### Zero Anti-Freeze Valve

### Installation and Maintenance Instructions



Lintatee Ltd Airfield Industrial Estate Hixon Staffordshire ST18 OPE

In this procedure document we have endeavoured to make the information as accurate as possible.

We cannot accept any responsibility should it be found that in any respect the information is inaccurate or incomplete or becomes so as a result of further developments or otherwise.

Tel: 01889 272 180 Fax: 01889 272 181 email: sales@intatec.co.uk web: www.intatec.co.uk

#### Introduction

The patented Inta Zero Anti-Freeze Valves have been specifically designed to quickly and accurately react to the water temperature in the heat pump circuit and do not need the influence of the ambient temperature to operate.

Designed to discharge when the system water temperature goes down to 3 °C preventing ice from forming in the heat pump circuit that could cause breakdown or costly damage to the system.

The Inta Zero has been designed and engineered to avoid negative influences from low ambient temperatures by directly positioning the element in the system water flow, permitting accurate system discharge only when its truly needed.

A protective ring has been included in the construction to prevent system debris clogging the operation of the valve.

Double O-rings and reduced surface friction treatment on the operating member also ensure correct operation and reliability time after time.

These instructions cover the installation, operation and maintenance. Please read the enclosed instructions before commencing the installation of this product, please note;

### We recommend that the installation of any Inta product is carried out by an approved installer.

It is recommended, especially in hard water areas, that a water softener such as the ActivFlo or ActivFlo lite be fitted to reduce the risk of calcium deposits forming.

#### Insulating

Building regulations Part L states that all external fittings on an Air Source Heat Pump System must be fully insulated to reduce heat loss and maintain system efficiency. Inta Zero Anti-Freeze Valves will still maintain correct operation and discharge the water at the same temperature even when a system is correctly insulated.

The Inta Zero Anti-Freeze valves have been Independently tested using a controlled ambient temperature between -1 °C to 1 °C and starting water temperature 10 °C to demonstrate the possibility of insulating the Inta Zero Valve without affecting the performance.

#### Performance

#### Without insulation

Water discharge temperature:	2.49°C
Time taken to begin discharge:	1 hour 4 minutes
With insulation	
Water discharge temperature:	2.03°C
Time taken to begin discharge:	4 hour 3 minutes

### Insulating Continued

#### Warning!

If the Inta Zero valves are insulated, then due care must be taken to ensure that all external pipework and fittings are fully and appropriately insulated and sealed. Failure to do so could prevent the proper operation of the Zero valve resulting in colder areas of a system being damaged by freezing.

The Anti-vacuum valve must be kept clear at all times (inspected on annual service).

An anti-freeze valve guard (vacuum breaker cover) ZEROGUARD is available.

If you chose to insulate it is your responsibility to ensure all external fitting are fully insulated, bonded and sealed to prevent any exposure, cold spots and poor joints.

Inta have available an specially designed insulation and bond seal set.

You must also ensure that the insulation is inspected, retreated with all joints resealed annually and recorded with a service log.

Intatec do not accept any responsibility for the failure of Zero Antifreeze valves if a system has NOT been insulated correctly.

#### **Products**

Zero anti-freeze valve 1" M x M connections	ZERO001
Zero anti-freeze valve 1¼" M x M connections	ZERO114
Zero anti-freeze valve 28mm	ZERO28
Zero anti-freeze valve 35mm	ZERO35
Insulation for 28mm / 1" Zero - Anti-freeze valve	INSULZERO28
Insulation for 35mm / 1¼" Zero - Anti-freeze valve	INSULZERO35
290ml Bond & Seal	INSULBOND
Anti-freeze valve guard	ZEROGUARD
-	

### **Technical Specification**

Max. inlet pressure - static:	10 bar
Max. temperature:	80°C
Medium:	Water
Sensitivity:	±1°C
Opening temperature:	3°C
Closing temperature:	4°C
Threaded connections:	BS EN ISO 228
Compression connections:	BS EN 1254-2

#### **Materials**

Valve body:	Brass	bs en 12165 CW617N
Spring:	Stainless steel	
Temperature element:	Wax	
Internal seals:	EPDM peroxide	
Internal parts:	Brass	BS EN 12164 CW617N
© Intatec Ltd 2024	2	



### **Check Components**

Before commencing remove all components from packaging and check each component with the contents list.

