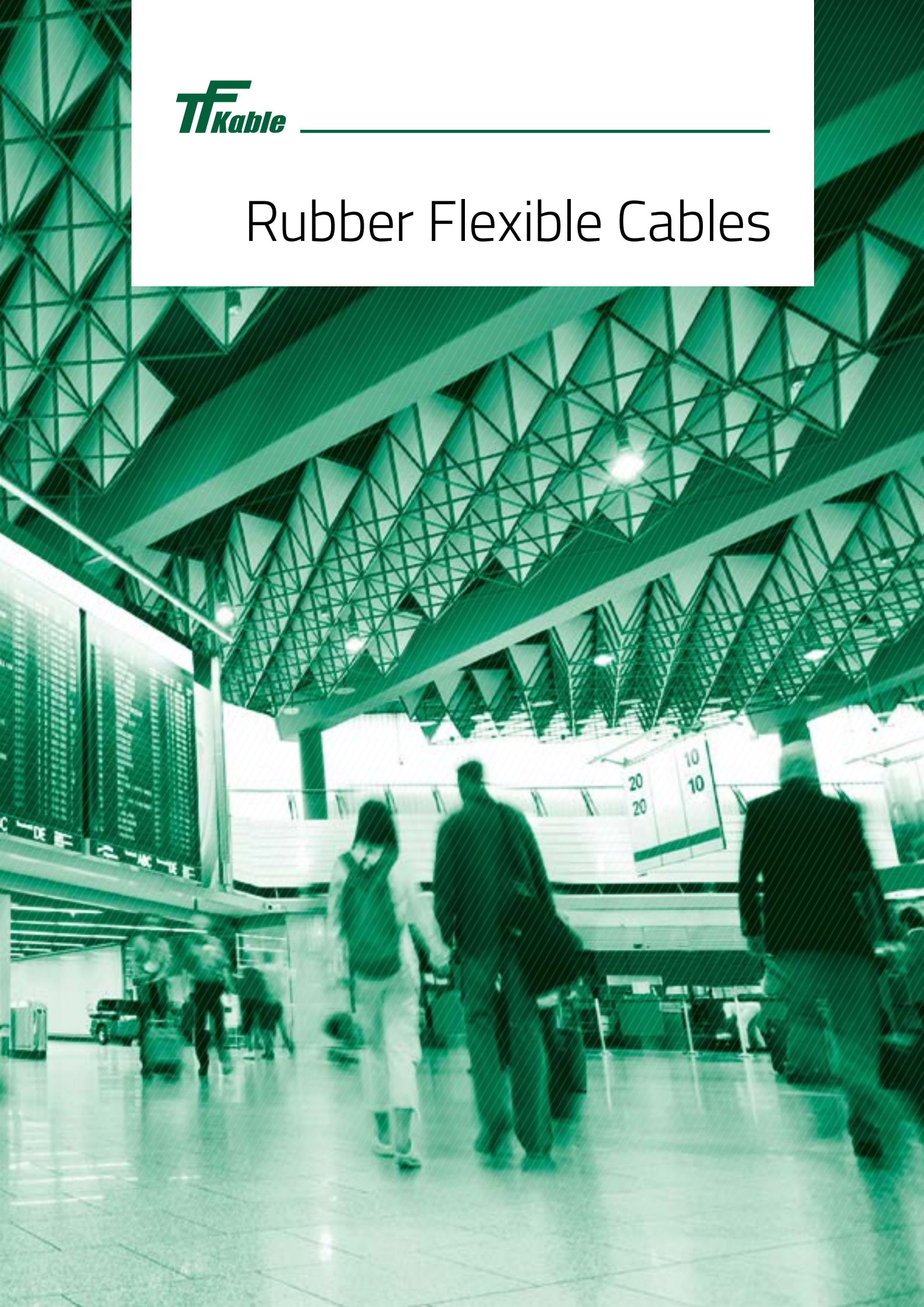
Number and cross-sectional area of conductor	Maximum diameter of wires in conductor	Nominal thickness of insulation	Nominal thickness of sheath	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C
n x mm²	**mm**	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**
2x0,75	0,21	0,6	0,8	6,2	54	26,0
2x1	0,21	0,6	0,8	6,4	60	19,5
2x1,5	0,26	0,7	0,8	7,4	82	13,3
2x2,5	0,26	0,8	1,0	9,2	128	7,98
2x4	0,31	0,8	1,1	10,3	173	4,95
3x0,75	0,21	0,6	0,8	6,6	64	26,0
3x1	0,21	0,6	0,8	6,7	72	19,5
3x1,5	0,26	0,7	0,9	8,0	103	13,3
3x2,5	0,26	0,8	1,1	9,9	160	7,98
3x4	0,31	0,8	1,2	11,1	217	4,95
3x6*	0,31	0,8	1,2	12,4	286	3,3
4x0,75	0,21	0,6	0,8	7,2	77	26,0
4x1	0,21	0,6	0,9	7,6	91	19,5
4x1,5	0,26	0,7	1,0	9,0	129	13,3
4x2,5	0,26	0,8	1,1	10,8	195	7,98
4x4	0,31	0,8	1,2	12,2	267	4,95
4x6*	0,31	0,8	1,3	13,8	365	3,3

Number and cross-sectional area of conductor	Maximum diameter of wires in conductor	Nominal thickness of insulation	Nominal thickness of sheath	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C
n x mm²	**mm**	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**
5x0,75	0,21	0,6	0,9	8,0	97	26,0
5x1	0,21	0,6	0,9	8,3	111	19,5
5x1,5	0,26	0,7	1,1	10,0	162	13,3
5x2,5	0,26	0,8	1,2	12,1	244	7,98
5x4	0,31	0,8	1,4	13,1	340	4,95
6x0,75*	0,21	0,6	1,0	8,9	120	26,0
6x1*	0,21	0,6	1,0	9,2	137	19,5
6x1,5*	0,26	0,7	1,0	10,7	189	13,3
7x0,75*	0,21	0,6	1,0	8,9	125	26,0
7x1*	0,21	0,6	1,0	9,2	143	19,5
7x1,5*	0,26	0,7	1,2	11,1	209	13,3

*based on norm

TFKable

Rubber Flexible Cables



318*TQ, H05BN4-F

EN 50525-2-21

Flexible rubber insulated and sheathed cables

APPLICATIONS

For general use in hot situations and heating appliances in domestic premises, kitchens, offices. For general use in domestic premises, kitchens, offices and for supplying appliances where the cables are subjected to low mechanical stresses (eg. vacuum cleaners, cooking appliances, soldering irons, toasters). Other industrial applications

Standard length cable packing	1000m on drums. Other forms of packing and delivery are available on request

CONSTRUCTION

Conductors	Annealed flexible stranded tin coated or bare copper class 5 to EN 60228.
Separator	If needed a suitable tape separator between the conductor and insulation.
Insulation	Ethylene-propylene rubber (EPR) type EI7 in acc. to EN 50363-1.
Circuit identification	Colour coding of power conductors comply to HD 308 , DIN VDE 0293- 308
Twin	Blue and brown
3-core	Green-yellow, blue, brown
4-core	Green-yellow, brown, black, grey
5-core	Green-yellow, blue, brown black, grey
Above 5-core	Green-yellow, other cores black with white numbering
Outer jacket	A synthetic thermosetting compound type EM7 in acc. to EN 50363-2-1.
Colour of outer jacket	Black or colours can be provided

Features

- Excellent flexibility
- Flame retardant
- Temperature range –40 °C to +90 °C
- UV, sunlight , oil resistant
- Ink jet printed for easy identification
- Other industrial applications

Approvals

BBJ HAR

Size	Maximum diameter of wire	Nominal thickness of insulation	Nominal thickness of jacket	Approx. O.D. of cable	Approx. weight of cable	Maximum resistivity of conductor 20°C
n x mm²	**mm**	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**
2 x 0,75	0,21	0,6	0,8	6,2	57	26,7
2 x 1	0,21	0,6	0,9	6,6	61	20,0
3 x 0,75	0,21	0,6	0,9	6,8	65	26,7
3 x 1	0,21	0,6	0,9	7,0	74	20,0
Based on EN 50525-2-21, BS6500 without certification as 05BN4-F, 318TQ						
2x1,5	0,26	0,8	1,0	8,2	94	13,7
2x2,5	0,26	0,9	1,1	9,8	136	8,21
3x1,5	0,26	0,8	1,0	8,7	111	13,7
3x2,5	0,26	0,9	1,1	10,3	166	8,21
4x0,75	0,21	0,6	0,9	7,4	77	26,7
4x1	0,21	0,6	0,9	7,6	89	20,0
4x1,5	0,26	0,8	1,1	9,7	141	13,7
4x2,5	0,26	0,9	1,2	11,5	209	8,21
5x0,75	0,21	0,6	1,0	8,2	97	26,7
5x1	0,21	0,6	1,0	8,5	111	20,0
5x1,5	0,26	0,8	1,1	10,6	171	13,7
5x2,5	0,26	0,9	1,3	12,8	259	8,21
7 x 1,0	0,21	0,6	1,9	11,9	199	20,0
7 x 1,5	0,26	0,8	2,6	15,1	324	13,7
8 x 1,5	0,26	0,8	2,9	17,2	397	13,7
8 x 2,5	0,26	0,9	3,1	20,1	557	8,21
10 x 2,5	0,26	0,9	3,1	21,5	631	8,21
12 x 1,0	0,21	0,6	2,6	15,4	331	20,0
12 x 1,5	0,26	0,8	2,9	18,9	493	13,7
12 x 2,5	0,26	0,9	3,1	22,1	684	8,21
19 x 1,0	0,21	0,6	3,2	19,3	519	20,0
19 x 1,5	0,26	0,8	3,4	23,5	758	13,7

638*P / H07RN-F

450/750V

EN 50525-2-21

Flexible rubber insulated and sheathed cables

APPLICATIONS

Heavy-duty flexible cables for medium mechanical stress in dry and wet, suitable for large boiling installations, heating plates. Inspections lamps , electrical tools such as drills circular saws. Domestic electric tools, transportable motors etc. Other industrial applications. Cable may be rated at 600/1000V when installed with mechanical protection

Standard length cable packing	1000m on drums. Other forms of packing and delivery are available on request

CONSTRUCTION

Conductors	annealed copper stranded circular compacted conductor class 2(RM) acc. to BS EN 60228		
Separator	If needed a suitable tape separator between the conductor and insulation		
Insulation	Ethylene-propylene rubber (EPR) type EI4 in acc. to EN 50363-1		
Circuit identification	Colour coding of power conductors comply to HD 308, DIN VDE 0293- 308		
	Number of cores	G (earth core)	x (without earth core)
	2	-	Blue and brown
	3	Green-yellow, blue, brown	Brown, Black, Grey Blue, Brown, Black[a]
	4	Green-yellow, brown, black, grey Green-yellow, Blue, Brown, Black[a]	Blue, Brown, Black, Grey
	5	Green-yellow, blue, brown black, grey	Blue, Brown, Black, Grey, Black
	>5	Green-yellow, other cores black with white numbering	Black with white numbering
	a for certain applications only		
Internal jacket	A synthetic thermosetting compound type EM3 in acc. to EN 50363-2-1		
Outer jacket	A synthetic thermosetting compound type EM2 in acc. to EN 50363-2-1		
Colour of outer jacket	Black or colours can be provided		
Flame propagation	EN 60332-1-2:2004, IEC 60332-1-2:2004		

