



Thermo Cables



Railway Cable Solutions



Global Expert In Speciality Cables Manufacturing

Thermo Cables is a recognized and preferred brand across various industries including Oil & Gas, Railways, Navy, Defence, Renewable Energy, Nuclear Power, Process Industries, Power etc, exporting 60% of products.

Established in 1990, it is a leading manufacturer of various types of speciality cables. Thermo Cables is a part of Thermo Group - a multi-product & multi-service organization with other group companies:
Thermopads: A specialist in Commercial, Domestic and Industrial Heating
Thermosystems: An EPC company in the field of Fuel Oil Handling Systems, Fire Detection Protection Systems etc.



Major Approvals

ADNOC - OFFSHORE
ADNOC - ONSHORE
ALBA
AP GENCO
AP TRANSCO
ARO DRILLING
AVANT GARDE
BALTIC CHEMICAL PLANT
BAPCO ENERGIES
BDL, BEL, BEML, BHEL, BLW
BOROUGE, BPCL
CLW, CMRL, CSL
DESEIN LTD, DGMS, DVC
DLW, DMDE & DMW
DLRL, DMRL & DMRC
DOLPHIN ENERGY
DRDO - ASL & DRDL
DUBAI WORLD
EGA
ENGINEERS INDIA LTD
ENOC
EXPRO
FICHTNER CONSULTING
GRSE, GSPC
GOA SHIPYARD
HALLIBURTON
HINDUSTAN SHIPYARD
HPCL, HAL, HMRL
INTERNATIONAL MARITIME INDUSTRIES
IOCL, ICF, ISRO
JACOB'S H & G
KNPC - KUWAIT
KOC - KUWAIT
LAMPRELL
L & T
MATERIAL ORGANISATION - KARWAR
MATERIAL ORGANISATION - MUMBAI
MATERIAL ORGANISATION - VIZAG
MECON, MCF
MN DASTUR & CO.
MAZGOAN DOCK LIMITED
MUMBAI PORT TRUST
NMDC ENERGY
NORTH OIL
NPCIL, NSTL, NTPC
ONGC
ORLEN
OXY
PDIL
PGCIL
PDO OMAN, PETRONAS
PETROPERU
QATAR ENERGY, QATAR PETROLEUM
RCF
SABIC
SAIL
SAIPEM
SAPURA ENERGY
SHELL, SONATRACH
TATA CONSULTING ENGINEERS
TECNIMONT ICB LTD
TOYO ENGINEERING INDIA LTD
THYSSENKRUPP

Stringent quality requirements, global standards of precision and increasingly demanding customers are the order of the day. Thermo Cables, sensitive to this reality, designs, manufactures and supplies a wide range of cables to satisfy customers' specifications and requirements.

Product Range

- Instrumentation Cables
- Power, Control & Earthing Cables
- Thermocouple Cables
- Fire Resistant Cables
- High Temperature Cables
- Foundation Fieldbus Cables
- Special Application (LFH) Cables
- Renewable Energy Cables
- Naval Application Cables
- Marine/Shipboard Cables
- Pressure Tight (PT) Cables
- Railway Cables
- Material Handling Cables
- Type-P Cables
- VFD Cables
- Co-Axial Cables (RG Series)
- ESP Cables
- Downhole (TEC) Cables
- Custom Wiring & Cable Harnesses
 - Railway
 - Defence
 - Wind
- IV Coupler & Jumper Cable Assembly
- Cable Systems

Why Us

- Leading & reputed manufacturer of Specialty Cables
- One stop solution for all Low Voltage Cables
- Serving satisfied customers since 30 years across 60+ countries
- In-house wire drawing, compounding, Electron beaming and testing facilities
- Quick response time and offer submission in less than 24 hours

Quality & Reliability

- An ISO 9001: 2015 certified company with proven track record of delivering quality products
- NABL accredited full-fledged in-house testing laboratory
- Environment, Occupational Health and Safety Systems adhering to ISO 14001:2015, 45001:2018
- 15% of power consumption sourced through in-house generated renewable energy

Standards

- Cables designed and manufactured conforming to various National and International Standards

General Cables: ANSI MC 96.1, BS-6346, BS-5467, BS-7629, BS-6387, BS-7846, BS-5308-I & II, BS- 50288-7, IEC-60502-I, IEC-60189-I & II, IEC-60228, IEC-60584-I & III, IEC-60331, IS-8784, IS-613, IS-694, IS-1554-I, IS-7098-I, BS 16246, BS 7211.

Railway Cables: ELRS-0019 REV-4, CLW-0458 ALT-E, CLW-0459 ALT-C, EDTS - 132 REV - C, EDPS - 179, EDPS - 304, EN - 50264 - 3 - 1 & 2, EN - 50306 - 1, 2, 3 & 4, EN - 50382 - 1 & 2, EN - 45545 - 2, IEC 61156 - 6.

Navy & Marine Cables: EED 50-12 REV-3, EED 50-13 REV-2, DEF STAN 61-12 PART 18, DEF STAN 61-12 PART 31, DEF STAN 02-526, DEF STAN 02-527, MIL - DTL-24640C, MIL - DTL 24643C, IEC 60092 - 350, 353, 376 & 360, BS 6883, BS 7917, IS 9968 Part - I, IS 6380, EN 50525 - 2 - 11-12-21-22-41-42, EN 50618.

Mining Cables: IS 14494, **Co-Axial Cables:** MIL - DTL - 17H,

High Temperature / Aerospace Cables: JSS 51034, 51038, SAE-AS 22759 / 32A, 34B, 41B, 43B, 44A, 45A, 80D, 83E, 84E, 85E, 86E, 87E, 88E, 89E, 90D, 91D, 92D, ANSI / NEMA - WC - 27500

Valuable Assets

- Over 3,00,000 sq ft of infrastructure facilities with latest technology
- 1000+ dedicated & high performing workforce
- Experienced & professional leadership team
- Offers technical support in cable selection through SAP



Railway Cables

Control & Power Cables for Diesel Electric Locomotives (EDPS 179 & EDPS 304)

This specifications covers the performance requirements for control & power cables used within the electrical power distribution system of Diesel-Electric Locomotives and other heavy duty industrial equipment with larger duty cycle.

Application

- : EDPS-179 (Control Wires): Used in the electrical control system of diesel-electric locomotives and other heavy-duty industrial equipment. They are typically of smaller sizes (up to and including AWG size 3).
- EDPS-304 (Power Cables): Used in the power distribution system of diesel-electric locomotives and other heavy-duty industrial equipment with variable duty cycles. These are larger cables (AWG size 1 and larger)
- Drilling Rigs
- Railroad and Transit Car Wiring
- Electric Earth-Moving Equipment

Advantages

- : Fire-safe due to flame-retardant, low-smoke and low-acid gas properties
- Performs reliably against oil, grease and extreme temperatures
- Features highly flexible, Class 5 annealed tinned copper conductors
- Engineered for a long service life, minimizing maintenance costs
- Resistance to mineral oil, diesel oil, fluids & ozone

Diesel Electric Locomotive Cables ATC, 125° C, As Per EMD/9094883

Construction

- Conductor** : Annealed Tinned Copper Conductor
- Insulation** : Thermosetting Crosslinked Polyolefin compound as Per EDPS 179 Dual Layer
Thermosetting Crosslinked Polyolefin compound as Per EDPS 304

Technical Data

- Temperature Range** : - 65° C to +125° C
- Thermal Life Rating** : 10,000 Hours at +125° C

Key features

- High-Temperature Rating** : It can withstand a wide Temperature range from -65° C to 125° C
- Durable Construction Rating** : Features a flexible, tinned copper conductor with robust dual-layer insulation
- Environmental Resistance** : Highly resistant to oil, fuel, grease, moisture, ozone and high ambient conditions
- Safety Features** : Excellent flame retardant and produces low smoke and acid gas generation
- Performance and Usability** : Flexible, easy to strip and abrasion resistant & crush resistant



Fire retardant



Good Chemical Resistance



Good Resistance to UV, humidity and ozone



High Flexible



Halogen Free



Low Corrosivity of combustion gases



Low toxicity



Operating temp.

Railway Cables

Control & Power Cables for Diesel Electric Locomotives (EDPS 179 & EDPS 304)

EMD-9094883

EMD Part Number	Conductor Size (in AWG)	Conductor Size (in Sq.mm)	EDPS specification	Nominal Outer Diameter in (mm)	Maximum Outer Diameter in (mm)	Insulation Color	AC Voltage Rating
8466845	18 AWG	0.815	179	2.72	2.82	YELLOW	600
9321021	18 AWG	0.815	179	2.72	2.82	GREEN	600
8466844	16 AWG	1.23	179	3.00	3.10	RED	600
9322292	16 AWG	1.23	179	3.00	3.10	GREEN	600
9086254	16 AWG	1.23	179	3.73	3.86	ORANGE	1000
8470754	14 AWG	2.19	179	3.43	3.53	CHARCOAL	600
8460546	14 AWG	2.19	179	4.19	4.29	GRAY	1000
40019384	12 AWG	3.08	179	3.94	4.04	LT BLUE	600
8460547	12 AWG	3.08	179	4.7	4.80	BLUE	2000
9094884	8 AWG	7.58	179	6.35	6.63	GRAY	2000
9094885	5 AWG	18.63	179	8.74	9.12	GRAY	2000
9094886	3 AWG	25.59	179	10.0	10.34	GRAY	2000
9094887	1 AWG	46.06	304	13.2	13.46	GRAY	2000
9094888	00 AWG	66.84	304	15.2	15.75	GRAY	2000
9094889	0000 AWG	112.6	304	20.7	21.51	GRAY	2100
9094890	-	158.7	304	23.6	24.46	GRAY	2100
9086205	-	225.2	304	26.9	27.94	GRAY	2100
8462288	-	271.2	304	30.9	31.62	DK GRAY	2100
9085669	-	300	304	31.8	33.02	GRAY	2100
9530744	10 AWG	5.53	179	5.41	5.54	BLACK	1000
8408649	20 AWG	0.60	179	1.73	1.80	BROWN	600
40028092	20 AWG	0.60	179	2.44	2.54	TAN	600
40085782	00 AWG	66.84	304	17.3	17.53	GRAY	2000
10661360	1 AWG	46.06	304	15.2	15.75	DK GRAY	2000

EMD/EL/PT/505 (ALT-X)

EMD Part Number	Conductor Size (Sq.mm)	EDPS Specification	Overall Diameter in (mm)		Insulation Color	AC Voltage Rating
			Minimum	Maximum		
12330772	1.5	179	3.9	4.06	GRAY	1800
12330784	3.0	179	4.56	4.72	GRAY	2000
12330796	6.0	179	6.14	6.35	GRAY	2000
12330802	35	179	11.16	11.50	GRAY	2000
12330814	95	304	18.20	18.50	GRAY	2100
12330826	240	304	28.98	29.60	GRAY	2100
12330838	300	304	32.04	32.60	GRAY	2100
12999040	1.5	179	2.60	2.80	GRAY	600

EMD-40015785

EMD Part Number	Conductor Size (Sq.mm)	EDPS Specification	Nominal Outer Diameter in (mm)	Maximum Outer Diameter in (mm)	Insulation Color	AC Voltage Rating
40015786	271.2 sq.mm	304	28.6	29.08	GREY	2000
40015787	328.0 sq.mm	304	31.5	32.26	GREY	2000
40038694	225.5 sq.mm	304	26.8	27.43	GREY	2000
40036094	300.0 sq.mm	304	30.0	30.61	GREY	2000
40056040	107.2 sq.mm	304	20.3	20.96	GREY	2100



Fire retardant



Good Chemical Resistance



Good Resistance to UV, humidity and ozone



High Flexible



Halogen Free



Low Corrosivity of combustion gases



Low toxicity



Operating temp.

Railway Cables

Thin Walled Flexible Electron Beam Irradiated Elastomeric Cables (ELRS/SPEC/ELC/0019 REV-4)

Electron beam irradiated thin walled flexible elastomeric cables with copper conductor, limited fire hazard, minimum flame spread, low smoke emission & limited toxic fumes emission.

Application : They are designed for fixed, protected internal use in power, auxiliary as well as control circuit of conventional tap changer electric locomotives, AC/DC EMU & BG AC EMU & MEMU / Coaching Stock.

They offer robust resistance to oil, fuel, ozone and temperature extremes. Critically, their construction ensures superior fire performance meeting ELRS / ELC / SPEC / 0019 requirements along with EN 45545-2 HL3

Advantages : It's construction provides extreme durability against mechanical stress, chemicals and temperature fluctuations

Halogen-free, fire safety by reducing flame spread, smoke and toxic gas emissions

Resistance to mineral oil, diesel oil, fluids & ozone

Thin-wall design allows for space-efficient installation

Robust build guarantees a long service life

Construction:	Single Core Cables		Multi Core Cables	
Component	up to 750 V	Above 750 & Up To 1.8/3 KV	Above 750 & Up To 1.8/3 KV	
Size (sq.mm)	1.5 sq. mm to 150 sq. mm	1.5 sq. mm to 300 sq. mm	19C X 2.5 sq. mm	19C X 4 sq. mm
Operating temperature	- 40° C to +120° C			
Electrolytic Flexible Annealed Tinned Copper (Class-5)	✓	✓	✓	✓
Insulation (Type EBXL EPDM)	✗	✓	✓	✓
Insulation (Type EBXL EVA)	✓	✗	✓	✓
Sheath (Type EBXL EVA)	✗	✓	✓	✓
HV Test	6 KV for 5min	8 KV for 15min		
HV Test-At room temp. at 90 ± 3° C	K ≥ 2000 MΩ-km K ≥ 30 MΩ-km	K ≥ 12000 MΩ-km K ≥ 200 MΩ-km		
Bending Radius:	3 X OD for cable diameter < 10mm 5 X OD for cable diameter > 10mm			

Colors: Various color options available as per customer requirement (Red, Yellow, Blue, Black, Grey, GNYE, Chocolate, White, etc.).

Compliance & Fire Safety

Low Flame Spread / Flame Retardancy : IEC 60332-1-2, IEC 60332-3 (various parts)

Low Smoke Emission : ASTM D 2843 / IEC 61034-2

Corrosivity of Combustion of gases (on Sheath only) : IEC 60754-2

Toxicity of Combustion of gases (on Sheath only) : NES 713

Key Features

RDSO Approved ELRS/SPEC/ELC/0019 REV-4 Compliant Electron Beam Irradiated (EBXL)

Halogen-Free, Low Smoke & Toxicity

High Temperature Rated - 40° C to +120° C Continuous Operation

Oil, Diesel & Chemical Resistant for Railway Environments

Flexible Tinned Copper Conductors (Class 5) for Easy Installation



Fire retardant



Good Chemical Resistance



Good Resistance to UV, humidity and ozone



High Flexible



Halogen Free



Low Corrosivity of combustion gases



Low toxicity



Operating temp.

