



Eight Decades of Trust & Innovation

# HT CABLES UPTO 11KV



Transmission  
& Distribution



Renewable  
Energy



Power  
Generation



Exploration



Mobility



Defence



Manufacturing



Infrastructure



Harnessing

## ABOUT US

- Nicco Cables is a 80 year old brand based in India
- Nicco specializes in manufacturing wide range of Wires and Cables
- Nicco has an in-house R&D facility
- Nicco specializes in Compound manufacturing and has a dedicated team for Compounds
- Nicco is the first Company in India to install a 3 MeV Electron Beam Plant form USA for manufacturing irradiated cables
- The manufacturing plant covers an area of 450,000 sq.ft.
- Nicco has National Accreditation Board for Testing and Calibration Laboratories (NABL) accredited testing laboratory

## NICCO PRODUCES A WIDE RANGE OF CABLES

- Elastomeric & Silicon Cables (Upto 15 kv) for various application
- Flexible Trailing Cables - H07-RNF
- LT & HT Power & Control Cables (Upto 66 kv)
- Fire Survival Cables (For Nuclear Reactor)
- Ship Building Cables
- Medium Voltage Covered Conductors (MVCC)
- Automotive Cables
- Cable Harnessing
- Overhead transmission Conductors (AAAC, ACSR, AAC, ACAR , AL-59)
- Pressure Tight Cables
- PTFE, ETFE & FEP Cables
- Solar & Windmill Cables
- Hybrid / Composite and Underwater Cables
- TREE WIRE / SPACER Cables - 3 layer Track Resistant (upto 35kv)
- Rolling Stock Cables
- Ethernet Polyurethane Cables
- Ethernet Cables (Cat-5e, Cat-6a, Cat-7)

# HT CABLES

Nicco manufacturers HT cables ranging from 3.3 kV to 11 kV Earthed, certified with BIS and ISO standards. They are supplied to various sectors across India, including power generation, captive power plants, solar and hydro projects and several other industrial sectors.

## CONSTRUCTION OF HT CABLES RANGE FROM 3.3 KV TO 11 KV EARTHED

- **CONDUCTOR**
  - It is designed to carry the electrical current. It is usually made of stranded, compacted, circular aluminum or copper (annealed) wires to provide low resistance.
- **CONDUCTOR SCREEN/SHIELD**
  - An extruded semi-conducting compound layer applied over the conductor. Its purpose is to smoothen the electric field and avoid the formation of cavities or partial discharges at the conductor/insulation interface, which can occur due to irregularities or bending.
- **INSULATION**
  - The primary insulating layer, typically made of Cross-Linked Polyethylene (XLPE) or sometimes PVC for lower HT voltages. XLPE is preferred for higher voltages due to its superior electrical properties and high-temperature rating (90°C continuous operation). This layer is extruded simultaneously with the conductor and insulation screens to ensure proper bonding and freedom from voids
- **INSULATION SCREEN/SHIELD**
  - Another layer of extruded semi-conducting compound over the insulation. This layer ensures a uniform electric field distribution across the insulation and provides a grounded surface for the metallic screen.
- **METALLIC SCREEN**
  - A layer of copper tape, copper wires, or aluminum wires/tape applied over the insulation screen. It serves as an earth fault current path, helps in grounding the cable, and contains the electric field within the cable
- **FILLER & BINDING TAPES (FOR MULTI-CORE CABLES):**
  - Non-hygroscopic (non-water absorbing) materials like PVC or polypropylene fibers are used to fill the spaces between the laid-up cores and maintain the cable's round shape. Binding tapes may also be used.
- **INNER SHEATH/BEDDING**
  - An extruded PVC compound layer (Type ST2 as per IS: 5831) applied over the laid-up cores or metallic screen. Its function is to provide a bedding for the armor and protect the insulation and metallic layers from mechanical damage and corrosion. Single-core cables typically do not have an inner sheath.
- **ARMOUR**
  - A protective layer providing mechanical protection against external impact. For multi-core cables, it typically consists of galvanized round steel wires. For single-core cables, non-magnetic material like hard-drawn aluminum wires is used to prevent the formation of circulating currents
- **OUTER SHEATH**
  - The outermost layer made of an extruded PVC compound (Type ST2) or sometimes Low Smoke Zero Halogen (LSOH) compounds in specific applications. This sheath protects the entire cable assembly from external environmental factors such as moisture ingress, UV radiation, chemical attack, and provides anti-termite protection.