Minimum bending radius:	For cable diameter D (mm)			
	D < 8	8 < D < 12	12 < D < 20	D > 20
For fixed installation:	3 D	3 D	4 D	4 D
At inlet of portable appliance or mobile equipment. No mechanical load on cable	4 D	4 D	5 D	6 D
Under mechanical load	6 D	6 D	6 D	8 D

Features

- Maximum conductor operating temperature: +60°C
- Maximum conductor temperature during short circuit: +250°C
- Lowest ambient temperature for fixed installation: -40°C
- Lowest ambient temperature for mobile installation: -25°C
- UV, sunlight, oil resistant

Approvals

BBJ HAR

SIZE	Number x maximum diameter of wire	Nominal thickness of insulation	Nominal thickness of jacket			Approx. O.D. of cable	Voltage drop	Approx. weight of cable	Maximum conductor resistance at 20°C
			Single	Double layer					
				Internal	Outer				
n x mm²	**mm**	**mm**	**mm**	**mm**	**mm**	**mm**	**V/A/km**	**kg/km**	**Ω/km**
1 x 1*	29x0,2	0,8	1,4	—	—	5,6	—	43	20,0
1 x 1,5	28x0,26	0,8	1,4	—	—	5,9	23,73	49	13,7
1 x 2,5	45x0,26	0,9	1,4	—	—	6,6	14,22	66	8,21
1 x 4	51x0,31	1,0	1,5	—	—	7,3	8,82	89	5,09
1 x 6	76x0,31	1,0	1,6	—	—	7,9	5,88	114	3,39
1 x 10	74x0,41	1,2	1,8	—	—	9,8	3,38	178	1,95
1 x 16	116x0,41	1,2	1,9	—	—	11,5	2,16	248	1,24
1 x 25	180x0,41	1,4	2,0	—	—	12,9	1,39	356	0,795
1 x 35	254x0,41	1,4	2,2	—	—	14,7	0,99	471	0,565
1 x 50	364x0,41	1,6	2,4	—	—	16,8	0,70	657	0,393
1 x 70	514x0,51	1,6	2,6	—	—	19,3	0,51	881	0,277
1 x 95	684x0,51	1,8	2,8	—	—	21,9	0,40	1156	0,210
1 x 120	870x0,51	1,8	3,0	—	—	23,7	0,33	1411	0,164
1 x 150	1092x0,51	2,0	3,2	—	—	26,0	0,28	1762	0,132
1 x 185	1325x0,51	2,2	3,4	—	—	29,1	0,24	2145	0,108
1 x 240	1752x0,51	2,4	3,5	—	—	31,2	0,20	2720	0,0817

SIZE	Number x maximum diameter of wire	Nominal thickness of insulation	Nominal thickness of jacket			Approx. O.D. of cable	Voltage drop	Approx. weight of cable	Maximum conductor resistance at 20°C
			Single	Double layer					
				Internal	Outer				
n x mm²	**mm**	**mm**	**mm**	**mm**	**mm**	**mm**	**V/A/km**	**kg/km**	**Ω/km**
1 x 300	2203x0,51	2,6	3,6	—	—	35,7	0,19	3321	0,0654
1 x 400	2904x0,51	2,8	3,8	—	—	38,4	0,17	4196	0,0495
1 x 500	3679x0,61	3,0	4,0	—	—	43,5	0,16	5431	0,0391
1 x 630	4880x0,61	3,0	4,1	—	—	48,4	0,15	6878	0,0292
2 x 4	51x0,31	1,0	1,8	—	—	12,1	10,18	227	5,09
2 x 6	76x0,31	1,0	2,0	—	—	13,7	6,78	301	3,39
2 x 10	74x0,41	1,2	—	1,2	1,9	18,9	3,90	559	1,95
2 x 16	116x0,41	1,2	—	1,3	2,0	21,6	2,49	765	1,24
2 x 25	180x0,41	1,4	—	1,4	2,2	25,3	1,60	1092	0,795
2 x 35	254x0,41	1,4	—	1,5	2,3	28,2	0,99	1399	0,565
2 x 50	364x0,41	1,6	—	1,7	2,5	32,4	0,79	1890	0,393
3 x 4	51x0,31	1,0	1,9	—	—	13,0	8,82	269	5,09
3 x 4 + 2,5*	51x0,31	1,0	2,0	—	—	14,9	—	332	5,09
3 x 6	76x0,31	1,0	2,1	—	—	15,0	5,87	390	3,39
3 x 6 + 4*	76x0,31	1,0	2,3	—	—	16,9	—	448	3,39
3 x 10	74x0,41	1,2	—	1,3	2,0	20,2	3,38	684	1,95
3 x 10 + 6*	74x0,41	1,2	3,4	—	—	22,1	—	765	1,95
3 x 16	116x0,41	1,2	—	1,4	2,1	23,1	2,15	944	1,24
3 x 16 + 10*	116x0,41	1,2	—	1,4	2,2	25,2	—	1064	1,24
3 x 25	180x0,41	1,4	—	1,5	2,3	27,1	1,38	1355	0,795
3 x 25 + 16*	180x0,41	1,4	—	1,6	2,5	30,0	—	1566	0,795
3 x 35	254x0,41	1,4	—	1,6	2,5	29,3	0,99	1726	0,565
3 x 35 + 16*	254x0,41	1,4	—	1,7	2,7	33,1	—	1986	0,565
3 x 35 + 25*	254x0,41	1,4		1,7	2,7	33,1	—	2083	0,565
3 x 50	364x0,41	1,6	—	1,8	2,7	35,2	0,69	2452	0,393
3 x 50 + 16*	364x0,41	1,6	—	1,9	2,9	39,0	—	2739	0,393
3 x 50 + 25*	364x0,41	1,6	—	1,9	2,9	39,0	—	2799	0,393
4 x 0,75*	22X0,21	0,8	1,5	—	—	9,5	—	123	26,7
4 x 4	51x0,31	1,0	2,0	—	—	14,3	8,82	340	5,09
4 x 6	76x0,31	1,0	2,3	—	—	16,3	5,87	463	3,39
4 x 10	74x0,41	1,2	—	1,4	2,0	22,1	3,38	831	1,95
4 x 16	116x0,41	1,2	—	1,4	2,2	25,3	2,15	1166	1,24
4 x 25	180x0,41	1,4	—	1,6	2,5	30,1	1,38	1711	0,795
4 x 35	254x0,41	1,4	—	1,7	2,7	32,5	0,99	2190	0,565
4 x 50	364x0,41	1,6	—	1,9	2,9	38,6	0,69	2960	0,393

SIZE	Number x maximum diameter of wire	Nominal thickness of insulation	Nominal thickness of jacket			Approx. O.D. of cable	Voltage drop	Approx. weight of cable	Maximum conductor resistance at 20°C
			Single	Double layer					
				Internal	Outer				
n x mm²	**mm**	**mm**	**mm**	**mm**	**mm**	**mm**	**V/A/km**	**kg/km**	**Ω/km**
5 x 4	51x0,31	1,0	2,2	—	—	15,9	8,82	426	5,09
5 x 6	76x0,31	1,0	2,5	—	—	18,1	5,87	579	3,39
5 x 10	74x0,41	1,2	—	1,4	2,2	24,3	3,38	1024	1,95
5 x 16	116x0,41	1,2	—	1,5	2,4	28,7	2,15	1440	1,24
5 x 25	180x0,41	1,4	—	1,7	2,7	33,3	1,38	2006	0,795
5 x 25 + 1,5*	180x0,41	1,4	—	1,7	2,7	33,4	—	2047	0,795
5 x 35	254x0,41	1,4	—	1,8	2,8	37,0	0,99	2581	0,565
5 x 50	364x0,41	1,6	—	2,1	3,1	43,3	0,69	3658	0,393

*Based on EN 50525-2-21 - as 07RN-F

** Based on EN 50525-2-21 - as 07RN-F, special colour coding

638*TQ / H07BN4-F
450/750V

EN 50525-2-21

Heat resisting 90°C epr insulated and cpe sheathed flexible cable, 450/750V

APPLICATIONS

For general use in hot situations and heating applications. Heavy-duty flexible cables for medium mechanical stress in dry and wet, suitable for large boiling installations, heating plates Inspections lamps , electrical tools such as drills circular saws Domestic electric tools, transportable motors etc. Other industrial applications. Cable may be rated at 600/1000V when installed with mechanical protection

Standard length cable packing	1000m on drums. Other forms of packing and delivery are available on request

CONSTRUCTION

Conductors	Annealed flexible stranded tin coated or bare copper class 5 to EN 60228, IEC 60228
Separator	If needed a suitable tape separator between the conductor and insulation
Insulation	Ethylene-propylene rubber (EPR) type EI7
Circuit identification Twin 3-core 4-core 5-core Above 5-core	Colour coding of power conductors comply to HD 308 Blue and brown Green-yellow, blue, brown Green-yellow, brown, black, grey Green-yellow, blue, brown black, grey Green-yellow, other cores black with white numbering
Outer jacket	A synthetic thermosetting compound type EM7
Colour of outer jacket	Black or colours can be provided
Flame propagation	EN 60332-1-2:2004, IEC 60332-1-2:2004

Minimum bending radius:	**For cable diameter D (mm)**			
	D < 8	**8 < D < 12**	**12 < D < 20**	**D > 20**
For fixed installation:	3 D	3 D	4 D	4 D
At inlet of portable appliance or mobile equipment. No mechanical load on cable	4 D	4 D	5 D	6 D
Under mechanical load	6 D	6 D	6 D	8 D

Features

- Maximum conductor operating temperature: +90°C
- Maximum conductor temperature during short circuit: +250°C
- Lowest ambient temperature for fixed installation: -40°C
- Lowest ambient temperature for mobile installation: -25°C
- UV, sunlight, oil resistant