Railway Cables

ELRS/SPEC/ELC/0019 REV-4 (Data Sheet-2A-Table-1) up to 750 V

For Tap Changer Electric Locomotive & AC/DC EMU, BG AC EMU & MEMU with single layer Insulation (Single Core)

Nominal Cross Sectional Area of Core (sq.mm)	Single Wire Diameter (maximum) (mm)	Overall Cable (mm) Diameter (mm)	Max. Conductor Resistance @ 20°C (ohm / Km)
1.5	0.26	2.70 ± 0.10	13.7
2.5	0.26	3.30 ± 0.15	8.21
4	0.31	3.95 ± 0.15	5.09
6	0.31	4.50 ± 0.20	3.39
10	0.41	5.60 ± 0.30	1.95
16	0.41	7.20 ± 0.30	1.24
25	0.41	8.60 ± 0.30	0.795
35	0.41	10.00 ± 0.30	0.565
50	0.41	11.90 ± 0.30	0.393
70	0.51	14.20 ± 0.30	0.277
95	0.51	15.70 ± 0.30	0.210
120	0.51	17.70 ± 0.30	0.164
150	0.51	20.30 ± 0.30	0.132

ELRS/SPEC/ELC/0019 REV-4 (Data Sheet-2A-Table-2) Above 750 V & up to 1.8 / 3.0 KV

For Tap Changer Electric Locomotive & AC/DC EMU, BG AC EMU & MEMU with insulation & Sheath (Single Core)

Nominal Cross Sectional Area of Core (sq.mm)	Single Wire Diameter (maximum) (mm)	Overall Cable (mm) Diameter (mm)	Max. Conductor Resistance @ 20°C (ohm / Km)
1.5	0.26	3.20 ± 0.10	13.7
2.5	0.26	3.70 ± 0.15	8.21
4	0.31	4.50 ± 0.15	5.09
6	0.41	5.10 ± 0.15	3.39
10	0.41	6.30 ± 0.20	1.95
16	0.41	8.30 ± 0.20	1.24
25	0.41	10.2 ± 0.30	0.795
35	0.41	11.7 ± 0.30	0.565
50	0.41	13.6 ± 0.30	0.393
70	0.51	15.6 ± 0.30	0.277
95	0.51	17.3 ± 0.30	0.21
120	0.51	19.6 ± 0.30	0.164
150	0.51	21.9 ± 0.30	0.132
185	0.51	23.8 ± 0.30	0.108
240	0.51	26.9 ± 0.30	0.0817
300	0.51	29.7 ± 0.30	0.0654

ELRS/SPEC/ELC/0019 REV-4 (Data Sheet-2B-Table-1) Above 750 V & up to 1.8 / 3.0 KV

Number of Cores X Cross Sectional (sq.mm)	Single Wire Diameter (maximum) (mm)	Overall Cable (mm) Diameter (mm)	Max. Conductor Resistance @ 20°C (ohm / Km)
19C X 2.5	0.26	23.0 ± 0.5	8.21
19C X 4	0.31	30.5 ± 1.0	5.09



Fire retardant



Good Chemical Resistance



Good Resistance to UV, humidity and ozone



High Flexible



Halogen Free



Low Corrosivity of combustion gases



Low toxicity



Operating temp.

Railway Cables

Single Core Cables for Electric Locomotives & Rolling Stock Types WAG-9, WAG-9H, WAP-5 & WAP-7 (CLW/ES/03/0458 Alt.E)

These high-performance cables are built for demanding applications, ensuring efficient and reliable power transmission in power, auxillary, control, sensor and driver circuits for AC traction motors in Railway rolling stock.

Application : Designed for critical power transmission within diverse railway rolling stock. These cables are primarily used as connecting leads for AC traction motors, specifically in MEMU (Mainline Electric Multiple Unit) trains and are also employed in other electric locomotives for high-voltage power circuits. Suitable for protected permanent installation in railway rolling stock (interior & exterior) for connections between fixed and moving parts

Advantages : Electron beam irradiated flexible elastomeric construction ensures exceptional durability against mechanical stress, chemical exposure and temperature variations

Dual-wall insulated electrical cable with limited fire hazard properties

This construction ensures extreme durability low flame spread, low smoke halogen free, flame retardant, and excellent resistance to high and low temperature, oil, ozone, weathering and abrasion. flexible & easy strippable

Construction:

Component	4 GKW- 1.8 KV (1.8/3 KV) (Single Core Cable)	9 GKW- 4 KV (3.6/6 KV) (Single Core Cable)	3 GKW (300/500 V) (Single Core Wire)
Size (sq.mm)	1.5 sq.mm to 150 sq.mm	10 sq.mm to 150 sq.mm	0.5 sq. mm
Operating temperature	- 40° C to +120° C		
Circular Annealed Tinned Copper (Class-5) Complying to IEC 60228	✓	✓	✓
Insulation - EBXL EPDM	✓	✓	✗
Insulation - (Electron Beam Cross Linked Copolymer - Type EBXL EVA)	✗	✗	✓
Sheath-Type EBXL EVA	✓	✓	✗
HV TEST	6 KV at 50HZ for 15min	12 KV at 50HZ for 15 min	3 KVat50HZfor15min
Min. Bending Radius	3 X OD for Cable dia ≤ 10mm 5 X OD for Cable dia > 10mm		3 X OD for fixed installation 4 X OD for flexing installation

*The 300/500 V grade: Insulation Color: Red / Yellow with Green Stripe / customer requirements

*For 1.8 KV (4 GKW) Insulation color: Grey & outer sheath color: Black

*For 4.0 KV (9 GKW) Insulation color: Red & outer sheath color: Black



Compliance & Fire Safety

Low Flame Spread / Flame Retardant - IEC 60332-1-2, IEC 60332-3 CAT-C

Smoke Intensity - IEC 61034-2

Corrosivity of combustion of gases IEC 60754-2

Toxicity of combustion of gases, sheath only adheres to UITP part 2 E7

Key Features

Insulation type : features Electron Beam cross-linked insulation

Environmental resistance : resists oil, diesel and various chemicals

Physical properties : flexible and highly durable

Conductor material : flexible ATC conductors



Fire retardant



Good Chemical
Resistance



Good Resistance to
UV, humidity and ozone



High Flexible



Halogen Free



Low Corrosivity of
combustion gases



Low toxicity



Operating temp.

Railway Cables

CLW/ES/03/0458 ALTE (Data Sheet-1)

(Single Core Cables 1.8 KV) (1.8 / 3.0 KV) (4 GWK)

Nominal Cross Sectional Area of Core (sq.mm)	Nominal Conductor Diameter (mm)	Minimum Wall thickness		Cable Diameter (mm)	Max. Conductor Resistance @ 20°C (ohm / Km)
		Insulation (mm)	Sheath (mm)		
1.5	1.6	0.3	0.4	3.20 ± 0.10	13.7
2.5	2.1	0.3	0.4	3.70 ± 0.15	8.21
6	3.3	0.35	0.45	5.10 ± 0.15	3.39
10	4.2	0.4	0.5	6.30 ± 0.20	1.95
16	5.5	0.5	0.7	8.30 ± 0.20	1.24
25	6.8	0.6	0.8	10.20 ± 0.30	0.795
35	7.8	0.65	0.85	11.70 ± 0.30	0.565
50	9.5	0.7	0.9	13.60 ± 0.30	0.393
70	11.5	0.75	0.95	16.60 ± 0.30	0.277
95	12.9	0.85	1.05	17.80 ± 0.30	0.21
120	14.8	0.95	1.15	19.60 ± 0.30	0.164
150	16.3	1	1.2	21.90 ± 0.30	0.132

CLW/ES/03/0458 ALTE (Data Sheet-2)

(Single Core Cables 4 KV) (3.6 / 6 KV) (9 GWK)

Nominal Cross Sectional Area of Core (sq.mm)	Nominal Conductor Diameter (mm)	Minimum Wall thickness		Cable Diameter (mm)	Max. Conductor Resistance @ 20°C (ohm / Km)
		Insulation (mm)	Sheath (mm)		
10	4.2	0.7	0.8	7.50 ± 0.20	1.95
16	5.5	0.85	0.95	9.40 ± 0.30	1.24
25	6.8	0.85	0.95	10.90 ± 0.40	0.795
70	11.5	1.05	1.15	16.50 ± 0.40	0.277
95	12.9	1.2	1.3	18.30 ± 0.50	0.21
120	14.8	1.3	1.4	20.60 ± 0.50	0.164
150	16.3	1.35	1.45	22.90 ± 0.50	0.132

CLW/ES/03/0458 ALTE (Data Sheet-3)

(Single Core Cables 300 / 500 V AC) (3 GWK)

Nominal Cross Sectional Area of Core (sq.mm)	Nominal Conductor Diameter (mm)	Minimum Wall thickness Insulation (mm)	Cable Diameter (mm)	Cable Diameter (mm)	Max. Conductor Resistance @ 20°C (ohm / Km)
0.5	0.89	0.35	1.71 ± 0.1	RED	40.1
0.5	0.89	0.35	1.71 ± 0.1	YELLOW - GREEN	40.1



Fire retardant



Good Chemical Resistance



Good Resistance to UV, humidity and ozone



High Flexible



Halogen Free



Low Corrosivity of combustion gases



Low toxicity



Operating temp.

Railway Cables

Multi Core / Pair Cables for Electric Locomotives & Rolling Stock Types WAG-9, WAG-9H, WAP-5 & WAP-7 (CLW/ES/03/0459 Alt.C)

These cables are used in control, sensor & roof circuit of Electric Locomotive with excellent flame retardant and low smoke halogen-free properties. Designed for durability, they resist extreme temperatures, oil, ozone, weathering and abrasion while remaining flexible and easy to strip.

Application

- Designed for flexible Control Cables 415/110 V Circuits
- Primarily used for control, sensor & roof circuit of Electric Locomotive, including WAG-9, WAP-5, and WAP-7. Their multi-core configuration and robust construction make them ideal for permanent installation inside & outside of railway rolling stock to connect fixed & moving parts
- For various low voltage signal transmission in railway rolling stock (Locomotives, Metros, EMU, MEMU, control circuit)

Advantages

- Provides extreme durability against mechanical stress, chemicals and temperature fluctuations. Halogen-free, fire safety by reducing flame spread, smoke and toxic gas emissions
- Ensures very good EMC compatibility for screened cables where signal integrity is essential for safe operation

Construction:

Component	300/300 V (0.5 sq.mm)		600/1000 V (1.0 sq.mm)	
	Screened	Twisted	Screened	Twisted
Circular Annealed Tinned Copper (Class-5) Complying to IEC 228	✓	✓	✓	✓
Operating temperature	- 40° C to +120° C			
Insulation (Type EBXL EPDM)	✓	✓	✓	✓
Fillers	(Optional)	(Optional)	(Optional)	(Optional)
Separators	(Optional)	(Optional)	(Optional)	(Optional)
EMC Screening (Tin Copper Braiding)	✓	✗	✓	✓
Sheath (Type EBXL EVA) (BLACK)	✓	✓	✓	✓
HV Test	1.5 KV at 50HZ for 15 min		4 KV at 50HZ for 15min	
Min. Bending Radius (Fixed installations)	5 x Overall diameter			

✓ = Included | ✗ = Not Included | (Optional) = May be included as per specification or customer request

Compliance & Fire Safety



Low Flame Spread / Flame Retardant : IEC 60332-1-2, IEC 60332-3 (CAT-C)

Smoke Intensity : IEC 61034-1

Corrosivity of Combustion of gases : IEC 60754-2

Toxicity of Combustion : NES 713

Halogen Content : IEC-60754-1

Key Features

Electron Beam Cross-linked Insulation : Ensures excellent thermal, electrical and mechanical stability

Halogen-Free : Minimizes emission of toxic and corrosive gases in case of fire

Environmental Resistance : Resistant to oil, diesel, chemicals, weathering and abrasion

Temperature Performance : Excellent resistance to both high and low temperatures

Flexibility & Durability : Highly flexible design with robust mechanical strength for long service life



Fire retardant



Good Chemical Resistance



Good Resistance to UV, humidity and ozone



High Flexible



Halogen Free



Low Corrosivity of combustion gases



Low toxicity



Operating temp.

Railway Cables

CLW/ES/03/0459 ALT.C (Data Sheet-1)

(Multi Core Cables 300 / 300 V)

No. of Cores X Nominal Cross Sectional Area of Core (sq.mm)	Conductor Typical Construction (Nos. X Nos. X mm)	Nominal Conductor Diameter (mm)	Minimum Wall thickness		Overall Diameter (mm)	Max. Conductor Resistance @ 20°C (ohm / Km)
			Insulation (mm)	Sheath (mm)		
2C X 0.5 (Screened Cable)	19x0.176	0.86	0.25	0.75	5.3 ± 0.3	41.1
3C X 0.5 (Screened Cable)	19x0.176	0.86	0.25	0.75	5.5 ± 0.3	41.1
2 X 2 X 0.5 (Multipair Screened Cable)	19x0.176	0.86	0.25	0.9	7.8 ± 0.3	43.1
5C X 0.5 (Screened Cable)	19x0.176	0.86	0.25	0.8	6.8 ± 0.3	41.1
9C X 0.5 (Screened Cable)	19x0.176	0.86	0.25	0.55	8.2 ± 0.3	41.1
9C X 0.5 (Twisted Cable)	19x0.179	0.89	0.25	0.8	7.0 ± 0.3	41.1
25C X 0.5 (Twisted Cable)	19x0.179	0.89	0.25	0.95	11.2 ± 0.4	41.1

CLW/ES/03/0459 ALT.C (Data Sheet-2)

(Multi Core Cables 600 / 1000 V)

No. of Cores X Nominal Cross Sectional Area of Core (sq.mm)	Conductor Typical Construction (Nos. X Nos. X mm)	Nominal Conductor Diameter (mm)	Minimum Wall thickness		Overall Diameter (mm)	Max. Conductor Resistance @ 20°C (ohm / Km)
			Insulation (mm)	Sheath (mm)		
2C X 1.0 (Screened Cable)	19x0.25	1.25	0.5	0.8	7.1 ± 0.3	20
2 X 2 X 1.0 (Multipair Screened Cable)	19x0.25	1.25	0.5	1.0	11 ± 0.4	20.4
3 X 4 X 1.0 (Multiquad Screened Cable)	19x0.25	1.25	0.5	1.3	15.5 ± 0.5	20.4
2C X 1.0 (Twisted Cable)	19x0.25	1.25	0.5	0.8	6.5 ± 0.3	20



Fire retardant



Good Chemical Resistance



Good Resistance to UV, humidity and ozone



High Flexible



Halogen Free



Low Corrosivity of combustion gases



Low toxicity



Operating temp.