**TABLE 1-3.8 / 6.6 KV (E) HT XLPE SINGLE CORE ALUMINIUM CONDUCTOR CABLES**

NICCO SINGLE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	UNARMoured CABLE			ALUMINIUM STRIP ARMoured CABLE			ALUMINIUM ROUND WIRE ARMoured CABLE			CURRENT CARRYING CAPACITY			*Normal Delivery Length			
	Nominal Thickness of XLPE Insulation	Nominal Thickness of PVC Outer Sheath	Approx. Overall Weight of Cable	Minimum Thickness of Inner Sheath	Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable		In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.
Sq. mm.	mm	mm	Kg/Km	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	Mtrs.
35	2.8	2.0	19	0.30	0.8	1.4	2.0	550	1.6	1.40	21.5	620	120	105	145	500
50	2.8	2.0	20	0.30	0.8	1.4	2.1	600	1.6	1.40	22.5	700	140	125	170	500
70	2.8	2.0	22	0.30	0.8	1.4	2.3	750	1.6	1.40	24.5	800	175	155	215	500
95	2.8	2.0	23.5	0.30	0.8	1.4	24.5	850	1.6	1.40	26	950	205	180	260	500
120	2.8	2.0	25	0.30	0.8	1.4	26	950	1.6	1.40	28	1050	235	205	305	500
150	2.8	2.0	26	0.30	0.8	1.4	27.5	1100	1.6	1.56	29.5	1200	260	230	345	500
185	2.8	2.0	28	0.30	0.8	1.56	30	1250	1.6	1.56	31.5	1400	295	260	395	500
240	2.8	2.2	31	0.40	0.8	1.56	32	1500	2.0	1.56	34.5	1700	340	300	470	500
300	3.0	2.2	33.5	0.40	0.8	1.56	35	1750	2.0	1.56	37	2000	385	335	540	500
400	3.3	2.2	37.5	0.40	0.8	1.56	39	2200	2.0	1.72	41.5	2450	440	380	630	500
500	3.5	2.4	41	0.50	0.8	1.72	42.5	2650	2.0	1.88	45.5	2950	495	430	730	500
630	3.5	2.4	44.5	0.50	0.8	1.88	46.5	3200	2.0	1.88	49	3450	560	480	840	500
800	3.5	2.6	49	0.50	0.8	1.88	50	3750	2.5	2.04	54	4300	620	530	960	500
1000	3.6	2.8	54	0.60	0.8	2.04	55.5	4600	2.5	2.20	59.5	5150	680	580	1070	500

The above data is approximate and subject to manufacturing tolerance.

\* Delivery Length tolerance is  $\pm 5\%$ . Length more than normal as per customer request.

