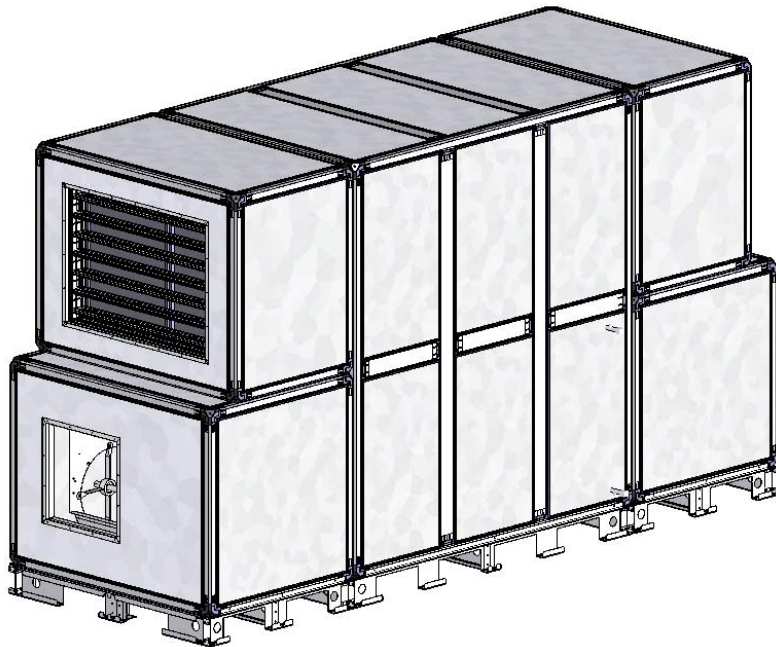


# BasX

Service manual

EN

No. 039073 • rev. 1.0 • 08.03.2007



Der tages forbehold for trykfejl og ændringer  
Dantherm can accept no responsibility for possible errors and changes  
Irrtümer und Änderungen vorbehalten  
Dantherm n'assume aucune responsabilité pour erreurs et modifications éventuelles

# Introduction

## Overview

### Introduction

This is the service manual for the Dantherm Air Handling BasX unit.

The index below shows the main sections of the manual. For further information see the complete table of contents on page 4.

### Warning

**It is the operator's responsibility to read and understand this manual as well as other information and to use the correct operation and maintenance procedure.**

The unit should only be operated by qualified (trained) persons. Repair of cooling circuit/electrical system must be done by skilled service engineers. If such precautions are neglected, persons or equipment may be injured or damaged.

### Not included

This manual does not include information about:

- Transport, mounting, installation, start and commissioning of the unit  
Separate instructions are delivered with the unit
- Function and use of the control  
Separate instructions are delivered with the unit, if the control is included in the delivery from Dantherm Air Handling A/S
- Technical information/data including electrical documentation  
Delivered separately with the unit

### Contents

This service manual deals with the following:

Item	See page
Introduction	This page
Table of contents	4
General information	5
Service guide	6
Technical information	27
Index	33

## Table of contents

**Introduction** This is the complete table of contents covering all sections in this service manual. Each main section will begin with an introduction including a separate table of contents covering the specific section.

**Table of contents** This service manual covers the following topics:

Topic	See page
Introduction	3
Table of contents	4
General information	5
Service guide	6
Scheduling service inspections, overview	7
Preventive maintenance	9
How to service the cabinet	10
How to service fans and fan motors	11
How to service the cross-flow heat exchanger	13
How to service the rotary heat exchanger	15
How to service run-around heat exchangers	17
How to service the filter	19
How to service the heating coil	20
How to service the cooling coil	21
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Spare parts	24
Fault finding guide	25
Service agreement	26
Technical information	27
Dimensions	28
Driver for rotor exchanger	29
Flow calculation for plug fans	32
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## General information