Number and cross-sectional area of conductor	Maximum diameter of wires	Nominal thickness of insulation	Nominal thickness of sheath	Approximate overall diameter	Approximate net weight	Maximum resistance of conductor at 20°C
n x mm²	**mm**	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**
1 x 1,5	0,26	0,8	1,4	5,9	50	13,7
1 x 2,5	0,26	0,9	1,4	6,6	65	8,21
1 x 4	0,31	1,0	1,5	7,5	89	5,09
1 x 6	0,31	1,0	1,6	8,4	118	3,39
1 x 10	0,41	1,2	1,8	10,1	179	1,95
1 x 16	0,41	1,2	1,9	11,5	248	1,24
1 x 25	0,41	1,4	2,0	13,2	354	0,795
1 x 35	0,41	1,4	2,2	14,7	460	0,565
1 x 50	0,41	1,6	2,4	17,2	640	0,393
1 x 70	0,51	1,6	2,6	19,3	877	0,277
1 x 95	0,51	1,8	2,8	22,2	1138	0,210
1 x 120	0,51	1,8	3,0	23,7	1399	0,164
1 x 150	0,51	2,0	3,2	26,4	1732	0,132
1 x 185	0,51	2,2	3,4	29,4	2102	0,108
1 x 240	0,51	2,4	3,5	31.5	2657	0,0817
1 x 300	0,51	2,6	3,6	35,7	3296	0,0654
1 x 400	0,51	2,8	3,8	38,3	4205	0,0495
1 x 500	0,61	3,0	4,0	43,8	5285	0,0391
1 x 630	0,61	3,0	4,1	48,4	6837	0,0292
2 x 4	0,31	1,0	1,8	13,0	236	5,09
2 x 6	0,31	1,0	2,0	14,2	292	3,39
2 x 10	0,41	1,2	3,1	19,3	561	1,95
2 x 16	0,41	1,2	3,3	22,0	719	1,24
2 x 25	0,41	1,4	3,6	25,7	1026	0,795
3 x 4	0,31	1,0	1,9	13,9	295	5,09

Number and cross-sectional area of conductor	Maximum diameter of wires	Nominal thickness of insulation	Nominal thickness of sheath	Approximate overall diameter	Approximate net weight	Maximum resistance of conductor at 20°C
n x mm²	**mm**	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**
3 x 6	0,31	1,0	2,1	15,4	359	3,39
3 x 10	0,41	1,2	3,3	20,7	648	1,95
3 x 16	0,41	1,2	3,5	23,5	908	1,24
3 x 25	0,41	1,4	3,8	27,5	1302	0,795
3 x 35	0,41	1,4	4,1	29,7	1633	0,565
3 x 50	0,41	1,6	4,5	35,7	2310	0,393
4 x 4	0,31	1,0	2,0	14,9	337	5,09
4 x 6	0,31	1,0	2,3	16,9	456	3,39
4 x 16	0,41	1,2	3,6	25,7	1119	1,24
4 x 25	0,41	1,4	4,1	30,5	1642	0,795
4 x 35	0,41	1,4	4,4	32,9	2092	0,565
4 x 50	0,41	1,6	4,8	39,5	2965	0,393

*Based on EN 50525-2-21 - as 07BN4-F, special colour coding can be provided

0361 TQ

Based on BS-EN 50525-2-81, BS638 Part 4

EPR/CPE insulated welding cables

APPLICATIONS

Secondary voltage resistance welding leads. Leads for motors, generators, batteries.
For use in underground and open mines. Other industrial applications.

Standard length cable packing	1000m on drums. Other forms of packing and delivery are available on request

CONSTRUCTION

Conductors	Fully annealed flexible stranded tinned copper Class 6 or 5 (above 120 mm2) per BS 6360.
Separator	A suitable tape separator between the conductor and insulation.
Internal layer	Ethylene Propylene Rubber (EPR) Type EI7 to BS 7655 .
Outer jacket	CPE compound exceed Type EM5 to BS 7655.
Colour of outer jacket	Black or colours can be provided.

Features

- Heat resistance.
- Excellent flexibility.
- Ozone, sun, weather resistant.
- Temperature range –40°C to +90 °C.
- Oil resistant, flame retardant.
- Ink jet printed for easy identification.

Selection Data

SIZE	Conductor Stranding	Nominal Thickness EPR /CPE layer	Approx. weight	Approx. O.D.
mm²	**Nxmm**	**mm**	**kg/km**	**mm**
6	179x0.2	0.7/1.3	96	7.2
10	301x0.2	0.7/1.3	137	8.1
16	462x0.2	0.7/1.3	199	9.4
25	723x0.2	0.7/1.3	276	10.2
35	1035x0.2	0.7/1.3	380	11.6
50	1480x0.2	0.8/1.4	519	13.2
70	2060x0.2	0.8/1.6	722	15.3
95	2738x0.2	0.9/1.7	942	17.5
120	1548x0.3	1.0/1.8	1190	19.2
150	1092x0.4	1.0/2.0	1489	21.9
185	1319x0.4	1.1/2.1	1797	24.4
240	1752x0.4	1.2/2.2	2330	26.5

Conductor size	Voltage Drop Voltage Drop per 100 A per 10 m of cable at			Current rating for single cycle operation over max period of 5 min		
mm²	**20°C V**	**60°C V**	**85°C V**	**100% A**	**60% A**	**35% A**
10	1,95	2,26	2,45	100	108	122
16	1,24	1,43	1,56	135	175	230
25	0,795	0,92	0,998	180	230	300
35	0,565	0,654	0,709	225	290	370
50	0,393	0,455	0,493	285	365	480
70	0,277	0,321	0,348	355	460	600
95	0,21	0,243	0,264	430	560	730
120	0,164	0,19	0,206	500	650	850
150	0,132	0,153	0,166	580	750	980
185	0,108	0,125	0,136	665	860	1120
240	-	-	-	780	975	1250

H01N2-D, H01N2-E

100/100V

EN 50525-2-81

CPE insulated welding cables

APPLICATIONS

Designed for welding equipment and accessories. Suitable for use in dry and damp conditions, outdoors and indoors. Retain their high flexibility even under influence of ozone, light, oxygen, protective gases, oil and petrol; resistant to flame propagation. Other industrial applications.

Standard length cable packing	1000m on drums. Other forms of packing and delivery are available on request

CONSTRUCTION

Conductor	Bare or tinned copper stranded conductors
Separator	Paper or polyester separator longitudinally over conductor
Insulation	Flame retardant oil resistant thermosetting compound
Colour of insulation	Black or colours can be provided
Flame propagation	IEC 60332-1-2:2004, EN 60332-1-2:2004

Features

- Excellent flexibility
- Flame retardant
- Temperature range: –25°C to +85°C .For fixed installation lowest temperature is -40°C
- Maximum short-circuit conductor temperature: +250°C
- Pulling strength: the maximum static pulling strength may not exceed 15 N/mm^2
- Minimum bending radius: 6 x D; D – overall diameter of cable
- UV, sunlight, oil resistant
- Ink jet printed for easy identification

Approvals

BBJ HAR	

Nominal cross-sectional area of conductor	Maximum diameter of wires in conductor	Nominal thickness of insulation	Approximate overall diameter	Approximate weight	Maximum Conductor Resistance at 20°C (untinned wires)
mm²	**mm**	**mm**	**mm**	**kg/km**	**Ohm/km**
HO1N2-D					
10	0,21	2,0	8,0	141	1,91
16	0,21	2,0	8,9	197	1,21
25	0,21	2,0	10,1	281	0,780
35	0,21	2,0	11,4	379	0,554
50	0,21	2,2	13,5	524	0,386
70	0,21	2,4	15,3	735	0,272
95	0,21	2,6	17,5	955	0,206
120	0,51	2,8	19,7	1213	0,161
150	0,51	3,0	21,8	1500	0,129
185	0,51	3,2	24,3	1821	0,106
240	0,51	3,4	26,5	2330	0,0801
HO1N2-E					
10	0,16	1,2	6,7	116	1,91
16	0,16	1,2	7,7	167	1,21
25	0,16	1,2	8,9	246	0,780
35	0,16	1,2	10,3	338	0,554
50	0,16	1,5	12,4	487	0,386
70	0,16	1,5	14,1	671	0,272
95	0,16	1,8	16,7	895	0,206
120	0,21	1,8	18,2	1122	0,161
150	0,21	1,8	20,0	1381	0,129
185	0,21	1,8	21,5	1720	0,106
240	0,21	2,0	24,6	2272	0,0801

COIL LEAD TYPE 4C

BS 6195:2006

Single Conductor Rubber Insulated Flexible Cables

APPLICATIONS

Highly flexible heat resisting single core cable, suitable applications include temporary and permanent wiring, connections to electrical equipment terminations, panel wiring, motors, generators and transformers

Standard length cable packing	500 m on drums. Other forms of packing and delivery are available on request

CONSTRUCTION

Conductors	Annealed tinned copper conductor class 5 acc. to BS EN 60228
Separator	If needed a suitable tape separator under insulation
Internal insulation layer	EPR thermosetting compound type 4
Outer insulation layer	Based on chlorinated polyethylene thermosetting compound
Colour of outer sheath	Black

Features

- Excellent flexibility
- Ozone, sun, weather resistant
- Temperature range : For flexible -25 up to 90 0C , for installation -40 up to 90 0 C
- Minimum bending radius: 6 x D ; D – overall diameter of cable
- Oil resistant, flame retardant
- Voltage category : 0,6/1 kV
- Voltage Test :6 kV, Table H.2 of BS 6195:2006

Number and cross-sectional area of conductor	Radial thickness of insulation Voltage Category C	Maximum overall diameter	Approx. Weight	Current Rating Single Cable In free air*
mm²	**mm**	**mm**	**kg/km**	**A**
1x1,5	1.4	5.2	30	30
1x2,5	1.4	5.6	41	40
1x4	1.4	6.3	57	54
1x6	1.5	7.5	80	72
1x10	1.5	8.5	120	100
1x16	1.5	9.6	178	135
1x25	1.6	11.4	260	179
1x35	1.6	12.8	350	225
1x50	1.7	14.8	498	283
1x70	1.8	17.2	687	354
1x95	2.0	19.7	906	425
1x120	2.2	21.9	1148	501
1x150	2.3	24.1	1420	578
1x185	2.4	26.3	1721	659
1x240	2.4	28.3	2225	795
1x300	2.6	33.0	2800	923
1x400	2.8	37.4	3662	1120

* Ambient temperature: 30°C

Conductor operating temperature: 90°C

Based on standard

Number and cross-sectional area of conductor	Radial thickness of insulation Voltage Category C	Nominal / Maximum overall diameter	Approx. Weight
mm²	**mm**	**mm**	**kg/km**
1x500	3.2	36.2 / 37.0*	4590
1x630	3.8	41.8 / 44.0 *	6152
1x800	4.4	47.6 / 48.6	8155

*) special requirements

TFKable

Armoured Power Cables

XLPE/PVC/SWA/PVC

600/1000V

BS5467

XLPE insulated, PVC sheathed, round wire armoured cables

APPLICATIONS

For use in fixed installations in industrial areas, buildings and similar applications.

Standard length cable packing	500 or 1000 m on drums. Other forms of packing and delivery are available on request.

