



Thermo Cables



Offshore 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.

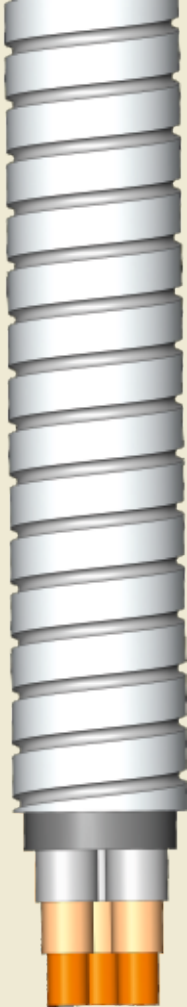
Mining Cables: IS 14494, **Co-Axial Cables:** MIL - DTL - 17H,

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





Electrical Submersible Pump (ESP) Cables

High, medium & low temperature flat & round cables are 3 KV, 4 KV & 5 KV rated for operating temperatures up to 450° F, 284° F, 205° F & 160° F.

Sizes : 1, 2, 4, 6 AWG & other sizes and KV ratings available upon request

Application : Downhole extraction systems are critical for crude oil extraction. The reliability of the electrical power supply to an Electrical Submersible Pump (ESP) system depends on the performance and reliability of the power feed through the wellhead, power cable, motor lead cable, pig tail connectors and related equipment such as the pump and motor. These cables offer an efficient, rugged and easy to handle solution that delivers reliable performance in a package that is straight forward to install and maintain.

Construction :

- Solid or stranded plain or tinned copper conductor
- Proprietary PP / EPDM rubber insulation with a poly-adhesive layer to the conductor
- Lead Sheath (applicable only for SL.No 4,12 &14 from the below table).
- HDPE / EPDM / Nitrile Rubber
- Longitudinally applied rubber backed fabric / PTFE
- Galvanized steel armour

SL. No	Rated	Cable Construction	Voltage	Conductor	Conductor	Insulation	Barrier Material	Tape	Jacket Material	Standard
	Temp. °F (°C)		Rating kV	Size (AWG)	Coating	Material				Armor
1	160(71)	Flat/Round	3,4,5	1,2,4,6	Bare/Tin	PP	NA	Rubber Backed Woven Fabric	HDPE	Galvanized
2	205(96)	Flat/Round	3,4,5	1,2,4,6	Bare/Tin	PP	NA	Rubber Backed Woven Fabric	Nitrile Rubber	Galvanized
3	205(96)	Flat/Round	3,4,5	1,2,4,6	Bare/Tin	PP	NA	Rubber Backed Woven Fabric	Nitrile Rubber	Galvanized
4	250(121)	Flat/Round	3,4,5	1,2,4,6	Bare/Tin	PP	Lead Sheath	Rubber Backed Woven Fabric	Nitrile Rubber	Galvanized
5	250(121)	Flat/Round	3,4,5	1,2,4,6	Bare/Tin	PP	NA	Rubber Backed Woven Fabric	Nitrile Rubber	Galvanized
6	284(140)	Flat/Round	3,4,5	1,2,4,6	Bare/Tin	EPDM	NA	Rubber Backed Woven Fabric	Nitrile Rubber	Galvanized
7	284(140)	Flat/Round	3,4,5	1,2,4,6	Bare/Tin	EPDM	NA	Rubber Backed Woven Fabric	Nitrile Rubber	Galvanized
8	300(148)	Flat/Round	3,4,5	1,2,4,6	Bare/Tin	EPDM	NA	Special Heat Resistant tape	EPDM	Galvanized
9	300(148)	Flat/Round	3,4,5	1,2,4,6	Bare/Tin	EPDM	NA	Special Heat Resistant tape	EPDM	Galvanized
10	400(204)	Flat/Round	3,4,5	1,2,4,6	Bare	Polyimide Tape / EPDM	NA	Special Heat Resistant tape	EPDM	Galvanized
11	400(204)	Flat/Round	3,4,5	1,2,4,6	Bare	Polyimide Tape / EPDM	NA	Special Heat Resistant tape	EPDM	Galvanized
12	450(232)	Flat/Round	3,4,5	1,2,4,6	Bare	Polyimide Tape / EPDM	Lead Sheath	Special Heat Resistant tape	EPDM	Galvanized
13	450(232)	Flat/Round	3,4,5	1,2,4,6	Bare	Polyimide Tape / EPDM	NA	Special Heat Resistant tape	EPDM	Galvanized
14	450(232)	Flat/Round	4,5	2,4,6	Bare	Polyimide Tape / EPDM	Lead Sheath	Special Heat Resistant tape	EPDM	Monel

