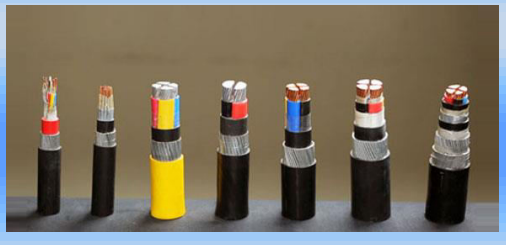

Naviflex Cables Industries

AN ISO 9001:2008 Co.

NAVIFLEX® CABLES

XLPE CABLE

IS:7098(PT.-1)/1988

Our Product & Ranges of XLPE Cables

- Copper Conductor XLPE Insulated Armoured/ Unarmoured Cable
- Aluminium Conductor XLPE Insulated Armoured/ Unarmoured Cable

Range :-

Copper/Aluminium Conductor (Armoured/Unarmoured)

1.5sqmm x 1 Core to 1000sqmm x 1 Core
1.5sqmm x 2 Core to 630sqmm x 2 Core
1.5sqmm x 3 Core to 630sqmm x 3 Core
1.5sqmm x 4 Core to 630sqmm x 4 Core
25sqmm x 3.5 Core to 630sqmm x 3.5 Core

Naviflex Cables Industries

I – 2182, DSIDC Industrial Area, Narela, DELHI – 110040

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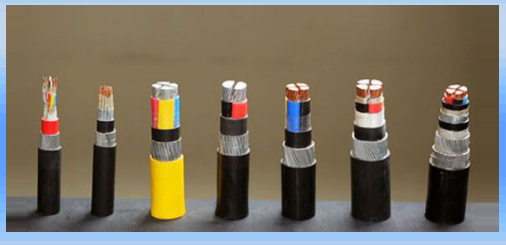

Naviflex Cables Industries

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MANUFACTURING PROCESS

Aluminium/Copper Conductor

↓

XLPE Insulation

↓

PVC Inner Sheath (Extruded/Taped)

↓

Armouring (GI Strips/GI Wires)

↓

PVC Outer Sheath (Type ST-2)

Constructions

Reference Specifications : IS:7098(Part-1)1988

Voltage Grade : 1100 Volts

Conductor Aluminium : EC Grade Aluminium

Copper : Electrolytic Grade Bare Annealed Copper (as per Class 1 & 2 of IS:8130/1984)

Insulation : XLPE (Cross Linked Polyethylene)

Colour of Insulation

Single Core Cables : Red, Yellow, Blue, White or Natural or any colour as per customer's requirement.

Two Core Cables : Red & Black

Three Core Cables : Red, Yellow & Blue

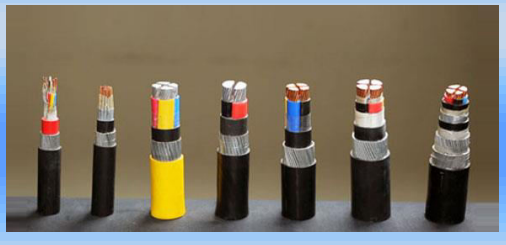
Four Core Cables : Red, Yellow, Blue & Black

Laying up : The Cores are laidup together with suitable right hand Lay

Inner Sheath : PVC

Armouring : Galvanised Steel Wires/Strips (In Single Core Cable Aluminium Wires/Strips used)

Outer Sheath : PVC Type ST-2



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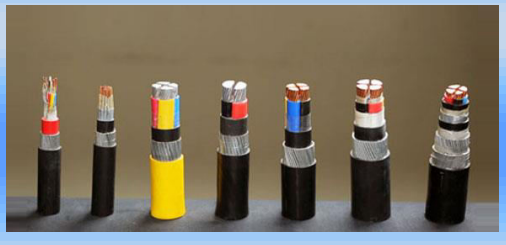
Main Features :