Railway Cables

Thin-Walled Electron Beam Irradiated Flexible Elastomeric Cables with copper conductor. (EDTS 132, REV-C)

Flexible copper cables with E-beam cross-linking, designed for passenger coaches, featuring thin walled insulation, low chemical residue and Limited Fire Hazard properties with minimum flame spread, smoke and toxic emissions.

Application : For Coaching Stock Applications. Suitable for use in power and control circuits for passenger coaches, AC/DC EMU, BG AC EMU and MEMU coaching stock. UIC cables are used in modern railway applications to ensure safe and reliable communication and control applications

Advantages

Enhanced Fire Safety : Limited fire hazard type with low smoke and toxicity
EMC Compatibility : Ensures very good EMC compatibility for screened cables
Extreme Durability : Resistant to high temperatures, mechanical stress and harsh chemicals
Space-Efficient Design : Thin-walled construction for easy & compact installation
Reliable Performance : Tinned copper conductors ensure efficient power and signal transmission
Resistance to mineral oil, diesel, fluids and chemicals

Construction:

Component	Data Sheet-1	Data Sheet-2	Data Sheet-3	Data Sheet-4	Data Sheet-5	Data Sheet-7
Voltage Rating	1.8/3.0 KV	600/1000 V	600/1000 V	600/1000 V	300/300 V	600/1000 V
Operating temperature	- 40° C to +120° C					
Core & Cable type	Single Core Unscreened	Single Core Unscreened	Multi Core Unscreened	Multi Core Screened	UIC Screened	Multi Core Unscreened
Circular Annealed Tinned Copper Conductor (120° C) (Class 5)	✓	✓	✓	✓	✓	✓
Insulation (EBXL EPDM)	✓	✓	✓	✓	✓	✓
EMC Screening (ATC Braiding)	✗	✗	✗	✓	✓	✗
Sheath (EBXL EVA)	✓	✗	✓	✓	✓	✓
Test Voltage	6 KV for 15 min	3 KV for 5 min	1.5 KV for 5 min	1.5 KV for 5 min	2.0 KV for 1 min	1.5 KV for 5 min
Bending Radius	3XD < 10 mm 5XD > 10 mm	3XD < 10 mm 5XD > 10 mm	4XD (fixed) 5XD (flexible)	3XD (fixed) 5XD (flexible)	4XD (fixed) 5XD (flexible)	4XD (fixed) 5XD (flexible)

✓ = Included | ✗ = Not Included * Insulation color shall conform to standard or be customized as per customer requirements. Outer sheath will be provided in black for all Data sheets except Datasheet-2: Outer sheath color : Grey

Compliance & Fire Safety

Low Flame Spread / Flame Retardancy : IEC 60332-1-2, IEC 60332-3 CAT C

Low Smoke Emission : ASTM D 2843 / IEC 61034-2

Corrosivity of Combustion of gases (on Sheath only) : IEC 60754-2

Toxicity of Combustion of gases (on Sheath only) : NES 713

Key Features

Fire Safety : Limited Fire Hazard type with low smoke and toxicity

Insulation : Electron beam irradiated, flexible elastomeric construction provides extreme durability against mechanical stress, chemicals and temperature fluctuations

Environmental Resistance : Resistant to oil, diesel and various chemicals

Flexibility : Class 5 tinned, flexible copper conductors for easy installation



Fire retardant



Good Chemical Resistance



Good Resistance to UV, humidity and ozone



High Flexible



Halogen Free



Low Corrosivity of combustion gases



Low toxicity



Operating temp



Screened Versions

Railway Cables

EDTS 132, REV-C (Data Sheet-1)

(Single Core Cables 1800 / 3000 V)

Nominal Cross Sectional (sq.mm)	No. of Wires X Single Wire Diameter (Max)	Cable Overall Diameter	Max. Conductor Resistance @ 20°C (ohm / Km)
1.5	30X0.26	3.20 ± 0.10	13.7
2.5	50X0.26	3.70 ± 0.15	8.21
4.0	56X0.31	4.50 ± 0.15	5.09
6.0	84X0.31	5.10 ± 0.15	3.39
10	80X0.41	6.30 ± 0.20	1.95
16	126X0.41	8.30 ± 0.20	1.24
25	196X0.41	10.2 ± 0.30	0.795
35	266X0.41	11.7 ± 0.30	0.565
50	385X0.41	13.6 ± 0.30	0.393
70	348X0.51	15.6 ± 0.30	0.277
95	468X0.51	17.3 ± 0.30	0.210
120	589X0.51	19.6 ± 0.30	0.164
150	741X0.51	21.9 ± 0.30	0.132

EDTS 132, REV-C (Data Sheet-2)

(Single Core Cables 600 / 1000 V)

Nominal Cross Sectional (sq.mm)	No. of Wires X Single Wire Diameter (Max)	Cable Overall Diameter	Max. Conductor Resistance @ 20°C (ohm / Km)
1.5	30X0.26	2.70 ± 0.10	13.7
2.5	50X0.26	3.30 ± 0.10	8.21
4	56X0.31	3.95 ± 0.10	5.09
6	84X0.31	4.70 ± 0.15	3.39
10	80X0.41	5.85 ± 0.15	1.95
16	119X0.41	7.30 ± 0.15	1.24
25	182X0.41	8.90 ± 0.20	0.795
35	259X0.41	10.2 ± 0.20	0.565
50	378X0.41	11.9 ± 0.20	0.393
70	336X0.51	14.3 ± 0.25	0.277
95	444X0.51	15.9 ± 0.25	0.210
120	551X0.51	17.9 ± 0.30	0.164
150	722X0.51	20.3 ± 0.30	0.132

EDTS 132, REV-C (Data Sheet-3)

(Multi Core Unscreened Cables 600 / 1000 V)

No. of Cores X Nominal Cross Section (sq.mm)	Conductor Construction (n x mm)	Cable Overall Diameter	Max. Conductor Resistance @ 20°C (ohm / Km)
2X0.50	19X0.18	6.2 ± 0.3	40.1
2X0.75	24X0.20	6.6 ± 0.3	26.7
2X1.0	32X0.20	7.5 ± 0.3	20.0
2X1.5	30X0.25	7.8 ± 0.3	13.7
3X0.5	19X0.18	6.8 ± 0.3	40.1
3X0.75	24X0.20	7.0 ± 0.3	26.7
3X1.0	32X0.20	7.9 ± 0.3	20.0
3X1.5	30X0.25	8.3 ± 0.3	13.7
4X0.5	19X0.18	7.4 ± 0.3	40.1
4X0.75	24X0.20	7.7 ± 0.3	26.7
4X1.0	32X0.20	8.8 ± 0.3	20.0
4X1.5	30X0.25	9.1 ± 0.3	13.7



Fire retardant



Good Chemical Resistance



Good Resistance to UV, humidity and ozone



High Flexible



Halogen Free



Low Corrosivity of combustion gases



Low toxicity



Operating temp



Screened Versions

Railway Cables

EDTS 132, REV-C (Data Sheet-4)

(Multi Core Screened Cables 600 / 1000 V)

No. of Cores X Nominal Cross Section (sq.mm)	No. of Cores X Nominal Cross Section (sq.mm)	Cable Overall Diameter	Max. Conductor Resistance @ 20°C (ohm / Km)
2X0.5	19X0.18	4.3 ± 0.3	40.1
2X1.0	19X0.25	5.0 ± 0.3	20.0
2X1.5	37X0.22	5.8 ± 0.3	13.7
3X0.5	19X0.18	4.5 ± 0.3	40.1
3X1.0	19X0.25	5.5 ± 0.3	20.0
3X1.5	37X0.22	6.1 ± 0.3	13.7
4X0.5	19X0.18	4.8 ± 0.3	40.1
4X1.0	19X0.25	5.8 ± 0.3	20.0
4X1.5	37X0.22	6.7 ± 0.3	13.7

EDTS 132, REV-C (Data Sheet-5)

(UIC Cables 300 / 300 V)

No. of Cores X Nominal Cross Section (sq.mm)	No. of Cores X Nominal Cross Section (sq.mm)	Cable Overall Diameter	Max. Conductor Resistance @ 20°C (ohm / Km)
4 QUAD. 4x1 sq.mm + 1 PAIR. 2x0.75 sq.mm 18 Core Cable	1 sq.mm:19X0.25 0.75 sq.mm:19X0.22	17.5 ± 0.5	Pair 2x0.75 sq.mm ≤ 28.7 Quad 4x1.0 sq.mm ≤ 22.6
5 QUAD. 4x1 sq.mm + 1 PAIR. 2x0.75 sq.mm 22 Core Cable	1 sq.mm:19X0.25 0.75 sq.mm:19X0.20	18.3 ± 0.5	Pair 2x0.75 sq.mm ≤ 28.7 Quad 4x1.0 sq.mm ≤ 22.6

EDTS 132, REV-C (Data Sheet-7)

(Multi Core Unscreened Cables 600 / 1000 V)

No. of Cores X Nominal Cross Section (sq.mm)	Conductor Construction (n x mm)	Cable Overall Diameter	Max. Conductor Resistance @ 20°C (ohm / Km)
12X1.5	30X0.25	14.4 ± 0.4	13.7
16X1.5	30X0.25	16.3 ± 0.5	13.7
18X1.5	30X0.25	17.5 ± 0.5	13.7
25X1.5	30X0.25	20.9 ± 0.5	13.7
12X2.5	50x0.25	18.7 ± 0.5	8.21
12X4	56x0.3	21.8 ± 0.5	5.09



Fire retardant



Good Chemical Resistance



Good Resistance to UV, humidity and ozone



High Flexible



Halogen Free



Low Corrosivity of combustion gases



Low toxicity



Operating temp



Screened Versions

Railway Cables

Single Core and Multi Core Power and Control Cables designed for railway rolling stock, traction & metro applications (EN 50264-3-1 & EN 50264-3-2)

Offering exceptional flame resistance, durability and EMC compatibility, these cables are ideal for fixed installations in locomotives, metros & EMUs.

EN 50264-3-1 Single Core Cables

Application

: Used for power transmission, controlling in various application in Railway Rolling Stock (Locomotives, Metros, EMU, MEMU)

They are suitable for use in confined spaces due to their reduced bending radius.

They can withstand harsh operating conditions, including exposure to oil, ozone and wide temperature fluctuations.

The conductors are rated for continuous operation at temperatures 90° C (Optional: 120° C)

Advantages

: Halogen-free, fire safety by reducing flame spread, smoke and toxic gas emissions.

They are resistant to oils, fuels and ozone, ensuring durability and reliable performance even when exposed to harsh chemicals.

They can withstand mechanical stresses like vibration and impact, which are common in railway environments.

Construction:

(Single Core Cables)

Component	0.6/1 KV (Unsheathed) M	1.8/3 KV (Unsheathed) M	1.8/3 KV (Sheathed) MM	3.6/6 KV (Sheathed) MM
Size (sq.mm)	1.0 sq.mm to 400 sq.mm	1.5 sq.mm to 400 sq.mm	1.5 sq.mm to 400 sq.mm	2.5 sq.mm to 400 sq.mm
Operating temperature	- 40° C to +90° C / +120° C			
Flexible Tinned Coated Annealed Copper Conductor (Class 5)	✓	✓	✓	✓
Conductor screening	✗	✗	✗	✓
Separator Tape	(Optional)	(Optional)	(Optional)	✗
Insulation (Type EI 106/107/108/109/110)	✓	✓	✓	✓
Separator Tape	✗	✗	(Optional)	(Optional)
Sheath (Type EM 101/102/103/104)	✗	✗	✓	✓
Test Voltage	3.5 KV for 5 min	6.5 KV for 5 min	6.5 KV for 5 min	11 KV for 5 min

✓ = Included | ✗ = Not Included | (Optional) = May be included as per specification or customer request



Key features & Fire Safety : IEC 60332-1-2 – Flame Retardant

IEC 60754-1/2 – Corrosivity of Combustion of gases

IEC 61034-2 – Low Smoke Emission

EN 45545-2 HL-2/HL-3 - Fire behavior of the Cable



Fire retardant



Good Chemical Resistance



Good Resistance to UV, humidity and ozone



High Flexible



Halogen Free



Low Corrosivity of combustion gases



Low toxicity



Operatingtemp



Screened Versions

Railway Cables

EN 50264-3-1 (Table-1) 0.6 / 1 KV

(Unsheathed Single Core Cables)

Size (in sq.mm)	Overall Diameter (mm)		Max. Conductor Resistance @ 20°C (ohm/Km)
	Minimum	Maximum	
1.0	2.4	2.8	20
1.5	2.8	3.3	13.7
2.5	3.0	3.8	8.21
4	3.8	4.4	5.09
6	4.2	5.0	3.39
10	5.1	5.8	1.95
16	6.1	7.2	1.24
25	7.8	9.1	0.795
35	9.0	10.8	0.565
50	10.6	12.4	0.393
70	12.5	14.6	0.277
95	13.9	16.3	0.210
120	15.7	18.4	0.164
150	17.6	20.6	0.132
185	19.6	22.9	0.108
240	22.2	26.0	0.0817
300	24.6	28.6	0.0654
400	28.1	32.9	0.0495

EN 50264-3-1 (Table-2) 1.8 / 3 KV

(Unsheathed Single Core Cables)

Size (in sq.mm)	Overall Diameter (mm)		Max. Conductor Resistance @ 20°C (ohm/Km)
	Minimum	Maximum	
1.5	5.3	6.2	13.7
2.5	5.7	6.7	8.21
4	6.2	7.3	5.09
6	6.7	7.8	3.39
10	7.5	8.8	1.95
16	8.8	10	1.24
25	9.9	11.8	0.795
35	11.1	13.0	0.565
50	12.5	14.8	0.393
70	14.2	18.6	0.277
95	16.0	18.7	0.210
120	17.6	20.6	0.164
150	19.1	22.3	0.132
185	20.9	24.4	0.108
240	23.7	27.5	0.0817
300	25.6	30.1	0.0654
400	28.2	34.2	0.0495



Fire retardant



Good Chemical Resistance



Good Resistance to UV, humidity and ozone



High Flexible



Halogen Free



Low Corrosivity of combustion gases



Low toxicity



Operating temp.

