



ELECTRIC HEATERS FOR INDUSTRY

Head office:

Address : Via A. Volta 52 20090 Cusago-Milano-Italy

Tel 0039-02-90119641/90119631

Fax 0039-02-9019548

Email: info@fati.com-

Web : www.fati.com

Factory Address:

Via A. Volta 52 -20090 Cusago Milan- Italy

General details:

Complete Vendor name :

Fabbrica Apparecchiature Termoelettriche Industriali s.r.l.

Brand-Vendor name : F.A.T.I. s.r.l

Type : private limited

Address-office: Via A. Volta 52-20047 Cusago Mi-Italy

Via Volta 52- 20090-Cusago (MI)- Italy

Phone: 0039 02 90119641 Fax: 0039 02 9019548 Email : info@fati.com

Web : www.fati.com



ELECTRIC HEATERS FOR INDUSTRY

General company data - Business activities (equipment types, fabrication details, special service)- Engineering / design personnel- Mechanical design (internal/external personnel, capabilities, computer tools)

The company-aim of F.A.T.I. (Fabbrica Apparecchiature Termoelettriche Industriali) is to design, produce and sell heating elements of various types and sizes.

Industrial activity dates back to 1945. In fact, the company was established on 4th December 1945, with head office in Milan, Via Bigli. Later in the 60's, the company moved its activities to Via Voghera (always in Milan).

In 1998 the company moved to its new premises just outside Milan, where it transferred the new production of heating elements. In this new production unit the company uses the most modern solutions in the field of industrial technologies applied to the production of heating elements and heat exchangers.

Armored heating elements are the most advanced and reliable technological solution in the field of industrial electric heating. In fact, thanks to the high level of magnesium oxide isolation, they guarantee long operational life also in case of particularly heavy duty. Theoretically, heating elements can be produced in the most varied shapes and with a wide range of diameters, lengths and materials.

The range of heating elements produced by F.A.T.I. is the most complete range proposed on the market, and due to the thorough qualitative improvement the products are subject to, it is in line with the production of leading manufacturers worldwide in this sector. In fact, some of these manufacturers who are convinced of the quality of F.A.T.I. products and the excellent cost/performance ratio which characterizes them, sell them on the world markets with their own trademark.

F.A.T.I. production is exported to technologically advanced countries, and its main markets are Europe, North and South America, Asia and North Africa. Over 50% of the production is exported directly and over 30% is exported indirectly, with a market increase in the trend due to the quality and value of the products supplied.

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ELECTRIC HEATERS FOR INDUSTRY

F.A.T.I. srl are manufacturers of high integrity electric heaters designed to meet the requirements of customers specifications and applicable national/international standards. The majority our process heaters are supplied to the Petroleum, Petro-Chemical and Industrial Gas applications and are currently installed all over the world.

Process Application Heaters are installed and operating successfully with a variety of process fluids. Typically:

- Diathermic Oil and Liquid Hydrocarbons
- Sweet and Demineralised Water heating
- Various process gas streams
- Air and Nitrogen
- Acid gas in sulphur recovery units



Supply scope The scope of our supply can be limited to the provision of the heater bundle only or extended to cover a complete process heating system including process design, pressure containment vessels and associated control and safety systems required.

Heating Elements F.A.T.I. manufacture a comprehensive range of heating elements comprising high quality 80/20 Nickel Chrome resistance wire held centrally within a metal sheet and insulated using compacted magnesium Oxide. The standard outer sheath material is constructed using "seamless" St.St. which provides suitable corrosion resistance for the majority of applications. Other sheet materials of construction are available and are regularly supplied to meet specific process or corrosion requirements. Typically:

- Inconel 600 -601
- Stainless Steel 304
- Stainless Steel 316
- Stainless Steel 321
- Copper
- Titanium
- Hastelloy 800- 825
- Monel
- Ceramic, Pirex, Teflon, Quarz, Plomb



