Power & Control Cable — IEC 60502-1

(2-, 3-, and 4-cores) — U_0/U 0.6 / 1 kV

XLPE-Insulation, Armour, LSZH-Sheath

2XHRH

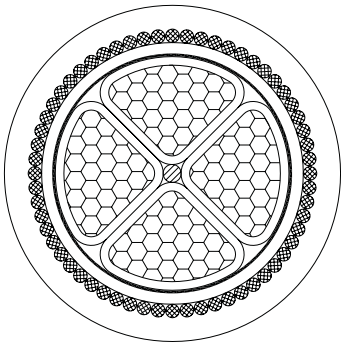
Application

For electricity supply and control in public networks and industrial plants or public buildings, where people are potentially endangered in case of fire; suitable for use in zone 1 and zone 2 group II classified areas (IEC 60079-14).

Recommended for direct burial (partly). For indoor and outdoor installation in dry and wet locations, on racks, in conduits (Local and / or legal requirements to be noted)

Construction

Conductor	plain annealed copper, class 1 or class 2 resp., acc. to IEC 60228, ≤ 35 mm²: circular solid (RE) or circular stranded (RM), > 35 mm²: sector-shaped stranded (SM)	
Insulation	cross-linked polyethylene XLPE	
Colour code [1]	Two-core:	blue, brown
	Three-core:	brown, black, grey
	Four-core:	blue, brown, black, grey
Laying up	cores twisted in layers (if necessary with filling element/s)	
Wrapping	at least 1 layer of plastic tape	
Bedding	extruded zero halogen flame retardant compound LSZH, black	
Armour	galvanized round steel wires	
Outer Sheath	extruded zero halogen flame retardant compound LSZH, black	
Cable marking	ELECTRIC CABLE 0.6/1 kV IEC 60502-1 KERPEN, YEAR, LENGTH MARKING	



Technical Data

Flame retardancy:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat. A
Smoke density:	IEC 61034-1 and 2
Amount of halogen acid gas:	IEC 60754-1; 0 %
Degree of acidity of gases:	IEC 60754-2
Outer sheath:	
Limiting Oxygen Index (LOI):	min. 30 % (IEC 60332-3 ann. B)
Temperature Index (TI):	min. 250 °C (ASTM-D-2863)

Temperature range:
- 30 °C up to + 90 °C (during operation)
- 5 °C up to + 50 °C (during installation)

max. + 250 °C (under short circuit)

Min. bending radius:
8 x cable-∅

Abbreviations

2X	insulation of XLPE
H	bedding & outer sheath of LSZH
R	round steel wire armour

Electrical Data at 20 °C

	Character	Unit	Values
Conductor resistance	max.	Ω/km	acc. to IEC 60228
Test voltage U_{rms} core:core		V	3500
Test voltage U_{rms} core:armour		V	3500
Nominal voltage U_o/U		V	600/1000
Highest system voltage U_m:	max.	V	1200 (for three phase systems)

[1] other colours on request

For further details see appendix

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(2-, 3-, and 4-cores) — U_0/U 0.6 / 1 kV