Railway Cables

EN 50264-3-1 (Table-3) 1.8 / 3 KV

(Sheathed Single Core Cables)

Size (in sq.mm)	Overall Diameter (mm)		Max. Conductor Resistance @ 20°C (ohm/Km)
	Minimum	Maximum	
1.5	5.7	6.7	13.7
2.5	6.0	7.0	8.21
4	6.5	7.8	5.09
6	7.0	8.1	3.39
10	8.2	9.8	1.95
16	9.2	10.8	1.24
25	11.6	13.4	0.795
35	12.7	14.9	0.565
50	14.1	15.6	0.393
70	15.8	18.5	0.277
95	18.0	21.0	0.210
120	19.6	22.9	0.164
150	21.4	25.1	0.132
185	23.4	27.4	0.108
240	25.9	30.3	0.0817
300	28.1	32.9	0.0654
400	32.0	37.4	0.0495

EN 50264-3-1 (Table-4) 3.6 / 6 KV

(Sheathed Single Core Cables)

Size (in sq.mm)	Overall Diameter (mm)		Max. Conductor Resistance @ 20°C (ohm/Km)
	Minimum	Maximum	
2.5	8.6	10.1	8.21
4	9.1	10.7	5.09
6	9.8	11.2	3.39
10	10.4	12.2	1.95
16	11.1	13.4	1.24
25	13.5	16.3	0.795
35	14.9	16.6	0.565
50	16.4	18.1	0.393
70	18.0	19.1	0.277
95	19.5	22.8	0.21
120	21.4	25.1	0.164
150	22.9	26.8	0.132
185	25.1	29.4	0.108
240	28.3	33.1	0.0817
300	30.6	35.8	0.0654
400	33.7	39.4	0.0495



Fire retardant



Good Chemical
Resistance



Good Resistance to
UV, humidity and ozone



High Flexible



Halogen Free



Low Corrosivity of
combustion gases



Low toxicity



Operating temp.

Railway Cables

Medium Voltage Single Core and Multi Core Power and Control Cables designed for railway rolling stock, traction & metro applications (EN 50264-3-1 & EN 50264-3-2)

Offering exceptional flame resistance, durability and EMC compatibility, these cables are ideal for fixed installations in locomotives, metros & EMUs.

EN 50264-3-2 Multi Core Cables

Application

: Used for power transmission, controlling in various application in Railway Rolling stock (Locomotives, Metros, EMU, MEMU)

The cables can withstand harsh operating conditions, including exposure to oil, ozone and wide temperature fluctuations.

The conductors are rated for continuous operation at temperatures 90° C. (Optional :120° C)

Their flexible, multi-core design enables easy routing in limited spaces, especially where movement or vibration is present.

Advantages

: Halogen-free, fire safety by reducing flame spread, smoke and toxic gas emissions.

They are resistant to oils, fuels and ozone, ensuring durability and reliable performance even when exposed to harsh chemicals.

The cables can withstand mechanical stresses like vibration and impact, which are common in railway environments.

Construction:

(Multicore Cables)

Component	300 / 500 V (Unscreened) MM	300 / 500 V (Screened) MMS	0.6 / 1 KV (Unscreened) MM	0.6 / 1 KV (Screened) MMS
Size (sq.mm)	1.0 sq.mm to 2.5 sq.mm	1.0 sq.mm to 2.5 sq.mm	1.5 sq.mm to 50 sq.mm	1.5 sq.mm to 50 sq.mm
Operating temperature	- 40° C to +90° C / +120° C			
Flexible Tinned Coated Annealed Copper Conductor (Class 5)	✓	✓	✓	✓
Separator Tape	(Optional)	(Optional)	(Optional)	(Optional)
Insulation (Type EI 106/107/108/109/110)	✓	✓	✓	✓
Metallic Screening	✗	✓	✗	✓
Separator Tape	(Optional)	(Optional)	(Optional)	(Optional)
Sheath(Type EM 101/102/103/104)	✓	✓	✓	✓
Test Voltage	2 KV for 5 min		3.5 KV for 5 min	

✓ = Included | ✗ = Not Included | (Optional) = May be included as per specification or customer request



Key features & Fire Safety : IEC 60332-1-2 – Flame Retardant

IEC 60754-1/2 – Corrosivity of Combustion of gases

IEC 61034-2 – Low Smoke Emission

EN 45545-2 HL-2/HL-3– Fire behavior of the Cable



Fire retardant



Good Chemical Resistance



Good Resistance to UV, humidity and ozone



High Flexible



Halogen Free



Low Corrosivity of combustion gases



Low toxicity



Operatingtemp



Screened Versions

Railway Cables

Dimensions of Base Core (0.6 / 1 KV)

EN 50264-3-2 (Table-3) 0.6 / 1 KV

(Single Core Cables)

Size (in sq.mm)	Overall Diameter		Max. Conductor Resistance @ 20°C (ohm / Km)
	Minimum	Maximum	
1.5	2.8	3.3	13.7
2.5	3.2	3.8	8.21
4	3.8	4.4	5.09
6	4.2	5.0	3.39
10	5.1	5.9	1.95
16	6.1	7.2	1.24
25	7.1	8.1	0.795
35	8.0	10.8	0.565
50	10.8	12.4	0.393

EN 50264-3-2 (Table-4) 0.6 / 1 KV

(Unscreened Multi Core Cables)

Size (in sq.mm)	Overall Diameter		Max. Conductor Resistance @ 20°C (ohm / Km)
	Minimum	Maximum	
2X1.5	7.2	9.0	13.7
2X2.5	8.0	10.0	8.21
2X4	9.0	11.3	5.09
2X6	10.1	12.4	3.39
2X10	12.5	15.4	1.95
2X16	14.9	18.4	1.24
2X25	18.7	23.0	0.795
2X35	21.2	25.9	0.565
2X50	25.1	30.7	0.393

EN 50264-3-2 (Table-5) 0.6 / 1 KV

(Screened Multi Core Cables)

Size (in sq.mm)	Overall Diameter		Max. Conductor Resistance @ 20°C (ohm / Km)
	Minimum	Maximum	
2X1.5	7.9	9.9	13.7
2X2.5	8.7	10.7	8.21
2X4	10.2	12.7	5.09
2X6	11.9	13.6	3.39
2X10	13.4	16.6	1.95
2X16	16.0	19.8	1.24
2X25	19.8	24.8	0.795
2X35	22.6	26.6	0.565
2X50	26.4	32.3	0.393



Fire retardant



Good Chemical
Resistance



Good Resistance to
UV, humidity and ozone



High Flexible



Halogen Free



Low Corrosivity of
combustion gases



Low toxicity



Operating temp.

Railway Cables

EN 50264-3-2 (Table-6) 0.6 / 1 KV (Unscreened Multi Core Cables)

Size (in sq.mm)	Overall Diameter		Max. Conductor Resistance @ 20°C (ohm / Km)
	Minimum	Maximum	
3X1.5	7.7	9.5	13.7
3X2.5	8.5	10.6	8.21
3X4	9.7	12.0	5.09
3X6	11.7	13.2	3.39
3X10	13.3	16.5	1.95
3X16	18.0	19.8	1.24
3X25	20.0	24.7	0.795
3X35	23.0	28.2	0.565
3X50	26.3	32.2	0.393

EN 50264-3-2 (Table-7) 0.6 / 1 KV (Screened Multi Core Cables)

Size (in sq.mm)	Overall Diameter		Max. Conductor Resistance @ 20°C (ohm / Km)
	Minimum	Maximum	
3X1.5	8.4	10.4	13.7
3X2.5	9.2	11.4	8.21
3X4	10.8	13.3	5.09
3X6	11.6	14.3	3.39
3X10	14.4	18.0	1.95
3X16	17.6	20.6	1.24
3X25	20.3	26.1	0.795
3X35	24.5	28.6	0.565
3X50	28.3	34.8	0.393

EN 50264-3-2 (Table-8) 0.6 / 1 KV (Unscreened Multi Core Cables)

Size (in sq.mm)	Overall Diameter		Max. Conductor Resistance @ 20°C (ohm / Km)
	Minimum	Maximum	
4X1.5	8.5	10.5	13.7
4X2.5	9.4	11.6	8.21
4X4	11.8	13.4	5.09
4X6	12.2	14.9	3.39
4X10	14.7	16.5	1.95
4X16	18.0	22.1	1.24
4X25	22.6	27.6	0.795
4X35	25.7	37.2	0.565
4X50	30	38.5	0.393

EN 50264-3-2 (Table-9) 0.6 / 1 KV (Screened Multi Core Cables)

Size (in sq.mm)	Overall Diameter		Max. Conductor Resistance @ 20°C (ohm / Km)
	Minimum	Maximum	
4X1.5	9.1	11.3	13.7
4X2.5	10.4	12.9	8.21
4X4	11.8	14.5	5.09
4X6	13.1	16.1	3.39
4X10	16.1	18.5	1.95
4X16	18.3	23.8	1.24
4X25	20.0	29.0	0.795
4X35	26.8	32.0	0.565
4X50	31.5	38.2	0.393



Fire retardant



Good Chemical Resistance



Good Resistance to UV, humidity and ozone



High Flexible



Halogen Free



Low Corrosivity of combustion gases



Low toxicity



Operating temp.

Railway Cables

Thin-Walled Single, Multi-Core and Multi-Pair, Railway Signal & Control Cables with Special Fire Performance for Railway Rolling Stock (EN -50306-1,2,3,4)

Ideal for modern railway applications where space, weight, safety and EMC performance are critical.

Application

- They are designed for fixed & protected internal & external wiring in all railway vehicles, from locomotives to trams. Rated for occasional thermal stress, with a continuous operational life equivalent to temperatures of 105° C (Optional: 120° C). Their compact size and flexibility are perfect for confined spaces

These cables are crucial for power transmission, controlling & various low voltage signal transmission in various Rolling stock applications (Locomotives, Metros, EMU, MEMU, Control circuits)

Their halogen-free, cross linked construction ensures superior fire safety, providing essential protection for passengers and crew

Advantages

- Resists mechanical stress, chemicals and extreme temperatures

Halogen-free, cross-linked construction with good flexibility and durability compact and light weight design, very good EMC compatibility for screened cable

Thin-wall design and low bending radius allow for space-saving installations. Robust build guarantees a long service life

EN 50306 Thin-Wall Railway Rolling Stock Cables

EN 50306 Cables offer diverse constructions (single / multi core, screened / unscreened, multipair), operate reliably from -40° C to +105° C (Optional 120° C) They are rated for 300 V to earth.

Available in 0.50 mm² to 2.5 mm² cross- sections, they feature electron-beam cross linked, halogen - free materials ensuring superior fire performance (low smoke, non-toxic, non-corrosive gases) and robust resistance to oils, fuels, ozone and UV, all in a compact, durable, thin- wall design.

Key features

- IEC 60332-1-2 – Flame Retardant
- IEC 60754-1/2 – Corrosivity of Combustion of gases
- IEC 61034-2 – Low Smoke Emission
- EN 45545-2 HL-2/HL-3– Fire behavior of the Cable

Construction Details:

Component	50306-2	50306-3	50306-4
Size (sq.mm)	0.5 sq.mm to 2.5 sq.mm	0.5 sq.mm to 2.5 sq.mm	0.5 sq.mm to 2.5 sq.mm
Operating temperature	- 40° C to +105° C /+120° C		
Cable Types	Single Core	Single Core & Multi Core Cables	Multi Core & Multi Pair Cables
Screening	Unscreened	Screened	Unscreened / Screened
Flexible Tinned Coated Annealed Copper Conductor (120° C) (Class 5)	✓	✓	✓
Separator Tape	✗	(Optional)	(Optional)
Insulation (as per 3.1 of EN 50306-1)	✓	✓	✓
Laying up & Fillers	✗	✓	✓
Metallic Screening	✗	✓	✓
Separator Tape	✗	(Optional)	(Optional)
Sheath (Type S1 or S2 as per 3.2 of EN 50306-1)	✗	✓	✓
Test Voltage	2 KV for 5 min		

✓ = Included | ✗ = Not Included



Fire retardant



Good Chemical Resistance



Good Resistance to UV, humidity and ozone



High Flexible



Halogen Free



Low Corrosivity of combustion gases



Low toxicity



Operating temp



Screened Versions



EN 50306-2

(Single Core Thin-wall Insulated Wires) (0.5 mm² To 2.5 mm²)

Construction Details: Requirements for base core construction (Table-1)

Conductor Nominal Crosssection (sq.mm)	Number of Strands X Wire Diameter	Conductor Diameter		Insulation Overall Diameter		Max. Conductor Resistance @ 20°C (ohm / Km) Min Max	
		Minlmm	Maximum	Minlmm	Maximum		
0.5	19X0.18	0.80	0.95	1.15	1.45	40.1	
0.75	37X0.16 *	1.00	1.15	1.35	1.65	26.7	
1.00	37X0.18 *	1.10	1.30	1.45	1.80	20.0	
1.5	37X0.23 *	1.45	1.65	1.95	2.30	13.7	
2.5	37X0.30 *	1.85	2.15	2.5	2.85	8.21	

*These cables may be supplied in 19 strand conductor

EN 50306-3 (Table-1)

(Single Core & Multi Core screened and thin wall sheathed cables) (1 to 4 cores, 0.5 mm² to 2.5 mm²)

Number of Cores & Nominal Cross Section (mm)	Minimum Thickness of Sheath (mm)	Overall Diameter (mm)		Max. Conductor Resistance @ 20°C (ohm / Km)
		Minlmm	Maximum	
1X0.5	0.20	2.3	2.8	40.1
2X0.5	0.20	3.5	4.3	40.1
3X0.5	0.20	3.7	4.5	40.1
4X0.5	0.20	4.0	5.0	40.1
1X0.75	0.20	2.5	3.0	26.7
2X0.75	0.20	3.9	4.7	26.7
3X0.75	0.20	4.0	5.0	26.7
4X0.75	0.20	4.5	5.5	26.7
1X1	0.20	2.7	3.2	20
2X1	0.20	4.2	5.2	20
3X1	0.20	4.5	5.5	20
4X1	0.20	5.0	6.0	20
1X1.5	0.20	3.1	3.6	13.7
2X1.5	0.20	5.1	6.1	13.7
3X1.5	0.20	5.4	6.4	13.7
4X1.5	0.20	6.0	7.0	13.7
1X2.5	0.20	3.6	4.4	8.21
2X2.5	0.20	6.4	7.4	8.21
3X2.5	0.20	6.8	7.8	8.21
4X2.5	0.20	7.5	8.5	8.21

EN 50306-4 (Table-1) (Unscreened, sheathed Multi Core Cables for Class E & Class P - 2 to 48 cores (0.5 mm² to 2.5 mm²) Each insulated core as per the requirements given in EN 50306-2)