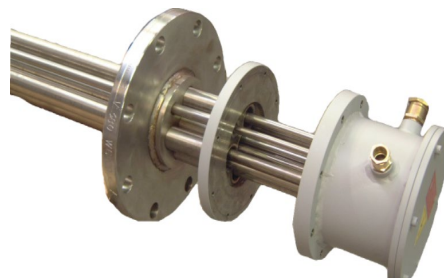
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Terminal Enclosures A wide range of terminal enclosures are available from general purpose to flameproof standards

- General Purpose IP42 standard
- Weatherproof IP55/65/66/67 according to EN60529 standards
- Flameproof according to CENELEC standards and ATEX and IECEx directive ,PESO-INDIA,KHOSHA-KOREA,TR-CU-RUSSIA-KZ-BL-,INMETRO-BRAZIL



Pressure Vessels The pressure containment vessels can be provided to meet customer specifications and the majority of international standards. Typically:

- Process fluid (chemical/physical characteristics)
- Normal Flow rate (max/min rates)
- Operating pressure
- Allowable pressure loss
- Inlet temperature (min)
- Outlet temperature (max)
- Mechanical design pressure/temperature
- Area classification (if in hazardous location)
- Climatic conditions
- Process terminal sizes
- Materials of construction *
- Over temperature protection *
- Certification requirements
- Terms and conditions



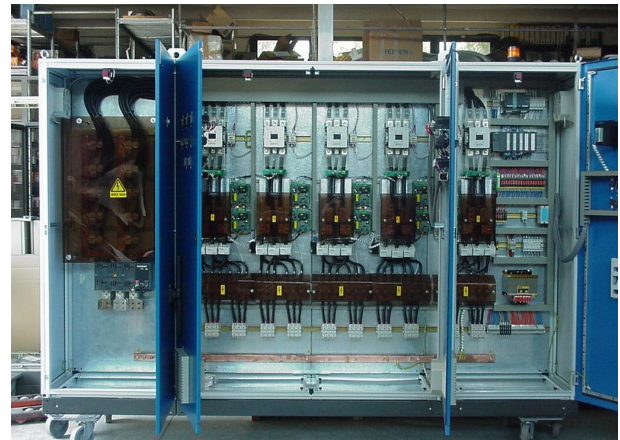


ELECTRIC HEATERS FOR INDUSTRY

Controls Control and protection systems can be supplied to ensure maintenance of the required process parameters and operational safety of the equipment. Control of the exit temperatures can be achieved by various methods including on/off type, by step control or by thyristor dependant on the process requirements.

Heater Design To enable preparation of an accurate process design and commercial proposal the following data should provide.

F.A.T.I. can also supply control boards and cabinets with type of protection Ex p, for installation in hazardous locations, certified according to CENELEC standards and ATEX directive.



INTERNAL VIEW

FATI can supply electric control panels for the regulation and control of electrical heaters to satisfy all Customers requests without power limit.

The panels are designed and constructed to guarantee maximum reliability and safety in accordance with a current standards.

The power controls can be On-Off type or with SCR single-phase or three phases with two or three lines with zero-crossing or phase angle commutation control.

FATI use high quality components for the construction of their control panels.

Control panel came complete with CE or UL certification.



CONTROL PANEL KW3200

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ELECTRIC HEATERS FOR INDUSTRY

FATI produce air heaters of the duct type, with smooth or finned heating elements, to heat low pressure air, of standard, weatherproof or flameproof (EX d) construction, approved according to CENELEC standards and ATEX/IECEX directive

Air duct heaters designed for flange mounting in connection with climate control/heat regeneration and ventilation system,

heaters usually used for room comfort heating .

Special design for example for Process systems, Furnaces, Autoclaves, Reheating, Paint drying, Load banks, Ships and high-temperature duct heaters upon request. Can be supplied to suit round and square duct.

Ex-proof electrical Duct Heaters for hazardous areas

Classification EX d IIB



Applications:

Ex-proof duct heaters are designed for mounting in hazardous areas with a temperature classifications up to T4, and zone definition 1 or 2.

FATI manufacturers to many applications, such as climate units, off-shore, chemicals and petrochemical installations, ship construction and process industry.