- LT XLPE Cables have longer life as compared to conventional PVC Cables.
- LT XLPE Cables have a higher conductor temperature rating i.e. 90°C
- LT XLPE Cables have a higher emergency overload capacity 120°C
- Max. Temperature limit under short circuit conditions for LT XLPE Cables is 250°C, hence XLPE Cables higher short circuit rating.
- Insulation Resistance of LT XLPE Cables is excellent & superior to identical PVC Cables.
- LT XLPE Cables have high corrosion resistance in polluted atmosphere
- LT XLPE Cables have better properties of resistance to chemical and corrosive gases.
- LT XLPE Cables have low installation cost because of light weight, dimensions and are far more flexible.
- LT XLPE Cables have better properties to withstand vibrations, hot impact.
- Jointing of LT XLPE Cables is easier and quicker.

PRODUCT CODE (As per IS:7098(Pt.-1)/1988

CONSTITUENT	CODE
Aluminium Conductor	A
XLPE Insulation	2X
Round Steel Wire	W
Flat Steel strip Armoured	F
Double round steel wire armoured	WW
Double flat steel strip armoured	FF
Non Magnetic (Al) Round wire armoured	Wa
Non Magnetic (Al) flat strip armoured	Fa
PVC Outer sheath	Y



Naviflex Cables Industries

AN ISO 9001:2008 Co.

Rating Factors ----------

a) Rating factors for variation in ambient air temperature

Air Temp. °C		20	25	30	35	40	45	50	55	60
Rating Factors	Conductor Temp. 90°C	1.18	1.14	1.10	1.05	1.0	0.95	0.89	0.84	0.78

b) Rating factors for variation in ground temperature

Air Temp. °C		15	20	25	30	35	40	45	50
Rating Factors	Conductor Temp. 90°C	1.12	1.08	1.04	1.0	0.96	0.91	0.87	0.82

c)Rating factors for depth of laying for cables laid direct in the ground

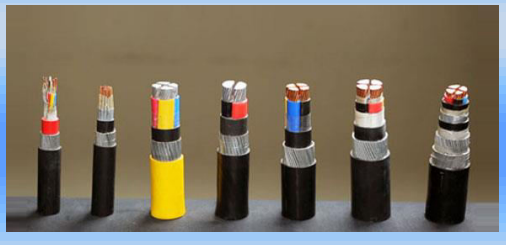
Depth of Laying (mm)	900	1050	1200	1500	1800	2000	2500	3000
1.1, 3.3, 6.6, & 11 KV Cables	1.00	0.99	0.97	0.95	0.94	0.93	0.91	0.90

d)Rating factors for multi core cables in laid on racks in air (with cable touching)

No of racks	No of cables per rack				
	1	2	3	6	9
1	1.00	0.84	0.80	0.75	0.73
2	1.00	0.80	0.76	0.71	0.69
3	1.00	0.78	0.74	0.70	0.68
6	1.00	0.76	0.72	0.68	0.66

e)Rating factors for multi core cables in laid on racks in air (with spacing between cable equal to diameter of cable)

No of racks	No of cables per rack				
	1	2	3	6	9
1	1.00	0.98	0.96	0.93	0.92
2	1.00	0.95	0.93	0.90	0.89
3	1.00	0.94	0.92	0.89	0.88
6	1.00	0.93	0.90	0.87	0.86



Naviflex Cables Industries

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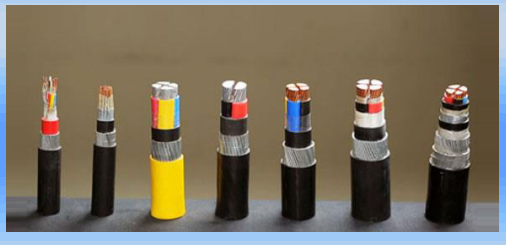
Rating Factors ----------

Rating factors for variation in thermal resistivity of soil (multicore cable laid direct in ground)