Number of Cores and Nominal Cross Section (mm)	Class E			Class P			Max. Conductor Resistance @ 20°C (ohm / Km)
	Minimum Thickness of Sheath (mm)	Overall Diameter (mm) Min Max		Minimum Thickness of Sheath (mm)	Overall Diameter (mm) Min Max		
4X0.5	1.0	5.5	6.5	0.42	4.1	5.1	40.1
7X0.5	1.0	6.3	7.3	0.42	4.9	5.9	40.1
13X0.5	1.0	8.3	9.3	0.56	7.3	8.3	40.1
19X0.5	1.0	9.0	10.2	0.56	8.1	9.1	40.1
37X0.5	1.0	12.3	13.5	0.56	10.8	12.0	40.1
4X0.75	1.0	6.0	7.0	0.42	4.6	5.6	26.7
7X0.75	1.0	6.9	7.9	0.42	5.5	6.5	26.7
13X0.75	1.0	9.1	10.3	0.56	8.2	9.2	26.7
19X0.75	1.0	10.0	11.2	0.56	9.0	10.2	26.7
37X0.75	1.0	13.2	14.4	0.56	12.2	13.4	26.7
48X0.75	1.0	14.8	16.4	0.56	13.9	15.5	26.7
4X1.0	1.0	6.3	7.3	0.42	4.9	5.9	20
7X1.0	1.0	7.3	8.3	0.42	6.0	7.0	20
13X1.0	1.0	9.7	10.9	0.56	8.7	9.9	20
19X1.0	1.0	10.7	11.9	0.56	9.8	11.0	20
37X1.0	1.0	14.0	15.6	0.56	13.3	14.5	20
4X1.5	1.0	7.4	8.4	0.42	6.0	7.0	13.7
7X1.5	1.0	8.8	9.8	0.56	7.7	8.7	13.7
13X1.5	1.0	11.7	12.9	0.56	10.7	11.9	13.7
19X1.5	1.0	13.0	14.2	0.56	12.0	13.2	13.7
37X1.5	1.0	17.2	18.8	0.56	16.2	17.8	13.7
2X2.5	1.0	7.7	8.7	0.56	6.7	7.7	8.21
3X2.5	1.0	8.1	9.1	0.56	7.7	8.1	8.21
4X2.5	1.0	8.8	10	0.56	7.9	8.9	8.21

* Other constructions on request

EN 50306-4 (Table-3)

(Screened, sheathed Multi Core for Class E & Class P - 2 to 8 cores) (0.5 mm² to 2.5 mm²)
Each insulated core as per the requirements given in EN 50306-2

Number of Cores and Nominal Cross Section (mm)	Class E			Class P			Max. Conductor Resistance @ 20°C (ohm / Km)
	Minimum Thickness of Sheath (mm)	Overall Diameter (mm) Min Max		Minimum Thickness of Sheath (mm)	Overall Diameter (mm) Min Max		
2X0.5	1.0	5.5	6.5	0.42	4.1	5.1	40.1
3X0.5	1.0	5.7	6.7	0.42	4.3	5.3	40.1
4X0.5	1.0	6.1	7.1	0.42	4.7	5.7	40.1
6X0.5	1.0	6.9	7.9	0.42	5.5	6.5	40.1
8X0.5	1.0	7.5	8.5	0.42	6.0	7.0	40.1
2X0.75	1.0	5.9	6.9	0.42	4.5	5.5	26.7
3X0.75	1.0	6.2	7.2	0.42	4.7	5.7	26.7
4X0.75	1.0	6.5	7.5	0.42	5.2	6.2	26.7
6X0.75	1.0	7.5	8.5	0.42	6.1	7.1	26.7
8X0.75	1.0	8.2	9.2	0.42	6.6	7.6	26.7
2X1	1.0	6.2	7.2	0.42	4.7	5.7	20
2X1	1.0	6.5	7.5	0.42	5.1	6.0	20
4X1	1.0	6.9	7.9	0.42	5.5	6.5	20
6X1	1.0	8.0	9.0	0.42	6.6	7.6	20
8X1	1.0	8.6	9.8	0.56	7.7	8.7	20
2X1.5	1.0	7.1	8.1	0.42	5.7	6.7	13.7
3X1.5	1.0	7.4	8.4	0.42	6.0	7.0	13.7
4X1.5	1.0	8.0	9.0	0.42	6.6	7.6	13.7
6X1.5	1.0	9.2	10.4	0.56	8.3	9.3	13.7
8X1.5	1.0	10.2	11.4	0.56	8.9	10.1	13.7
2X2.5	1.0	8.3	9.3	0.56	7.3	8.3	8.21
3X2.5	1.0	8.6	9.8	0.56	7.7	8.7	8.21
4X2.5	1.0	9.4	10.6	0.56	8.4	9.6	8.21

EN 50306-4 (Table-5)

(Individually Screened and sheathed and with an Overall sheath - Multi Pair cables for Class E & Class P - 2 to 7 pairs) (0.5 mm² to 1.5 mm²) Each insulated core as per the requirements given in EN 50306-2

Number of Cores and Nominal Cross Section (mm)	Class E			Class P			Max. Conductor Resistance @ 20°C (ohm / Km)
	Minimum Thickness of Sheath (mm)	Overall Diameter (mm) Min Max		Minimum Thickness of Sheath (mm)	Overall Diameter (mm) Min Max		
2X2X0.5	1.0	10.1	11.3	0.56	9.0	10.2	40.1
3X2X0.5	1.0	10.8	12.0	0.56	9.6	10.8	40.1
4X2X0.5	1.0	11.8	13.0	0.56	10.7	11.9	40.1
7X2X0.5	1.0	13.9	15.5	0.56	13.0	14.2	40.1
2X2X0.75	1.0	10.9	12.1	0.56	9.8	11.0	26.7
3X2X0.75	1.0	11.6	12.8	0.56	10.5	11.7	26.7
4X2X0.75	1.0	12.8	14.0	0.56	11.6	12.8	26.7
7X2X0.75	1.0	15.1	16.7	0.56	14.0	15.6	26.7
2X2X1.0	1.0	11.3	12.5	0.56	10.2	11.6	20
3X2X1.0	1.0	12.0	13.2	0.56	10.9	12.1	20
4X2X1.0	1.0	13.2	14.4	0.56	12.1	13.3	20
7X2X1.0	1.0	15.7	17.3	0.56	14.6	16.2	20
2X2X1.5	1.0	13.3	14.5	0.56	12.2	13.4	13.7
3X2X1.5	1.0	14.0	15.6	0.56	13.1	14.3	13.7
4X2X1.5	1.0	15.5	17.1	0.56	14.3	15.9	13.7
7X2X1.5	1.0	18.7	20.3	0.56	17.6	19.2	13.7

* Other constructions on request

Railway Cables

High-Temperature Silicon Rubber insulated Power Cables having special Fire Performance for Railway Rolling Stock/Traction/Metro (EN 50382-1 and EN 50382-2)

These railway cables deliver superior performance in high-temperature environments, offering excellent flexibility and mechanical strength. Engineered for safe and efficient power transmission in traction systems, metro trains and rolling stock operating under extreme thermal and environmental conditions.

Application : Designed for railway rolling stock applications requiring superior fire performance and thermal endurance. Halogen-free with low smoke, toxicity and corrosivity. Ideal for power distribution in locomotives, metros, EMUs and MEMUs, they are well-suited for high-stress areas like traction converters, rooftop and under frame wiring and control systems.

Advantages : Engineered with advanced cross-linked silicone rubber compounds, superior mechanical durability-demonstrating high resistance to abrasion, tensile stress and cut-through damage. Outstanding chemical resistance ensures reliable performance in environments exposed to oils, fuels, acids and alkalis.

Designed for flexibility and ease of handling, these cables simplify installation and stripping processes, meeting the rigorous operational demands of modern railway systems

Construction: EN 50382-2

Component	1.8/3 KV (Unsheathed) F/FZ	1.8/3 KV (Sheathed) FF	3.6/6 KV (Unsheathed) F/FZ	3.6/6 KV (Unsheathed) FX/FXZ	3.6/6 KV (Sheathed) FF
Size (sq.mm)	1.5 sq.mm to 400 sq.mm	1.5 sq.mm to 400 sq.mm	2.5 sq.mm to 400 sq.mm	2.5 sq.mm to 400 sq.mm	2.5 sq.mm to 400 sq.mm
Flexible Bare copper (150° C) or Tinned copper conductor (120° C) (Class 5)	✓	✓	✓	✓	✓
Flexible Bare copper (150° C) or Tinned copper conductor (120° C) (Class 6)	✗	✗	✗	✓	✗
Conductor screening	✗	✗	(Optional)	✗	(Optional)
Separator Tape	(Optional)	(Optional)	✗	(Optional)	(Optional)
Insulation (Type EI 111)	✓	✓	✓	✓	✓
Insulation (Type EI 112)	✗	✓	✗	✗	✓
Textile braid on request for FZ, FXZ	✓	✗	✓	✓	✗
Sheath (EM 105/106/107)	✗	✓	✗	✗	✓
Test Voltage (R.M.S)	6.5 KV for 5 mins	6.5 KV for 5 mins	11 KV for 5 mins	11 KV for 5 mins	11 KV for 5 mins
Bending Radius:	4 x Outer diameter if OD ≤ 12 mm 6 x Outer diameter if OD > 12 mm				

✓ = Included | ✗ = Not Included | (Optional) = May be included as per specification or customer request

*Type FFXS jumper cable with EMC-protected metallic braided screen is available on request



Compliance & Fire Safety

EN 50382-1 - General construction and performance requirements

EN 50382-2 - Specifications for single-core silicone rubber insulated cables

IEC 60332-1-2 – Flame Retardant

IEC 60754-1/2 – Corrosivity of Combustion of gases

IEC 61034-2 – Low Smoke Emission

EN 45545-2 HL-2/HL-3– Fire behaviour of the Cable stems

Key Features

Safety-focused design for enclosed and public environments

Approved for flexible and fixed wiring in rolling stock, tunnels and depots

Low-toxicity materials preserve electronics and ensure occupant safety

Resistance to minerals, oils, fuels, ozone and UV radiation



Fire retardant



Good Chemical Resistance



Good Resistance to UV, humidity and ozone



High Flexible



Halogen Free



Low Corrosivity of combustion gases



Low toxicity



Operating temp.

Railway Cables

EN 50382-2 (Table-1) 1.8 / 3.0 KV 120°C or 150°C

(Unsheathed flexible Single Core Cables)

Size (in sq.mm)	Overall Diameter		Max. Conductor Resistance @ 20°C (ohm/Km)	
	Minimum	Maximum	Tinned Copper Conductor	Plain Copper Conductor
1.5	6.3	7.3	13.7	13.3
2.5	6.7	7.8	8.21	7.98
4	7.2	8.4	5.09	4.95
6	7.7	9	3.39	3.30
10	8.5	10	1.95	1.91
16	9.6	11.2	1.24	1.21
25	10.9	12.7	0.795	0.78
35	12.1	14.1	0.565	0.554
50	13.5	15.8	0.393	0.386
70	15.2	17.8	0.277	0.272
95	17	19.9	0.210	0.206
120	18.6	21.7	0.164	0.161
150	20.1	23.5	0.132	0.129
185	21.7	25.4	0.108	0.106
240	24.1	28.2	0.0817	0.0801
300	26.4	30.9	0.0654	0.0641
400	29.9	34.9	0.0495	0.0486

*In case of braided cable the max diameter shall be increased by 0.8 mm

EN 50382-2 (Table-2) 1.8 / 3.0 KV 120°C or 150°C

(Sheathed flexible Single Core Cables)

Size (in sq.mm)	Overall Diameter		Max. Conductor Resistance @ 20°C (ohm/Km)	
	Minimum	Maximum	Tinned Copper Conductor	Plain Copper Conductor
1.5	6.8	7.9	13.7	13.3
2.5	7.2	8.4	8.21	7.98
4	7.7	9	5.09	4.95
6	8.2	9.6	3.39	3.30
10	9.4	11	1.95	1.91
16	10.5	12.2	1.24	1.21
25	12.3	14.4	0.795	0.78
35	13.6	15.9	0.565	0.554
50	15.0	17.5	0.393	0.386
70	16.8	19.7	0.277	0.272
95	19	22.2	0.210	0.206
120	20.8	24.3	0.164	0.161
150	22.3	26.1	0.132	0.129
185	24.5	28.6	0.108	0.106
240	27.1	31.7	0.0817	0.0801
300	29.5	34.6	0.0654	0.0641
400	33.2	38.9	0.0495	0.0486



Fire retardant



Good Chemical Resistance



Good Resistance to UV, humidity and ozone



High Flexible



Halogen Free



Low Corrosivity of combustion gases



Low toxicity



Operating temp.

