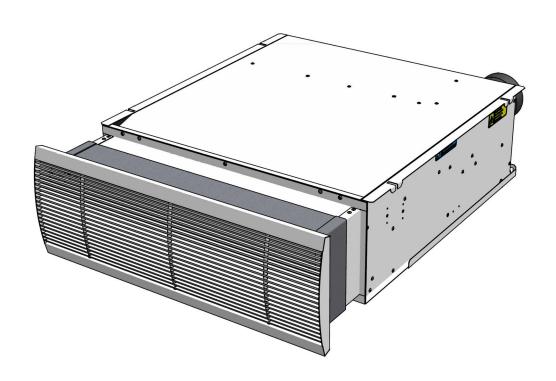
Installation, Operating And Maintenance Manual Hotel unit

Model DecoQT



Version 1.0 Original Manual **English**





Contents

		······································	_,
6	Dis	smantling	27
	5.4	Venting the heat exchanger	26
	5.3	Draining the heat exchanger	26
	5.2	Access to the interior of the unit	25
	5.1	Safety instructions	25
5		rvice	25
	4.2	Remedying errors	24
	4.1	Safety instructions	24
4	Err	rors	24
	3.4	Cleaning the drip tray and condensate pump	23
	3.3	Scheduled maintenance	23
	3.2	Cleaning the unit	22
	3.1	Replacing or cleaning the filter	22
3		intenance	22
	2.11	Switching on and checking operation	2
	2.10	Finishing the unit	19
	2.9	Connecting the unit to the mains supply	19
	2.8	Connecting the controls	16
	2.7		16
	2.6	Connecting the condensate drain	4
	2.5	Connecting the unit	12
	2.4	Hanging the unit up	10
	2.3	General working method	
	2.2	Inspection on delivery	
_	2.1	Safety instructions	
2	Ins	tallation	9
	1.4	Safety instructions	7
	1.3	About the unit	į
	1.2	How to read this manual	
	1.1	About this manual	3
	Int	roduction	3

en-2 Biddle

Introduction

I.I About this manual



This manual describes the installation and maintenance of the model DecoQT fan coil unit. The manual also provides instructions and information for servicing activities.

1.2 How to read this manual

I.2.I Designations used in the manual

The following symbols are used in the manual:



Note:

Refers to an important section in the text.



Caution:

If you do not carry out the procedure or action correctly, you may cause damage to the unit.

Follow the instructions precisely.



Warning:

If you do not carry out the procedure or action correctly, you may cause physical injury and/or damage.

Follow the instructions precisely.

INTRODUCTION HOTEL UNIT



Danger:

Is used to designate actions that are not permitted.

Ignoring this prohibition may lead to serious damage or to accidents resulting in physical injury.

1.2.2 Symbols used on the unit and in the manual

The following symbols indicate possible risks or hazards. The same symbols will also be found on the unit.

SYMBOL

DESCRIPTION





You have accessed a section of the unit containing components which carry a voltage.

Access restricted to qualified maintenance staff only.

Caution is required.





This surface or component may be hot. Risk of burns on contact.

1.2.3 Related documentation

In addition to this manual, the following documentation is also supplied with the unit:

- · wiring diagram for installation and servicing.
- table with technical data
- · fan settings chart

1.3 About the unit



1.3.1 Applications

General

The fan coil unit model DecoQT is intended for cooling and heating a space, e.g. hotel rooms. The unit is to be built into a recess, with the combined inlet and discharge grill placed in the wall.

Other versions and intended use



Warning:

Applications other than those described above are deemed to be 'usage other than for the intended purpose'. Biddle is not liable for damage or loss resulting from usage other than for the intended purpose. Usage for the intended purpose also entails observance of the instructions in this manual.

1.3.2 Type designation

The table below provides an overview of the available models of the unit and the corresponding type designations. In combination, the type designations constitute the type code, for instance: DecoQT-70-H5-R-Basic



Note:

In the illustrations in this manual, one type of unit is used as a general example. The outer appearance of your unit may be different but its functioning is the same, unless stated otherwise.

