

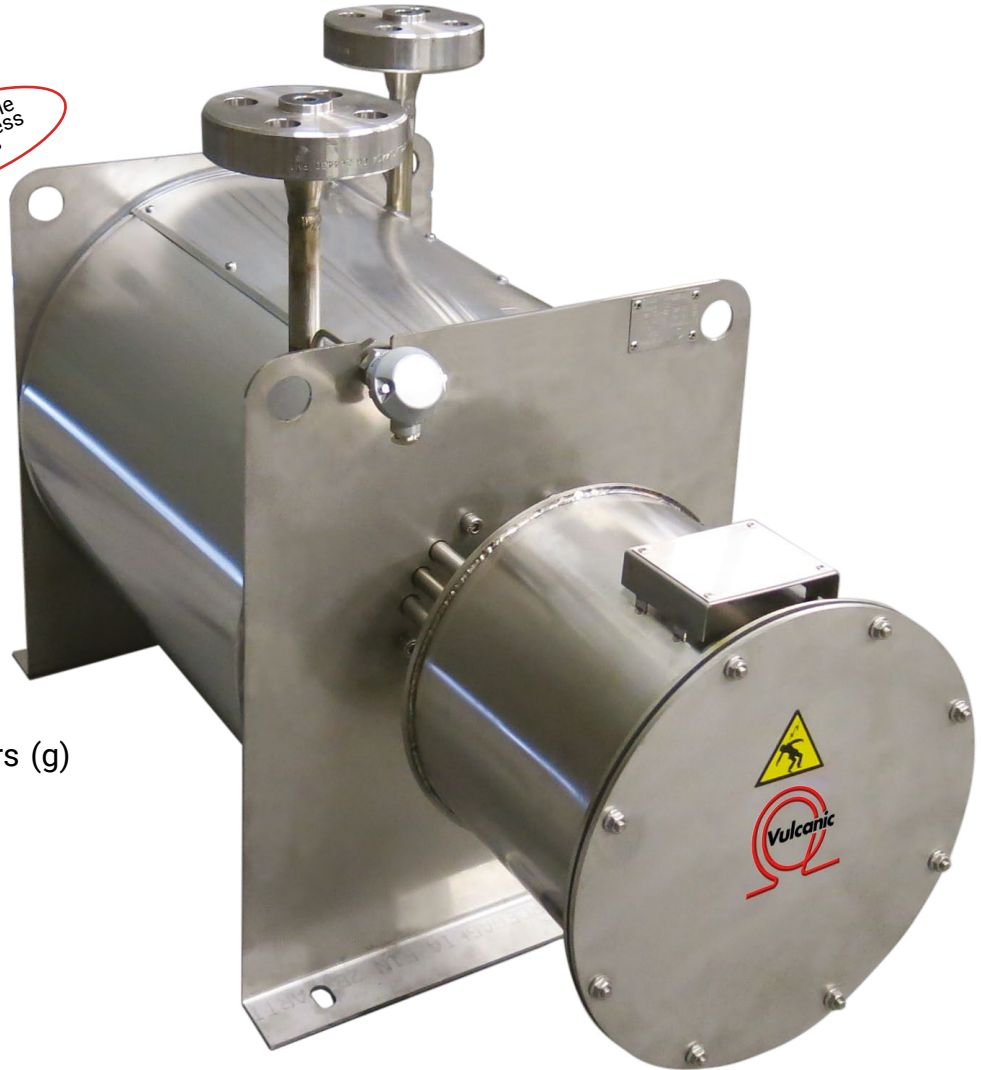


# ArON'Elec aluminium cast-in circulation heaters

The aluminium cast-in circulation ArON'Elec heaters offer a safe, reliable and efficient integrated solution for your gas process heating requirements (O<sub>2</sub>, Ar, N<sub>2</sub>).



Design suitable  
for high process  
pressures



## Typical Applications

- Heating of O<sub>2</sub>, Ar, N<sub>2</sub> gases.
- Ambient air vaporizer defrosting.
- Gas heating before expansion.
- Designed for O<sub>2</sub> according to AFGC N°174-08 and EIGA Doc13/12/E.
- Min. operating pressure: 8 bars (g).
- High pressure design up to 360 bars (g) on request.