Ensure all parts are present, before discarding any packaging. If any parts are missing, do not attempt to install your Inta Zero anti-freeze valve until the missing parts have been obtained.



#### Preparation for installation

Flush the water supply pipes thoroughly prior to installation. Do not allow debris, PTFE tape or any metal particles to enter the system.

*Important:* Although supplied as a single valve Inta recommend that a pair of valves are installed as shown.

*Important:* All plumbing is to be installed in accordance with applicable codes and regulations.

*Important:* When fitting/installing a heat pump system or components it is essential that the correct insulation is used and properly sealed to reduce the heat loss from the system, maintaining the system efficiency.

#### Installation

The Zero anti-freeze valves must only be installed in a vertical position, with the **outlet facing downwards**, to allow the draining water to flow out free from obstructions.

The Zero anti-freeze valves should be properly insulated and sealed to reduce heat loss. Only the vacuum breaker and discharge point should be exposed.

The valves must also **not be placed close to heat sources** which could interfere with their function.

When installed outdoors, the Zero antifreeze valves must be protected from rain, snow and direct sunlight.

Inta recommend placing a small cover / hood with 1 open face over the vacuum break - Inta ZEROGUARD optionally available. This should prevent interference or debris whilst still permitting air flow.



The Zero antifreeze valves must be installed outdoors, **closest to the heat pump**, where the lowest temperatures can be reached if the heat pump is not operating.

#### Installation Continued

We recommend at least 15cm clearance between the valve and the ground as discharged water could freeze and hinder the operation of the valve.

The discharge from anti-freeze valves must be collected in a suitable drain and routed to a suitable collection point.

Inta recommend the second valve is installed leaving at least 10 cm between the valves to avoid water discharging onto the





Avoid elbows upstream of the anti-freeze valves to prevent water stagnation at a point lower than the valves



Avoid sighting the anti-freeze valves near the building.

#### Installation Continued



Avoid sighting the anti-freeze valves inside the building.



Do not install the anti-freeze valves upside down, the outlet must always point vertically down.



Install the anti-freeze valves away from a heat source.

### Anti-freeze Valve Guard - ZEROGUARD

Available from Intatec as a recommended component.

The patent pending Zeroguard has been designed to protect the anti-vacuum valve from debris and the elements.



The Zeroguard is supplied as two components, the lower sleeve and covered vent.

The lower sleeve can be slotted directly over the anti-vacuum valve and then sealed into the insulation with Bond & Seal, preventing water ingress while making the insulation installation easier.

The covered vent is supplied with a push fit 'O'-ring seal so it can be securely pushed over the lower sleeve while still allowing easy access for servicing.



In situations where the space is limited, the Zeroguard protects the anti-vacuum valve allowing the valves to be stack one above the other.

### Maintenance

#### Vacuum Breaker Replacement

In the event of a malfunction, the vacuum breaker can be removed.

#### Checking the Vacuum Breaker

In the event of a malfunction, or as part of a planned maintenance programme the vacuum breaker can be removed.

Using a 20mm A/F spanner remove the vacuum breaker from the anti-freeze valve body.

Using a suitable sized spanner remove the cover from the vacuum breaker body.

Remove the sealing washer.

Invert the vacuum breaker body and the plastic vacuum cap should fall out.

If it does not fall out it indicates that the vacuum breaker has not been operating correctly and the vacuum breaker needs to be replaced.

If the plastic vacuum cap does fall out check it and the sealing washer for damage and inside the body for debris, if present wash away with clean water.

Re-assemble and refit into the anti-freeze valve.

#### Thermostatic Cartridge Replacement

In the event of a malfunction, the thermostatic cartridge can be replaced.

Using a 26mm A/F spanner remove the cartridge from the body and replace with a new one.

#### **Replacement Components**

Replacement components are available from Inta.

Fit only genuine Inta replacement components.



Notes

Notes

### Please leave this Manual for the User

To activate your product warranty please visit www.intatec.co.uk

and click on Product Registration



Tel: 01889 272 180 Fax: 01889 272 181 email: sales@intatec.co.uk web: www.intatec.co.uk

E & O.E

© Intatec Ltd 2024

ST18 OPF