

The background of the top half of the page is a photograph of a power plant with several tall smokestacks emitting white steam. Overlaid on this image are various technical diagrams in a light blue color. These include a schematic of a 'CHEMICAL & VOLUME CONTROL SYSTEM' with labels like 'REGENERATIVE HX', 'CHARGING', and 'EXCHG LCTDOWN HX'. There are also diagrams of electrical components like a 'CIRCUIT BREAKER' and 'RELAY', and a 'PSS WIDE RANGE' control loop. The diagrams are semi-transparent and integrated into the overall industrial aesthetic.

Power & Control Cables

U₀/U 0.6/1 kV - IEC 60502-1

The Quality Connection

LEONI

The LEONI Group

Cable expertise for the most various industrial markets.



LEONI is a leading supplier of cable systems and related services for the automotive industry and many other industrial sectors.

Our group of companies employs over 77,000 people in 32 countries. Entrepreneurial insight, first-class quality and the power to innovate have secured us our position as one of Europe's leading cable manufacturers. LEONI not only develops and manufactures a portfolio of technically sophisticated products that extends from wire and optical fiber to cables, cable systems and services, but also offers its customers a range of bespoke services.

Our full range of products and services also includes strands, standardised cables, hybrid/optical fiber and special cables, cable harnesses and wiring system components, as well as turnkey, assembled systems for applications in various industrial markets.

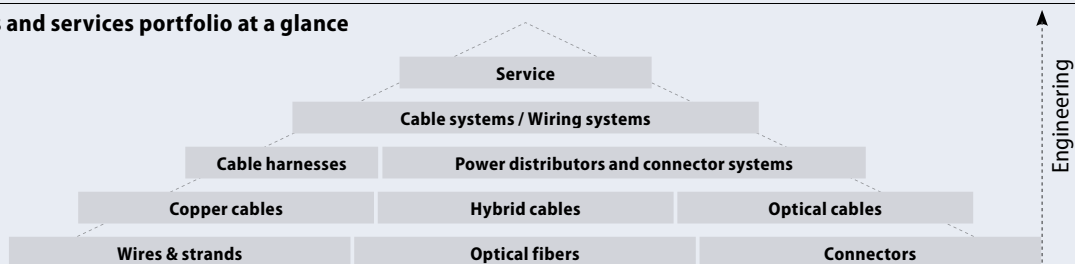
Your markets – our strength.

The breadth of LEONI's spectrum of products and services is matched by the markets and segments we supply. We focus our activities on customers in the sectors Automotive & Commercial Vehicles, Industrial Solutions, Electrical Appliances and Conductors & Copper Solutions.

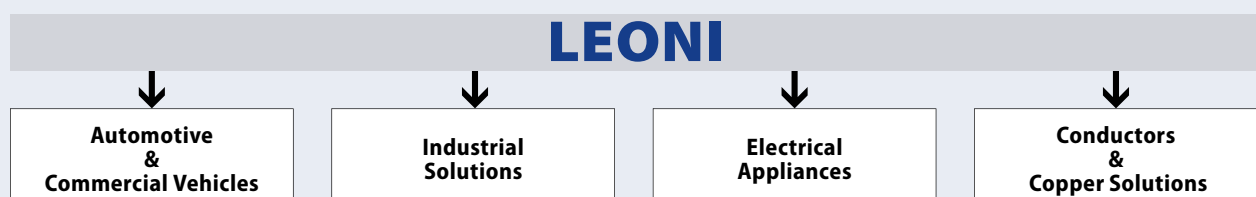
In the Industrial Solutions market, we are one of Europe's leading providers. Acting as both a cable manufacturer and a dedicated solution provider, we work in fields as diverse as telecommunications systems, fiber optic cable, data communications, manufacturing projects, solar and wind power, energy and infrastructure, building services, bespoke product and robotics solutions, healthcare, traffic systems and automation technologies. Customers worldwide benefit from our innovative, high-quality products that are both reliable and long-lasting. LEONI – we create the best connection for your future.

For further information, please visit www.leoni.com

Products and services portfolio at a glance



LEONI's core markets



Product range

- Telecommunication cables
- Data- and Bus cables (copper and fiber optic)
- Mining cables
- Cables for special applications
- Instrumentation- and control cables
- Thermocouple extension and compensating cables
- Power cables (low and medium voltage)

1. Introduction

Power cables are used for transmission of electric power; as control cables are used to measure, control and regulate or monitor industrial plants.

Power cables are mainly used in distribution networks of power utilities, in industries, in mines etc.

To select the cable it is necessary to consider whether the specific system and installation conditions and requirements can be fulfilled.

The following criteria, therefore should have proper consideration to define the suitable cable type:

- occurrence of maximum voltage load
- allowable voltage drop
- power to be transmitted, current carrying capacity
- permissible or necessary short-circuit admittance
- electrical protection
- mechanical stress/influence
- thermal stress/influence
- chemical stress/influence
- standards or specifications to be followed

Feature to differentiate power cables is the voltage grade, which is indicated as quotient U_0/U , where

U_0 signifies the voltage between conductor and metallic coverage or earth

U signifies the voltage among phase conductors (insulated conductors)

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Construction

Conductor

IEC 60228 specifies four different classes of conductors; classes 1, 2, 5 and 6. Power and control cables normally have conductors of class 1 (solid conductors) or class 2 (stranded conductors).

Power and control cables have plain annealed copper conductors.

Conductor forms:



RE = circular solid



RM = circular stranded



SE = sector shaped solid

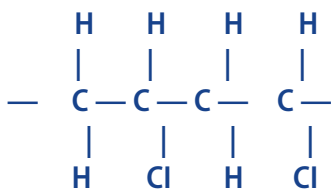


SM = sector shaped stranded

Insulation

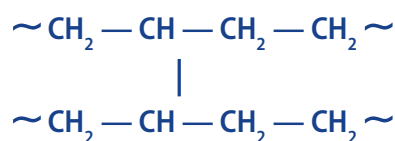
The insulation materials for power and control cables are

polyvinyl chloride (PVC)



or

cross-linked polyethylene (XLPE)



Laying Up

The cores of cables are laid up with suitable filling elements (if necessary) to form a compact circular assembly. Suitable binder tape(s) may be applied.

Bedding

Cables incorporating an armour layer have an extruded bedding of polyvinyl chloride (PVC) or zero halogen material (LSZH).

Armor

The primary purpose of armor is to protect the cable against mechanical damage during installation and operation. Apart from this mechanical armor, it can also fulfil various electrical functions, e.g. earth conductor, screen of inductive protection.

Armouring of single core cables is provided by round aluminium wires, multicore cables will have galvanized round steel wires.

Outer Sheath

The outer sheath of cables consists of extruded polyvinyl chloride (PVC) or zero halogen material (LSZH). The colour is primarily black.

Abbreviation code

Cable type	Code
Power and control cable	
Insulation and/or sheath materials	
Insulation, inner or outer sheath of polyvinylchloride (PVC)	Y
Insulation made of cross linked polyethylene (XLPE)	2X
Inner or outer sheath made of zero halogen, flame-retardant compound (LSZH)	H
Metal sheath	
Sheath made of lead	K
Armor	
Galvanized round steel wires	R
Double layer made of galvanized steel tapes	B
Braid made of galvanized round steel wires	Q
Further properties	
Circuit Integrity (resistance to fire)	CI
Increased flame retardancy; meets requirements for IEC 60332-3-24 (cat. C) fulfilled	-fl

Application

Range of use

Cables in accordance with IEC 60502-1 are intended for fixed installation:

- indoors
- outdoors
- underground
- in water

(Note: The relevant national installation regulations must be observed)

Nominal and highest cable voltages

Nominal rated voltage U_0/U (kV)	Highest system voltage U_m		
	three phase system	single phase system both phases insulated	single phase system one phase grounded
Low Voltage L.V.			
0.6 / 1	1.2	1.41)	0.7
1.8 / 3	3.6	4.2	2.1
Medium Voltage M.V.			
3.6 / 6	7.2	8.3	4.2
6.0 / 10	12.0	14.0	7.0
8.7 / 15	17.5	20.0	10.0
12.0 / 20	24.0	28.0	14.0
18.0 / 30	36.0	42.0	21.0

¹max. voltage in d.c. systems 1.8 kV

U: Rated power-frequency voltage between phase conductors for which the cable is suitable.

U_0 : Rated power-frequency voltage between conductor and earth or armour, metal sheath or screen for which the cable is suitable.

U_m : Maximum value of the „highest system voltage“ between phase conductors for which the cable is suitable.

Network-Systems

The rated voltage of the cable for a given application shall be suitable for the operating conditions in the system in which the cable is used. To facilitate the selection of the cable, systems are divided into three categories (IEC 60502-1):

Category A

This category comprises those systems in which any phase conductor that comes in contact with earth or an earth conductor, is disconnected from the system within 1 min.

Category B

This category comprises those systems which, under fault conditions, are operated for a short time with one phase earthed. This period, according to IEC 60183, should not exceed 1 h. For cables covered by IEC 60502-1 a longer period, not exceeding 8 h on any occasion, can be tolerated. The total duration of earth faults in any year should not exceed 125 h.

Category C

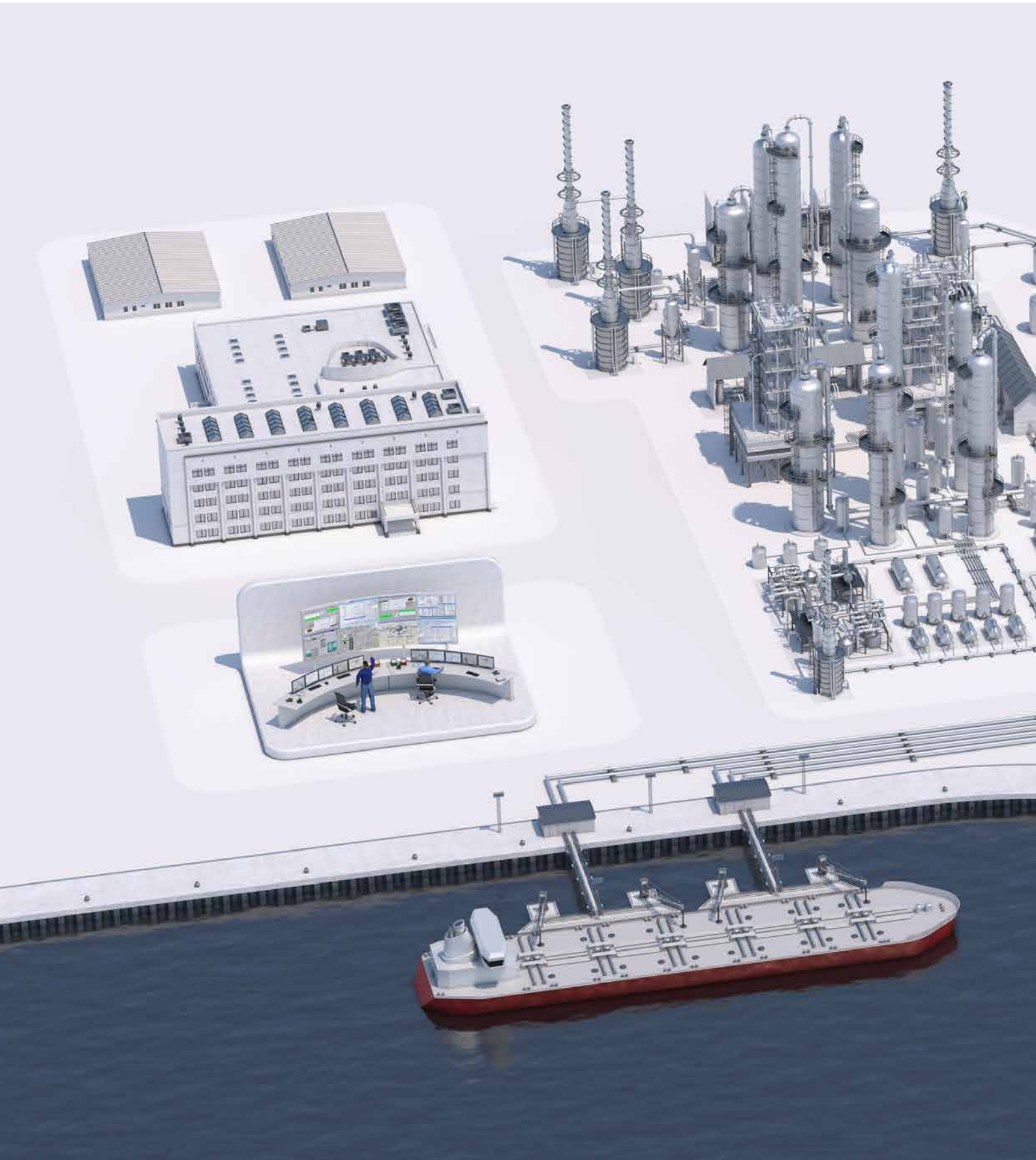
This category comprises all systems which do not fall into category A or B.

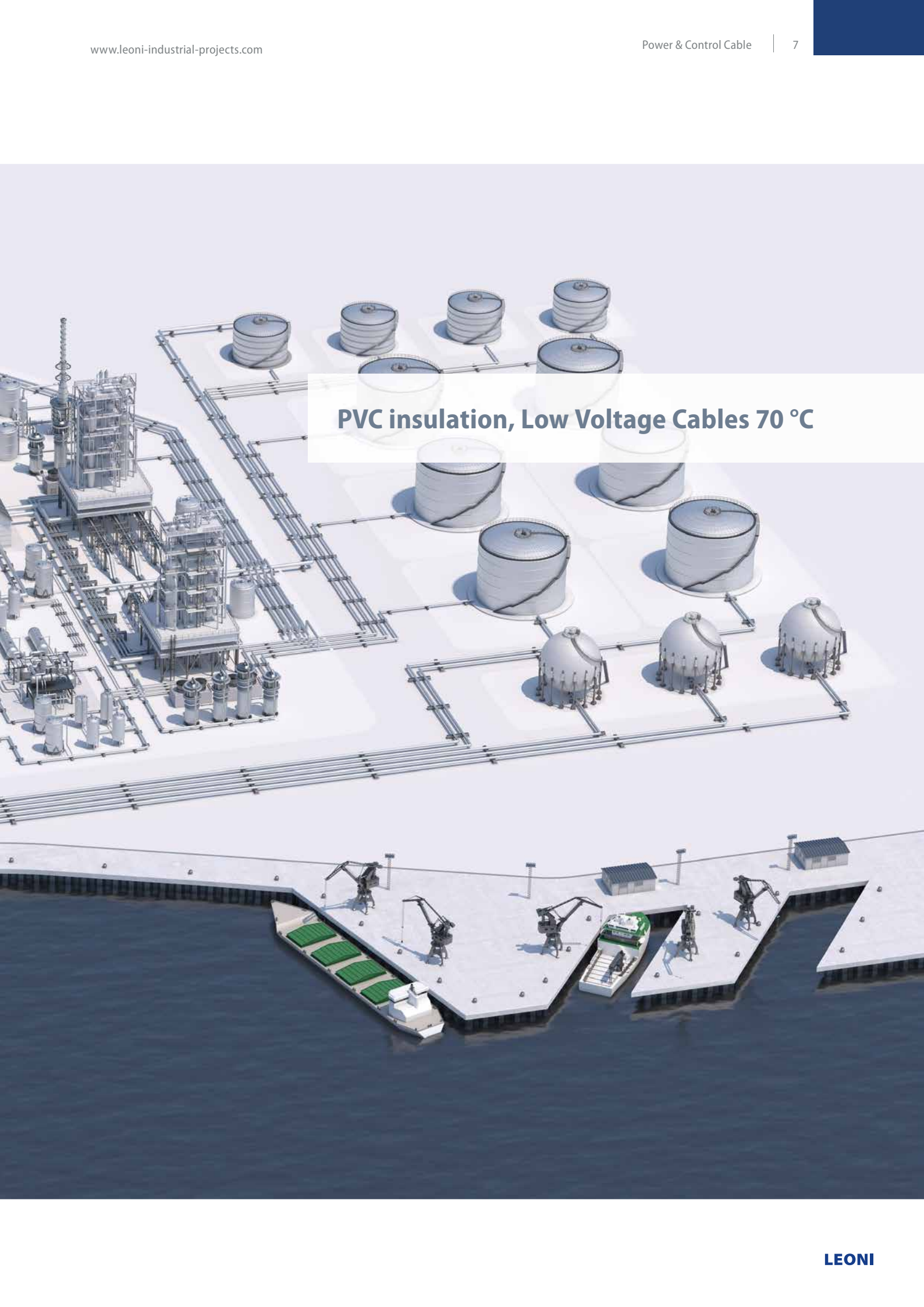
Recommended rated voltages U_0 for cables used in three-phase systems:

Highest system voltage (U_m)	Rated Voltage (U_0)	
	Categories A and B	Category C
1.2 kV	0.6 kV	0.6 kV
3.6 kV	1.8 kV	3.6 kV*

*This category is covered by 3.6/6 (7.2) kV cables to IEC 60502-2.

Note: It should be realised that in a system where an earth fault is not automatically and promptly isolated, the extra stresses on the insulation of cables during the earth fault reduce the life of the cables to a certain degree. If the system is expected to be operated fairly often with a permanent earth fault, it may be advisable to classify the system in category C.



A detailed 3D architectural rendering of an industrial facility, likely a refinery or chemical plant. The scene is viewed from an elevated perspective. On the left, there is a complex of industrial structures including distillation columns, piping, and smaller storage vessels. To the right, a large array of cylindrical storage tanks is arranged in rows, connected by a network of pipes. In the foreground, a long pier extends into a body of water. Several barges are moored at the pier, and multiple cranes are positioned along the dock. The overall color palette is dominated by metallic grays, blues, and the green of the barges.

PVC insulation, Low Voltage Cables 70 °C

Power & Control Cable

IEC 60502-1

(2-, 3-, 4- and 5-cores)

U₀/U 0.6 / 1 kV

PVC-Insulation, PVC-Sheath

YY-fl

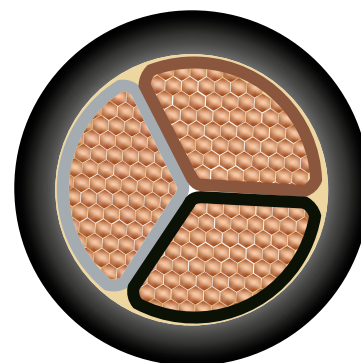
Application

For electricity supply and control in public networks and industrial plants; suitable for use in zone 1 and zone 2 group II classified areas (IEC 60079-14).