NOTES : 1. Materials and specifications are subject to change without notice. 2. Jacket is not applicable for Flat cable construction

Downhole Tubing Encapsulated Conductor (TEC) Cables

These cables are used in the Oil and gas refineries, Oil well monitoring, Powering downhole equipment and instrumentation, Underground power distribution, Pressure sensing equipment & Data collection etc.

They are used to monitor, provide power and transmit signals in a downhole application. Cables used in the oil & gas industry must be able to withstand extreme environments, temperatures and pressure which is why Thermo Cables is the choice of industry professionals.

TEC (Tubing Encapsulated Conductor) cables have the traditional characteristics of stranded wires or cables – they have some form of copper conductor surrounded by an insulation material or jacket. The difference comes when the stranded wire or the tubing layer that surrounds the product with an armored metal component. Lastly, the final layer encapsulates the entire cable. TEC tubing encapsulated cables can withstand temperature ranges from 150° C to 300° C.

These are made with 5 layers and can be constructed with the following materials:

- Conductor Layer** : can be comprised of 20 AWG to 12 AWG, solid or stranded, bare copper, tinned copper, nickel plated copper, or silver plated copper.
- Insulation Layer** : can be comprised of either FEP, PFA, ETFE or ECTFE.
- Extruded Filler Layer** : can be comprised of PFA, FEP or Polypropylene.
- Armor Layer** : can be comprised of 316L Stainless Steel, Alloy 825 or Alloy 625
- Final Layer** : an encapsulation layer can be comprised of FEP, PFA, ETFE, Polyolefin, Polyamide.

Cables Specification :

Voltage Rating V DC	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Conductor Gauge (AWG)	18	16	18	16	18	16	18	16	18	16	18	16
Conductor Type	Solid or Stranded											
Conductor Coatings	Bare, Tinned, Nickel Plated, Silver Plated											
Insulation	ETFE, ECTFE, FEP, PFA											
Filler	Polypropylene, FEP, PFA											
Armor Type	316L, Alloy 825, Alloy 625											
Max. Conductor Resistance Ohms/KFT 20° C	7	4.4	7	4.4	7	4.4	7	4.4	7	4.4	7	4.4
Max. Conductor Resistance Ohms/KFT 150° C	10.5	6.5	10.5	6.5	10.5	6.5	10.5	6.5	10.5	6.5	10.5	6.5
Capacitance pF/ft 20° C	26	27.2	32	29.3	36	34.9	26	27.2	32	29.3	36	34.9
Capacitance pF/ft 150° C	27.5	30.9	33.5	33.3	40.8	39.7	27.5	30.9	33.5	33.3	37.5	39.7
Min. Insulation Resistance Mohms/KFT	6500	15000	6500	15000	6500	15000	6500	15000	6500	15000	6500	15000
Cable Type	Polyolefin		Polyamide		ETFE		FEP		PFA			
Cable Color	Yellow		Black		Blue		Natural					
Max. working temperature, degC (degF)	150 (302)				175 (347)		200 (392)		250 (482)		300 (572)	
Min. storage and transportation temperature, degC (degF)	-48 (-54)				-100 (-148)		-110 (-166)					



Marine / Shipboard Cables

DEF STAN 02-526 (NES 526) and DEF STAN 02-527 (NES 527)

For use on onboard surface ships, submarines and crafts for power, control, lighting and communication and instrumentation circuits with or without fire survival characteristics.