<b>Introduction</b>	This section includes general information on the unit and the service manual.												
<b>Target group</b>	The service manual's target group is the service engineers that maintain the unit.												
<b>Not included in the manual</b>	<p>The following is not included in this manual, but described separately:</p> <ul style="list-style-type: none"> <li>• The transport, mounting and installation guide</li> <li>• The user's guide for control, if such is delivered</li> <li>• Technical information, including electrical documentation</li> </ul>												
<b>Copyright</b>	Copying of this service manual, or part of it, is forbidden without prior written permission from Dantherm Air Handling.												
<b>Reservations</b>	Dantherm Air Handling reserves the right to make changes and improvements to the product and the service manual at any time without prior notice or obligation.												
<b>EC-Declaration of Conformity</b>	<p>Dantherm Air Handling A/S declares that the BasX units comply with the following directives:</p> <table border="0"> <tr> <td>2006/42/EF</td> <td>Directive on machine safety</td> </tr> <tr> <td>73/23/EEC</td> <td>Low voltage directive</td> </tr> <tr> <td>89/336/EEC</td> <td>EMC directive</td> </tr> </table> <p>and are produced in accordance with the following standards:</p> <table border="0"> <tr> <td>EN 292-1</td> <td>Machine safety</td> </tr> <tr> <td>EN 292-2</td> <td>Machine safety</td> </tr> <tr> <td>EN 60 204-1</td> <td>Electrical equipment for machinery, part 1 – General requirements</td> </tr> </table> <p>We do not allow use of the units until the machine into which the parts are to be incorporated has been declared to be in full accordance with the relevant directives.</p>	2006/42/EF	Directive on machine safety	73/23/EEC	Low voltage directive	89/336/EEC	EMC directive	EN 292-1	Machine safety	EN 292-2	Machine safety	EN 60 204-1	Electrical equipment for machinery, part 1 – General requirements
2006/42/EF	Directive on machine safety												
73/23/EEC	Low voltage directive												
89/336/EEC	EMC directive												
EN 292-1	Machine safety												
EN 292-2	Machine safety												
EN 60 204-1	Electrical equipment for machinery, part 1 – General requirements												
<b>Recycling</b>	The unit is designed to last for many years. When the time comes for the unit to be recycled, the unit should be recycled according to national rules and procedures to protect the environment.												

## Service guide

### Overview

**Introduction** This section contains any relevant information for the service of the BasX unit. It includes:

- a survey for the planning of service inspections
- a description of all the components that require preventive maintenance
- general information on spare parts, fault finding etc.

Below please find a list of the main sections.

**Preventive maintenance** For optimum operation conditions and a long life it is necessary to perform preventive maintenance on the various unit parts within the stipulated intervals. Read more about intervals in section "Scheduling service inspections, overview", page 7

**Guarantee** The factory guarantee is only valid when the preventive maintenance is in accordance with the guidelines of this section. Written documentation must be available.

**Quick and easy** Dantherm Air Handling A/S has put great efforts into making the maintenance work as quick and easy as possible. Among other things the unit has inspection doors for easy access to the parts to be serviced.

**Warning!** Do not forget to disconnect all current to the unit and the unit parts before service.

**Contents** This section includes the following:

Item	See page
Scheduling service inspections, overview	next page
Preventive maintenance	9
Spare parts	24
Fault finding guide	25
Service agreement	26

## Scheduling service inspections, overview

### Introduction

This section gives an overview of the parts to be regularly serviced.

Read more in each section of each part about what kind of service is necessary and how to carry out this service inspection.

### Categories

Dantherm Air Handling has categorized the service inspections to be carried out:

- Four times a year
- Every 5000 operating hours or at least once a year
- Once a year
- When the catalogue value for recommended end pressure loss is exceeded

### Four times a year

Check the following parts at least four times a year to ensure optimal operating performance:

Component	Service	Reference
Rotary heat exchanger	Check and tighten the belt-drive	Page 15
Fan	Check and tighten the pulley	Page 11

### Once a year

Check the following parts at least once a year to ensure optimal operating performance:

Component	Service	Reference
Cabinet	Clean the cabinet Check the seals and closing mechanisms	Page 10
Damper	Check the air-tightness	Page 22
Rotary heat exchanger	Check the condition of the rotor and that it turns easily Check the brush seals Check the drive system	Page 15
Cross-flow heat exchanger	Check the heat exchanger Check the air-tightness of the bypass damper Lubricate the movable parts of the bars connected to the damper motor Clean the drip tray, drain and water trap	Page 13
Run-around heat exchanger	Check the condition of the coils Vent the coils Clean the drip tray, drain and water trap (exhaust air) Check the droplet eliminator (exhaust air) Check the pump	Page 17
Heating coil	Check the condition of the coil Vent the water coil	Page 20

*Continued overleaf*

## Scheduling service inspections, overview, *continued*

**Once a year,**  
*continued*

Component	Service	Reference
Cooling coil	Check the condition of the coil Vent the coil which use water Clean the drip tray, drain and water trap Check the droplet eliminator	Page 21
Fan	Check the fan impeller Check the vibration isolators and flexible connections	Page 11

**Catalogue value**

The following parts should be checked at least when the catalogue value for recommended end pressure loss is exceeded to ensure optimal operating performance:

Component	Service	Reference
Bag filter	Replace the filter cells and check the seals at the filter cells	page 19



## Preventive maintenance

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**Introduction** In order to achieve the best possible operation and long lifetime of the air handling unit it is necessary to perform preventive maintenance of the various parts of the air handling unit within the necessary intervals. Read more about intervals in the section “Scheduling service inspections, overview”, page 7

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**Condition for warranty** The factory warranty is only valid if documented preventive maintenance has been carried out by the instructions in this section. The documentation could be in form of a written log.