Nominal Area of conductor sq.mm	Rating factors for value of thermal resistivity of soil in °C-cmm/watt					
	100	120	150	200	250	300
25	1.14	1.08	1.0	0.91	0.84	0.78
35	1.15	1.08	1.0	0.91	0.84	0.77
50	1.15	1.08	1.0	0.91	0.84	0.77
70	1.15	1.08	1.0	0.90	0.83	0.76
95	1.15	1.08	1.0	0.90	0.83	0.76
120	1.17	1.09	1.0	0.90	0.82	0.76
150	1.17	1.09	1.0	0.90	0.82	0.76
185	1.18	1.09	1.0	0.89	0.81	0.75
240	1.18	1.09	1.0	0.89	0.81	0.75
300	1.18	1.09	1.0	0.89	0.81	0.75
400	1.19	1.10	1.0	0.89	0.81	0.75
500	1.21	1.10	1.0	0.89	0.81	0.75
630	1.22	1.10	1.0	0.89	0.81	0.74

Rating factors for variation in thermal resistivity of soil, three single core cables laid direct in ground (three cables in trefoil touching)

Nominal Area of conductor sq.mm	Rating factors for value of thermal resistivity of soil in °C-cmm/watt					
	100	120	150	200	250	300
25	1.19	1.09	1.0	0.88	0.80	0.74
35	1.20	1.09	1.0	0.88	0.80	0.74
50	1.20	1.09	1.0	0.88	0.80	0.74
70	1.21	1.10	1.0	0.88	0.80	0.74
95	1.22	1.10	1.0	0.88	0.80	0.74
120	1.22	1.10	1.0	0.88	0.79	0.74
150	1.22	1.10	1.0	0.88	0.79	0.73
185	1.22	1.10	1.0	0.88	0.79	0.73
240	1.22	1.10	1.0	0.88	0.79	0.73
300	1.22	1.10	1.0	0.88	0.79	0.72
400	1.24	1.11	1.0	0.88	0.79	0.72
500	1.24	1.11	1.0	0.88	0.79	0.72
630 to 1000	1.24	1.11	1.0	0.88	0.79	0.72



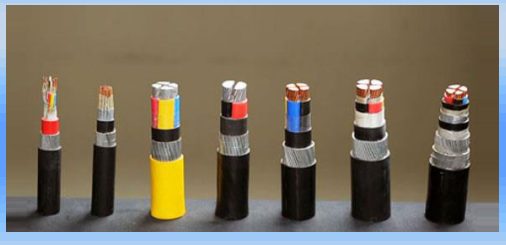
Naviflex Cables Industries

AN ISO 9001:2008 Co.

Current Rating (A.C.) of 1.1 KV XLPE Aluminium Conductor Power Cable (In Amp.)				
Nominal area of conductor	Single Core in 3 Cables		Multi Core	
SQMM	In Ground	In Air	In Ground	In Air
6	45	40	43	40
10	59	53	57	53
16	76	73	78	70
25	99	115	95	99
35	117	140	116	117
50	138	170	140	140
70	168	210	170	176
95	204	255	200	221
120	230	300	225	258
150	265	342	255	294
185	295	385	285	339
240	340	450	325	402
300	390	519	370	461
400	450	605	435	542
500	500	700	481	624
630	555	809	537	723
800	625	935	---	---
1000	690	1065	---	---

Basic Assumption for Current Rating for XLPE Cables

a) Max. Conductor temperature — 90^0C
b) Ambient temperature — 40^0C
c) Ground temperature — 30^0C
d) Thermal resistivity of soil — 150^0C-cm/watt
e) Thermal resistivity of dielectric — 350^0C-cm/watt
f) Depth of laying — 75 cm- upto 1.1 KV Cables
90 cm- 3.3KV to 11 KV Cables

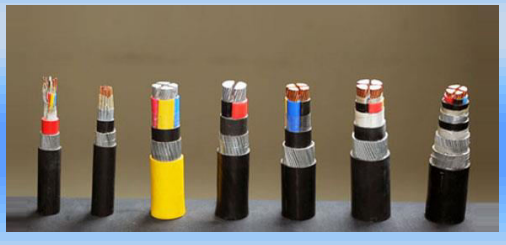


Naviflex Cables Industries

AN ISO 9001:2008 Co.

