

Special Refrigerated Immersion Probes

Operating Instructions



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Refrigerated Immersion Probe

POLARTHERM Limited Special Refrigerated Immersion Probes are available in various combinations.

- 1.) Minimum Temperature Achievable
 - RP60 -50 °C
 - RP100 -90 °C
 - RP60WOR -35 °C to +40 °C
 - RP100WOR -65 °C to +40 °C

All the above are tested using a standard Dewar Vessel, containing 2 liters of suitable liquid, which is constantly stirred.

- 2.) Probes are manufactured to suit Dewar Vessel

- 3.) Controller options are:

SRP-60, SR-100	No Controller
SRP-60-CD, SR-100-CD	Standard PID Controller
SRP-60-CDR, SR-100-CDR	Controller capable of Specific Time ramping of changes in temperature.

Operation

Electrical

The electrical requirements as per the information plate at the rear of the unit must be observed. If the unit is not supplied with a plug or the plug requires changing:

Brown = Live **Blue** = Neutral **Green/Yellow** = Earth

The unit **MUST ALWAYS** have an earth connection

Performance

This is subject to many variable conditions.

For example, the compressor size/power, the type of the refrigerant used, the area of the cooling probes, the volume of the liquid to be cooled, the quality and the volume of the insulating material, the type of liquid and the ambient temperature.

All of the above factors must be considered when selecting a unit for a particular operation

The units must be positioned where there is good airflow from front to rear to allow air-cooling of the condensers. Build up of fluff and dust around the condenser will adversely affect operation.

Switching on

Do not switch on if the unit has been tipped more than 25° from vertical. Allow a minimum of 6 hours for the compressor lubricants to settle. If the unit has been tipped or inverted the compressor oils may penetrate into the refrigeration system and on freezing will immediately block the capillary tubing rendering the equipment inoperable.

In the event of inadvertent tipping leave the system, preferably for 24 hours, with the flexible hose in an upright position so that any lubricants may have the possibility of flowing back to the compressor.

Do not switch the unit on and off rapidly. Allow at least 10 minutes from switching off before restarting.

Due to the high gas pressures maintained in the probe and the compressor systems the unit must not be used to cool liquids that are at a higher temperature than +40°C. Damage may result to the compressor due to excess pressures being created by higher temperatures.

If the immersed probe begins to be coated with ice this indicates that an unsuitable liquid or liquid used is diluted is being used and a change must be made to a different liquid or undiluted.

Safety

Operators are advised to discuss the suitability of different liquids with their safety officer.

The POLARTHERM range of Special Refrigerated Probes are designed to conform to British and International Safety Standards.

CD Range

If the refrigerated probe is supplied with a controller the operation of this instrument is very simple. When the left button * is pressed the digital display indicates the “set point”. To alter the set point simply increase ▲ or decrease ▼ the set level as required. When button * is released the actual temperature is displayed. To use the controller the temperature sensor lead must be connected to the front panel socket and the sensor immersed in a cool liquid.

CDR Range

Use the same procedures as with the CD range. Full instructions concerning use of the timed/ramping controller are enclosed.

General Advice

- Use a good quality insulated container. Approximately 150mm of high quality insulation material is still not as effective as a vacuum vessel.
- Use a suitable liquid medium. Your requirements should be discussed with the Safety Officer, but the most frequently used liquids are methanol, trichloroethylene and methylcyclohexane. Alternatives are silicon oils, which can be used from +300 °C to -80 °C.
- Always gently stir the liquid. Unstirred liquids will “layer” with very cold areas at the bottom of the container and almost ambient on top.

Warranty

UK Customers	Units requiring service to be returned to our works, carriage paid. 12 months on parts and labor – Units will be returned carriage free.
Export Customers	Units should be serviced by competent refrigeration engineers. 12 months warranty on faulty parts only, with are returned to us for testing and exchange

Please note that we manufacture machines to the customer’s specification and requirements. For further information on any of our products and services please contact:



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