Explanation of the type code

TYPE CODE ELEMENT	DESIGNATION	MEANING
product series	DecoQT	
width	70, 100	Unit width in cm
battery type	H5	two-pipe water heating and cooling
		(change-over)
	HIC4	four-pipe water heating and cooling
model	R	recessed model

INTRODUCTION HOTEL UNIT

TYPE CODE ELEMENT	DESIGNATION	MEANING
control	Basic	basic control
	<>	Customer-specific control

biddle	Туре	XX XX-XX-XX		
Biddle bv Markowei 4	Code	xxx	U	xxx V xN~ xx Hz
NL-9288 HA Kootstertille	N°	xxxxxx/x-x xx-xx	I _{max} L1	xxx A
			I _{max} L2	-
Made in the Netherlands	М	xx kg	I _{max} L3	-
CCT	Medium	XXXX	P _{motor}	xxx kW
スプノ	Pmax	xxxx kPa	Pheating	-

1.3.3 Type plate

The type plate is located on the back of the unit.

Designations on the type plate

DESIGNATION	MEANING
Туре	complete type code of the
	unit
N°	serial number, production
	week and year
М	weight of unit
Medium	medium
P _{max}	maximum permissible operat-
	ing pressure
U	power supply voltage
I _{max}	max. current
P _{motor}	max. power consumption by
	fans

1.3.4 Field of application

Operating limits for all models

Ambient conditions	Minimum temperature	5 °C
	Maximum temperature in cooling mode	35°C
	Maximum temperature in heating mode	30°C
	Relative air humidity	20% - 95%, not condensing
Power supply voltage		see type plate
Power		see type plate
Maximum discharge temperature		50 °C
Maximum operating pressure		see type plate
Maximum water temperatures	H5	60 °C
	HIC4	60 °C



Note:

Consult Biddle if you want to connect a unit to a system with higher water temperatures and/or higher pressure.



Warning:

The unit may not be used in potentially explosive environments.

Biddle shall not be held liable for damage caused by use under these conditions.

1.3.5 CE (and UKCA) declaration

The unit is compliant with the applicable CE standards. For the UK market, the unit is also compliant to the applicable UKCA standards. The Declaration(s) of Conformity can be found on the website.

1.3.6 Modifications and changes

Without our approval, no changes or modifications may be made to the unit that could adversely affect safety. The CE (and UKCA where appropriate) declaration is no longer valid if the unit has been modified or changed in any way.

1.4 Safety instructions

I.4.I Safety in use



Warning:

Do not put any objects into the inlets and outlets.



Warning:

Do not obstruct the unit's inlets or outlets.



Warning

The upper surface of the unit becomes hot during operation.



Caution:

In exceptional situations, water may run out of the unit. Therefore, do not place anything under the unit that could be damaged as a result.



INTRODUCTION HOTEL UNIT

1.4.2 Safety issues relating to installation, maintenance and servicing



Danger:

The unit may only be opened by qualified technical staff.



Warning:

Perform the following actions before opening the unit:

- I. Switch the unit off, .
- 2. Wait until the fans have stopped.



Danger:

The fans may continue rotating for a while.

3. Allow the unit to cool down.



Caution:

The heat exchanger get very hot.

- 4. Disconnect the mains supply (turn off at the isolation switch).
- 5. For water-heated models:

isolate the water connections.



Warning:

The fins of the heat exchanger are sharp.

2 Installation

2.1 Safety instructions



Warning:

Installation activities may only be performed by technical staff qualified for this purpose.



Warning:

Before starting installation: read the safety instructions.

2.2 Inspection on delivery

- Check the unit and the packaging to ensure that they have been delivered in good order. Notify the supplier and, if possible, the driver immediately if any shipping damage is detected.
- Ensure that all components are present. Notify supplier of any missing parts immediately.

2.3 General working method

2.3.1 Sequence of operations



Note:

During the installation period, protect the unit against damage and penetration of dust, cement, etc. You can, for instance, use the packaging for protection.

Biddle recommends working as follows when installing the unit:

- 1. Make an opening in the wall for the inlet and discharge duct.
- 2. Hang the unit up.
- 3. Connect the unit to the central heating and cold water system.