XLPE-Insulation, Armour, LSZH-Sheath

2XHRH

Geometrical Data

No. of cores and cross-section (nom.) n/ mm²	Radial thickness of insulation (nom.) mm	Diameter over bedding (approx.) mm	Armour wire diameter (nom.) mm	Radial thickness of outer sheath (nom.) mm	Overall diameter (approx.) mm	Weigth of cable (approx.) kg / km	Part number
2 x 1.5 RE	0.7	7.3	0.8	1.8	12.7	310	21380071
2 x 1.5 RM	0.7	7.8	0.8	1.8	13.2	330	21380072
2 x 2.5 RE	0.7	8.1	0.8	1.8	13.5	350	21380073
2 x 2.5 RM	0.7	8.6	0.8	1.8	14.0	370	21380074
2 x 4 RE	0.7	9.1	0.8	1.8	14.5	410	21380075
2 x 4 RM	0.7	9.8	0.8	1.8	15.2	440	21380076
2 x 6 RE	0.7	10.1	0.8	1.8	15.5	480	21380077
2 x 6 RM	0.7	10.8	0.8	1.8	16.2	510	21380078
2 x 10 RE	0.7	11.6	0.8	1.8	17.0	600	21380079
2 x 10 RM	0.7	12.8	1.25	1.8	18.9	770	21380080
2 x 16 RE	0.7	13.5	1.25	1.8	19.6	890	21380081
2 x 16 RM	0.7	14.9	1.25	1.8	21.0	960	21380082
2 x 25 RM	0.9	18.3	1.6	1.8	25.1	1350	-
2 x 35 RM	0.9	20.5	1.6	1.8	27.3	1620	-
2 x 50 SM	1.0	19.2	1.6	1.9	26.0	1845	21380085
2 x 70 SM	1.1	20.4	1.6	2.0	27.6	2310	21380086
2 x 95 SM	1.1	23.5	2.0	2.1	31.7	3145	21380087
2 x 120 SM	1.2	27.8	2.0	2.2	36.2	3865	21380088
2 x 150 SM	1.4	31.0	2.0	2.3	39.6	4640	21380089
2 x 185 SM	1.6	35.4	2.5	2.5	45.4	6090	21380090
2 x 240 SM	1.7	39.5	2.5	2.7	49.9	7520	21380091
2 x 300 SM	1.8	46.2	2.5	2.8	56.8	9360	21380092
3 x 1.5 RE	0.7	7.8	0.8	1.8	13.2	320	21380023
3 x 1.5 RM	0.7	8.3	0.8	1.8	13.7	340	21380010
3 x 2.5 RE	0.7	8.6	0.8	1.8	14.0	390	21380037
3 x 2.5 RM	0.7	9.2	0.8	1.8	14.6	410	21380050
3 x 4 RE	0.7	9.6	0.8	1.8	15.0	460	21380093
3 x 4 RM	0.7	10.4	0.8	1.8	15.8	510	21380094
3 x 6 RE	0.7	10.7	0.8	1.8	16.1	550	21380095
3 x 6 RM	0.7	11.5	0.8	1.8	16.9	600	21380096
3 x 10 RE	0.7	12.4	1.25	1.8	18.5	830	21380097
3 x 10 RM	0.7	13.5	1.25	1.8	19.6	890	21380098
3 x 16 RE	0.7	14.5	1.25	1.8	20.6	1080	21380099
3 x 16 RM	0.7	15.8	1.25	1.8	21.9	1150	21380100
3 x 25 RM	0.9	19.6	1.6	1.8	26.4	1660	-

RE: circular solid • RM: circular stranded • SM: sector shaped stranded

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(2-, 3-, and 4-cores) — U_0/U 0.6 / 1 kV

