



## AlphaLimpet

# PROGRAMMABLE ELECTRICAL HEATER

**INTELLIGENT, PROGRAMMABLE HEATER THAT PROVIDES ACCURATE TEMPERATURE CONTROL FOR INDUSTRIAL EQUIPMENT, SUCH AS PUMPS, VALVES, METERS AND TANKS**

The patented **Limpet** heating system consists of a compact, intelligent, microprocessor-controlled and waterproof heating module that can be fitted on a wide range of equipment to provide heat for industrial processes or frost protection.

The **AlphaLimpet™** is attached to the equipment using a profiled aluminium adaptor block that transmits the heat into the workpiece body, as well as acting as a heat storage device. The system is designed to help ensure that in the event that a liquid that requires heating stops flowing through the equipment, it does not become too viscous and block the flow. The **AlphaLimpet** can be supplied in either 110Vac or 230Vac versions and can deliver up to 120W.

### Applications

- Process industries
- Food & beverage
- Pharmaceutical
- Chemical
- Cosmetics
- Frost protection

### Advantages

- No control panel required
- Accurate temperature control
- Compact design
- IP67 rating
- Low power consumption

# ALPHALIMPET FEATURES

The main features of the patented **AlphaLimpet** heating system are as follows:

**Operation:**

- Adjustable temperature range up to 80°C.
- 110 / 230 Volts ac; up to 120W power output.
- IP67 flexible conduit, Phoenix connectors or IP68 glands for power in.
- An insulated jacket is essential for maximum performance and even temperature distribution.

**Programmable:**

- A programmable control board is mounted inside the device.
- Removable IP-rated top plate giving user access to a simple temperature adjustment setting using two rotary switches. This would normally be done during installation (factory pre-set is 40°C unless otherwise requested).
- Fully user-programmable, multi-mode operation using a 6-way DIP switch.
- Temperature ramp rate control for sensitive applications.
- Internal programming LED indicator. This confirms correct programming and then indicates that the unit is operating.
- External power and supervision status LED.

**Robust Construction:**

- The product is sealed to ensure that all the connections and components are waterproof.
- Robust IP67-rated aluminium case.

**Heat Transfer through Profiled Adaptor Block:**

- An aluminium adaptor block pre-profiled to fit onto the equipment (user to specify equipment diameter or profile).
- T-nuts are used to secure the AlphaLimpet onto the adaptor block and stainless steel straps or bolts are used to secure the adaptor block on to the equipment body.

**Available in several different configurations:**

- The AlphaLimpet is available in several different configurations. There are currently 4: Series 1, 3, 5 & 7.
- Please see next pages for further details.
- There are three different connection options: conduit, Phoenix or gland. The standard lengths are 75cm, 50cm and 100cm respectively. Conduit connections are provided with a 1m length of mains cable. For non-standard lengths, please use the options in the Ordering Information.

# TECHNICAL INFORMATION

- Dimensions: 176mm long (excluding connectors) x 63mm wide x 52mm high.
- Voltage: 110Vac or 230Vac.
- Power rating: up to 120W.
- Temperature range: 0°C to 80°C.
- Ambient: -30°C to +50°C.

# ORDERING INFORMATION

## AlphaLimpet

Model						
AL						
Series						
1						
3						
5						
7						
Code Voltage						
11	110 Vac					
23	230 Vac					
Connections						
Code Type						
C	Conduit: standard 75cm					
P	Phoenix: standard 50cm					
G	Gland: standard 100cm					
Supervisory Port						
Code Type						
0	None					
S	Yes					
External sensor						
Code Type						
-	None					
/S	Control Loop 2					
/T	Thermowell					
/A	Ambient					
AL	5	11	C	0	/A	Example

## Cable Connections (non-standard)

Code Type		
C	Conduit: standard 75cm *	
P	Phoenix: standard 50cm	
G	Gland: standard 1m	
C or G optional lengths (m)		
1.0		
1.5		
2.0		
3.0		
4.0		
P Extra-long (cm)		
150		
C	100	Example

\* For conduit the mains cable will be 20cm longer

## Adaptor Blocks

Model			
AB			
Pipe Diameter			
00	Flat		
50	mm		
76			
80			
100			
120			
Other	Custom - Specify diameter in mm		
Length Type			
250	Standard in mm		
Other	Custom - Specify diameter in mm		
AB	80	250	Example

# ALPHALIMPET CONFIGURATIONS

The AlphaLimpet is currently available in four different configurations as follows:

**Series 1:**

- A stand-alone, single-channel unit with power in only and an option for a supervisory port.
- Used in the majority of heating applications where only one source of heat is required.
- Figure 1 shows a Series 1 AlphaLimpet attached to an aluminium Adaptor Block.