**TABLE 2-3-8 / 6.6 KV (E) HT XLPE SINGLE CORE COPPER CONDUCTOR CABLES**

NICCO SINGLE CORE COPPER CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES CONFORMING TO IS: 7098 PART-2/1985

Nominal Size of Conductor	UNARMoured CABLE			ALUMINIUM STRIP ARMoured CABLE				ALUMINIUM ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			Normal Delivery Length	
	Nominal Thickness of XLPE Insulation	Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Nominal Thickness of Inner Sheath	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.		Mtrs.
35	2.8	2.0	19	670	0.30	1.4	20	750	1.6	1.40	21.5	850	155	140	185	500
50	2.8	2.0	20	850	0.30	1.4	21	900	1.6	1.40	22.5	1000	185	160	220	500
70	2.8	2.0	22	1050	0.30	1.4	23	1150	1.6	1.40	24.5	1250	225	195	275	500
95	2.8	2.0	23.5	1300	0.30	1.4	24.5	1450	1.6	1.40	26	1550	265	235	340	500
120	2.8	2.0	25	1600	0.30	1.4	26	1700	1.6	1.40	28	1800	300	265	390	500
150	2.8	2.0	26	1900	0.30	1.4	27.5	2050	1.6	1.56	29.5	2150	335	295	440	500
185	2.8	2.0	28	2250	0.30	1.56	30	2400	1.6	1.56	31.5	2550	380	330	510	500
240	2.8	2.2	31	2850	0.40	1.56	32	3000	2.0	1.56	34.5	3200	435	380	600	500
300	3.0	2.2	33.5	3450	0.40	1.56	35	3600	2.0	1.56	37	3850	490	425	680	500
400	3.3	2.2	37.5	4450	0.40	1.56	39	4650	2.0	1.72	41.5	4950	550	480	790	500
500	3.5	2.4	41	5500	0.50	1.72	42.5	5750	2.0	1.88	45.5	6050	610	530	910	500
630	3.5	2.4	44.5	6750	0.50	1.88	46.5	7100	2.0	1.88	49	7350	680	580	1030	500
800	3.5	2.6	49	8450	0.50	1.88	50	8700	2.5	2.04	54	9250	740	630	1140	500
1000	3.6	2.8	54	10450	0.60	2.04	55.5	10800	2.5	2.20	59.5	11350	790	670	1250	500

The above data is approximate and subject to manufacturing tolerance.

\* Delivery Length tolerance is ± 5 %. Length more than normal as per customer request.

**TABLE 3 – 6.35/11 KV (E), 6.6/6.6 KV (UE) HT XLPE SINGLE CORE ALUMINIUM CONDUCTOR CABLES**

NICCO SINGLE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES CONFORMING TO IS: 7098 PART-2/1985

Nominal Size of Conductor	UNARMoured CABLE			ALUMINIUM STRIP ARMoured CABLE			ALUMINIUM ROUND WIRE ARMoured CABLE			CURRENT CARRYING CAPACITY		*Normal Delivery Length					
	Nominal Thickness of XLPE Insulation	Nominal Thickness of Inner Sheath	Approx. Overall Dia. of Cable	Minimum Thickness of Inner Sheath	Approx. Overall Dia. of Cable	Approx. Weight of Cable	Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Dia. of Cable	Approx. Weight of Cable	In Ground at 30° C.		In Duct at 30° C.				
Sq. mm.	mm	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Mtrs.				
35	3.6	2.0	20.5	0.30	1.4	550	0.8	1.4	23.0	650	1.6	23.5	750	120	105	145	500
50	3.6	2.0	22	0.30	1.4	600	0.8	1.4	24.0	700	1.6	24.5	800	140	125	170	500
70	3.6	2.0	23.3	0.30	1.4	700	0.8	1.4	25.5	800	1.6	26.5	950	175	155	215	500
95	3.6	2.0	25	0.30	1.4	800	0.8	1.4	27.5	950	1.6	28	1050	205	180	260	500
120	3.6	2.0	27	0.30	1.4	950	0.8	1.4	29.0	1050	1.6	30	1200	235	205	305	500
150	3.6	2.0	28	0.30	1.56	1050	0.8	1.56	30.5	1200	1.6	31.5	1350	260	230	345	500
185	3.6	2.2	30.5	0.40	1.56	1250	0.8	1.56	33.0	1400	2.0	33.5	1600	295	260	395	500
240	3.6	2.2	34	0.40	1.56	1450	0.8	1.56	35.0	1600	2.0	36	1850	340	300	470	500
300	3.6	2.2	34.5	0.40	1.56	1650	0.8	1.56	37.0	1850	2.0	38	2100	385	335	540	500
400	3.6	2.2	37.5	0.40	1.72	2000	0.8	1.72	40.5	2250	2.0	41.5	2550	440	380	630	500
500	3.6	2.4	41	0.50	1.72	2450	0.8	1.72	43	2650	2.0	44.5	3000	495	430	730	500
630	3.6	2.4	44.5	0.50	1.88	2900	0.8	1.88	46.5	3200	2.0	48	3450	560	480	840	500
800	3.6	2.6	48.5	0.50	1.88	3500	0.8	1.88	50.5	3800	2.5	53	4300	620	530	960	500
1000	3.6	2.8	53.5	0.60	2.04	4250	0.8	2.04	55.5	4600	2.5	58.5	5150	680	580	1070	500

The above data is approximate and subject to manufacturing tolerance.