XLPE-Insulation, Armour, LSZH-Sheath

2XHRH

Geometrical Data

No. of cores and cross-section (nom.) n / mm²	Radial thickness of insulation (nom.) mm	Diameter over bedding (approx.) mm	Armour wire diameter (nom.) mm	Radial thickness of outer sheath (nom.) mm	Overall diameter (approx.) mm	Weigth of cable (approx.) kg / km	Part number
3 x 35 RM	0.9	22.0	1.6	1.8	28.8	2050	-
3 x 50 SM	1.0	22.7	1.6	1.9	29.7	2500	21380103
3 x 70 SM	1.1	26.5	2.0	2.0	34.5	3540	21380104
3 x 95 SM	1.1	29.0	2.0	2.2	37.4	4440	21380105
3 x120 SM	1.2	32.0	2.0	2.3	40.6	5280	21380106
3 x150 SM	1.4	36.3	2.5	2.5	46.3	6810	21380107
3 x185 SM	1.6	41.1	2.5	2.6	51.3	8200	21380108
3 x240 SM	1.7	46.1	2.5	2.8	56.7	10310	21380109
3 x300 SM	1.8	53.4	2.5	3.0	64.4	12900	21380110
3 x400 SM	2.0	59.8	2.5	3.2	71.2	15860	21380111
4 x 1.5 RE	0.7	8.5	0.8	1.8	13.9	370	21380024
4 x 1.5 RM	0.7	9.0	0.8	1.8	14.4	400	21380011
4 x 2.5 RE	0.7	9.4	0.8	1.8	14.8	440	21380038
4 x 2.5 RM	0.7	10.0	0.8	1.8	15.4	460	21380051
4 x 4 RE	0.7	10.5	0.8	1.8	15.9	530	21380112
4 x 4 RM	0.7	11.4	0.8	1.8	16.8	580	21380113
4 x 6 RE	0.7	11.8	0.8	1.8	17.2	650	21380114
4 x 6 RM	0.7	12.7	1.25	1.8	18.8	800	21380115
4 x 10 RE	0.7	13.7	1.25	1.8	19.8	970	21380116
4 x 10 RM	0.7	14.9	1.25	1.8	21.0	1040	21380117
4 x 16 RE	0.7	15.9	1.6	1.8	22.7	1390	21380118
4 x 16 RM	0.7	17.5	1.6	1.8	24.3	1500	21380119
4 x 25 RM	0.9	21.6	1.6	1.8	28.4	1980	-
4 x 35 RM	0.9	24.0	1.6	1.9	31.0	2530	-
4 x 50 SM	1.0	26.3	1.6	2.0	33.5	3150	21380122
4 x 70 SM	1.1	29.7	2.0	2.0	37.7	4370	21380123
4 x 95 SM	1.1	33.2	2.0	2.3	41.8	5590	21380124
4 x120 SM	1.2	37.1	2.5	2.5	47.1	7170	21380125
4 x150 SM	1.4	41.1	2.5	2.6	51.3	8550	21380126
4 x185 SM	1.6	46.6	2.5	2.8	57.2	10460	21380127
4 x240 SM	1.7	53.0	2.5	3.0	64.0	13190	21380128
4 x300 SM	1.8	59.0	2.5	3.2	70.4	16360	21380129
4 x400 SM	2.0	69.7	3.15	3.5	83.0	21470	21380130

RE: circular solid • RM: circular stranded • SM: sector shaped stranded

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Power & Control Cable — IEC 60502-1

(Multicores) — U_0/U 0.6 / 1 kV

XLPE-Insulation, Armour, LSZH-Sheath

2XHRH

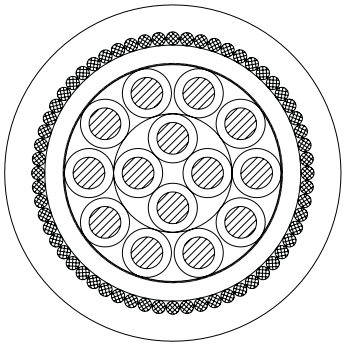
Application

For electricity supply and control in public networks and industrial plants or public buildings, where people are potentially endangered in case of fire; suitable for use in zone 1 and zone 2 group II classified areas (IEC 60079-14).

Recommended for direct burial (partly). For indoor and outdoor installation in dry and wet locations, on racks, in conduits (Local and / or legal requirements to be noted)

Construction

Conductor	plain annealed copper, class 1 or class 2 resp., acc. to IEC 60228, class 1: circular solid (RE) class 2: circular stranded (RM)
Insulation	cross-linked polyethylene XLPE
Colour code	black, continuously numbered
Laying up	cores twisted in layers (if necessary with filling element/s)
Wrapping	at least 1 layer of plastic tape
Bedding	extruded zero halogen flame retardant compound LSZH, black
Armour	galvanized round steel wires
Outer Sheath	extruded zero halogen flame retardant compound LSZH, black
Cable marking	ELECTRIC CABLE 0.6/1 kV IEC 60502-1 KERPEN, YEAR, LENGTH MARKING



Technical Data

Flame retardancy:	IEC 60332-1
Flame propagation:	IEC 60332-3 cat. A
Smoke density:	IEC 61034-1 and 2
Amount of halogen acid gas:	IEC 60754-1; 0 %
Degree of acidity of gases:	IEC 60754-2
Outer sheath:	
Limiting Oxygen Index (LOI):	min. 30 % (IEC 60332-3 ann. B)
Temperature Index (TI):	min. 250 °C (ASTM-D-2863)

Temperature range:	
- 30 °C up to + 90 °C	(during operation)
- 5° C up to + 50 °C	(during installation)
max. + 250 °C	(under short circuit)
Min. bending radius:	
8 x cable-∅	