**Series 3:**

- This has an additional power output which can be useful for slaving extra heat to other areas.
- The power out is not constant but mimics the power delivered to the AlphaLimpet’s own heater. This type of secondary heater is called a Secondary Unit and a BetaLimpet or MicroLimpet can be used in this way.
- A typical arrangement with a Series 3 AlphaLimpet driving a BetaLimpet secondary is shown in Figure 2.

**Series 5:**

- The Series 5 is like the Series 1 (with its internal heater and sensor) but also has the additional capability to connect an extra external micro-sensor. This enables the Limpet to heat to a programmable set point when the external temperature drops below a different programmable set temperature.
- This setup can be very useful for several applications, such as a frost stat (mounted in air) or a remote temperature monitor (e.g., for monitoring a cooler part of the system, such as liquid in a heated pipe).
- A typical arrangement with a Series 5 AlphaLimpet is shown in Figure 3.

**Series 7:**

- Please see next page.

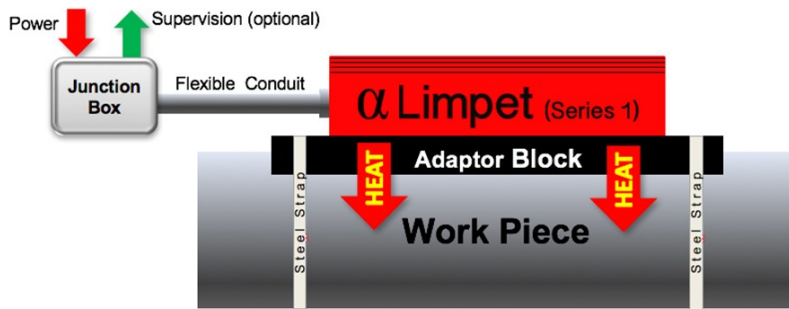


Figure 1 — Typical Series 1 AlphaLimpet application

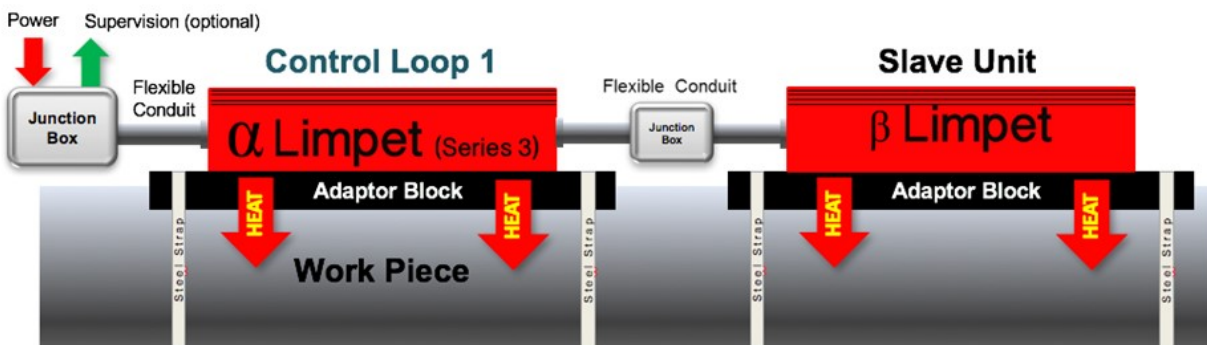


Figure 2 — Typical Series 3 AlphaLimpet application with “secondary” BetaLimpet

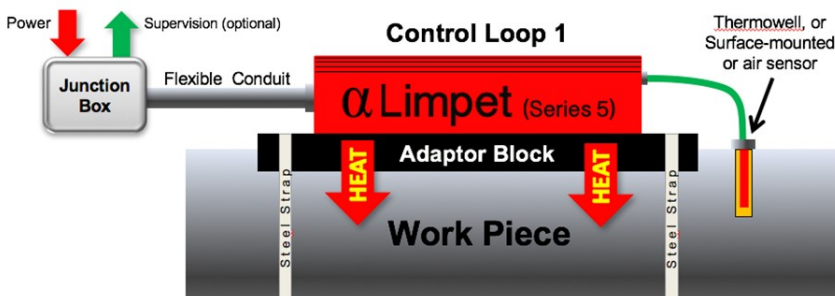


Figure 3—Typical Series 5 AlphaLimpet application with a second control loop connected to an external sensor

# ALPHALIMPET CONFIGURATIONS (Continued)

## Series 7:

- The Series 7 has full twin-heating ability (internal heater with internal sensor and external heater with external sensor).
- This application is for special circumstances and provides two independent control loops, which can both be set to the same temperature, or if desired, to two different temperature set-points.
- A typical arrangement with a Series 7 AlphaLimpet and BetaLimpet is shown in Figure 4.