\* Delivery Length tolerance is ± 5 %. Length more than normal as per customer request.

## TABLE 4 – 6.35/11 KV (E), 6.6/6.6 KV (UE) HT XLPE SINGLE CORE COPPER CONDUCTOR CABLES

NICCO SINGLE CORE COPPER CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	UNARMoured CABLE				ALUMINIUM STRIP ARMoured CABLE				ALUMINIUM ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY		*Normal Delivery Length		
	Nominal Thickness of XLPE Insulation	Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Minimum Thickness of Inner Sheath	Nominal Dimension of Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.		In Duct at 30° C.	Amps.
Sq.mm.	mm	mm	mm	Kg/Km	mm	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	Amps.	Amps.	Amps.	
35	3.6	2.0	21.5	750	0.30	0.8	1.4	23.0	850	1.6	1.40	24.5	950	155	140	185	500
50	3.6	2.0	23.0	900	0.30	0.8	1.4	24.0	1000	1.6	1.40	25.5	1110	185	160	220	500
70	3.6	2.0	24.5	1150	0.30	0.8	1.4	25.5	1250	1.6	1.40	27.5	1350	225	195	275	500
95	3.6	2.0	26.0	1400	0.30	0.8	1.4	27.5	1550	1.6	1.40	29.0	1650	245	235	340	500
120	3.6	2.0	28.0	1650	0.30	0.8	1.4	29.0	1800	1.6	1.56	31.0	1950	300	265	390	500
150	3.6	2.0	29.0	1950	0.30	0.8	1.56	30.5	2150	1.6	1.56	32.5	2250	335	295	440	500
185	3.6	2.2	31.5	2400	0.40	0.8	1.56	33.0	2350	2.0	1.56	35.5	2750	380	330	510	500
240	3.6	2.2	33.5	2900	0.40	0.8	1.56	35.0	3100	2.0	1.56	38.0	3350	435	380	600	500
300	3.6	2.2	36.0	3500	0.40	0.8	1.56	37.0	3700	2.0	1.56	40.0	3950	490	425	680	500
400	3.6	2.2	39.0	4500	0.40	0.8	1.72	40.5	4750	2.0	1.72	43.5	5050	550	480	790	500
500	3.6	2.4	42.5	5500	0.50	0.8	1.72	44.0	5800	2.0	1.88	46.5	6100	610	530	910	500
630	3.6	2.4	46.0	6800	0.50	0.8	1.88	47.5	7100	2.0	1.88	50.0	7350	680	580	1030	500
800	3.6	2.6	50.0	8450	0.50	0.8	1.88	51.5	8750	2.5	2.04	55.0	9250	740	630	1140	500
1000	3.6	2.8	55.0	10450	0.60	0.8	2.04	56.5	10800	2.5	2.20	60.5	11350	790	670	1250	500

The above data is approximate and subject to manufacturing tolerance.

\* Delivery Length tolerance is ± 5 %. Length more than normal as per customer request.