Railway Cables

EN 50382-2 (Table-3) 3.6 / 6.0 KV 120°C or 150°C

(Unsheathed flexible Single Core Cables)

Size (in sq.mm)	Overall Diameter		Max. Conductor Resistance @ 20°C (ohm/Km)	
	Minimum	Maximum	Tinned Copper Conductor	Plain Copper Conductor
2.5	7.6	8.9	8.21	7.98
4	8.1	9.5	5.09	4.95
6	9	10.6	3.39	3.30
10	9.5	11.1	1.95	1.91
16	10.5	12.3	1.24	1.21
25	11.8	13.8	0.795	0.78
35	13	15.2	0.565	0.554
50	14.4	16.9	0.393	0.386
70	16.1	18.9	0.277	0.272
95	17.5	20.5	0.210	0.206
120	19.3	22.6	0.164	0.161
150	20.8	24.4	0.132	0.129
185	22.6	26.5	0.108	0.106
240	25.4	29.8	0.0817	0.0801
300	27.7	32.4	0.0654	0.0641
400	30.8	36	0.0495	0.0486

EN 50382-2 (Table-4) 3.6 / 6.0 KV 120°C or 150°C

(Extra flexible Unsheathed Single Core Cables with Class 6 conductor)

Size (in sq.mm)	Overall Diameter		Max. Conductor Resistance @ 20°C (ohm/Km)	
	Minimum	Maximum	Tinned Copper Conductor	Plain Copper Conductor
50	15.2	17.8	0.393	0.386
70	16.9	19.8	0.277	0.272
95	18.3	21.4	0.21	0.206
120	20.1	23.5	0.164	0.161
150	21.6	25.3	0.132	0.129
185	23.4	27.4	0.108	0.106

EN 50382-2 (Table-5) 3.6 / 6.0 KV 120°C or 150°C

(Sheathed flexible Single Core Cables)

Size (in sq.mm)	Overall Diameter		Max. Conductor Resistance @ 20°C (ohm/Km)	
	Minimum	Maximum	Tinned Copper Conductor	Plain Copper Conductor
2.5	9.9	11.6	8.21	7.98
4	10.4	12.2	5.09	4.95
6	10.9	12.8	3.39	3.30
10	11.8	13.8	1.95	1.91
16	12.8	15.0	1.24	1.21
25	14.7	17.2	0.795	0.78
35	15.9	18.6	0.565	0.554
50	17.5	20.5	0.393	0.386
70	19.2	22.4	0.277	0.272
95	20.8	24.3	0.210	0.206
120	22.4	26.2	0.164	0.161
150	24.1	28.2	0.132	0.129
185	26.4	30.9	0.108	0.106
240	29.4	34.4	0.0817	0.0801
300	31.7	37.1	0.0654	0.0641
400	35.0	40.9	0.0495	0.0486

*In case of braided cable the max diameter shall be increased by 0.8 mm



Fire retardant



Good Chemical Resistance



Good Resistance to UV, humidity and ozone



High Flexible



Halogen Free



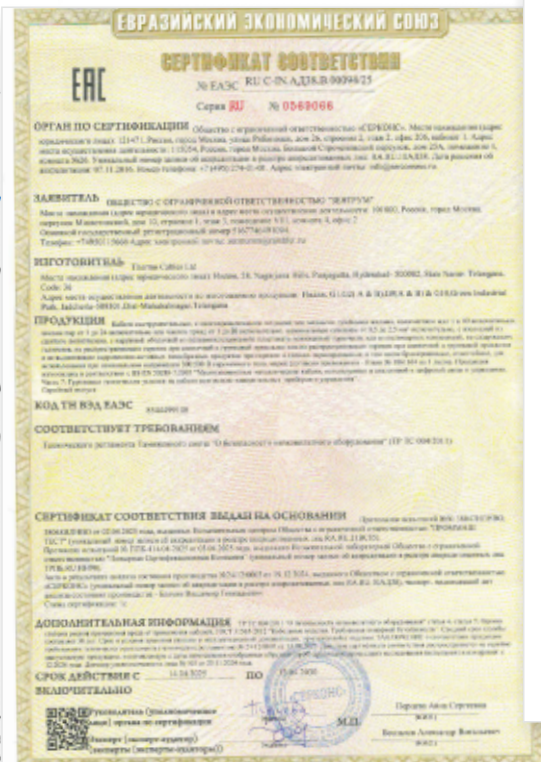
Low Corrosivity of combustion gases



Low toxicity



Operating temp.



International Approvals



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ADNOC APPROVAL

THERMOCALCULATES		Info	1	25 September 2023
ID	3006002	Facility Address	Country of Origin	
		-	India	
Work/Product Group				
View all Work/Product Groups				
Attachments				
 Thermocalc Agency ... 3006002				

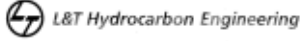
Work/Product Groups

Number	Name	Status	Grade
320603	CABLES - LV POWER DISTRIBUTION	Pre-qualified	-
320612	CABLES - FIBER OPTICS	Pre-qualified	-
320618	CABLES - FOR INSTRUMENTS & CONTROL	Pre-qualified	-
320621	CABLES - FIRE RESISTANT	Pre-qualified	-
320627	CABLES FOR DOWNHOLE ELECTRIC SUBMERSIBLE PUMPS (ESP)	Pre-qualified	-

[illegible]

S.No	Customer	Vendor Code
1	ADNOC	20009092
2	Advance Petrochemical	201463
3	Aluminium Bahrain B.S.C. (ALBA)	7791
4	Borogue	000003394
5	Dolphin Energy Ltd	112792
6	Dry Docks	99393
7	Emirates National Oil Company (ENOC)	1001101538
8	ExxonMobil	PC-2024.091753
9	FARABI	9000403
10	GE	SQ-076734.2
11	KOCH Engineered Solutions	SPS000472
12	Kuwait National Petroleum Company (KNPC)	177128
13	Kuwait Oil Company (KOC)	30971
14	MAADEN	20230002
15	NEOM	S10764408
16	National Water Company (NWC)	40317
17	Petroleum Development Oman (PDO)	104158
18	Petronas	1125426A
19	PTT Exploration and Production Public Company Limited (PTTEP)	309104
20	Qatar Energy	309104
21	Qatar Fuel Additives Company Limited (QAFAC)	106712
22	Saudi Arabian Railway (SAR)	4895
23	Saudi Electricity Company	2012054
24	SIBUR	61293
25	TASNEE	S11312730

Accolades



L&T Hydrocarbon Engineering Limited
Unit 8, Durgam Cheruvu
L&T Knowledge City, 1st Floor
M.M. Road, Hyderabad, Andhra Pradesh - 500 031
Egmont, India

Date: 19/03/2024

TO WHOM SO EVER MAY CONCERN

This is to certify that, M/s. Thermo Cables Ltd, having its Corporate Office at 28, Nagarjuna Hills, Punjagutta, Hyderabad-500082, Andhra Pradesh, INDIA has Manufactured and supplied us Foundation Fieldbus, Instrumentation & Control as follows:

PO NO	PROJECT	CABLE TYPE	SUPPLIED QTY
PO01GFD/INST/FFCABLE/RNG-05A	LGFD PDD-OMAN	Foundation Fieldbus	53.33 km
PO01GFD/INST/Instrument/MG-080	LGFD PDD-OMAN	Instrumentation & Control	137.2 km
HMDH-7/8000-04914/RN/AVD NO.003	SDDC 2 PDD-OMAN	Instrumentation & Control	188.0 km

The Supplies were made on time and the Performance of the cables has so far been Satisfactory.

We appreciate the sincere effort and services rendered by the entire Thermo Cable Team during Execution in accomplishing the project requirements satisfactorily.

For L&T HYDROCARBON ENGINEERING LTD - OMAN BRANCH

[Signature]
Authorized Signatory

Tel: +91 265 245 1000 / 1001 Fax: +91 265 245 1253 www.thermo.com
Registered Office: L&T House, A.M. Road, Durgam Cheruvu, Hyderabad - 500 031, INDIA
A wholly owned subsidiary of L&T Limited, New Delhi, India



Chennai Metro Rail Limited
(A Joint Venture of Govt. of India and Govt. of Tamil Nadu)

Date: 11.01.2024

TO Whomsoever It May Concern

This is to certify that M/s. Thermo Cables Ltd - Hyderabad has supplied Fine Stranded/Plastic Insulated Power & Control Cables To M/s. Chennai Metro Rail Limited project through M/s. Velux Limited for Phase 1 and Phase 1 Extension of Elevated Stations for vide below referred purchase orders.

S. No	Purchase Order	PO Date	Value in INR	Cable Type	Project	Agreed quantity (kg)	Year of Completion/Installation
1	1180001477	20.08.18	4,46,71,007	FR/GS Cables	MMT 10 - Elevated	41,026	May 2019
2	1136003404	25.03.20	4,35,365	FR/GS Cables	MMT 10 - Elevated	1908	December 2020
3	1200040004	22.01.21	2,72,26,485	FRS / FS Cables	MMT 12 - MHQ	28,154	February 2022
4	1180044795	28.08.21	17,90,651	FS Cables	MMT 12 - MHQ	8020	February 2022
5	1180044251	16.07.21	25,84,808	FS Cables	MMT 12 - MHQ	20,085	December 2022

M/s. Thermo Cables have supported in meeting our project schedules by supplying Cables within the stipulated delivery period. The Cables are in operation for more than 2 years and the Performance of the Cables is found to be Satisfactory.

Thanking you,

For Chennai Metro Rail Ltd

[Signature]
Authorized Signatory

METROS, Anna Salai, Nendran, Chennai - 600 035.
Email: chennai@metro-rail.com / Website: www.chennai-metro-rail.com
CIN: U60100TN200750C065996

NATIONAL CEMENT COMPANY LTD
Building The Nation

P. O. Box 22270 - 00000 NAIROBI, KENYA
TEL: 2720 400 400, FAX: 2720 400 400, EMAIL: info@ncc.co.ke

Date: 25.02.2018

TO WHOM SO EVER IT MAY CONCERN

This is to certify that M/s. Thermo Cables Ltd, Hyderabad have supplied L.T. Power, Control, Signal, Thermocouple and Composite Cables to our 3000 TPD Chlorination Unit at Merusohi, Email: loishatek@kenya.com, Kajiado County, KENYA vide our PO No. NCCL/PROUEML-EA1044/2014-2015 dated 9th November, 2015.

This PO contains supply of 13000 Mtrs. of 3.5 C X 300 Sq. mm alongside other type of Cables. We appreciate Thermo Cables efforts in executing this Order with quick deliveries to meet our Project Schedules. The Cables are in operation for more than 1 Years and the performance is found to be satisfactory.

for NATIONAL CEMENT COMPANY LTD,

[Signature]
Name: Lokesh Kumar
Designation: Commercial Director

MANUFACTURERS OF ALL TYPES OF QUALITY PPC AND OPC CEMENT INCLUDING 32.5N & 42.5N AND SIMBA FRYING BLOCK.



Date: 24 June 2023

To Whomsoever It May Concern

Subject: Performance Letter for Supply of Cables

This is to certify that Thermo Cables Limited, having its registered office at 28, Nagarjuna Hills Punjagutta, Hyderabad, Telangana, India - 500082 has successfully supplied cables for our various projects over the past years.

Details of the major supply orders executed are as follows:

Project Name	Purchase Order No.	Year of Supply	Quantity Supplied	Description of Material Supplied
RAS MARKAZ CRUDE OIL PUMP PROJECT - OTTCO	CPP-RM-PO-0137	2020-2023	305.51 KM	Instrumentation and Control Cables

Thermo Cables Limited has met all the technical and delivery requirements of the above projects and has demonstrated good performance in terms of quality, timely delivery, and support for Smooth Execution of the project.

We acknowledge their contribution and professionalism and wish them all the best in their future endeavors.

For and on behalf of

China Petroleum Pipeline Engineering Company Limited - Middle East

[Signature]
Lian Yan 尹安强
Head of Procurement CPP MDE



Date: 29.03.2024

TO WHOM SO EVER MAY CONCERN

This is to certify that, M/s. Thermo Cables Ltd, having its Corporate Office at 28, Nagarjuna Hills, Punjagutta, Hyderabad-500082, Andhra Pradesh, INDIA has Manufactured and supplied us Foundation Fieldbus, FS Instrumentation & Control of 400 Km against our Purchase order PO/GC-16/058 For Kuwait oil Company NEW GC 16 Project.

The Supplies were made on time and the Performance of the cables has so far been Satisfactory.

We appreciate the sincere effort and services rendered by the entire Thermo Cable Team during Execution in accomplishing the project requirements satisfactorily.

For Alkhorayef Group Company

[Signature]
Authorized Signatory

Alkhorayef Group Company
P.O. Box 40000, Dammam, Saudi Arabia
Tel: +966 3 880 0000, Fax: +966 3 880 0001
Email: info@alkhorayef.com, www.alkhorayef.com



Date: 20/03/2024

Subject: Letter of Appreciation to Thermo Cables Limited.

To, Thermo Cables Limited
Hyderabad.

Dear Thermo Cables Team,

We extend our sincere gratitude for the exceptional support provided during the period of 2022-2024. As a key partner, Thermo Cables Limited has played a pivotal role in the success of Hitachi Energy India Ltd, particularly in the manufacturing of different type of cables for GIS at our Vadodra facility. Hitachi Energy India Limited is a global leader in power technologies, providing the most comprehensive grid portfolio across the entire value chain. Hitachi provides compact, reliable Gas Insulated Switchgear (GIS) with high end technology for which Thermo Cables is also an important stakeholder for the supply of Control, Instrumentation and GIS cables. Your commitment to excellence, the consistent quality of your products and on-time supply has significantly contributed to the smooth functioning of our manufacturing processes. Thermo Cables Limited's dedication to delivering top-notch solutions aligns seamlessly with our standards at Hitachi. As we reflect on the successes of the past year, we eagerly anticipate continuing and strengthening this successful partnership in the years ahead.

In recognition of Thermo Cables Limited's substantial contributions, we present this letter of appreciation.

Best wishes to Thermo Cables Limited for continued success.

Regards

For Hitachi Energy India Limited, Vadodra
Formerly known as ABB Power Products and Systems India Ltd.

[Signature]
Category Manager

Hitachi Energy India Limited
(Formerly known as ABB Power Products and Systems India Limited)

Registered and Corporate Office:
Plot No. 10, Sector 10, Vadodra
Gujarat - 390 001, India
Phone: +91 79 26000000, Fax: +91 79 26000001
Email: info@hitachienergy.com

Factory Address:
Plot No. 10, Sector 10, Vadodra
Gujarat - 390 001, India



System Certifications

Bureau Veritas Certification



THERMO CABLES LIMITED

REGISTERED OFFICE: PLOT NO 28 NAGARJUNA HILLS, PUNJAGUTTA, HYDERABAD - 500052, TELANGANA, INDIA.

H.O & UNIT 1: D-44, 45, 48 TO 50, JADA PHASE - IV, JEEDEMETLA, HYDERABAD - 500 055, TELANGANA, INDIA.

This is a multi-site certificate, additional sites are indicated on the pages.

Bureau Veritas Certification Holding SAS - UK Branch certifies that the Management System of the above Organisation has been audited and found to be in accordance with the requirements of the Management System Standards detailed below.

Standards

ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018

Scope of certification

DESIGN, MANUFACTURE AND DESPATCH OF POWER CABLES, CONTROL, INSTRUMENTATION, SIGNAL, THERMO COUPLE, FIRE SURVIVAL CABLES, ELASTOMER CABLES, HIGH TEMPERATURE CABLES, ELECTRON BEAM IRRADIATED CABLES AND SPECIAL CABLES FOR MARINE, DEFENCE, OIL EXPLORATION, SOLAR, WATER HANDLING AND WIND ENERGY APPLICATIONS, CUSTOMISED WIRING HARNESS FOR ROLLING STOCK, AUTOMOTIVE, AEROSPACE, SHIP BUILDING & WIND APPLICATION

Original cycle start date for ISO 9001: 13 January 2006
Original cycle start date for ISO 14001 & ISO 45001: 21 May 2021
Expiry date of previous cycle: 29 May 2024
Recertification Audit date: 17 April 2024
Recertification cycle start date: 21 June 2024

Subject to the continued satisfactory operation of the Organisation's Management System, this certificate is valid until: 29 May 2027

Certificate No. **IND-24-26689MU** Version: 1 Issue date: 21 June 2024

For certificate authenticity, click here: <https://certiftech.bureauveritas.com/>

Signed on behalf of BVCH SAS UK Branch
Ajithkumar K. MANASSA
Director - CERTIFICATION, South Asia
Commodities, Industry & Facilities Division

Certification Department: 38 Place, 88 Place de la Liberté, 75002 Paris, France

For further details regarding the scope of the certificate and the applicable management system requirements, please refer to the certificate and the applicable management system requirements.