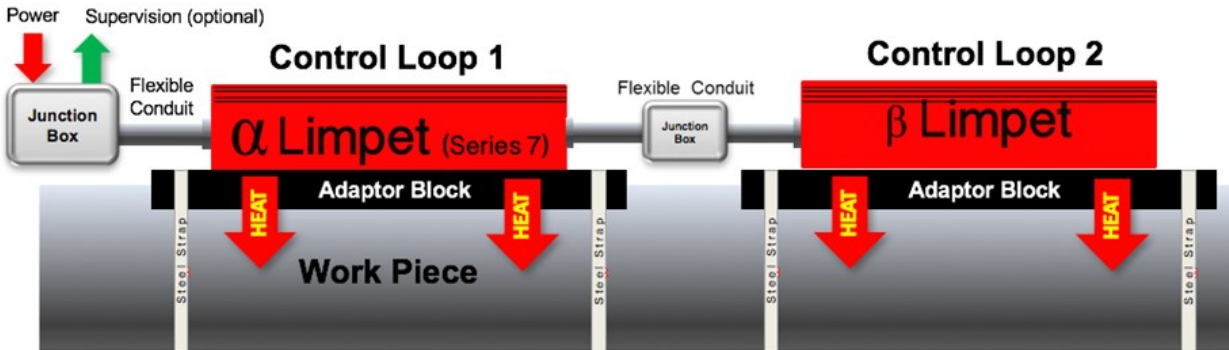


Figure 4 — Typical Series AlphaLimpet application with second control loop in a BetaLimpet

- Alternatively, if the situation arises, the second control loop sensor can be used as an external sensor instead of using the sensor built in to the BetaLimpet, as shown in Figure 5 below.

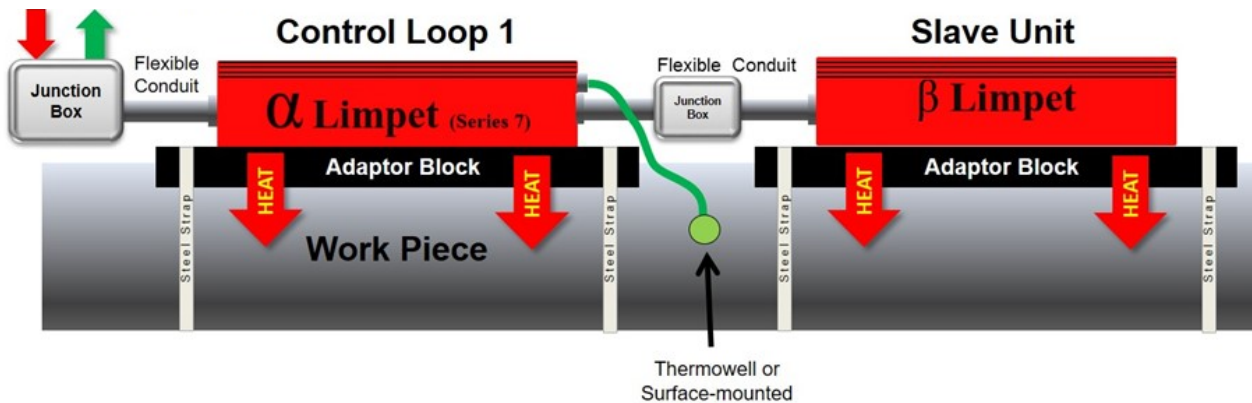
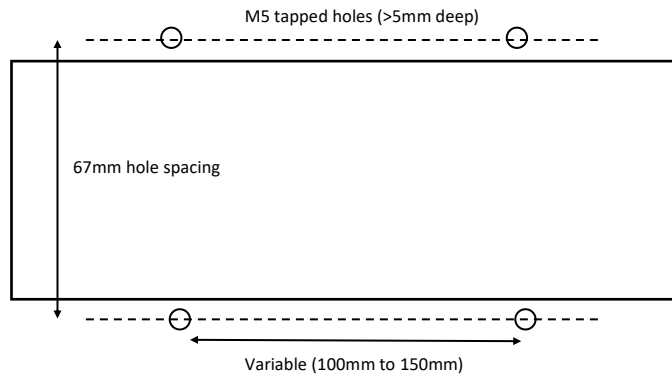


Figure 5 — Series 7 AlphaLimpet driving a secondary BetaLimpet and with a second control loop connected to an external sensor

## MOUNTING DETAILS

Tee nuts (supplied with the product) are used to secure the AlphaLimpet to an adaptor block or workpiece.

The positions of the M5 screw holes are shown here.



# Limpet

Zero Carbon Thermal Technology

The Limpet Heating Company Limited  
Registered Office: 9 Thorne Road,  
Doncaster, DN1 2HJ  
United Kingdom

Tel: +44 (0) 7837 337570  
E-mail: sales@limpetheating.com  
www.limpetheating.com