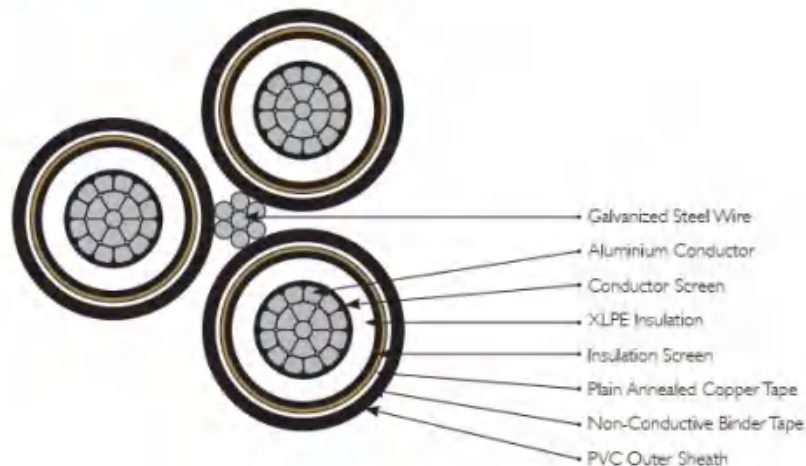


IEC 60502 & TNB

Aerial Bundled Cables Medium Voltage
(ABC MV)



IEC 60502 & TNB Specification



DESCRIPTION

Circular compacted stranded aluminium conductor, XLPE insulated, copper tape screened and PVC outer sheathed cable. The three XLPE insulated and copper tape screened single core cables are bundled around the galvanized steel wires in a right hand lay.

CONSTRUCTION

- 1 Conductor Phase conductors are circular compacted stranded H68 aluminium to BS2627.
- 2 Conductor screen Extruded layer of semi-conductive compound.
- 3 Insulation XLPE (cross-linked polyethylene) rated at 90°C.
- 4 Insulation screen
 - a Non-metallic part
Extruded layer of semi-conductive compound.
 - b Metallic part
Copper tape screen (SCT).
- 5 Colour for core identification Red, yellow and blue tapes shall be applied between non metallic and metallic part of insulation screen.
- 6 Separator Polypropylene laminated tape.
- 7 Outer sheath PVC type ST2 to IEC 60502 colour black. The outer sheath shall be embossed with figures 1, 2, 3 corresponding to red, yellow, blue phase.
- 8 Support wire The support wire shall comprise a stranded galvanized steel wires
- 9 Assembly The three XLPE insulated and copper wire screened single core cables are bundled around the galvanized steel steel wires in a right hand (Z) lay.

IEC 60502 & TNB

Aerial Bundled Cables Medium Voltage
(ABC MV)



IEC 60502 & TNB Specification

6.35/11 (12) kV

Phase conductor

Nominal cross-sectional area	mm ²	50	70	95	120	150	185	240
Number of cores		3	3	3	3	3	3	3
Minimum number of wires		6	12	15	15	15	30	30
Nominal diameter of conductor	mm	8.1	9.7	11.5	12.9	14.3	16.1	18.4
Nominal thickness of XLPE insulation	mm	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Metallic screening approx. thickness of copper tape	mm	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nominal thickness of outer sheath	mm	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Nominal diameter over sheathing	mm	23.0	24.6	26.3	27.8	29.2	30.9	33.3
Max. dc resistance at 20°C	ohm/km	0.641	0.443	0.320	0.253	0.206	0.164	0.125
Earth fault current carrying capacity of metallic screen at								
-1 second (1 Core)	kA	1.57	1.72	1.88	2.01	2.14	2.30	2.52
-3 seconds (1 Core)	kA	0.90	0.99	1.08	1.16	1.23	1.33	1.45

Messenger - Galvanized steel wire

Nominal cross-sectional area	mm ²	50	50	50	50	50	50	50
Stranding	No./mm	7/3.15	7/3.15	7/3.15	7/3.15	7/3.15	7/3.15	7/3.15
Direction of the outermost layer		Right-hand (Z)						
Overall diameter	mm	9.45	9.45	9.45	9.45	9.45	9.45	9.45
Minimum breaking load	kg	6270	6270	6270	6270	6270	6270	6270
Completed cable								
Approx. overall diameter	mm	55	59	62	65	67	71	75
Approx. weight of cable	kg/km	2540	2890	3300	3660	4040	4540	5290
Packing length	m/drum	500	500	500	500	500	500	500