Bureau Veritas Certification

THERMO CABLES LIMITED

Standards

ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018

Scope of certification

SITE	ADDRESS	SCOPE
H.O & UNIT 1 JEEDEMETLA	D-44, 45, 48 TO 50, JADA PHASE - IV, JEEDEMETLA, HYDERABAD - 500 055, TELANGANA, INDIA.	DESIGN, MANUFACTURE AND DESPATCH OF POWER CABLES, CONTROL, INSTRUMENTATION, SIGNAL, THERMO COUPLE, FIRE SURVIVAL CABLES, ELASTOMER, HIGH TEMPERATURE CABLES, ELECTRON BEAM IRRADIATED CABLES AND SPECIAL CABLES FOR MARINE, DEFENCE, OIL EXPLORATION, SOLAR, WATER HANDLING AND WIND ENERGY APPLICATIONS, CUSTOMISED WIRING HARNESS FOR ROLLING STOCK, AUTOMOTIVE, AEROSPACE, SHIP BUILDING AND WIND ENERGY APPLICATION
UNIT 2 JADACHERLA	PLOT NO-01, G-04, G-05, G-06, G-07, G-08, G-09, G-10, G-11, G-12, G-13, G-14, G-15, G-16, G-17, G-18, G-19, G-20, G-21, G-22, G-23, G-24, G-25, G-26, G-27, G-28, G-29, G-30, G-31, G-32, G-33, G-34, G-35, G-36, G-37, G-38, G-39, G-40, G-41, G-42, G-43, G-44, G-45, G-46, G-47, G-48, G-49, G-50, G-51, G-52, G-53, G-54, G-55, G-56, G-57, G-58, G-59, G-60, G-61, G-62, G-63, G-64, G-65, G-66, G-67, G-68, G-69, G-70, G-71, G-72, G-73, G-74, G-75, G-76, G-77, G-78, G-79, G-80, G-81, G-82, G-83, G-84, G-85, G-86, G-87, G-88, G-89, G-90, G-91, G-92, G-93, G-94, G-95, G-96, G-97, G-98, G-99, G-100, G-101, G-102, G-103, G-104, G-105, G-106, G-107, G-108, G-109, G-110, G-111, G-112, G-113, G-114, G-115, G-116, G-117, G-118, G-119, G-120, G-121, G-122, G-123, G-124, G-125, G-126, G-127, G-128, G-129, G-130, G-131, G-132, G-133, G-134, G-135, G-136, G-137, G-138, G-139, G-140, G-141, G-142, G-143, G-144, G-145, G-146, G-147, G-148, G-149, G-150, G-151, G-152, G-153, G-154, G-155, G-156, G-157, G-158, G-159, G-160, G-161, G-162, G-163, G-164, G-165, G-166, G-167, G-168, G-169, G-170, G-171, G-172, G-173, G-174, G-175, G-176, G-177, G-178, G-179, G-180, G-181, G-182, G-183, G-184, G-185, G-186, G-187, G-188, G-189, G-190, G-191, G-192, G-193, G-194, G-195, G-196, G-197, G-198, G-199, G-200, G-201, G-202, G-203, G-204, G-205, G-206, G-207, G-208, G-209, G-210, G-211, G-212, G-213, G-214, G-215, G-216, G-217, G-218, G-219, G-220, G-221, G-222, G-223, G-224, G-225, G-226, G-227, G-228, G-229, G-230, G-231, G-232, G-233, G-234, G-235, G-236, G-237, G-238, G-239, G-240, G-241, G-242, G-243, G-244, G-245, G-246, G-247, G-248, G-249, G-250, G-251, G-252, G-253, G-254, G-255, G-256, G-257, G-258, G-259, G-260, G-261, G-262, G-263, G-264, G-265, G-266, G-267, G-268, G-269, G-270, G-271, G-272, G-273, G-274, G-275, G-276, G-277, G-278, G-279, G-280, G-281, G-282, G-283, G-284, G-285, G-286, G-287, G-288, G-289, G-290, G-291, G-292, G-293, G-294, G-295, G-296, G-297, G-298, G-299, G-300, G-301, G-302, G-303, G-304, G-305, G-306, G-307, G-308, G-309, G-310, G-311, G-312, G-313, G-314, G-315, G-316, G-317, G-318, G-319, G-320, G-321, G-322, G-323, G-324, G-325, G-326, G-327, G-328, G-329, G-330, G-331, G-332, G-333, G-334, G-335, G-336, G-337, G-338, G-339, G-340, G-341, G-342, G-343, G-344, G-345, G-346, G-347, G-348, G-349, G-350, G-351, G-352, G-353, G-354, G-355, G-356, G-357, G-358, G-359, G-360, G-361, G-362, G-363, G-364, G-365, G-366, G-367, G-368, G-369, G-370, G-371, G-372, G-373, G-374, G-375, G-376, G-377, G-378, G-379, G-380, G-381, G-382, G-383, G-384, G-385, G-386, G-387, G-388, G-389, G-390, G-391, G-392, G-393, G-394, G-395, G-396, G-397, G-398, G-399, G-400, G-401, G-402, G-403, G-404, G-405, G-406, G-407, G-408, G-409, G-410, G-411, G-412, G-413, G-414, G-415, G-416, G-417, G-418, G-419, G-420, G-421, G-422, G-423, G-424, G-425, G-426, G-427, G-428, G-429, G-430, G-431, G-432, G-433, G-434, G-435, G-436, G-437, G-438, G-439, G-440, G-441, G-442, G-443, G-444, G-445, G-446, G-447, G-448, G-449, G-450, G-451, G-452, G-453, G-454, G-455, G-456, G-457, G-458, G-459, G-460, G-461, G-462, G-463, G-464, G-465, G-466, G-467, G-468, G-469, G-470, G-471, G-472, G-473, G-474, G-475, G-476, G-477, G-478, G-479, G-480, G-481, G-482, G-483, G-484, G-485, G-486, G-487, G-488, G-489, G-490, G-491, G-492, G-493, G-494, G-495, G-496, G-497, G-498, G-499, G-500, G-501, G-502, G-503, G-504, G-505, G-506, G-507, G-508, G-509, G-510, G-511, G-512, G-513, G-514, G-515, G-516, G-517, G-518, G-519, G-520, G-521, G-522, G-523, G-524, G-525, G-526, G-527, G-528, G-529, G-530, G-531, G-532, G-533, G-534, G-535, G-536, G-537, G-538, G-539, G-540, G-541, G-542, G-543, G-544, G-545, G-546, G-547, G-548, G-549, G-550, G-551, G-552, G-553, G-554, G-555, G-556, G-557, G-558, G-559, G-560, G-561, G-562, G-563, G-564, G-565, G-566, G-567, G-568, G-569, G-570, G-571, G-572, G-573, G-574, G-575, G-576, G-577, G-578, G-579, G-580, G-581, G-582, G-583, G-584, G-585, G-586, G-587, G-588, G-589, G-590, G-591, G-592, G-593, G-594, G-595, G-596, G-597, G-598, G-599, G-600, G-601, G-602, G-603, G-604, G-605, G-606, G-607, G-608, G-609, G-610, G-611, G-612, G-613, G-614, G-615, G-616, G-617, G-618, G-619, G-620, G-621, G-622, G-623, G-624, G-625, G-626, G-627, G-628, G-629, G-630, G-631, G-632, G-633, G-634, G-635, G-636, G-637, G-638, G-639, G-640, G-641, G-642, G-643, G-644, G-645, G-646, G-647, G-648, G-649, G-650, G-651, G-652, G-653, G-654, G-655, G-656, G-657, G-658, G-659, G-660, G-661, G-662, G-663, G-664, G-665, G-666, G-667, G-668, G-669, G-670, G-671, G-672, G-673, G-674, G-675, G-676, G-677, G-678, G-679, G-680, G-681, G-682, G-683, G-684, G-685, G-686, G-687, G-688, G-689, G-690, G-691, G-692, G-693, G-694, G-695, G-696, G-697, G-698, G-699, G-700, G-701, G-702, G-703, G-704, G-705, G-706, G-707, G-708, G-709, G-710, G-711, G-712, G-713, G-714, G-715, G-716, G-717, G-718, G-719, G-720, G-721, G-722, G-723, G-724, G-725, G-726, G-727, G-728, G-729, G-730, G-731, G-732, G-733, G-734, G-735, G-736, G-737, G-738, G-739, G-740, G-741, G-742, G-743, G-744, G-745, G-746, G-747, G-748, G-749, G-750, G-751, G-752, G-753, G-754, G-755, G-756, G-757, G-758, G-759, G-760, G-761, G-762, G-763, G-764, G-765, G-766, G-767, G-768, G-769, G-770, G-771, G-772, G-773, G-774, G-775, G-776, G-777, G-778, G-779, G-780, G-781, G-782, G-783, G-784, G-785, G-786, G-787, G-788, G-789, G-790, G-791, G-792, G-793, G-794, G-795, G-796, G-797, G-798, G-799, G-800, G-801, G-802, G-803, G-804, G-805, G-806, G-807, G-808, G-809, G-810, G-811, G-812, G-813, G-814, G-815, G-816, G-817, G-818, G-819, G-820, G-821, G-822, G-823, G-824, G-825, G-826, G-827, G-828, G-829, G-830, G-831, G-832, G-833, G-834, G-835, G-836, G-837, G-838, G-839, G-840, G-841, G-842, G-843, G-844, G-845, G-846, G-847, G-848, G-849, G-850, G-851, G-852, G-853, G-854, G-855, G-856, G-857, G-858, G-859, G-860, G-861, G-862, G-863, G-864, G-865, G-866, G-867, G-868, G-869, G-870, G-871, G-872, G-873, G-874, G-875, G-876, G-877, G-878, G-879, G-880, G-881, G-882, G-883, G-884, G-885, G-886, G-887, G-888, G-889, G-890, G-891, G-892, G-893, G-894, G-895, G-896, G-897, G-898, G-899, G-900, G-901, G-902, G-903, G-904, G-905, G-906, G-907, G-908, G-909, G-910, G-911, G-912, G-913, G-914, G-915, G-916, G-917, G-918, G-919, G-920, G-921, G-922, G-923, G-924, G-925, G-926, G-927, G-928, G-929, G-930, G-931, G-932, G-933, G-934, G-935, G-936, G-937, G-938, G-939, G-940, G-941, G-942, G-943, G-944, G-945, G-946, G-947, G-948, G-949, G-950, G-951, G-952, G-953, G-954, G-955, G-956, G-957, G-958, G-959, G-960, G-961, G-962, G-963, G-964, G-965, G-966, G-967, G-968, G-969, G-970, G-971, G-972, G-973, G-974, G-975, G-976, G-977, G-978, G-979, G-980, G-981, G-982, G-983, G-984, G-985, G-986, G-987, G-988, G-989, G-990, G-991, G-992, G-993, G-994, G-995, G-996, G-997, G-998, G-999, G-1000, G-1001, G-1002, G-1003, G-1004, G-1005, G-1006, G-1007, G-1008, G-1009, G-1010, G-1011, G-1012, G-1013, G-1014, G-1015, G-1016, G-1017, G-1018, G-1019, G-1020, G-1021, G-1022, G-1023, G-1024, G-1025, G-1026, G-1027, G-1028, G-1029, G-1030, G-1031, G-1032, G-1033, G-1034, G-1035, G-1036, G-1037, G-1038, G-1039, G-1040, G-1041, G-1042, G-1043, G-1044, G-1045, G-1046, G-1047, G-1048, G-1049, G-1050, G-1051, G-1052, G-1053, G-1054, G-1055, G-1056, G-1057, G-1058, G-1059, G-1060, G-1061, G-1062, G-1063, G-1064, G-1065, G-1066, G-1067, G-1068, G-1069, G-1070, G-1071, G-1072, G-1073, G-1074, G-1075, G-1076, G-1077, G-1078, G-1079, G-1080, G-1081, G-1082, G-1083, G-1084, G-1085, G-1086, G-1087, G-1088, G-1089, G-1090, G-1091, G-1092, G-1093, G-1094, G-1095, G-1096, G-1097, G-1098, G-1099, G-1100, G-1101, G-1102, G-1103, G-1104, G-1105, G-1106, G-1107, G-1108, G-1109, G-1110, G-1111, G-1112, G-1113, G-1114, G-1115, G-1116, G-1117, G-1118, G-1119, G-1120, G-1121, G-1122, G-1123, G-1124, G-1125, G-1126, G-1127, G-1128, G-1129, G-1130, G-1131, G-1132, G-1133, G-1134, G-1135, G-1136, G-1137, G-1138, G-1139, G-1140, G-1141, G-1142, G-1143, G-1144, G-1145, G-1146, G-1147, G-1148, G-1149, G-1150, G-1151, G-1152, G-1153, G-1154, G-1155, G-1156, G-1157, G-1158, G-1159, G-1160, G-1161, G-1162, G-1163, G-1164, G-1165, G-1166, G-1167, G-1168, G-1169, G-1170, G-1171, G-1172, G-1173, G-1174, G-1175, G-1176, G-1177, G-1178, G-1179, G-1180, G-1181, G-1182, G-1183, G-1184, G-1185, G-1186, G-1187, G-1188, G-1189, G-1190, G-1191, G-1192, G-1193, G-1194, G-1195, G-1196, G-1197, G-1198, G-1199, G-1200, G-1201, G-1202, G-1203, G-1204, G-1205, G-1206, G-1207, G-1208, G-1209, G-1210, G-1211, G-1212, G-1213, G-1214, G-1215, G-1216, G-1217, G-1218, G-1219, G-1220, G-1221, G-1222, G-1223, G-1224, G-1225, G-1226, G-1227, G-1228, G-1229, G-1230, G-1231, G-1232, G-1233, G-1234, G-1235, G-1236, G-1237, G-1238, G-1239, G-1240, G-1241, G-1242, G-1243, G-1244, G-1245, G-1246, G-1247, G-1248, G-1249, G-1250, G-1251, G-1252, G-1253, G-1254, G-1255, G-1256, G-1257, G-1258, G-1259, G-1260, G-1261, G-1262, G-1263, G-1264, G-1265, G-1266, G-1267, G-1268, G-1269, G-1270, G-1271, G-1272, G-1273, G-1274, G-1275, G-1276, G-1277, G-1278, G-1279, G-1280, G-1281, G-1282, G-1283, G-1284, G-1285, G-1286, G-1287, G-1288, G-1289, G-1290, G-1291, G-1292, G-1293, G-1294, G-1295, G-1296, G-1297, G-1298, G-1299, G-1300, G-1301, G-1302, G-1303, G-1304, G-1305, G-1306, G-1307, G-1308, G-1309, G-1310, G-1311, G-1312, G-1313, G-1314, G-1315, G-1316, G-1317, G-1318, G-1319, G-1320, G-1321, G-1322, G-1323, G-1324, G-1325, G-1326, G-1327, G-1328, G-1329, G-1330, G-1331, G-1332, G-1333, G-1334, G-1335, G-1336, G-1337, G-1338, G-1339, G-1340, G-1341, G-1342, G-1343, G-1344, G-1345, G-1346, G-1347, G-1348, G-1349, G-1350, G-1351, G-1352, G-1353, G-1354, G-1355, G-1356, G-1357, G-1358, G-1359, G-1360, G-1361, G-1362, G-1363, G-1364, G-1365, G-1366, G-1367, G-1368, G-1369, G-1370, G-1371, G-1372, G-1373, G-1374, G-1375, G-1376, G-1377, G-1378, G-1379, G-1380, G-1381, G-1382, G-1383, G-1384, G-1385, G-1386, G-1387, G-1388, G-1389, G-1390, G-1391, G-1392, G-1393, G-1394, G-1395, G-1396, G-1397, G-1398, G-1399, G-1400, G-1401, G-1402, G-1403, G-1404, G-1405, G-1406, G-1407, G-1408, G-1409, G-1410, G-1411, G-1412, G-1413, G-1414, G-1415, G-1416, G-1417, G-1418, G-1419, G-1420, G-1421, G-1422, G-1423, G-1424, G-1425, G-1426, G-1427, G-1428, G-1429, G-1430, G-1431, G-1432, G-1433, G-1434, G-1435, G-1436, G-1437, G-1438, G-1439, G-1440, G-1441, G-1442, G-1443, G-1444, G-1445, G-1446, G-1447, G-1448, G-1449, G-1450, G-1451, G-1452, G-1453, G-1454, G-1455, G-1456, G-1457, G-1458, G-1459, G-1460, G-1461, G-1462, G-1463, G-1464, G-1465, G-1466, G-1467, G-1468, G-1469, G-1470, G-1471, G-1472, G-1473, G-1474, G-1475, G-1476, G-1477, G-1478, G-1479, G-1480, G-1481, G-1482, G-1483, G-1484, G-1485, G-1486, G-1487, G-1488, G-1489, G-1490, G-1491, G-1492, G-1493, G-1494, G-1495, G-1496, G-1497, G-1498, G-1499, G-1500, G-1501, G-1502, G-1503, G-1504, G-1505, G-1506, G-1507, G-1508, G-1509, G-1510, G-1511, G-1512, G-1513, G-1514, G-1515, G-1516, G-1517, G-1518, G-1519, G-1520, G-1521, G-1522, G-1523, G-1524, G-1525, G-1526, G-1527, G-1528, G-1529, G-1530, G-1531, G-1532, G-1533, G-1534, G-1535, G-1536, G-1537, G-1538, G-1539, G-1540, G-1541, G-1542, G-1543, G-1544, G-1545, G-1546, G-1547, G-1548, G-1549, G-1550, G-1551, G-1552, G-1553, G-1554, G-1555, G-1556, G-1557, G-1558, G-1559, G-1560, G-1561, G-1562, G-1563, G-1564, G-1565, G-1566, G-1567, G-1568, G-1569, G-1570, G-1571, G-1572, G-1573, G-1574, G-1575, G-1576, G-1577, G-1578, G-1579, G-1580, G-1581, G-1582, G-1583, G-1584, G-1585, G-1586, G-1587, G-1588, G-1589, G-1590, G-1591, G-1592, G-1593, G-1594, G-1595, G-1596, G-1597, G-1598, G-1599, G-1600, G-1601, G-1602, G-1603, G-1604, G-1605, G-1606, G-1607, G-1608, G-1609, G-1610, G-1611, G-1612, G-1613, G-1614, G-1615, G-1616, G-1617, G-1618, G-1619, G-1620, G-1621, G-1622, G-1623, G-1624, G-1625, G-1626, G-1627, G-1628, G-1629, G-1630, G-1631, G-1632, G-1633, G-1634, G-1635, G-1636, G-1637, G-1638, G-1639, G-1640, G-1641, G-1642, G-1643, G-1644, G-1645, G-1646, G-1647, G-1648, G-1649, G-1650, G-1651, G-1652, G-1653, G-1654, G-1655, G-1656, G-1657, G-1658, G-1659, G-1660, G-1661, G-1662, G-1663, G-1664, G-1665, G-1666, G-1667, G-1668, G-1669, G-1670, G-1671, G-1672, G-1673, G-1674, G-1675, G-1676, G-1677, G-1678, G-1679, G-1680, G-1681, G-1682, G-1683, G-1684, G-1685, G-1686, G-1687, G-1688, G-1689, G-1690, G-1691, G-1692, G-1693, G-1694, G-1695, G-1696, G-1697, G-1698, G-1699, G-1700, G-1701, G-1702, G-1703, G-1704, G-1705, G-1706, G-1707, G-1708, G-1709, G-1710, G-1711, G-1712, G-1713, G-1714, G-1715, G-1716, G-1717, G-1718, G-1719, G-1720, G-1721, G-1722, G-1723, G-1724, G-1725, G-1726, G-1727, G-1728, G-1729, G-1730, G-1731, G-1732, G-1733, G-1734, G-1735, G-1736, G-1737, G	