Installation Hotel unit

- 4. In the case of cooling: Attach the condensate drain.
- 5. Install the operation and control units.
- 6. Connect the unit to the mains supply.
- 7. Connect the grille to the duct, finish around the unit and the ceiling.
- 8. Switch the mains supply on and check that the unit is working properly.

2.4 Hanging the unit up

2.4.1 Determining where to place the unit

The unit must be installed above a false ceiling, with the air intake and discharge duct fed through a wall.



Warning:

Make sure that the structure from which the unit is about to be suspended can bear the weight of the unit. The unit's weight is indicated on its type plate.



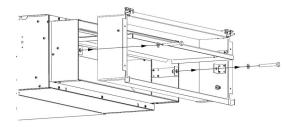
Caution:

Once installed, the bottom and rear of the unit must remain accessible through an inspection hatch in the ceiling.



2.4.2 Preparatory work

- I. Remove the packaging from the unit
- 2. Remove the grille from it's separate box
- 3. Remove the telescopic part of the inlet and discharge ducts from the unit.



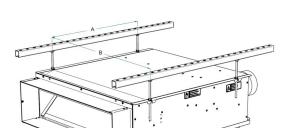
2.4.3 Hanging the unit up

Make a hole in the wall for the inlet and discharge duct.
 Refer to the table below for the dimensions.



SIZE	ТҮРЕ	DIMENSIONS
a	70	715 mm
	100	1015 mm
b	all	225 mm

Installation Hotel unit



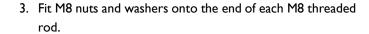
2. Fit four M8 threaded rods as per the sizes in the table below. Make sure the threaded rods are perpendicular.

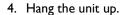


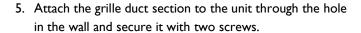
Note:

Use mounting rails to make it easier to position the unit directly in front of the hole in the wall

SIZE	Түре	DIMENSIONS
a	all	550 mm
b	70	730 mm
	100	1030 mm

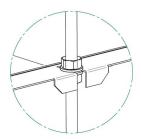








7. Secure the unit's mounting brackets.



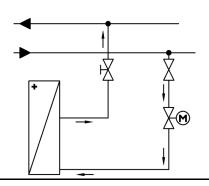
2.5 Connecting the unit

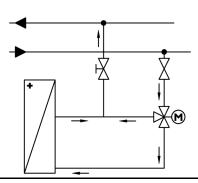
The unit is supplied without water-side control by default. Depending on the version, control valves may be built into the unit, supplied in addition to the unit or supplied separately.

If no valves are built in, then if needed, they must be fitted to the unit according to the diagrams below.

WIRING DIAGRAM 2-WAY VALVE

WIRING DIAGRAM 3-WAY VALVE







Warning:

When connecting the pipes, use pliers to keep the connectors out of the way.

- Connect the control valve and the drive to the heat exchanger, in accordance with the diagram. In doing so, follow the instructions given in the control valve manual.
- 2. Connect the unit to the system.
- 3. In the case of cooling:
 - insulate the valves and pipes.
 - place the optional condensate drip tray under the valves and couplings.



Caution:

Pipes and valves must be fully insulated to prevent condensation. The optional condensate drip tray is only intended to catch incidental condensation to prevent damage to the surroundings.

4. Check the connections for leakage.

2.5.1 Connecting the unit to the central heating and air heat recovery system

2.5.2 Special points regarding the water connection



Caution:

The central heating system's supply and return pipes must be attached to the correct corresponding connectors. On the unit, the directions are indicated with labels.

INSTALLATION HOTEL UNIT



Danger:

Take measures to limit the discharge temperature.

Take account of the critical discharge temperatures and water flow-paths indicated in the section Field of application.



Note:

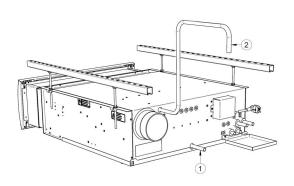
The central heating system must be fitted with an overpressure cut-out with an initial pressure not exceeding the permitted pressure of the unit. This is shown on the type plate at P_{max} .



Note:

Make sure that the central heating system has sufficient capacity.

