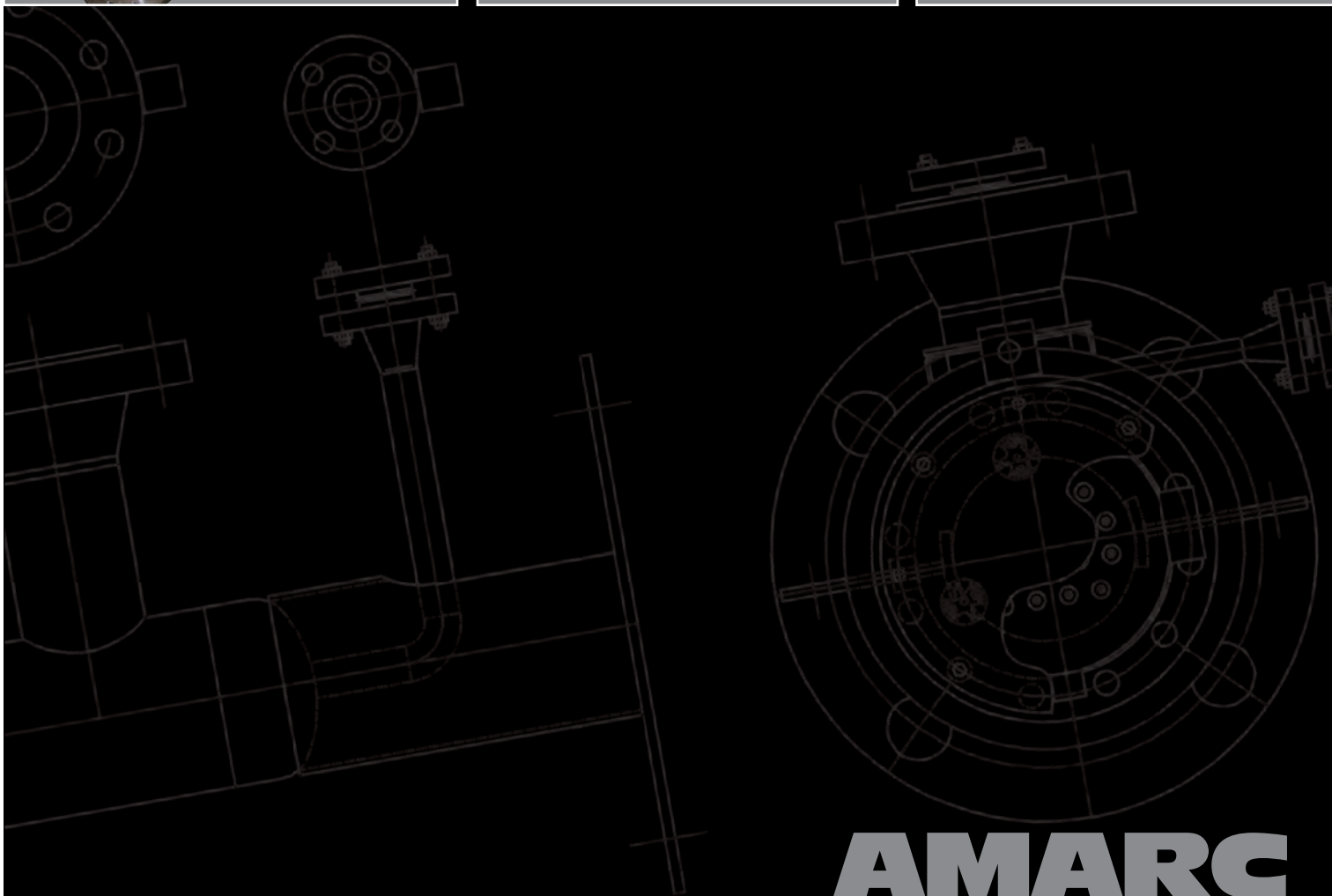
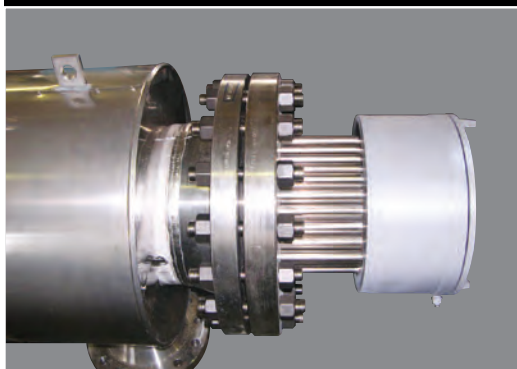