Infrastructure

Machinery

Name of the Machine	Name of the Machine	Name of the Machine - Range/LC
Rod Break Down Machine (9 Die) Rod Break Down Machine (11 Die) Rod Break Down Machine (13 Die) Skip Stranding Machine - 2 Nos Electroplating Tinning Machine - 2 Nos Multi Wire Drawing Machine 30 mm Multi Wire Drawing Machine 8 Wire - 2 Nos Fine Wire Drawing Machine - 4 Nos Mixing Machine 75 mm - 3 Nos Kneader Line - 2 Nos 75 L Kneader Ring Marker High Speed Core Rewinding - 4 Nos Taping Machine - 7 Nos Vertical Taping Machine - 6 Nos Horizontal Taping Machine - 12 Nos Single Twist Bunching Machine 400 Single Twist Bunching Machine Tandem Extrusion Line (Ø50 + 65/35 mm) Tandem Extruder Line (Ø80+ Ø100/Ø35) Tandem Extruder Line (Ø35+ Ø50/Ø35) Extruder Machine 20 mm Bi Color Extruder Machine 45 mm Extruder Machine 45 mm Bi Color Extruder Machine 65 mm - 9 Nos Extruder Machine 70 mm Extruder Machine 70/35 mm Extruder Machine 75 mm - 3 Nos Extruder Machine 80 mm - 4 Nos Extruder Machine 100 mm Core Rewinding Machine - 7 Nos Cooling Tower - 6 Nos GI Rewinding Machine - 20 Nos Ceramic Butt Welding Machine Butt Welding Machine - 15 Nos Electron Beam Accelerator - 2 Nos Pairing Machine - 4 Nos Pairing Back Twist Machine Laying Machine (7 Bobbins) Laying Machine (7 Bobbins) - Single Twist Laying Machine (13 Bobbins) Laying Machine (19 Bobbins) - 4 Nos Laying Machine (37 Bobbins) - 3 Nos Laying (42 Bobbin) Armouring Machine (30 Bobbin) - 2 Nos Armouring Machine (40 Bobbin) Armouring Machine (48 Bobbin) - 4 Nos Armouring Machine (72 Bobbin) Armouring Machine (96 Bobbin) Extruder Sheathing Machine 80 mm - 2 Nos Extruder Sheathing Machine 100 mm Cable Rewinding Machine - 5 Nos GI Rewinding Strip Machine - 2 Nos Off Line Annealer Nickel Plating - 2 Nos Pointing Machine - 2 Nos Fork Lift - 2 Nos Auto Clave HOIST 'A' - Skip HOIST 'B' - 54 Stranding HOIST 'P' - Stores HOIST 'C' - 7 B Laying HOIST 'E' - 13 Laying HOIST 'E' - 19 Laying - 2 Nos	HOIST 'E' - 19 B Laying - 2 Nos HOIST 'G' - 30 Armouring - 2 Nos HOIST 'G' - 30 B Armouring HOIST 'F' - 37 Laying HOIST 'F' - 37 B Laying - 2 Nos HOIST 'K' - 40 Armouring HOIST 'H' - 48 Armouring - 2 Nos HOIST 'H' - 48 B Armouring - 2 Nos HOIST 'J' - 72 B Armouring HOIST 'F' - 96 Armouring HOIST 'K' - HV Area HOIST 'L' - Drum Twister Area HOIST 'O' - RBD Area HOIST 'I' - Despatch - 2 Nos Chain Hoist 'A' - G I Rewinding - 2 Nos Chain Hoist 'C' - Simon Taping - 4 Nos High Speed Bunching Machine - 10 Nos Chiller - 2 Nos Chiller 5 TR Chiller 10 TR - 2 Nos Chiller 20 TR PVC Mixer High Speed Mixer 60 kg High Speed Mixer 120 kg High Speed Mixer 200 kg 16 A High Speed Braiding - 3 Nos 16 F High Speed Braiding - 2 Nos 24 High Speed Braiding - 2 Nos 24 A High Speed Braiding - 5 Nos 24 E High Speed Braiding - 4 Nos 24 F High Speed Braiding 48 High Speed Braiding 3 HP Air Compressor 10 HP Air Compressor - 3 Nos 15 HP Air Compressor 20 HP Air Compressor - 2 Nos 25 HP Air Compressor 100 HP Air Compressor - 3 Nos Brazing Machine - 4 Nos H V Testing - 3 Nos Drum Twister Machine 630 Single Twister Machine 7 Bobbin 800 Single Twister Machine 12 Bobbin 1250 Single Twister Machine 19 Bobbin DT 500 Buncher Machine Scissor Lift 2 ton Steam Boiler PVC Grinder Hydraulic Press PT Stranding & Taping Machine Silicone Rubber Mixing Machine 65/150 Two Stage Extruder (Compounding Line) 60 KVA UPS 80 KVA UPS - 2 Nos 100 KVA UPS 120 KVA UPS 160 KVA UPS 200 KVA UPS 250 KVA UPS - 2 Nos 320 KVA DG Set 365 KVA DG Set 600 KVA DG Set Inkjet Printers - 36 Nos Laser Printers - 4 Nos	Fourier Transmission infrared Spectrometer (FTIR) Profile Projector Digital Thermometer With Sensor - 2 Nos Hot Air Ageing Oven 6 Nos - Up to 250° C & 300° C Hot Set Oven Ozone Resistance Test Equipment Smoke Density Apparatus - 3 Nos Oxygen & Temperature index Apparatus - 2 Nos Flammability Tester - 3 Nos Cold Chamber Bend Cold Impact Test Set - 2 Nos 20° C to +25° C Hot Set Test Apparatus - 3 Nos Toxicity Index Test Equipment Halogen Acid Gas Emission Test Apparatus pH & Conductivity Test Equipment - 2 Nos - 0 to 14 pH Abrasion Resistatnce Tester - 2 Nos Electronic Tensile Tester - 3 Nos - 0 to 1000 N Dielectric Breakdown Tester & Leakage Current Tester High Frequency Spark Tester - 8 Nos - 0 to 15 KV AC Main Frequency Spark Tester - 2 Nos - 0 to 15 KV AC Digital Micro Ohm Meter 5 Nos - 1 mQ to 19.999 kQ (2 Nos.) & 1 mQ to 1.9999 kQ (1 No.) H V Tester 4 Nos - 0-5 / 10 KV Million Mega Ohm Meter 6 Nos - 1 MQ to 100 GQ, 1 MQ to 50 TQ & 2 MQ to 20 GQ Digital L C R Q Meter Thermal E M F Error Test Apparatus - 0 to 200 mV DC Digital M V Source Cum Meter - 0 to 199.9° C Digimatic Caliper - 0 to 300 mm Acid Gas Generation Apparatus 2 Nos Swedish Chimney Test Equipment Water Immersion Test Equipment - Up to 100° C 4 Cell Ageing Oven with Data Scanning Logger 2 Nos - 16 Channels Heating Oven - Up to 200° C Thermal Stability Test Apparatus Water Absorption Test Apparatus Gravimetric Electronic Balance Weighing Machine - 3 Nos 0 to 180 grms & 10 grms to 3 kgs Kelvin Bridge - 0-11 Q Torsion Testing Machine (Digital Control Meter - Up to 99999 Count) Fire Survival Test Equipment Static Noise Rejection Ratio Meter - 60 to 100 dB H V Break Down Tester - 0 to 2.5 KV DC Transfer Impedance Tester Steel Rule & Test Mandrel Set 0 to 1 Metre Condition Chamber 2 Nos - 20° C to 40° C (Temp.) & 40 to 80 RH Insulation Resistance Tester - 0 to 1000 MQ / 500 V Hydro Meter 4 Nos - 0.700 - 1.000 g / ml Digital Stop Watch 5 Nos - 0 - 24 hrs Mutual Capacitance Meter - 1.999 nF - 1999.9 nF Length Counter Meter - Up to 99999 mtr Tear Resistance Die Coating Thickness Measurement Meter Digital Multimeter 4 Nos - MQ Inductance Decade Box - 10 mH - 10 H Capacitance Decade Box - 10 pF - 10 μF Wet & Dry Thermometer 2 Nos - 40° C to +50° C Glass Thermometer 05 Nos - 10° C to + 110° C & - 10° C to 250° C Thermometer 02 Nos - 195° C to 205° C Digital Anemo Meter - 0 - 45 m/s Digital Thermo Hygrometer 02 Nos - 0 to 95° C / 20 to 99% RH Senior Double Kelvin Bridge UV Radiation Test Apparatus Notch Propagation Tester (Analog) Water Bath (Size 120 cm X 90 cm X 60 cm) H V Probe Millimeter Abrasion Resistance Tester Dynamic Cut Through Tester Cable Analyzer Universal Testing Machine PC Based Crosstalk Attenuation & Impedance Meter Attenuation 0.1 to 20 dB, Cross talk (- 40 to 100 dB), Impedance 199.9Q to 1.999kQ Network Analyzer (AESAs) Fluke - DSX - 8000 Toxity Index Tester as per EN 45545-2 Step Load Tester Bending Torsion Tester Vibration Tester

Testing Equipment



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