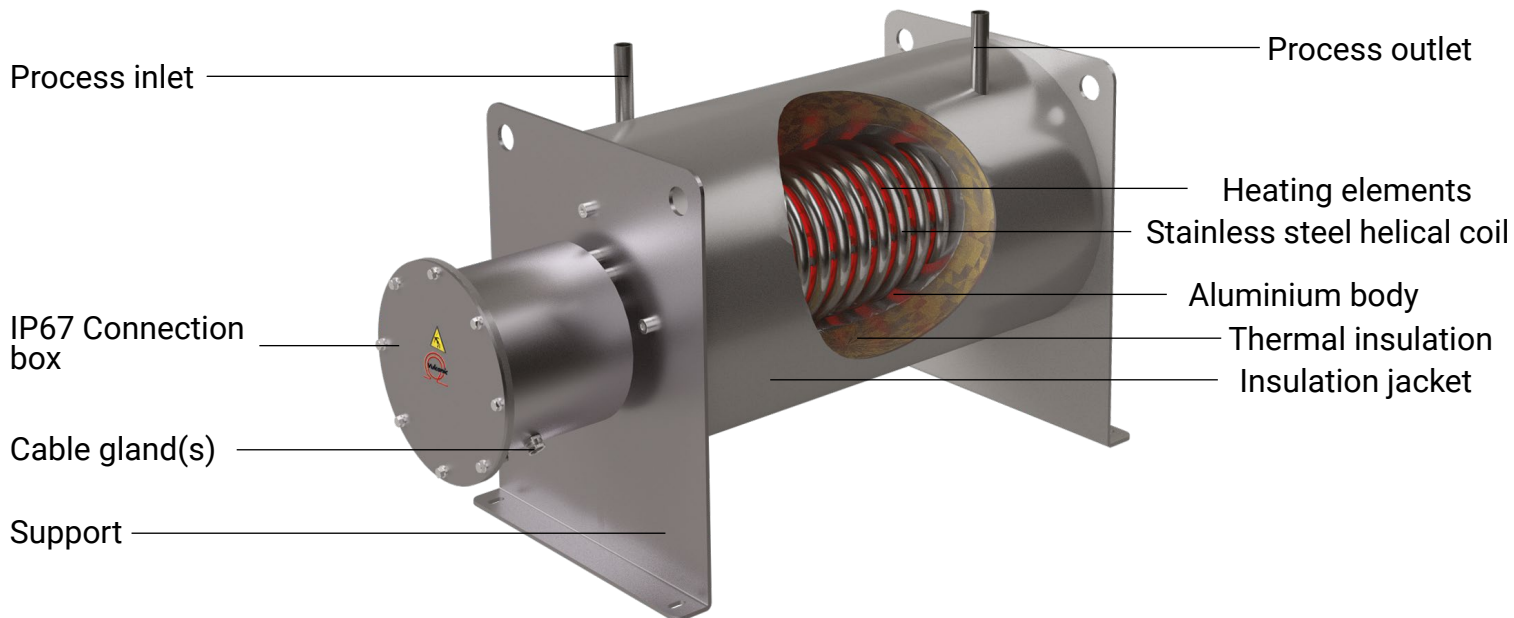
## Main Benefits

- Indirect heating.
- Cost effective.
- Compact size with a reduced footprint.
- Accurate temperature control with the dedicated power control panel (plug & play solution).
- Energy saving by optimized temperature control.
- Easy cleaning.
- Suitable for high process pressures.
- Suitable for operation in oxygen service.
- Heater performance cannot be affected by any no-flow conditions.



PED

AD-2000  
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## Uniform thermal heat distribution, excellent controllability and long service life

### Design

The cast construction provides main advantages compared to the traditional circulation heaters. These heaters consist of a helical coiled tube and electric heating elements cast into an aluminium body. The aluminium body serves as the heat transfer media between the heating elements and the coiled gas transfer tube.

The fluid being heated, that never comes into contact with the heating elements, flows through the coiled gas transfer tube and is heated to a controlled set point. The aluminium mass maintains heat accurately and consistently leading to an optimum level of temperature control.

The life time of the embedded heating elements are also prolonged due to the efficient heat conduction of the aluminium body.

All parts in contact with the medium are cleaned and degreased, suitable for operation in oxygen service.

To minimize heat losses, the aluminium block is thermally insulated and protected by a metal jacket.

### Temperature control

Sensors are fitted to the heater to control the temperature of the aluminium body (TE411) as well as the inlet (TE401) and outlet (TE402) process gas temperature.

All temperature sensors can be individually removed and easily replaced without draining the unit.

The unit is also protected by an over temperature safety device. A dedicated power control panel is also available to control the outlet process gas temperature and to monitor the thermal safeties of the equipment.