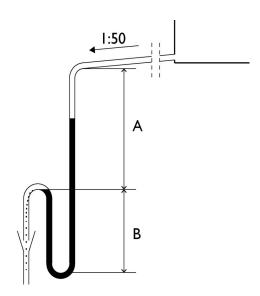
2.6 Connecting the condensate drain



Only on models with cooling mode

Units with cooling mode are equipped with a natural condensate drain as standard. As an option, an external condensate drain tray (shown in the image on the left) can be supplied to collect any small drops of condensate under the valve - please note this is only for exceptional circumstances and does not freely drain. Units can also be ordered with a factory fitted condensate drain pump within the unit. The condensation is removed from the unit through a flexible hose:

- condensate drain without condensate pump 1
- condensate drain with condensate pump 2



2.6.1 Units without condensate pump

Pay attention to the following installation criteria:

- Make sure the drainage pipe has a drop of at least 1:50.
- Fit the drainage pipe with a trap with dimensions as shown in the illustration. Fill this with water before the unit is used for the first time.

A	50 mm
В	100 mm



Caution:

The trap must always be filled with water.

- The drain hose on the unit may not be extended.
- Make sure there are no kinks in the discharge hose.
- · The drain hose must be insulated above the ceiling.
- Fit a drain connection with odour trap for condensate drain.
- 2. Connect the drain hose to the discharge pipe.



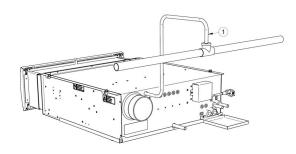


Note:

The maximum head is I metre from the bottom of the unit

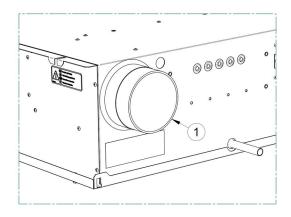
Pay attention to the following installation criteria:

- Make sure the drainage pipe has a drop of at least 1:50.
- The drain hose on the unit may not be extended.
- · The drain hose must not be allowed to sag.
- · Make sure there are no kinks in the discharge hose.
- The drain hose must be insulated above the ceiling.
- Fit a drain connection with odour trap for condensate drain.
 - Make sure the discharge pipe is sufficiently vented.
- 2. Connect the drain hose **1** to the **top** of the drain pipe.



INSTALLATION HOTEL UNIT

2.7 Connection for ventilation air



The unit is fitted with a connection **1** for supplying additional ventilation air. The connection measures Ø125 mm and can be found at the back of the unit.



Warning:

The connection is only suitable for filtered air.



Note:

Cap the connection if it is not used.



Note:

To prevent noise being transmitted from the central air conditioning unit, Biddle recommends using an induct attenuator.

2.8 Connecting the controls

2.8.I General

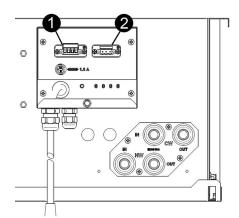
The unit comes with or without a prefitted control depending on the model. For units without a control, a third party control must be connected.



Warning:

Do not turn unit ON/OFF at its power supply.

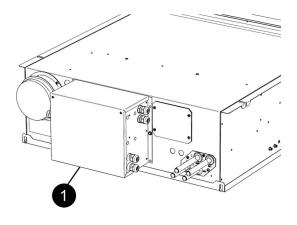
The condensate pump must always be connected to a power supply to prevent damage to the unit and its surroundings.



2.8.2 Units without controls

The terminals are located at the back of the unit and provide easy connection for power, fan control and condensate pump status (when fitted).

- 0-10V Fan control •
 Refer to the selection calculated at quotation stage for the required fan control voltage and air volume. The fan controls from an external 0-10V DC signal.
- Alarm contacts ② of the condensate pump. The Normally Closed (NC) terminals are available. These contacts are volt free and can be used to signal either a fault with the condensate pump, or when the unit is producing more condensate than the pump can remove. These contacts are for signalling only and not designed to switch loads.