CONSTRUCTION

Conductors:	Annealed copper solid class 1(RE), circular or circular compacted stranded conductor class 2 (RM) or stranded sector – shaped conductor class 2 (SM) acc. to BS EN 60228
Insulation:	Cross-linked polyethylene XLPE type GP8 acc. to BS 7655-1.3
Bedding:	PVC compound
Armour:	For single-core cables - single layer of aluminium wires applied spirally over the bedding (AWA) for two or more cores cables – single layer of galvanized steel wires applied spirally over the bedding (SWA)
Sheath:	Black PVC compound Type 9 acc. to BS 7655-4.2

CHARACTERISTICS

Colour of sheath:		black
Core identification: *Other colors available at customer request*		
	2-core:	brown, blue
	3-core:	brown, black, grey
	4-core:	blue, brown, black, grey
	5-core:	green-yellow, blue, brown, black, grey
	auxiliary cables:	white with black numbering

Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-30°C
Lowest installation temperature:	0°C
Maximum short-circuit conductor temperature:	+250°C
Minimum bending radius:	6 x D for cables with circular copper conductors and 8 x D for cables with shaped copper conductors; D – overall diameter of the cableD – overall diameter of the cable
Test voltage:	3,5kV

Fire performance

Flame retardant:	BS EN 60332-1-2
CPR – class reaction to fire (acc EN 50575):	Eca

Approvals

XLPE/PVC/SWA/PVC:	BASEC

XLPE/PVC/SWA/PVC 600/1000V

Number and cross-sectional area of conductor	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C	Maximum armour resistance at 20°C
n x mm²	**mm**	**kg/km**	**Ω/km**	**Ω/km**
2x1,5RM	11,5	256	12,1	10,2
2x2,5RM	13	324	7,41	8,8
2x4RM	14	386	4,61	7,9
2x6RM	14,7	444	3,08	7
2x10RM	16,8	595	1,83	6
2x16RM	19,5	879	1,15	3,7
2x25RM	23,1	1214	0,727	3,2
2x35SM	21,6	1300	0,524	2,6
2x35RM	26,5	1667	0,524	2,2

Number and cross-sectional area of conductor	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C	Maximum armour resistance at 20°C
n x mm²	**mm**	**kg/km**	**Ω/km**	**Ω/km**
2x50SM	23,7	1610	0,387	2,3
2x50RM	29,9	2106	0,387	2
2x70SM	27,6	2145	0,268	2
2x70RM	34,4	2957	0,268	1,4
2x95SM	30,5	2922	0,193	1,4
2x95RM	38,5	3769	0,193	1,2
2x120SM	33	3496	0,153	1,3
2x120RM	41,7	4473	0,153	1,1
2x150SM	36	4170	0,124	1,2
2x185SM	40,9	5464	0,0991	0,82
2x240SM	44,6	6753	0,0754	0,73
2x300SM	50,3	8256	0,0601	0,67
3x1,5RM	12	279	12,1	9,5
3x2,5RM	13,5	356	7,41	8,2
3x4RM	14,6	436	4,61	7,5
3x6RM	15,4	511	3,08	6,7
3x10RM	18,3	786	1,83	4
3x16RM	20,7	1048	1,15	3,5
3x25RM	25,6	1631	0,727	2,3
3x25SM	23,2	1417	0,727	2,5
3x35RM	28,1	2029	0,524	2,1
3x35SM	25,3	1773	0,524	2,3
3X35RM	28,1	2029	0,524	2,1
3x50SM	27,6	2208	0,387	2
3x50RM	31,5	2561	0,387	1,8
3x70SM	31,3	2935	0,268	1,8
3x70RM	36,2	3619	0,268	1,3
3x95SM	35,8	4055	0,193	1,3
3x95RM	41,2	4704	0,193	1,2
3x120SM	38,9	4895	0,153	1,2
3x120RM	45,9	6110	0,153	0,76
3x150SM	44,2	6353	0,124	0,78
3x185SM	48,2	7625	0,0991	0,71
3x240SM	53,1	9529	0,0754	0,63
3x300SM	57,9	11446	0,0601	0,58

Number and cross-sectional area of conductor	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C	Maximum armour resistance at 20°C
n x mm²	**mm**	**kg/km**	**Ω/km**	**Ω/km**
4x1,5RM	12,7	313	12,1	8,8
4x2,5RM	14,4	406	7,41	7,7
4x4RM	15,7	503	4,61	6,8
4x6RM	17,4	689	3,08	4,3
4x10RM	19,6	923	1,83	3,7
4x16RM	22,3	1252	1,15	3,1
4x25SM	25,6	1765	0,727	2,3
4x25RM	27,7	1936	0,727	2,1
4x35SM	27,9	2197	0,524	2
4x35RM	30,4	2448	0,524	1,9
4x50SM	30,9	2787	0,387	1,8
4x50RM	35,6	3396	0,387	1,3
4x70SM	36,4	4017	0,268	1,2
4x70RM	39,8	4438	0,268	1,2
4x95SM	40	5137	0,193	1,1
4x95RM	46,1	6232	0,193	0,76
4x120SM	45,3	6738	0,153	0,76
4x120RM	50,1	7469	0,153	0,69
4x150SM	49,4	8032	0,124	0,68
4x185SM	54	9723	0,0991	0,61
4x240SM	59,9	12247	0,0754	0,54
4x300SM	64,9	14690	0,0601	0,49
4x400SM	75,5	19575	0,047	0,35
5x1,5RM	13,7	362	12,1	8,2
5x2,5RM	15,4	464	7,41	6,8
5x4RM	17	585	4,61	6,2
5x6RM	18,7	798	3,08	3,9
5x10RM	21,4	1096	1,83	3,4
5x16RM	25,4	1630	1,15	2,2
5x25RM	30,1	2301	0,727	1,8
5x35RM	33,2	2906	0,524	1,6
5x50RM	38,6	4009	0,387	1,1
5x70RM	43,2	5286	0,268	0,94
7x1,5RM	14,7	405	12,1	7,5
7x2,5RM	16,6	525	7,41	6,3
7x4RM	19	767	4,61	4

Number and cross-sectional area of conductor	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C	Maximum armour resistance at 20°C
n x mm²	**mm**	**kg/km**	**Ω/km**	**Ω/km**
12x1,5RM	18,9	672	12,1	4
12x2,5RM	21,7	890	7,41	3,5
12x4RM	25	1284	4,61	2,3
19x1,5RM	21,5	887	12,1	3,5
19x2,5RM	26	1346	7,41	2,3
19x4RM	28,6	1726	4,61	2
27x1,5RM	26,1	1291	12,1	2,3
27x2,5RM	30,2	1740	7,41	1,9
37x1,5RM	28,5	1572	12,1	2
37x2,5RM	33,1	2133	7,41	1,7

** Based on norm*

XLPE/PVC/AWA/PVC

600/1000V

BS5467

XLPE insulated, PVC sheathed, round wire armoured cables

APPLICATIONS

For use in fixed installations in industrial areas, buildings and similar applications.

Standard length cable packing	500 or 1000m on drums. Other forms of packing and delivery are available on request

CONSTRUCTION

Conductors:	annealed copper solid class 1(RE), circular or circular compacted stranded conductor class 2 (RM) or stranded sector – shaped conductor class 2 (SM) acc. to BS EN 60228
Insulation:	cross-linked polyethylene XLPE type GP8 acc. to BS 7655-1.3
Bedding:	PVC compound
Armour:	single layer of aluminium wires applied spirally over the bedding (AWA)
Sheath:	black PVC compound Type 9 acc. to BS 7655-4.2

CHARACTERISTICS

Colour of sheath:	black
Core identification: *Other colors available at customer request*	1-core: brown or blue
Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-30°C
Lowest installation temperature:	0°C
Maximum short-circuit conductor temperature:	+250°C
Minimum bending radius:	6 x D for cables with circular copper conductors D – overall diameter of the cable
Test voltage:	3,5kV

Fire performance

Flame retardant:	BS EN 60332-1-2

Technical and Electrical Characteristic

Number and cross-sectional area of conductor	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C	Maximum armour resistance at 20°C
n x mm²	**mm**	**kg/km**	**Ω/km**	**Ω/km**
1x150RM	26	1820	0,124	0,42
1x185RM	28,1	2219	0,0991	0,38
1x240RM	30,8	2784	0,0754	0,34
1x300RM	33	3401	0,0601	0,31
1x400RM	37,5	4423	0,047	0,22
1x500RM	41,3	5547	0,0366	0,2
1x630RM	45,7	6937	0,0283	0,18
1x800RM	52,6	8896	0,0221	0,13
1x1000RM	56,3	10865	0,0176	0,12

XLPE/LSOH/SWA/LSOH

600/1000V

BS6724

XLPE insulated, LSOH sheathed, round wire armoured cables

APPLICATIONS

For use in fixed installations in industrial areas, buildings and similar applications.

Standard length cable packing	500 or 1000m on drums. Other forms of packing and delivery are available on request

CONSTRUCTION

Conductors:	annealed copper conductor, circular compacted stranded class 2 acc. to BS EN 60228
Insulation:	cross-linked polyethylene XLPE type GP8 acc. to BS 7655-1.3
Bedding:	LSOH (special low smoke zero halogen compound)
Armour:	single layer of galvanized steel wires applied spirally over the bedding (SWA)
Sheath:	LSOH compound type LTS1 acc. to BS 7655-6.1

CHARACTERISTICS

Colour of sheath:		black
Core identification: *Other colors available at customer request*		HD 308 S2
	2-core:	brown, blue
	3-core:	brown, black, grey
	4-core:	blue, brown, black, grey
	5-core:	green-yellow, blue, brown, black, grey
	auxiliary cables:	white with black numbering
Maximum conductor operating temperature:		+90°C
Lowest ambient temperature for fixed installation:		-40°C
Lowest installation temperature:		0°C

Maximum short-circuit conductor temperature:	+250°C
Smoke emission:	BS EN 61034-2
Corrosive and acid gas emission:	BS EN 60754-1, HCL ≤ 0,5%
Minimum bending radius:	6 x D for cables with circular copper conductors D – overall diameter of the cable
Test voltage:	3.5kV

Fire performance

Flame retardant:	BS EN 60332-1-2, BS EN 60332-3-24
CPR – class reaction to fire (acc EN 50575):	Dca-s1b,d0,a1

Approvals

BASEC	

XLPE/LSOH/SWA/LSOH

Number and cross-sectional area of conductor	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C	Maximum armour resistance at 20°C
n x mm²	**mm**	**kg/km**	**Ω/km**	**Ω/km**
2x1,5RM	11,1	244	12,1	10,2
2x2,5RM	12,6	310	7,41	8,8
2x4RM	13,6	372	4,61	7,9
2x6RM	14,3	429	3,08	7
2x10RM	16,4	579	1,83	6
2x16RM	19,1	857	1,15	3,7
2x25RM	23,1	1224	0,727	3,7
2x35RM	26,5	1679	0,524	2,6
3x1,5RM	11,6	271	12,1	9,5
3x2,5RM	13,1	346	7,41	8,2
3x4RM	14,2	421	4,61	7,5
3x6RM	15	500	3,08	6,7
3x10RM	17,9	774	1,83	4
3x16RM	20,3	1035	1,15	3,5