Recommended for direct burial. For indoor or 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, $\leq 35 \text{ mm}^2$: circular solid (RE) or circular stranded (RM), $> 35 \text{ mm}^2$: sector-shaped stranded (SM) ¹⁾
Insulation	polyvinyl chloride PVC
Colour code ²⁾	2-core: blue, brown 3-core: brown, black, grey 4-core: blue, brown, black, grey 5-core: blue, brown, black, grey, black
Laying up	cores twisted in layers (if necessary with filling element(s))
Inner Covering	extruded filler of regenerated rubber
Outer Sheath	extruded polyvinyl chloride PVC, black
Cable marking	ELECTRIC CABLE 0.6/1 kV IEC 60502-1, LEONI KERPEN, YEAR, LENGTH MARKING



Technical Data

Flame retardancy:	IEC 60332-1	Temperature range:	-30 °C up to +70 °C (during operation)
Flame propagation:	IEC 60332-3 cat. A		-5 °C up to +50 °C (during installation)
Outer sheath:			$\leq 300 \text{ mm}^2$: max. +160 °C
Amount of halogen acid gas:	max. 17 % (IEC 60754-1)		$> 300 \text{ mm}^2$: max. +140 °C
Limiting Oxygen Index (LOI):	min. 30 % (IEC 60332-3 ann. B)		(under short circuit)
Temperature Index (TI):	min. 300 °C (ASTM-D-2863)	Min. bending radius:	8 x cable-Ø

Abbreviations

Y	insulation & outer sheath of PVC
-fl	reduced flame propagation

Electrical Data at 20 °C

	Character	Unit	Values
Conductor resistance	max.	Ohm/km	acc. to IEC 60228
Test voltage U_{rms} core:core		V	3500
Nominal voltage U₀ / U		V	600 / 1000
Highest system voltage U_m	max.	V	1200 (for three phase systems)

¹⁾ 5-core cables only with circular conductors

²⁾ other colours on request

Power & Control Cable

IEC 60502-1

(2-, 3-, 4- and 5-cores)

U₀/U 0.6 / 1 kV

PVC-Insulation, PVC-Sheath

YY-fl

Geometrical Data

No. of cores and cross-section (nom.) n / mm ²	Radial thickness of insulation (nom.) mm	Radial thickness of outer sheath (nom.) mm	Overall diameter (approx.) mm	Weight of cable (approx.) kg / km	Part number
2 x 1.5 RE	0.8	1.8	10.1	150	20230251
2 x 1.5 RM	0.8	1.8	10.6	160	20230003
2 x 2.5 RE	0.8	1.8	10.9	190	20230252
2 x 2.5 RM	0.8	1.8	11.4	200	20230253
2 x 4 RE	1.0	1.8	12.7	260	20230254
2 x 4 RM	1.0	1.8	13.4	290	20230255
2 x 6 RE	1.0	1.8	13.7	320	20230256
2 x 6 RM	1.0	1.8	14.4	350	20230257
2 x 10 RE	1.0	1.8	15.2	430	20230258
2 x 10 RM	1.0	1.8	16.3	480	20230259
2 x 16 RE	1.0	1.8	17.1	600	20230260
2 x 16 RM	1.0	1.8	18.5	660	20230261
2 x 25 RM	1.2	1.8	21.4	920	-
2 x 35 RM	1.2	1.8	23.6	1020	-
2 x 50 SM	1.4	1.8	23.1	1320	20230264
2 x 70 SM	1.4	1.9	26.3	1730	20230265
2 x 95 SM	1.6	2.0	30.0	2360	20230266
2 x 120 SM	1.6	2.1	31.9	2850	20230267
2 x 150 SM	1.8	2.2	35.3	3480	20230268
2 x 185 SM	2.0	2.4	39.7	4340	20230269
2 x 240 SM	2.2	2.6	44.6	5600	20230270
2 x 300 SM	2.4	2.7	51.7	7200	20230013
3 x 1.5 RE	0.8	1.8	10.6	170	20230271
3 x 1.5 RM	0.8	1.8	11.1	190	20230272
3 x 2.5 RE	0.8	1.8	11.5	220	20230273
3 x 2.5 RM	0.8	1.8	12.0	230	20230274
3 x 4 RE	1.0	1.8	13.3	300	20230275
3 x 4 RM	1.0	1.8	14.1	310	20230276
3 x 6 RE	1.0	1.8	14.4	390	20230277
3 x 6 RM	1.0	1.8	15.2	410	20230278
3 x 10 RE	1.0	1.8	16.1	540	20230279
3 x 10 RM	1.0	1.8	17.2	580	20230280
3 x 16 RE	1.0	1.8	18.2	750	20230281
3 x 16 RM	1.0	1.8	19.6	820	20230282
3 x 25 RM	1.2	1.8			
3 x 35 RM	1.2	1.8			
3 x 50 SM	1.4	1.8	26.8	1870	20230285
3 x 70 SM	1.4	2.0	30.2	2510	20230286
3 x 95 SM	1.6	2.1	33.7	3410	20230287
3 x 120 SM	1.6	2.2	36.2	4080	20230288
3 x 150 SM	1.8	2.3	40.3	5010	20230289

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

Power & Control Cable

IEC 60502-1

(2-, 3-, 4- and 5-cores)

U₀/U 0.6 / 1 kV

PVC-Insulation, PVC-Sheath

YY-fl

Geometrical Data

No. of cores and cross-section			Radial thickness of insulation	Radial thickness of outer sheath	Overall diameter	Weight of cable	Part number
(nom.) n / mm ²			(nom.) mm	(nom.) mm	(approx.) mm	(approx.) kg / km	
3 x	185	SM	2.0	2.5	45.8	6290	20230290
3 x	240	SM	2.2	2.7	51.8	8170	20230291
3 x	300	SM	2.4	2.8	59.4	10460	20230292
3 x	400	SM	2.6	3.1	66.5	13260	20230293
4 x	1.5	RE	0.8	1.8	11.4	190	20230294
4 x	1.5	RM	0.8	1.8	11.9	200	20230295
4 x	2.5	RE	0.8	1.8	12.3	240	20230296
4 x	2.5	RM	0.8	1.8	12.9	250	20230297
4 x	4	RE	1.0	1.8	14.4	340	20230298
4 x	4	RM	1.0	1.8	15.3	370	20230299
4 x	6	RE	1.0	1.8	15.6	440	20230300
4 x	6	RM	1.0	1.8	16.5	470	20230301
4 x	10	RE	1.0	1.8	17.6	640	20230302
4 x	10	RM	1.0	1.8	19.0	680	20230303
4 x	16	RE	1.0	1.8	19.8	910	20230304
4 x	16	RM	1.0	1.8	21.4	980	20230305
4 x	25	RM	1.2	1.8	25.3	1530	-
4 x	35	RM	1.2	1.8	28.0	2000	-
4 x	50	SM	1.4	1.9	30.8	2400	20230308
4 x	70	SM	1.4	2.1	34.2	3210	20230309
4 x	95	SM	1.6	2.2	38.4	4440	20230310
4 x	120	SM	1.6	2.3	41.6	5330	20230311
4 x	150	SM	1.8	2.5	46.0	6530	20230312
4 x	185	SM	2.0	2.7	52.1	8170	20230313
4 x	240	SM	2.2	2.9	59.0	10640	20230314
4 x	300	SM	2.4	3.1	66.1	13650	20230315
4 x	400	SM	2.6	3.4	77.0	17300	20230316

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

Power & Control Cable**IEC 60502-1****(2-, 3-, 4- and 5-cores)****U₀/U 0.6 / 1 kV****PVC-Insulation, PVC-Sheath****YY-fl****Geometrical Data**

No. of cores and cross-section			Radial thickness of insulation	Radial thickness of outer sheath	Overall diameter	Weight of cable	Part number
(nom.) n / mm ²			(nom.) mm	(nom.) mm	(approx.) mm	(approx.) kg / km	
5 x	1.5	RE	0.8	1.8	12.2	210	20230045
5 x	1.5	RM	0.8	1.8	12.8	230	20230053
5 x	2.5	RE	0.8	1.8	13.2	280	20230059
5 x	2.5	RM	0.8	1.8	13.9	290	20230067
5 x	4	RE	1.0	1.8	15.7	440	20230317
5 x	4	RM	1.0	1.8	16.6	470	20230318
5 x	6	RE	1.0	1.8	17.0	480	20230319
5 x	6	RM	1.0	1.8	17.9	550	20230320
5 x	10	RE	1.0	1.8	19.1	710	20230321
5 x	10	RM	1.0	1.8	20.4	780	20230322
5 x	16	RE	1.0	1.8	21.6	1080	20230323
5 x	16	RM	1.0	1.8	23.5	1160	20230324
5 x	25	RM	1.2	1.8	27.4	1750	20230325
5 x	35	RM	1.2	1.9	30.8	2260	20230326
5 x	50	RM	1.4	2.0	35.0	3010	20230327
5 x	70	RM	1.4	2.2	40.3	4180	20230328

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

Power & Control Cable

IEC 60502-1

(Multicores)

 U_0/U 0.6/1 kV

PVC-Insulation, PVC-Sheath

YY-fl

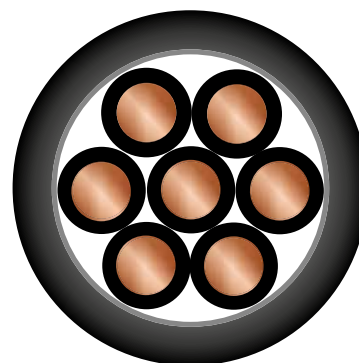
Application

For electricity supply and control in public networks and industrial plants; suitable for use in zone 1 and zone 2 group II classified areas (IEC 60079-14).

Recommended for direct burial. For indoor and outdoor installation in dry and wet locations, on racks, in conduits.

Construction

Conductor	plain annealed copper, class 1 or 2 resp., acc. to IEC 60228 class 1: circular solid (RE) class 2: circular stranded (RM)
Insulation	polyvinyl chloride PVC
Colour code ¹⁾	black, continuously numbered ¹⁾ other colours on request
Laying up	cores twisted in layers (if necessary with filling element(s))
Wrapping	at least 1 layer of plastic tape
Outer Sheath	extruded polyvinyl chloride PVC, black or blue for intrinsically safe systems
Cable marking	ELECTRIC CABLE 0.6/1 kV IEC 60502-1, LEONI KERPEN, YEAR, LENGTH MARKING



Technical Data

Abbreviations

Flame retardancy:	IEC 60332-1	Temperature range:	Y	insulation, bedding & outer sheath of PVC
Flame propagation:	IEC 60332-3 cat. A	-30 °C up to +70 °C (during operation)	-fl	reduced flame propagation
Outer Sheath:		-5 °C up to +50 °C (during installation)		
Amount of halogen acid gas:	max. 17 % (IEC 60754-1)	≤ 300 mm ² : max. +160 °C		
Limiting Oxygen Index (LOI):	min. 30 % (IEC 60332-3 ann. B)	> 300 mm ² : max. +140 °C		
Temperatur Index (TI):	min. 300 °C (ASTM-D-2863)	(under short circuit)		
Oil resistance:	(ICEA S-61-402)	Min. bending radius: 8 x cable-Ø		

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_0/U		V	600 / 1000
Highest system voltage U_m	max.	V	1200 (for three phase systems)

For further electrical details see appendix

Power & Control Cable

IEC 60502-1

(Multicores)

U₀/U 0.6/1 kV

PVC-Insulation, PVC-Sheath

YY-fl

Geometrical Data

No. of cores and cross-section (nom.) n / mm ²	Radial thickness of insulation (nom.) mm	Radial thickness of outer sheath (nom.) mm	Overall diameter (approx.) mm	Weight of cable (approx.) kg / km	Part number
5 x 1.5 RE	0.8	1.8	11.9	190	20230045
7 x 1.5 RE	0.8	1.8	12.8	230	20230046
10 x 1.5 RE	0.8	1.8	15.7	330	20230047
12 x 1.5 RE	0.8	1.8	16.2	360	20230048
19 x 1.5 RE	0.8	1.8	18.7	510	20230049
27 x 1.5 RE	0.8	1.8	22.2	700	20230050
37 x 1.5 RE	0.8	1.8	24.8	920	20230051
48 x 1.5 RE	0.8	1.9	28.3	1160	20230052
5 x 1.5 RM	0.8	1.8	12.5	200	20230053
7 x 1.5 RM	0.8	1.8	13.5	250	20230000
10 x 1.5 RM	0.8	1.8	16.6	340	20230009
12 x 1.5 RM	0.8	1.8	17.1	380	20230054
19 x 1.5 RM	0.8	1.8	19.9	540	20230055
27 x 1.5 RM	0.8	1.8	23.6	740	20230056
37 x 1.5 RM	0.8	1.8	26.3	970	20230057
48 x 1.5 RM	0.8	1.9	30.1	1230	20230058
5 x 2.5 RE	0.8	1.8	13.0	260	20230059
7 x 2.5 RE	0.8	1.8	14.0	320	20230060
10 x 2.5 RE	0.8	1.8	17.2	420	20230061
12 x 2.5 RE	0.8	1.8	17.8	490	20230062
19 x 2.5 RE	0.8	1.8	20.8	710	20230063
27 x 2.5 RE	0.8	1.8	24.6	970	20230064
37 x 2.5 RE	0.8	1.9	27.4	1270	20230065
48 x 2.5 RE	0.8	2.0	31.7	1650	20230066
5 x 2.5 RM	0.8	1.8	13.6	270	20230067
7 x 2.5 RM	0.8	1.8	14.7	330	20230068
10 x 2.5 RM	0.8	1.8	18.2	440	20230069
12 x 2.5 RM	0.8	1.8	18.8	520	20230070
19 x 2.5 RM	0.8	1.8	22.1	720	20230031
27 x 2.5 RM	0.8	1.8	26.1	1030	20230071
37 x 2.5 RM	0.8	1.9	29.5	1370	20230072
48 x 2.5 RM	0.8	2.0	33.8	1750	20230073

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

Power & Control Cable

IEC 60502-1

(2-, 3-, and 4-cores)

U_0/U 0.6 / 1 kV

PVC-Insulation, Armour

YYRY-fl

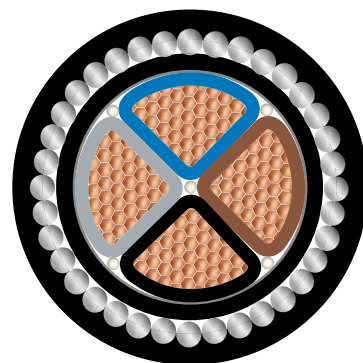
Application

For electricity supply and control in public networks and industrial plants; suitable for use in zone 1 and zone 2 group II classified areas (IEC 60079-14).

Recommended for direct burial. For indoor and outdoor installation in dry and wet locations, on racks, in conduits. (Please note the relevant legal installation requirements)

Construction

Conductor	plain annealed copper, class 1 or class 2 resp., acc. to IEC 60228, $\leq 35 \text{ mm}^2$: circular solid (RE) or circular stranded (RM), $> 35 \text{ mm}^2$: sector-shaped stranded (SM)
Insulation	polyvinyl chloride PVC
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 polyvinyl chloride PVC, black
Armour	galvanized round steel wires
Outer Sheath	extruded polyvinyl chloride PVC, black
Cable marking	ELECTRIC CABLE 0.6/1 kV IEC 60502-1 LEONI KERPEN, YEAR, LENGTH MARKING



Technical Data

Abbreviations

Flame retardancy:	IEC 60332-1	Temperature range:	Y	insulation, bedding & outer sheath of PVC
Flame propagation:	IEC 60332-3-22 cat. A	- 30 °C up to + 70 °C (during operation)	R	round steel wire armour
Outer Sheath:		- 5 °C up to + 50 °C (during installation)	-fl	reduced flame propagation
Amount of halogen acid gas:	max. 17 %	$\leq 300 \text{ mm}^2$: max. + 160 °C		
Limiting Oxygen Index (LOI):	(IEC 60754-1)	$> 300 \text{ mm}^2$: max. + 140 °C (under short circuit)		
Temperatur Index (TI):	min. 30 % (IEC 60332-3 ann. B)	Min. bending radius: 8 x cable- $\varnothing$		
Oil resistance:	min. 300 °C (ASTM-D-2863) (ICEA S-61-402)			

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_0/U		V	600 / 1000
Highest system voltage U_m	max.	V	1200 (for three phase systems)

¹⁾ other colours on request

further details see

Power & Control Cable

IEC 60502-1

(2-, 3-, and 4-cores)

U₀/U 0.6 / 1 kV

PVC-Insulation, Armour

YYRY-fl

Geometrical Data									
No. of cores and cross-section			Radial thickness of insulation	Diameter over bedding	Armour wire diameter	Radial thickness of outer sheath	Overall Diameter	Weight of cable	Part number
(nom.) n / mm ²			(nom.) mm	(approx.) mm	(nom.) mm	(nom.) mm	(approx.) mm	(approx.) kg / km	
2 x	1.5	RE	0.8	7.7	0.8	1.8	13.1	320	20300006
2 x	1.5	RM	0.8	8.2	0.8	1.8	13.6	340	20300007
2 x	2.5	RE	0.8	8.5	0.8	1.8	13.9	360	20300008
2 x	2.5	RM	0.8	9.0	0.8	1.8	14.4	380	20300009
2 x	4	RE	1.0	10.3	0.8	1.8	15.7	450	20300010
2 x	4	RM	1.0	11.0	0.8	1.8	16.4	490	20300011
2 x	6	RE	1.0	11.3	1.25	1.8	17.4	610	20300012
2 x	6	RM	1.0	12.0	1.25	1.8	18.1	650	20300013
2 x	10	RE	1.0	12.8	1.25	1.8	18.9	750	20300014
2 x	10	RM	1.0	13.8	1.25	1.8	19.9	790	20300015
2 x	16	RE	1.0	14.7	1.25	1.8	20.8	930	20300016
2 x	16	RM	1.0	16.0	1.25	1.8	22.1	1020	20300017
2 x	25	RM	1.2	19.5	1.6	1.8	36.3	1400	-
2 x	35	RM	1.2	19.5	1.6	1.8	28.5	1700	-
2 x	50	SM	1.4	20.8	1.6	1.9	27.8	2050	20300020
2 x	70	SM	1.4	23.8	2.0	2.0	31.8	2740	20300021
2 x	95	SM	1.6	27.7	2.0	2.2	36.1	3640	20300022
2 x	120	SM	1.6	29.4	2.0	2.3	38.0	4150	20300023
2 x	150	SM	1.8	32.6	2.5	2.4	42.4	5300	20300024
2 x	185	SM	2.0	37.0	2.5	2.6	47.2	6390	20300025
2 x	240	SM	2.2	41.5	2.5	2.8	52.1	7920	20300026
2 x	300	SM	2.4	48.6	2.5	2.9	59.4	9950	20300180
3 x	1.5	RE	0.8	8.2	0.8	1.8	13.6	360	20300029
3 x	1.5	RM	0.8	8.7	0.8	1.8	14.1	370	20300030
3 x	2.5	RE	0.8	9.1	0.8	1.8	14.5	400	20300150
3 x	2.5	RM	0.8	9.6	0.8	1.8	15.0	430	20300031
3 x	4	RE	1.0	10.9	1.25	1.8	17.0	610	20300032
3 x	4	RM	1.0	11.7	1.25	1.8	17.8	660	20300033
3 x	6	RE	1.0	12.0	1.25	1.8	18.1	730	20300034
3 x	6	RM	1.0	12.8	1.25	1.8	18.9	780	20300035
3 x	10	RE	1.0	13.7	1.25	1.8	19.8	910	20300036
3 x	10	RM	1.0	15.0	1.25	1.8	21.1	990	20300037
3 x	16	RE	1.0	15.8	1.25	1.8	21.9	1160	20300038
3 x	16	RM	1.0	17.3	1.25	1.8	23.4	1280	20300039
3 x	25	RM	1.2	21.7	1.6	1.8	28.5	1790	----
3 x	35	RE	1.2	23.2	1.6	1.8	30.9	2190	-
3 x	50	RM	1.4	24.5	1.6	2.0	31.7	2740	20300042
3 x	70	RE	1.4	27.9	2.0	2.1	36.1	3790	20300043
3 x	95	RM	1.6	31.2	2.0	2.2	39.6	4780	20300044
3 x	120	RM	1.6	33.7	2.0	2.3	42.3	5710	20300045

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

Power & Control Cable

IEC 60502-1

(2-, 3-, and 4-cores)

U₀/U 0.6 / 1 kV

PVC-Insulation, Armour

YYRY-fl

Geometrical Data

No. of cores and cross-section	Radial thickness of insulation	Diameter over bedding	Armour wire diameter	Radial thickness of outer sheath	Overall diameter	Weight of cable	Part number
(nom.) n / mm ²	(nom.) mm	(approx.) mm	(nom.) mm	(nom.) mm	(approx.) mm	(approx.) kg / km	
3 x 150 SM	1.8	38.0	2.5	2.5	48.0	7200	20300046
3 x 185 SM	2.0	42.9	2.5	2.7	53.3	8710	20300047
3 x 240 SM	2.2	48.7	2.5	2.9	59.5	11030	20300048
3 x 300 SM	2.4	56.1	2.5	3.2	67.5	13760	20300049
3 x 400 SM	2.6	62.8	3.15	3.4	75.9	17780	20300050
4 x 1.5 RE	0.8	9.0	0.8	1.8	14.4	410	20300151
4 x 1.5 RM	0.8	9.5	0.8	1.8	14.9	430	20300051
4 x 2.5 RE	0.8	9.9	0.8	1.8	15.3	470	20300052
4 x 2.5 RM	0.8	10.5	0.8	1.8	15.9	500	20300053
4 x 4 RE	1.0	12.0	1.25	1.8	18.1	700	20300054
4 x 4 RM	1.0	12.9	1.25	1.8	19.0	780	20300055
4 x 6 RE	1.0	13.2	1.25	1.8	19.3	850	20300056
4 x 6 RM	1.0	14.1	1.25	1.8	20.2	900	20300057
4 x 10 RE	1.0	15.2	1.25	1.8	21.2	1030	20300058
4 x 10 RM	1.0	16.6	1.25	1.8	22.7	1180	20300059
4 x 16 RE	1.0	17.8	1.6	1.8	24.6	1580	20300060
4 x 16 RM	1.0	19.5	1.6	1.8	26.3	1710	20300061
4 x 25 RM	1.2						-
4 x 35 RM	1.2						-
4 x 50 SM	1.4	28.7	2.0	2.1	36.9	3710	20300064
4 x 70 SM	1.4	31.7	2.0	2.2	40.1	4720	20300065
4 x 95 SM	1.6	36.1	2.5	2.4	45.5	6320	20300066
4 x 120 SM	1.6	39.1	2.5	2.5	49.1	7630	20300067
4 x 150 SM	1.8	43.1	2.5	2.7	53.5	9050	20300068
4 x 185 SM	2.0	49.0	2.5	2.8	59.6	11010	20300069
4 x 240 SM	2.2	55.5	2.5	3.1	66.7	13940	20300070
4 x 300 SM	2.4	62.0	3.15	3.3	74.9	18090	20300071
4 x 400 SM	2.6	72.7	3.15	3.6	86.2	22600	20300072

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

Power & Control Cable

IEC 60502-1

(Multicores)

U_0/U 0.6 / 1 kV

PVC-Insulation, Armour

YYRY-fl

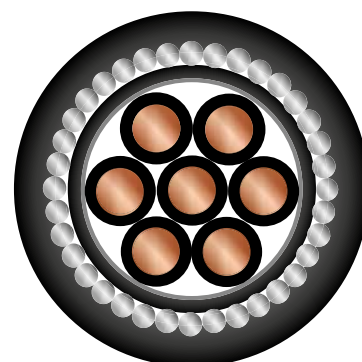
Application

For electricity supply and control in public networks and industrial plants; suitable for use in zone 1 and zone 2 group II classified areas (IEC 60079-14).

Recommended for direct burial. For indoor and outdoor installation in dry and wet locations, on racks, in conduits. (Please note the relevant legal installation requirements)

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	polyvinylchlorid PVC
Colour code¹	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 polyvinyl chloride PVC, black
Armour	galvanized round steel wires
Outer Sheath	extruded polyvinyl chloride PVC, black blue for intrinsically safe systems
Cable marking	ELECTRIC CABLE 0.6/1 kV IEC 60502-1, LEONI KERPEN, YEAR, LENGTH MARKING



Technical Data

Abbreviations

Flame retardancy:	IEC 60332-1	Temperature range:	Y	insulation, bedding & outer sheath of PVC
Flame propagation:	IEC 60332-3 cat. A	- 30 °C up to + 70 °C (during operation)	R	round steel wire armour
Outer Sheath:		- 5 °C up to + 50 °C (during installation)	-fl	reduced flame propagation
Amount of halogen acid gas:	max. 17 % (IEC 60754-1)	max. + 160 °C (under short circuit)		
Limiting Oxygen Index(LOI):	min. 30 % (IEC 60332-3 ann.B)			
Temperature Index (TI):	min. 300 °C (ASTM-D-2863)	Min. bending radius:		
Oil resistance:	(ICEA S-61-402)	8 x cable-Ø		

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_0/U		V	600/1000
Highest system voltage U_m	max.	V	1200 (for three phase systems)

¹⁾ other colours on request

For further electrical details see appendix

Power & Control Cable

IEC 60502-1

(Multicores)

U₀/U 0.6 / 1 kV

PVC-Insulation, Armour

YYRY-fl

Geometrical Data

No. of cores and cross-section (nom.) n / mm ²	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.) m	Weight of cable (approx.) kg / km	Part number
5 x 1.5 RE	0.8	9.8	0.8	1.8	15.2	450	20300084
7 x 1.5 RE	0.8	10.7	0.8	1.8	16.1	520	20300085
10 x 1.5 RE	0.8	13.7	1.25	1.8	19.8	790	20300086
12 x 1.5 RE	0.8	14.1	1.25	1.8	20.2	850	20300087
14 x 1.5 RE	0.8	14.9	1.25	1.8	21.0	890	20300088
16 x 1.5 RE	0.8	15.8	1.25	1.8	21.9	970	20300089
19 x 1.5 RE	0.8	17.1	1.6	1.8	23.9	1260	20300090
22 x 1.5 RE	0.8	19.1	1.6	1.8	25.9	1410	20300091
25 x 1.5 RE	0.8	20.6	1.6	1.8	27.4	1550	20300092
27 x 1.5 RE	0.8	20.6	1.6	1.8	27.4	1610	20300093
30 x 1.5 RE	0.8	21.3	1.6	1.8	28.1	1700	20300094
35 x 1.5 RE	0.8	23.1	1.9	1.9	30.1	1890	20300095
37 x 1.5 RE	0.8	23.1	1.6	1.9	30.1	1950	20300096
40 x 1.5 RE	0.8	24.0	1.6	1.9	31.0	2030	20300097
42 x 1.5 RE	0.8	25.1	1.6	1.9	32.1	2130	20300078
45 x 1.5 RE	0.8	26.5	1.6	2.0	33.7	2280	20300099
48 x 1.5 RE	0.8	26.5	1.6	2.0	33.7	2380	20300100
5 x 1.5 RM	0.8	10.4	0.8	1.8	15.8	480	20300101
7 x 1.5 RM	0.8	11.4	0.8	1.8	16.8	560	20300102
10 x 1.5 RM	0.8	14.5	1.25	1.8	20.6	850	20300103
12 x 1.5 RM	0.8	15.1	1.25	1.8	21.2	910	20300104
14 x 1.5 RM	0.8	15.8	1.25	1.8	21.9	950	20300105
16 x 1.5 RM	0.8	16.8	1.25	1.8	22.9	1040	20300106
19 x 1.5 RM	0.8	18.3	1.6	1.8	25.1	1360	20300107
20 x 1.5 RM	0.8	19.3	1.6	1.8	26.1		20300221
22 x 1.5 RM	0.8	20.4	1.6	1.8	27.2	1500	20300108
25 x 1.5 RM	0.8	21.9	1.6	1.8	28.7	1650	20300109
27 x 1.5 RM	0.8	21.9	1.6	1.8	28.7	1730	20300110
30 x 1.5 RM	0.8	22.7	1.6	1.8	29.5	1790	20300111
35 x 1.5 RM	0.8	24.6	1.6	1.9	31.6	2000	20300112
37 x 1.5 RM	0.8	24.6	1.6	1.9	31.6	2050	20300113
40 x 1.5 RM	0.8	25.6	1.6	1.9	32.6	2170	20300114
42 x 1.5 RM	0.8	26.6	1.6	1.9	33.6	2300	20300115
45 x 1.5 RM	0.8	28.3	1.6	2.0	35.5	2430	20300116
48 x 1.5 RM	0.8	28.7	2.0	2.0	36.7	2780	20300117
5 x 2.5 RE	0.8	10.9	0.8	1.8	16.3	540	20300152
6 x 2.5 RE	0.8	11.8	1.25	1.8	17.9		20300002
7 x 2.5 RE	0.8	11.9	1.25	1.8	18.0	710	20300118
10 x 2.5 RE	0.8	15.2	1.25	1.8	21.3	920	20300119
12 x 2.5 RE	0.8	15.7	1.25	1.8	21.8	1000	20300120
14 x 2.5 RE	0.8	17.1	1.6	1.8	23.9	1280	20300121

Power & Control Cable

IEC 60502-1

(Multicores)

U₀/U 0.6 / 1 kV

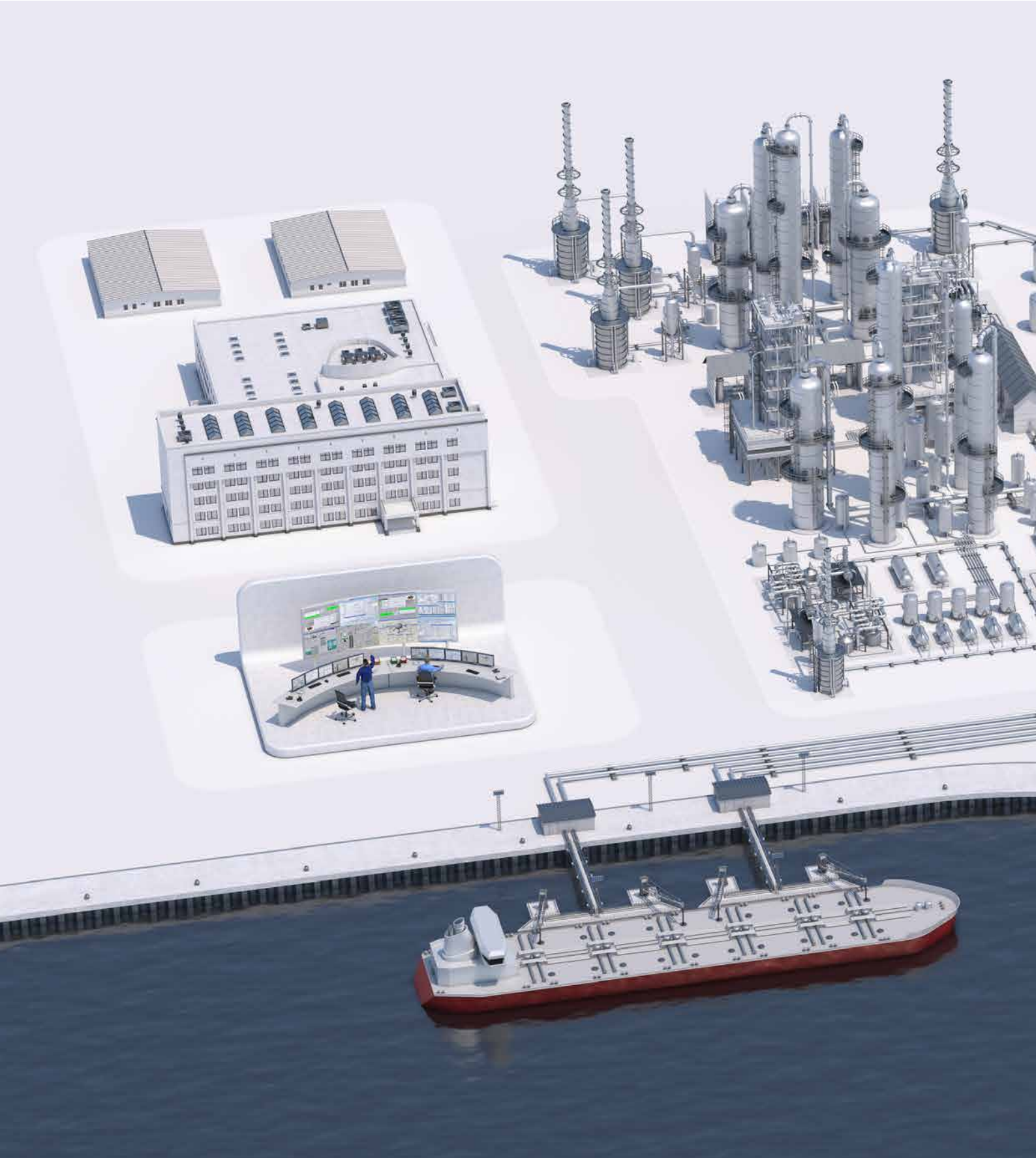
PVC-Insulation, Armour

YYRY-fl

Geometrical Data

No. of cores and cross-section (nom.) n / mm ²			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	Weight of cable (approx.) kg / km	Part number
15 x	2.5	RE	0.8	18.1	1.6	1.8	24.9	1360	PE293803
16 x	2.5	RE	0.8	18.1	1.6	1.8	24.9	1420	20300122
19 x	2.5	RE	0.8	19.1	1.6	1.8	25.9	1530	20300123
22 x	2.5	RE	0.8	21.4	1.6	1.8	28.2	1730	20300124
25 x	2.5	RE	0.8	22.9	1.6	1.9	29.9		20300153
27 x	2.5	RE	0.8	23.0	1.6	1.9	30.0	1970	20300125
30 x	2.5	RE	0.8	23.8	1.6	1.9	30.8	2090	20300126
35 x	2.5	RE	0.8	25.8	1.6	2.0	33.0	2350	20300127
37 x	2.5	RE	0.8	25.8	1.6	2.0	33.0	2410	20300128
40 x	2.5	RE	0.8	26.8	2.0	2.0	34.8	2880	20300129
42 x	2.5	RE	0.8	28.5	2.0	2.1	36.7	2990	20300130
45 x	2.5	RE	0.8	30.1	2.0	2.1	38.3	3180	20300131
48 x	2.5	RE	0.8	30.1	2.0	2.1	38.3	3270	20300132
5 x	2.5	RM	0.8	11.6	0.8	1.8	17.0	550	20300133
7 x	2.5	RM	0.8	12.6	1.25	1.8	18.7	740	20300134
10 x	2.5	RM	0.8	16.2	1.25	1.8	22.3	970	20300135
12 x	2.5	RM	0.8	16.8	1.25	1.8	22.9	1070	20300136
14 x	2.5	RM	0.8	18.2	1.6	1.8	25.0	1350	20300137
16 x	2.5	RM	0.8	19.3	1.6	1.8	26.1	1470	20300138
19 x	2.5	RM	0.8	20.4	1.6	1.8	27.2	1620	20300139
21 x	2.5	RM	0.8	21.6	1.6	1.8	28.4	1750	20300169
22 x	2.5	RM	0.8	22.8	1.6	1.8	29.6	1830	20300140
25 x	2.5	RM	0.8	24.5	1.6	1.9	31.5	2030	20300141
27 x	2.5	RM	0.8	24.5	1.6	1.9	31.5	2090	20300142
30 x	2.5	RM	0.8	25.4	1.6	1.9	32.4	2230	20300143
35 x	2.5	RM	0.8	27.6	1.6	2.0	34.8	2510	20300144
37 x	2.5	RM	0.8	27.6	1.6	2.0	34.8	2570	20300145
40 x	2.5	RM	0.8	28.7	2.0	2.0	36.7	2990	20300146
42 x	2.5	RM	0.8	30.4	2.0	2.1	38.6	3190	20300147
45 x	2.5	RM	0.8	32.1	2.0	2.1	40.3	3410	20300148
48 x	2.5	RM	0.8	32.1	2.0	2.1	40.3	3500	20300149

RE: circular solid • RM: circular stranded



A detailed 3D architectural rendering of an industrial facility, likely a refinery or chemical plant. The scene is viewed from an elevated perspective. On the left, there is a complex of industrial structures including distillation columns, piping, and smaller storage vessels. To the right, a large array of storage tanks is visible, including several tall cylindrical tanks and three smaller spherical tanks. A network of pipes and conduits connects these various components across the site. In the foreground, a long pier or dock extends into a body of water. Several barges are moored at the dock, and multiple cranes are positioned along the pier. The overall color palette is dominated by metallic grays, blues, and the green of the barges. A semi-transparent white rectangular box is overlaid in the center of the image, containing the text 'XLPE-insulation, Low Voltage Cables 90 °C'.

XLPE-insulation, Low Voltage Cables 90 °C

Power & Control Cable

IEC 60502-1

(2-, 3-, 4- and 5-cores)

U_0/U 0.6 / 1 kV

XLPE-Insulation, PVC-Sheath

2XY-fl

Application

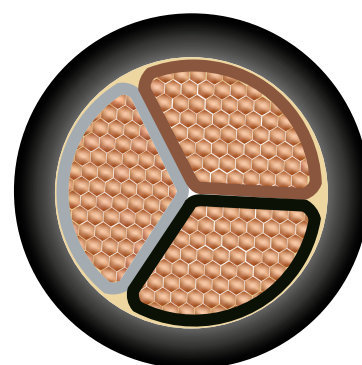
For electricity supply and control in public networks and industrial plants; suitable for use in zone 1 and zone 2 group II classified areas

(IEC 60079-14).

Recommended for direct burial. 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, $\leq 35 \text{ mm}^2$: circular solid (RE) or circular stranded (RM), $> 35 \text{ mm}^2$: sector-shaped stranded (SM) ¹⁾
Insulation	cross-linked polyethylene XLPE
Colour code ²⁾	Two-core: blue, brown Three-core: brown, black, grey Four-core: blue, brown, black, grey Five-core: blue, brown, black, grey, black
Laying up	cores twisted in layers
Inner Covering	extruded filler of regenerated rubber
Outer Sheath	extruded polyvinyl chloride PVC, black or blue for intrinsically safe systems
Cable marking	ELECTRIC CABLE 0.6/1 kV IEC 60502-1, LEONI KERPEN, YEAR, LENGTH MARKING



Technical Data

Flame retardancy :	IEC 60332-1	Temperature range:
Flame propagation :	IEC 60332-3 (cat. A)	- 30 °C up to + 90 °C (during operation)
Outer Sheath :		- 5 °C up to + 50 °C (during installation)
Amount of halogen acid gas :	max. 17 % (IEC 60754-1)	max. + 250 °C (under short circuit)
Limiting Oxygen Index (LOI):	min. 30 % (IEC 60332-3 ann. B)	Min. bending radius:
Temperature Index (TI) :	min. 300 °C	8 x cable-Ø
Oil resistance:	(ICEA S-61-402)	

Abbreviations

2X	insulation of XLPE
Y	outer sheath of PVC
-fl	reduced flame propagation

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
Nominal voltage U_0/U :		V	600/1000
Highest system voltage U_{m} :	max.	V	1200 (for three phase systems)

¹⁾ 5-core cables only with circular conductors ²⁾ other colours on request

For further details see appendix

Power & Control Cable

IEC 60502-1

(2-, 3-, 4- and 5-cores)

U₀/U 0.6 / 1 kV

XLPE-Insulation, PVC-Sheath

2XY-fl

Geometrical Data

No. of cores and cross-section			Radial thickness of insulation	Radial thickness of outer sheath	Overall diameter	Weight of cable	Part number
(nom.) n / mm ²			(nom.) mm	(nom.) mm	(approx.) mm	(approx.) kg / km	
2 x 1.5	RE		0.7	1.8	9.7	140	20810021
2 x 1.5	RM		0.7	1.8	10.2	150	20810022
2 x 2.5	RE		0.7	1.8	10.5	170	20810023
2 x 2.5	RM		0.7	1.8	11.0	180	20810024
2 x 4	RE		0.7	1.8	11.5	210	20810025
2 x 4	RM		0.7	1.8	12.2	230	20810026
2 x 6	RE		0.7	1.8	12.5	270	20810027
2 x 6	RM		0.7	1.8	13.2	290	20810028
2 x 10	RE		0.7	1.8	14.0	370	20810029
2 x 10	RM		0.7	1.8	15.0	410	20810030
2 x 16	RE		0.7	1.8	15.9	530	20810031
2 x 16	RM		0.7	1.8	17.3	580	20810032
2 x 25	RM						-
2 x 35	RM						-
2 x 50	SM		1.0	1.8	21.5	1200	20810035
2 x 70	SM		1.1	1.8	24.9	1620	20810036
2 x 95	SM		1.1	2.0	28.0	2200	20810037
2 x 120	SM		1.2	2.1	30.1	2640	20810038
2 x 150	SM		1.4	2.2	33.5	3250	20810039
2 x 185	SM		1.6	2.3	37.7	4050	20810040
2 x 240	SM		1.7	2.5	42.4	5260	20810041
2 x 300	SM		1.8	2.7	49.3	6760	20810091
3 x 1.5	RE		0.7	1.8	10.2	150	20810042
3 x 1.5	RM		0.7	1.8	10.7	170	20810043
3 x 2.5	RE		0.7	1.8	11.0	190	20810044
3 x 2.5	RM		0.7	1.8	11.6	210	20810045
3 x 4	RE		0.7	1.8	12.0	250	20810046
3 x 4	RM		0.7	1.8	12.8	280	20810047
3 x 6	RE		0.7	1.8	13.1	330	20810048
3 x 6	RM		0.7	1.8	13.9	350	20810049
3 x 10	RE		0.7	1.8	14.8	470	20810050
3 x 10	RM		0.7	1.8	15.9	500	20810051
3 x 16	RE		0.7	1.8	16.9	670	20810052
3 x 16	RM		0.7	1.8	18.3	730	20810053
3 x 25	RM		0.9	1.8	21.5	1060	-
3 x 35	RM		0.9	1.8	24.3	1450	-
3 x 50	SM		1.0	1.8	25.0	1710	20810056
3 x 70	SM		1.1	1.9	28.6	2320	20810057
3 x 95	SM		1.1	2.0	31.3	3150	20810058
3 x 120	SM		1.2	2.1	34.3	3820	20810059

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

Power & Control Cable

IEC 60502-1

(2-, 3-, 4- and 5-cores)

U₀/U 0.6 / 1 kV

XLPE-Insulation, PVC-Sheath

2XY-fl

Geometrical Data

No. of cores and cross-section			Radial thickness of insulation	Radial thickness of outer sheath	Overall Diameter	Weight of cable	Part number
(nom.) n / mm ²			(nom.) mm	(nom.) mm	(approx.) mm	(approx.) kg / km	
3 x 150 SM			1.4	2.3	38.6	4730	20810060
3 x 185 SM			1.6	2.4	43.8	5920	20810061
3 x 240 SM			1.7	2.6	49.2	7670	20810062
3 x 300 SM			1.8	2.8	56.7	9870	20810063
3 x 400 SM			2.0	3.1	63.9	12560	20810064
4 x 1.5 RE			0.7	1.8	10.9	180	20810065
4 x 1.5 RM			0.7	1.8	11.4	190	20810066
4 x 2.5 RE			0.7	1.8	11.8	230	20810067
4 x 2.5 RM			0.7	1.8	12.4	240	20810068
4 x 4 RE			0.7	1.8	12.9	300	20810069
4 x 4 RM			0.7	1.8	13.8	330	20810070
4 x 6 RE			0.7	1.8	14.2	400	20810071
4 x 6 RM			0.7	1.8	15.0	420	20810072
4 x 10 RE			0.7	1.8	16.1	580	20810073
4 x 10 RM			0.7	1.8	17.3	620	20810074
4 x 16 RE			0.7	1.8	18.3	840	20810075
4 x 16 RM			0.7	1.8	19.9	910	20810076
4 x 25 RM			0.9				-
4 x 35 RM			0.9				-
4 x 50 SM			1.0	1.9	28.8	2240	20810079
4 x 70 SM			1.1	2.0	32.5	3050	20810080
4 x 95 SM			1.1	2.1	35.7	4130	20810081
4 x 120 SM			1.2	2.3	39.6	5070	20810082
4 x 150 SM			1.4	2.4	43.8	6220	20810083
4 x 185 SM			1.6	2.6	49.7	7790	20810084
4 x 240 SM			1.7	2.8	56.3	10150	20810085
4 x 300 SM			1.8	3.0	62.9	12990	20810086
4 x 400 SM			2.0	3.3	73.8	16580	20810087
5 x 1.5 RE			0.7	1.8	11.7	210	20810343
5 x 1.5 RM			0.7	1.8	12.3	220	20810344
5 x 2.5 RE			0.7	1.8	12.7	270	20810329
5 x 2.5 RM			0.7	1.8	13.4	280	20810330
5 x 4 RE			0.7	1.8	14.0	360	20810331
5 x 4 RM			0.7	1.8	14.9	370	20810332
5 x 6 RE			0.7	1.8	15.4	470	20810333
5 x 6 RM			0.7	1.8	16.3	500	20810334
5 x 10 RE			0.7	1.8	17.5	690	20810335
5 x 10 RM			0.7	1.8	18.8	730	20810336

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

Power & Control Cable**IEC 60502-1****(2-, 3-, 4- and 5-cores)****U₀/U 0.6 / 1 kV****XLPE-Insulation, PVC-Sheath****2XY-fl****Geometrical Data**

No. of cores and cross-section			Radial thickness of insulation	Radial thickness of outer sheath	Overall Diameter	Weight of cable	Part number
(nom.) n / mm ²			(nom.) mm	(nom.) mm	(approx.) mm	(approx.) kg / km	
5 x	16	RE	0.7	1.8	20.0	1010	20810337
5 x	16	RM	0.7	1.8	21.8	1080	20810338
5 x	25	RM	0.9	1.8	25.8	1650	20810339
5 x	35	RM	0.9	1.8	28.8	2120	20810340
5 x	50	RM	1.0	1.8	32.9	2840	20810341
5 x	70	RM	1.1	2.1	38.5	3990	20810342

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

Power & Control Cable

IEC 60502-1

(Multicores)

U_0/U 0.6 / 1 kV

XLPE-Insulation, PVC-Sheath

2XY-fl

Application

For electricity supply and control in public networks and industrial plants; suitable for use in zone 1 and zone 2 group II classified areas

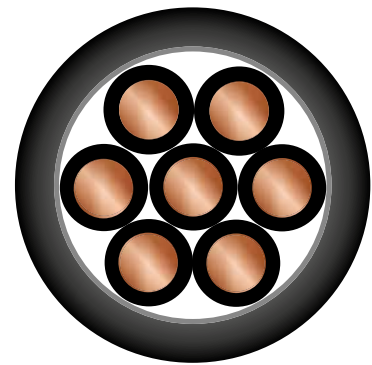
(IEC 60079-14).

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
Outer Sheath	extruded zero halogen flame retardant compound LSZH, black or blue form intrinsically safe systems
Cable marking	ELECTRIC CABLE 0.6/1 kV IEC 60502-1 LEONI 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-Ø

Abbreviations

2X	insulation of XLPE
H	outer sheath of LSZH

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
Nominal voltage U_0/U		V	600/1000
Highest system voltage U_m	max.	V	1200 (for three phase systems)

¹other colours on request

For further electrical details see appendix

Power & Control Cable

IEC 60502-1

(Multicores)

U₀/U 0.6 / 1 kV

XLPE-Insulation, PVC-Sheath

2XY-fl

Geometrical Data

No. of cores and cross-section (nom.) n / mm ²	Radial thickness of insulation (nom.) mm	Radial thickness of outer sheath (nom.) mm	Overall Diameter (approx.) mm	Weight of cable (approx.) kg / km	Part number
5 x 1.5 RE	0.7	1.8	11.3	180	20810131
7 x 1.5 RE	0.7	1.8	12.2	220	20810132
10 x 1.5 RE	0.7	1.8	14.9	310	20810133
12 x 1.5 RE	0.7	1.8	15.3	340	20810134
19 x 1.5 RE	0.7	1.8	17.7	480	20810137
27 x 1.5 RE	0.7	1.8	21.0	660	20810140
37 x 1.5 RE	0.7	1.8	23.4	860	20810144
48 x 1.5 RE	0.7	1.8	26.5	1080	20810148
5 x 1.5 RM	0.7	1.8	11.9	190	20810150
7 x 1.5 RM	0.7	1.8	12.8	230	20810151
10 x 1.5 RM	0.7	1.8	15.8	320	20810152
12 x 1.5 RM	0.7	1.8	16.2	360	20810153
19 x 1.5 RM	0.7	1.8	18.8	510	20810156
27 x 1.5 RM	0.7	1.8	22.3	700	20810108
37 x 1.5 RM	0.7	1.8	24.8	910	20810112
48 x 1.5 RM	0.7	1.8	28.3	1150	20810164
5 x 2.5 RE	0.7	1.8	12.4	240	20810351
7 x 2.5 RE	0.7	1.8	13.4	300	20810167
10 x 2.5 RE	0.7	1.8	16.4	400	20810168
12 x 2.5 RE	0.7	1.8	16.9	460	20810169
19 x 2.5 RE	0.7	1.8	19.8	670	20810172
27 x 2.5 RE	0.7	1.8	23.4	920	20810175
37 x 2.5 RE	0.7	1.8	26.1	1210	20810179
48 x 2.5 RE	0.7	1.9	29.9	1550	20810183
5 x 2.5 RM	0.7	1.8	13.0	250	20810115
7 x 2.5 RM	0.7	1.8	14.0	310	20810207
10 x 2.5 RM	0.7	1.8	17.4	420	20810116
12 x 2.5 RM	0.7	1.8	18.0	490	20810186
19 x 2.5 RM	0.7	1.8	21.0	710	20810189
27 x 2.5 RM	0.7	1.8	24.9	980	20810192
37 x 2.5 RM	0.7	1.8	27.8	1290	20810196
48 x 2.5 RM	0.7	1.9	31.9	1650	20810200

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

Power & Control Cable

IEC 60502-1

(2-, 3-, and 4-cores)

U₀/U 0.6 / 1 kV

XLPE-Insulation, Armour, PVC Sheath

2XYRY-fl

Application

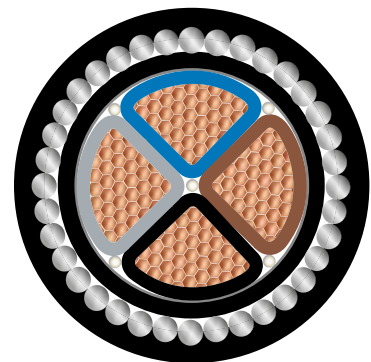
For electricity supply and control in public networks and industrial plants; suitable for use in zone 1 and zone 2 group classified areas (IEC 60079-14).

Recommended for direct burial. For indoor and outdoor installation in dry and wet locations, on racks, in conduits.

(Please note the relevant legal installation requirements)

Construction

Conductor	plain annealed copper, class 1 or class 2 resp., acc. to IEC 60228, ≤ 35 mm ² : circular solid (RE) or circular stranded (RM), > 35 mm ² : 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 polyvinyl chloride PVC, black
Armour	galvanized round steel wires
Outer Sheath	extruded polyvinyl chloride PVC, black or blue for intrinsically safe systems
Cable marking	ELECTRIC CABLE 0.6/1 kV IEC 60502-1 LEONI KERPEN, YEAR, LENGTH MARKING



Technical Data

Flame retardancy:	IEC 60332-1	Temperature range:
Flame propagation:	IEC 60332-3 -24cat. C	- 30 °C up to + 90 °C (during operation)
Sunlight-resistance:	UL 1581 section 1200	- 5 °C up to + 50 °C (during installation) max. + 250 °C (under short circuit)
Oil resistance:	IECAS-73-532	Min. bending radius: 10 x cable-Ø

Abbreviations

2X	insulation of XLPE
Y	bedding & outer sheath of PVC
R	round steel wire armour
-fl	reduced flame propagation

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 U₀ /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

Power & Control Cable

IEC 60502-1

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

XLPE-Insulation, Armour, PVC-Sheath

2XYRY-fl

Geometrical Data

No. of cores and cross-section (nom.) n / mm ²			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	Weight of cable (approx.) kg / km	Part number
2 x	1.5	RE	0.7	7.3	0.8	1.8	12.7	310	20050038
2 x	1.5	RM	1.5	7.8	0.8	1.8	13.2	330	20050154
2 x	2.5	RE	0.7	8.1	0.8	1.8	13.5	350	20050039
2 x	2.5	RM	0.7	8.6	0.8	1.8	14.0	370	20050155
2 x	4	RE	0.7	9.1	0.8	1.8	14.5	410	20050040
2 x	6	RE	0.7	9.8	0.8	1.8	15.2	440	20050156
2 x	6	RM	0.7	10.1	0.8	1.8	15.5	480	20050041
2 x	10	RE	0.7	10.8	0.8	1.8	16.2	510	20050042
2 x	10	RM	0.7	11.6	0.8	1.8	17.0	600	20050043
2 x	16	RE	0.7	12.8	1.25	1.8	18.9	770	20050044
2 x	16	RM	0.7	13.5	1.25	1.8	19.6	890	20050045
2 x	25	RM	0.9	14.9	1.25	1.8	21.0	960	20050046
2 x	35	RM	0.9	18.3	1.6	1.8	25.1	1350	20050933
2 x	50	SM	1.0	21.0	1.6	1.8	27.3	1670	20050801
2 x	70	SM	1.1	19.2	1.6	1.9	26.0	1845	20050157
2 x	95	SM	1.1	20.4	1.6	2.0	27.6	2310	20050049
2 x	120	SM	1.2	23.5	2.0	2.1	31.7	3145	20050050
2 x	150	SM	1.4	27.8	2.0	2.2	36.2	3865	20050051
2 x	185	SM	1.6	31.0	2.0	2.3	39.6	4640	20050052
2 x	240	SM	1.7	35.4	2.5	2.5	45.4	6090	20050053
2 x	300	SM	1.8	39.5	2.5	2.7	49.9	7360	20050054
3 x	1.5	RE	0.7	46.2	2.5	2.8	56.8	9015	20050221
3 x	1.5	RM	0.7	7.8	0.8	1.8	13.2	340	20050057
3 x	2.5	RE	0.7	8.3	0.8	1.8	13.7	360	20050158
3 x	2.5	RM	0.7	8.6	0.8	1.8	14.0	390	20050159
3 x	4	RE	0.7	9.2	0.8	1.8	14.6	410	20050059
3 x	4	RM	0.7	9.6	0.8	1.8	15.0	460	20050059
3 x	6	RE	0.7	10.4	0.8	1.8	15.8	510	20050160
3 x	6	RM	0.7	10.7	0.8	1.8	16.1	550	20050060
3 x	10	RE	0.7	11.5	0.8	1.8	16.9	600	20050161
3 x	10	RM	0.7	12.4	1.25	1.8	18.5	830	20050061
3 x	16	RE	0.7	13.5	1.25	1.8	19.6	890	20050162
3 x	16	RM	0.7	14.5	1.25	1.8	20.6	1080	20050062
3 x	25	RM	1.6	15.8	1.25	1.8	21.9	1150	20050163

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

Power & Control Cable

IEC 60502-1

(2-, 3-, and 4-cores)

U₀/U 0.6 / 1 kV

XLPE-Insulation, Armour

2XYRY-fl

Geometrical Data

No. of cores and cross-section (nom.) n / mm ²	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	Weight of cable (approx.) kg / km	Part number
3 x 35 RM	0.9	22.5	1.6	1.8	29.3	2070	20050807
3 x 50 SM	1.0	22.7	1.6	1.9	29.7	2500	20050166
3 x 70 SM	1.1	26.5	2.0	2.0	34.5	3540	20050167
3 x 95 SM	1.1	29.0	2.0	2.2	37.4	4440	20050168
3 x 120 SM	1.2	32.0	2.0	2.3	40.6	5320	20050169
3 x 150 SM	1.4	36.3	2.5	2.5	46.3	6810	20050170
3 x 185 SM	1.6	41.1	2.5	2.6	51.3	8200	20050063
3 x 240 SM	1.7	46.1	2.5	2.8	56.7	12310	20050171
3 x 300 SM	1.8	53.4	2.5	3.0	64.4	12540	20050064
3 x 400 SM	2.0	59.8	2.5	3.2	71.2	15380	20050065
4 x 1.5 RE	0.7	8.5	0.8	1.8	13.9	370	20050066
4 x 1.5 RM	0.7	9.0	0.8	1.8	14.4	400	20050067
4 x 2.5 RE	0.7	9.4	0.8	1.8	14.8	440	20050068
4 x 2.5 RM	0.7	10.0	0.8	1.8	15.4	460	20050172
4 x 4 RE	0.7	10.5	0.8	1.8	15.9	530	20050069
4 x 4 RM	0.7	11.4	0.8	1.8	16.8	580	20050173
4 x 6 RE	0.7	11.8	0.8	1.8	17.2	650	20050070
4 x 6 RM	0.7	12.7	1.25	1.8	18.8	800	20050071
4 x 10 RE	0.7	13.7	1.25	1.8	19.8	970	20050072
4 x 10 RM	0.7	14.9	1.25	1.8	21.0	1040	20050073
4 x 16 RE	0.7	15.9	1.6	1.8	22.7	1390	20050074
4 x 16 RM	0.7	17.5	1.6	1.8	24.3	1500	20050174
4 x 25 RM	0.9	21.6	1.6	1.8	28.4	2000	20050803
4 x 35 RM	0.9	24.0	1.6	1.9	31.0	2530	20050849
4 x 50 SM	1.0	26.3	1.6	2.0	33.5	3150	20050077
4 x 70 SM	1.1	29.7	2.0	2.0	37.7	4370	20050078
4 x 95 SM	1.1	33.2	2.0	2.3	41.8	5590	20050079
4 x 120 SM	1.2	37.1	2.5	2.5	47.1	7170	20050080
4 x 150 SM	1.4	41.1	2.5	2.6	51.3	8550	20050081
4 x 185 SM	1.6	46.6	2.5	2.8	57.2	10380	20050082
4 x 240 SM	1.7	53.0	2.5	3.0	64.0	13070	20050083
4 x 300 SM	1.8	59.0	2.5	3.2	70.4	15880	20050084
4 x 400 SM	2.0	69.7	3.15	3.5	83.0	20830	20050085

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

Power & Control Cable

IEC 60502-1

(Multicores)

U_0/U 0.6 / 1 kV

XLPE-Insulation, Armour

2XYRY-fl

Application

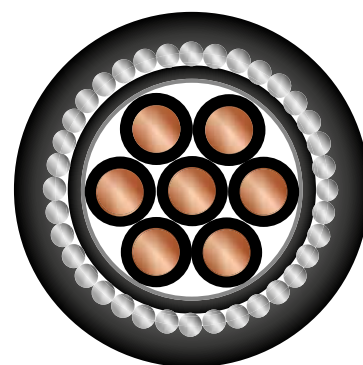
For electricity supply and control in public networks and industrial plants; suitable for use in zone 1 and zone 2 group II classified areas

(IEC 60079-14).

Recommended for direct burial. For indoor and outdoor installation in dry and wet locations, on racks, in conduits

Construction

Conductor	plain annealed copper, class 1 or class 2 resp., acc. to IEC60228 class 1: circular solid (RE) class 2: circular stranded (RM)
Insulation	cross-linked polyethylene XLPE
Colour code¹⁾	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 polyvinyl chloride PVC, black
Armour	galvanized round steel wires
Outer Sheath	extruded polyvinyl chloride PVC, black or blue for intrinsically systems
Cable marking	ELECTRIC CABLE 0.6/1 kV IEC 60502-1 LEONI KERPEN, YEAR, LENGTH MARKING



Technical Data

Abbreviations

Flame retardancy:	IEC 60332-1	Temperature range:	2X	insulation of XLPE
Flame propagation:	IEC 60332-3 cat. A	- 30 °C up to + 90 °C (during operation)	Y	bedding & outer sheath of PVC
Outer Sheath:		- 5 °C up to + 50 °C (during installation)	R	round steel wire armour
Amount of halogen acid gas:	max. 17 % (IEC 60754-1)	max. + 250 °C (under short circuit)	-fl	reduced flame propagation
Limiting Oxygen Index (LOI):	min. 30 % (IEC 60332-3 ann. B)			
Temperature Index (TI):	min. 300 °C (ASTM-D-2863)	Min. bending radius:		
Oil resistance:	(ICEA S-61-402)	8 x cable-Ø		

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_0/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

Power & Control Cable

IEC 60502-1

(Multicores)

 U_0/U 0.6 / 1 kV

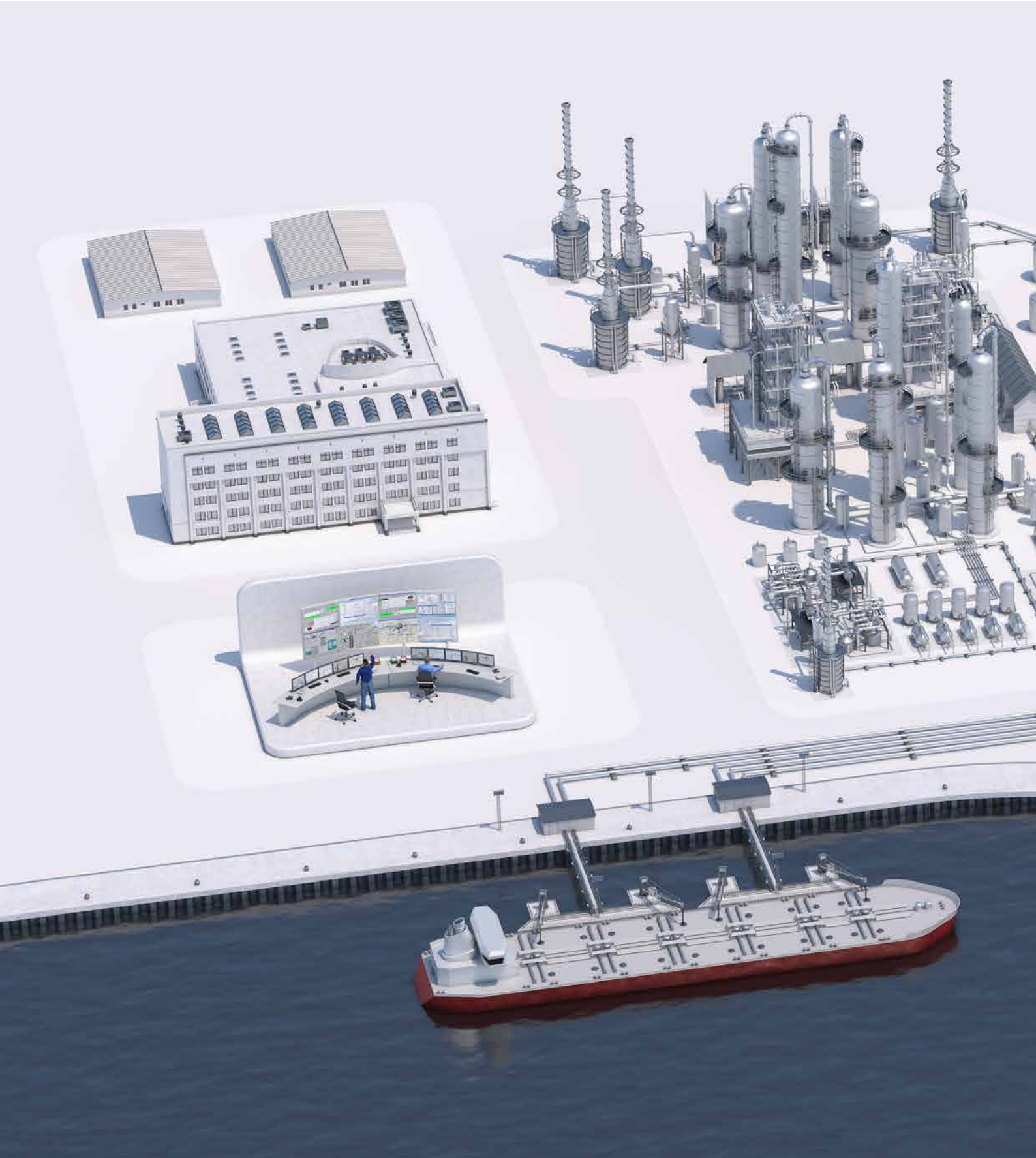
XLPE-Insulation, Armour

2XYRY-fl

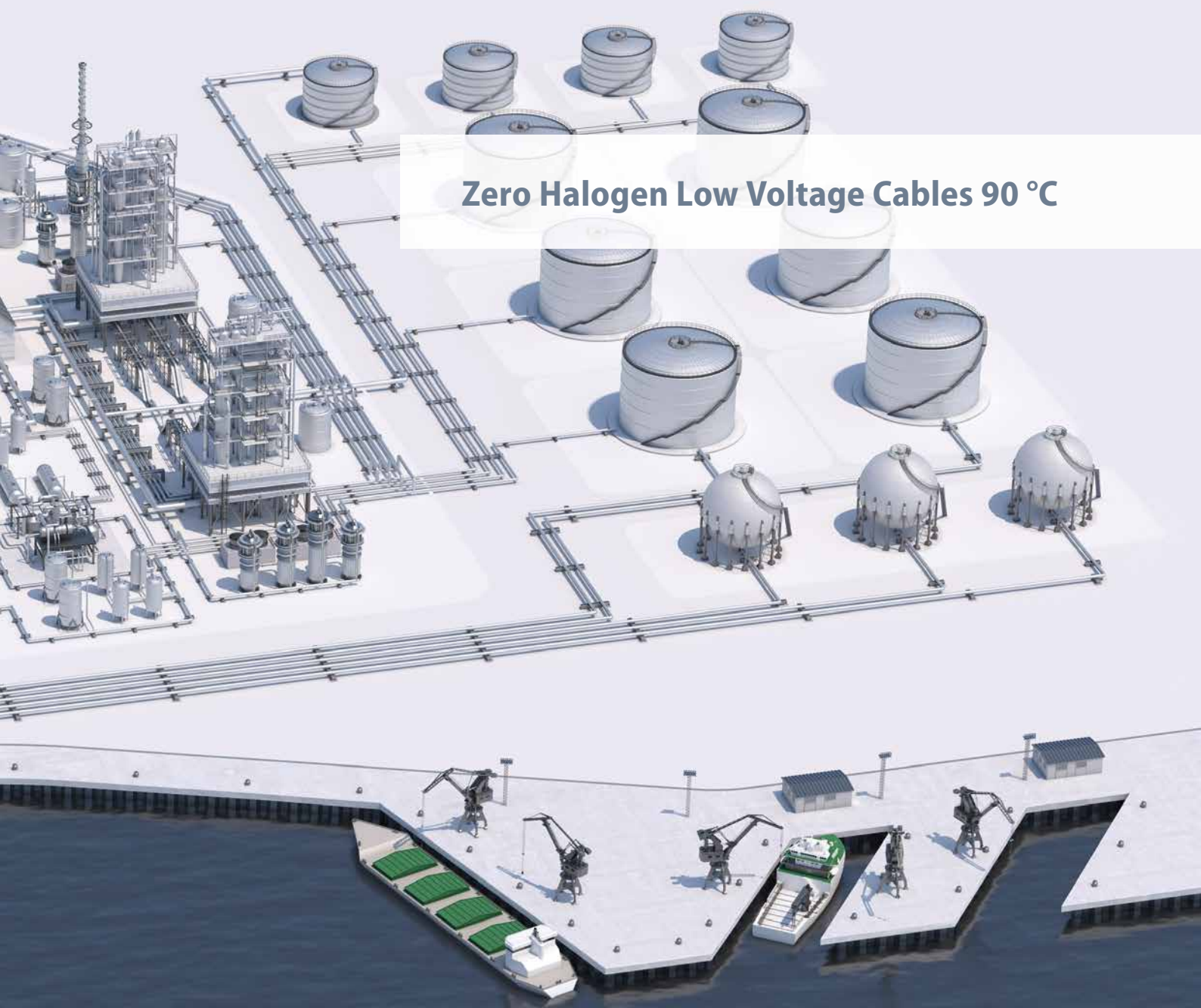
Geometrical Data

No. of cores and cross-section (nom.) n / mm ²	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	Weight of cable (approx.) kg / km	Part number
5 x 1.5 RE	0.7	9.3	0.8	1.8	14.7	420	20050093
7 x 1.5 RE	0.7	10.1	0.8	1.8	15.5	480	20050094
10 x 1.5 RE	0.7	12.9	1.25	1.8	19.0	730	20050095
12 x 1.5 RE	0.7	13.3	1.25	1.8	19.4	780	20050096
19 x 1.5 RE	0.7	15.7	1.25	1.8	21.8	1000	20050099
27 x 1.5 RE	0.7	19.3	1.6	1.8	26.1	1450	20050102
37 x 1.5 RE	0.7	21.7	1.6	1.8	28.5	1730	20050105
48 x 1.5 RE	0.7	24.9	1.6	1.9	31.9	2100	20050109
5 x 1.5 RM	0.7	9.9	0.8	1.8	15.3	450	20050034
7 x 1.5 RM	0.7	10.8	0.8	1.8	16.2	510	20050035
10 x 1.5 RM	0.7	13.8	1.25	1.8	19.9	770	20050036
12 x 1.5 RM	0.7	14.2	1.25	1.8	20.3	830	20050110
19 x 1.5 RM	0.7	16.8	1.25	1.8	22.9	1070	20050113
27 x 1.5 RM	0.7	20.7	1.6	1.8	27.5	1560	20050116
37 x 1.5 RM	0.7	23.2	1.6	1.8	30.0	1830	20050119
48 x 1.5 RM	0.7	26.7	1.6	1.9	33.7	2270	20050123
5 x 2.5 RE	0.7	10.3	0.8	1.8	15.7	500	20050124
7 x 2.5 RE	0.7	11.3	1.25	1.8	17.4	660	20050125
10 x 2.5 RE	0.7	14.4	1.25	1.8	20.5	880	20050126
12 x 2.5 RE	0.7	14.9	1.25	1.8	21.0	950	20050127
19 x 2.5 RE	0.7	18.1	1.6	1.8	24.9	1430	20050130
27 x 2.5 RE	0.7	21.7	1.6	1.8	28.5	1800	20050133
37 x 2.5 RE	0.7	24.4	1.6	1.9	31.4	2230	20050136
48 x 2.5 RE	0.7	28.5	2.0	2.1	36.7	3010	20050140
5 x 2.5 RM	0.7	11.0	0.8	1.8	16.4	530	20050029
7 x 2.5 RM	0.7	12.0	1.25	1.8	18.1	690	20050030
10 x 2.5 RM	0.7	15.4	1.25	1.8	21.5	930	20050031
12 x 2.5 RM	0.7	16.0	1.25	1.8	22.1	1020	20050032
19 x 2.5 RM	0.7	19.4	1.6	1.8	26.2	1510	20050143
27 x 2.5 RM	0.7	23.3	1.6	1.8	30.1	1930	20050146
37 x 2.5 RM	0.7	26.2	1.6	1.9	33.2	2360	20050149
48 x 2.5 RM	0.7	30.5	2.0	2.1	38.7	3240	20050141

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



Zero Halogen Low Voltage Cables 90 °C



Power & Control Cable

IEC 60502-1

(2-, 3-, 4- and 5-cores)

U_0/U 0.6 / 1 kV

XLPE-Insulation, LSZH-Sheath

2XH

Application

For electricity supply and control in public networks and industrial plants; suitable for use in zone 1 and zone 2 group II classified areas

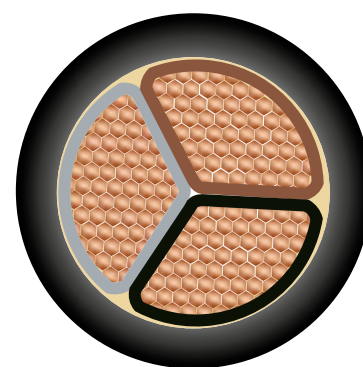
(IEC 60079-14).

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 mm ² : circular solid (RE) or circular stranded (RM), > 35 mm ² : sector-shaped stranded (SM) ¹⁾
Insulation	cross-linked polyethylene XLPE
Colour code²⁾	Two-core: blue, brown Three-core: brown, black, grey Four-core: blue, brown, black, grey Five-core: blue, brown, black, grey, black
Laying up	cores twisted in layers
Inner Covering	extruded filler of regenerated rubber
Outer Sheath	extruded zero halogen flame retardant compound LSZH, black or blue for intrinsically safe systems
Cable marking	ELECTRIC CABLE 0.6/1 kV IEC 60502-1 LEONI 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 %
Temperature Index (TI):	(IEC 60332-3 ann. B) 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-Ø

Abbreviations

2X	insulation of XLPE
H	outer sheath of LSZH

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
Nominal voltage U_0/U		V	600/1000
Highest system voltage U_m :	max.	V	1200 (for three phase systems)

¹⁾ Score cables only with circular conductors ²⁾ other colours on request

For further details see appendix

Power & Control Cable

IEC 60502-1

(2-, 3-, 4- and 5-cores)

U₀/U 0.6 / 1 kV

XLPE-Insulation, LSZH-Sheath

2XH

Geometrical Data

No. of cores and cross-section (nom.) n / mm ²	Radial thickness of insulation (nom.) mm	Radial thickness of outer sheath (nom.) mm	Overall Diameter (approx.) mm	Weight of cable (approx.) kg / km	Part number
2 x 1.5 RE	0.7	1.8	9.7	140	22220000
2 x 1.5 RM	0.7	1.8	10.2	150	22220001
2 x 2.5 RE	0.7	1.8	10.5	170	22220002
2 x 2.5 RM	0.7	1.8	11.0	180	22220003
2 x 4 RE	0.7	1.8	11.5	210	22220004
2 x 4 RM	0.7	1.8	12.2	230	22220005
2 x 6 RE	0.7	1.8	12.5	270	22220006
2 x 6 RM	0.7	1.8	13.2	290	22220007
2 x 10 RE	0.7	1.8	14.0	370	22220008
2 x 10 RM	0.7	1.8	15.0	410	22220009
2 x 16 RE	0.7	1.8	15.9	530	22220010
2 x 16 RM	0.7	1.8	17.3	580	22220011
2 x 25 RM	0.9	1.8	20.2	740	-
2 x 35 RM	0.9	1.8	22.8	1100	-
2 x 50 SM	1.0	1.8	21.5	1200	22220014
2 x 70 SM	1.1	1.8	24.9	1620	22220015
2 x 95 SM	1.1	2.0	28.0	2200	22220016
2 x 120 SM	1.2	2.1	30.1	2640	22220017
3 x 1.5 RE	0.7	1.8	10.2	150	22220018
3 x 1.5 RM	0.7	1.8	10.7	170	22220019
3 x 2.5 RE	0.7	1.8	11.0	190	22220020
3 x 2.5 RM	0.7	1.8	11.6	210	22220021
3 x 4 RE	0.7	1.8	12.0	250	22220022
3 x 4 RM	0.7	1.8	12.8	280	22220023
3 x 6 RE	0.7	1.8	13.1	330	22220024
3 x 6 RM	0.7	1.8	13.9	350	22220025
3 x 10 RE	0.7	1.8	14.8	470	22220026
3 x 10 RM	0.7	1.8	15.9	500	22220027
3 x 16 RE	0.7	1.8	16.9	670	22220028
3 x 16 RM	0.7	1.8	18.3	730	22220029
3 x 25 RM	0.9	1.8	21.5	1060	-
3 x 35 RM	0.9	1.8	24.3	1450	-
3 x 50 SM	1.0	1.8	25.0	1710	22220032
3 x 70 SM	1.1	1.9	28.6	2320	22220033
3 x 95 SM	1.1	2.0	31.3	3150	22220034

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

Power & Control Cable

IEC 60502-1

(2-, 3-, 4- and 5-cores)

U₀/U 0.6 / 1 kV

XLPE-Insulation, LSZH-Sheath

2XH

Geometrical Data

No. of cores and cross-section			Radial thickness of insulation	Radial thickness of outer sheath	Overall Diameter	Weight of cable	Part number
(nom.) n / mm ²			(nom.) mm	(nom.) mm	(approx.) mm	(approx.) kg / km	
4 x 1.5 RE	0.7	1.8	10.9	180	22220035		
4 x 1.5 RM	0.7	1.8	11.4	190	22220036		
4 x 2.5 RE	0.7	1.8	11.8	230	22220037		
4 x 2.5 RM	0.7	1.8	12.4	240	22220038		
4 x 4 RE	0.7	1.8	12.9	300	22220039		
4 x 4 RM	0.7	1.8	13.8	330	22220040		
4 x 6 RE	0.7	1.8	14.2	400	22220041		
4 x 6 RM	0.7	1.8	15.0	420	22220042		
4 x 10 RE	0.7	1.8	16.1	580	22220043		
4 x 10 RM	0.7	1.8	17.3	620	22220044		
4 x 16 RE	0.7	1.8	18.3	840	22220045		
4 x 16 RM	0.7	1.8	19.9	910	22220046		
4 x 25 RM	0.9	1.8	23.5	1400	-		
4 x 35 RM	0.9	1.8	26.5	1700	-		
4 x 50 SM	1.0	1.9	28.8	2240	22220049		
4 x 70 SM	1.1	2.0	32.5	3050	22220050		
5 x 4 RE	0.7	1.8	14.0	360	22220055		
5 x 4 RM	0.7	1.8	14.9	370	22220056		
5 x 6 RE	0.7	1.8	15.4	470	22220057		
5 x 6 RM	0.7	1.8	16.3	500	22220058		
5 x 10 RE	0.7	1.8	17.5	690	22220059		
5 x 10 RM	0.7	1.8	18.8	730	22220060		
5 x 16 RE	0.7	1.8	20.0	1010	22220061		
5 x 16 RM	0.7	1.8	21.8	1080	22220062		
5 x 25 RM	0.9	1.8	25.8	1650	22220063		
5 x 35 RM	0.9	1.8	28.8	2120	22220064		
5 x 50 RM	1.0	1.8	32.9	2840	22220065		

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

Power & Control Cable

IEC 60502-1

(Multicores) U_0/U 0.6 / 1 kV

XLPE-Insulation, LSZH-Sheath

2XH

Application

For electricity supply and control in public networks and industrial plants; suitable for use in zone 1 and zone 2 group II classified areas

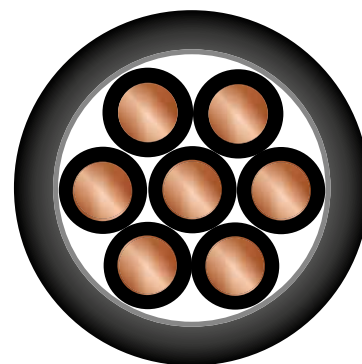
(IEC 60079-14).

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
Outer Sheath	extruded zero halogen flame retardant compound LSZH, black or blue form intrinsically safe systems
Cable marking	ELECTRIC CABLE 0.6/1 kV IEC 60502-1 LEONI 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-Ø

Abbreviations

2X	insulation of XLPE
H	outer sheath of LSZH

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
Nominal voltage U_0/U		V	600/1000
Highest system voltage U_m	max.	V	1200 (for three phase systems)

¹other colours on request

For further electrical details see appendix

Power & Control Cable IEC 60502-1

(Multicores) U_0/U 0.6 / 1 kV

XLPE-Insulation, LSZH-Sheath

2XH

Geometrical Data

No. of cores and cross-section (nom.) n / mm ²	Radial thickness of insulation (nom.) mm	Radial thickness of outer sheath (nom.) mm	Overall diameter (approx.) mm	Weight of cable (approx.) kg / km	Part number
5 x 1.5 RE	0.7	1.8	11.3	180	22220066
7 x 1.5 RE	0.7	1.8	12.2	220	22220067
10 x 1.5 RE	0.7	1.8	14.9	310	22220068
12 x 1.5 RE	0.7	1.8	15.3	340	22220069
19 x 1.5 RE	0.7	1.8	17.7	480	22220070
27 x 1.5 RE	0.7	1.8	21.0	660	22220071
37 x 1.5 RE	0.7	1.8	23.4	860	22220072
48 x 1.5 RE	0.7	1.8	26.5	1080	22220073
5 x 1.5 RM	0.7	1.8	11.9	190	22220074
7 x 1.5 RM	0.7	1.8	12.8	230	22220075
10 x 1.5 RM	0.7	1.8	15.8	320	22220076
12 x 1.5 RM	0.7	1.8	16.2	360	22220077
19 x 1.5 RM	0.7	1.8	18.8	510	22220078
27 x 1.5 RM	0.7	1.8	22.3	700	22220079
37 x 1.5 RM	0.7	1.8	24.8	910	22220080
48 x 1.5 RM	0.7	1.8	28.3	1150	22220081
5 x 2.5 RE	0.7	1.8	12.4	240	22220082
7 x 2.5 RE	0.7	1.8	13.4	300	22220083
10 x 2.5 RE	0.7	1.8	16.4	400	22220084
12 x 2.5 RE	0.7	1.8	16.9	460	22220085
19 x 2.5 RE	0.7	1.8	19.8	670	22220086
27 x 2.5 RE	0.7	1.8	23.4	920	22220087
37 x 2.5 RE	0.7	1.8	26.1	1210	22220088
48 x 2.5 RE	0.7	1.9	29.9	1550	22220089
5 x 2.5 RM	0.7	1.8	13.0	250	22220090
7 x 2.5 RM	0.7	1.8	14.0	310	22220091
10 x 2.5 RM	0.7	1.8	17.4	420	22220092
12 x 2.5 RM	0.7	1.8	18.0	490	22220093
19 x 2.5 RM	0.7	1.8	21.0	710	22220094
27 x 2.5 RM	0.7	1.8	24.9	980	22220095
37 x 2.5 RM	0.7	1.8	27.8	1290	22220096
48 x 2.5 RM	0.7	1.9	31.9	1650	22220097

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

Power & Control Cable IEC 60502-1

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

XLPE-Insulation, Armour, LSZH-Sheath

2XHRH

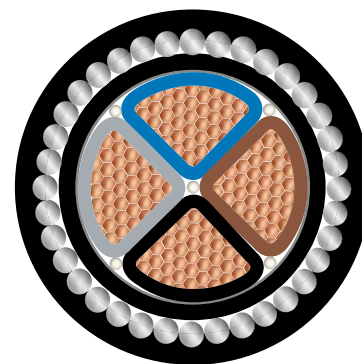
Application

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, $\leq 35 \text{ mm}^2$: circular solid (RE) or circular stranded (RM), $> 35 \text{ mm}^2$: 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 or blue for intrinsically safe systems
Cable marking	ELECTRIC CABLE 0.6/1 kV IEC 60502-1 LEONI 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-Ø

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_0/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

Power & Control Cable IEC 60502-1

(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 / mm ²			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	Weight 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

Power & Control Cable IEC 60502-1

(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 / mm ²	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	Weight 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 x 120 SM	1.2	32.0	2.0	2.3	40.6	5280	21380106
3 x 150 SM	1.4	36.3	2.5	2.5	46.3	6810	21380107
3 x 185 SM	1.6	41.1	2.5	2.6	51.3	8200	21380108
3 x 240 SM	1.7	46.1	2.5	2.8	56.7	10310	21380109
3 x 300 SM	1.8	53.4	2.5	3.0	64.4	12900	21380110
3 x 400 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 x 120 SM	1.2	37.1	2.5	2.5	47.1	7170	21380125
4 x 150 SM	1.4	41.1	2.5	2.6	51.3	8550	21380126
4 x 185 SM	1.6	46.6	2.5	2.8	57.2	10460	21380127
4 x 240 SM	1.7	53.0	2.5	3.0	64.0	13190	21380128
4 x 300 SM	1.8	59.0	2.5	3.2	70.4	16360	21380129
4 x 400 SM	2.0	69.7	3.15	3.5	83.0	21470	21380130

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

Power & Control Cable

IEC 60502-1

(Multicores) U_0/U 0.6 / 1 kV

XLPE-Insulation, Armour, LSZH-Sheath

2XHRH

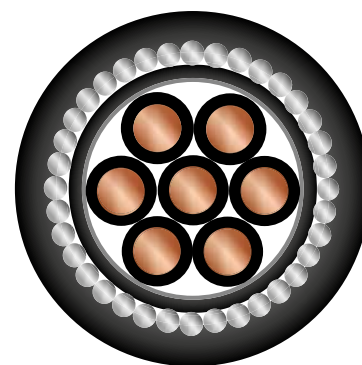
Application

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 code¹⁾	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 or blue for intrinsically safe systems
Cable marking	ELECTRIC CABLE 0.6/1 kV IEC 60502-1 LEONI 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-Ø
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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_0/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

Power & Control Cable

IEC 60502-1

(Multicores) U_0/U 0.6 / 1 kV

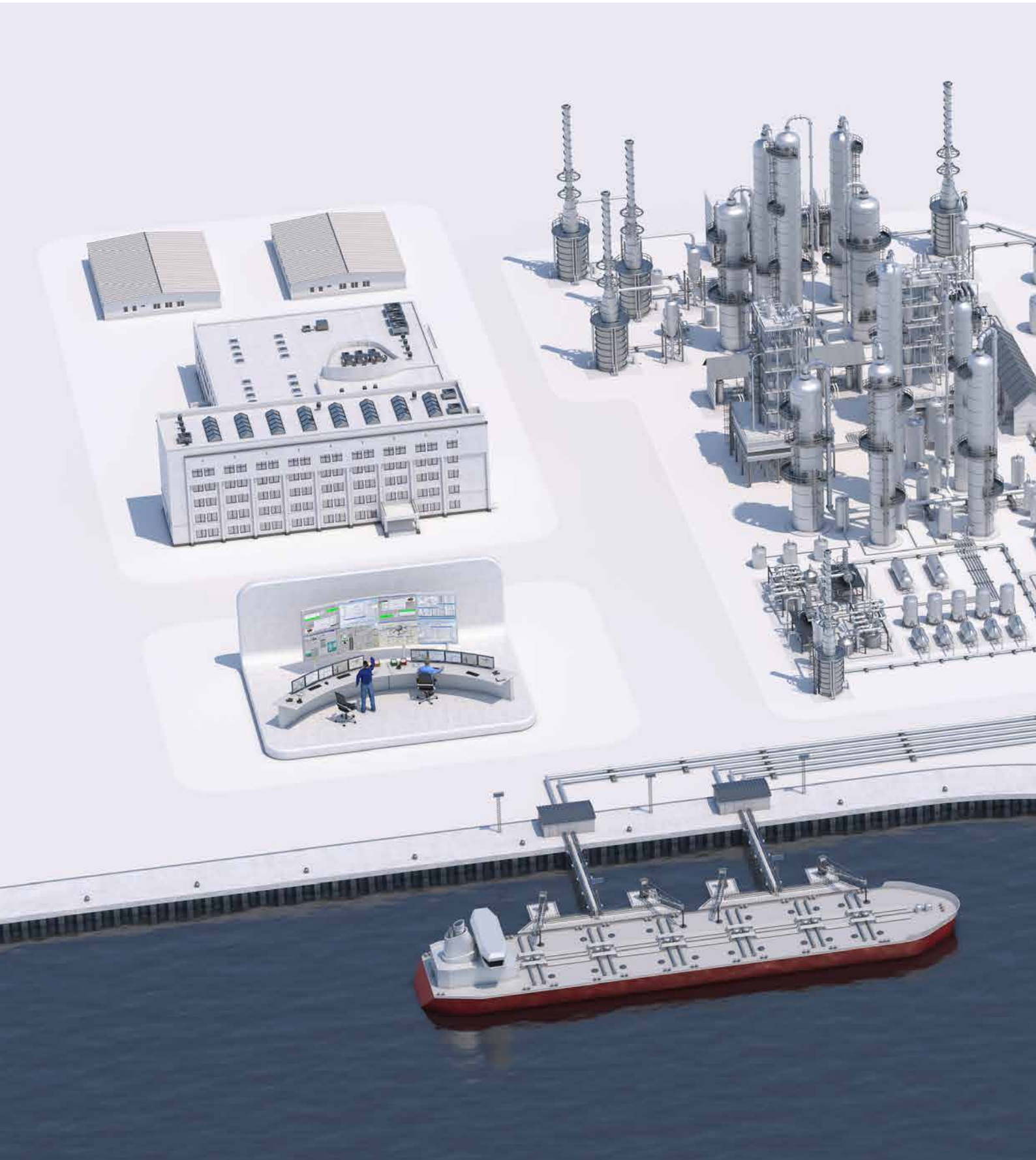
XLPE-Insulation, Armour, LSZH-Sheath

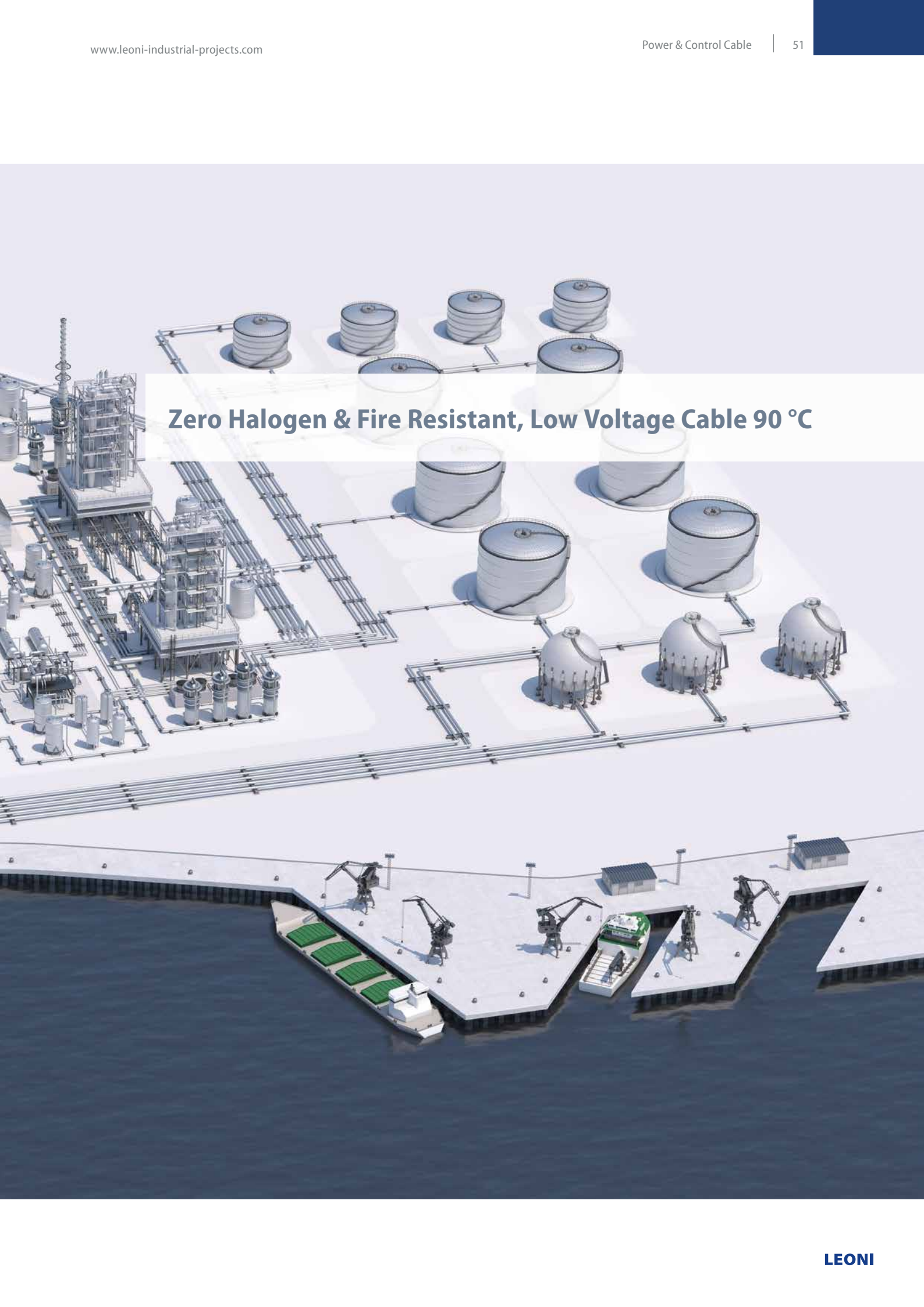
2XHRH

Geometrical Data

No. of cores and cross-section (nom.) n / mm ²	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	Weight 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



A detailed 3D architectural rendering of an industrial facility, likely a refinery or chemical plant. The scene is viewed from an elevated perspective. On the left, there is a complex of industrial structures including distillation columns, piping, and smaller storage vessels. To the right, several large, cylindrical storage tanks are arranged in rows, connected by a network of pipes. In the foreground, a long pier or dock extends into a body of water. Several barges are moored at the dock, and several cranes are visible on the pier. The overall color palette is dominated by metallic grays, blues, and greens.

Zero Halogen & Fire Resistant, Low Voltage Cable 90 °C

Power & Control Cable

IEC 60502-1

(2-, 3-, 4- and 5-cores)

U_0/U 0.6 / 1 kV

XLPE-Insulation, LSZH-Sheath, Circuit Integrity

2XH-CI

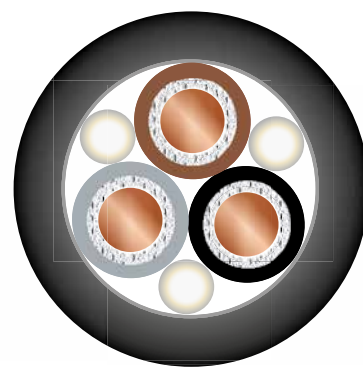
Application

For electricity supply and control in public networks and industrial plants or public buildings, where people are potentially endangered in case of fire and where, for a defined period of time, the continuity of control and energy supply is of vital necessity; suitable for use in zone 1 and zone 2 group II classified areas (IEC 60079-14).

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

Construction

Conductor	plain annealed copper, class 1 or class 2 acc. to IEC 60228, class 1: circular solid (RE) class 2: circular stranded (RM)
Insulation	cross-linked polyethylene XLPE, over the MICA-tape wrapped conductor
Colour code ¹⁾	Two-core: blue, brown Three-core: brown, black, grey Four-core: blue, brown, black, grey Five-core: blue, brown, black, grey, black
Laying up	cores twisted in layers (if necessary with filling element(s))
Inner Covering	extruded filler of regenerated rubber
Outer Sheath	extruded zero halogen flame retardant compound LSZH, orange or blue for intrinsically safe systems
Cable marking	ELECTRIC CABLE 0.6/1 kV IEC 60502-1 LEONI KERPEN, YEAR, LENGTH MARKING, IEC 60331



Technical Data

Reaction to fire		Temperature range:
Flame retardancy:	IEC 60332-1	- 30 °C up to + 90 °C (during operation)
Flame propagation:	IEC 60332-22 cat. A	- 5 °C up to + 50 °C (during installation)
	IEC 61034-1 and 2	max. + 250 °C (under short circuit)
Smoke density:	IEC 60754-1; 0 %	
Amount of halogen acid gas:	IEC 60754-2	
Degree of acidity of gases:		
Resistance to fire		Min. bending radius:
Circuit integrity:	IEC 60331-21 (90 min/750 °C)	8 x cable-Ø

Abbreviations

2X	insulation of XLPE
H	outer sheath of LSZH
CI	circuit integrity

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
Nominal voltage U_0/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

Power & Control Cable**IEC 60502-1****(2-, 3-, 4- and 5-cores)****U₀/U 0.6 / 1 kV****XLPE-Insulation, LSZH-Sheath, Circuit Integrity****2XH-CI****Geometrical Data**

No. of cores and cross-section (nom.) n / mm ²	Radial thickness of insulation (nom.) mm	Radial thickness of outer sheath (nom.) mm	Overall Diameter (approx.) mm	Weight of cable (approx.) kg / km	Part number
2 x 1.5 RE	0.7	1.8	11.8	190	21180010
2 x 1.5 RM	0.7	1.8	12.2	170	21180000
2 x 2.5 RE	0.7	1.8	12.5	220	21180033
2 x 2.5 RM	0.7	1.8	13.0	230	21180020
2 x 4 RE	0.7	1.8	13.5	260	21180037
2 x 4 RM	0.7	1.8	14.2	280	21180041
2 x 6 RE	0.7	1.8	14.5	320	21180045
2 x 6 RM	0.7	1.8	15.2	340	21180049
3 x 1.5 RE	0.7	1.8	12.3	200	21180011
3 x 1.5 RM	0.7	1.8	12.8	220	21180001
3 x 2.5 RE	0.7	1.8	13.2	240	21180034
3 x 2.5 RM	0.7	1.8	13.7	260	21180021
3 x 4 RE	0.7	1.8	14.2	290	21180038
3 x 4 RM	0.7	1.8	15.0	330	21180042
3 x 6 RE	0.7	1.8	15.3	380	21180046
3 x 6 RM	0.7	1.8	16.1	400	21180050
4 x 1.5 RE	0.7	1.8	13.3	230	21180012
4 x 1.5 RM	0.7	1.8	13.8	240	21180002
4 x 2.5 RE	0.7	1.8	14.3	280	21180035
4 x 2.5 RM	0.7	1.8	14.8	290	21180022
4 x 4 RE	0.7	1.8	15.5	350	21180039
4 x 4 RM	0.7	1.8	16.3	380	21180043
4 x 6 RE	0.7	1.8	16.7	450	21180047
4 x 6 RM	0.7	1.8	17.5	470	21180051
5 x 4 RE	0.7	1.8	16.8	410	21180040
5 x 4 RM	0.7	1.8	17.8	420	21180044
5 x 6 RE	0.7	1.8	18.2	520	21180048
5 x 6 RM	0.7	1.8	19.2	550	21180052

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

Power & Control Cable

IEC 60502-1

(Multicores)

 $U_0/U 0.6 / 1 \text{ kV}$

XLPE-Insulation, LSZH-Sheath, Circuit Integrity

2XH-CI

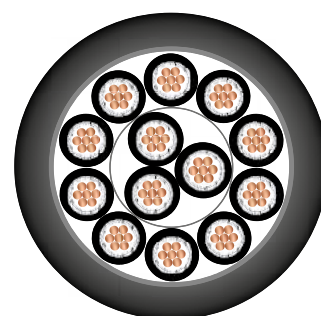
Application

For electricity supply and control in public networks and industrial plants or public buildings, where people are potentially endangered in case of fire and where, for a defined period of time, the continuity of control and energy supply is of vital necessity; suitable for use in zone 1 and zone 2 group II classified areas (IEC 60079-14).

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, over the MICA-tape wrapped conductor
Colour code ¹	black, continuously numbered
Laying up	cores twisted in layers (if necessary with filling element(s))
Wrapping	at least 1 layer of plastic tape
Outer Sheath	extruded zero halogen flame retardant compound LSZH, orange or blue for intrinsically systems
Cable marking	ELECTRIC CABLE 0.6/1 kV IEC 60502-1 LEONI KERPEN, YEAR, LENGTH MARKING, IEC 60331



Technical Data

Abbreviations

Reaction to fire		Temperature range:	
Flame retardancy:	IEC 60332-1	- 30 °C up to + 90 °C (during operation)	2X insulation of XLPE
Flame propagation:	IEC 60332-3 cat. A	- 5 °C up to + 50 °C (during installation)	H outer sheath of LSZH
Smoke density:	IEC 61034-1 and 2	max. +250° C (under short circuit)	CI circuit integrity
Amount of halogen acid gas:	IEC 60754-1; 0 %		
Degree of acidity of gases:	IEC 60754-2		
Resistance: to fire			
Circuit integrity:	IEC 60331-21 (90 min/750 °C)	Min. bending radius: 8 x cable-Ø	

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
Nominal voltage U_0/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

Power & Control Cable

IEC 60502-1

(Multicores)

 U_0/U 0.6 / 1 kV

XLPE-Insulation, LSZH-Sheath, Circuit Integrity

2XH-CI

Geometrical Data

No. of cores and cross-section	Radial thickness of insulation	Radial thickness of outer sheath	Overall Diameter	Weight of cable	Part number
(nom.) n / mm ²	(nom.) mm	(nom.) mm	(approx.) mm	(approx.) kg / km	
5 x 1.5 RE	0.7	1.8	14.1	270	21180053
7 x 1.5 RE	0.7	1.8	15.1	280	21180014
10 x 1.5 RE	0.7	1.8	18.9	400	21180015
12 x 1.5 RE	0.7	1.8	19.5	430	21180016
19 x 1.5 RE	0.7	1.8	22.9	570	21180054
27 x 1.5 RE	0.7	1.8	27.1	750	21180055
37 x 1.5 RE	0.7	1.8	30.4	950	21180056
48 x 1.5 RE	0.7	1.8	34.7	1170	21180057
5 x 1.5 RM	0.7	1.8	14.7	280	21180058
7 x 1.5 RM	0.7	1.8	15.8	300	21180004
10 x 1.5 RM	0.7	1.8	19.8	410	21180005
12 x 1.5 RM	0.7	1.8	20.4	450	21180006
19 x 1.5 RM	0.7	1.8	24.0	600	21180059
27 x 1.5 RM	0.7	1.8	28.5	790	21180060
37 x 1.5 RM	0.7	1.8	31.9	1000	21180061
48 x 1.5 RM	0.7	1.8	36.5	1240	21180062
5 x 2.5 RE	0.7	1.8	15.1	330	21180063
7 x 2.5 RE	0.7	1.8	16.4	390	21180064
10 x 2.5 RE	0.7	1.8	20.5	490	21180065
12 x 2.5 RE	0.7	1.8	21.2	550	21180066
19 x 2.5 RE	0.7	1.8	24.8	760	21180067
27 x 2.5 RE	0.7	1.8	29.5	1010	21180068
37 x 2.5 RE	0.7	1.8	33.1	1300	21180069
48 x 2.5 RE	0.7	1.9	37.8	1640	21180070
5 x 2.5 RM	0.7	1.8	15.8	340	21180071
7 x 2.5 RM	0.7	1.8	17.0	380	21180024
10 x 2.5 RM	0.7	1.8	21.4	510	21180025
12 x 2.5 RM	0.7	1.8	22.1	600	21180026
19 x 2.5 RM	0.7	1.8	26.1	800	21180072
27 x 2.5 RM	0.7	1.8	31.1	1070	21180073
37 x 2.5 RM	0.7	1.8	34.9	1380	21180074
48 x 2.5 RM	0.7	1.9	40.1	1740	21180075

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

Power & Control Cable

IEC 60502-1

(2-, 3-, and 4-cores)

U_0/U 0.6 / 1 kV

XLPE-Insulation, Armour, LSZH-Sheath, Circiut Integrity

2XHRH-CI

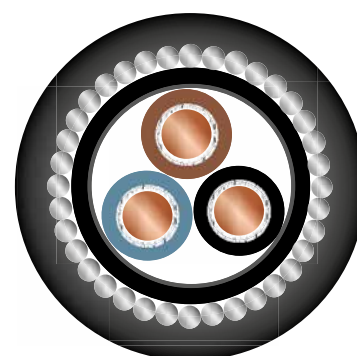
Application

For electricity supply and control in public networks and industrial plants or public buildings, where people are potentially endangered in case of fire and where, for a defined period of time, the continuity of control and energy supply is of vital necessity; suitable for use in zone 1 and zone 2 group II classified areas (IEC 60079-14).