1.1 KV SINGLE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, HARD DRAWN ALUNMINIUM ARMOURED / UNARMOURED CABLES CONFORMING TO IS:7098 (PART-I)/1988

	UNARMOURED CABLES				ARMOURED CABLES								
	A2XY				Single Layer-wire (A2XWaY)					Single Layer – Strip (A2XFaY)			
Nominal Area of Conductor	Nominal Thickness of Insulation	Nominal Thickness of Outer Sheath	Apporx. Overall Diameter of cable	Appox. Weight of cable	Nominal Thickness of Insulation	Nominal Diameter of armour wire	Minimum Thickness of Outer Sheath	Apporx. Overall Diameter of cable	Appox. Weight of cable	Nominal Thickness of Armour Strip	Minimum Thickness of Outer Sheath	Apporx. Overall Diameter of cable	Appox. Weight of cable
Sq.mm	mm	mm	mm	Kg/km	mm	mm	mm	mm	Kg/km	mm	mm	mm	Kg/km
6	0.7	1.8	8.2	80	1.0	1.4	1.24	10.5	130	-	-	-	-
10	0.7	1.8	9.2	100	1.0	1.4	1.24	11.5	160	-	-	-	-
16	0.7	1.8	10.5	130	1.0	1.4	1.24	13.0	200	-	-	-	-
25	0.9	1.8	12.0	180	1.2	1.4	1.24	14.0	300	-	-	-	-
35	0.9	1.8	13.0	230	1.2	1.4	1.24	15.0	350	-	-	-	-
50	1.0	1.8	15.0	300	1.3	1.4	1.24	17.0	420	-	-	-	-
70	1.1	1.8	16.0	370	1.4	1.4	1.24	19.0	520	-	-	-	-
95	1.1	1.8	18.0	460	1.4	1.6	1.4	22.0	650	0.80	1.4	21.0	600
120	1.2	1.8	20.0	550	1.5	1.6	1.4	24.0	750	0.80	1.4	23.0	700
150	1.4	2.0	22.0	620	1.7	1.6	1.4	25.0	850	0.80	1.4	24.0	800
185	1.6	2.0	24.0	820	1.9	1.6	1.4	28.0	1000	0.80	1.4	26.0	950
240	1.7	2.0	27.0	1000	2.0	1.6	1.4	30.0	1250	0.80	1.4	30.0	1200
300	1.8	2.0	30.0	1200	2.1	1.6	1.56	33.0	1500	0.80	1.56	32.0	1400
400	2.0	2.2	33.0	1550	2.4	2.0	1.56	38.0	1900	0.80	1.56	36.0	1750
500	2.2	2.2	36.0	1900	2.6	2.0	1.56	41.0	2350	0.80	1.56	39.0	2150
630	2.4	2.2	40.0	2400	2.8	2.0	1.72	46.0	2900	0.80	1.72	44.0	2700
800	2.6	2.4	47.0	3000	3.1	2.0	1.88	51.0	3600	0.80	1.72	48.0	3350
1000	2.8	2.6	51.0	3750	3.3	2.5	2.04	56.0	4600	0.80	1.88	54.0	4100

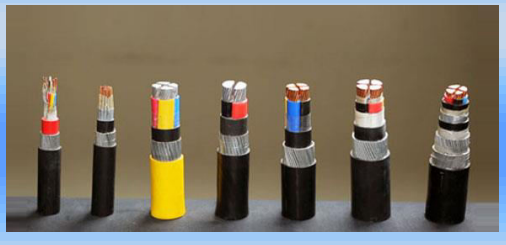


Naviflex Cables Industries

AN ISO 9001:2008 Co.