Number and cross-sectional area of conductor	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C	Maximum armour resistance at 20°C
n x mm²	**mm**	**kg/km**	**Ω/km**	**Ω/km**
3x25RM	25,6	1641	0,727	2,5
3x35RM	28,1	2041	0,524	2,3
3x35SM	25,3	1781	0,524	2,3
3x50SM	27,6	2217	0,387	2
3x70SM	31,3	2945	0,268	1,8
3x95SM	35,8	4069	0,193	1,3
3x120SM	38,9	4910	0,153	1,2
3x150SM	44,2	6372	0,124	0,78
3x185SM	48,2	7646	0,0991	0,71
3x240SM	53,1	9555	0,0754	0,63
4x1,5RM	12,3	304	12,1	8,8
4x2,5RM	14	392	7,41	7,7
4x4RM	15,3	487	4,61	6,8
4x6RM	17	677	3,08	4,3
4x10RM	19,2	910	1,83	3,7
4x16RM	21,9	1228	1,15	3,1
4x25RM	27,7	1947	0,727	2,3
4x25SM	25,6	1772	0,727	2,3
4x35RM	30,4	2461	0,524	2
4x35SM	27,9	2206	0,524	2
4x50SM	30,9	2798	0,387	1,8
4x70SM	36,4	4031	0,268	1,2
4x95SM	40	5153	0,193	1,1
4x120SM	45,3	6757	0,153	0,76
4x150SM	49,4	8054	0,124	0,68
4x185SM	54	9748	0,0991	0,61
4x240SM	59,9	12278	0,0754	0,54
4x300SM	64,9	14725	0,0601	0,49
4x400SM	75,5	19621	0,047	0,35
5x1,5RM	13,3	348	12,1	8,2
5x2,5RM	15	453	7,41	6,8
5x4RM	16,6	574	4,61	6,2
5x6RM	18,3	786	3,08	3,9
5x10RM	21	1073	1,83	3,4
5x16RM	25	1614	1,15	2,2
5x25RM	30,1	2313	0,727	1,8
5x35RM	33,2	2920	0,524	1,6

Number and cross-sectional area of conductor	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C	Maximum armour resistance at 20°C
n x mm²	**mm**	**kg/km**	**Ω/km**	**Ω/km**
5x50RM	38,6	4028	0,387	1,1
5x70RM	43,2	5309	0,268	0,94
7x1,5RM	14,3	390	12,1	7,5
7x2,5RM	16,2	509	7,41	6,3
7x4RM	18,6	745	4,61	4
12x1,5RM	18,5	660	12,1	4
12x2,5RM	21,3	876	7,41	3,5
12x4RM	24,6	1253	4,61	2,3
19x1,5RM	21,1	863	12,1	3,5
19x2,5RM	25,6	1329	7,41	2,3
19x4RM	28,2	1692	4,61	2
27x1,5RM	25,7	1274	12,1	2,3
27x2,5RM	29,8	1720	7,41	1,9
27x4RM	33,2	2238	4,61	1,7
37x1,5RM	28,1	1539	12,1	2
37x2,5RM	32,7	2112	7,41	1,7

** Based on norm*

Current ratings for multicore XLPE/PVC/SWA/PVC & XLPE/LSOH/SWA/LSOH cables

Cable installed in free air, ambient air temperature 30°C.

Nominal area of conductor	Single core				Two core		Three and four core	
	Two cables spaced							
	Current rating	Volt drop per amp per metre	Current rating	Volt drop per amp per metre	Current rating	Volt drop per amp per metre	Current rating	Volt drop per amp per metre
mm²	**A**	**mV**	**A**	**mV**	**A**	**mV**	**A**	**mV**
1,5	–	–	–	–	29	31	25	27
2,5	–	–	–	–	39	19	33	16
4	–	–	–	–	52	12	44	10
6	–	–	–	–	66	7,9	56	6,8
10	–	–	–	–	90	4,7	78	4,0
16	–	–	–	–	115	2,9	99	2,5
25	–	–	–	–	152	1,90	131	1,65

Nominal area of conductor	Single core				Two core		Three and four core	
	Two cables spaced							
	Current rating	Volt drop per amp per metre	Current rating	Volt drop per amp per metre	Current rating	Volt drop per amp per metre	Current rating	Volt drop per amp per metre
mm²	A	mV	A	mV	A	mV	A	mV
35	–	–	–	–	188	1,35	162	1,15
50	266	1,00	222	0,87	228	1,00	197	0,87
70	337	0,75	285	0,62	291	0,69	251	0,60
95	412	0,60	346	0,47	354	0,52	304	0,45
120	477	0,51	402	0,39	410	0,42	353	0,37
150	539	0,45	463	0,33	472	0,35	406	0,30
185	614	0,40	529	0,28	359	0,29	463	0,26
240	714	0,35	625	0,24	636	0,24	546	0,21
300	805	0,32	720	0,21	–	–	–	–
400	889	0,30	815	0,195	–	–	–	–
500	989	0,29	918	0,180	–	–	–	–

Cable laid direct in ground / run in single way ducts.
Ground temperature 15°C. Ground thermal resistivity 1,2 Km/W, depth of laying 0,5 m.
All circuits thermally independent. Single core cables solidly bonded.

Nominal area of conductor	Single core								Two core			Three and four core		
	Two cables spaced				Three cables trefoil touching				Current rating		Volt drop per amp per metre	Current rating		Volt drop per amp per metre
	Current rating		Volt drop per amp per metre		Current rating		Volt drop per amp per metre							
	In ground	In duct	In ground	In duct	In ground	In duct	In ground	In duct	In ground	In duct		In ground	In duct	
mm²	A		mV		A		mV		A		mV	A		mV
1,5	–	–	–	–	–	–	–	–	38	31	31	32	26	27
2,5	–	–	–	–	–	–	–	–	49	41	19	42	34	17
4	–	–	–	–	–	–	–	–	65	53	12	55	45	10
6	–	–	–	–	–	–	–	–	81	67	7,90	69	56	6,80
10	–	–	–	–	–	–	–	–	109	89	4,70	92	75	4,10
16	–	–	–	–	–	–	–	–	141	115	2,90	119	96	2,50
25	–	–	–	–	–	–	–	–	183	148	1,90	152	124	1,65
35	–	–	–	–	–	–	–	–	219	178	1,35	182	149	1,15
50	274	252	1,00	1,10	231	231	0,87	0,93	259	211	1,00	217	177	0,87
70	337	305	0,71	0,80	284	278	0,62	0,70	317	260	0,69	266	218	0,60
95	403	360	0,55	0,65	340	327	0,47	0,56	381	313	0,52	319	263	0,45

Nominal area of conductor	Single core								Two core			Three and four core		
	Two cables spaced				Three cables trefoil touching				Current rating		Volt drop per amp per metre	Current rating		Volt drop per amp per metre
	Current rating		Volt drop per amp per metre		Current rating		Volt drop per amp per metre							
	In ground	In duct	In ground	In duct	In ground	In duct	In ground	In duct	In ground	In duct		In ground	In duct	
mm²	**A**		**mV**		**A**		**mV**		**A**		**mV**	**A**		**mV**
120	458	404	0,45	0,55	386	366	0,39	0,48	433	357	0,42	363	300	0,37
150	510	439	0,38	0,50	431	396	0,33	0,43	485	401	0,35	406	338	0,30
185	574	486	0,33	0,45	485	437	0,28	0,39	547	455	0,29	458	382	0,26
240	661	546	0,28	0,40	558	489	0,24	0,35	632	527	0,24	529	442	0,21
300	739	597	0,26	0,37	623	534	0,21	0,32	–	–	–	–	–	–
400	820	638	0,22	0,35	691	567	0,195	0,30	–	–	–	–	–	–
500	910	694	0,21	0,33	765	615	0,180	0,28	–	–	–	–	–	–

Rating factors for air temperature

Ambient temperature,°C	25	30	35	40	45	50	55
Rating factor	1,02	1,0	0,96	0,91	0,87	0,82	0,76

Rating factors for ground temperature

Ground temperature, °C	15	20	25	30	35	40	45
Rating factor	1,0	0,97	0,93	0,89	0,86	0,82	0,76

Rating factors for depth of laying (to centre of cable or trefoil group of cables)

Depth of laying [m]		0,50	0,60	0,80	1,00	1,25	1,50	1,75	2,00	2,50	3,00
Rating factor	up to 50 mm²	1,00	0,99	0,97	0,95	0,94	0,93	0,92	0,91	0,90	0,89
	70 mm² – 300 mm²	1,00	0,98	0,96	0,93	0,92	0,90	0,89	0,88	0,87	0,85
	above 300 mm²	1,00	0,97	0,94	0,92	0,89	0,87	0,86	0,86	0,84	0,82

Rating factors for variation in thermal resistivity of soil (average values)

Size of cable [mm²]	Soil thermal resistivity in Km/W					
	0,8	0,9	1,0	1,5	2,0	2,5
Single core cables up to 150	1,15	1,11	1,06	0,91	0,81	0,73
from 185 to 300	1,17	1,12	1,07	0,90	0,80	0,72
from 400 to 630	1,17	1,12	1,07	0,90	0,79	0,71
Multicores cables up to 16	1,09	1,06	1,04	0,93	0,84	0,77
from 25 to 150	1,12	1,09	1,05	0,92	0,82	0,75
from 185 to 400	1,14	1,10	1,06	0,92	0,81	0,74

Group rating factors for circuits of three single core cables, in trefoil and laid flat touching, horizontal formation

(average values)

Number of circuits	Spacing					
	Touching		0,15*	0,30	0,45	0,60
	Trefoil	Laid flat	m			
2	0,77	0,80	0,82	0,88	0,90	0,93
3	0,65	0,68	0,72	0,79	0,83	0,87
4	0,59	0,63	0,67	0,75	0,81	0,85
5	0,55	0,58	0,63	0,72	0,78	0,83
6	0,52	0,56	0,60	0,70	0,77	0,82

* This spacing will not be possible for some of the larger diameter cables.

Group ratings for multicore cables in horizontal formation

(average values)

Number of cables in group	Spacing				
	Touching	0,15	0,30	0,45	0,60
	m				
2	0,81	0,87	0,91	0,93	0,94
3	0,70	0,78	0,84	0,87	0,90
4	0,63	0,74	0,81	0,86	0,89
5	0,59	0,70	0,78	0,83	0,87
6	0,55	0,67	0,76	0,82	0,86

Cables installed in ducts

The term ducts applies to single earthenware, fibre or ferrous pipes.
Rating factors for ground temperature. Note: same as for direct in ground.