2.8.3 Units with controls

When the unit is supplied with controls, an electrical box ① is fitted to the rear of the unit to house the controller. The unit is available with either factory fitted Biddle specified controls or factory fitted controls that have been free issued by the customer or their appointed system integrators. Due to the wide variety of controls on the market today, only units with factory fitted Biddle specified controls can be supported by Biddle. Where free issue controls are supplied support should be provided by the party who supplied them.

If specified at time of order, the product will be delivered with a factory fitted Biddle specified Johnson Controls' TUC03 or EasyIO FW14 to allow the unit to operate in the following ways:

- Standalone
- Standalone with a room controller
- Master/Slave with other Biddle units
- From a Building Management Systems (BMS) with Bacnet MS/TP interface (TUC03 only)
- From a Building Management Systems (BMS) with Bacnet IP interface (EasyIO FW14 only)

The rest of this section refers to the TUC03 only - if you have the EasyIO FW14 please refer to that specific set of instructions.

INSTALLATION HOTEL UNIT

Standalone

The TUC03 is a configurable direct digital controller (DDC) that will control the fan speed and valve actuators based on sensors fitted within the product to effectively manage the space temperature. By default, the product will operate from a fixed set-point of 22°C. For optimal user comfort and control we recommend that a room controller (detailed below) is fitted.

Standalone with Room Control Module (RCM)

The product is supplied as above but with a room control module allowing users to adjust the temperature and fan speeds of the product. Each wall controller is supplied with a separate user manual about how to fit, wire and control the unit with it. The wall controller is shipped inside the unit's electrical box.

The RCM should be fixed to a wall near to the product within the space that the unit is heating/cooling, away from any cold draughts or radiative heat sources. Wiring to the product should be done with twisted cable with a length of less than 25m.

Master/Slave with other Biddle units

The TUC03 will allow multiple similar products to be connected together to ensure they all heat/cool collectively. Where multiple units are used in the same space, Biddle recommend that this function is enabled to avoid each unit competing against each other causing substantial increase in running costs. For users who wish to use this feature please ask our sales team for wiring diagram ENG001 that details the wiring and DIP switch settings needed.

From a Building Management Systems (BMS) with Bacnet MS/TP interface

The TUC03 contains a Bacnet MS/TP interface that will allow full and advanced control of the product from external devices over the network. These options are only available for advanced users and will alter the functionality of the product. Any changes of the controller's internal values will invalidate any warranty concerning the product's controls and should only be attempted by competent users. Please contact Biddle for an up to date object listing of the Bacnet objects

2.9 Connecting the unit to the mains supply

2.9.1 Special points regarding the mains supply



Warning:

Do not turn unit ON/OFF at its power supply. Use the control panel.



Warning:

The unit must be earthed.



Warning:

The unit must be connected in accordance with the applicable local requirements.



Warning:

Each unit must be fused in accordance with the table below.

Fuse ratings

	MAXIMUM FUSE VALUE A
≤ 10A	16 A



Note:

A single fuse may only be used for multiple units if they draw a total current of less than IOA.

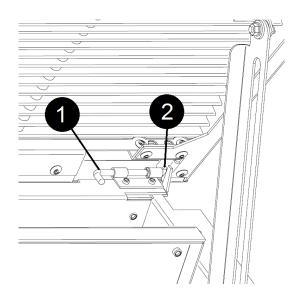
2.10 Finishing the unit



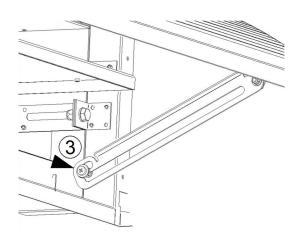
Caution:

Once installed, the unit must remain accessible through an inspection hatch for maintenance and service purposes.

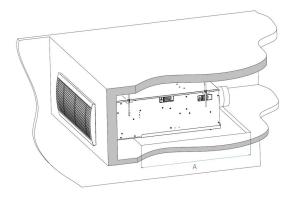
INSTALLATION HOTEL UNIT



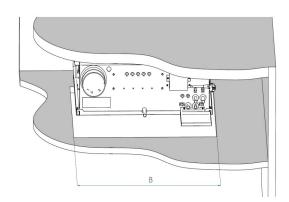
- I. Fit the grille to the telescopic inlet and discharge duct:
 - Push the two pins **1** in the grille towards one another and insert them in the holes **2** of the duct.



