

Medium Voltage Cables

6 kV – 10 kV – 15 kV – 20 kV

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Medium Voltage Catalogue 20040805.indd

Medium Voltage Cable

IEC 60502-2

1 core

3.6/6 kV

XLPE-Insulation, PVC-sheath

2XSY

Application

For electricity supply in public networks and industrial plants.

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

Construction

Conductor..... plain annealed copper, class 2 acc. to IEC 60228, circular stranded (RM)

Semi-conducting layers..... extruded, firmly bonded over conductor, easily strippable over insulation

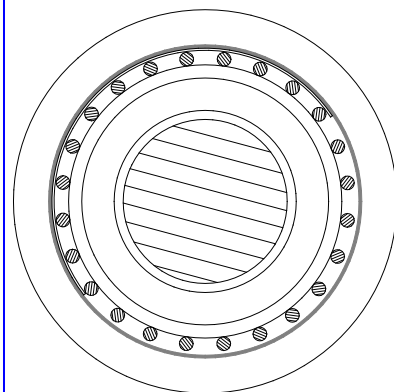
Insulation..... cross-linked polyethylene XLPE, uncoloured

Metallic screen plain annealed copper wires over core with counter helix of copper

Wrapping..... at least 1 layer of plastic tape (for cross-section $\geq 150 \text{ mm}^2$)

Outer sheath..... extruded polyvinyl chloride PVC, red*
* other colours on request

Cable marking..... ELECTRIC CABLE 3.6/6 kV IEC 60502-2
KERPEN YEAR LENGTH MARKING



Technical Data

Abbreviations

Reaction to fire

➤ Test on electric cables, under fire conditions

- Test on single cable IEC 60332-1

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:

15 x cable-Ø

2X insulation of XLPE
S metallic screen
Y outer sheath of PVC

Specific Electrical Data at 20°C

	Character	Unit	Values
Dielectric constant (ϵ) at 50 Hz	nom.		2.4
Dielectric loss factor (δ) at 50 Hz	max.		$< 0.6 \cdot 10^{-3}$
Volume resistivity at 90°C	min.	$\Omega \text{ cm}$	$> 10^{14}$
Test voltage core : metallic screen U_{rms}		kV	12.5
Nominal voltage U_0/U		kV	3.6/6
Highest system voltage U_m	max.	kV	7.2

Medium Voltage Cable IEC 60502-2

1 core
3.6/6 kV
XLPE-Insulation, PVC-sheath
2XSY

Part Number 1208...			...112	...113	...114	...115	...116	...117	0082 656	0200 306	0218 920	0209 040
Conductor cross-section		mm ²	25	35	50	70	95	120	150	185	240	300
Screen cross-section		mm ²	16	16	16	16	16	16	25	25	25	25
Construction												
Shape and type of conductor ¹⁾			RM	RM	RM	RM	RM	RM	RM	RM	RM	RM
Thickness of insulation	nom.	mm	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.8
Thickness of outer sheath	nom.	mm	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	2.0	2.1
Overall diameter	appr.	mm	18.0	19.0	20.5	22.0	24.0	25.5	28.0	29.5	32.5	36.0
Weight of cable	appr.	kg/km	630	740	880	1095	1350	1610	1970	2350	2960	3590
Electrical Data												
DC resistance at 20 °C	max.	Ω/km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
AC resistance at 90 °C	nom.	Ω/km	0.928	0.669	0.494	0.343	0.247	0.196	0.160	0.128	0.0981	0.0792
Inductance per conductor	nom.	mH/km	0.431	0.408	0.382	0.360	0.348	0.333	0.329	0.313	0.308	0.303
Operating capacitance	nom.	μF/km	0.251	0.280	0.314	0.359	0.402	0.448	0.486	0.530	0.574	0.624
Current-carrying capacity ²⁾												
normal operation (trefoil arrangement)												
Laid in ground ³⁾	max.	A	163	194	230	281	330	375	420	472	545	615
Laid in air ⁴⁾	max.	A	155	189	228	284	342	396	456	517	616	713
Short-circuit current I_{thr} for short-circuit duration $t_{kr} = 1$ s												
Conductor	max.	kA	3.73	5.19	7.37	10.3	13.9	17.5	21.8	26.9	34.8	43.4
Screen	max.	kA	2.74	2.74	2.74	2.74	2.74	2.74	3.97	3.97	3.97	3.97

¹⁾ RM = compacted circular stranded

²⁾ Three phase operation at 50 Hz, additional heating by other sources is not considered

³⁾ At a soil thermal resistivity of 1 Km/W, a laying depth of 0.7 m, a soil temperature of 20 °C and a load factor of 1.0 (trefoil formation)

⁴⁾ Laid in air at an air temperature of 30 °C and a load factor of 1.0 (trefoil formation)

Medium Voltage Cable

IEC 60502-2

1 core

3.6/6 kV

XLPE-Insulation, Armour, PVC-sheath

2XSYRY

Application

For electricity supply in public networks and industrial plants.

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

Construction

Conductor..... plain annealed copper, class 2 acc. to IEC 60228, circular stranded (RM)

Semi-conducting layers..... extruded, firmly bonded over conductor, easily strippable over insulation

Insulation..... cross-linked polyethylene XLPE, uncoloured

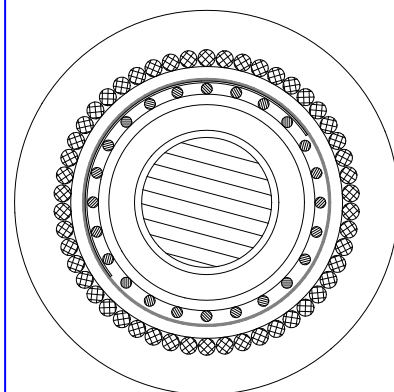
Metallic screen plain annealed copper wires over core with counter helix of copper

Separation sheath.. extruded polyvinyl chloride PVC, black

Armour..... round aluminium wires

Outer sheath..... extruded polyvinyl chloride PVC, red*
* other colours on request

Cable marking..... ELECTRIC CABLE 3.6/6 kV IEC 60502-2
KERPEN YEAR LENGTH MARKING



Technical Data

Abbreviations

Reaction to fire

- Test on electric cables, under fire conditions
- Test on single cable IEC 60332-1

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:

15 x cable-Ø

2X insulation of XLPE
S metallic screen
R armour of aluminium wires
Y separation & outer sheath of PVC

Specific Electrical Data at 20°C

	Character	Unit	Values
Dielectric constant (ε) at 50 Hz	nom.		2.4
Dielectric loss factor (δ) at 50 Hz	max.		$< 0.6 \cdot 10^{-3}$
Volume resistivity at 90°C	min.	Ω cm	$> 10^{14}$
Test voltage core : metallic screen U_{rms}		kV	12.5
Nominal voltage U_o/U		kV	3.6/6
Highest system voltage U_m	max.	kV	7.2

Medium Voltage Cable

IEC 60502-2
1 core
3.6/6 kV

Part Number 1375..			..112	..113	..114	..115	..116	..117	0301 795	0301 796	0301 797	0301 798
Conductor cross-section		mm²	25	35	50	70	95	120	150	185	240	300
Screen cross-section		mm²	16	16	16	16	16	16	25	25	25	25
Construction												
Shape and type of conductor ¹⁾			RM	RM	RM	RM	RM	RM	RM	RM	RM	RM
Thickness of insulation	nom.	mm	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.8
Diameter over separation sheath	appr.	mm	17.0	18.0	19.5	21.0	23.0	24.5	26.5	28.0	30.5	34.0
Armour wire Ø	nom.	mm	1.6	1.6	1.6	1.6	1.6	1.6	2.0	2.0	2.0	2.0
Thickness of outer sheath	nom.	mm	1.8	1.8	1.8	1.9	1.9	2.0	2.0	2.1	2.2	2.2
Overall diameter	appr.	mm	24.5	25.5	27.0	29.0	30.5	32.5	35.0	37.0	39.5	43.0
Weight of cable	appr.	kg/km	960	1090	1250	1500	1780	2080	2550	2970	1060	4325
Electrical Data												
DC resistance at 20 °C	max.	Ω/km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
AC resistance at 90 °C	nom.	Ω/km	0.928	0.669	0.494	0.342	0.247	0.196	0.159	0.128	0.0978	0.0788
Inductance per conductor	nom.	mH/km	0.493	0.470	0.446	0.415	0.396	0.382	0.373	0.363	0.347	0.338
Operating capacitance	nom.	μF/km	0.251	0.280	0.314	0.359	0.402	0.448	0.486	0.530	0.574	0.624
Current-carrying capacity ²⁾												
normal operation (trefoil arrangement)												
Laid in ground ³⁾	max.	A	164	195	230	280	332	375	414	461	525	586
Laid in air ⁴⁾	max.	A	166	200	241	299	360	415	468	530	615	702
Short-circuit current I_{thr} for short-circuit duration $t_{kr} = 1$ s												
Conductor	max.	kA	3.73	5.19	7.37	10.3	13.9	17.5	21.8	26.9	34.8	43.4
Screen	max.	kA	2.74	2.74	2.74	2.74	2.74	2.74	3.97	3.97	3.97	3.97

¹⁾ RM = compacted circular stranded

²⁾ Three phase operation at 50 Hz, additional heating by other sources is not considered

³⁾ At a soil thermal resistivity of 1 Km/W, a laying depth of 0.7 m, a soil temperature of 20 °C and a load factor of 1.0 (trefoil formation)

⁴⁾ Laid in air at an air temperature of 30 °C and a load factor of 1.0 (trefoil formation)

Medium Voltage Cable

IEC 60502-2

3 cores

3.6/6 kV

XLPE-Insulation, PVC-sheath

2XSEY

Application

For electricity supply in public networks and industrial plants.

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

Construction

Conductor..... plain annealed copper, class 2 acc. to IEC 60228, circular stranded (RM)

Semi-conducting layers..... extruded, firmly bonded over conductor, easily strippable over insulation

Insulation..... cross-linked polyethylene XLPE, uncoloured

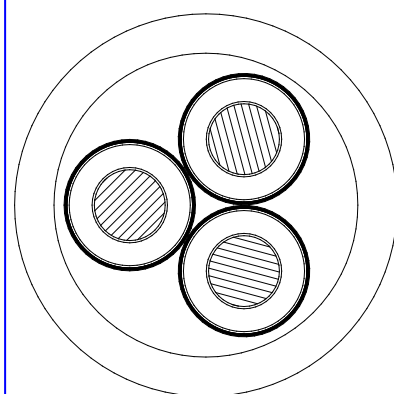
Metallic screen plain annealed copper tape over each core

Inner covering..... extruded polyvinyl chloride PVC, filling interstices

Outer sheath..... extruded polyvinyl chloride PVC, red*

* other colours on request

Cable marking..... ELECTRIC CABLE 3.6/6 kV IEC 60502-2
KERPEN YEAR LENGTH MARKING



Technical Data

Abbreviations

Reaction to fire

- Test on electric cables, under fire conditions
- Test on single cable IEC 60332-1

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:

15 x cable-Ø

2X insulation of XLPE
SE metallic screen over each core
Y outer sheath of PVC

Specific Electrical Data at 20°C

	Character	Unit	Values
Dielectric constant (ε) at 50 Hz	nom.		2.4
Dielectric loss factor (δ) at 50 Hz	max.		< 0.6 · 10 ⁻³
Volume resistivity at 90°C	min.	Ω cm	> 10 ¹⁴
Test voltage			
core : core U_{rms}		kV	12.5
core : metallic screen U_{rms}		kV	12.5
Nominal voltage U_o/U		kV	3.6/6
Highest system voltage U_m	max.	kV	7.2