1.1 KV TWO CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, ARMOURED / UNARMOURED CABLES CONFORMING TO IS:7098 (PART-I)/1988

Nominal Area of Conductor	UNARMOURED CABLES					ARMOURED CABLES							
	A2XY					Single Layer-wire (A2XWY)				Single Layer – Strip (A2XFY)			
	Nominal Thickness of Insulation	Nominal Thickness of Inner Sheath	Nominal Thickness of Outer Sheath	Apporx. Overall Diameter of cable	Appox. Weight of cable	Nominal Diameter of armour wire	Minimum Thickness of Outer Sheath	Apporx. Overall Diameter of cable	Appox. Weight of cable	Nominal Thickness of Armour Strip	Minimum Thickness of Outer Sheath	Apporx. Overall Diameter of cable	Appox. Weight of cable
Sq.mm	mm	mm	mm	mm	Kg/km	mm	mm	mm	Kg/km	mm	mm	mm	Kg/km
6	0.7	0.3	1.8	14.5	240	1.4	1.24	16.0	550	-	-	-	-
10	0.7	0.3	1.8	17.0	325	1.4	1.24	18.0	650	-	-	-	-
16	0.7	0.3	1.8	17.0	345	1.4	1.40	18.5	700	-	-	-	-
25	0.9	0.3	2.0	19.0	400	1.6	1.40	21.0	850	0.8	1.40	20.0	650
35	0.9	0.3	2.0	20.0	480	1.6	1.40	23.0	950	0.8	1.40	21.0	750
50	1.0	0.3	2.0	22.0	590	1.6	1.40	25.0	1100	0.8	1.40	23.0	900
70	1.1	0.3	2.0	25.0	760	1.6	1.56	28.0	1400	0.8	1.56	26.0	1100
95	1.1	0.4	2.2	28.0	1000	2.0	1.56	31.0	1850	0.8	1.56	29.0	1350
120	1.2	0.4	2.2	31.0	1200	2.0	1.56	34.0	2150	0.8	1.56	31.0	1600
150	1.4	0.4	2.2	33.0	1400	2.0	1.72	37.0	2450	0.8	1.72	34.0	1900
185	1.6	0.5	2.4	37.0	1750	2.0	1.88	40.0	2900	0.8	1.72	37.0	2250
240	1.7	0.5	2.6	41.0	2000	2.5	2.04	45.0	3850	0.8	1.88	42.0	2800
300	1.8	0.6	2.8	44.0	2700	2.5	2.20	49.0	4450	0.8	2.04	45.0	3300
400	2.0	0.6	3.0	48.0	3350	2.5	2.36	52.0	5350	0.8	2.36	50.0	4100
500	2.2	0.7	3.4	54.0	4200	3.15	2.68	60.0	7100	0.8	2.52	55.0	5000
630	2.4	0.7	3.6	62.0	5300	3.15	2.84	66.0	8500	0.8	2.68	63.0	6100



Naviflex Cables Industries

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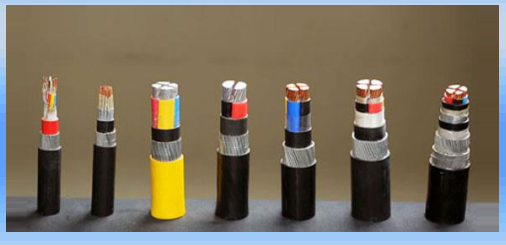
1.1 KV THREE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, ARMOURED / UNARMOURED CABLES CONFORMING TO IS:7098 (PART-I)/1988