- Place the grille stays over the bolts on either sides 3.
 Close the grille by lifting the grille slightly, then lifting the stays upwards.
- Lower the grille into place, lifting it onto the hooks, until it is firmly seated.
- 2. Finish the ceiling under the unit.



3. Make a inspection hatch in the false ceiling to size as per the table. For products that are to have free issue fitted, please obtain confirmation from Biddle on the dimensions, and some free components may increase the overall size of the unit and therefore the inspection hatch size.



Minimum inspection hatch sizes

SIZE	Түре	DIMENSIONS
Α	all models	785 mm
В	70	770 mm
	100	1070 mm

2.11 Switching on and checking operation

- I. Check the following connections:
 - power supply;
 - control cable(s) between control panel and unit(s);
 - **If applicable:** external control components.
- 2. Check whether the heat exchanger is connected correctly.
- 3. Switch the mains supply on.
- 4. Turn the unit ON using the control or the control panel.
- 5. Make sure that the central heating system has been turned on.
- Feel whether the discharged air stream becomes warm.
 This may take some time and is dependent on the need for heating.
- 7. Set to manual mode, high heat.

8. If applicable:

Check the operation of the condensate pump by pouring water into the drip tray.

3 Maintenance

3.1 Replacing or cleaning the filter

The filter must be cleaned regularly. A dirty filter may cause inadequate heating as well as a high noise level. The interval at which the filter is to be cleaned depends on the local conditions.

You can clean the filter with a vacuum cleaner, for instance. After several cleanings, however, the filter must be replaced. New filters are available from Biddle.

3.1.1 Removing the filter

The filter is located in the unit's inlet duct.

- I. Open the grille:
 - Slide the grille up a little and pivot it upwards
- 2. Remove the filter from the unit.
- 3. Clean or replace the filter:
 - Mesh filter: clean the filter with a vacuum cleaner or rinse it with water.
- 4. Replace the filter. Take note of the correct air direction.
- 5. Close the grille again.



You can clean the exterior of the unit with a damp cloth and a domestic cleaning agent. Do not use any solvents.



Caution:

Make sure that no water runs into the unit.

DECOQT MAINTENANCE

3.3 Scheduled maintenance

Biddle recommends having the following inspection and maintenance activities performed annually by an installer or other technical expert.

- Check that the heat exchanger is clean. Settled dust may cause an unpleasant smell.
- · Carefully remove dust with a vacuum cleaner.



Caution:

The fins of the heat exchanger are delicate parts.



Warning:

The fins of the heat exchanger are sharp.

- Check the operation of the fans.
- · Clean the drip tray in the unit.

3.4 Cleaning the drip tray and condensate pump

- 1. Switch the unit off using the control panel.
- 2. Isolate from the mains supply.
- 3. Open the unit.
- 4. Remove the drip tray by pushing the pins towards one another and tilting the drip tray out of the unit



Warning:

Be careful when removing the drip tray as it may contain residual water.

5. For units without a condensate pump:

Detach the condensate drain hose.

- 6. Clean the drip tray.
- 7. Check the pump inlet opening for dirt.
- 8. Check that the float is clean and can move freely.

4 Errors

4.1 Safety instructions



Danger:

All work on the inside of the unit may only be carried out by personnel who are technically qualified to do so.



Warning:

Before you begin: read the safety instructions.

4.2 Remedying errors

If you suspect an error:

- 1. Check whether the problem can be easily resolved.
- 2. Try to resolve the problem using the table below. Technical expertise is required for this.

PROBLEM	PROBABLE CAUSE	SOLUTION
One fan does not work.	The fan is faulty or it is not receiving a power supply.	 Check the fan's wiring and power supply. Check the control. Replace the fan.

5 Service

5.1 Safety instructions



Warning:

Servicing activities may only be carried out by personnel who are technically qualified to do so.



Warning:

Before you begin: read the safety instructions.