Medium Voltage Cable IEC 60502-2

3 cores
3.6/6 kV
XLPE-Insulation, PVC-sheath
2XSEY

Part Number 1491..			..312	..313	..314	..315	..316	..317	..318	..319	..320	..321
Conductor cross-section		mm ²	25	35	50	70	95	120	150	185	240	300
Screen cross-section ¹⁾		mm ²	6	6	6	6	6	6	12	12	12	12
Construction												
Shape and type of conductor ²⁾			RM	RM	RM	RM	RM	RM	RM	RM	RM	RM
Thickness of insulation	nom.	mm	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.8
Thickness of outer sheath	nom.	mm	2.0	2.2	2.2	2.3	2.5	2.6	2.7	2.8	3.0	3.1
Overall diameter	appr.	mm	33.5	36.5	39.0	43.0	47.0	51.0	55.0	57.5	64.0	71.0
Weight of cable	appr.	kg/km	1900	2340	2835	3665	4685	5665	6700	7940	10110	12585
Electrical Data												
DC resistance at 20 °C	max.	Ω/km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
AC resistance at 90 °C	nom.	Ω/km	0.928	0.669	0.494	0.343	0.247	0.197	0.160	0.129	0.0988	0.0799
Inductance per conductor	nom.	mH/km	0.368	0.350	0.335	0.308	0.296	0.286	0.274	0.269	0.262	0.266
Operating capacitance	nom.	μF/km	0.251	0.280	0.314	0.359	0.402	0.448	0.486	0.530	0.574	0.624
Current-carrying capacity ³⁾												
normal operation												
Laid in ground ⁴⁾	max.	A	157	187	221	270	321	365	408	458	528	595
Laid in air ⁵⁾	max.	A	121	147	177	221	268	310	353	400	473	545
Short-circuit current I_{thr} for short-circuit duration $t_{kr} = 1$ s												
Conductor	max.	kA	3.73	5.19	7.37	10.3	13.9	17.5	21.8	26.9	34.8	43.4
Screen	max.	kA	1.18	1.18	1.18	1.18	1.18	1.18	2.37	2.37	2.37	2.37

¹⁾ Total geometric cross-section of screens

²⁾ RM = compacted circular stranded

³⁾ Three phase operation at 50 Hz, additional heating by other sources is not considered

⁴⁾ At a soil thermal resistivity of 1 Km/W, a laying depth of 0.7 m, a soil temperature of 20 °C and a load factor of 1.0

⁵⁾ Laid in air at an air temperature of 30 °C and a load factor of 1.0

Medium Voltage Cable

IEC 60502-2

3 cores

3.6/6 kV

XLPE-Insulation, Armour, PVC-sheath

2XSEYRY

Application

For electricity supply in public networks and industrial plants.

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

Construction

Conductor..... plain annealed copper, class 2 acc. to IEC 60228, circular stranded (RM)

Semi-conducting layers..... extruded, firmly bonded over conductor, easily strippable over insulation

Insulation..... cross-linked polyethylene XLPE, uncoloured

Metallic screen plain annealed copper tape over each core

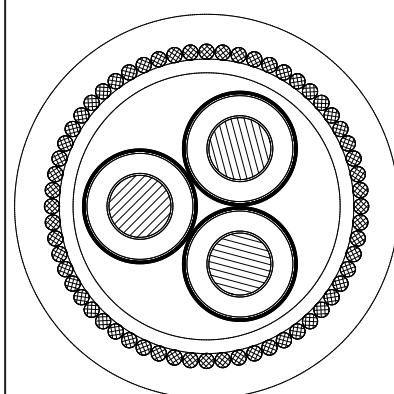
Separation sheath.. extruded polyvinyl chloride PVC, black, filling interstices

Armour..... galvanized round steel wires

Outer sheath..... extruded polyvinyl chloride PVC, red*

* other colours on request

Cable marking..... ELECTRIC CABLE 3.6/6 kV IEC 60502-2
KERPEN YEAR LENGTH MARKING



Technical Data

Reaction to fire

- Test on electric cables, under fire conditions
- Test on single cable IEC 60332-1

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:

15 x cable-Ø

Abbreviations

2X insulation of XLPE
SE metallic screen over each core
Y separation & outer sheath of PVC
R round steel wire armour

Specific Electrical Data at 20°C

	Character	Unit	Values
Dielectric constant (ϵ) at 50 Hz	nom.		2.4
Dielectric loss factor (δ) at 50 Hz	max.		$< 0.6 \cdot 10^{-3}$
Volume resistivity at 90°C	min.	$\Omega \text{ cm}$	$> 10^{14}$
Test voltage			
core : core U_{rms}		kV	12.5
core : metallic screen U_{rms}		kV	12.5
Nominal voltage U_o/U		kV	3.6/6
Highest system voltage U_m	max.	kV	7.2

Medium Voltage Cable IEC 60502-2

3 cores
3.6/6 kV
XLPE-Insulation, Armour, PVC-sheath
2XSEYRY

Part Number 1376..			..312	..313	..314	..315	..316	..317	..318	..319	..320	..321
Conductor cross-section		mm ²	25	35	50	70	95	120	150	185	240	300
Screen cross-section ¹⁾		mm ²	6	6	6	6	6	6	12	12	12	12
Construction												
Shape and type of conductor ²⁾			RM	RM	RM	RM	RM	RM	RM	RM	RM	RM
Thickness of insulation	nom.	mm	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.8
Diameter over separation sheath	appr.	mm	32.0	34.5	37.0	40.7	44.7	48.5	52.4	55.3	61.0	68.2
Armour wire Ø	nom.	mm	2.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.15	3.15
Thickness of outer sheath	nom.	mm	2.3	2.4	2.5	2.7	2.8	2.9	3.0	3.1	3.4	3.6
Overall diameter	appr.	mm	41.5	45.6	48.3	52.5	56.3	60.9	64.6	68.1	76.3	84.0
Weight of cable	appr.	kg/km	3395	4265	4920	6010	7175	8430	9665	11125	14450	17500
Electrical Data												
DC resistance at 20 °C	max.	Ω/km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
AC resistance at 90 °C	nom.	Ω/km	0.928	0.669	0.494	0.343	0.247	0.197	0.160	0.129	0.0988	0.0799
Inductance per conductor	nom.	mH/km	0.368	0.350	0.335	0.308	0.296	0.286	0.274	0.269	0.262	0.266
Operating capacitance	nom.	µF/km	0.251	0.280	0.314	0.359	0.402	0.448	0.486	0.530	0.574	0.624
Current-carrying capacity ³⁾												
normal operation												
Laid in ground ⁴⁾	max.	A	154	185	218	264	314	356	396	443	504	560
Laid in air ⁵⁾	max.	A	126	153	183	226	273	314	354	400	467	529
Short-circuit current I _{thr} for short-circuit duration t _{kr} = 1 s												
Conductor	max.	kA	3.73	5.19	7.37	10.3	13.9	17.5	21.8	26.9	34.8	43.4
Screen	max.	kA	1.18	1.18	1.18	1.18	1.18	1.18	2.37	2.37	2.37	2.37

¹⁾ Total geometric cross-section of screens

²⁾ RM = compacted circular stranded

³⁾ Three phase operation at 50 Hz, additional heating by other sources is not considered

⁴⁾ At a soil thermal resistivity of 1 Km/W, a laying depth of 0.7 m, a soil temperature of 20 °C and a load factor of 1.0

⁵⁾ Laid in air at an air temperature of 30 °C and a load factor of 1.0

Medium Voltage Cable

IEC 60502-2

3 cores

3.6/6 kV

XLPE-Insulation, Lead-sheath, Armour, PVC-sheath

2XSEYKYRY

Application

For electricity supply in public networks and industrial plants.

Recommended for direct burial, especially in presence of oil and aggressive chemical substances

Construction

Conductor..... plain annealed copper, class 2 acc. to IEC 60228, circular stranded (RM)

Semi-conducting layers..... extruded, firmly bonded over conductor, easily strippable over insulation

Insulation..... cross-linked polyethylene XLPE, uncoloured

Metallic screen plain annealed copper tape over each core

Separation sheath.. extruded polyvinyl chloride PVC, black, filling interstices

Metal Sheath..... lead

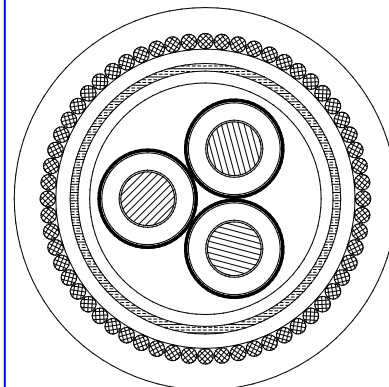
Separation sheath.. extruded polyvinyl chloride PVC, black

Armour..... galvanized round steel wires

Outer sheath..... extruded polyvinyl chloride PVC, red*

* other colours on request

Cable marking..... ELECTRIC CABLE 3.6/6 kV IEC 60502-2
KERPEN YEAR LENGTH MARKING



Technical Data

Reaction to fire

- Test on electric cables, under fire conditions

- Test on single cable IEC 60332-1

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:

15 x cable-Ø

Abbreviations

2X	insulation of XLPE
SE	metallic screen over each core
Y	separation & outer sheath of PVC
R	round steel wire armour
K	lead sheath

Specific Electrical Data at 20°C

	Character	Unit	Values
Dielectric constant (ϵ) at 50 Hz	nom.		2.4
Dielectric loss factor (δ) at 50 Hz	max.		$< 0.6 \cdot 10^{-3}$
Volume resistivity at 90°C	min.	$\Omega \text{ cm}$	$> 10^{14}$
Test voltage			
core : core U_{rms}		kV	12.5
core : metallic screen U_{rms}		kV	12.5
Nominal voltage U_o/U		kV	3.6/6
Highest system voltage U_m	max.	kV	7.2

Medium Voltage Cable IEC 60502-2

3 cores
3.6/6 kV
XLPE-Insulation, Lead-sheath, Armour, PVC-sheath
2XSEYKYRY

Part Number 1376..			..3B5	0046 042	0205 271	..3A0	3A9	0217 744	0057 845	0216 254	..3B0	0045 215
Conductor cross-section		mm ²	25	35	50	70	95	120	150	185	240	300
Screen cross- section ¹⁾		mm ²	6	6	6	6	6	6	12	12	12	12
Construction												
Shape and type of conductor ²⁾			RM	RM	RM	RM	RM	RM	RM	RM	RM	RM
Thickness of insulation	nom.	mm	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.8
Diameter over separation sheath	appr.	mm	31.4	33.9	36.6	40.3	43.6	47.5	50.7	54.2	60.0	67.5
Thickness of lead sheath	nom.	mm	1.7	1.8	1.8	2.0	2.1	2.2	2.2	2.3	2.5	2.7
Diameter over separation sheath	appr.	mm	38.1	41.1	43.8	48.2	52.0	56.3	59.5	63.6	70.0	78.3
Armour wire Ø	nom.	mm	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.15	3.15	3.15
Thickness of outer sheath	nom.	mm	2.5	2.6	2.7	2.9	3.0	3.2	3.2	3.4	3.6	3.8
Overall diameter	appr.	mm	49.4	53.0	55.9	60.4	64.8	69.6	72.9	78.7	85.6	94.4
Weight of cable	appr.	kg/km	6115	7140	7905	9535	11170	12955	14320	17200	20720	25100
Electrical Data												
DC resistance at 20 °C	max.	Ω/km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
AC resistance at 90 °C	nom.	Ω/km	0.928	0.669	0.494	0.343	0.247	0.197	0.160	0.129	0.0988	0.0799
Inductance per conductor	nom.	mH/km	0.368	0.350	0.335	0.308	0.296	0.286	0.274	0.269	0.262	0.266
Operating capacitance	nom.	μF/km	0.251	0.280	0.314	0.359	0.402	0.448	0.486	0.530	0.574	0.624
Current-carrying capacity ³⁾												
normal operation												
Laid in ground ⁴⁾	max.	A	151	180	212	258	306	345	384	429	487	538
Laid in air ⁵⁾	max.	A	127	153	182	225	270	309	346	393	454	511
Short-circuit current I_{thr} for short-circuit duration $t_{kr} = 1$ s												
Conductor	max.	kA	3.73	5.19	7.37	10.3	13.9	17.5	21.8	26.9	34.8	43.4
Screen	max.	kA	1.18	1.18	1.18	1.18	1.18	1.18	2.37	2.37	2.37	2.37

¹⁾ Total geometric cross-section of screens

²⁾ RM = compacted circular stranded

³⁾ Three phase operation at 50 Hz, additional heating by other sources is not considered

⁴⁾ At a soil thermal resistivity of 1 Km/W, a laying depth of 0.7 m, a soil temperature of 20 °C and a load factor of 1.0

⁵⁾ Laid in air at an air temperature of 30 °C and a load factor of 1.0

Medium Voltage Cable

IEC 60502-2

1 core

6/10 kV

XLPE-Insulation, PVC-sheath

2XSY

Application

For electricity supply in public networks and industrial plants.

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

Construction

Conductor..... plain annealed copper, class 2 acc. to IEC 60228, circular stranded (RM)

Semi-conducting layers..... extruded, firmly bonded over conductor, easily strippable over insulation

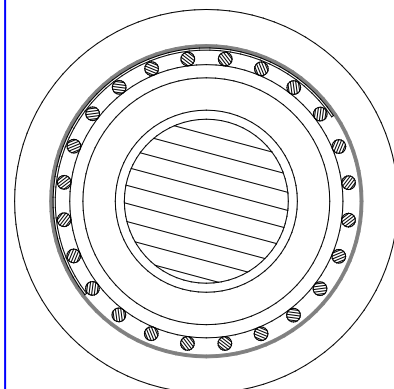
Insulation..... cross-linked polyethylene XLPE, uncoloured

Metallic screen plain annealed copper wires over core with counter helix of copper

Wrapping..... at least 1 layer of plastic tape (for cross-section $\geq 150 \text{ mm}^2$)

Outer sheath..... extruded polyvinyl chloride PVC, red*
* **other colours on request**

Cable marking..... ELECTRIC CABLE 6/10 kV IEC 60502-2
KERPEN YEAR LENGTH MARKING



Technical Data

Abbreviations

Reaction to fire

- Test on electric cables, under fire conditions
- Test on single cable

IEC 60332-1

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:

15 x cable-Ø

2X insulation of XLPE
S metallic screen
Y outer sheath of PVC

Specific Electrical Data at 20°C

	Character	Unit	Values
Dielectric constant (ϵ) at 50 Hz	nom.		2.4
Dielectric loss factor (δ) at 50 Hz	max.		$< 0.6 \cdot 10^{-3}$
Volume resistivity at 90°C	min.	$\Omega \text{ cm}$	$> 10^{14}$
Test voltage core : metallic screen U_{rms}		kV	21
Nominal voltage U_o/U		kV	6/10
Highest system voltage U_m	max.	kV	12

Medium Voltage Cable										IEC 60502-2		
1 core										6/10 kV		
XLPE-Insulation, PVC-sheath										2XSY		
Part Number 1218...			...112	...113	...114	...115	...116	...117	...1C3	0215 235	0213 445	0217 089
Conductor cross-section		mm ²	25	35	50	70	95	120	150	185	240	300
Screen cross- section		mm ²	16	16	16	16	16	16	25	25	25	25
Construction												
Shape and type of conductor ¹⁾			RM	RM	RM	RM	RM	RM	RM	RM	RM	RM
Thickness of insulation	nom.	mm	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Thickness of outer sheath	nom.	mm	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	2.0	2.1
Overall diameter	appr.	mm	20.0	21.0	22.5	24.0	25.5	27.5	30.0	31.5	34.5	37.0
Weight of cable	appr.	kg/km	690	800	940	1160	1420	1700	2075	2430	3020	3670
Electrical Data												
DC resistance at 20 °C	max.	Ω/km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
AC resistance at 90 °C	nom.	Ω/km	0.928	0.669	0.494	0.343	0.247	0.196	0.160	0.128	0.0980	0.0791
Inductance per conductor	nom.	mH/km	0.452	0.431	0.401	0.377	0.360	0.348	0.341	0.331	0.320	0.308
Operating capacitance	nom.	μF/km	0.199	0.219	0.247	0.280	0.311	0.345	0.380	0.407	0.454	0.529
Current-carrying capacity ²⁾												
normal operation (trefoil arrangement)												
Laid in ground ³⁾	max.	A	160	191	226	276	329	374	420	473	546	615
Laid in air ⁴⁾	max.	A	156	189	228	284	345	401	461	526	622	714
Short-circuit current I _{thr} for short-circuit duration t _{kr} = 1 s												
Conductor	max.	kA	3.73	5.19	7.37	10.3	13.9	17.5	21.8	26.9	34.8	43.4
Screen	max.	kA	2.74	2.74	2.74	2.74	2.74	2.74	3.97	3.97	3.97	3.97

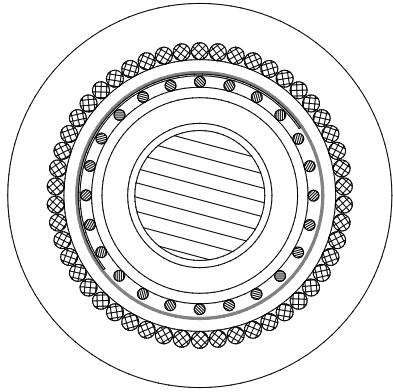
¹⁾ RM = compacted circular stranded

²⁾ Three phase operation at 50 Hz, additional heating by other sources is not considered

³⁾ At a soil thermal resistivity of 1 Km/W, a laying depth of 0.7 m, a soil temperature of 20 °C and a load factor of 1.0 (trefoil formation)

⁴⁾ Laid in air at an air temperature of 30 °C and a load factor of 1.0 (trefoil formation)

Medium Voltage Cable	IEC 60502-2
1 core	6/10 kV
XLPE-Insulation, Armour, PVC-sheath	2XSYRY

Application	
For electricity supply in public networks and industrial plants. For indoor and outdoor installation in dry and wet locations, on racks, in conduits, for direct burial.	
Construction	
Conductor plain annealed copper, class 2 acc. to IEC 60228, circular stranded (RM) Semi-conducting layers extruded, firmly bonded over conductor, easily strippable over insulation Insulation cross-linked polyethylene XLPE, uncoloured Metallic screen plain annealed copper wires over core with counter helix of copper Separation sheath extruded polyvinyl chloride PVC, black Armour round aluminium wires Outer sheath extruded polyvinyl chloride PVC, red* * other colours on request Cable marking ELECTRIC CABLE 6/10 kV IEC 60502-2 KERPEN YEAR LENGTH MARKING	

Technical Data		Abbreviations
Reaction to fire > Test on electric cables, under fire conditions - Test on single cable IEC 60332-1	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: 15 x cable-Ø	2X insulation of XLPE S metallic screen R armour of aluminium wires Y separation & outer sheath of PVC

Specific Electrical Data at 20°C				
	Character	Unit	Values	
Dielectric constant (ε) at 50 Hz	nom.		2.4	
Dielectric loss factor (δ) at 50 Hz	max.		< 0.6 · 10 ⁻³	
Volume resistivity at 90°C	min.	Ω cm	> 10 ¹⁴	
Test voltage core : metallic screen U_{rms}		kV	21	
Nominal voltage U_o/U		kV	6/10	
Highest system voltage U_m	max.	kV	12	

Medium Voltage Cable IEC 60502-2

1 core

6/10 kV

XLPE-Insulation, Armour, PVC-sheath

2XSRY

Part Number 1385...			...112	...113	...114	...115	...116	...117	0078 676	0073 700	1385 1C9	0204 922
Conductor cross-section		mm ²	25	35	50	70	95	120	150	185	240	300
Screen cross-section		mm ²	16	16	16	16	16	16	25	25	25	25
Construction												
Shape and type of conductor ¹⁾			RM	RM	RM	RM	RM	RM	RM	RM	RM	RM
Thickness of insulation	nom.	mm	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4
Diameter over separation sheath	appr.	mm	18.5	20.0	21.5	23.0	24.5	26.0	28.0	29.5	32.0	35.0
Armour wire Ø	nom.	mm	1.6	1.6	1.6	1.6	2.0	2.0	2.0	2.0	2.0	2.0
Thickness of outer sheath	nom.	mm	1.8	1.9	1.9	1.9	2.0	2.1	2.1	2.1	2.2	2.3
Overall diameter	appr.	mm	26.5	27.5	29.0	30.5	33.0	35.0	37.0	38.5	41.5	44.5
Weight of cable	appr.	kg/km	1025	1165	1330	1580	1950	2255	2680	3075	3725	4435
Electrical Data												
DC resistance at 20 °C	max.	Ω/km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
AC resistance at 90 °C	nom.	Ω/km	0.928	0.669	0.494	0.343	0.247	0.196	0.159	0.128	0.0977	0.0786
Inductance per conductor	nom.	mH/km	0.508	0.485	0.452	0.425	0.412	0.397	0.384	0.371	0.359	0.345
Operating capacitance	nom.	µF/km	0.199	0.219	0.247	0.280	0.311	0.345	0.380	0.407	0.454	0.529
Current-carrying capacity ²⁾												
normal operation (trefoil arrangement)												
Laid in ground ³⁾	max.	A	163	194	229	279	331	374	413	461	524	585
Laid in air ⁴⁾	max.	A	168	202	242	300	363	417	469	531	616	703
Short-circuit current I _{thr} for short-circuit duration t _{kr} = 1 s												
Conductor	max.	kA	3.73	5.19	7.37	10.3	13.9	17.5	21.8	26.9	34.8	43.4
Screen	max.	kA	2.74	2.74	2.74	2.74	2.74	2.74	3.97	3.97	3.97	3.97

¹⁾ RM = compacted circular stranded

²⁾ Three phase operation at 50 Hz, additional heating by other sources is not considered

³⁾ At a soil thermal resistivity of 1 Km/W, a laying depth of 0.7 m, a soil temperature of 20 °C and a load factor of 1.0 (trefoil formation)

⁴⁾ Laid in air at an air temperature of 30 °C and a load factor of 1.0 (trefoil formation)

Medium Voltage Cable

IEC 60502-2

3 cores

6/10 kV

XLPE-Insulation, PVC-sheath

2XSEY

Application

For electricity supply in public networks and industrial plants.

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

Construction

Conductor..... plain annealed copper, class 2 acc. to IEC 60228, circular stranded (RM)

Semi-conducting layers..... extruded, firmly bonded over conductor, easily strippable over insulation

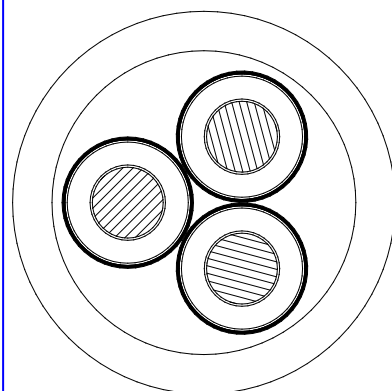
Insulation..... cross-linked polyethylene XLPE, uncoloured

Metallic screen plain annealed copper tape over each core

Inner covering..... extruded polyvinyl chloride PVC, filling interstices

Outer sheath..... extruded polyvinyl chloride PVC, red*
* other colours on request

Cable marking..... ELECTRIC CABLE 6/10 kV IEC 60502-2
KERPEN YEAR LENGTH MARKING



Technical Data

Abbreviations

Reaction to fire

- Test on electric cables, under fire conditions
- Test on single cable IEC 60332-1

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:

15 x cable-Ø

2X insulation of XLPE
SE metallic screen over each core
Y outer sheath of PVC

Specific Electrical Data at 20°C

	Character	Unit	Values
Dielectric constant (ϵ) at 50 Hz	nom.		2.4
Dielectric loss factor (δ) at 50 Hz	max.		$< 0.6 \cdot 10^{-3}$
Volume resistivity at 90°C	min.	$\Omega \text{ cm}$	$> 10^{14}$
Test voltage			
core : core U_{rms}		kV	21
core : metallic screen U_{rms}		kV	21
Nominal voltage U_0/U		kV	6/10
Highest system voltage U_m	max.	kV	12

Medium Voltage Cable											IEC 60502-2	
3 cores											6/10 kV	
XLPE-Insulation, PVC-sheath											2XSEY	
Part Number 1496..			..312	..313	..314	..315	..316	..317	..318	..319	..320	..321
Conductor cross-section		mm ²	25	35	50	70	95	120	150	185	240	300
Screen cross- section ¹⁾		mm ²	6	6	6	6	6	12	12	12	12	12
Construction												
Shape and type of conductor ²⁾			RM	RM	RM	RM	RM	RM	RM	RM	RM	RM
Thickness of insulation	nom.	mm	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Thickness of outer sheath	nom.	mm	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.1	3.2
Overall diameter	appr.	mm	38.0	40.5	43.5	47.0	51.0	55.0	59.0	62.0	67.0	73.5
Weight of cable	appr.	kg/km	2235	2685	3240	4065	5120	6130	7200	8465	10620	13020
Electrical Data												
DC resistance at 20 °C	max.	Ω/km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
AC resistance at 90 °C	nom.	Ω/km	0.928	0.669	0.494	0.343	0.247	0.197	0.160	0.129	0.0986	0.0797
Inductance per conductor	nom.	mH/km	0.394	0.374	0.356	0.329	0.315	0.303	0.290	0.284	0.274	0.274
Operating capacitance	nom.	μF/km	0.199	0.219	0.247	0.280	0.311	0.345	0.380	0.407	0.454	0.529
Current-carrying capacity ³⁾												
normal operation												
Laid in ground ⁴⁾	max.	A	157	187	221	270	321	364	408	458	528	595
Laid in air ⁵⁾	max.	A	125	151	181	225	273	315	359	407	477	548
Short-circuit current I_{thr} for short-circuit duration $t_{kr} = 1$ s												
Conductor	max.	kA	3.73	5.19	7.37	10.3	13.9	17.5	21.8	26.9	34.8	43.4
Screen	max.	kA	1.18	1.18	1.18	1.18	1.18	2.37	2.37	2.37	2.37	2.37

¹⁾ Total geometric cross-section of screens

²⁾ RM = compacted circular stranded

³⁾ Three phase operation at 50 Hz. additional heating by other sources is not considered

⁴⁾ At a soil thermal resistivity of 1 Km/W. a laying depth of 0.7 m. a soil temperature of 20 °C and a load factor of 1.0

⁵⁾ Laid in air at an air temperature of 30 °C and a load factor of 1.0

Medium Voltage Cable

IEC 60502-2

3 cores

6/10 kV

XLPE-Insulation, Armour, PVC-sheath

2XSEYRY

Application

For electricity supply in public networks and industrial plants.

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

Construction

Conductor.....plain annealed copper, class 2 acc. to IEC 60228, circular stranded (RM)

Semi-conducting layers.....extruded, firmly bonded over conductor, easily strippable over insulation

Insulation.....cross-linked polyethylene XLPE, uncoloured

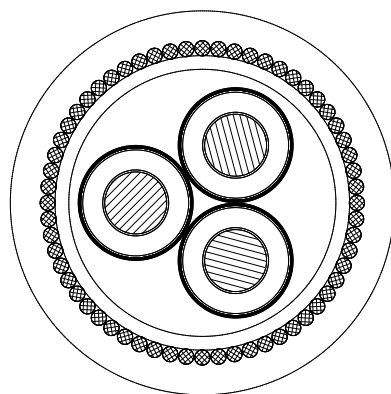
Metallic screenplain annealed copper tape over each core

Separation sheath.....extruded polyvinyl chloride PVC, black, filling interstices

Armour.....galvanized round steel wires

Outer sheath.....extruded polyvinyl chloride PVC, red*
*other colours on request

Cable marking.....ELECTRIC CABLE 6/10 kV IEC 60502-2
KERPEN YEAR LENGTH MARKING



Technical Data

Abbreviations

Reaction to fire

- Test on electric cables, under fire conditions
- Test on single cable IEC 60332-1

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:

15 x cable-Ø

2X insulation of XLPE
SE metallic screen over each core
Y separation & outer sheath of PVC
R round steel wire armour

Specific Electrical Data at 20°C

	Character	Unit	Values
Dielectric constant (ϵ) at 50 Hz	nom.		2.4
Dielectric loss factor (δ) at 50 Hz	max.		$< 0.6 \cdot 10^{-3}$
Volume resistivity at 90°C	min.	$\Omega \text{ cm}$	$> 10^{14}$
Test voltage			
core : core U_{rms}		kV	21
core : metallic screen U_{rms}		kV	21
Nominal voltage U_o / U		kV	6/10
Highest system voltage U_m	max.	kV	12

Medium Voltage Cable IEC 60502-2

3 cores
6/10 kV
XLPE-Insulation, Armour, PVC-sheath
2XSEYRY

Part Number 1386..			..312	..313	..314	..315	..316	..317	..318	..319	..320	..321
Conductor cross-section		mm ²	25	35	50	70	95	120	150	185	240	300
Screen cross-section ¹⁾		mm ²	6	6	6	6	6	12	12	12	12	12
Construction												
Shape and type of conductor ²⁾			RM	RM	RM	RM	RM	RM	RM	RM	RM	RM
Thickness of insulation	nom.	mm	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Diameter over separation sheath	appr.	mm	36,0	38,5	41,2	44,7	49,1	52,7	56,4	59,5	64,8	71,1
Armour wire Ø	nom.	mm	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.15	3.15
Thickness of outer sheath	nom.	mm	2.5	2.6	2.7	2.8	2.9	3.1	3.2	3.3	3.5	3.7
Overall diameter	appr.	mm	47,0	50,1	53,0	56,4	61,0	65,1	69,1	72,8	79,5	86,3
Weight of cable	appr.	kg/km	4275	4865	5565	6580	7930	9170	10450	11975	15180	18080
Electrical Data												
DC resistance at 20 °C	max.	Ω/km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
AC resistance at 90 °C	nom.	Ω/km	0.928	0.669	0.494	0.343	0.247	0.197	0.160	0.129	0.0986	0.0797
Inductance per conductor	nom.	mH/km	0.394	0.374	0.356	0.329	0.315	0.303	0.290	0.284	0.274	0.274
Operating capacitance	nom.	µF/km	0.199	0.219	0.247	0.280	0.311	0.345	0.380	0.407	0.454	0.529
Current-carrying capacity ³⁾												
normal operation												
Laid in ground ⁴⁾	max.	A	154	185	217	265	313	354	395	442	503	559
Laid in air ⁵⁾	max.	A	129	157	186	230	276	316	358	404	469	529
Short-circuit current I_{thr} for short-circuit duration $t_{kr} = 1$ s												
Conductor	max.	kA	3.73	5.19	7.37	10.3	13.9	17.5	21.8	26.9	34.8	43.4
Screen	max.	kA	1.18	1.18	1.18	1.18	1.18	2.37	2.37	2.37	2.37	2.37

¹⁾ Total geometric cross-section of screens

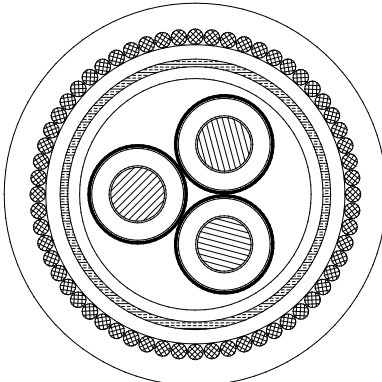
²⁾ RM = compacted circular stranded

³⁾ Three phase operation at 50 Hz, additional heating by other sources is not considered

⁴⁾ At a soil thermal resistivity of 1 Km/W, a laying depth of 0.7 m, a soil temperature of 20 °C and a load factor of 1.0

⁵⁾ Laid in air at an air temperature of 30 °C and a load factor of 1.0

Medium Voltage Cable	IEC 60502-2
3 cores	6/10 kV
XLPE-Insulation, Lead-sheath, Armour, PVC-sheath	2XSEYKYRY

Application			
For electricity supply in public networks and industrial plants. Recommended for direct burial, especially in presence of oil and aggressive chemical substances			
Construction			
Conductor plain annealed copper, class 2 acc. to IEC 60228, circular stranded (RM) Semi-conducting layers extruded, firmly bonded over conductor, easily strippable over insulation Insulation cross-linked polyethylene XLPE, uncoloured Metallic screen plain annealed copper tape over each core Separation sheath extruded polyvinyl chloride PVC, black, filling interstices Metal Sheath lead Separation sheath extruded polyvinyl chloride PVC, black Armour galvanized round steel wires Outer sheath extruded polyvinyl chloride PVC, red* *other colours on request Cable marking ELECTRIC CABLE 6/10 kV IEC 60502-2 KERPEN YEAR LENGTH MARKING			
Technical Data		Abbreviations	
Reaction to fire > Test on electric cables, under fire conditions - Test on single cable IEC 60332-1		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: 15 x cable-Ø	
		2X	insulation of XLPE
		SE	metallic screen over each core
		Y	separation & outer sheath of PVC
		R	round steel wire armour
		K	lead sheath
Specific Electrical Data at 20°C			
	Character	Unit	Values
Dielectric constant (ε) at 50 Hz	nom.		2.4
Dielectric loss factor (δ) at 50 Hz	max.		< 0.6 · 10 ⁻³
Volume resistivity at 90°C	min.	Ω cm	> 10 ¹⁴
Test voltage			
core : core U_{rms}		kV	21
core : metallic screen U_{rms}		kV	21
Nominal voltage U_o/U		kV	6/10
Highest system voltage U_m	max.	kV	12

Medium Voltage Cable IEC 60502-2

3 cores
6/10 kV
XLPE-Insulation, Lead-sheath, Armour, PVC-sheath
2XSEYKYRY

Part Number 0302..			..536	..537	..538	1386 3F1	0302 540	0302 541	0302 542	0302 543	0302 544
Conductor cross-section		mm ²	25	35	50	70	95	120	150	185	240
Screen cross-section ¹⁾		mm ²	6	6	6	6	6	12	12	12	12
Construction											
Shape and type of conductor ²⁾			RM	RM	RM	RM	RM	RM	RM	RM	RM
Thickness of insulation	nom.	mm	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Diameter over separation sheath	appr.	mm	35.6	37.9	40.8	44.5	47.8	51.7	54.7	58.2	63.7
Thickness of lead sheath	nom.	mm	1.9	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6
Diameter over separation sheath	appr.	mm	43.0	45.5	48.6	52.9	56.6	60.8	64.2	68.2	74.2
Armour wire Ø	nom.	mm	2.5	2.5	2.5	2.5	2.5	3.15	3.15	3.15	3.15
Thickness of outer sheath	nom.	mm	2.7	2.8	2.9	3.0	3.2	3.3	3.4	3.6	3.8
Overall diameter	appr.	mm	54.7	57.5	60.9	65.3	69.9	75.7	79.4	83.9	90.3
Weight of cable	appr.	kg/km	7270	8045	9160	10700	12430	14920	16630	18900	22215
Electrical Data											
DC resistance at 20 °C	max.	Ω/km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754
AC resistance at 90 °C	nom.	Ω/km	0.928	0.669	0.494	0.343	0.247	0.197	0.160	0.129	0.0986
Inductance per conductor	nom.	mH/km	0.394	0.374	0.356	0.329	0.315	0.303	0.290	0.284	0.274
Operating capacitance	nom.	µF/km	0.199	0.219	0.247	0.280	0.311	0.345	0.380	0.407	0.454
Current-carrying capacity ³⁾											
normal operation											
Laid in ground ⁴⁾	max.	A	151	180	212	258	306	345	384	428	486
Laid in air ⁵⁾	max.	A	129	156	185	228	274	314	352	397	456
Short-circuit current I _{thr} for short-circuit duration t _{kr} = 1 s											
Conductor	max.	kA	3.73	5.19	7.37	10.3	13.9	17.5	21.8	26.9	34.8
Screen	max.	kA	1.18	1.18	1.18	1.18	1.18	2.37	2.37	2.37	2.37

¹⁾ Total geometric cross-section of screens

²⁾ RM = compacted circular stranded

³⁾ Three phase operation at 50 Hz, additional heating by other sources is not considered

⁴⁾ At a soil thermal resistivity of 1 Km/W, a laying depth of 0.7 m, a soil temperature of 20 °C and a load factor of 1.0

⁵⁾ Laid in air at an air temperature of 30 °C and a load factor of 1.0

Medium Voltage Cable

IEC 60502-2

1 core

8.7/15 kV

XLPE-Insulation, PVC-sheath

2XSY

Application

For electricity supply in public networks and industrial plants.

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

Construction

Conductor..... plain annealed copper, class 2 acc. to IEC 60228, circular stranded (RM)

Semi-conducting layers..... extruded, firmly bonded over conductor, easily strippable over insulation

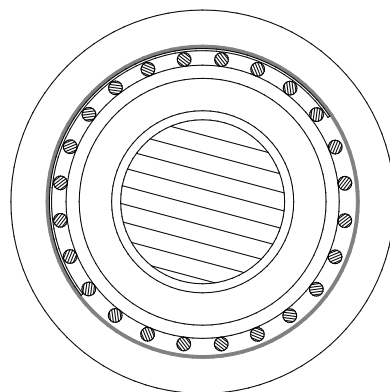
Insulation..... cross-linked polyethylene XLPE, uncoloured

Metallic screen plain annealed copper wires over core with counter helix of copper

Wrapping..... at least 1 layer of plastic tape (for cross-section $\geq 150 \text{ mm}^2$)

Outer sheath..... extruded polyvinyl chloride PVC, red*
* other colours on request

Cable marking..... ELECTRIC CABLE 8.7/15 kV IEC 60502-2
KERPEN YEAR LENGTH MARKING



Technical Data

Abbreviations

Reaction to fire

- Test on electric cables, under fire conditions
- Test on single cable IEC 60332-1

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:

15 x cable-Ø

2X insulation of XLPE
S metallic screen
Y outer sheath of PVC

Specific Electrical Data at 20°C

	Character	Unit	Values
Dielectric constant (ϵ) at 50 Hz	nom.		2.4
Dielectric loss factor (δ) at 50 Hz	max.		$< 0.6 \cdot 10^{-3}$
Volume resistivity at 90°C	min.	$\Omega \text{ cm}$	$> 10^{14}$
Test voltage core : metallic screen U_{rms}		kV	30.5
Nominal voltage U_0/U		kV	8.7/15
Highest system voltage U_m	max.	kV	17.5

Medium Voltage Cable IEC 60502-2

1 core 8.7/15 kV

XLPE-Insulation, PVC-sheath 2XSY

Part Number 1228...			...112	...113	...114	...115	...116	...117	0077 276	0216 380	0094 393	0094 394
Conductor cross-section		mm²	25	35	50	70	95	120	150	185	240	300
Screen cross-section		mm²	16	16	16	16	16	16	25	25	25	25
Construction												
Shape and type of conductor ¹⁾			RM	RM	RM	RM	RM	RM	RM	RM	RM	RM
Thickness of insulation	nom.	mm	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Thickness of outer sheath	nom.	mm	1.8	1.8	1.8	1.8	1.8	1.9	1.9	2.0	2.1	2.1
Overall diameter	appr.	mm	22.0	23.5	25.0	26.5	28.0	30.0	32.5	34.0	36.5	39.5
Weight of cable	appr.	kg/km	760	875	1020	1250	1510	1800	2165	2560	3150	3800
Electrical Data												
DC resistance at 20 °C	max.	Ω/km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
AC resistance at 90 °C	nom.	Ω/km	0.928	0.669	0.494	0.343	0.247	0.196	0.160	0.128	0.0979	0.0789
Inductance per conductor	nom.	mH/km	0.476	0.451	0.422	0.397	0.379	0.365	0.358	0.346	0.331	0.321
Operating capacitance	nom.	µF/km	0.164	0.181	0.200	0.226	0.250	0.276	0.297	0.322	0.358	0.412
Current-carrying capacity ²⁾												
normal operation (trefoil arrangement)												
Laid in ground ³⁾	max.	A	160	191	226	276	330	375	420	472	545	616
Laid in air ⁴⁾	max.	A	159	193	232	289	351	406	465	530	625	722
Short-circuit current I_{thr} for short-circuit duration $t_{kr} = 1$ s												
Conductor	max.	kA	3.73	5.19	7.37	10.3	13.9	17.5	21.8	26.9	34.8	43.4
Screen	max.	kA	2.74	2.74	2.74	2.74	2.74	2.74	3.97	3.97	3.97	3.97

¹⁾ RM = compacted circular stranded

²⁾ Three phase operation at 50 Hz, additional heating by other sources is not considered

³⁾ At a soil thermal resistivity of 1 Km/W, a laying depth of 0.7 m, a soil temperature of 20 °C and a load factor of 1.0 (trefoil formation)

⁴⁾ Laid in air at an air temperature of 30 °C and a load factor of 1.0 (trefoil formation)

Medium Voltage Cable

IEC 60502-2

1 core

8.7/15 kV

XLPE-Insulation, Armour, PVC-sheath

2XSYRY

Application

For electricity supply in public networks and industrial plants.

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

Construction

Conductor.....plain annealed copper, class 2 acc. to IEC 60228, circular stranded (RM)

Semi-conducting layers.....extruded, firmly bonded over conductor, easily strippable over insulation

Insulation.....cross-linked polyethylene XLPE, uncoloured

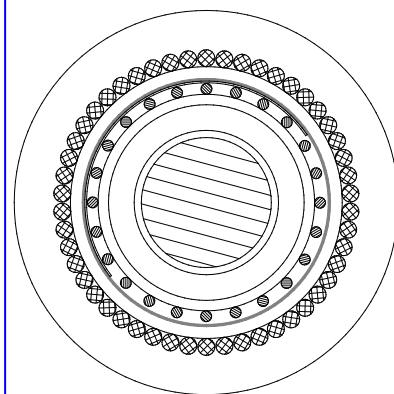
Metallic screenplain annealed copper wires over core with counter helix of copper

Separation sheath.....extruded polyvinyl chloride PVC, black

Armour.....round aluminium wires

Outer sheath.....extruded polyvinyl chloride PVC, red*
* **other colours on request**

Cable marking.....ELECTRIC CABLE 8.7/15 kV IEC 60502-2
KERPEN YEAR LENGTH MARKING



Technical Data

Abbreviations

Reaction to fire

- Test on electric cables, under fire conditions
- Test on single cable IEC 60332-1

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:

15 x cable-Ø

2X insulation of XLPE
S metallic screen
Y separation & outer sheath of PVC
R armour of aluminium wires

Specific Electrical Data at 20°C

	Character	Unit	Values
Dielectric constant (ϵ) at 50 Hz	nom.		2.4
Dielectric loss factor (δ) at 50 Hz	max.		$< 0.6 \cdot 10^{-3}$
Volume resistivity at 90°C	min.	$\Omega \text{ cm}$	$> 10^{14}$
Test voltage core : metallic screen U_{rms}		kV	30.5
Nominal voltage U_o/U		kV	8.7/15
Highest system voltage U_m	max.	kV	17.5

Medium Voltage Cable IEC 60502-2

1 core 8.7/15 kV

XLPE-Insulation, Armour, PVC-sheath 2XSRY

Part Number 1395...			...112	...113	...114	...115	...116	...117	0302 288	0302 289	0302 290	0302 291
Conductor cross-section		mm ²	25	35	50	70	95	120	150	185	240	300
Screen cross- section		mm ²	16	16	16	16	16	16	25	25	25	25
Construction												
Shape and type of conductor ¹⁾			RM	RM	RM	RM	RM	RM	RM	RM	RM	RM
Thickness of insulation	nom.	mm	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Diameter over separation sheath	appr.	mm	21.0	22.0	23.5	25.0	26.5	28.0	30.0	32.0	34.0	37.5
Armour wire Ø	nom.	mm	1.6	1.6	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.5
Thickness of outer sheath	nom.	mm	1.9	1.9	2.0	2.0	2.1	2.2	2.2	2.2	2.3	2.4
Overall diameter	appr.	mm	28.5	29.5	31.0	33.5	35.5	37.0	38.5	40.5	43.0	47.5
Weight of cable	appr.	kg/km	1170	1295	1480	1805	2115	2430	2775	3175	3830	4710
Electrical Data												
DC resistance at 20 °C	max.	Ω/km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
AC resistance at 90 °C	nom.	Ω/km	0.928	0.669	0.494	0.343	0.247	0.196	0.159	0.128	0.0976	0.0785
Inductance per conductor	nom.	mH/km	0.523	0.496	0.465	0.444	0.427	0.407	0.392	0.377	0.364	0.358
Operating capacitance	nom.	μF/km	0.164	0.181	0.200	0.226	0.250	0.276	0.297	0.322	0.358	0.412
Current-carrying capacity ²⁾												
normal operation (trefoil arrangement)												
Laid in ground ³⁾	max.	A	163	194	229	278	330	373	413	457	525	579
Laid in air ⁴⁾	max.	A	168	203	243	303	365	418	469	524	618	700
Short-circuit current I _{thr} for short-circuit duration t _{kr} = 1 s												
Conductor	max.	kA	3.73	5.19	7.37	10.3	13.9	17.5	21.8	26.9	34.8	43.4
Screen	max.	kA	2.74	2.74	2.74	2.74	2.74	2.74	3.97	3.97	3.97	3.97

¹⁾ RM = compacted circular stranded

²⁾ Three phase operation at 50 Hz, additional heating by other sources is not considered

³⁾ At a soil thermal resistivity of 1 Km/W, a laying depth of 0.7 m, a soil temperature of 20 °C and a load factor of 1.0 (trefoil formation)

⁴⁾ Laid in air at an air temperature of 30 °C and a load factor of 1.0 (trefoil formation)

Medium Voltage Cable IEC 60502-2

3 cores

8.7/15 kV

XLPE-Insulation, PVC-sheath

2XSEY

Application

For electricity supply in public networks and industrial plants.

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

Construction

Conductor..... plain annealed copper, class 2 acc. to IEC 60228, circular stranded (RM)

Semi-conducting layers..... extruded, firmly bonded over conductor, easily strippable over insulation

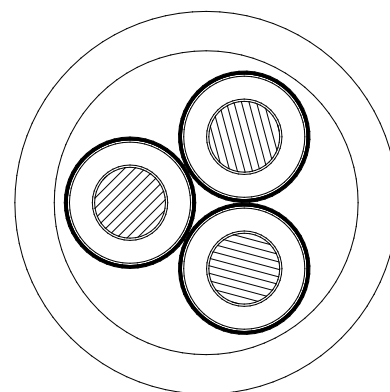
Insulation..... cross-linked polyethylene XLPE, uncoloured

Metallic screen plain annealed copper tape over each core

Inner covering..... extruded polyvinyl chloride PVC, filling interstices

Outer sheath..... extruded polyvinyl chloride PVC, red*
* other colours on request

Cable marking..... ELECTRIC CABLE 8.7/15 kV IEC 60502-2
KERPEN YEAR LENGTH MARKING



Technical Data

Abbreviations

Reaction to fire

- Test on electric cables, under fire conditions
- Test on single cable IEC 60332-1

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:

15 x cable-Ø

2X insulation of XLPE
SE metallic screen over each core
Y outer sheath of PVC

Specific Electrical Data at 20°C

	Character	Unit	Values
Dielectric constant (ε) at 50 Hz	nom.		2.4
Dielectric loss factor (δ) at 50 Hz	max.		< 0.6 · 10 ⁻³
Volume resistivity at 90°C	min.	Ω cm	> 10 ¹⁴
Test voltage			
core : core U_{rms}		kV	30.5
core : metallic screen U_{rms}		kV	30.5
Nominal voltage U_o/U		kV	8.7/15
Highest system voltage U_m	max.	kV	17.5

Medium Voltage Cable IEC 60502-2

3 cores 8.7/15 kV

XLPE-Insulation, PVC-sheath 2XSEY

Part Number 1501..			..312	..313	..314	..315	..316	..317	..318	..319	..320	..321
Conductor cross-section		mm ²	25	35	50	70	95	120	150	185	240	300
Screen cross-section ¹⁾		mm ²	6	6	6	6	6	6	12	12	12	12
Construction												
Shape and type of conductor ²⁾			RM	RM	RM	RM	RM	RM	RM	RM	RM	RM
Thickness of insulation	nom.	mm	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Thickness of outer sheath	nom.	mm	2.3	2.5	2.5	2.6	2.8	2.9	3.0	3.1	3.3	3.4
Overall diameter	appr.	mm	43.0	45.5	48.0	51.5	56.0	60.0	64.0	67.0	72.5	79.0
Weight of cable	appr.	kg/km	2675	3170	3710	4595	5720	6775	7880	9180	11395	13855
Electrical Data												
DC resistance at 20 °C	max.	Ω/km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
AC resistance at 90 °C	nom.	Ω/km	0.928	0.669	0.494	0.343	0.247	0.196	0.160	0.128	0.0984	0.0794
Inductance per conductor	nom.	mH/km	0.421	0.400	0.381	0.352	0.335	0.322	0.308	0.301	0.290	0.288
Operating capacitance	nom.	μF/km	0.164	0.181	0.200	0.226	0.250	0.276	0.297	0.322	0.358	0.412
Current-carrying capacity ³⁾												
normal operation												
Laid in ground ⁴⁾	max.	A	157	187	221	269	320	364	408	458	529	596
Laid in air ⁵⁾	max.	A	129	155	185	229	278	320	364	413	484	556
Short-circuit current I_{thr} for short-circuit duration t_{kr} = 1 s												
Conductor	max.	kA	3.73	5.19	7.37	10.3	13.9	17.5	21.8	26.9	34.8	43.4
Screen	max.	kA	1.18	1.18	1.18	2.37	2.37	2.37	2.37	2.37	2.37	2.37

¹⁾ Total geometric cross-section of screens

²⁾ RM = compacted circular stranded

³⁾ Three phase operation at 50 Hz, additional heating by other sources is not considered

⁴⁾ At a soil thermal resistivity of 1 Km/W, a laying depth of 0.7 m, a soil temperature of 20 °C and a load factor of 1.0

⁵⁾ Laid in air at an air temperature of 30 °C and a load factor of 1.0

Medium Voltage Cable

IEC 60502-2

3 cores

8.7/15 kV

XLPE-Insulation, Armour, PVC-sheath

2XSEYRY

Application

For electricity supply in public networks and industrial plants.

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

Construction

Conductor..... plain annealed copper, class 2 acc. to IEC 60228, circular stranded (RM)

Semi-conducting layers..... extruded, firmly bonded over conductor, easily strippable over insulation

Insulation..... cross-linked polyethylene XLPE, uncoloured

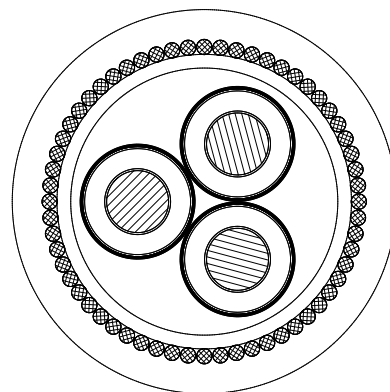
Metallic screen plain annealed copper tape over each core

Separation sheath..... extruded polyvinyl chloride PVC, black, filling interstices

Armour..... galvanized round steel wires

Outer sheath..... extruded polyvinyl chloride PVC, red*
* **other colours on request**

Cable marking..... ELECTRIC CABLE 8.7/15 kV IEC 60502-2
KERPEN YEAR LENGTH MARKING



Technical Data

Abbreviations

Reaction to fire

- Test on electric cables, under fire conditions
- Test on single cable IEC 60332-1

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:

15 x cable-Ø

2X insulation of XLPE
SE metallic screen over each core
Y separation & outer sheath of PVC
R round steel wire armour

Specific Electrical Data at 20°C

	Character	Unit	Values
Dielectric constant (ε) at 50 Hz	nom.		2.4
Dielectric loss factor (δ) at 50 Hz	max.		< 0.6 · 10 ⁻³
Volume resistivity at 90°C	min.	Ω cm	> 10 ¹⁴
Test voltage			
core : core U_{rms}		kV	30.5
core : metallic screen U_{rms}		kV	30.5
Nominal voltage U_o/U		kV	8.7/15
Highest system voltage U_m	max.	kV	17.5

Medium Voltage Cable IEC 60502-2

3 cores
8.7/15 kV
XLPE-Insulation, Armour, PVC-sheath
2XSEYRY

Part Number 1396..			..312	..313	..314	..315	..316	..317	..318	..319	..320	..321
Conductor cross-section		mm ²	25	35	50	70	95	120	150	185	240	300
Screen cross-section ¹⁾		mm ²	6	6	6	12	12	12	12	12	12	12
Construction												
Shape and type of conductor ²⁾			RM	RM	RM	RM	RM	RM	RM	RM	RM	RM
Thickness of insulation	nom.	mm	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Diameter over separation sheath	appr.	mm	41.3	43.6	46.2	49.8	53.9	57.8	61.4	64.3	69.8	76.1
Armour wire Ø	nom.	mm	2.5	2.5	2.5	2.5	2.5	2.5	3.15	3.15	3.15	3.15
Thickness of outer sheath	nom.	mm	2.7	2.8	2.9	3.0	3.1	3.2	3.4	3.5	3.7	3.8
Overall diameter	appr.	mm	53.1	55.7	58.6	62.4	66.8	70.0	76.8	79.0	85.9	91.7
Weight of cable	appr.	kg/km	5045	5665	6405	7455	8830	9950	12290	13730	16430	19310
Electrical Data												
DC resistance at 20 °C	max.	Ω/km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
AC resistance at 90 °C	nom.	Ω/km	0.928	0.669	0.494	0.343	0.247	0.196	0.160	0.128	0.0984	0.0794
Inductance per conductor	nom.	mH/km	0.421	0.400	0.381	0.352	0.335	0.322	0.308	0.301	0.290	0.288
Operating capacitance	nom.	µF/km	0.164	0.181	0.200	0.226	0.250	0.276	0.297	0.322	0.358	0.412
Current-carrying capacity ³⁾												
normal operation												
Laid in ground ⁴⁾	max.	A	155	184	217	264	313	353	395	440	503	558
Laid in air ⁵⁾	max.	A	133	160	190	234	281	320	365	408	475	534
Short-circuit current I_{thr} for short-circuit duration $t_{kr} = 1$ s												
Conductor	max.	kA	3.73	5.19	7.37	10.3	13.9	17.5	21.8	26.9	34.8	43.4
Screen	max.	kA	1.18	1.18	1.18	2.37	2.37	2.37	2.37	2.37	2.37	2.37

¹⁾ Total geometric cross-section of screens

²⁾ RM = compacted circular stranded

³⁾ Three phase operation at 50 Hz. additional heating by other sources is not considered

⁴⁾ At a soil thermal resistivity of 1 Km/W. a laying depth of 0.7 m. a soil temperature of 20 °C and a load factor of 1.0

⁵⁾ Laid in air at an air temperature of 30 °C and a load factor of 1.0

Medium Voltage Cable

IEC 60502-2

3 cores

8.7/15 kV

XLPE-insulation, Lead-sheath, Armour, PVC-sheath

2XSEYKYRY

Application

For electricity supply in public networks and industrial plants.

Recommended for direct burial, especially in presence of oil and aggressive chemical substances

Construction

Conductor.....plain annealed copper, class 2 acc. to IEC 60228, circular stranded (RM)

Semi-conducting layers..... extruded, firmly bonded over conductor, easily strippable over insulation

Insulation.....cross-linked polyethylene XLPE, uncoloured

Metallic screenplain annealed copper tape over each core

Separation sheath..... extruded polyvinyl chloride PVC, black, filling interstices

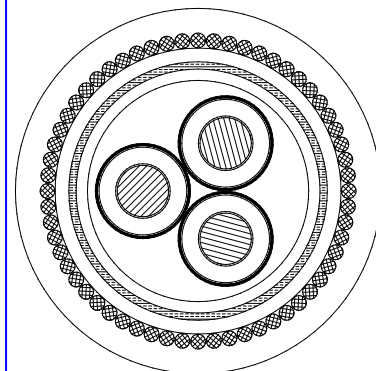
Metal Sheath.....lead

Separation sheath..... extruded polyvinyl chloride PVC, black

Armour.....galvanized round steel wires

Outer sheath..... extruded polyvinyl chloride PVC, red*
* other colours on request

Cable marking.....ELECTRIC CABLE 8.7/15 kV IEC 60502-2
KERPEN YEAR LENGTH MARKING



Technical Data

Abbreviations

Reaction to fire

- Test on electric cables, under fire conditions
- Test on single cable IEC 60332-1

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:

15 x cable-Ø

2X insulation of XLPE
SE metallic screen over each core
Y separation & outer sheath of PVC
R round steel wire armour
K lead sheath

Specific Electrical Data at 20°C

	Character	Unit	Values
Dielectric constant (ϵ) at 50 Hz	nom.		2.4
Dielectric loss factor (δ) at 50 Hz	max.		$< 0.6 \cdot 10^{-3}$
Volume resistivity at 90°C	min.	$\Omega \text{ cm}$	$> 10^{14}$
Test voltage			
core : core U_{rms}		kV	30.5
core : metallic screen U_{rms}		kV	30.5
Nominal voltage U_o/U		kV	8.7/15
Highest system voltage U_m	max.	kV	17.5

Medium Voltage Cable

IEC 60502-2
3 cores
8.7/15 kV
XLPE-insulation, Lead-sheath, Armour, PVC-sheath
2XSEYKYRY

Part Number 0302..			..546	..549	..551	..552	..553	..557	..563	..566
Conductor cross-section		mm ²	25	35	50	70	95	120	150	185
Screen cross-section ¹⁾		mm ²	6	6	6	12	12	12	12	12
Construction										
Shape and type of conductor ²⁾			RM	RM	RM	RM	RM	RM	RM	RM
Thickness of insulation	nom.	mm	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Diameter over separation sheath	appr.	mm	40.7	43.0	45.8	49.4	52.9	56.8	59.8	63.5
Thickness of lead sheath	nom.	mm	2.0	2.0	2.1	2.2	2.3	2.4	2.5	2.6
Diameter over separation sheath	appr.	mm	48.5	51.1	54.2	58.2	62.2	66.3	69.8	74.0
Armour wire Ø	nom.	mm	2.5	2.5	2.5	2.5	3.15	3.15	3.15	3.15
Thickness of outer sheath	nom.	mm	2.9	3.0	3.1	3.2	3.4	3.5	3.6	3.8
Overall diameter	appr.	mm	60.8	63.6	66.9	71.2	77.4	81.7	85.4	90.1
Weight of cable	appr.	kg/km	8570	9380	10560	12135	14775	16655	18430	20775
Electrical Data										
DC resistance at 20 °C	max.	Ω/km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991
AC resistance at 90 °C	nom.	Ω/km	0.928	0.669	0.494	0.343	0.247	0.196	0.160	0.128
Inductance per conductor	nom.	mH/km	0.421	0.400	0.381	0.352	0.335	0.322	0.308	0.301
Operating capacitance	nom.	µF/km	0.164	0.181	0.200	0.226	0.250	0.276	0.297	0.322
Current-carrying capacity ³⁾										
normal operation										
Laid in ground ⁴⁾	max.	A	151	180	212	258	306	345	382	426
Laid in air ⁵⁾	max.	A	132	158	188	231	278	318	355	399
Short-circuit current I_{thr} for short-circuit duration $t_{kr} = 1$ s										
Conductor	max.	kA	3.73	5.19	7.37	10.3	13.9	17.5	21.8	26.9
Screen	max.	kA	1.18	1.18	1.18	2.37	2.37	2.37	2.37	2.37

¹⁾ Total geometric cross-section of screens

²⁾ RM = compacted circular stranded

³⁾ Three phase operation at 50 Hz. additional heating by other sources is not considered

⁴⁾ At a soil thermal resistivity of 1 Km/W. a laying depth of 0.7 m. a soil temperature of 20 °C and a load factor of 1.0

⁵⁾ Laid in air at an air temperature of 30 °C and a load factor of 1.0

Medium Voltage Cable

IEC 60502-2

1 core

12/20 kV

XLPE-Insulation, PVC-sheath

2XSY

Application

For electricity supply in public networks and industrial plants.