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**Contents** This section covers the following topics:

Topic	See page
How to service the cabinet	10
How to service fans and fan motors	11
How to service the cross-flow heat exchanger	13
How to service the rotary heat exchanger	15
How to service run-around heat exchangers	17
How to service the filter	19
How to service the heating coil	20
How to service the cooling coil	21
How to service dampers	22

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## How to service the cabinet

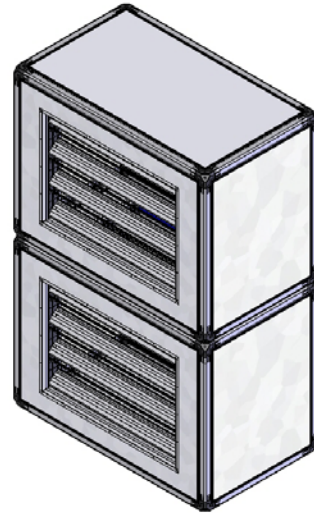
**Interval** Clean the cabinet once a year.

**Before you start** Make sure to have the following available before you start servicing the cabinet:

- Cloth, water, and if needed, detergent

**Caution!** Remember to switch off the main power supply to the unit and its parts before starting the service inspection!

**Illustration** This illustrates the cabinet:



**Procedure** Follow the procedure below to service the cabinet:

Step	Action
1	Dry it off with a dry cloth or use water mixed with a cleaning product
2	Clean the seals and inspection doors, and check for leakage. Dantherm Air Handling recommends treating the seals with a moisture repellent agent
3	Check the seals and closing mechanisms

## How to service fans and fan motors

### Interval

Fan and motor are serviced in accordance with the following intervals:

**4 times annually:**

- Belt drive

**Once annually:**

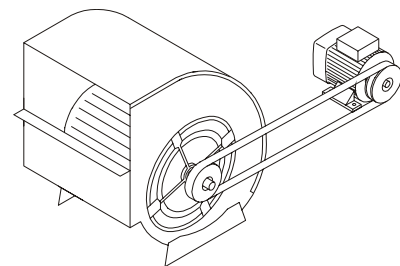
- Fan wheel
- Vibration dampers and flexible connections

### Warning!

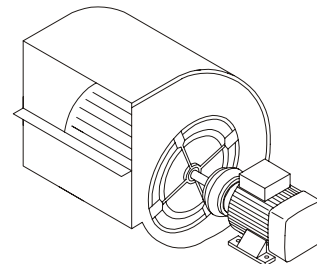
Do not forget to disconnect all current to the unit and the unit parts before service.

### Illustrations

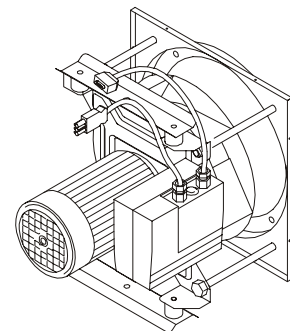
Belt-driven fans



Direct-driven fans



Plug fans



### Procedure

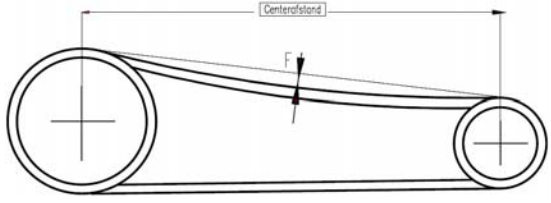
Do as follows to service the fan:

Step	Action
1	Check and clean, if necessary, the fan wheels for dust that may cause unbalance and vibrations. If necessary, replace the bearings
2	<b>Steps 2-4 only apply to belt-driven fans!</b> Check the belt drive for wear and tear and replace the belts if necessary. NB: If one belt of a belt drive is worn, all belts of the belt drive are to be replaced! Do not use new and used belts together, as they are of different lengths