**TABLE 5 - 1.9/3.3 KV (E) & 3.3/3.3 KV (UE) HT XLPE THREE CORE ALUMINIUM CONDUCTOR CABLES**

NICCO THREE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured SCREENED CABLES CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	Minimum Thickness of PVC Inner Sheath	UNARMoured CABLE			FORMED WIRE / STRIP ARMoured CABLE			ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY		*Nominal Delivery Length		
			Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Flat Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.		In Duct at 30° C.	
Sq.mm.	mm	mm	mm	Kg/Km	mm	mm	mm	mm	Kg/Km	mm	mm	mm	mm	Kg/Km	Amps.	Amps.	Mtrs.
35	2.2	0.4	2.2	36.5	1500	0.8	1.56	37.0	1950	2.0	1.72	39.5	2600	115	97	125	500
50	2.2	0.4	2.2	38.5	1700	0.8	1.72	39.5	2200	2.0	1.72	41.5	2900	130	115	150	500
70	2.2	0.5	2.4	43	2150	0.8	1.72	43	2650	2.0	1.88	46	3450	160	140	190	500
95	2.2	0.5	2.6	46	2600	0.8	1.88	46.5	3150	2.5	2.04	50.5	4400	190	165	230	500
120	2.2	0.5	2.6	48.5	3000	0.8	2.04	50.5	3650	2.5	2.04	53.5	5000	220	190	260	500
150	2.2	0.6	2.8	53	3500	0.8	2.04	53	4100	2.5	2.2	56.5	5550	245	210	295	500
185	2.2	0.6	3.0	57.5	4150	0.8	2.2	57.5	4800	2.5	2.36	61	6350	275	240	335	500
240	2.2	0.7	3.0	62.5	4900	0.8	2.36	63	5750	2.5	2.36	66	7350	315	275	395	500
300	2.2	0.7	3.2	67	5850	0.8	2.52	68	6650	3.15	2.68	72	9250	355	310	450	500
400	2.2	0.7	3.6	75	7300	0.8	2.68	74.5	8100	3.15	2.84	79	11000	400	350	520	500

The above data is approximate and subject to manufacturing tolerance.

\* Delivery Length tolerance is ± 5 %. Length more than normal as per customer request.

**TABLE 6 - 1.9/3.3 KV (E) & 3.3/3.3 (UE) KV HT XLPE THREE CORE COPPER CONDUCTOR CABLES**

NICCO THREE CORE COPPER CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured SCREENED CABLES CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Overall Thickness of XLPE Insulation	Min. Thickness of XLPE Insulation	UNARMoured CABLE			FOURD WIRE / 3TRP-ARMoured CABLE			ROUND WIRE-ARMoured CABLE					CLIMATE CARRYING CAPACITY			Normal Delivery Length
			Min. Thickness of PVC Sheath (mm)	Min. Overall Diameter of Cable (mm)	Min. Diameter of Conductor (mm)	Min. Thickness of PVC Sheath (mm)	Min. Overall Diameter of Cable (mm)	Min. Diameter of Conductor (mm)	Min. Thickness of PVC Sheath (mm)	Min. Overall Diameter of Cable (mm)	Min. Diameter of Conductor (mm)	Min. Thickness of PVC Sheath (mm)	Min. Overall Diameter of Cable (mm)	Min. Diameter of Conductor (mm)	In General at 30° C.	In Hot at 50° C.	
35	2.2	0.4	2.2	33.0	2150	0.8	1.56	37.0	2600	2.0	1.72	40.5	3200	146	125	165	500
50	2.2	0.4	2.2	40.0	2450	0.8	1.72	39.5	3050	2.0	1.72	42.5	3600	170	150	198	500
70	2.2	0.5	2.4	44.5	3450	0.8	1.72	44.0	3950	2.0	1.88	47.0	4750	210	180	240	500
95	2.2	0.5	2.6	48.5	4350	0.8	1.88	47.5	4950	2.5	2.04	51.5	6150	250	215	295	500
120	2.2	0.5	2.6	52.0	5200	0.8	2.04	51.5	5900	2.5	2.04	55.5	7200	300	240	335	500
150	2.2	0.8	2.8	55.5	6300	0.8	2.04	54.5	6900	2.5	2.2	58.5	8350	310	270	360	500
185	2.2	0.8	3.0	60.0	7600	0.8	2.2	59.0	8250	2.5	2.36	63.0	9800	350	305	410	500
240	2.2	0.7	3.0	65.0	9350	0.8	2.36	64.5	10350	2.5	2.36	68.0	11900	400	360	500	500
300	2.2	0.7	3.2	70.0	11400	0.8	2.52	70.0	12350	3.18	2.68	75.0	14850	448	390	510	500
400	2.2	0.7	3.6	78.0	14750	0.8	2.68	76.5	16350	3.15	2.84	82.0	19450	500	440	650	350

The above data is approximate and subject to manufacturing tolerance.