	UNARMOURED CABLES					ARMOURED CABLES							
	A2XY					Single Layer-wire (A2XWY)				Single Layer – Strip (A2XFY)			
Nominal Area of Conductor	Nominal Thickness of Insulation	Nominal Thickness of Inner Sheath	Nominal Thickness of Outer Sheath	Apporx. Overall Diameter of cable	Appox. Weight of cable	Nominal Diameter of armour wire	Minimum Thickness of Outer Sheath	Apporx. Overall Diameter of cable	Appox. Weight of cable	Nominal Thickness of Armour Strip	Minimum Thickness of Outer Sheath	Apporx. Overall Diameter of cable	Appox. Weight of cable
Sq.mm	mm	mm	mm	mm	Kg/km	mm	mm	mm	Kg/km	mm	mm	mm	Kg/km
6	0.7	0.3	1.8	16.0	330	1.4	1.24	18.5	650	-	-	-	-
10	0.7	0.3	1.8	18.5	400	1.4	1.24	20.0	750	-	-	-	-
16	0.7	0.3	1.8	18.25	400	1.6	1.40	20.5	800	0.8	1.40	19.0	590
25	0.9	0.3	2.0	21.0	530	1.6	1.40	23.0	1000	0.8	1.40	21.0	800
35	0.9	0.3	2.0	22.0	640	1.6	1.40	25.0	1200	0.8	1.40	23.0	950
50	1.0	0.3	2.0	25.0	800	1.6	1.56	29.0	1450	0.8	1.40	26.0	1100
70	1.1	0.4	2.2	30.0	1100	2.0	1.56	32.0	2000	0.8	1.56	29.0	1450
95	1.1	0.4	2.2	32.0	1350	2.0	1.56	35.0	2350	0.8	1.56	32.0	1750
120	1.2	0.4	2.2	35.0	1650	2.0	1.72	39.0	2750	0.8	1.56	35.0	2100
150	1.4	0.5	2.4	39.0	2050	2.0	1.88	43.0	3250	0.8	1.72	40.0	2500
185	1.6	0.5	2.6	43.0	2500	2.5	2.04	48.0	4200	0.8	1.88	44.0	3000
240	1.7	0.6	2.8	48.5	3150	2.5	2.20	53.0	5100	0.8	2.04	50.0	3750
300	1.8	0.6	3.0	52.0	3850	2.5	2.36	58.0	6000	0.8	2.20	54.0	4500
400	2.0	0.7	3.2	58.0	4850	3.15	2.68	65.0	7950	0.8	2.52	60.0	5650
500	2.2	0.7	3.6	64.0	6100	3.15	2.84	72.0	9500	0.8	2.68	66.0	6900
630	2.4	0.7	3.8	71.5	7650	4.0	3.0	81.0	12600	0.8	2.84	74.0	8550

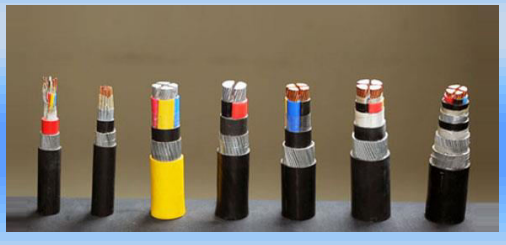


Naviflex Cables Industries

AN ISO 9001:2008 Co.

1.1 KV 3 ½ CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, ARMOURED / UNARMOURED CABLES CONFORMING TO IS:7098 (PART-I)/1988

Nominal Area of Conductor	UNARMOURED CABLES					ARMOURED CABLES							
	A2XY					Single Layer-wire (A2XWY)				Single Layer – Strip (A2XFY)			
	Nominal Thickness of Insulation M/N	Nominal Thickness of Inner Sheath	Nominal Thickness of Outer Sheath	Apporx. Overall Diameter of cable	Appox. Weight of cable	Nominal Diameter of armour wire	Minimum Thickness of Outer Sheath	Apporx. Overall Diameter of cable	Appox. Weight of cable	Nominal Thickness of Armour Strip	Minimum Thickness of Outer Sheath	Apporx. Overall Diameter of cable	Appox. Weight of cable
Sq.mm	mm	mm	mm	mm	Kg/km	mm	mm	mm	Kg/km	mm	mm	mm	Kg/km
25	0.9/0.7	0.3	2.0	22.0	610	1.6	1.40	25.0	1100	0.8	1.40	23.0	900
35	0.9/0.7	0.3	2.0	24.0	730	1.6	1.40	27.0	1300	0.8	1.40	25.0	1050
50	1.0/0.9	0.3	2.0	27.0	920	1.6	1.56	30.0	1600	0.8	1.40	28.0	1250
70	1.1/0.9	0.4	2.2	31.0	1250	2.0	1.56	35.0	2200	0.8	1.56	32.0	1650
95	1.1/1.0	0.4	2.2	34.0	1550	2.0	1.56	38.0	2650	0.8	1.56	35.0	2000
120	1.2/1.1	0.4	2.2	38.0	1900	2.0	1.72	42.0	3150	0.8	1.72	39.0	2450
150	1.4/1.1	0.5	2.4	42.5	2300	2.0	1.88	46.0	3650	0.8	1.72	43.0	2850
185	1.6/1.1	0.5	2.6	46.0	2850	2.5	2.04	51.0	4750	0.8	1.88	48.0	3450
240	1.7/1.2	0.6	2.8	52.0	3600	2.5	2.20	56.0	5750	0.8	2.04	53.0	4300
300	1.8/1.4	0.6	3.0	56.0	4400	2.5	2.36	60.0	6750	0.8	2.20	57.0	5100
400	2.0/1.6	0.7	3.4	64.0	5600	3.15	2.68	71.0	9000	0.8	2.52	66.0	6450
500	2.2/1.7	0.7	3.6	72.0	7000	3.15	2.84	79.0	11000	0.8	2.68	74.0	7950
630	2.4/1.8	0.7	4.0	81.0	8900	4.0	3.0	88.0	14500	0.8	3.00	82.0	9900