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

Construction

Conductor..... plain annealed copper, class 2 acc. to IEC 60228,
circular stranded (RM)

Semi-conducting layers..... extruded, firmly bonded over conductor, easily strippable
over insulation

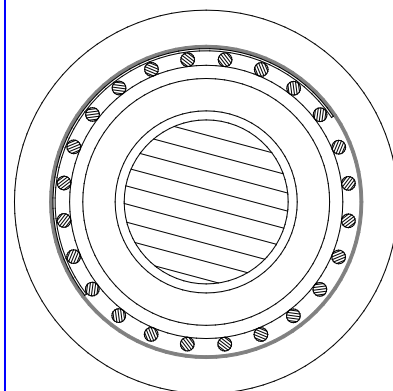
Insulation..... cross-linked polyethylene XLPE, uncoloured

Metallic screen plain annealed copper wires over core with counter helix of
copper

Wrapping..... at least 1 layer of plastic tape
(for cross-section $\geq 150 \text{ mm}^2$)

Outer sheath..... extruded polyvinyl chloride PVC, red*
* **other colours on request**

Cable marking..... ELECTRIC CABLE 12/20 kV IEC 60502-2
KERPEN YEAR LENGTH MARKING



Technical Data

Abbreviations

Reaction to fire

- Test on electric cables,
under fire conditions
- Test on single cable IEC 60332-1

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:

15 x cable-Ø

2X insulation of XLPE
S metallic screen
Y outer sheath of PVC

Specific Electrical Data at 20°C

	Character	Unit	Values
Dielectric constant (ϵ) at 50 Hz	nom.		2.4
Dielectric loss factor (δ) at 50 Hz	max.		$< 0.6 \cdot 10^{-3}$
Volume resistivity at 90°C	min.	$\Omega \text{ cm}$	$> 10^{14}$
Test voltage core : metallic screen U_{rms}		kV	42
Nominal voltage U_0/U		kV	12/20
Highest system voltage U_m	max.	kV	24

Medium Voltage Cable IEC 60502-2

1 core **12/20 kV**

XLPE-Insulation, PVC-sheath **2XSY**

Part Number 1238...			...112	...113	...114	...115	...116	...117	...1C7	...1C9	0203 374	...1C8
Conductor cross-section		mm ²	25	35	50	70	95	120	150	185	240	300
Screen cross-section		mm ²	16	16	16	16	16	16	25	25	25	25
Construction												
Shape and type of conductor ¹⁾			RM	RM	RM	RM	RM	RM	RM	RM	RM	RM
Thickness of insulation	nom.	mm	5.9	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Thickness of outer sheath	nom.	mm	1.8	1.8	1.8	1.9	1.9	2.0	2.0	2.1	2.1	2.2
Overall diameter	appr.	mm	25.0	25.5	27.0	28.5	30.0	32.0	34.5	36.5	38.5	42.0
Weight of cable	appr.	kg/km	865	955	1100	1345	1615	1900	2310	2660	3270	3965
Electrical Data												
DC resistance at 20 °C	max.	Ω/km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
AC resistance at 90 °C	nom.	Ω/km	0.928	0.669	0.494	0.343	0.247	0.196	0.159	0.128	0.0978	0.0788
Inductance per conductor	nom.	mH/km	0.497	0.467	0.437	0.412	0.393	0.378	0.366	0.360	0.342	0.333
Operating capacitance	nom.	μF/km	0.137	0.158	0.174	0.195	0.215	0.236	0.258	0.274	0.304	0.351
Current-carrying capacity ²⁾												
normal operation (trefoil arrangement)												
Laid in ground ³⁾	max.	A	162	194	230	280	335	381	427	481	555	627
Laid in air ⁴⁾	max.	A	164	199	239	296	359	415	476	543	638	737
Short-circuit current I_{thr} for short-circuit duration $t_{kr} = 1$ s												
Conductor	max.	kA	3.73	5.19	7.37	10.3	13.9	17.5	21.8	26.9	34.8	43.4
Screen	max.	kA	2.74	2.74	2.74	2.74	2.74	2.74	3.97	3.97	3.97	3.97

¹⁾ RM = compacted circular stranded

²⁾ Three phase operation at 50 Hz, additional heating by other sources is not considered

³⁾ At a soil thermal resistivity of 1 Km/W, a laying depth of 0.7 m, a soil temperature of 20 °C and a load factor of 1.0 (trefoil formation)

⁴⁾ Laid in air at an air temperature of 30 °C and a load factor of 1.0 (trefoil formation)

Medium Voltage Cable

IEC 60502-2

1 core

12/20 kV

XLPE-Insulation, Armour, PVC-sheath

2XSYRY

Application

For electricity supply in public networks and industrial plants.

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

Construction

Conductor..... plain annealed copper, class 2 acc. to IEC 60228, circular stranded (RM)

Semi-conducting layers..... extruded, firmly bonded over conductor, easily strippable over insulation

Insulation..... cross-linked polyethylene XLPE, uncoloured

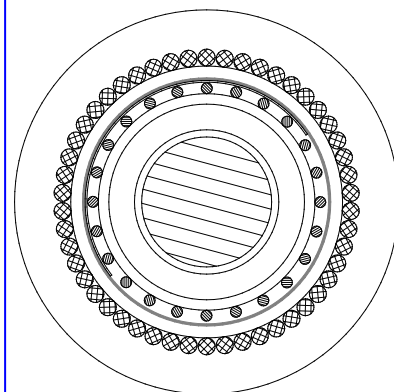
Metallic screen plain annealed copper wires over core with counter helix of copper

Separation sheath..... extruded polyvinyl chloride PVC, black

Armour..... round aluminium wires

Outer sheath..... extruded polyvinyl chloride PVC, red*
* **other colours on request**

Cable marking..... ELECTRIC CABLE 12/20 kV IEC 60502-2
KERPEN YEAR LENGTH MARKING



Technical Data

Abbreviations

Reaction to fire

- Test on electric cables, under fire conditions
- Test on single cable IEC 60332-1

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:

15 x cable-Ø

2X insulation of XLPE
S metallic screen
Y separation & outer sheath of PVC
R armour of aluminium wires

Specific Electrical Data at 20°C

	Character	Unit	Values
Dielectric constant (ϵ) at 50 Hz	nom.		2.4
Dielectric loss factor (δ) at 50 Hz	max.		$< 0.6 \cdot 10^{-3}$
Volume resistivity at 90°C	min.	$\Omega \text{ cm}$	$> 10^{14}$
Test voltage core : metallic screen U_{rms}		kV	42
Nominal voltage U_o/U		kV	12/20
Highest system voltage U_m	max.	kV	24

Medium Voltage Cable IEC 60502-2

1 core
12/20 kV
XLPE-Insulation, Armour, PVC-sheath
2XSRY

Part Number 1405...			...113	...114	...115	...116	...117	0302 292	0302 293	...1A8	0302 295
Conductor cross-section		mm ²	35	50	70	95	120	150	185	240	300
Screen cross-section		mm ²	16	16	16	16	16	25	25	25	25
Construction											
Shape and type of conductor ¹⁾			RM	RM	RM	RM	RM	RM	RM	RM	RM
Thickness of insulation	nom.	mm	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Diameter over separation sheath	appr.	mm	24.0	25.5	27.0	28.5	30.0	32.0	34.0	36.0	39.0
Armour wire Ø	nom.	mm	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.5
Thickness of outer sheath	nom.	mm	2.0	2.1	2.1	2.2	2.2	2.2	2.3	2.4	2.5
Overall diameter	appr.	mm	32.5	34.0	35.5	37.5	39.0	40.5	42.5	46.5	49.5
Weight of cable	appr.	kg/km	1490	1680	1950	2265	2570	2915	3340	4160	4880
Electrical Data											
DC resistance at 20 °C	max.	Ω/km	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
AC resistance at 90 °C	nom.	Ω/km	0.669	0.494	0.342	0.247	0.196	0.159	0.128	0.0975	0.0785
Inductance per conductor	nom.	mH/km	0.516	0.483	0.456	0.438	0.418	0.402	0.391	0.380	0.366
Operating capacitance	nom.	µF/km	0.158	0.174	0.195	0.215	0.236	0.258	0.274	0.304	0.351
Current-carrying capacity ²⁾											
normal operation (trefoil arrangement)											
Laid in ground ³⁾	max.	A	194	228	278	330	373	413	461	520	579
Laid in air ⁴⁾	max.	A	206	246	303	366	419	471	533	618	702
Short-circuit current I_{thr} for short-circuit duration $t_{kr} = 1$ s											
Conductor	max.	kA	5.19	7.37	10.3	13.9	17.5	21.8	26.9	34.8	43.4
Screen	max.	kA	2.74	2.74	2.74	2.74	2.74	3.97	3.97	3.97	3.97

¹⁾ RM = compacted circular stranded

²⁾ Three phase operation at 50 Hz, additional heating by other sources is not considered

³⁾ At a soil thermal resistivity of 1 Km/W, a laying depth of 0.7 m, a soil temperature of 20 °C and a load factor of 1.0 (trefoil formation)

⁴⁾ Laid in air at an air temperature of 30 °C and a load factor of 1.0 (trefoil formation)

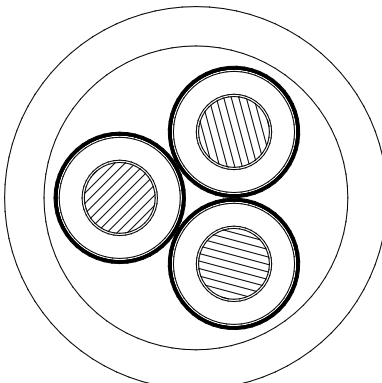
Medium Voltage Cable IEC 60502-2

3 cores **12/20 kV**
XLPE-Insulation, PVC-sheath **2XSEY**

Application

For electricity supply in public networks and industrial plants.
For indoor and outdoor installation in dry and wet locations, on racks, in conduits, for direct burial.