All heaters are designed for both in- and outdoor use.

Temperature control:

The heaters have to be regulated by a control device. If placed in hazardous area the control device itself

must be ex-proof. if placed outside the hazardous zone a normal control device may be used.

Description :

Duct Part:

The duct heaters are available as standard in hot-galvanized steel case, but may be designed in other materials if requested, for example; st.st.304L, 316L, 321L, etc.

Terminal box:

Integrated in the duct part and fitted with cable glands.

Protection mode IP40, IP55, IP65, Ex.

Heating elements:

Tubular heating elements can be in carbon steel, st.st.304L, 316L, 321L, Incoloy, Inconel.

Options:

Thermostats, thermocouple J or K, RTD PT100, inserted in the thermo well for the over temperature protection.



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Materials:

Depending on medium and surrounding environment the duct heaters will be supplied in materials designed for the actual conditions. As standard is used stainless steel for both casing and tubular.

Approval:

The duct heaters are approved acc:

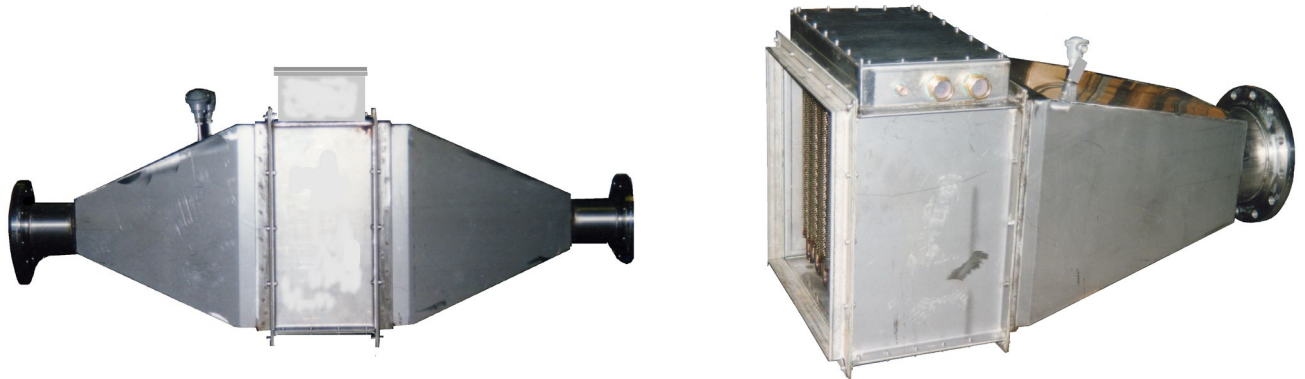
EN60079-0-2012

EN60079-1-2007

Installation:

The duct heaters are very easy to install whether it's a new project or a replacement, because every heater is designed acc. existing dimensions, wattage and current.

Mounting can be done by flanges, welding or as plug-in heater. It is important to ensure that minimum air flow is always maintained by installing a suitable flow guard.



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ELECTRIC HEATERS FOR INDUSTRY

INDEX

1 - GENERAL DETAILS

2 - NAME OF REFERENCES

3 - FINANCIAL INFORMATIONS

4 - BANK REFERENCES

5 - CERTIFICATES LIST

6 - PRODUCT RANGE

7 - ORGANIZATION CHARTS

8 - PERSONNEL DETAILS

9 - BIO DATA OF TECHNICAL PERSONAL

10 - DETAIL OF MACHINERY

11 - LIST OF IN-HOUSE TESTS CALIBRATED OUT



ELECTRIC HEATERS FOR INDUSTRY

COMPLETE VENDOR NAME	FABBRICA APPARECCHIATURE TERMOELETTRICHE INDUSTRIALI S.R.L.
TYPE	PRIVATE LIMITED
ADDRESS – OFFICE	<u>A. VOLTA 52-20047 CUSAGO – MI - ITALY</u>
TELEPHONE	+39 02 90 11 96 41
FAX	<u>+39 02 90 19 548</u>
E-MAIL	Info@fati.com
WEB	www.FATI.com
WEEKLY HOLIDAY	Sunday
CONTACT PERSON	MR. ENRICO TERRUZZI GENERAL MANAGER
	MR. SERGIO NOVELLI IND. MANAGER