IEC 60502 & TNB Specification

12.7/22 (24) kV

Phase conductor

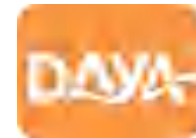
Nominal cross-sectional area	mm ²	50	70	95	120	150	185	240
Number of cores		3	3	3	3	3	3	3
Minimum number of wires		6	12	15	15	15	30	30
Nominal diameter of conductor	mm	8.1	9.7	11.5	12.9	14.3	16.1	18.4
Nominal thickness of XLPE insulation	mm	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Metallic screening approx. thickness of copper tape	mm	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nominal thickness of outer sheath	mm	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Nominal diameter over sheathing	mm	27.2	28.8	30.5	32.0	33.4	35.1	37.5
Max. dc resistance at 20°C	ohm/km	0.641	0.443	0.320	0.253	0.206	0.164	0.125
Earth fault current carrying capacity of metallic screen at								
-1 second (1 Core)	kA	1.96	2.11	2.26	2.40	2.53	2.68	2.90
-3 seconds (1 Core)	kA	1.13	1.21	1.31	1.38	1.46	1.55	1.67

Messenger - Galvanized steel wire

Nominal cross-sectional area	mm ²	50	50	50	50	50	50	50
Stranding	No./mm	7/3.15	7/3.15	7/3.15	7/3.15	7/3.15	7/3.15	7/3.15
Direction of the outermost layer		Right-hand (Z)						
Overall diameter	mm	9.45	9.45	9.45	9.45	9.45	9.45	9.45
Minimum breaking load	kg	6270	6270	6270	6270	6270	6270	6270
Completed cable								
Approx. overall diameter	mm	64	67	70	73	75	78	83
Approx. weight of cable	kg/km	3150	3540	3980	4360	4770	5300	6100
Packing length	m/drum	500	500	500	500	500	250	250

IEC 60502 & TNB

Aerial Bundled Cables Medium Voltage
(ABC MV)



IEC 60502 & TNB Specification

19/33 (36) kV

Phase conductor

Nominal cross-sectional area	mm ²	50	70	95	120	150	185	240
Number of cores		3	3	3	3	3	3	3
Minimum number of wires		6	12	15	15	15	30	30
Nominal diameter of conductor	mm	8.1	9.7	11.5	12.9	14.3	16.1	18.4
Nominal thickness of XLPE insulation	mm	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Metallic screening approx. thickness of copper tape	mm	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nominal thickness of outer sheath	mm	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Nominal diameter over sheathing	mm	32.2	33.8	35.5	37.0	38.4	40.1	42.5
Max. dc resistance at 20°C	ohm/km	0.641	0.443	0.320	0.253	0.206	0.164	0.125
Earth fault current carrying capacity of metallic screen at:								
-1 second (I _{sc} Core)	kA	2.41	2.56	2.72	2.86	2.99	3.14	3.36
-3 seconds (I _{sc} Core)	kA	1.39	1.48	1.57	1.65	1.72	1.81	1.94

Messenger - Galvanized steel wire

Nominal cross-sectional area	mm ²	50	50	50	50	50	50	50
Stranding	No./mm	7/3.15	7/3.15	7/3.15	7/3.15	7/3.15	7/3.15	7/3.15
Direction of the outermost layer		Right-hand (Z)						
Overall diameter	mm	9.45	9.45	9.45	9.45	9.45	9.45	9.45
Minimum breaking load	kg	6270	6270	6270	6270	6270	6270	6270