\* Delivery Length tolerance is ± 5 %. Length more than normal as per customer request.

**TABLE 7 - 3-8 / 6.6 KV (E) HT XLPE THREE CORE ALUMINIUM CONDUCTOR CABLES**

NICCO THREE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of Insulation	Minimum Thickness of Insulation	UNARMoured CABLE			FORMED WIRE / STRIP ARMoured CABLE			ROUND WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY			*Normal Delivery Length	
			Nominal Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of PVC Outer Sheath	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of Stranded Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Boat at 30° C.		In Air at 40° C.
			mm	mm	Kg/Km	mm	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	mm	mm		mm
35	2.8	0.4	2.2	38.5	1600	0.8	1.72	40.0	2200	2.0	1.72	42	2800	115	97	125	500
50	2.8	0.5	2.4	41.5	1950	0.8	1.72	42.5	2500	2.0	1.88	44.5	3000	130	115	150	500
70	2.8	0.5	2.6	45.5	2350	0.8	1.88	46	3000	2.0	1.88	48	3700	160	140	190	500
95	2.8	0.5	2.6	49	2600	0.8	1.88	49.5	3400	2.5	2.04	52.5	4700	190	165	230	500
120	2.8	0.6	2.8	53	3300	0.8	2.04	54	4000	2.5	2.20	57	5400	220	190	260	500
150	2.8	0.6	2.8	56	3800	0.8	2.2	56.5	4500	2.5	2.2	59.5	5900	245	210	295	500
185	2.8	0.6	3.0	61	4400	0.8	2.2	60.5	5150	2.5	2.36	63.5	6700	275	240	335	500
240	2.8	0.7	3.2	65	5300	0.8	2.36	68	6100	3.15	2.52	70.5	8600	315	275	395	500
300	3.0	0.7	3.4	71	6300	0.8	2.52	71.5	7160	3.15	2.68	76	9900	355	310	450	500
400	3.3	0.7	3.8	80	8000	0.8	2.84	80	9000	4.0	3.0	86.5	13200	400	350	520	500

The above data is approximate and subject to manufacturing tolerance.

\* Delivery Length tolerance is ± 5 %. Length more than normal as per customer request.

**TABLE 8 - 3.8/6.6 KV (E) HT XLPE THREE CORE COPPER CONDUCTOR CABLES**

NICCO THREE CORE COPPER CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of PVC Insulation	Minimum Thickness of Bare Strain	UNARMoured CABLE				FEMED WIRE / EDPA ARMoured CABLE				ROPE WIRE ARMoured CABLE				CURRENT CARRYING CAPACITY							
			mm	mm	kg/Km	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg/Km	mm	mm	mm	mm	Amps.
35	2.8	0.4	2.2	46.0	2250	0.8	1.72	40.6	42.0	2830	2.0	1.72	43.0	3450	145	175	165	300				
50	2.8	0.5	3.4	43.0	3880	0.8	1.72	43.3	43.0	3400	2.0	1.88	45.5	4150	170	190	195	500				
70	2.8	0.5	3.6	47.0	3650	0.8	1.88	47.0	42.0	4250	2.0	1.88	49.5	5000	210	190	240	500				
95	2.8	0.5	3.6	51.0	4800	0.8	1.88	50.3	53.00	5300	2.5	2.04	54.0	6500	250	215	295	500				
120	2.8	0.6	3.8	55.0	5500	0.8	2.04	55.0	62.00	6200	2.5	2.20	54.5	7000	280	240	335	500				
150	2.8	0.6	3.8	59.0	6500	0.8	2.2	58.0	72.00	7200	2.5	2.2	61.0	8700	310	270	380	500				
185	2.8	0.6	3.0	63.0	7650	0.8	2.2	62.0	86.00	8600	2.5	2.36	66.0	10100	350	305	430	500				
240	2.8	0.7	3.2	68.0	9800	0.8	2.36	67.5	109.00	10900	3.15	2.52	73.0	13050	400	350	500	500				
300	3.0	0.7	3.4	74.0	11900	0.8	2.52	73.5	137.00	13700	3.15	2.68	78.5	15450	445	390	570	250				
400	3.3	0.7	3.8	89.0	15400	0.8	2.84	82.0	164.00	16400	4.0	3.0	89.0	20400	500	440	650	200				

The above data is approximate and subject to manufacturing tolerance.  
 \* Delivery Length tolerance is ± 5 %. Length more than normal as per customer request.