5.2 Access to the interior of the unit

For all models

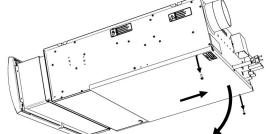
1. Switch the unit off using the control panel.



Warning:

Disconnect the mains supply (remove plug from the power socket or turn off at the isolation switch).

- 2. Remove the inspection panel:
 - Remove the screws from the front of the inspection panel.
 - Pull the panel forward a little and remove it.



Caution:

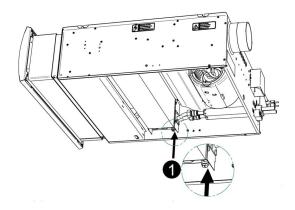
The entire panel comes free once pulled forward – make sure it does not fall.



Warning:

When replacing the inspection panel, always attach it using flanged bolts with milled edges; these are required for the earth connection.

5.3 Draining the heat exchanger



The heat exchanger can be completely drained.

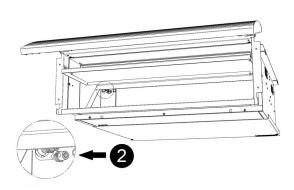
- I. Open the unit's inspection panel.
- 2. Remove the drip tray.
- 3. Open the drain plug **1** on the coil. The HI/C4 has two drains.



Caution:

After refilling the system, check the seal on the drain plug.

5.4 Venting the heat exchanger



The venting valve ② is located in the unit's inlet. The HI/C4 has two venting valves.

- 1. Open the unit's intake and discharge grilles.
- 2. Remove the filter from the unit.
- 3. The venting valves are located on the left of the unit.



Warning:

The fins of the heat exchanger are sharp.

6 Dismantling

The dismantling of the installation and the handling of the coolant, oil and other components must be carried out by a qualified fitter in accordance with the relevant local and national legislation and regulations.

Pursuant to EU legislation, used electrical and electronic appliances must be collected for recycling. By ensuring that this product is disposed of in the correct manner, you are helping to prevent potential negative consequences for the environment and public health. For more information about this, please contact your supplier or the relevant government authority.

7 Addresses

If you have any comments or queries relating to this product, please do not hesitate to contact your Biddle branch.

Biddle bv

P.O. Box 15
9288 ZG Kootstertille
The Netherlands
T +31 (0)512 33 55 55
E info@biddle.nl

Biddle Air Systems

St. Mary's Road, Nuneaton
Warwickshire CVII 5AU
United Kingdom
T +44 (0)24 7638 4233
E sales@biddle-air.co.uk
I www.biddle-air.co.uk

N° Vert 0 800 24 33 53

N°Vert 0 800 BI DD LE

Biddle France

21 Allée des Vendanges 77 183 Croissy Beaubourg France T +33 (0) 1 64 11 15 55

E contact@biddle.fr

I www.biddle.fr

Biddle GmbH

Emil-Hoffmann-Straße 55-59 50996 Cologne Germany T +49 (0)2236 9690 0 E info@biddle.de I www.biddle.de DECOQT Addresses

Copyright and Trademarks

All information and drawings contained in this manual are the property of Biddle and may not be used (other than for the purpose of unit operation), photocopied, reproduced, translated and/or communicated to third parties without prior written permission from Biddle.

The name Biddle is a registered trademark of Biddle bv.

Warranty and liability

For the warranty and liability provisions and terms, please refer to the terms & conditions of sale and supply.

At all times, Biddle shall not be held liable for consequential damages.

Liability as regards the manual

Although great care has been taken to ensure the correct and, where necessary, complete description of the relevant components, Biddle shall not be held liable for damages as a consequence of errors and/or imperfections in this manual.

Biddle reserves the right to alter the specifications as mentioned in this manual.

Should you nevertheless discover any errors or ambiguities in the manual, we shall be glad to learn that from you. It helps us to improve the documentation still further.

For more information

If you have any comments or queries relating to this product, please do not hesitate to contact Biddle. You will find the contact information for your Biddle branch in the Addresses chapter.

Biddle by
P.O. Box 15
9288 ZG Kootstertille
The Netherlands

T +31 (0)512 33 55 55 **E** info@biddle.nl **I** www.biddle.nl

Name and telephone number of installer: