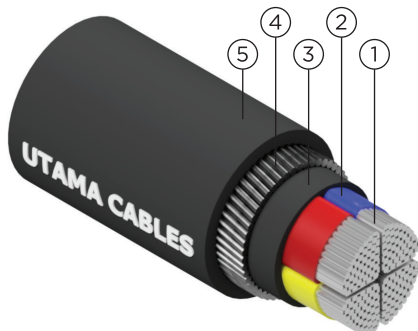


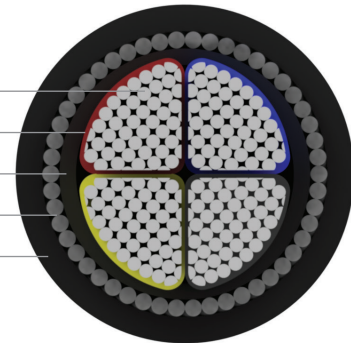


UTAMA CABLES
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XLPE INSULATED, PVC SHEATHED ARMoured CABLE – AL/XLPE/SWA/PVC



1. Aluminium Conductor
2. XLPE Insulation
3. Bedding
4. Steel Wire Armoured
5. PVC Outer Sheath



APPLICATION

XLPE insulated cable with steel wire armour (SWA) suitable for use in power networks, underground, indoor and outdoor applications and also in cable ducting.

STANDARDS

Design Specification	IEC 60502-1
Conductor	IEC 60228

CABLE CONSTRUCTION

Conductor	Plain Aluminium Conductor, Class 2, Stranded Circular, Compacted or Sectored	
Insulation	Cross-linked Polyethylene (XLPE) compound rated 90°C	
Core Identification	Two Cores	Red and Black
	Three Cores	Red, Yellow and Blue
	Four Cores	Red, Yellow, Blue and Black
Assembly	2, 3 or 4 Cores	Insulated conductors are laid up together, if necessary, filled with non-hygroscopic material compatible with the insulation and cover with layer of PVC bedding which may be an integral part of the filling
Bedding	Polyvinyl Chloride (PVC) compound, PVC/ST-2	
Bedding Colour	Black	
Armour	Galvanised Steel Wire Armoured (SWA)	
Outer Sheath	Polyvinyl Chloride (PVC) compound, PVC/ST-2	
Outer Sheath Colour	Black	



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XLPE INSULATED, PVC SHEATHED ARMoured CABLE – AL/XLPE/SWA/PVC

ELECTRICAL CHARACTERISTICS

Operating Voltage, U ₀ /U	600/1000 V	Test Voltage	3.5kV for 5 minutes
Operating Temperature	-15°C to 90°C	Max Conductor Temperature	90°C

AL/XLPE/SWA/PVC - 2 CORE

Conductor		Number / Wire Diameter (No./mm)	Nominal Thickness of Insulation (mm)	Armour Wire Diameter (mm)	Nominal Thickness of Sheath (mm)	Approx. Overall Diameter (mm)	Approx. Cable Weight (kg/km)
Nominal Cross-Sectional Area (mm ²)	Shape						
16	c.c	7/1.70	0.70	1.25	1.80	20.90	655
25	c.c	7/2.14	0.90	1.60	1.80	24.80	955
35	s.s	19/1.53	0.90	1.60	1.80	22.70	1075
50	s.s	19/1.78	1.00	1.60	1.80	25.00	1260
70	s.s	19/2.14	1.10	1.60	2.00	28.60	1570
95	s.s	19/2.52	1.10	2.00	2.10	32.60	2090
120	s.s	37/2.03	1.20	2.00	2.20	35.50	2470
150	s.s	37/2.25	1.40	2.00	2.30	38.00	2845
185	s.s	37/2.52	1.60	2.50	2.50	43.80	3745
240	s.s	61/2.25	1.70	2.50	2.70	48.00	4500
300	s.s	61/2.52	1.80	2.50	2.80	52.30	5160

NOTE: **c.s.** - circular stranded conductor
c.c. - circular compacted stranded conductor
s.s. - sectoral stranded conductor, circular conductors can be produced on request.



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XLPE INSULATED, PVC SHEATHED ARMoured CABLE – AL/XLPE/SWA/PVC

AL/XLPE/SWA/PVC - 3 CORE

Conductor		Number / Wire Diameter (No./mm)	Nominal Thickness of Insulation (mm)	Armour Wire Diameter (mm)	Nominal Thickness of Sheath (mm)	Approx. Overall Diameter (mm)	Approx. Cable Weight (kg/km)
Nominal Cross-Sectional Area (mm ²)	Shape						
16	c.c	7/1.70	0.70	1.25	1.80	21.60	725
25	c.c	7/2.14	0.90	1.60	1.80	25.70	1165
35	s.s	19/1.53	0.90	1.60	1.80	26.10	1340
50	s.s	19/1.78	1.00	1.60	1.90	29.00	1605
70	s.s	19/2.14	1.10	2.00	2.00	34.40	2215
95	s.s	19/2.52	1.10	2.00	2.20	40.60	2735
120	s.s	37/2.03	1.20	2.00	2.30	42.00	3200
150	s.s	37/2.25	1.40	2.50	2.50	48.00	4150
185	s.s	37/2.52	1.60	2.50	2.60	50.80	4555
240	s.s	61/2.25	1.70	2.50	2.80	56.60	5770
300	s.s	61/2.52	1.80	2.50	3.00	61.70	6760

NOTE: **c.s.** - circular stranded conductor
c.c. - circular compacted stranded conductor
s.s. - sectoral stranded conductor, circular conductors can be produced on request.



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XLPE INSULATED, PVC SHEATHED ARMoured CABLE – AL/XLPE/SWA/PVC

AL/XLPE/SWA/PVC - 4 CORE

Conductor		Number / Wire Diameter (No./mm)	Nominal Thickness of Insulation (mm)	Armour Wire Diameter (mm)	Nominal Thickness of Sheath (mm)	Approx. Overall Diameter (mm)	Approx. Cable Weight (kg/km)
Nominal Cross-Sectional Area (mm ²)	Shape						
16	c.c	7/1.70	0.70	1.60	1.80	24.00	1120
25	c.c	7/2.14	0.90	1.60	1.80	27.80	1380
35	s.s	19/1.53	0.90	1.60	1.90	29.00	1625
50	s.s	19/1.78	1.00	1.60	2.00	32.60	1945
70	s.s	19/2.14	1.10	2.00	2.20	38.60	2795
95	s.s	19/2.52	1.10	2.00	2.30	42.30	3355
120	s.s	37/2.03	1.20	2.50	2.50	45.60	4400
150	s.s	37/2.25	1.40	2.50	2.60	50.10	5135
185	s.s	37/2.52	1.60	2.50	2.80	54.60	6080
240	s.s	61/2.25	1.70	2.50	3.00	61.20	7415
300	s.s	61/2.52	1.80	2.50	3.20	65.00	8675
400	s.s	61/2.85	2.00	3.15	3.50	78.90	11460

NOTE: **c.s.** - circular stranded conductor
c.c. - circular compacted stranded conductor
s.s. - sectoral stranded conductor, circular conductors can be produced on request.



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XLPE INSULATED, PVC SHEATHED ARMoured CABLE – AL/XLPE/SWA/PVC

Electrical Characteristic – AL/XLPE/SWA/PVC Steel Wire Armoured Cables

Table B5.1: Current Carrying Capacity

Conductor Cross-Sectional Area (mm ²)	Reference Method C (Clipped Direct)		Reference Method E (In Free Air or On A Perforated Cable Tray, Horizontal or Vertical)		Reference Method D (Direct In Ground or In Ducting In Ground, In or Around Buildings)	
	One 2-Core Cable, Single-Phase AC or DC (Amp)	One 3 or 4-Core Cable, Three-Phase AC (Amp)	One 2-Core Cable, Single-Phase AC or DC (Amp)	One 3 or 4-Core Cable, Three-Phase AC (Amp)	One 2-Core Cable, Single Phase AC or DC (Amp)	One 3 or 4-Core Cable, Three-Phase AC (Amp)
16	82	71	85	74	71	59
25	108	92	112	98	90	75
35	132	113	138	120	108	90
50	159	137	166	145	128	106
70	201	174	211	185	158	130
95	242	214	254	224	186	154
120	-	249	-	264	-	174
150	-	284	-	305	-	197
185	-	328	-	350	-	220
240	-	386	-	418	-	253
300	-	441	-	488	-	286
400	-	-	-	516	-	366

Ambient Air Temp 30°C

Ambient Ground Temp 20°C

Conductor Operating Temp 70°C

Soil Thermal Resistivity (cable buried in ground): 2.5 K.m/W

Note:

1. Where a conductor operates at a temperature exceeding 70°C it must be ascertained that the equipment connected to the conductor is suitable for the conductor operating temperature, see Regulation 512.1.2 of the 18th Edition of IEE Wiring Regulations).
2. Where cables in this table are connected to equipment or accessories designed to operate at a temperature not exceeding 70°C, the current ratings given in the equivalent table for 70°C thermoplastic insulated cables must be used (see also Regulation 523.1 of the 18th Edition of IEE Wiring Regulations).



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XLPE INSULATED, PVC SHEATHED ARMoured CABLE – AL/XLPE/SWA/PVC

Table B5.2: Voltage Drop

Conductor Cross-Sectional Area (mm ²)	2-Core Cable, DC (mV/A/m)	2-Core Cable, Single-Phase AC (mV/A/m)			3, 4-Core Cable, Three-Phase AC (mV/A/m)		
		r	x	z	r	x	z
16	4.800				4.200		
25	3.100	3.100	0.165	3.1	2.700	0.140	2.700
35	2.200	2.200	0.160	2.20	1.900	0.140	1.950
50	1.600	1.650	0.160	1.65	1.400	0.135	1.450
70	1.100	1.100	0.155	1.15	0.960	0.135	0.970
95	0.820	0.820	0.150	0.84	0.710	0.130	0.720
120	-	-	-	-	0.560	0.130	0.580
150	-	-	-	-	0.450	0.130	0.470
185	-	-	-	-	0.370	0.130	0.390
240	-	-	-	-	0.280	0.125	0.310
300	-	-	-	-	0.230	0.125	0.260
400	-	-	-	-		0.230	

Ambient Air Temp 30°C

Ambient Ground Temp 20°C

Conductor Operating Temp 70°C

Soil Thermal Resistivity (cable buried in ground): 2.5 K.m/W

Note:

1. Correction factors for ambient temperature and group installation, please refer Derating Factor section.
2. r = Resistive Component, x = Reactive Component, z = Impedance Value
 The above table is in accordance with the 18th Edition of IEE Wiring Regulations.
3. For cables having conductors of 16mm² or less cross sectional area their inductances can be ignored and (mV/A/m)_r values only are tabulated. For cables having conductors greater than 16mm², cross sectional area the impedance values are given as (mV/A/m)_z, together with the resistive component (mV/A/m)_r and the reactive component (mV/A/m)_x.
 The above paragraph is extracted from Appendix 4 of the 18th Edition of IEE Wiring Regulations.

Utama Cables has taken reasonable measures to ensure that the information and data represented in this catalogue is accurate and current. However, the manufacturer reserves the right to modify specification of any of the products at their discretion and without notice. The manufacturer can accept no responsibility as to the sustainability of any product for a particular use, or for any errors or omissions, unintentional or otherwise.