*Continued overleaf*

## How to service fans and fan motors, *continued*

Procedure, *continued*

Step	Action										
3	Check that the pulleys are placed correctly and are completely parallel										
4	<p>Check that the fixing of the belt drive has been correctly adjusted. Check the belt tightening by controlling that the deflection (F) matches the specifications below (mm). The deflection strength of each belt depends on the belt profile type used and the centre distance.</p> <p>Dantherm Air Handling recommend the use of special-purpose tools for the measuring of the belt tightening in order to ensure the control of the values of the table below</p>  <table border="1"> <thead> <tr> <th>Belt Profile (type)</th> <th>Centre Distance (mm)</th> <th>Deflection Strength (Kg)</th> <th>Deflection, F (mm)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">SPA-XPA</td> <td>500-600</td> <td rowspan="2">2,7</td> <td>11</td> </tr> <tr> <td>600-800</td> <td>13</td> </tr> </tbody> </table>	Belt Profile (type)	Centre Distance (mm)	Deflection Strength (Kg)	Deflection, F (mm)	SPA-XPA	500-600	2,7	11	600-800	13
Belt Profile (type)	Centre Distance (mm)	Deflection Strength (Kg)	Deflection, F (mm)								
SPA-XPA	500-600	2,7	11								
	600-800		13								

Procedure, 5000 operation hours/annually<sup>\*)</sup>

Do as follows to service the fan ball bearings:

Step	Action
1	Check the wear and tear of the vibration-damping rubber bushings <sup>*)</sup> into which the fans' ball bearings are fitted <sup>*)</sup> only fans that have rubber bushings
2	Control the vibration dampers and the flexible connections

## How to service the cross-flow heat exchanger

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**Interval** The cross-flow heat exchanger is serviced once annually.

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**Before start** The following should be available before start:

- A soft brush
- Fat-dissolving detergent
- High-pressure cleaner with atomizer

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**Warning!** Do not forget to disconnect all current to the unit and its parts before service.  
 Take care when cleaning the exchanger so that you do not damage the surface of the heat exchanger.  
 Avoid the use of hard objects on the surface.

---

**Special conditions** Where a unit is used in connection with exhaust e.g. from a kitchen with fatty air, exhaust hood filters etc. must be cleaned every day to ensure optimum performance and to protect the heat exchanger. The unit must be switched off, when the fat filters are removed.

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**Illustration** A cross-flow heat exchanger:



**Preventive maintenance** To ensure a long lifetime and continuous operation of the DanX unit, the cross-flow heat exchanger should be maintained once annually as described below. See "Procedure".

---

**Note!** Take care when cleaning the rotary heat exchanger so that you do not damage the surface of the heat exchanger.

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*Continued overleaf*

## How to service the cross-flow heat exchanger, *continued*

### Procedure, preventive maintenance

The preventive maintenance is done as described below:

Step	Action
1	Check the heat exchanger plates and inlet for dirt. (You may use a torch to see through it from both sides)
2	Dust should be removed from the inlet edges. Use a soft brush
3	Internal fat and dirt is dissolved and removed by detergent
4	Subsequently you may use a high-pressure cleaner with atomizer to rinse the heat exchanger internally – use compressed air for dry dirt. Water and dirt is removed from the opposite side of the exchanger

### Procedure, service

The cross-flow heat exchanger is serviced as described below:

Step	Action
1	Check that the edges of the heat exchanger plates are clean and intact
2	Use a soft brush to remove dust on the edges of the heat exchanger
3	Wash with fat-dissolving detergent to remove fat or dirt on the edges of the heat exchanger
4	If necessary, clean the heat exchanger by means of a high-pressure cleaner with atomizer. Use a water vacuum cleaner to remove water and dirt from the opposite side of the heat exchanger
5	Clean the condensate tray under the heat exchanger as well as the drain and the drain trap connected to it

## How to service the rotary heat exchanger

### Illustration

Rotary heat exchanger:



### Interval

To ensure a long lifetime and continuous operation of the BasX unit, the rotary exchanger should be maintained once annually as described below. See "Procedure". The rotary heat exchanger should be serviced once annually.

### Before start

The following should be available before service:

- Soft brush
- Fat-dissolving detergent
- Compressed air
- A vacuum-cleaner

### Not included

This section does not deal with service of the bypass damper, which is described separately under Accessories. See "How to service dampers", page 22

### Warning!

Do not forget to disconnect all current to the unit and its parts before service. Take care when cleaning the rotary heat exchanger so that you do not damage the surface of the heat exchanger. Avoid the use of hard objects on the surface.

### Procedure, preventive maintenance

The preventive maintenance is done as described below:

Step	Action
1	Check the rotary exchanger for dirt. (You may use a torch to see through it from both sides)
2	Dust should be removed from the inlet edges. Use compressed air, a vacuum cleaner or a soft brush
3	Check that the brushes round the rotor are tight

*Continued overleaf*

## How to service the rotary heat exchanger, *continued*

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**Procedure,  
preventive  
maintenance**

The rotary heat exchanger is serviced as described below:

Step	Action
1	Check that the brushes are intact
2	Use a soft brush to remove dust on the edges of the rotary heat exchanger
3	Wash with fat-dissolving detergent to remove fat or dirt on the edges of the heat exchanger
4	If necessary, clean the heat exchanger by compressed air. Use a vacuum cleaner to remove dirt from the opposite side of the heat exchanger
5	Check that the brushes around the rotor are undamaged and tight-fitting.
6	Check the rotor driving belt and the transmission.

