

CAST HEATER

THE KEY TO THERMAL AND PROCESS HEATING



Engineered for Zero Downtime. Built for Critical Gas Processes.

In continuous gas flow applications, stable heating and dependable performance are essential. This monolithic cast aluminium heating solution fully separates the process flow from the heating elements, ensuring safe and consistent heat transfer. Designed for demanding industrial environments, it delivers fast thermal response, even heat distribution, and long-term reliability with minimal downtime.

Product Overview

The Cast Aluminium Seal Gas Heater is a compact, high-efficiency electric heating solution designed for continuous process gas applications. Its integrated design combines premium heating elements and a seamless process coil within a single precision-cast aluminium block, helping to reduce the risk of localized overheating and element failure.

The aluminium body's high thermal conductivity allows heat to be distributed evenly, providing stable outlet temperatures even under changing flow conditions. Built for reliable long-term operation, the system offers efficient heat transfer, fast response times, and dependable performance in demanding industrial environments.

The Cast-In Advantage

- **Uniform Generation:** Internal electric tubular elements distribute heat evenly throughout the monolithic cast block.
- **Direct Thermal Path:** The precision-cast aluminium block provides fast and efficient heat distribution due to its high thermal conductivity.
- **Isolated Process Flow:** The gas flows continuously through an integrated, seamless internal process coil. It absorbs heat directly from the surrounding aluminium mass, completely eliminating direct exposure to the heating elements.

System Features

- **Compact, Skid-Ready Footprint:** The monolithic construction offers strong mechanical durability while reducing overall footprint compared to conventional gas circulation heaters, making it well-suited for packaged systems
- **Maximum Thermal Efficiency:** The cast-in heat transfer design reduces thermal losses and provides fast, efficient thermal response
- **Low Maintenance, High Reliability:** Encasing the heating elements within the solid aluminium block helps protect them from harsh process conditions, reducing maintenance requirements and extending operational lifespan
- **Integrated Process Safety:** Features include over-temperature protection, thermocouple or RTD temperature monitoring, and optional high-temperature alarm and shutdown controls for added operational safety
- **High Pressure and Temperature:** Process flows in seamless pipes/tubes and thus can be designed for high pressure and temperature
- **No pressure drop issue:** Unlike baffled design, the unrestricted flow creates negligible pressure drop and introduces no vibration
- **Cost Effective:** No expensive pressure vessel (shell) especially on exotic materials and high pressure applications

NOTES

Product shown features a vertical mounting orientation equipped with optional dual weatherproof/hazardous area control enclosures and integrated thermal insulation jacket.



Core Engineering Parameters

Parameters	Standard Range & Capability
Power Rating	Engineered precisely to project thermal calculations
Nominal Voltage	Typical 230V / 400V & Custom Configurations
Frequency	50Hz / 60Hz
Standard Process Coil Size	Typical 1" seamless Pipe subject to flow rate and duty (Custom sizes available)
Design Pressure & Temperature	Project-specific to meet demanding process requirements
Area Classification	Safe Area / Zone 1 & Zone 2 Hazardous Areas
Mounting Orientation	Vertical or Horizontal arrangements

Construction Details & Materials Options

- ▣ **Heating Body:** Precision monolithic cast aluminium block
- ▣ **Process Coil:** High-integrity seamless pipe integrated directly into the casting
- ▣ **Isolation & Protection:** Optional high-efficiency thermal insulation jacket and heavy-duty stainless steel external enclosures
- ▣ **Power & Process Control:** Optional PID temperature control, SCR/Thyristor power control panels, and redundant temperature sensors for critical loops
- ▣ **Enclosure Types:** Weatherproof, flameproof, and hazardous area certified options (ATEX / IECEx / NEPS / cml PED compliant)

Typical Applications

- ▣ Compressor Seal Gas Heating
- ▣ Fuel Gas Heating & Conditioning Systems
- ▣ Instrument Gas Preheating
- ▣ High-Pressure Process Gas Heating

Sectors Served

- ▣ Oil & Gas (Upstream/Midstream)
- ▣ Refining & Petrochemical
- ▣ LNG Terminals & Processing
- ▣ Power Generation Facilities

Engineering Customization Support

Every unit is built to strict project standards. Full technical support is provided across the entire project lifecycle:

- ▣ Precision thermal calculations and equipment sizing
- ▣ Mechanical integration and skid footprint optimization
- ▣ Strict compliance engineering for global hazardous area certifications



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