Abbreviations

2X	insulation of XLPE
H	bedding & outer sheath of LSZH
R	round steel wire armour

Electrical Data at 20 °C

	Character	Unit	Values
Conductor resistance	max.	Ω/km	acc. to IEC 60228
Test voltage U_{rms} core:core		V	3500
Test voltage U_{rms} core:armour		V	3500
Nominal voltage U_o/U		V	600/1000
Highest system voltage U_m	max.	V	1200 (for three phase systems)

For further details see appendix

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Power & Control Cable — IEC 60502-1

(Mulicores) — U_0/U 0.6 / 1 kV

XLPE-Insulation, Armour, LSZH-Sheath

2XHRH

Geometrical Data

No. of cores and cross-section (nom.) n / mm²	Radial thickness of insulation (nom.) mm	Diameter over bedding (approx.) mm	Armour wire diameter (nom.) mm	Radial thickness of outer sheath (nom.) mm	Overall diameter (approx.) mm	Weigth of cable (approx.) kg / km	Part number
5 x 1.5 RE	0.7	9.3	0.8	1.8	14.7	420	21380025
7 x 1.5 RE	0.7	10.1	0.8	1.8	15.5	480	21380026
10 x 1.5 RE	0.7	12.9	1.25	1.8	19.0	690	21380027
12 x 1.5 RE	0.7	13.3	1.25	1.8	19.4	770	21380028
19 x 1.5 RE	0.7	15.7	1.25	1.8	21.8	990	21380031
27 x 1.5 RE	0.7	19.3	1.6	1.8	26.1	1440	21380034
37 x 1.5 RE	0.7	21.7	1.6	1.8	28.5	1720	21380063
48 x 1.5 RE	0.7	24.9	1.6	1.9	31.9	2090	21380064
5 x 1.5 RM	0.7	9.9	0.8	1.8	15.3	450	21380012
7 x 1.5 RM	0.7	10.8	0.8	1.8	16.2	510	21380013
10 x 1.5 RM	0.7	13.8	1.25	1.8	19.9	770	21380014
12 x 1.5 RM	0.7	14.2	1.25	1.8	20.3	830	21380015
19 x 1.5 RM	0.7	16.8	1.25	1.8	22.9	1070	21380018
27 x 1.5 RM	0.7	20.7	1.6	1.8	27.5	1560	21380021
37 x 1.5 RM	0.7	23.2	1.6	1.8	30.0	1830	21380065
48 x 1.5 RM	0.7	26.7	1.6	1.9	33.7	2270	21380066
5 x 2.5 RE	0.7	10.3	0.8	1.8	15.7	490	21380039
7 x 2.5 RE	0.7	11.3	1.25	1.8	17.4	660	21380040
10 x 2.5 RE	0.7	14.4	1.25	1.8	20.5	880	21380041
12 x 2.5 RE	0.7	14.9	1.25	1.8	21.0	950	21380042
19 x 2.5 RE	0.7	18.1	1.6	1.8	24.9	1430	21380045
27 x 2.5 RE	0.7	21.7	1.6	1.8	28.5	1800	21380048
37 x 2.5 RE	0.7	24.4	1.6	1.9	31.4	2230	21380067
48 x 2.5 RE	0.7	28.5	2.0	2.1	36.7	3010	21380068
5 x 2.5 RM	0.7	11.0	0.8	1.8	16.4	530	21380052
7 x 2.5 RM	0.7	12.0	1.25	1.8	18.1	690	21380053
10 x 2.5 RM	0.7	15.4	1.25	1.8	21.5	930	21380054
12 x 2.5 RM	0.7	16.0	1.25	1.8	22.1	1020	21380055
19 x 2.5 RM	0.7	19.4	1.6	1.8	26.2	1510	21380058
27 x 2.5 RM	0.7	23.3	1.6	1.8	30.1	1930	21380061
37 x 2.5 RM	0.7	26.2	1.6	1.9	33.2	2360	21380069
48 x 2.5 RM	0.7	30.5	2.0	2.1	38.7	3240	21380070

RE: circular solid • RM: circular stranded • SM: sector shaped stranded