Naviflex Cables Industries

AN ISO 9001:2008 Co.

1.1 KV FOUR CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, ARMOURED / UNARMOURED CABLES CONFORMING TO IS:7098 (PART-I)/1988

Nominal Area of Conductor	UNARMOURED CABLES					ARMOURED CABLES							
	A2XY					Single Layer-wire (A2XWY)				Single Layer – Strip (A2XFY)			
	Nominal Thickness of Insulation	Nominal Thickness of Inner Sheath	Nominal Thickness of Outer Sheath	Apporx. Overall Diameter of cable	Appox. Weight of cable	Nominal Diameter of armour wire	Minimum Thickness of Outer Sheath	Apporx. Overall Diameter of cable	Appox. Weight of cable	Nominal Thickness of Armour Strip	Minimum Thickness of Outer Sheath	Apporx. Overall Diameter of cable	Appox. Weight of cable
Sq.mm	mm	mm	mm	mm	Kg/km	mm	mm	mm	Kg/km	mm	mm	mm	Kg/km
6	0.7	0.3	1.8	18.5	350	1.4	1.24	19.5	600	-	-	-	-
10	0.7	0.3	1.8	20.0	400	1.4	1.40	21.0	670	-	-	-	-
16	0.7	0.3	1.8	20.0	450	1.6	1.40	22.5	925	0.8	1.40	20.0	700
25	0.9	0.3	2.0	24.0	660	1.6	1.40	26.0	1200	0.8	1.40	24.0	950
35	0.9	0.3	2.0	26.0	800	1.6	1.40	28.0	1450	0.8	1.40	26.5	1150
50	1.0	0.3	2.0	29.0	1000	1.6	1.56	32.0	1750	0.8	1.56	29.0	1400
70	1.1	0.4	2.2	34.0	1410	2.0	1.56	37.0	2400	0.8	1.56	33.5	1800
95	1.1	0.4	2.2	37.0	1750	2.0	1.72	40.0	2900	0.8	1.56	36.0	2200
120	1.2	0.5	2.4	41.0	2150	2.0	1.88	44.0	3500	0.8	1.72	40.5	2700
150	1.4	0.5	2.6	45.0	2650	2.5	2.04	49.0	4500	0.8	1.88	45.0	3200
185	1.6	0.5	2.8	50.0	3250	2.5	2.20	54.0	5250	0.8	2.04	50.0	3900
240	1.7	0.6	3.0	56.0	4100	2.5	2.36	61.0	6400	0.8	2.20	55.0	4850
300	1.8	0.7	3.2	63.0	5050	3.15	2.52	68.0	8350	0.8	2.36	59.0	5850
400	2.0	0.7	3.6	70.0	6400	3.15	2.84	76.0	10000	0.8	2.68	68.0	7300
500	2.2	0.7	3.8	79.0	8000	4.0	3.0	86.0	13500	0.8	2.84	76.0	9000
630	2.4	0.7	4.0	88.0	10000	4.0	3.0	94.0	16000	0.8	3.0	85.0	11000