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, over the MICA-tape wrapped conductor
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, orange or blue for intrinsically safe systems
Cable marking	ELECTRIC CABLE 0.6/1 kV IEC 60502-1 LEONI KERPEN, YEAR, LENGTH MARKING, IEC 60331



Technical Data

Reaction to fire	
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
Resistance to fire:	
Circuit integrity:	IEC 60331-21 (90 min/750 °C)

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-Ø

Abbreviations

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

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_0/U		V	600/1000
Highest system voltage U_m	max.	V	1200 (for three phase systems)

¹⁾ other colours on request

For further detail see appendix

Power & Control Cable

IEC 60502-1

(2-, 3-, and 4-cores)

U₀/U 0.6 / 1 kV

XLPE-Insulation, Armour, LSZH-Sheath, Circiut Integrity

2XHRH-CI

Geometrical Data									
No. of cores and cross-section (nom.) n / mm ²			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	Weight of cable (approx.) kg / km	Part number
2 x 1.5	RE		0.7	9.4	0.8	1.8	14.6	360	21190010
2 x 1.5	RM		0.7	9.8	0.8	1.8	15.2	380	21190000
2 x 2.5	RE		0.7	10.1	0.8	1.8	15.5	400	21190044
2 x 2.5	RM		0.7	10.6	0.8	1.8	15.8	410	21190020
2 x 4	RE		0.7	11.2	0.8	1.8	16.6	430	21190057
2 x 4	RM		0.7	11.8	0.8	1.8	17.2	490	21190060
2 x 6	RE		0.7	12.1	0.8	1.8	17.5	510	21190063
2 x 6	RM		0.7	12.8	0.8	1.8	18.0	560	21190066
3 x 1.5	RE		0.7	9.9	0.8	1.8	15.1	390	21190011
3 x 1.5	RM		0.7	10.4	0.8	1.8	15.8	400	21190001
3 x 2.5	RE		0.7	10.8	0.8	1.8	16.2	450	21190045
3 x 2.5	RM		0.7	11.3	0.8	1.8	16.5	460	21190021
3 x 4	RE		0.7	11.9	0.8	1.8	17.3	490	21190058
3 x 4	RM		0.7	12.6	0.8	1.8	18.0	570	21190061
3 x 6	RE		0.7	12.8	0.8	1.8	18.2	630	21190064
3 x 6	RM		0.7	13.7	0.8	1.8	19.1	660	21190067
4 x 1.5	RE		0.7	10.9	0.8	1.8	16.1	430	21190012
4 x 1.5	RM		0.7	11.5	0.8	1.8	16.6	560	21190002
4 x 2.5	RE		0.7	11.9	0.8	1.8	17.3	510	21190046
4 x 2.5	RM		0.7	12.5	0.8	1.8	17.6	520	21190022
4 x 4	RE		0.7	13.3	0.8	1.8	18.7	550	21190059
4 x 4	RM		0.7	13.8	0.8	1.8	19.2	660	21190062
4 x 6	RE		0.7	14.3	0.8	1.8	19.7	830	21190065
4 x 6	RM		0.7	15.0	1.25	1.8	21.1	890	21190068

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

Power & Control Cable

IEC 60502-1

(Multicores)

 U_0/U 0.6 / 1 kV

XLPE-insulation, Armour, LSZH-Sheath, Circuit Integrity

2XHRH-CI

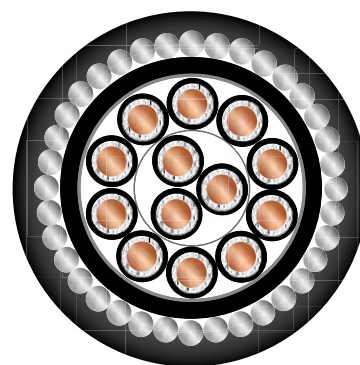
Application

For electricity supply and control in public networks and industrial plants or public buildings, where people are potentially endangered in case of fire and where, for a defined period of time, the continuity of control and energy supply is of vital necessity; suitable for use in zone 1 and zone 2 group II classified areas (IEC 60079-14).

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 0228, class 1: circular solid (RE) class 2: circular stranded (RM)
Insulation	cross-linked polyethylene XLPE, over the MICA-tape wrapped conductor
Colour code¹⁾	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, orange, or blue for intrinsically safe system
Cable marking	ELECTRIC CABLE 0.6/1 kV IEC 60502-1 LEONI KERPEN , YEAR, LENGTH MARKING, IEC 60331



Technical Data

Abbreviations

Reaction to fire			
Flame retardancy:	IEC 60332-1	Temperature range:	2X insulation of XLPE
Flame propagation:	IEC 60332-3 cat. A	- 30 °C up to + 90 °C (during operation)	H bedding & outer sheath of LSZH
	IEC 61034-1 and 2	- 5 °C up to + 50 °C (during installation)	R round steel wire armour
Smoke density:	IEC 60754-1; 0 %	max. + 250 °C (under short circuit)	CI circuit integrity
Amount of halogen acid gas:	IEC 60754-2		
Degree of acidity of gases:			
Resistance to fire			
Circuit Integrity	IEC 60331-21 (90 min. / 750 °C)	Min. bending radius: 8 x cable-Ø	

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_0/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

Power & Control Cable

IEC 60502-1

(Multicores)

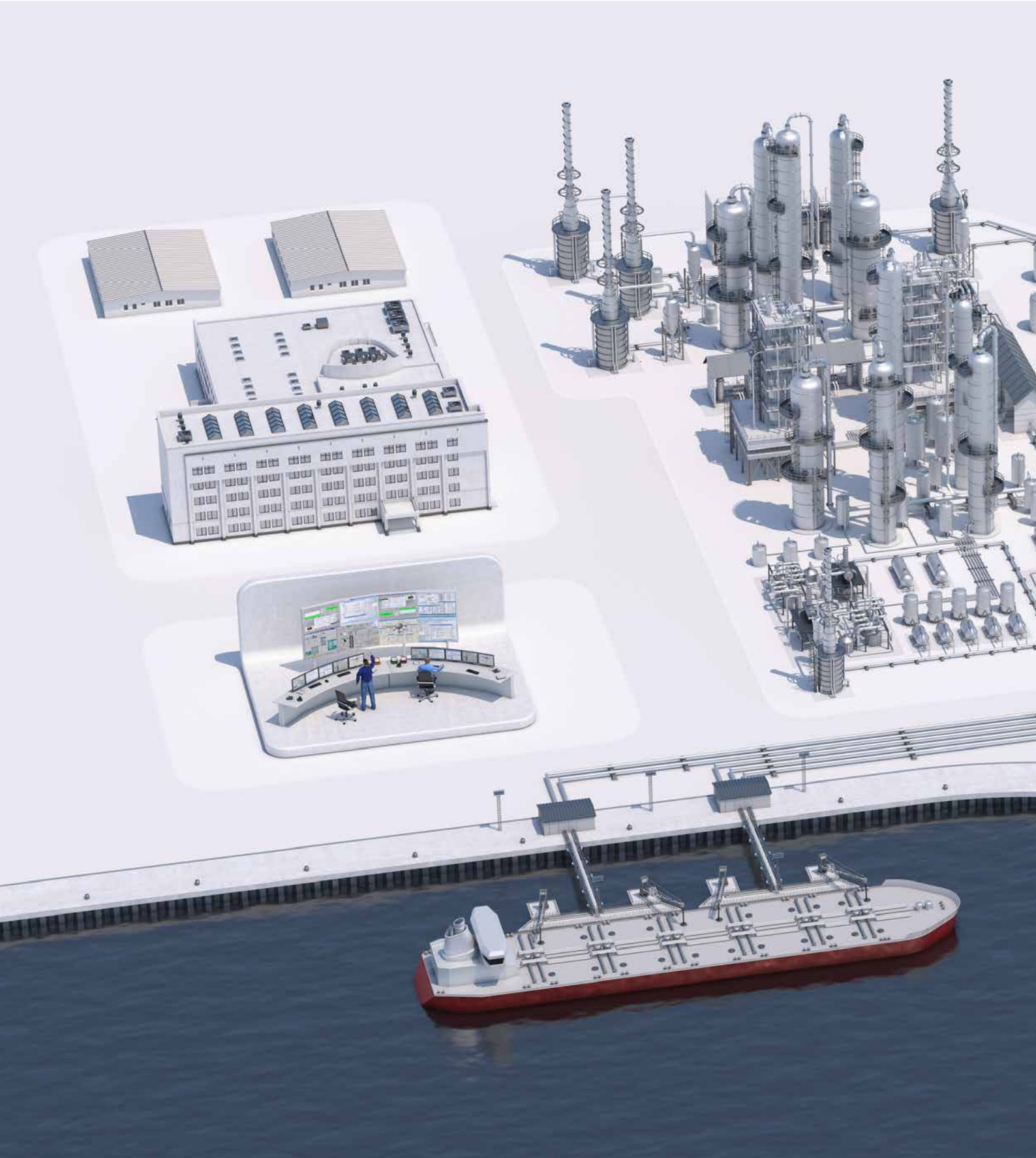
U₀/U 0.6 / 1 kV

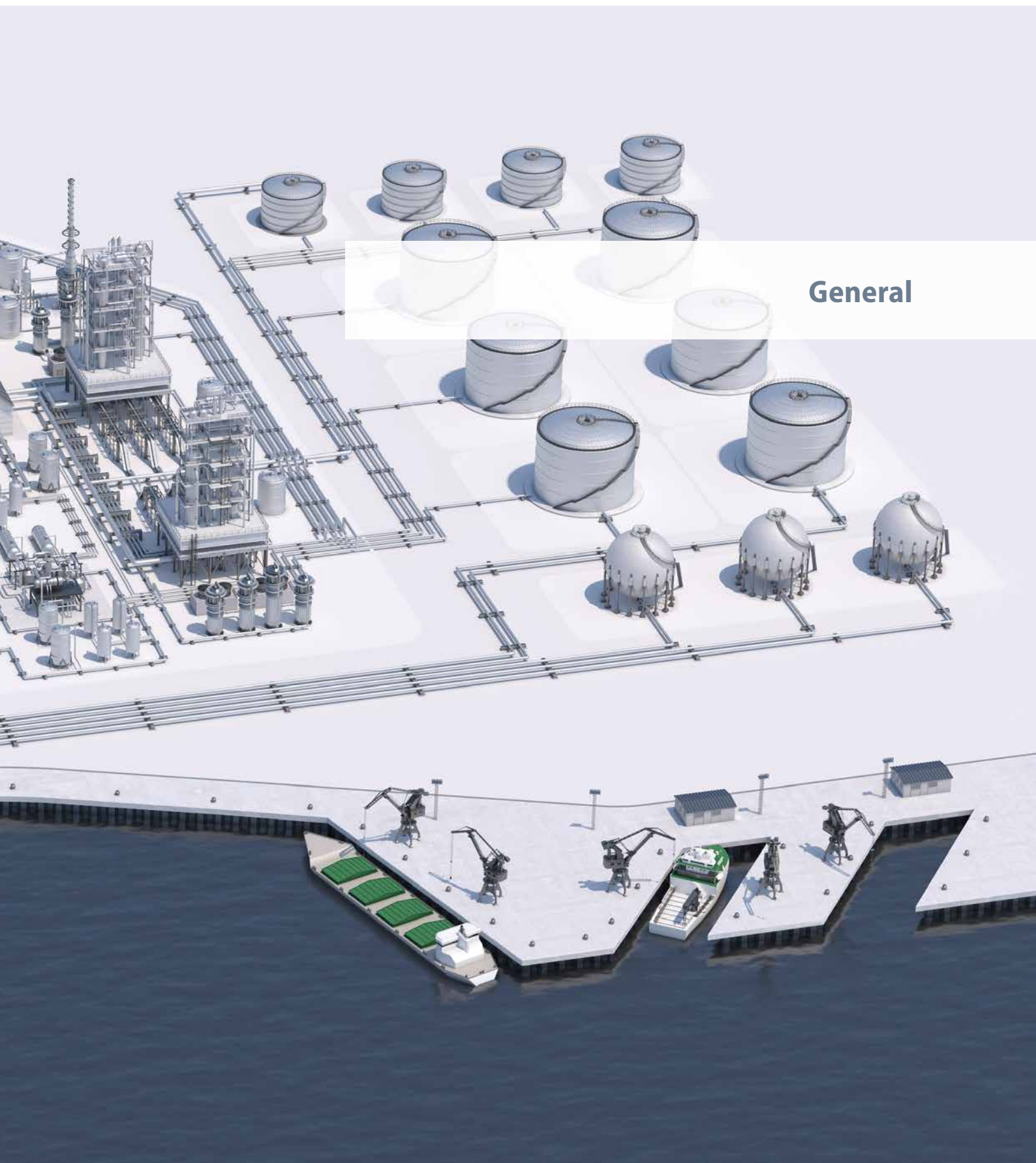
XLPE-insulation, Armour, LSZH-Sheath, Circuit Integrity

2XHRH-CI

Geometrical Data								
No. of cores and cross-section (nom.) n / mm ²	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	Weight of cable (approx.) kg / km	Part number	
5 x 1.5 RE	0.7	12.1	0.8	1.8	17.4	500	21190013	
7 x 1.5 RE	0.7	13.1	0.8	1.8	18.3	570	21190014	
10 x 1.5 RE	0.7	16.9	1.25	1.8	23.0	780	21190015	
12 x 1.5 RE	0.7	17.5	1.25	1.8	23.6	820	21190016	
19 x 1.5 RE	0.7	20.9	1.25	1.8	27.0	1200	21190031	
27 x 1.5 RE	0.7	25.5	1.6	1.8	32.3	1860	21190032	
37 x 1.5 RE	0.7	28.8	1.6	1.8	35.6	2150	21190040	
48 x 1.5 RE	0.7	33.1	1.6	1.9	40.1	2630	21190041	
5 x 1.5 RM	0.7	12.6	0.8	1.8	17.8	520	21190003	
7 x 1.5 RM	0.7	13.8	0.8	1.8	19.2	630	21190004	
10 x 1.5 RM	0.7	17.8	1.25	1.8	23.9	810	21190005	
12 x 1.5 RM	0.7	18.5	1.25	1.8	24.6	1040	21190006	
19 x 1.5 RM	0.7	21.9	1.25	1.8	28.0	1340	21190034	
27 x 1.5 RM	0.7	26.8	1.6	1.8	33.6	1950	21190035	
37 x 1.5 RM	0.7	30.2	1.6	1.8	37.0	2340	21190042	
48 x 1.5 RM	0.7	34.9	1.6	1.9	41.9	2810	21190043	
5 x 2.5 RE	0.7	13.1	0.8	1.8	18.3	580	21190047	
7 x 2.5 RE	0.7	14.4	1.25	1.8	20.5	770	21190048	
10 x 2.5 RE	0.7	18.5	1.25	1.8	24.6	1050	21190049	
12 x 2.5 RE	0.7	19.2	1.25	1.8	25.3	1140	21190050	
19 x 2.5 RE	0.7	23.2	1.6	1.8	30.0	1720	21190051	
27 x 2.5 RE	0.7	27.9	1.6	1.8	34.7	2190	21190052	
37 x 2.5 RE	0.7	31.5	1.6	1.9	38.5	2730	21190053	
48 x 2.5 RE	0.7	36.6	2.0	2.1	44.8	3670	21190054	
5 x 2.5 RM	0.7	13.8	0.8	1.8	18.9	610	21190023	
7 x 2.5 RM	0.7	15.2	1.25	1.8	21.3	810	21190024	
10 x 2.5 RM	0.7	19.5	1.25	1.8	25.6	1100	21190025	
12 x 2.5 RM	0.7	20.2	1.25	1.8	26.3	1210	21190026	
19 x 2.5 RM	0.7	24.5	1.6	1.8	31.2	1800	21190037	
27 x 2.5 RM	0.7	29.5	1.6	1.8	36.2	2320	21190038	
37 x 2.5 RM	0.7	33.3	1.6	1.9	40.3	2860	21190055	
48 x 2.5 RM	0.7	38.7	2.0	2.1	46.9	3920	21190056	

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





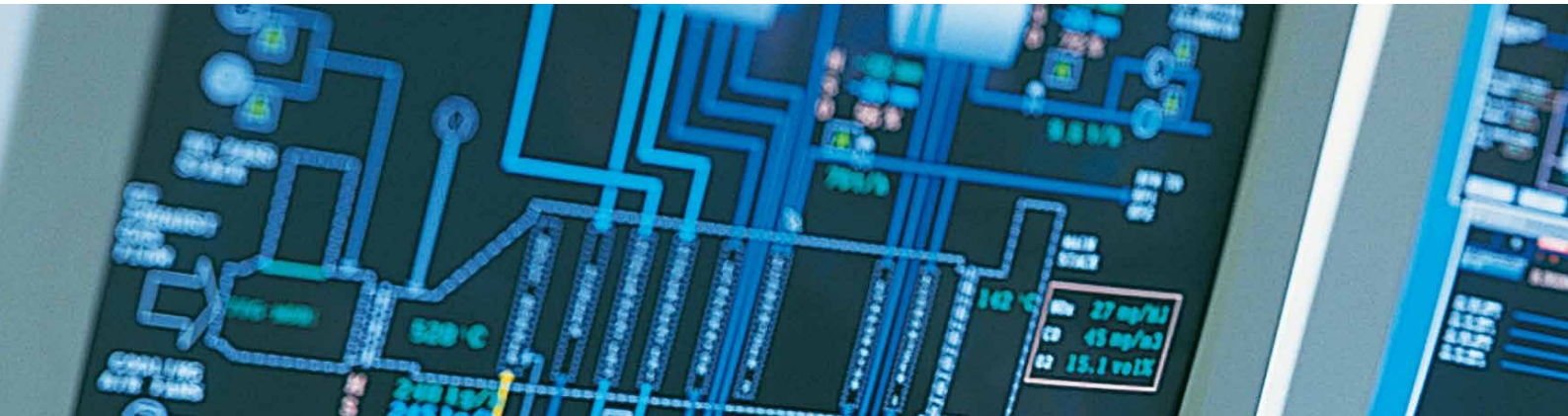
General

Additional cable variations of low voltage cable

Beside the cable constructions described in detail within this catalogue further cable types and constructions are available on request; e.g.:

LEONI Kerpen-Type:	Description
YYQY-fl	PVC-insulated and sheathed cables with galvanized steel wire braid armour, flame retardant. (only for cables with conductor cross-section not exceeding 6 mm ²)
2XYQY-fl	XLPE-insulated and PVC-sheathed cables with galvanized steel wire braid armour, flame retardant. Only for cables with conductor cross-section not exceeding 6 mm ²).
YYBY-fl	PVC-insulated and sheathed cables with galvanized double steel tape armour, flame retardant.
2XYBY-fl	XLPE-insulated and PVC-sheathed cables with galvanized double steel tape armour, flame retardant.
YKYRY-fl	PVC-insulated and sheathed cables with lead sheath and galvanized round steel wire armour, flame retardant.
2XKYRY-fl	XLPE-insulated and PVC-sheathed cables with lead sheath and galvanized round steel wire armour, flame retardant.
YKYBY-fl	PVC-insulated and sheathed cables with lead sheath and galvanized double steel tape armour, flame retardant.
2XKYBY-fl	XLPE-insulated and PVC-sheathed cables with lead sheath and galvanized double steel tape armour, flame retardant.