1. General Details
2. Name Of References

NAME	MANSION	E-MAIL
GIUSEPPINA MUSSO	MANAGING DIRECTOR	Info@fati.com
ENRICO TERRUZZI	GENERAL MANAGER	Enrico.Terruzzi@fati.com
SERGIO NOVELLI	INDUSTRIAL MANAGER	Sergio.Novelli@fati.com
IVAN ZACCO	TECHNICAL DEP. MANAGER	Ivan.Zacco@fati.com
STEFANO TROMBA	SALES ASSISTANT ENGINEER	Stefano.Tromba@fati.com
MASSIMO FEDELI	QUALITY CONTROL MANAGER	Massimo.Fedeli@fati.com
NICCOLO' SAPORITI	TECHNICAL DEP. ENGINEER	Niccolo.Saporiti@dfati.com
EDMONDO POSA	TECHNICAL DEP. ASSISTANT	Posa.Edmondo@fati.com
GIUSEPPE MORANA	ELECTRICAL DEP. ENGINEER	Giuseppe.Morana@fati.com
MARCO BORANDO	PROJECT ENG. DEPARTMENT	Marco.Borando@fati.com

3. Financial Information

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F.A.T.I. Vat Number	IT 00730220159
Turnover in Euro	2018 Euro 8.650.000,00
	2019 Euro 8.590.000,00
	2020 Euro 10.230.000,00
Expected	2021 Euro 10.400.000 ,00

4. Bank References
5. Main -Certificates List

<u>Name & Address Of Banker</u>	<u>INTESA SAN PAOLO BANK – MILAN - ITALY</u>
<u>IBAN No.</u>	<u>IT81D030693303410000011390</u>
<u>ADDRESS :</u>	<u>Via Caboto 41/43 20094 Corsico -Milano</u>

<u>CESI 03 ATEX 058 U - II 2G Ex e II</u>
<u>CESI 03 ATEX 082 X - II 2G Ex d IIC T4 ÷ T1</u>
<u>CESI 03 ATEX 0132 U – II 2G Ex d IIC – II 2G EEx de IIC</u>
<u>CESI 03 ATEX 330 X – II 2G Ex d IIB T4 ÷ T2</u>
<u>ITS 03 ATEX 11117 – II 2G Ex d IIC T6 ÷ T1 Gb</u>
<u>ITS 03 ATEX 11118 – II 2G Ex d IIB T6 ÷ T1 Gb</u>
<u>ITS 04 ATEX 11835 – II 2GD EEx d IIC T4 ÷ T2 Gb T135 ÷ 300°C</u>
<u>ICEPI 10 ATEX –II 2G Ex e IIC T6-T3 Gb IP66</u>
<u>P.E.S.O. – Eexd IIC T1 ÷ T4</u>
<u>IECEX INE 12.0035X EX d IIC T6-T1 Gb</u>
<u>KOSHA –Ex-d FLANGE HEATER/ KOSHA Ex-d PLUG HEATER</u>
<u>GGTN – GOST “ R “</u>
<u>NCC 13.4488 X INMETRO (BRASIL)</u>
<u>GOST “ K “</u>

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ELECTRIC HEATERS FOR INDUSTRY

<u>ISO 9001 : 2008</u>
<u>PED-ASME CODE</u>

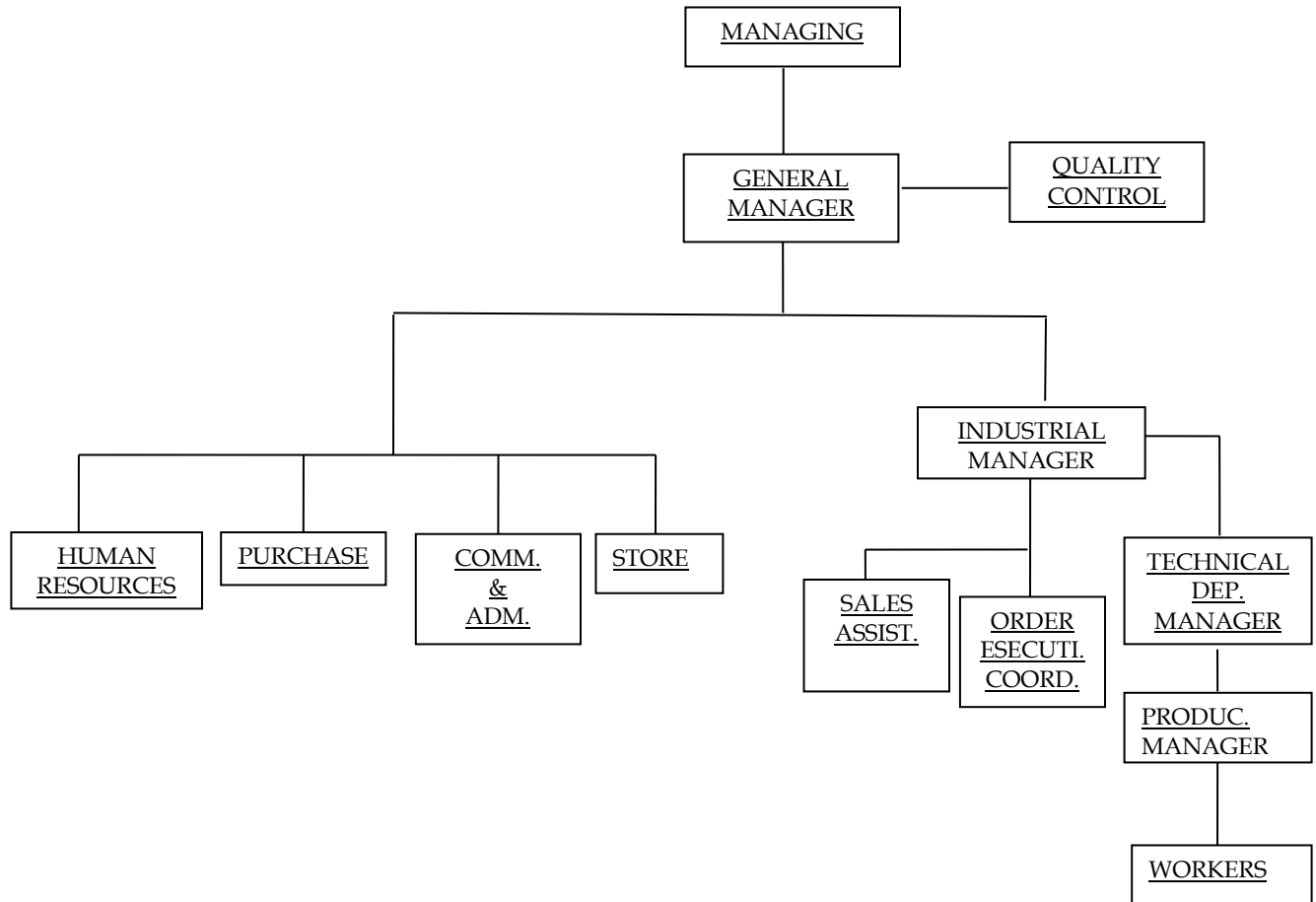
6. Product Range

PRODUCTS	RELATED TERMS
<u>ELECTRIC HEAT EXCHANGER</u>	Electric process heaters Circulation heaters / Line heaters Control systems thyristor Control systems contactor Thermal fluid electric heaters Electric heater control panels Electric heater thyristor panels Electric heater contactor panels
<u>ARMoured ELECTRIC HEATERS</u>	Flameproof electric heaters Explosion proof electric heaters Immersion heaters (screwed & flanged) ATEX electric heater Mineral insulated sheathed heating elements Electric gas heaters Hazardous area ATEX certified electric heaters Hazardous area INMETRO electric heaters Hazardous area IECEX. certified electric heaters Hazardous area Gost certified electric heaters
<u>ELECTRIC HEATERS FOR GALVANIC BATHS</u>	
<u>SPECIAL HEATERS FOR GALVANIC BATHS TEFLON ®</u>	
<u>ELECTRIC DUCT-TYPE HEATER (Also With Air-FAN</u>	Air duct heaters /Electric heater batteries Convactor heaters Fan heaters
<u>ELECTRIC HEATER ELEMENTS</u>	
<u>OTHERS</u>	Controls – thermostats Tubular heaters / infrared heaters / anti condensing heaters



ELECTRIC HEATERS FOR INDUSTRY

7. Organization Charts



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ELECTRIC HEATERS FOR INDUSTRY

8. Personnel Details

No. of Staff - 50	No. of Workers - 33	Technical/Admin department 17 -
	Skilled - 34	
	Unskilled - 13	

9. Bio data of technical personal

SNO	NAME	DESIGNATOR	QUALIFICATION	EXPERIENCE
1	ENRICO TERRUZZI	GENERAL MANAGER	GRADUATED BUSINESS MANAGEMENT	26
2	SERGIO NOVELLI	INDUSTRIAL MANAGER	ENGINEER	32
3	IVAN ZACCO	TECHNICAL M.. ENG.	ENGINEER	18
4	STEFANO TROMBA	SALES ASSISTANT ENGINEER	ENGINEER	14
5	MARCO BORANDO	TECHNICAL DEP. ENG.	ENGINEER	10
6	MASSIMO FEDELI	QUALITY CONTROL MANAGER	ENGINEER	32
7	PAOLO MAPELLI	TECHNICAL DEP. ENGINEERING DEP.	GRADUATED	10
8	MAX STIGLIANO	TECHNICAL DEP. ASSISTANT	ENGINEER	6
9	SERGIO CENNI	PRODUCTION MANAGER	GRADUATED	33
10	DANIELE BARONI	ELECTRICAL DEP. MANAGER	GRADUATED	24
11	GIUSEPPE MORANA	TECHNICAL ENGINEERING DEP.	ENGINEER	12
12	NICOLO' SAPORITI	TECHNICAL ENGINEERING DEP.	ENGINEER	7

10. Detail of machinery

SNO	M/C NAME	M/C No.	Details
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1	Filling Department	FIL 001	Tube cutters
		FIL 002	Tube deburring machines
		FIL 003	Spiral lapping machines
		FIL 004	Filling machines
		FIL 005	Drawing machines
2	Folding Department	FOL 001	Induction heaters
		FOL 002	Folding machines
3	Welding department	WEL 001	Welders
		WEL 002	Presses
		WEL 003	Braze welding machines
		WEL 004	Ovens
4	Cutting Department	CUT 001	Folding machines
		CUT 002	Staplers
		CUT 003	Cutting machines
		CUT 004	Trimming machine
		CUT 005	Welding machines
5	Testing Department	TES 001	Tools for final measurements
6	Turnery	TUR 001	Lathes
		TUR 002	Drills
		TUR 003	Perforation centre
7	Single Tube Department	STD 001	Spiral lapping machines
		STD 002	Staplers
8	Warehouse department	WAR 001	Forklift truck
		WAR 002	Trans pallets
		WAR 003	Measuring tools

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ELECTRIC HEATERS FOR INDUSTRY

11. List Of In-House Tests Calibrated Out

<u>For Electric Heaters</u>	
1	<u>OHMIC VALUE TEST</u>
2	<u>INSULATION TEST</u>
3	<u>PRESSURE TEST</u>
4	<u>DIELECTRIC TEST</u>
5	<u>VISUAL AND DIMENSIONAL TEST</u>
<u>For Control Panels</u>	
1	<u>DIELECTRIC TEST</u>
2	<u>INSULATION TEST</u>
3	<u>VISUAL AD DIMENSIONAL TEST</u>
4	<u>FUNCTIONAL TEST</u>
<u>For Vessels</u>	
1	<u>HYDROSTATIC TEST CERTIFICATE</u>
2	<u>LIQUID PENETRANT TEST</u>
3	<u>PRESSURE TEST</u>
4	<u>VISUAL AD DIMENSIONAL TEST</u>
- <u>Following Test can be close from external laboratory</u>	
1	<u>MAGNETIC TEST</u>
2	<u>RADIOGRAPHIC TEST</u>
- List of main Clients	