Rating factors for depth of laying (to centre of duct or trefoil group of ducts – average values)

Depth of laying [m]		0,50	0,60	0,80	1,00	1,25	1,50	1,75	2,00	2,50	3,00
Rating factor	single core	1,00	0,98	0,95	0,93	0,90	0,89	0,88	0,87	0,86	0,85
	multicore	1,00	0,99	0,97	0,96	0,95	0,94	0,94	0,93	0,92	0,91

Rating factor for variation in thermal resistivity of soil (average values)

Size of cable [mm²]	Soil thermal resistivity in Km/W					
	0,8	0,9	1,0	1,5	2,0	2,5
Single core cables up to 150	1,08	1,06	1,04	0,94	0,86	0,80
from 185 to 300	1,01	1,07	1,04	0,93	0,85	0,78
from 380 to 1000	1,11	1,08	1,05	0,93	0,83	0,76
Multicore cables up to 16	1,03	1,02	1,02	0,97	0,91	0,87
from 25 to 150	1,05	1,03	1,02	0,95	0,89	0,83
from 185 to 400	1,07	1,05	1,03	0,94	0,86	0,81

Group rating factors for single core cables in trefoil single way ducts, horizontal formation

(average values)

Number of circuits	Spacing		
	Touching	0,45	0,60
	Trefoil	m	
2	0,86	0,90	0,93
3	0,77	0,83	0,87
4	0,73	0,81	0,85
5	0,70	0,78	0,83
6	0,68	0,77	0,82

Group ratings for multicore cables in single way ducts, horizontal formation

(average values)

Number of cables in group	Spacing			
	Touching	0,30	0,45	0,60
	m			
2	0,90	0,93	0,95	0,96
3	0,82	0,87	0,90	0,93
4	0,78	0,85	0,89	0,91
5	0,75	0,82	0,87	0,90
6	0,72	0,81	0,86	0,90

XLPE/LSOH/AWA/LSOH

600/1000V

BS 6724:2016

XLPE insulated, LSOH sheathed, round wire armoured cables

APPLICATIONS

For use in fixed installations in industrial areas, buildings and similar applications.
Note: Operation of cables armoured with ferromagnetic materials is permissible only in direct-current circuits.

Standard length cable packing	500 or 1000m on drums. Other forms of packing and delivery are available on request

CONSTRUCTION

Conductors:	annealed copper circular or circular compacted stranded conductor class 2 (RM) or stranded sector – shaped conductor class 2 (SM) acc. to BS EN 60228
Insulation:	cross-linked polyethylene XLPE type GP8 acc. to BS 7655-1.3
Bedding:	LSOH (special low smoke zero halogen compound)
Armour:	for single-core cables - single layer of aluminium wires applied spirally over the bedding (AWA)
Sheath:	LSOH compound type LTS1 acc. to BS 7655-6.1

CHARACTERISTICS

Colour of sheath:	black
Core identification: *Other colors available at customer request*	HD 308 S2 1-core: brown or blue
Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	0°C
Maximum short-circuit conductor temperature:	+250°C
Smoke emission:	BS EN 61034-2

Corrosive and acid gas emission:	BS EN 60754-1, HCL ≤ 0,5%
Minimum bending radius:	6 x D for cables with circular copper conductors D – overall diameter of the cable
Test voltage:	3.5kV

Fire performance

Flame retardant:	BS EN 60332-1-2, BS EN 60332-3-24

XLPE/LSOH/AWA/LSOH

Number and cross-sectional area of conductor	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C	Maximum armour resistance at 20°C
n x mm²	**mm**	**kg/km**	**Ω/km**	**Ω/km**
1x150RM	26	1828	0,124	0,42
1x185RM	28,1	2228	0,0991	0,38
1x240RM	30,8	2794	0,0754	0,34
1x300RM	33	3412	0,0601	0,31
1x400RM	37,5	4436	0,047	0,22
1x500RM	41,3	5563	0,0366	0,2
1x630RM	45,7	6956	0,0283	0,18
1x800RM	52,6	8920	0,0221	0,13
1x1000RM	56,3	10891	0,0176	0,12

Current ratings for single core XLPE/PVC/SWA/PVC & XLPE/LSOH/SWA/LSOH cables

Cable installed in free air, ambient air temperature 30°C.

Nominal area of conductor	Single core			
	Two cables spaced		Three cables trefoil touching	
	Current rating	Volt drop per amp per metre	Current rating	Volt drop per amp per metre
mm²	**A**	**mV**	**A**	**mV**
50	266	1,00	222	0,87
70	337	0,75	285	0,62

Nominal area of conductor	Single core			
	Two cables spaced		Three cables trefoil touching	
	Current rating	Volt drop per amp per metre	Current rating	Volt drop per amp per metre
mm²	A	mV	A	mV
95	412	0,60	346	0,47
120	477	0,51	402	0,39
150	539	0,45	463	0,33
185	614	0,40	529	0,28
240	714	0,35	625	0,24
300	805	0,32	720	0,21
400	889	0,30	815	0,195
500	989	0,29	918	0,180

Current ratings

Cable laid direct in ground / run in single way ducts.
Ground temperature 15°C. Ground thermal resistivity 1,2 K·m/W, depth of laying 0,5 m.
All circuits thermally independent. Single core cables solidly bonded.

Nominal area of conductor	Single core								Two core			Three and four core		
	Two cables spaced				Three cables trefoil touching				Current rating			Current rating		
	Current rating		Volt drop per amp per metre		Current rating		Volt drop per amp per metre							
	In ground	In duct	In ground	In duct	In ground	In duct	In ground	In duct	In ground	In duct	Volt drop per amp per metre	In ground	In duct	Volt drop per amp per metre
mm²	A		mV		A		mV		A		mV	A		mV
50	274	252	1,00	1,10	231	231	0,87	0,93	259	211	1,00	217	177	0,87
70	337	305	0,71	0,80	284	278	0,62	0,70	317	260	0,69	266	218	0,60
95	403	360	0,55	0,65	340	327	0,47	0,56	381	313	0,52	319	263	0,45
120	458	404	0,45	0,55	386	366	0,39	0,48	433	357	0,42	363	300	0,37
150	510	439	0,38	0,50	431	396	0,33	0,43	485	401	0,35	406	338	0,30
185	574	486	0,33	0,45	485	437	0,28	0,39	547	455	0,29	458	382	0,26
240	661	546	0,28	0,40	558	489	0,24	0,35	632	527	0,24	529	442	0,21
300	739	597	0,26	0,37	623	534	0,21	0,32	-	-	-	-	-	-
400	820	638	0,22	0,35	691	567	0,195	0,30	-	-	-	-	-	-
500	910	694	0,21	0,33	765	615	0,180	0,28	-	-	-	-	-	-

Rating factors for air temperature

Ambient air temperature, °C	25	30	35	40	45	50	55
Rating factor	1,02	1,0	0,96	0,91	0,87	0,82	0,76

Rating factors for ground temperature

Ground temperature, °C	15	20	25	30	35	40	45
Rating factor	1,0	0,97	0,93	0,89	0,86	0,82	0,76

Rating factors for depth of laying

(to centre of cable or trefoil group of cables)

Depth of laying [m]		0,50	0,60	0,80	1,00	1,25	1,50	1,75	2,00	2,50	3,00
Rating factor	up to 50 mm²	1,00	0,99	0,97	0,95	0,94	0,93	0,92	0,91	0,90	0,89
	70-300 mm²	1,00	0,98	0,96	0,93	0,92	0,90	0,89	0,88	0,87	0,85
	above 300 mm²	1,00	0,97	0,94	0,92	0,89	0,87	0,86	0,86	0,84	0,82

Rating factors for variation in thermal resistivity of soil

(average values)

Size of cable [mm²]	Soil thermal resistivity in K·m/W					
	0,8	0,9	1,0	1,5	2,0	2,5
Single core cables up to 150	1,15	1,11	1,06	0,91	0,81	0,73
from 185 to 300	1,17	1,12	1,07	0,90	0,80	0,72
from 400 to 630	1,17	1,12	1,07	0,90	0,79	0,71
Multicores cables up to 16	1,09	1,06	1,04	0,93	0,84	0,77
from 25 to 150	1,12	1,09	1,05	0,92	0,82	0,75
from 185 to 400	1,14	1,10	1,06	0,92	0,81	0,74

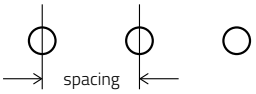
Group rating factors for circuits of three single core cables, in trefoil and laid flat touching, horizontal formation

(average values)

Number of circuits	Spacing					
	Touching		0,15*	0,30	0,45	0,60
	Trefoil	Laid flat	m			
2	0,77	0,80	0,82	0,88	0,90	0,93
3	0,65	0,68	0,72	0,79	0,83	0,87
4	0,59	0,63	0,67	0,75	0,81	0,85
5	0,55	0,58	0,63	0,72	0,78	0,83
6	0,52	0,56	0,60	0,70	0,77	0,82

Group ratings for multicore cables in horizontal formation

(average values)



Number of cables in group	Spacing				
	Touching	0,15	0,30	0,45	0,60
		m			
2	0,81	0,87	0,91	0,93	0,94
3	0,70	0,78	0,84	0,87	0,90
4	0,63	0,74	0,81	0,86	0,89
5	0,59	0,70	0,78	0,83	0,87
6	0,55	0,67	0,76	0,82	0,86

* This spacing will not be possible for some of the larger diameter cables.

Cables installed in ducts

The term ducts applies to single earthenware, fibre or ferrous pipes.
Rating factors for ground temperature. Note: same as for direct in ground.

Rating factors for depth of laying

(to centre of duct or trefoil group of ducts – average values)

Depth of laying [m]		0,50	0,60	0,80	1,00	1,25	1,50	1,75	2,00	2,50	3,00
Rating factor	single core	1,00	0,98	0,95	0,93	0,90	0,89	0,88	0,87	0,86	0,85
	multicore	1,00	0,99	0,97	0,96	0,95	0,94	0,94	0,93	0,92	0,91

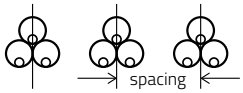
Rating factors for variation in thermal resistivity of soil

(average values)

Size of cable [mm²]	Soil thermal resistivity in K·m/W					
	0,8	0,9	1,0	1,5	2,0	2,5
Single core cables up to 150	1,08	1,06	1,04	0,94	0,86	0,80
from 185 to 300	1,01	1,07	1,04	0,93	0,85	0,78
from 380 to 1000	1,11	1,08	1,05	0,93	0,83	0,76
Multicore cables up to 16	1,03	1,02	1,02	0,97	0,91	0,87
from 25 to 150	1,05	1,03	1,02	0,95	0,89	0,83
from 185 to 400	1,07	1,05	1,03	0,94	0,86	0,81

Group rating factors for single core cables in trefoil single way ducts, horizontal formation

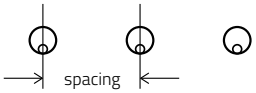
(average values)



Number of circuits	Spacing		
	Touching	0,45	0,60
		m	
2	0,86	0,90	0,93
3	0,77	0,83	0,87
4	0,73	0,81	0,85
5	0,70	0,78	0,83
6	0,68	0,77	0,82

Group ratings for multicore cables in single way ducts, horizontal formation

(average values)



Number of cables in group	Spacing			
	Touching	0,30	0,45	0,60
		m		
2	0,90	0,93	0,95	0,96
3	0,82	0,87	0,90	0,93
4	0,78	0,85	0,89	0,91
5	0,75	0,82	0,87	0,90
6	0,72	0,81	0,86	0,90

TFKable

Unarmoured Power Cables

6181XY

600/1000V

BS 7889

XLPE Insulated and PVC Sheathed Single-Core Cable

APPLICATIONS

Fixed Installation in dry or damp areas for domestic and light industrial wiring.