## Ready-to-use electrical power control cabinets

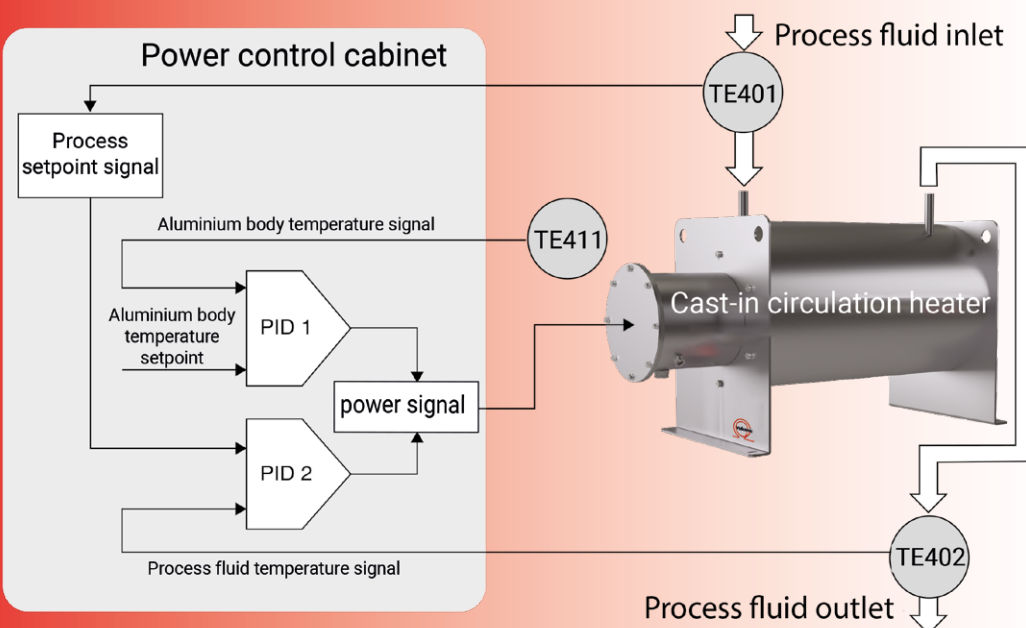
ArON'Elec power control cabinets are especially designed to offer a stable and accurate process temperature control at constant or fluctuating medium flow rates while heating.

### Main features and benefits:

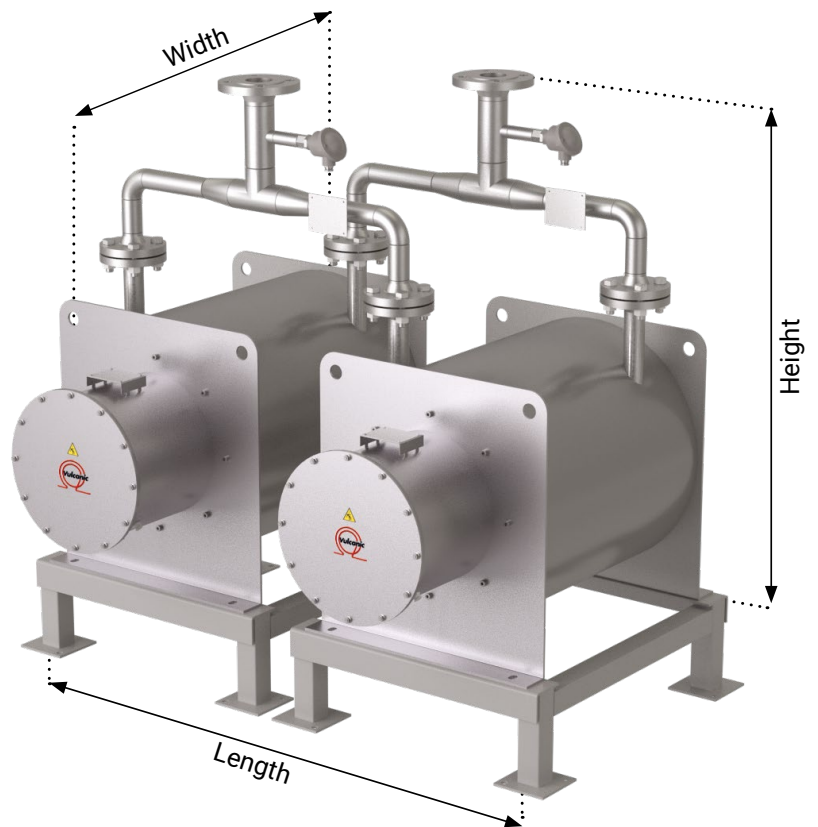
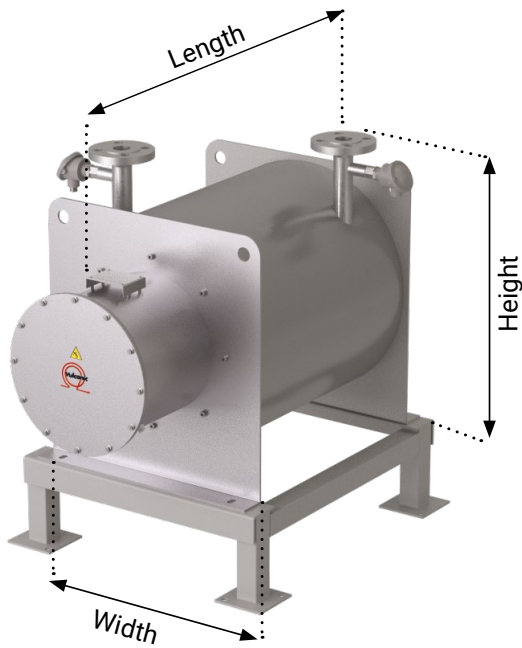
- 3 power rating are available in the standard version.
- Easy to connect and already set for a quick and safe commissioning and start-up.
- Wall-mount type cabinet designed for outdoor operation.
- Load break isolator at incomer.
- Power controlled by thyristor.
- LED type lamps on front part for panel status indication.
- Local ON/OFF switch.
- Rest push button / Emergency push button.
- Optimized PID dual loop control avoiding any large process fluid overheating due to sudden flow fluctuations while heating.