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ELECTRIC HEATERS FOR INDUSTRY

ABB INDUSTRIES

ABB LUMMUS GLOBAL

ATOS GROUP

AGIP

AIR LIQUID

AIR PRODUCTS

AKER KVAERNER

ALFA LAVAL

ALSTOM

AXENS

BASF

BAYER

BECHTEL

BRITISH GAS

CHEVRON

CHIYODA

CONOCO

DAEWOO

DANIELI

EIL

ENI

ENOC PROCESSING COMPANY L.L.C – DUBAI

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ELECTRIC HEATERS FOR INDUSTRY

ENPPI

ESSO

EXXON MOBIL

FLUOR

FOSTER WHEELER

GAS ARABIAN SERVICES EST – SAUDI ARABIA

GE INTERNATIONAL

HPCL

HYUNDAI

JGC PHILIPPINES INC. – PHILIPPINES – 1780

KOGAS

KNPC

LARSEN & TOUBRO (L & T)

MC DERMOTT

MITSUBISHI

NIGC

NIOC

NUOVO PIGNONE

PARSONS

PETROCHINA

PETROFAC INTERNATIONAL LTD – U.A.E.

PETRONAS

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PHILLIPS PETROLEUM

PRAXAIR

REPSOL

ROLLS ROYCE

SAIPEM

SAMSUNG ENGINEERING

SAUDI ARAMCO

SINOPEC

SK ENGINEERING

SNAMPROGETTI

SNC LAVALIN

STATOIL

TAMOIL

TAKREER

TECHNIMONT

TECHNIP K.T.I.

TECHNIP ITALY S.P.A.

TOTAL

UOP

WORLEY PARSONS

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ELECTRIC HEATERS FOR INDUSTRY

- Certificates Issued By Various Authorization

CERTIFICATE

CESI 03 ATEX 058 U - II 2G Ex e II

CESI 03 ATEX 082 X - II 2G Ex d IIC T4 ÷ T1

CESI 03 ATEX 0132 U – II 2G Ex d IIC - II 2G Ex de IIC

CESI 03 ATEX 330 X – II 2G Ex d IIB T4 ÷ T2

ITS 03 ATEX 11117 – II 2G Ex d IIC T6 ÷ T1 Gb

ITS 03 ATEX 11118 – II 2G Ex d IIB T6 ÷ T1 Gb

ITS 04 ATEX 11835 – II 2GD Ex d IIC T4 ÷ T2 Gb T135 ÷ 300°C

ICEPI 07 ATEX 03C007X II2GD Ex d IIC T6-T1

ICEPI 11 ATEX 03C012X II 2G – Ex e IIC T6-T3 Gb IP66

ITS 10 ATEX 17161 II2G Ex d IIB T3 Gb

P.E.S.O. – Exd IIC T1 ÷ T4 (INDIA)

NCC 13.4488 X INMETRO (BRASIL)

TR-CU / EAC (RUSSIA)-010/012/036

TR-CU -04 /020

CCC-CHINA

TR-CU /EAC (Byelorussia –Kazakhstan)

IMQ-CSQ ISO 9001 : 2015

PED/U-STAMP ASME CODE FOR VESSEL IN PRESSURE

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ELECTRIC HEATERS FOR INDUSTRY

INERIS IECEX INE 12.0035X IIC T1 ÷ T4 (Australia /N.Z.)

IECEX CES 12.0001 U Ex e IIC Gb

U -STAMP ASME CODE

KOSHA Ex-d PLUG HEATER 13-AV4BO-0466

KOSHA Ex-d HEATER TYPE 350D -13-AV4BO-0467

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