**TABLE 9 - 6.35 / 11 KV (E) HT XLPE THREE CORE ALUMINIUM CONDUCTOR CABLES**

NICCO THREE CORE ALUMINIUM CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES CONFORMING TO IS: 7098 PART-2/1985:

Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	Minimum Thickness of PVC Inner Sheath	UNARMoured CABLE			FORMED WIRE / STRIP ARMoured CABLE			ROUND WIRE ARMoured CABLE			CURRENT CARRYING CAPACITY			*Normal Delivery Length					
			mm	mm	kg/Km	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Minimum Thickness of PVC Outer Sheath	Nominal Dimension of GI Flat Strip	Approx. Overall Diameter of Cable	Approx. Weight of Cable	mm	Nominal Dimension of GI Round Wire	Minimum Thickness of PVC Outer Sheath		Approx. Overall Diameter of Cable	Approx. Weight of Cable	In Ground at 30° C.	In Duct at 30° C.	In Air at 40° C.
35	3.6	0.5	2.4	43.5	1950	0.8	44.0	2500	2.0	1.88	45.5	3250	115	97	125	500				
50	3.6	0.5	2.6	46.5	2250	0.8	46.5	2850	2.5	2.04	49.5	4000	130	115	150	500				
70	3.6	0.5	2.6	50.5	2650	0.8	50.5	3300	2.5	2.04	53.5	4600	160	140	190	500				
95	3.6	0.6	2.8	54.5	3150	0.8	54.5	3850	2.5	2.20	58.0	5250	190	165	230	500				
120	3.6	0.6	2.8	58.0	3600	0.8	58.5	4400	2.5	2.20	61.5	5850	220	190	260	500				
150	3.6	0.6	3.0	61.0	4100	0.8	61.0	4900	2.5	2.36	64.5	6450	245	210	295	500				
185	3.6	0.7	3.2	66.0	4850	0.8	66.0	5650	3.15	2.52	71.0	8100	275	240	335	500				
240	3.6	0.7	3.4	71.5	5700	0.8	71.5	6600	3.15	2.68	76.0	9250	315	275	395	500				
300	3.6	0.7	3.6	76.5	6650	0.8	76.5	7600	3.15	2.84	81.0	10400	355	310	450	250				
400	3.6	0.7	3.8	83.5	8100	0.8	83.5	9100	4.0	3.0	90.0	13450	400	350	520	250				

The above data is approximate and subject to manufacturing tolerance.

\* Delivery Length tolerance is ± 5 %. Length more than normal as per customer request.

**TABLE 10 - 6.35 / 11 KV (E) HT XLPE THREE CORE COPPER CONDUCTOR CABLES**

NICCO THREE CORE COPPER CONDUCTOR, XLPE INSULATED, UNARMoured & ARMoured CABLES CONFORMING TO IS: 7098 PART-2/1985:

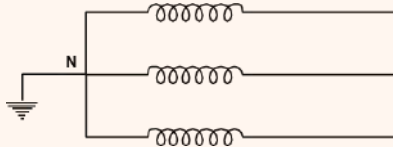
Nominal Size of Conductor	Nominal Thickness of XLPE Insulation	UNARMoured CABLE			FORMED WIRE / STRIP ARMoured CABLE			ROUND WIRE ARMoured CABLE			CURRENT CARRYING CAPACITY		*Normal Delivery Length				
		Minimum Thickness of PVC Outer Sheath	Approx. Weight of Cable	Approx. Overall Diameter of Cable	Nominal Dimension of GI Flat Strip	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable	Nominal Dimension of GI Round Wire	Minimum Thickness of PVC Outer Sheath	Approx. Overall Diameter of Cable	Approx. Weight of Cable		In Ground at 30° C.	In Air* at 40° C.		
5-g.mm.	mm	mm	Kg/Km	mm	mm	mm	Kg/Km	mm	mm	mm	mm	Kg/Km	Amps.	Amps.	Mtrs.		
35	3.6	0.5	2.4	43.5	2600	0.8	1.72	44.0	3150	2.0	1.88	45.3	3900	145	125	165	500
50	3.6	0.5	2.6	46.5	3150	0.8	1.88	46.5	3750	2.5	2.04	49.5	4950	170	150	195	500
70	3.6	0.5	2.6	50.5	3950	0.8	1.88	50.5	4600	2.5	2.04	53.5	5900	210	180	240	500
95	3.6	0.6	2.8	54.5	4950	0.8	2.04	54.5	5600	2.5	2.20	58.0	7000	250	215	295	500
100	3.6	0.6	2.8	58.0	5850	0.8	2.2	58.5	6650	2.5	2.20	61.5	8100	280	240	335	500
150	3.6	0.6	3.0	61.0	6900	0.8	2.2	61.0	7650	2.5	2.36	64.5	9250	310	270	380	500
185	3.6	0.7	3.2	66.0	8300	0.8	2.36	66.0	9100	3.15	2.52	71.0	11550	350	305	430	500
240	3.6	0.7	3.4	71.5	10200	0.8	2.52	71.5	11950	3.15	2.68	76.0	13700	400	350	500	250
300	3.6	0.7	3.6	76.5	12200	0.8	2.68	76.5	13150	3.15	2.84	81.0	15950	445	390	570	250
400	3.6	0.7	3.8	83.5	15350	0.8	2.84	83.5	16550	4.0	3.0	90.0	20900	500	440	650	250

The above data is approximate and subject to manufacturing tolerance.

\* Delivery Length tolerance is ± 5 %. Length more than normal as per customer request.

## EARTHED SYSTEM:

In the initial years, the generators and transformers were having capacities of few MVA and hence fault current was also less. The star point or neutral point was solidly grounded and this is called earthed system.

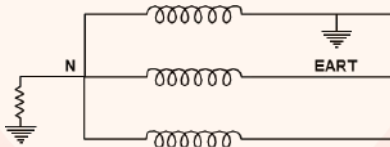


In this system if an earth fault occurs on any of the phases, the voltages of other two healthy phases with respect to the earth remain the same.

## UNEARTHED SYSTEM:

Today generators of 500 MVA capacity are in commercial use. More over several mega power stations are connected to grid. Due to this, the fault level has increased tremendously. In case of an earth fault, a heavy current flows in to the fault and this may damage the costly generators and power transformers.

To reduce the fault current, the star point is connected to the earth through a resistance or a reactance as under:



In this case if an earth fault occurs on R phase, the voltage of the faulty phase with respect to the earth (R) appears across the current limiting resistance or reactance in the earth circuit of the star point and as a result the voltage of the star point which was at earth potential under normal conditions rises to  $V_R$ . Due to this the voltages of other two healthy phases (B and Y) with respect to the earth rises by 1.7 times (Vector sum of  $V_R$  and  $V_B$ ). If the insulation of these phases are not designed for these increased voltages they may develop earth fault. This is called Unearthed System.

## **EXISTING CERTIFICATIONS**

ISO 9001 / 14001 / 45001

Directorate of Quality Assurance (Navy) [DQAN] Registration Certificate

Defense Research and Development Laboratory (DRDL) Registration Certificate

Integrated Headquarters of Ministry of Defence (IHQ/DEE/MOD)

Research Designs and Standards Organization (RDSO)

American Bureau of Shipping (ABS)

Indian Register of Shipping (IRS)

Underwriters Laboratories (UL)

Central Power Research Institute (CPRI)

Bureau of Indian Standards (BIS)

International Railway Industry Standard (IRIS)

National Accreditation Board for Testing and Calibration Laboratories (NABL)

Det Norske Veritas (DNV)



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