### Power control panel specifications:

Outline dimensions (HxWxD in mm): 800 x 800 x 300.  
Installed Power (kW) at 400V 3Ph: 12 / 24 / 48.  
Load break isolator at incomer.  
Over current protection carried out by fuses on power and control parts.  
Safety contactor.  
Thyristor unit.  
PID dual loop temperature controller.  
LED type lamps on front part (voltage supply, global fault, Heater ON).  
SIL 2 rated over temperature safety devices + two SIL2 rated safety relays.  
Three potential-free contact outputs.  
Design for outdoor operation (space heater for heating and fan for cooling).  
Metal sheet housing RAL 7035 - IP54.  
Wall-mount type with brackets and fasteners.







<b>TYPE AND POWER RATINGS</b>	<b>Max. allowed flow rate Minimum operating pressure for O<sub>2</sub> : 8 bars (g)</b>	<b>Max. allowed flow rate Minimum operating pressure for Ar: 8 bars (g)</b>	<b>Max. allowed flow rate Minimum operating pressure for N<sub>2</sub> : 8 bars (g)</b>	<b>DN</b>	<b>Width* (mm)</b>	<b>Length* (mm)</b>	<b>Height* (mm)</b>	<b>Weight (kg)</b>
<b>12 kW ArON'Elec</b>	500	650	540	25	430	880	570	110
<b>24 kW ArON'Elec</b>	1000	1450	1050	40	590	910	720	250
<b>48kW ArON'ELEC consisting in 2 pieces 24kW ArON'ELEC hydraulically connected in parallel mode.</b>	2000	2900	2100	80 for O <sub>2</sub> / 50 for others	910	1280	1120	530

\* (To be confirmed)

**Process connections**

AISI316L St. steel RF flange, PN40 as per EN 1092-1 Standard.

Option: welding neck mating flanges, bolting, nuts, washers and spiral wound graphite filled gaskets suitable for operation in oxygen service.

**Operating conditions**

- Design temperature: -196°C up to +350°C.
- Operating flow rate: according to above data table.
- Process conditions: as per above data table.
- Design pressure:
  - 25 bars on O<sub>2</sub>.
  - 40 bars on Ar & N<sub>2</sub>.
- Option: high pressure design up to 360 bars (g) on request.

**Electrical**

- Power ratings: 12 kW, 24 kW & 48 kW.
- Voltage supply: 400 VAC 3PH.
- Option: digital communication RS485.

**Coiled heat transfer tube**

- Seamless stainless steel 316L tube.
- All parts in contact with the heated fluid are cleaned, degreased, dried and duly protected against moisture and grease ingress suitable for a safe operation in oxygen service.

**Temperature control**

- Inlet, outlet process gas and aluminium body temperature control: carried out by Pt100 3 wires type with individual connection head.
- Aluminium body over temperature control: carried out by a thermostat.

**Connection box**

- Stainless steel IP66/67 connection box.
- 230V 1ph+N space heater in the connection box for outdoor operation.

**Thermal insulation and mounting orientation**

- Foamglas® type thermal insulation material for heat conservation.
- Protective aluminium jacket.
- Horizontal floor mount.
- Supporting frame available as an option.