Electric Heat Exchangers



AMARC
INDUSTRIAL HEATING SYSTEMS

■ Custom solution for heating problems in production processes

Customised heating solution for industrial process

Specific applications designed to meet all thermal requirements of your production process.
AMARC is specialised in the production of sheathed electrical heating elements.
AMARC design and manufacture Electric Heat Exchangers and Duct Heaters of all types and dimensions.
AMARC products are highly reliable, easy to install on-site and have an excellent price-performance ratio.



EC:

AMARC products are developed and manufactured in accordance with European Directives.



CSQ-IQNET :

AMARC Quality System is certified in accordance with standard UNI EN ISO 9001 : 2010.
Every year AMARC undergo regular audits performed by different inspection bodies in order to maintain high quality standard.



ATEX-EX 94/9/EC

EC Directive regulating equipment and protective systems intended for use in potentially explosive atmospheres.

ATEX certification approved for all type of gas, dust and mines to suit zone 1, zone 2, zone 21 and zone 22.

Protection methods available Ex d/ Ex e for all temperature classes and for ambient temperature range -60°C +60°C



PED 97/23/EC:

EC Directive for pressurized vessels manufactured in carbon steel and stainless steel.



ASME -"U": ASME VIII div. 1 and div. 2 - ASME "U" Stamp.

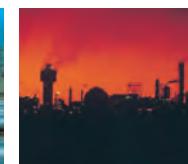
Certification for pressurized vessels manufactured in carbon steel and stainless steel.

TYPES OF INDUSTRIES SERVED

- Oil & Gas
- Chemical
- Petrolchemical
- Energy
- Pharmaceutical
- Research centre
- Medical
- Gas technology
- Glass fibre industry
- Food industry
- Marine
- Power generation
- Steel industry
- Processing plants

PRODUCT APPLICATIONS

- Fuel gas
- Natural gas
- Water
- Crude oil
- Gas
- Hydrocarbon liquids
- Fuel oils
- Solvent
- Molten salt
- HVAC



INDUSTRIAL PROCESS

■ Initial analysis



Study of customer requirements for design feasibility.

■ Thermal and electrical, mechanical and structural design



Thermal, electrical and mechanical design are developed in-house by the AMARC engineering team, according to applicable custom data and norms, all with up to date computer software.

■ Construction and assembly of mechanical and electrical components



All production steps are carried out in-house, elements and pressure vessels included. All welders are qualified according to ASME and EN procedures.

■ After sales assistance



AMARC assistance includes the complete supply of all spare parts, start up, on-site training, preventive and scheduled maintenance, technical support, telephone assistance.

■ THERMOREGULATION SKIDS

These units are used in heat transfer processes. Complete with instrumentation, valves, pumps and exchangers. When requested, they can be supplied with Electric Control Panels with PID controllers and Thyristor units. Specially designed to meet process requirements. Also available in Ex d/Ex e version.



MAIN OPTIONS AVAILABLE:

- Electric process heater (Exchanger or Duct Heater)
- Valves
- Temperature and pressure measurement
- Control Panels
- Heavy frame structure
- Pre-wired "Turn key solution"
- Over temperature and over pressure cut-out system
- Start up and commissioning are available



APPLICATIONS:

- Fuel gas/Natural gas/Nitrogen/Hydrogen/Fuel oil/Water/Hydrocarbons/Crude oil/Steam



■ ELECTRIC HEAT EXCHANGERS

Heat Exchangers for any type of fluid: air, water, gas, oil, steam, corrosive liquids. Fluid dynamic design to meet customer requirements. AMARC Heat Exchangers can be designed for high power up to 5.6 MW for single unit and high pressure. The Heat Exchangers are designed and engineered according to specific customer requests. Start up and commissioning are available.