Standard length cable packing	500 and 1000 m on spools or drums. Other forms of packing and delivery are available on request.

CONSTRUCTION

Conductors:	plain annealed copper stranded circular compacted conductor class 2 (RMC) acc. to EN 60228, plain annealed copper stranded circular non compacted conductor class 2 (RM) acc. to EN 60228,
Insulation:	XLPE compound type GP8
Sheath:	PVC compound type 9
Colour of sheath:	according with order
Core identification:	brown or blue

CHARACTERISTICS

Maximum conductor operating temperature:	+90°C
Lowest installation temperature:	0°C
Maximum short-circuit conductor temperature:	+250°C
Minimum bending radius:	6xD D- cable diameter

Fire performance

Flame retardant:	EN 60332-1-2
CPR – class reaction to fire (acc EN 50575)	Eca

Approvals

BASEC

Conductor cross-section	Nominal thickness of insulation	Nominal thickness of sheath	Approximate overall diameter	Approximate net weight	Maximum conductor resistance at temperature 20°C
mm²	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**
6 RMC	0,7	1,4	7,1	96	3,08
6 RM	0,7	1,4	7,3	99	3,08
10 RMC	0,7	1,4	8,0	139	1,83
10 RM	0,7	1,4	8,2	142	1,83
16 RMC	0,7	1,4	9,0	199	1,15
16 RM	0,7	1,4	9,2	202	1,15
25 RMC	0,9	1,4	10,9	303	0,727
25 RM	0,9	1,4	11,1	307	0,727
35 RMC	0,9	1,4	12,0	398	0,524
35 RM	0,9	1,4	12,2	403	0,524
50 RMC	1,0	1,4	13,5	524	0,387
50 RM	1,0	1,4	13,8	526	0,387
70 RMC	1,1	1,4	15,0	725	0,268
70 RM	1,1	1,4	15,7	741	0,268
95 RMC	1,1	1,5	17,2	984	0,193
95 RM	1,1	1,5	17,8	991	0,193
120 RMC	1,2	1,5	18,8	1221	0,153

Conductor cross-section	Nominal thickness of insulation	Nominal thickness of sheath	Approximate overall diameter	Approximate net weight	Maximum conductor resistance at temperature 20°C
mm²	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**
120 RM	1,2	1,5	19,6	1226	0,153
150 RMC	1,4	1,6	21,0	1506	0,124
150 RM	1,4	1,6	21,7	1510	0,124
185 RMC	1,6	1,6	22,9	1861	0,0991
185 RM	1,6	1,6	24,0	1870	0,0991
240 RMC	1,7	1,7	25,8	2404	0,0754
240 RM	1,7	1,7	26,9	2422	0,0754
300 RMC	1,8	1,8	28,0	2988	0,0601
300 RM	1,8	1,8	29,7	2999	0,0601
400 RMC	2,0	1,9	31,3	3849	0,0470
400 RM	2,0	1,9	33,2	3808	0,0470
500 RMC	2,2	2,0	35,1	4909	0,0366
500 RM	2,2	2,0	37,1	4854	0,0366
630 RMC	2,4	2,2	39,7	6241	0,0283
630 RM	2,4	2,2	42,0	6311	0,0283
1000 RMC	2,8	2,4	48,7	9776	0,0176

6181XB

600/1000V

BS 8573

XLPE insulated and LSOH sheathed single-core cable

APPLICATIONS

Fixed Installations in industrial areas, buildings and similar applications. The cables are not suitable for either direct burial in the ground or installation within cable ducts that are buried in the ground. They are designed for fixed installation only, i.e. they are not to be used where they are subject to flexing

Standard length cable packing	500 and 1000 m on spools or drums. Other forms of packing and delivery are available on request.

CONSTRUCTION

Conductors:	annealed copper stranded circular compacted conductor class 2(RM) acc. to BS EN 60228
Insulation:	XLPE compound type GP8 acc to BS 7655-1.3
Sheath:	Halogen-free thermoplastic compound type LTS4 acc to 7655-6.1
Colour of sheath:	black
Core identification:	blue or brown

CHARACTERISTICS

Maximum conductor operating temperature:	+90°C	
Lowest ambient temperature for fixed installation:	-30°C	
Lowest installation temperature:	5°C	
Maximum short-circuit conductor temperature:	+250°C	
Minimum installation radius:	For cable diameter D (mm)	
	D ≤ 25	D > 25
	4 D	6 D

Fire performance

Flame retardant:	BS EN 60332-1-2, BS EN 60332-3-24
Corrosive and acid gas emission of insulation:	**BS EN 60754-2, pH ≥ 4,3 & conductivity £ 10 mSmm-1** **BS EN 60754-1, HCL ≤ 0,5%**
Smoke emission:	BS EN 61034-2

Conductor cross-section	Nominal thickness of insulation	Nominal thickness of sheath	Approximate overall diameter	Approximate net weight	Maximum conductor resistance at temperature 20°C
mm²	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**
6	0,7	1,4	7,1	97	3,08
10	0,7	1,4	8,0	140	1,83
16	0,7	1,4	9,0	200	1,15
25	0,9	1,4	10,9	305	0,727
35	0,9	1,4	12,0	400	0,524
50	1,0	1,4	13,5	526	0,387
70	1,1	1,4	15,0	728	0,268
95	1,1	1,5	17,2	988	0,193
120	1,2	1,5	18,8	1225	0,153
150	1,4	1,6	21,0	1510	0,124
185	1,6	1,6	22,9	1867	0,0991
240	1,7	1,7	25,8	2410	0,0754
300	1,8	1,8	28,0	2996	0,0601
400	2,0	1,9	31,3	3858	0,0470
500	2,2	2,0	35,1	4920	0,0366
630	2,4	2,2	39,7	6255	0,0283
800	2,6	2,3	45,0	7902	0,0221
1000	2,8	2,4	48,7	9794	0,0176

NYY-J,O 0,6/1kV
(N)YY-J,O 0,6/1kV

VDE 0276-603, VDE 0276-627, IEC 60502-1

*based on norm

PVC insulated and PVC sheathed power and control cable

APPLICATIONS

PVC insulated and sheathed power and auxiliary control cables for the supply of electrical energy. Special for installations in the open air, in underground and water, indoors, in cable ducts.

Standard length cable packing	1000m on drums. Other forms of packing and delivery are available on request.

CONSTRUCTION

Conductors:	Annealed copper solid class 1(RE), circular or circular compacted stranded conductor class 2 (RM) or stranded sector – shaped conductor class 2 (SM) acc. to EN 60228
Insulation:	Special PVC compound type DIV4 acc. to HD 603.1
Inner covering:	Filling compound
Sheath:	Special PVC compound type DMV5 acc. to HD 603.1

CHARACTERISTICS

Colour of sheath:	Black (other colours, included in standard RAL pallet available at customer request as (N)YY)
Core identification:	HD 308 S2 (other colours available at customer request)
NYY-J	**NYY-O**

1-core:	green-yellow
2-core:	green-yellow, black[1)]
3-core:	green-yellow, black, brown
4-core:	green-yellow, brown, black, grey
4-core*:	green-yellow, blue, brown, black
5-core:	green-yellow, blue, brown, black, grey
7 and more:	green-yellow, other cores black with white numbering

[1)] ≥10mm²

* For certain applications only.

1-core:	black
2-core:	blue, brown
3-core:	brown, black, grey
3-core*:	blue, brown, black
4-core:	blue, brown, black, grey
5-core:	blue, brown, black, grey, black
7 and more:	black with white numbering

* For certain applications only.

Maximum conductor operating temperature:	+70°C
Lowest ambient temperature for fixed installation:	-40°C
Lowest installation temperature:	-5°C
Maximum short-circuit conductor temperature:	+160°C for cross-sectional area of conductor ≤ 300 mm² and +140°C for cross-sectional area of conductor > 300 mm²
Minimum bending radius:	15 × D single core cables, 12 × D multicore cables, D – overall diameter
Max. permissible tensile stress with cable grip for Cu-conductor:	50 N/mm²
Test voltage:	4kV
Current of short-circuit (1 sec):	115 × nominal cross section conductor (A)
Flame retardant:	EN 60332-1-2
CPR – class reaction to fire (acc EN 50575):	Eca

Fire performance

Standard length cable packing	1000m on drums. Other forms of packing and delivery are available on request.

Approvals

VDE, GOST

Technical and Electrical Characteristics

Number and cross-sectional area of conductor	Minimum number of wires in conductor	Nominal thickness of insulation	Nominal thickness of sheath	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C
n × mm²	**n**	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**
2x1,5RE	1	0,8	1,8	9,9	145	12,1
2x1,5RM	7	0,8	1,8	10,3	155	12,1
2x2,5RE	1	0,8	1,8	10,7	179	7,41
2x2,5RM	7	0,8	1,8	11,2	193	7,41
2x4RE	1	1	1,8	12,4	251	4,61
2x4RM	7	1	1,8	13	272	4,61
2x6RE	1	1	1,8	13,4	312	3,08
2x6RM	6	1	1,8	13,7	324	3,08
2x10RE	1	1	1,8	15	428	1,83
2x10RM	6	1	1,8	15,6	452	1,83
2x16RE	1	1	1,8	16,8	586	1,15
2x16RM	6	1	1,8	17,6	623	1,15
3x1,5RE	1	0,8	1,8	10,3	164	12,1
3x1,5RM	7	0,8	1,8	10,8	176	12,1
3x2,5RE	1	0,8	1,8	11,2	208	7,41
3x2,5RM	7	0,8	1,8	11,7	223	7,41
3x4RE	1	1	1,8	13	295	4,61
3x4RM	7	1	1,8	13,7	318	4,61
3x6RE	1	1	1,8	14,1	374	3,08
3x6RM	6	1	1,8	14,5	388	3,08
3x10RE	1	1	1,8	15,8	524	1,83
3x10RM	6	1	1,8	16,4	549	1,83
3x16RE	1	1	1,8	18,1	750	1,15
3x16RM	6	1	1,8	18,6	771	1,15
4x1,5RE	1	0,8	1,8	11,1	192	12,1
4x1,5RM	7	0,8	1,8	11,5	204	12,1
4x2,5RE	1	0,8	1,8	12	245	7,41

Number and cross-sectional area of conductor	Minimum number of wires in conductor	Nominal thickness of insulation	Nominal thickness of sheath	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at temperature 20°C
n × mm²	**n**	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**
4x2,5RM	7	0,8	1,8	12,6	263	7,41
4x4RE	1	1	1,8	14,1	354	4,61
4x4RM	7	1	1,8	14,8	379	4,61
4x6RE	1	1	1,8	15,2	451	3,08
4x6RM	6	1	1,8	15,7	468	3,08
4x10RE	1	1	1,8	17,1	640	1,83
4x10RM	6	1	1,8	17,9	671	1,83
4x16RE	1	1	1,8	19,3	902	1,15
4x16RM	6	1	1,8	20,3	950	1,15
5x1,5RE	1	0,8	1,8	11,9	226	12,1
5x1,5RM	7	0,8	1,8	12,4	241	12,1
5x2,5RE	1	0,8	1,8	12,9	291	7,41
5x2,5RM	7	0,8	1,8	13,6	313	7,41
5x4RE	1	1	1,8	15,2	423	4,61
5x4RM	7	1	1,8	16	455	4,61
5x6RE	1	1	1,8	18,1	623	3,08
5x6RM	6	1	1,8	17	564	3,08
5x10RE	1	1	1,8	19,1	802	1,83
5x10RM	6	1	1,8	19,5	816	1,83
5x16RE	1	1	1,8	22,1	1167	1,15
5x16RM	6	1	1,8	22,2	1163	1,15
7x1,5RE	1	0,8	1,8	12,7	271	12,1
7x1,5RM	7	0,8	1,8	13,3	289	12,1
7x2,5RE	1	0,8	1,8	13,8	355	7,41
7x2,5RM	7	0,8	1,8	14,6	381	7,41

Current ratings*

Operating temperature at conductor 70°C; ambient air temperature 30°C, ground temperature 20°C

Installation	[1]			[1]		
Number of loaded cores	1	2	3	1	2	3
	laying in ground			laying in air		
Cross-section, mm²	Current ratings in Ampere (A)					
1,5	41	27	30	27	19,5	21
2,5	55	36	39	35	25	28
4	71	47	50	47	34	37
6	90	59	62	59	43	47
10	124	79	83	81	59	64
16	160	102	107	107	79	84

[1] Rated current for direct current systems with a far-distanced return conductor.