Completed cable

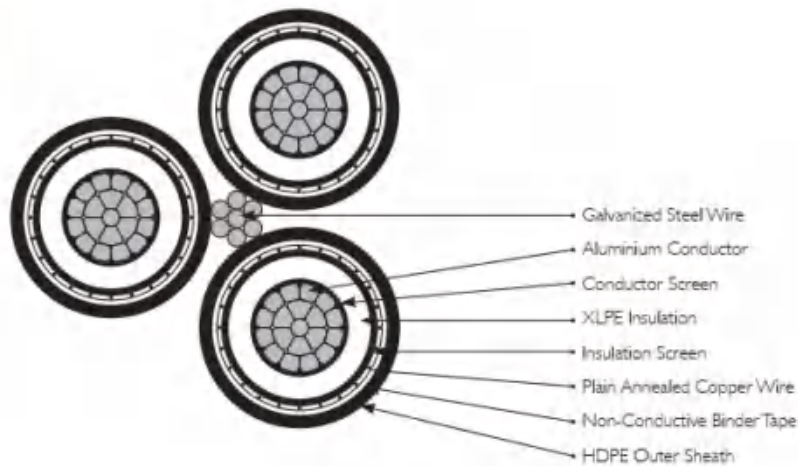
Approx. overall diameter	mm	73	76	79	82	84	87	91
Approx. weight of cable	kg/km	3980	4400	4880	5300	5740	6310	7160
Packing length	m/drum	500	500	500	250	250	250	250

AS/NZS 3599.1

Aerial Bundled Cables Medium Voltage
(ABC MV)



AS/NZS 3599.1



DESCRIPTION

Circular compacted stranded aluminium conductor, XLPE insulated, copper wire screened and HDPE outer sheathed cable. The three XLPE insulated and copper wire screened single core cables are bundled around the galvanized steel wires in a right hand lay.

CONSTRUCTION

- 1 Conductor Phase conductors are circular compacted stranded H68 aluminium to BS2627.
- 2 Conductor screen Extruded layer of semi-conductive compound.
- 3 Insulation XLPE (cross-linked polyethylene) rated at 90°C.
- 4 Insulation screen
 - a Non-metallic part
Extruded layer of semi-conductive compound.
 - b Metallic part
Copper wire screen (SCW).
- 5 Separator Non conductive swellable binder tape Note :A semi-conductive swellable tape may be applied in between the non-metallic and metallic part.
- 6 Outer sheath High density polyethylene (HDPE) colour black. The outer sheath shall be printed with figures 1 ONE, 2 TWO, 3 THREE which corresponding to the three different phases.
- 7 Support wire The support wire shall comprise a stranded galvanized steel wires.
- 8 Assembly The three XLPE insulated and copper wire screened single core cables are bundled around the galvanized steel wires in a right hand (Z) lay.

AS/NZS 3599.1

Aerial Bundled Cables Medium Voltage
(ABC MV)



AS/NZS 3599.1 (Light Duty Screen)

6.35/11 (12) kV

Phase conductor									
Nominal cross-sectional area	mm ²	35	35	50	70	95	120	150	185
Number of cores		3	3	3	3	3	3	3	3
Minimum number of wires		6	6	6	12	15	18	18	30
Nominal diameter of conductor	mm	7.0	7.0	8.1	9.7	14.5	12.9	14.3	16.1
Minimum thickness of conductor screen	mm	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Nominal thickness of XLPE insulation	mm	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Minimum thickness of insulation screen	mm	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
No. and diameter of metallic screening approx. of copper wire	no./mm	24/0.85	24/0.85	24/0.85	24/0.85	24/0.85	24/0.85	24/0.85	24/0.85
Nominal thickness of outer sheath	mm	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9
Nominal diameter over sheathing	mm	24.2	24.2	25.1	26.7	28.4	29.9	31.3	33.2
Max. dc resistance at 20°C	ohm/km	0.868	0.868	0.641	0.443	0.320	0.253	0.206	0.164
Current rating at: Ambient temperature = 30°C Ambient temperature = 40°C Solar radiation = 1000w/m ² Wind speed = 1m/s	A	185	185	210	260	315	365	415	475
	A	155	155	185	230	280	325	370	425
Earth fault current carrying capacity of metallic screen at: -1 second (I _{sc})	kA	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Messenger - Galvanized steel wire									
Stranding	No./mm	7/2.0	19/2.0	19/2.0	19/2.0	19/2.0	19/2.0	19/2.0	19/2.0
Direction of the outermost layer	Right-hand (Z)								
Overall diameter	mm	6.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Completed cable									
Approx. overall diameter	mm	54.4	58.4	60.1	63.4	66.8	69.8	72.6	76.4
Approx. weight of cable	kg/km	1890	2190	2320	2610	2960	3260	3590	4060
Packing length	m/drum	500	500	500	500	500	500	250	250