TECHNICAL CHARACTERISTICS:

- IP 66 termination box for safe and classified area
- ATEX certification approved for all type of gas, dust and mines to suit zone 1, zone 2, zone 21 and zone 22. Protection mode available Ex d/ Ex e for all temperature class and for range of ambient temperature -60°C +60°C
- Termination box available in carbon steel and stainless steel (AISI 304L or AISI 316L)
- Temperature class T1- T6
- Code design PED 97/23/EC
- ASME "U" or other on request
- Ambient temperature -60°C +60°C
- Anticondensation Heater can be fitted in termination box on request
- AMARC Heat Exchangers can be designed for high power up to 5.6 MW for single unit and high pressure
- Over temperature and over pressure cut-out system

APPLICATIONS:

- Fuel gas/Natural gas/Nitrogen/Hydrogen/Fuel oil/Water/Hydrocarbons/Crude oil/Steam



■ ELECTRIC DUCT HEATERS

Installed directly inside the fluid conduits or mounted on the flange for large diameter pipes. Suitable for very high flow rates and low pressure drops. Available with smooth or finned elements for increased heat exchange rate.



TECHNICAL CHARACTERISTICS:

- IP 55/IP 66 termination box for safe area
- ATEX certification approved for all type of gas, dust and mines to suit zone 1, zone 2, zone 21 and zone 22 Protection mode available Ex d/ Ex e for all temperature class and for range of ambient temperature -60°C +60°C
- Replaceable elements
- Over temperature and over pressure cut-out system

APPLICATIONS:

- Air units/ HVAC/Drying ovens/Process fluids



■ CONTROL SYSTEMS

Heat Exchangers and Duct Heaters are supplied with Electrical Control Panel, using Thyristor and PID thermoregulators for precision control. Additional instrumentation for other thermal and non-thermal control requirements can be incorporated.

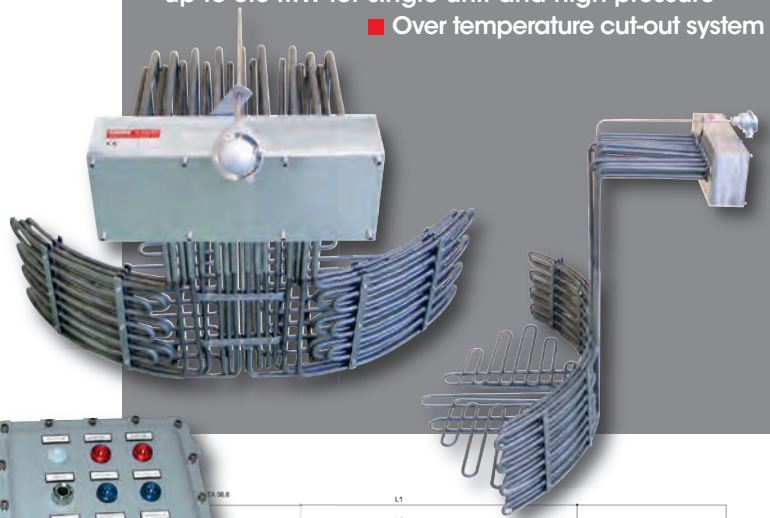
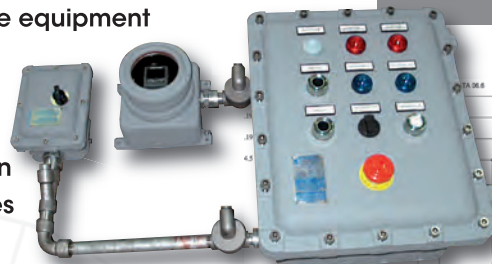
GENERAL TECHNICAL CHARACTERISTICS:

- Automated system with PLC
- Touch screen panel to control the equipment
- Cooling system with integrated air conditioning
- Interface connection with different protocol communication
- Technical Electrical test examples
- Noise level test
- Harmonic analysis and interference test

EXPLOSION PROOF CONTROL PANEL

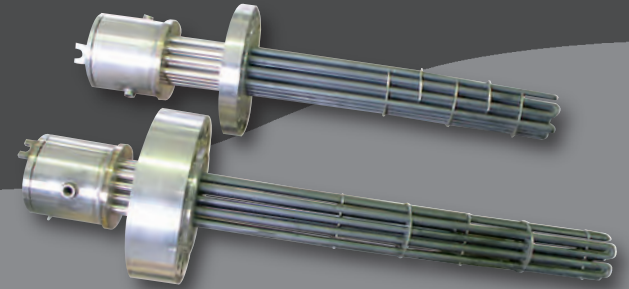
Designed to work directly on field (Classified Area zone 1 and 2), installed near the heater or mounted on the same structure skid.

- ATEX certified T3 ÷ T6 , Ex d IIB + H2
- Electrical protection up to IP66
- Made with internal Thyristor or ON/OFF controlled Remote control directly by DCS or locally by its own thermoregulator
- Pressurized Control Panels for hazardous area are available



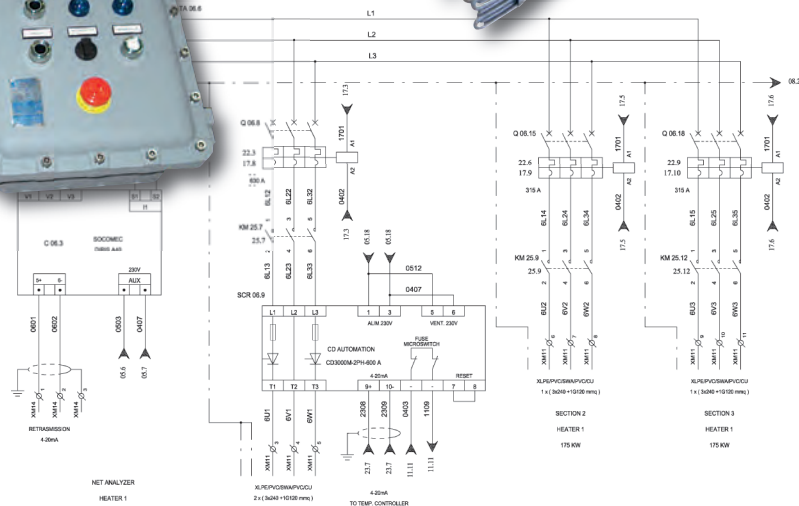
■ IMMERSION HEATERS

AMARC Electric Heaters can be used for a wide range of processes. Start up and commissioning are available

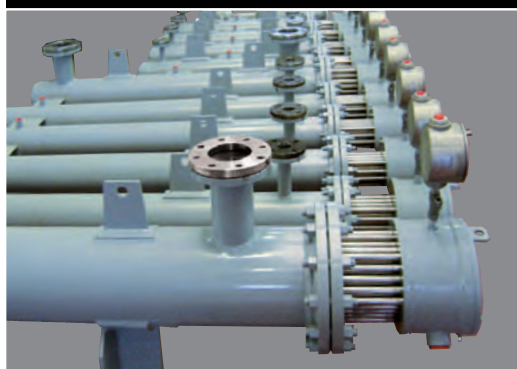


TECHNICAL CHARACTERISTICS:

- IP 66 Termination box for safe and classified area
- Termination box available in carbon steel and stainless steel (AISI 304L or AISI 316L)
- ATEX approved for Zone 1 group II 2G, II 2D, I M2 and with protection level Ex d IIC and Exe
- Temperature class T1- T6
- Ambient temperature -60°C +60°C
- Anticondensation heater can be fitted in termination box on request
- AMARC Heaters can be designed for high power up to 5.6 MW for single unit and high pressure
- Over temperature cut-out system



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