Standards	: NES 526 - Dual layer Insulated, Electron Beam Cross linked irradiated Electric cables NES 527 - Fire Survival, High Temperature, Fire retardant Halogen Free Sheathed Electron Beam Cross linked irradiated Electric cables
Construction	: Single Core, Multi Core, Multi Pair & Triad, Unscreened or Individually Screened or Collectively Screened.
Voltage Grade	: 440 V AC
Conductor	: Circular Electroplated, Annealed Tinned Copper
Temperature Range	: - 30° C to + 105° C
Insulation	: Dual Layer Electron Beam Cross linked irradiated materials / Silicone Rubber
Screening	: Annealed Tinned Copper Braid
Outer Sheath	: Electron Beam Cross linked irradiated LFH Compound
Protective Barrier	: Glass Braid/Lacquer, Mica Glass Tape to meet the fire performance applicable for DEF STAN 02-527 (NES 527) cables.

IEC 60092-350, 353, 360 & 376, BS-6883, BS-7917

For use in shipboard & offshore application at marine environment and use for Power, Control, Instrumentation and Communication with or without fire survival characteristics.

Standards	: IEC 60092-350 - Construction & Test methods of Power, Control and Instrumentation cables IEC 60092-353 - Power Cables for rated voltage of 1 kV & 3 kV IEC 60092-376 - Control & Instrumentation Cables for rated voltage of 150 V / 250 V IEC 60092-360 - Insulating and sheathing materials for shipboard and offshore cables. BS 6883 - Elastomeric insulated Cables for fixed wiring in ships & offshore units. BS 7917 - Elastomeric insulated fire resistant (Limited Circuit Integrity) Cables for fixed wiring in ships & offshore units.
Construction	: Single Core, Multi Core, Single Pair, Multi Pair, Multi Triad and Quad Screened & Unscreened, Armoured & Unarmoured
Voltage Grade	: 150 V / 250 V AC, 0.6 / 1.0kV and 1.8/3.0kV AC
Conductor	: Electroplated Annealed Bare / Tinned Copper of various classes
Temperature Range	: -15° C to 95° C
Insulation	: XLPE / EPR / HEPR, HF 90 / S 95
Screening	: Al-Mylar Tape along with Drain Wire / ABC or ATC Braiding
Inner Sheath	: SHF1 / SHF2 / SH / SF
Braid Armour	: Copper (Bare or Tinned) / Copper alloy (Bare or Tinned) / GI Wire Braid with >90% coverage.
Outer Sheath	: SHF1 / SHF2 / SH / SF

High Temperature Cables

High temperature cables are used in areas where both working temperatures and ambient temperatures are too high. They are made with a wide range of conductors, insulating materials and screening materials depending on the temperatures and conditions under which the cable has to perform.

Single Core high temperature hook-up wires & Multi Core / Multi Pair, Screened & Unscreened and Armoured & Unarmoured Cables

- Construction** : Single Core or Multi Core / Pairs
- Voltage Grade** : 250 V AC, 600 V AC & 1000 V AC (Rating as per MIL-16878, VDE, DIN, JSS)
- Conductors** : Annealed Bare copper (up to 200° C) / Annealed tinned copper conductor (up to 180° C)
Annealed silver plated copper conductor (up to 200° C)
Nickel plated conductor (up to 260° C)