AS/NZS 3599.1 (Heavy Duty Screen)

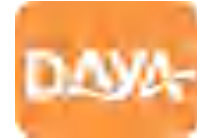
6.35/11 (12) kV

Phase conductor									
Nominal cross-sectional area	mm ²	35	35	50	70	95	120	150	185
Number of cores		3	3	3	3	3	3	3	3
Minimum number of wires		6	6	6	12	15	18	18	30
Nominal diameter of conductor	mm	7.0	7.0	8.1	9.7	11.5	12.9	14.3	16.1
Minimum thickness of conductor screen	mm	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Nominal thickness of XLPE insulation	mm	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Minimum thickness of insulation screen	mm	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
No. and diameter of metallic screening approx. of copper wire	no./mm	40/0.85	40/0.85	23/1.35	32/1.35	38/1.35	38/1.35	38/1.35	38/1.35
Nominal thickness of outer sheath	mm	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9
Nominal diameter over sheathing	mm	24.2	24.2	26.1	27.7	29.4	30.9	32.3	34.2
Max. dc resistance at 20°C	ohm/km	0.868	0.868	0.641	0.443	0.320	0.253	0.206	0.164
Current rating at: Ambient temperature = 30°C Ambient temperature = 40°C Solar radiation = 1000w/m ² Wind speed = 1m/s	A	185	185	210	260	315	365	415	475
	A	155	155	185	230	280	325	370	425
Earth fault current carrying capacity of metallic screen at: -1 second (I _{sc})	kA	3.3*	3.3*	4.8*	6.8*	8.0	8.0	8.0	8.0
Messenger - Galvanized steel wire									
Stranding	No./mm	7/2.0	19/2.0	19/2.0	19/2.0	19/2.0	19/2.0	19/2.0	19/2.0
Direction of the outermost layer	Right-hand (Z)								
Overall diameter	mm	6.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Completed cable									
Approx. overall diameter	mm	54.4	58.4	62.1	65.4	68.8	71.8	74.6	78.4
Approx. weight of cable	kg/km	2150	2440	2880	3540	4130	4440	4770	5240
Packing length	m/drum	500	500	500	500	500	500	250	250

* The screen earth fault current rating is limited by the short circuit current rating of conductor.

AS/NZS 3599.1

Aerial Bundled Cables Medium Voltage (ABC MV)



AS/NZS 3599.1 (Light Duty Screen)

12.7/22 (24) kV

Phase conductor									
Nominal cross-sectional area	mm ²	35	35	50	70	95	120	150	185
Number of cores		3	3	3	3	3	3	3	3
Minimum number of wires		6	6	6	12	15	18	18	30
Nominal diameter of conductor	mm	7.0	7.0	8.1	9.7	11.5	12.9	14.3	16.1
Minimum thickness of conductor screen	mm	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Nominal thickness of XLPE insulation	mm	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Minimum thickness of insulation screen	mm	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
No. and diameter of metallic screening approx. of copper wire	no./mm	24/0.85	24/0.85	24/0.85	24/0.85	24/0.85	24/0.85	24/0.85	24/0.85
Nominal thickness of outer sheath	mm	1.8	1.8	1.8	1.8	1.9	1.9	2.0	2.0
Nominal diameter over sheathing	mm	28.4	28.4	29.3	30.9	32.8	34.3	35.9	37.6
Max. dc resistance at 20°C	ohm/km	0.868	0.868	0.641	0.443	0.320	0.253	0.206	0.164
Current rating ¹⁾									
Ambient temperature = 30°C	A	170	170	205	260	315	360	410	470
Ambient temperature = 40°C	A	150	150	185	230	280	320	365	415
Solar radiation = 1000w/m ²									
Wind speed = 1m/s									
Earth fault current carrying capacity of metallic screen at 1 second (1 Core)	kA	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Messenger - Galvanized steel wire									
Stranding	No./mm	7/2.0	19/2.0	19/2.0	19/2.0	19/2.0	19/2.0	19/2.0	19/2.0
Direction of the outermost layer		Right-hand (Z)							
Overall diameter	mm	6.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Completed cable									
Approx. overall diameter	mm	62.8	66.8	68.5	71.8	75.6	78.6	81.8	85.2
Approx. weight of cable	kg/km	2340	2640	2780	3100	3510	3850	4240	4710
Packing length	m/drum	500	500	500	250	250	250	250	250