* based on norm

Current ratings for control cables – HD 627 S1

Number of loaded cores	3	3
	laying in ground	laying in air
Cross-section, mm²	C urrent ratings in Ampere (A)	
1,5	27	19,5
2,5	36	25

The values are referred to the following basic conditions

Laying in ground		Laying in air	
Ground temperature at installation depth:	20°C	Ambient temperature:	30°C
Load factor:	0,7	Load factor:	1,0
Soil-thermal resistivity of moist area:	1,0 K·m/W	Arrangement: free in air, protection against direct solar radiation, no external heat sources, unrestricted dissipation of heat.	
Soil-thermal resistivity of dry area:	2,5 K·m/W		
Laying depth:	0,7 m		

Correction factors for various ambient air temperatures

Ambient temperature, °C	10	15	20	25	30	35	40	45	50
Rating factor	1,22	1,17	1,12	1,06	1,00	0,94	0,87	0,79	0,71

Conversion factors for multicore cable

The conversion factors are to be used for laying the cables in ground or in air, to the values given in above tables.

Number of loaded cores	Laying in ground	Laying in air
5	0,70	0,75
7	0,60	0,65

Note: valid for cross-section 1,5 to 10 mm²

* As defined in DIN VDE 0276-603, DIN VDE 0276-627, HD 603 S1, HD 627 S1.
Conversion factors for deviating ambient temperature defined in DIN VDE 0298 part 4.

TFKable

Service Cables

STRAIGHT CONCENTRIC (HYBRAL) Al/XLPE/PVC

600/1000V

BS 7870-3.11

XLPE insulated copper screened cable with aluminium conductor and PVC sheath

APPLICATIONS

The cables are designed to be installed in air (indoors and/or outdoors), or may be buried directly in free draining soil or in ducts.

Standard length cable packing	250 and 500m on drums. Other forms of packing and delivery are available on request

CONSTRUCTION

Conductors:	aluminium circular solid conductor class 1 (RE) acc. to EN 60228
Insulation:	XLPE type DIX 3 acc to BS 7870-3.11:2011 Colour: 1-core: black 3-cores: brown, black and grey
Bedding:	synthetic tape bedding applied over the laid-up cores of 3-phase cables or as agreed between the customer and the contractor
Concentric conductor:	Cu bare wires wrapped helically, over concentric conductor there is a wrapping of polyester tape
Outer sheath:	PVC type DMV 23 acc. to BS 7870-1, annex B, colour black

CHARACTERISTICS

Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-30°C
Lowest installation temperature:	-5°C
Maximum short-circuit conductor temperature:	+250°C
Minimum bending radius:	15 x D, D – overall diameter
Max. permissible tensile stress with cable grip for Cu-conductor:	30 N/mm^2

Fire performance

Flame retardant:	EN 60332-1-2

Number and cross-sectional area of conductor	Nominal thickness of insulation	Nominal thickness of outer sheath	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at 20°C Phase / Neutral
mm²	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**
1x25RE	0,9	1,4	12,2	295	1,2/1,3
1x35RE	0,9	1,4	13,7	395	0,868/0,91
3x25RE	0,9	1,8	21,7	638	1,2/1,3
3x35RE	0,9	1,8	24,8	851	0,868/0,91

SPLIT CONCENTRIC Cu/PVC/PVC 600/1000V

BS 7870-3.20

PVC insulated split concentric cables with copper conductors and PVC sheath.

APPLICATIONS

The cables are designed to be installed in air (indoors and/or outdoors), or may be buried directly in free draining soil or in ducts.

Standard length cable packing	500 and 1000m on drums. Other forms of packing and delivery are available on request

CONSTRUCTION

Conductors:	Cu circular or circular compacted stranded conductor class 2 (RM) acc. to EN 60228
Insulation:	PVC type TI1 acc. to BS 7655-3.1, colour brown
Neutral and earth conductor:	neutral and earth conductor are wrapped helically over core cable and separated from each other by fillers
Outer sheath:	PVC type TM1 acc. to BS 7655-4.1 ; colour black

CHARACTERISTICS

Maximum conductor operating temperature:	+70°C
Lowest ambient temperature for fixed installation:	-30°C
Lowest installation temperature:	-5°C
Maximum short-circuit conductor temperature:	+160°C
Minimum bending radius:	15 x D, D – overall diameter
Max. permissible tensile stress with cable grip for Cu-conductor:	50 N/mm^2

Fire performance

Flame retardant:	EN 60332-1-2

Cross-sectional area of conductor	Nominal thickness of insulation	Diameter over insulation	Nominal thickness of outer sheath	Approx. overall diameter	Approx. net weight of cables	Maximum conductor resistance at 20°C Phase/Neutral/ Earth	Current ratings** laying in ground/ laying in air
mm²	**mm**	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**	**A**
4	0,8	4,8	1,4	10,4	202	4,61/ 4,8/ 4,8	51/39
6*	1,0	6,3	1,4	10,8	269	3,08/ 3,3/ 3,2	63/49
10*	1,0	6,8	1,4	12,2	456	1,83/ 1,9/ 1,9	84/67
16	1,0	8,6	1,4	15,9	599	1,15/ 1,2/ 1,2	108/89
25	1,2	10,3	1,5	18,0	840	0,727/0,76/1,2	139/119
35*	1,2	10,4	1,5	18,3	941	0,524/0,76/1,2	166/146

*based on BS 7870-3.20

** Current ratings*

Operating temperature at conductor 70°C; ambient air temperature 30°C, ground temperature 20°C

The values are referred to the following basic conditions:

Laying in ground		Laying in air	
Ground temperature at installation depth:	20°C	Ambient temperature:	30°C
Load factor:	0,7	Load factor:	1,0
Soil-thermal resistivity of moist area:	1,0 K - m/W	Arrangement: free in air, protection against direct solar radiation, no external heat sources, unrestricted dissipation of heat.	
Soil-thermal resistivity of dry area:	2,5 K - m/W		
Laying depth:	0,7 m		

Correction factors for various ambient air temperatures

Ambient temperature,°C	10	15	20	25	30	35	40	45	50
Rating factor	1,22	1,17	1,12	1,06	1,00	0,94	0,87	0,79	0,71

SPLIT CONCENTRIC Cu/XLPE/PVC 600/1000V

BS 7870-3.21

XLPE insulated split concentric cables with copper conductors and PVC sheath

APPLICATIONS

The cables are designed to be installed in air (indoors and/or outdoors), or may be buried directly in free draining soil or in ducts.

Standard length cable packing	500 and 1000m on drums. Other forms of packing and delivery are available on request

CONSTRUCTION

Conductors:	Cu circular or circular compacted stranded conductor class 2 (RM) acc. to EN 60228
Insulation:	XLPE type DIX3 acc. to BS 7880-1 Annex B, colour brown,
Neutral and earth conductor:	neutral and earth conductor are wrapped helically over core cable and separated from each other by fillers
Outer sheath:	PVC type DMV 23 acc. to BS 7880-1 Annex B ; colour black

CHARACTERISTICS

Maximum conductor operating temperature:	+90°C
Lowest ambient temperature for fixed installation:	-30°C
Lowest installation temperature:	+5°C
Maximum short-circuit conductor temperature:	+250°C
Minimum bending radius:	15 x D, D – overall diameter
Max. permissible tensile stress with cable grip for Cu-conductor:	50 N/mm^2

Fire performance

Flame retardant:	EN 60332-1-2

Cross-sectional area of conductor	Nominal thickness of insulation	Nominal thickness of outer sheath	Approximate overall diameter	Approximate net weight of cables	Maximum conductor resistance at 20°C Phase/Neutral/Earth
mm²	**mm**	**mm**	**mm**	**kg/km**	**Ω/km**
4	0,7	1,4	10,1	180	4,61/ 4,8/ 4,8
6*	0,7	1,4	10,9	257	3,08/ 3,3/ 3,2
10*	0,7	1,4	12,9	365	1,83/ 1,9/ 1,9
16	0,7	1,4	15,2	555	1,15/ 1,2/ 1,2
25	0,9	1,5	18,0	798	0,727/ 0,76/ 1,2
35*	0,9	1,5	23,3	1184	0,524 / 0,524 / 0,727

*based on BS 7870-3.21

Current ratings*

Operating temperature at conductor 90°C; ambient air temperature 30°C, ground temperature 20°C

Installation		
Number of loaded cores	3	3
	laying in ground	laying in air
Cross-section, mm²	Current ratings in Ampere (A)	
4	55	47
6	68	59
10	91	81
16	117	109
25	150	146
35	179	179

The values are referred to the following basic conditions:

Laying in ground		Laying in air	
Ground temperature at installation depth:	20°C	Ambient temperature:	30°C
Load factor:	0,7	Load factor:	1,0
Soil-thermal resistivity of moist area:	1,0 K m/W	Arrangement: free in air, protection against direct solar radiation, no external heat sources, unrestricted dissipation of heat.	
Soil-thermal resistivity of dry area:	2,5 K m/W		
Laying depth:	0,7 m		

Correction factors for various ambient air temperatures

Ambient temperature,°C	10	15	20	25	30	35	40	45	50
Rating factor	1,15	1,12	1,08	1,04	1,00	0,96	0,91	0,87	0,82

* As defined in DIN VDE 0276-603, DIN VDE 0276-627, HD 603 S1, HD 627 S1.

Conversion factors for deviating ambient temperature defined in DIN VDE 0298 part 4

Notes

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Notes

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