Insulation

Insulation Material	Temperature Range	Characteristics
PTFE	- 200° C to 260° C	Excellent chemical resistance. High temperature stability
FEP	- 200° C to 200° C	Good chemical resistance Thin wall insulation due to good electrical properties
PFA	- 200° C to 250° C	Good chemical resistance, Thin wall insulation due to good electrical properties. Good flexibility
PTFE	- 150° C to 150° C	Mechanically tough
XL ETFE	- 150° C to 200° C	Good electric insulation, radiation resistance, ARC tracking and cold flow
PEEK	- 160° C to 250° C	Mechanically very tough High temperature and radiation resistance
Kapton Tape	- 250° C to 300° C	Very thin wall insulation. High temperature resistance
Silicon Rubber	- 40° C to 180° C	Flexible and abrasion resistance
Ceramic Yarn / Quartz Yarn Braiding	600° C	Chemically stable and higher thermal resistance
Special High Temperature Yarn	1000° C	Superior resistance to temperatures. excellent resistant against radiant heat.

- Screening** : Individual and / or overall with following options
- Aluminum Mylar / Copper Tape with Tinned Copper Drain Wire
- Braided with Bare or Tinned or Nickel Plated or Silver Plated Copper
- Armouring** : Steel galvanized wire, stainless steel wire, high strength steel wire braiding
- Standards** : JSS-51034, JSS-51038, UL-1581

Industry & Applications

- Steel / Cement** : Cables for blast furnace, electric arc furnace, hot & cold rolling mills, steel refining facilities etc.
- Communication** : High frequency co-axial cables for VHF, UHF and SHF transmission
- Marine** : Engine proximity wiring for good resistance to high temperatures, fuel oils, chemicals, saline air / water etc.
- Petrochemical** : Instrumentation & control, temperature sensing, fire warning etc.
- Power** : In proximity to the turbines, boilers, ash handling etc.

Complete In-house expertise & facilities to provide the entire range of High Temperature Insulations



Type - P Cables

Type P Cables are specifically designed for installation and use in harsh environments found within offshore and onshore drilling rigs. These extreme environments may include severe cold, high heat, constant vibration, drilling mud, mechanical stress and salt corrosion.

Specification	: IEEE 1580, IEC 60092-353, IEC 60092-376, UL 1309
Temperature Range	: 90° C, 100° C, 110° C & 125° C
Conductor	: Flexible stranded tinned copper
Application	: Powering Machinery, Communication Devices, Navigation Systems, Offshore Drilling Rigs, Shipboard Wiring and Marine Vessels
Cable Type	: Multi Core, Single Core, Power, Control, VFD and Instrumentation Cables
Voltage Grade	: 300 V, 0.6 / 1.0 KV & 2 KV
Insulation	: XLPO
Sheath	: Extruded Flame Retardant, Oil & Abrasion Resistant Synthetic Elastomer
Armour (Optional)	: Tinned copper or bronze wire braid
Shield (applicable for Instrumentation Cables)	: An aluminum/polyester tape with drain wire, 100% coverage, is applied over each twisted pair and the cabled core, the single pair construction has only the overall shield.

VFD Cables

VFD cables are used to connect the VFD drive to the variable frequency motors, drives precisely controls the speed and torque of the motors. During this operation of controlling the motor by changing the frequency there is every chance for noise generation, sudden induced voltage and spikes and intense electric field around the conductor which can be suppressed with special design.

Construction	: Metallic layer over the core / cable will reduce the noise / strong electric field around the core / earthing of all spikes generated during the operation.
Voltage Grade	: Up to 1800 / 3300 V AC
Conductor	: Circular electrolytic bare copper / tinned copper (stranded / flexible)
Insulation	: XLPE or EPR or HEPR
Screening	: Combination of copper tape and copper wire braid or double layer of copper tape and concentric braiding
Outer Sheath	: PVC / ZHFR / SHF1 / SHF2
Application	: This construction of metallic layer over the core / cable will reduce the noise / strong electric field around the core / earthing of all spikes generated during the operation.

Co-Axial Cables (RG Series)

Radio Frequency or Signal Transmission Cables, Polyethylene / XLPE / Fluoropolymer / Dielectric Insulation & Halogen Free Flame retardant with low smoke and low toxic polymers, Sheath materials.