Electrical Data



Resistance

Nominal cross-sectional area	DC resistance at 20 °C (copper)		Max. active resistance (copper)	
	nom (mm ²)	max (Ω/km)	at 70 °C for PVC insulated (Ω/km)	at 90 °C for XLPE insulated (Ω/km)
	1.5	12.1	14.5	15.4
	2.5	7.41	8.87	9.45
	4	4.61	5.52	5.88
	6	3.08	3.69	3.93
	10	1.83	2.19	2.33
	16	1.15	1.38	1.47
	25	0.727	0.872	0.927
	35	0.524	0.628	0.669
	50	0.387	0.464	0.494
	70	0.268	0.322	0.342
	95	0.193	0.233	0.247
	120	0.153	0.186	0.196
	150	0.124	0.152	0.160
	185	0.0991	0.122	0.128
	240	0.0754	0.0948	0.0988
	300	0.0601	0.0774	0.0800
	400	0.0470	0.0619	0.0641
	500	0.0366	0.0495	0.0514
	630	0.0283	0.0405	0.0421
	800	0.0221	0.0332	0.0350
	1000	0.0176	0.0273	0.0302



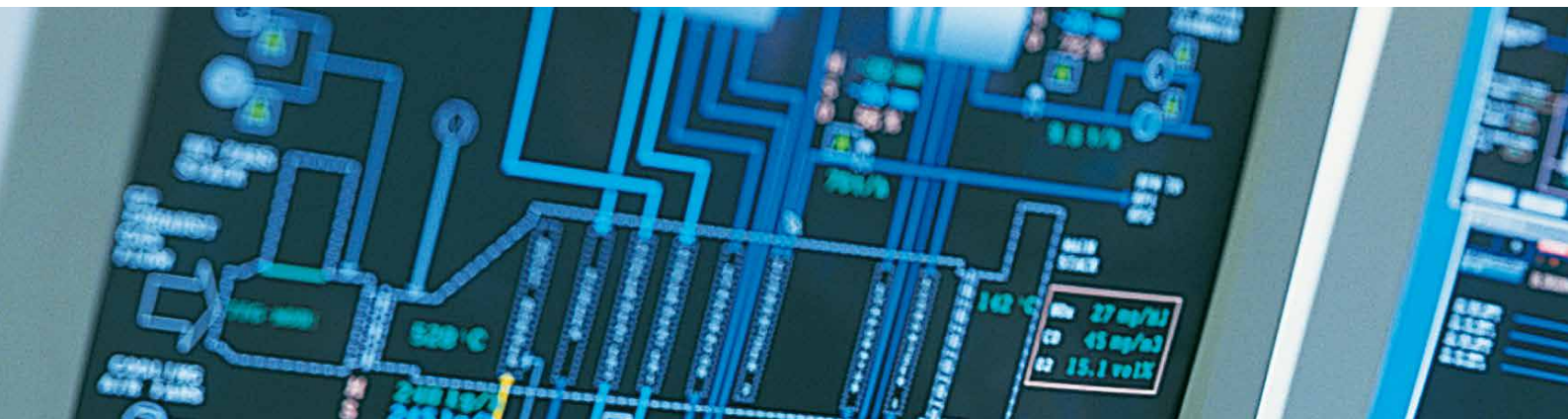
Reactance

Nominal cross-sectional area		Reactance ¹⁾ (inductive) per conductor at 50 Hz for U ₀ /U 6/1 kV		
nom. (mm ²)	PVC insulated		XLPE insulated	
	single core ²⁾ nom. (Ω/km)	multicore nom. (Ω/km)	single core ²⁾ nom. (Ω/km)	multicore nom. (Ω/km)
1.5	-----	0.119	-----	0.114
2.5	-----	0.114	-----	0.105
4	-----	0.110	-----	0.098
6	-----	0.103	-----	0.094
10	-----	0.097	-----	0.088
16	0.117	0.091	0.118	0.084
25	0.110	0.088	0.112	0.083
35	0.105	0.085	0.107	0.081
50	0.102	0.085	0.104	0.080
70	0.097	0.081	0.101	0.079
95	0.095	0.081	0.098	0.077
120	0.092	0.079	0.096	0.077
150	0.091	0.079	0.096	0.077
185	0.090	0.079	0.096	0.077
240	0.088	0.079	0.094	0.077
300	0.088	0.079	0.093	0.077
400	0.086	0.079	0.093	0.076
500	0.085	-----	0.093	-----
630	0.084	-----	0.090	-----
800	0.083	-----	0.092	-----

¹⁾ Values for steel wire armoured cables. For unarmoured cables the values can be reduced by approx. 10 %.

²⁾ Cables with aluminium wire armouring and in touching trefoil arrangement.

Electrical Data



Voltage drop

Nominal cross-sectional area (mm ²)	DC- System (mV/A/m)	Single-phase AC-System (mV/A/m)	Three-phase AC-System (mV/A/m)
1.5	24.2	27.9	24.1
2.5	14.3	17.1	14.8
4	9.0	10.7	9.3
6	6.0	7.2	6.2
10	3.6	4.3	3.7
16	2.3	2.8	2.4
25	1.5	1.8	1.5
35	1.1	1.3	1.1
50	0.8	0.96	0.85
70	0.6	0.70	0.60
95	0.4	0.55	0.45
120	0.3	0.45	0.35
150	0.25	0.35	0.31
185	0.20	0.30	0.26
240	0.15	0.25	0.22
300	0.12	0.22	0.19
400	0.10	0.19	0.17

The voltage drop in a circuit, of which the cable forms a part, should not exceed 3 - 5% of the nominal voltage; e.g. 20.0 volts (5%) for a three-phase 400 volts supply. The above mentioned voltage drop is tabulated for a current of 1 ampere for a 1 metre run. For any cable length, the values need to be multiplied by the length of the cable (in metres) and by the current (in amperes).

Select a cross-section, such that the voltage drop is equal to or less than 0.83 mV/A/m from table 3. It has to be ensured that the selected cross-section will carry the current (see pages H5 up to H7).

The corresponding cross-section will be 50 mm².

Example:

Formula for the calculated voltage drop in mV/A/m:

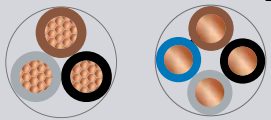
$$e_{\text{cal}} = \frac{\text{permissible voltage drop (e) x 1000}}{\text{current (I) x length (l)}}$$

Installation length (l):	300 m
Current (I) to carry:	80 A
Nominal voltage (U):	400 V (Three-phase AC)
Permissible voltage drop (e):	20.0 V (5% of 400 V)

$$e_{\text{cal}} = \frac{20.0 \text{ V} \times 1000}{80 \text{ A} \times 300 \text{ m}} = 0.83 \text{ mV/A/m}$$



Current Ratings: Copper conductors laid in air

Nominal cross-sectional area U0 / U 0.6 / 1 kV	1)		2)			
						
nom. (mm ²)	PVC (A)	XLPE (A)	PVC (A)	XLPE (A)	PVC (A)	XLPE (A)
1.5	27	33	20	24	21	27
2.5	35	43	26	32	28	36
4	47	57	34	42	37	47
6	59	72	43	53	47	59
10	81	99	59	73	64	81
16	107	131	78	97	84	109
25	144	177	105	132	114	146
35	176	217	129	162	139	179
50	214	265	157	197	169	218
70	270	336	199	250	213	275
95	334	415	246	308	264	336
120	389	485	285	359	307	388
150	446	557	326	412	352	438
185	516	647	374	475	406	501
240	618	775	445	564	483	580
300	711	894	510	649	552	649
400	843	1061	597	761	646	734
500	994	1254	663	860	747	827
630	1180	1486	-	-	858	934
800	1396	1751	-	-	971	-
1000	1620	2044	-	-	1078	-

¹⁾ Current in DC circuits with return conductor far away.

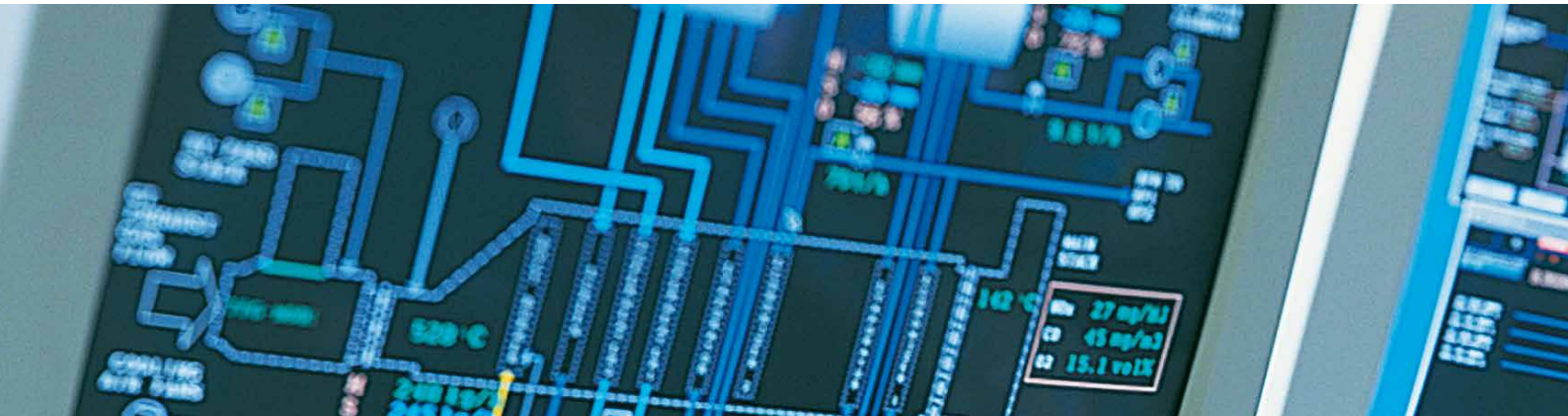
²⁾ For auxiliary and multicore cables with 4-cores fully loaded.

Basic assumption and conditions of installation:

Ambient temperature: 30 °C
 Distance between cables: 2 x overall diameter
 Loading factor: 1.0

Distance between cables and walls, ground or ceiling: 2 cm
 Distance between systems (one upon another) : 30 cm
 Distance between cables(side by side): 2 x overall diameter
 Distance between cables(one upon another): 2 x overall diameter
 (VDE 0298)

Electrical Data



Current Ratings: Copper conductors laid direct in ground

Nominal cross-sectional area $U_0 / U_{0.6} / 1 \text{ kV}$	1)		2)			
	PVC (A)	XLPE (A)	PVC (A)	XLPE (A)	PVC (A)	XLPE (A)
nom. (mm ²)						
1.5	41	48	27	31	30	33
2.5	55	63	36	40	39	42
4	71	82	46	52	50	54
6	90	102	58	64	62	67
10	124	136	78	86	83	89
16	160	176	101	111	107	115
25	208	229	132	145	138	148
35	250	275	159	174	164	177
50	296	326	188	206	195	209
70	365	400	232	254	238	256
95	438	480	280	305	286	307
120	501	548	318	348	325	349
150	563	616	359	392	365	393
185	639	699	406	444	413	445
240	746	815	473	517	479	516
300	845	924	535	585	539	581
400	975	1065	613	671	614	662
500	1125	1228	684	756	693	749
630	1304	1421	-	-	777	843
800	1507	1638	-	-	859	935
1000	1715	1870	-	-	936	1022

¹⁾ Current in DC circuits with return conductor far away.

²⁾ For auxiliary and multicore cables with 4-cores fully loaded.

Basic assumptions and conditions of installation:

Thermal resistivity of soil: 1.0 K x m/W

Depth of burial: 0.7 – 1.2 m

Standard ground temperature: 20 °C

No. of cable systems: 1

Loading factor: 0.7

(VDE 0298)



Current Ratings: Copper conductors laid in single way ducts

Nominal cross-sectional area $U_0 / U_{0.6} / 1 \text{ kV}$	1)		2)			
	PVC (A)	XLPE (A)	PVC (A)	XLPE (A)	PVC (A)	XLPE (A)
nom. (mm ²)						
1.5	35	41	23	26	26	28
2.5	47	54	31	34	33	36
4	60	70	39	44	43	46
6	77	87	49	54	53	57
10	105	116	66	73	71	76
16	136	150	86	94	91	98
25	177	195	112	123	117	126
35	213	234	135	148	139	150
50	252	277	160	175	166	178
70	310	340	197	216	202	218
95	372	408	238	259	243	261
120	426	466	270	296	276	297
150	479	524	305	333	310	334
185	543	594	345	377	351	378
240	634	693	402	439	407	439
300	718	785	455	497	485	494
400	829	905	521	570	522	563
500	956	1044	581	643	589	637
630	1108	1208	-	-	660	717
800	1281	1392	-	-	730	795
1000	1458	1590	-	-	796	869

1) Current in DC circuits with return conductor far away.

2) For auxiliary and multicore cables with 4-cores fully loaded.

The term "ducts" means fiber, ferrous or earthenware pipes. In case of single core cables for use in AC-systems, ferrous ducts should not be applied.

Basic assumption and conditions of installation:

Thermal resistivity of soil: 1.0 K x m/W

Standard ground temperature: 20 °C

Loading factor: 0.7

Depth of burial:

0.7 – 1.2 m

No. of cable systems:

1

(VDE 0298)

Tests

No.	Tests	Requirements acc. to	Test method acc. to	Scope of test to
1. Electrical properties				
1.1	Conductor resistance	IEC 60228	IEC 60502-1	R
1.2	Voltage test	IEC 60502-1	IEC 60502-1	R
1.3	Insulation resistance	IEC 60502-1	IEC 60502-1	T
1.4	Voltage test for 4 h	IEC 60502-1	IEC 60502-1	T
2. Dimensions				
2.1	Conductor examination	IEC 60228	IEC 60502-1	S
2.2	Measurement of thickness of insulation and of non-metallic sheath (excluding inner extruded coverings).	IEC 60502-1	IEC 60811-1-1	S
2.3	Measurement of armour wires and tapes	IEC 60502-1	IEC 60502-1	S
2.4	Measurement of external diameter	---	IEC 60811-1-1	S
3. Mechanical properties and thermal behaviour				
3.1	Hot set test for XLPE insulations and elastomeric sheaths.	IEC 60502-1	IEC 60811-2-1	S
3.2	Mechanical and thermal properties of insulations and sheaths.	IEC 60502-1	IEC 60811	T
4. Cable				
4.1	Flame Retardancy ^{**)}	IEC 60332-1	IEC 60332-1	T
4.2	Flame Propagation ^{**)}	IEC 60332-3	IEC 60332-3	T
4.3	Fire Resistance ^{**)}	IEC 60331-21	IEC 60331-21	T
4.4	Smoke Density ^{**)}	IEC 61034-1 and 2	IEC 61034-1 and 2	T
4.5	Amount of halogen gas acid ^{**)}	data sheet	IEC 60754-1	T
4.6	Degree of acidity of gases ^{**)}	IEC 60754-2	IEC 60754-2	T
4.7	Limiting Oxygen Index (LOI) ^{**) (only for outer sheath material)}	data sheet	IEC 60332-3 ann. B	T
4.8	Temperature Index (TI) ^{**) (only for outer sheath material)}	data sheet	ASTM-D-2863	T

^{**) Tests are not applicable to all cable types.}

R = Routine tests

Tests made by the manufacturer on each manufactured length of cable to check that each length meets the specified requirements.

S = Sample tests

Tests made by the manufacturer on samples or completed cable or components taken from a completed cable, at a specified frequency, so as to verify that the finished product meets the specified requirements.

T = Type tests

Tests made before supplying, on a general commercial basis, a type of cable covered by this standard, in order to demonstrate satisfactory performance characteristics to meet the intended application. These tests are of such a nature that, after they have been made, they need not to be repeated, unless changes are made in the cable materials or design or manufacturing process which might change the performance characteristics.

Conductor Comparison AWG - Metric (plain annealed copper conductors acc. to ICEA S-61-402 and IEC 60228)

Conductor Size		Electrical Resistance ³⁾		
AWG or kcmil	Metric ¹⁾ (mm ²)	No. of wires ²⁾	IEC ⁴⁾ (Ω/km)	ICEA ⁵⁾ (Ω/km)
16	1.31	7	-	13.98
-	1.5	7	12.1	-
15	1.65	7	-	11.04
14	2.08	7	-	8.80
-	2.5	7	7.41	-
13	2.63	7	-	6.96
12	3.31	7	-	5.55
-	4	7	4.61	-
11	4.17	7	-	4.38
10	5.261	7	-	3.48
-	6	7	3.08	-
9	6.631	7	-	2.760
8	8.367	7	-	2.181
-	10	7	1.83	-
7	10.55	7	-	1.736
6	13.30	7	-	1.375
-	16	7	1.15	-
5	16.77	7	-	1.087
4	21.15	7	-	0.863
-	25	7	0.727	-
3	26.67	7	-	0.686
2	33.62	7	-	0.542
-	35	7	0.524	-
1	42.41	19	-	0.432
-	50	19	0.387	-
1/0	53.49	19	-	0.341
2/0	67.43	19	-	0.2710
-	70	19	0.268	-
3/0	85.01	19	-	0.2148
-	95	19	0.193	-
4/0	107.2	19	-	0.1706
-	120	37	0.153	-
250	127	37	-	0.1442
-	150	37	0.124	-
300	152	37	-	0.1204
350	177	37	-	0.1030
-	185	37	0.0991	-
400	203	37	-	0.0900
450	228	37	-	0.0803
-	240	61	0.0754	-
500	253	37	-	0.0723
550	279	61	-	0.0656
-	300	61	0.0601	-
600	304	61	-	0.0602
650	329	61	-	0.0555
700	355	61	-	0.0515
750	380	61	-	0.0482
-	400	61	0.0470	-
800	405	61	-	0.0452
900	456	61	-	0.0401
-	500	61	0.0366	-
1000	507	61	-	0.0361
1100	557	91	-	0.0328
1200	608	91	-	0.0301
-	630	91	0.0283	-
1250	633	91	-	0.0289
1300	659	91	-	0.0278
1400	709	91	-	0.0258
1500	760	91	-	0.0241
-	800	91	0.0221	-
1600	811	127	-	0.0225
1700	861	127	-	0.0212
1750	887	127	-	0.0206
1800	912	127	-	0.0200
1900	963	127	-	0.0190
-	1000	91	0.0176	-

¹⁾ Sizes acc. to IEC 60228 printed in bold letters

³⁾ Value for electrical resistance is given for 20 °C (68.0 °F)

⁵⁾ Value for electrical resistance acc. to ICEA S-61-402 is calculated for "one layer of conductors"

²⁾ Minimum numbers of wires for the corresponding cross-section acc. to IEC 60228

⁴⁾ Value for electrical resistance acc. to IEC is for finished cable and cores in layers

Find out more:

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