AS/NZS 3599.1 (Heavy Duty Screen)

12.7/22 (24) kV

Phase conductor									
Nominal cross-sectional area	mm ²	35	35	50	70	95	120	150	185
Number of cores		3	3	3	3	3	3	3	3
Minimum number of wires		6	6	6	12	15	18	18	30
Nominal diameter of conductor	mm	7.0	7.0	8.1	9.7	11.5	12.9	14.3	16.1
Minimum thickness of conductor screen	mm	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Nominal thickness of XLPE insulation	mm	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Minimum thickness of insulation screen	mm	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
No. and diameter of metallic screening approx. of copper wire	no./mm	40/0.85	40/0.85	23/1.35	32/1.35	38/1.35	38/1.35	38/1.35	38/1.35
Nominal thickness of outer sheath	mm	1.8	1.8	1.8	1.8	1.9	1.9	2.0	2.0
Nominal diameter over sheathing	mm	28.4	28.4	30.3	31.9	33.8	35.3	36.9	38.6
Max. dc resistance at 20°C	ohm/km	0.868	0.868	0.641	0.443	0.320	0.253	0.206	0.164
Current rating ¹⁾									
Ambient temperature = 30°C	A	170	170	205	260	315	360	410	470
Ambient temperature = 40°C	A	150	150	185	230	280	320	365	415
Solar radiation = 1000w/m ²									
Wind speed = 1m/s									
Earth fault current carrying capacity of metallic screen at 1 second (1 Core)	kA	3.3 *	3.3 *	4.8 *	6.8 *	8.0	8.0	8.0	8.0
Messenger - Galvanized steel wire									
Stranding	No./mm	7/2.0	19/2.0	19/2.0	19/2.0	19/2.0	19/2.0	19/2.0	19/2.0
Direction of the outermost layer		Right-hand (Z)							
Overall diameter	mm	6.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Completed cable									
Approx. overall diameter	mm	62.8	66.8	70.5	73.8	77.6	80.6	83.8	87.2
Approx. weight of cable	kg/km	2600	2900	3350	4030	4680	5020	5410	5880
Packing length	m/drum	500	500	500	250	250	250	250	250

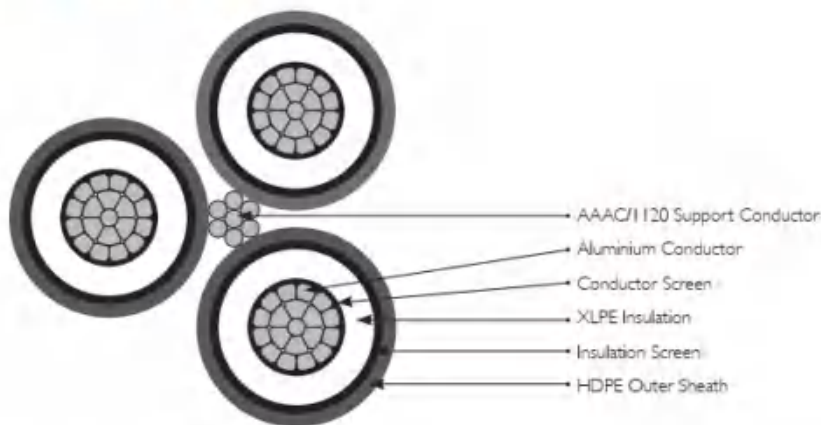
¹⁾ The screen earth fault current rating is limited by the short circuit current rating of conductor.

AS/NZS 3599.2

Aerial Bundled Cables Medium Voltage (ABC MV)



AS/NZS 3599.2



DESCRIPTION

Circular compacted stranded aluminium conductor, XLPE insulated, copper wire screened and HDPE outer sheathed cable. The three XLPE insulated and copper wire screened single core cables are bundled around the AAAC/1120 support conductor in a right hand lay.