Construction

Conductor..... plain annealed copper, class 2 acc. to IEC 60228, circular stranded (RM) Semi-conducting layers..... extruded, firmly bonded over conductor, easily strippable over insulation Insulation..... cross-linked polyethylene XLPE, uncoloured Metallic screen plain annealed copper tape over each core Inner covering..... extruded polyvinyl chloride PVC, filling interstices Outer sheath..... extruded polyvinyl chloride PVC, red* * other colours on request Cable marking..... ELECTRIC CABLE 12/20 kV IEC 60502-2 KERPEN YEAR LENGTH MARKING	
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Technical Data Abbreviations

Reaction to fire ➤ Test on electric cables, under fire conditions - Test on single cable IEC 60332-1	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: 15 x cable-Ø	2X insulation of XLPE SE metallic screen over each core Y outer sheath of PVC
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Specific Electrical Data at 20°C

	Character	Unit	Values
Dielectric constant (ϵ) at 50 Hz	nom.		2.4
Dielectric loss factor (δ) at 50 Hz	max.		$< 0.6 \cdot 10^{-3}$
Volume resistivity at 90°C	min.	$\Omega \text{ cm}$	$> 10^{14}$
Test voltage			
core : core U_{rms}		kV	42
core : metallic screen U_{rms}		kV	42
Nominal voltage U_o/U		kV	12/20
Highest system voltage U_m	max.	kV	24

Medium Voltage Cable

IEC 60502-2
3 cores
12/20 kV
XLPE-Insulation, PVC-sheath
2XSEY

Part Number 1506..			..313	..314	..315	..316	..317	..318	..319	..320	..321
Conductor cross-section		mm ²	35	50	70	95	120	150	185	240	300
Screen cross-section ¹⁾		mm ²	6	12	12	12	12	12	12	12	12
Construction											
Shape and type of conductor ²⁾			RM	RM	RM	RM	RM	RM	RM	RM	RM
Thickness of insulation	nom.	mm	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Thickness of outer sheath	nom.	mm	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.4	3.6
Overall diameter	appr.	mm	50.0	53.0	56.5	61.0	65.0	68.5	71.5	77.5	83.5
Weight of cable	appr.	kg/km	3645	4255	5155	6290	7380	8525	9850	12115	14675
Electrical Data											
DC resistance at 20 °C	max.	Ω/km	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
AC resistance at 90 °C	nom.	Ω/km	0.669	0.494	0.343	0.247	0.196	0.160	0.128	0.0982	0.0792
Inductance per conductor	nom.	mH/km	0.421	0.400	0.370	0.352	0.338	0.323	0.315	0.303	0.300
Operating capacitance	nom.	μF/km	0.158	0.174	0.195	0.215	0.236	0.258	0.274	0.304	0.351
Current-carrying capacity ³⁾											
normal operation											
Laid in ground ⁴⁾	max.	A	187	220	269	320	364	408	458	529	596
Laid in air ⁵⁾	max.	A	158	189	234	283	326	369	418	491	561
Short-circuit current I_{thr} for short-circuit duration $t_{kr} = 1$ s											
Conductor	max.	kA	5.19	7.37	10.3	13.9	17.5	21.8	26.9	34.8	43.4
Screen	max.	kA	1.18	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37

¹⁾ Total geometric cross-section of screens

²⁾ RM = compacted circular stranded

³⁾ Three phase operation at 50 Hz, additional heating by other sources is not considered

⁴⁾ At a soil thermal resistivity of 1 Km/W, a laying depth of 0.7 m, a soil temperature of 20 °C and a load factor of 1.0

⁵⁾ Laid in air at an air temperature of 30 °C and a load factor of 1.0

Medium Voltage Cable

IEC 60502-2

3 cores

12/20 kV

XLPE-Insulation, Armour, PVC-sheath

2XSEYRY

Application

For electricity supply in public networks and industrial plants.

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

Construction

Conductor..... plain annealed copper, class 2 acc. to IEC 60228, circular stranded (RM)

Semi-conducting layers..... extruded, firmly bonded over conductor, easily strippable over insulation

Insulation..... cross-linked polyethylene XLPE, uncoloured

Metallic screen plain annealed copper tape over each core

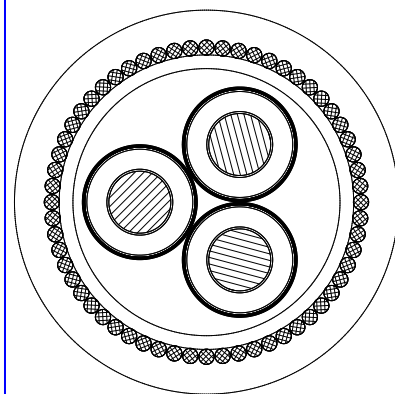
Separation sheath.. extruded polyvinyl chloride PVC, black, filling interstices

Armour..... galvanized round steel wires

Outer sheath..... extruded polyvinyl chloride PVC, red*

* other colours on request

Cable marking..... ELECTRIC CABLE 12/20 kV IEC 60502-2
KERPEN YEAR LENGTH MARKING



Technical Data

Abbreviations

Reaction to fire

- Test on electric cables, under fire conditions
- Test on single cable IEC 60332-1

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:

15 x cable-Ø

2X insulation of XLPE
SE metallic screen over each core
Y separation & outer sheath of PVC
R round steel wire armour

Specific Electrical Data at 20°C

	Character	Unit	Values
Dielectric constant (ε) at 50 Hz	nom.		2.4
Dielectric loss factor (δ) at 50 Hz	max.		< 0.6 · 10 ⁻³
Volume resistivity at 90°C	min.	Ω cm	> 10 ¹⁴
Test voltage			
core : core U_{rms}		kV	42
core : metallic screen U_{rms}		kV	42
Nominal voltage U_o/U		kV	12/20
Highest system voltage U_m	max.	kV	24

Medium Voltage Cable IEC 60502-2

3 cores **12/20 kV**

XLPE-Insulation, Armour, PVC-sheath **2XSEYRY**

Part Number 1406..			..313	..314	..315	..316	..317	..318	..319	..320
Conductor cross-section		mm ²	35	50	70	95	120	150	185	240
Screen cross-section ¹⁾		mm ²	6	12	12	12	12	12	12	12
Construction										
Shape and type of conductor ²⁾			RM	RM	RM	RM	RM	RM	RM	RM
Thickness of insulation	nom.	mm	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Diameter over separation shield	appr.	mm	48.2	50.9	54.3	58.6	62.4	66.1	68.9	74.5
Armour wire Ø	nom.	mm	2.5	2.5	2.5	2.5	3.15	3.15	3.15	3.15
Thickness of outer sheath	nom.	mm	2.9	3.0	3.1	3.3	3.4	3.5	3.6	3.8
Overall diameter	appr.	mm	60.6	63.5	66.7	71.5	77.0	80.9	84.0	90.8
Weight of cable	appr.	kg/km	6410	7175	8220	9675	11815	13160	14745	17510
Electrical Data										
DC resistance at 20 °C	max.	Ω/km	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754
AC resistance at 90 °C	nom.	Ω/km	0.669	0.494	0.343	0.247	0.196	0.160	0.128	0.0982
Inductance per conductor	nom.	mH/km	0.421	0.400	0.370	0.352	0.338	0.323	0.315	0.303
Operating capacitance	nom.	µF/km	0.158	0.174	0.195	0.215	0.236	0.258	0.274	0.304
Current-carrying capacity ³⁾										
normal operation										
Laid in ground ⁴⁾	max.	A	184	216	263	312	353	394	440	503
Laid in air ⁵⁾	max.	A	162	192	236	283	325	367	412	478
Short-circuit current I_{thr} for short-circuit duration $t_{kr} = 1$ s										
Conductor	max.	kA	5.19	7.37	10.3	13.9	17.5	21.8	26.9	34.8
Screen	max.	kA	1.18	2.37	2.37	2.37	2.37	2.37	2.37	2.37

¹⁾ Total geometric cross-section of screens

²⁾ RM = compacted circular stranded

³⁾ Three phase operation at 50 Hz. additional heating by other sources is not considered

⁴⁾ At a soil thermal resistivity of 1 Km/W. a laying depth of 0.7 m. a soil temperature of 20 °C and a load factor of 1.0

⁵⁾ Laid in air at an air temperature of 30 °C and a load factor of 1.0

Medium Voltage Cable

IEC 60502-2

3 cores

12/20 kV

XLPE-Insulation, Lead-sheath, Armour, PVC-sheath

2XSEYKYRY

Application

For electricity supply in public networks and industrial plants.

Recommended for direct burial, especially in presence of oil and aggressive chemical substances

Construction

Conductor..... plain annealed copper, class 2 acc. to IEC 60228, circular stranded (RM)

Semi-conducting layers

..... extruded, firmly bonded over conductor, easily strippable over insulation

Insulation..... cross-linked polyethylene XLPE, uncoloured

Metallic screen plain annealed copper tape over each core

Separation sheath.. extruded polyvinyl chloride PVC, black, filling interstices

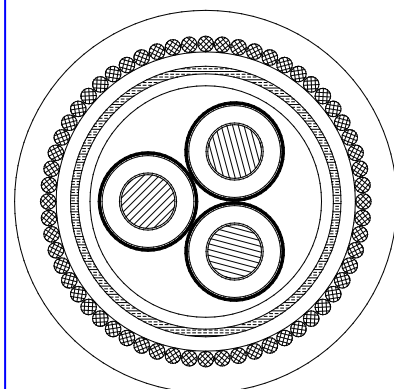
Metal Sheath..... lead

Separation sheath.. extruded polyvinyl chloride PVC, black

Armour..... galvanized round steel wires

Outer sheath..... extruded polyvinyl chloride PVC, red*
* other colours on request

Cable marking..... ELECTRIC CABLE 12/20 kV IEC 60502-2
KERPEN YEAR LENGTH MARKING



Technical Data

Abbreviations

Reaction to fire

- Test on electric cables, under fire conditions
- Test on single cable IEC 60332-1

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:
15 x cable-Ø

2X insulation of XLPE
SE metallic screen over each core
Y separation & outer sheath of PVC
R round steel wire armour
K lead sheath

Specific Electrical Data at 20°C

	Character	Unit	Values
Dielectric constant (ϵ) at 50 Hz	nom.		2.4
Dielectric loss factor (δ) at 50 Hz	max.		$< 0.6 \cdot 10^{-3}$
Volume resistivity at 90°C	min.	$\Omega \text{ cm}$	$> 10^{14}$
Test voltage			
core : core U_{rms}		kV	42
core : metallic screen U_{rms}		kV	42
Nominal voltage U_o / U		kV	12/20
Highest system voltage U_m	max.	kV	24

Medium Voltage Cable IEC 60502-2

3 cores 12/20 kV

XLPE-Insulation, Lead-sheath, Armour, PVC-sheath 2XSEYKYRY

Part Number 0302..			..567	..569	..571	..572	..575	..577	..578
Conductor cross-section		mm ²	25	35	50	70	95	120	150
Screen cross-section ¹⁾		mm ²	6	6	12	12	12	12	12
Construction									
Shape and type of conductor ²⁾			RM	RM	RM	RM	RM	RM	RM
Thickness of insulation	nom.	mm	5.9	5.5	5.5	5.5	5.5	5.5	5.5
Diameter over separation sheath	appr.	mm	47,1	47,6	50,5	54,0	57,5	61,4	64,4
Thickness of lead sheath	nom.	mm	2.1	2.2	2.3	2.3	2.5	2.6	2.6
Diameter over separation sheath	appr.	mm	55.5	56.4	59.5	63.3	67.5	71.9	74.9
Armour wire Ø	nom.	mm	2.5	2.5	2.5	3.15	3.15	3.15	3.15
Thickness of outer sheath	nom.	mm	3.1	3.2	3.3	3.4	3.6	3.7	3.8
Overall diameter	appr.	mm	68.2	69.4	72.7	78.1	83.1	87.7	91.0
Weight of cable	appr.	kg/km	10295	10935	12135	14390	16600	18635	20175
Electrical Data									
DC resistance at 20 °C	max.	Ω/km	0.727	0.524	0.387	0.268	0.193	0.153	0.124
AC resistance at 90 °C	nom.	Ω/km	0.928	0.669	0.494	0.343	0.247	0.196	0.160
Inductance per conductor	nom.	mH/km	0.451	0.421	0.400	0.370	0.352	0.338	0.323
Operating capacitance	nom.	µF/km	0.137	0.158	0.174	0.195	0.215	0.236	0.258
Current-carrying capacity ³⁾									
normal operation									
Laid in ground ⁴⁾	max.	A	152	180	212	258	305	344	381
Laid in air ⁵⁾	max.	A	135	161	190	235	281	319	357
Short-circuit current I _{thr} for short-circuit duration t _{kr} = 1 s									
Conductor	max.	kA	3.73	5.19	7.37	10.3	13.9	17.5	21.8
Screen	max.	kA	1.18	1.18	2.37	2.37	2.37	2.37	2.37

¹⁾ Total geometric cross-section of screens

²⁾ RM = compacted circular stranded

³⁾ Three phase operation at 50 Hz. additional heating by other sources is not considered

⁴⁾ At a soil thermal resistivity of 1 Km/W. a laying depth of 0.7 m. a soil temperature of 20 °C and a load factor of 1.0

⁵⁾ Laid in air at an air temperature of 30 °C and a load factor of 1.0