Specification	: Def Stan 02-512 (PT-5) & MIL-DTL-17H & customer specification
Construction	: Single Core Screened Cables
Primary Conductor	: ABC / ATC / SPC & special conductors like CCS (Copper Clad Steel) etc
Temperature Range	: - 30° C to +120° C
Insulation	: Polyethylene / XLPE / Fluoropolymer
Outer Conductor	: Aluminium Mylar Tape / Annealed Tinned / Bare Copper Braid
Outer Sheath	: Special halogen free and fire retardant with low smoke generation and low toxic properties with E-beam curing process
Type of Cables	: RG 11, RG 213, RG188, RG 58, RG 59, RG 214
Application	: For use of VHF (Very High Frequency) signal transmission

International Approvals

شركة البترول الوطنية الكويتية
KNPC
A Subsidiary of Kuwait Petroleum Corporation

VENDORS & CONTRACTORS EVALUATION COMMITTEE

M/S. THERMO CABLES LTD.
PLOT NO. 01, 02 IN GREEN INDUSTRIAL PARK
JABERHILA, DIST. AL-HADITHA - 509001
INDIA

DATE: 10th May 2021
REF: COM-2020-21-082
FILE NO: Y-4790

SUBJECT: VENDOR APPROVAL - RE-QUALIFICATION

GENTLEMEN,

REFERENCE TO YOUR PREVIOUS APPROVAL LETTER DATED 29/05/2020, YOUR COMPANY RE-QUALIFIED AS A VENDOR EFFECTIVE 29/05/2021 FOR THE SUPPLY OF THE FOLLOWING PRODUCTS FOR KNPC REFERRED:

PRODUCT DESCRIPTION

TS 40 CABLE, INSTRUMENTS (INCLUDING THERMOCOUPLE WIRE & CABLE)

THE COMPANY (VENDOR) CODE ALLOCATED TO YOUR COMPANY IS 177128.

PLEASE ENSURE TO QUOTE THIS CODE AND ABOVE FILE NO. ON ALL YOUR FUTURE CORRESPONDENCE.

VERY TRULY YOURS,

BARBAR H. AL-QAHTANI
CHAIRMAN V & CEO

THIS LETTER SUPERSEDES OUR LETTER DATED 28th MAY 2018

NOTE: APPROVAL VALIDITY IS UP TO 28th MAY 2026 (APPROVED SINCE 28th MAY 2011)

REF #12076

PLEASE REFER OVERLEAF FOR INSTRUCTIONS

SAIPEM S.p.A.
Via Martiri di Carpi 10, 57
20087 San Donato Milanese
Milano - Italia

San Donato Milanese, 04/05/2021

PROT. VA-2021-11464-P

Kind attn. of the Legal Representative

SUBJECT: Qualification process for inclusion in Saipem Vendor List

We are pleased to inform you that your Company has successfully completed the qualification process in accordance with Saipem procedures.

The qualification stands for the supply of goods and/or services for the following commodity:

ME089020 - INSTRUMENT CABLES (ARMoured AND UNARMoured)

Please note that you have been registered in our Vendor Management Data Base with code 106023 that you are kindly requested to mention in all communication with Saipem.

Such registration shall not create or impose any obligation or liability on Saipem as well as it shall not ensure the involvement of your Company in future bids launched by Saipem.

The qualification has a 36 (thirty-six) month validity, and this qualification status will be monitored through feedback analysis and, if required, audit visits at your office and/or premises.

We kindly ask you to promptly inform us of any change of your Company organization by joining our website www.saipem.com and selecting "Qualification Management" area.

Should any serious facts concerning management, organization and assets occur (i.e. composition or arrangement of creditors, winding up orders, bankruptcy, etc.), the given qualification, subject to Saipem evaluation, could be revoked at any time since the date of the said event.

Best Regards,

SAIPEM S.p.A.
Procurement and Field Order Services
Director
Pietro Gaiardelli

SAIPEM.COM

SAIPEM S.p.A.
Via Martiri di Carpi 10, 57
20087 San Donato Milanese
Milano - Italia

ADNOC APPROVAL

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	-

Contracts and Supply Chain Management Department

PROT. VA-2021-11464-P

Kind attn. of the Legal Representative

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Best Regards,

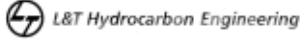
SAIPEM S.p.A.
Procurement and Field Order Services
Director
Pietro Gaiardelli

SAIPEM.COM

SAIPEM S.p.A.
Via Martiri di Carpi 10, 57
20087 San Donato Milanese
Milano - Italia

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 - 500 021
Egapat, 2024

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	SDC 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 - 500 021, 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.

Sr. No.	Purchase Order	PO Date	Value in INR	Cable Type	Project	Agreed quantity (No. of Cables)	Year of Completion/Installation
1	1180001477	20.08.18	4,46,71,007	FR/GS Cables	MMT 10 - Elevated	1500	December 2020
2	1180001482	25.03.20	4,35,365	FR/GS Cables	MMT 10 - Elevated	1500	December 2020
3	1200040304	22.01.21	2,72,00,000	FR/GS Cables	MMT 12 - MHO	20,000	February 2022
4	1180044795	28.08.21	17,90,000	FR Cables	MMT 12 - MHO	8000	February 2022
5	1180044251	16.07.21	25,84,000	FR Cables	MMT 12 - MHO	20000	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: 254 20 22270 400, 22270 401, 22270 402, 22270 403, 22270 404, 22270 405, 22270 406, 22270 407, 22270 408, 22270 409, 22270 410, 22270 411, 22270 412, 22270 413, 22270 414, 22270 415, 22270 416, 22270 417, 22270 418, 22270 419, 22270 420, 22270 421, 22270 422, 22270 423, 22270 424, 22270 425, 22270 426, 22270 427, 22270 428, 22270 429, 22270 430, 22270 431, 22270 432, 22270 433, 22270 434, 22270 435, 22270 436, 22270 437, 22270 438, 22270 439, 22270 440, 22270 441, 22270 442, 22270 443, 22270 444, 22270 445, 22270 446, 22270 447, 22270 448, 22270 449, 22270 450, 22270 451, 22270 452, 22270 453, 22270 454, 22270 455, 22270 456, 22270 457, 22270 458, 22270 459, 22270 460, 22270 461, 22270 462, 22270 463, 22270 464, 22270 465, 22270 466, 22270 467, 22270 468, 22270 469, 22270 470, 22270 471, 22270 472, 22270 473, 22270 474, 22270 475, 22270 476, 22270 477, 22270 478, 22270 479, 22270 480, 22270 481, 22270 482, 22270 483, 22270 484, 22270 485, 22270 486, 22270 487, 22270 488, 22270 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1281, 22270 12

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 of the scope of certification.

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 APPLICATIONS

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
Agathe N. BANAIS
Director - CERTIFICATION, South Asia
Commodities, Industry & Facilities Division

Certification address: 30 Floor, 60, Prasad Street, London, E1 6PG, United Kingdom

Client: Bureau Veritas United Private Limited (Certification Bureau)
19, Sankar Street, Madhavaram, Chennai - 600 030, India
Auditor (Lead): Madhavaram - 600 030, India

Further certification regarding the scope of this certificate and the applicable management system requirements may be obtained by contacting the Organisation.

To check this certificate validity please call +91 20 6574 2886

Bureau Veritas Certification

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 CABLES, HIGH TEMPERATURE CABLES, ELECTRON BEAM IRRADIATED CABLES, SOLAR 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 APPLICATIONS
UNIT 2 JADACHERLA	PLOT NO-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 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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