CONSTRUCTION

- 1 Conductor Phase conductors are circular compacted stranded H68 aluminium to BS2627.
- 2 Conductor screen Extruded layer of semi-conductive compound.
- 3 Insulation XLPE (cross-linked polyethylene) rated at 90°C.
- 4 Insulation screen Extruded layer of semi-conductive cross-linked compound.
- 5 Outer sheath Extruded layer of semi-conductive HDPE compound colour black. The outer sheath shall be printed with figures 1 ONE, 2 TWO, 3 THREE which corresponding to the three different phases.
- 6 Support conductor The support conductor shall comprise a compacted all aluminium alloy conductor (AAAC/1120).
- 7 Assembly The three XLPE insulated cores shall be bundled around the AAAC/1120 support conductor in a right hand (Z) lay.

AS/NZS 3599.2

Aerial Bundled Cables Medium Voltage
(ABC MV)



AS/NZS 3599.2

6.35/11 (12) kV

Phase conductor

Nominal cross-sectional area
Number of cores
Minimum number of wires
Nominal diameter of conductor
Minimum thickness of conductor screen
Nominal thickness of XLPE insulation
Nominal thickness of cross-linked screen layer
Nominal thickness of semi-conductive HDPE layer
Max. dc resistance at 20°C
Current rating at: Ambient temperature = 40°C Solar radiation = 1000w/m ² Wind speed = 1m/s

mm ²	35	50	70	95	120	150	185
	3	3	3	3	3	3	3
	6	6	12	15	18	18	30
mm	7.0	8.1	9.7	11.5	12.9	14.3	16.1
mm	0.3	0.3	0.3	0.3	0.3	0.3	0.3
mm	3.4	3.4	3.4	3.4	3.4	3.4	3.4
mm	0.6	0.6	0.6	0.6	0.6	0.6	0.6
mm	1.2	1.2	1.2	1.2	1.2	1.2	1.2
ohm/km	0.868	0.641	0.443	0.320	0.253	0.206	0.164
A	165	200	245	300	345	390	450

Messenger - AAAC 1120

Stranding
Direction of the outermost layer
Overall diameter
Completed cable
Approx. overall diameter
Approx. weight of cable
Packing length

No./mm	7/5.0	7/5.0	7/5.0	7/5.0	19/3.65	19/3.65	19/3.65
	Right-hand (Z)						
mm	14.3	14.3	14.3	14.3	17.3	17.3	17.3
mm	52.2	53.5	56.7	60.2	66.2	69.0	72.4
kg/km	1470	1580	1850	2180	2640	2960	3380
m/drum	500	500	500	500	500	500	250

AS/NZS 3599.2

12.7/22 (24) kV

Phase conductor

Nominal cross-sectional area
Number of cores
Minimum number of wires
Nominal diameter of conductor
Minimum thickness of conductor screen
Nominal thickness of XLPE insulation
Nominal thickness of cross-linked screen layer
Nominal thickness of semi-conductive HDPE layer
Max. dc resistance at 20°C
Current rating at: Ambient temperature = 40°C Solar radiation = 1000w/m ² Wind speed = 1m/s

mm ²	35	50	70	95	120	150	185
	3	3	3	3	3	3	3
	6	6	12	15	18	18	30
mm	7.0	8.1	9.7	11.5	12.9	14.3	16.1
mm	0.3	0.3	0.3	0.3	0.3	0.3	0.3
mm	5.5	5.5	5.5	5.5	5.5	5.5	5.5
mm	0.6	0.6	0.6	0.6	0.6	0.6	0.6
mm	1.2	1.2	1.2	1.2	1.2	1.2	1.2
ohm/km	0.868	0.641	0.443	0.320	0.253	0.206	0.164
A	165	195	245	295	340	385	440

Messenger - AAAC 1120

Stranding
Direction of the outermost layer
Overall diameter
Completed cable
Approx. overall diameter
Approx. weight of cable
Packing length

No./mm	7/5.0	7/5.0	7/5.0	7/5.0	19/3.65	19/3.65	19/3.65
	Right-hand (Z)						
mm	14.3	14.3	14.3	14.3	17.3	17.3	17.3
mm	60.6	61.9	65.1	68.6	74.6	77.4	80.8
kg/km	1890	2000	2300	2670	3160	3500	3950
m/drum	500	500	500	500	250	250	250