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## How to service run-around heat exchangers

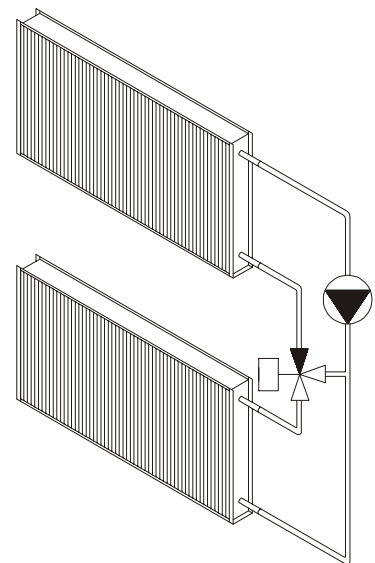
**Intervals** Once annually.

**Before start** The following must be available before service:

- Compressed air or vacuum cleaner
- a soft brush

**Warning!** Do not forget to disconnect all current to the unit and the unit parts before service. Take care not to damage the slats of the coils.

**Illustration** The run-around heat exchanger:



**Reduction of capacity** After many hours of operation dust may settle on the coil surfaces. This can reduce the recovery capacity, and preventive maintenance is consequently important.

**Procedure** Do as follows to service the run-around heat exchanger:

Step	Action
1	Check the coils for dust or dirt. If necessary, clean the alu slats by a soft brush and a vacuum cleaner. Alternatively you may blow compressed air through the coil against the normal air direction
2	Straighten any bent slats using appropriate tools
3	Air the coil circuits through the exhaust valve of the pipe system (air in the pipe system may reduce the capacity)
4	Service the pump according to the pump manufacturer's directions
5	Check the positive pressure of the pressure expansion system. If necessary, pump it to the correct level

*Continued overleaf*

## How to service run-around heat exchangers, *continued*

**Procedure,**  
*continued*

Step	Action
6	Clean the condensate tray, the drain and the drain trap from the drip tray under the cooling coil
7	Check and clean the eliminator plate (if the unit is equipped with one). Use compressed air and a soft brush

## How to service the filter

### Interval

Replace the filter when the pressure loss exceeds recommended end pressure, see the table.

The intervals are dependent on the concentration of dust in the air passing through the filter.

Use the following ways to determine if the filter needs to be replaced:

- Use a filter monitor (if fitted) giving a signal with a lamp or another electrical device when the filter is to be replaced
- Use a pressure difference manometer which shows the filter pressure drop, see the table

If no mechanical equipment is available to check the pressure loss, the filter should be replaced when estimated necessary.

### Before you start

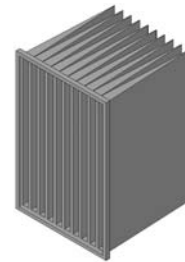
No special tools are required for the service inspection.

### Caution!

Remember to switch off the main power supply to the unit and its parts before starting the service inspection!

### Illustration

This illustrates the bag filter:



### Procedure

Follow the procedure below to replace the bag filter:

Step	Action
1	Release the bag filters by turning the handles
2	Pull out the filters of the unit
3	Clean the frame profiles
4	Check that the rubber strips are intact and undamaged
5	Carefully push the new bag filters into the unit to ensure that they are sealed properly

### Recommended end pressure

This table shows the recommended end pressure referred to in this section:

Type	Value
G3	150
F5	250
F6	250
F7	250
F8/9	350

## How to service the heating coil

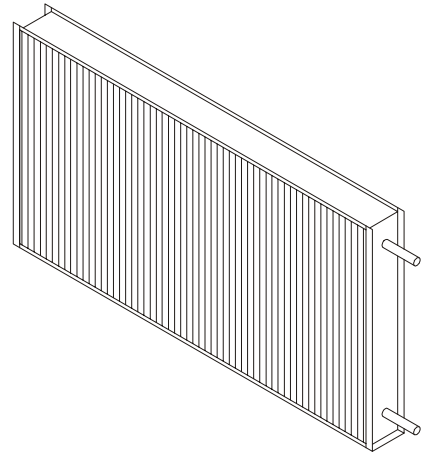
**Intervals** Once annually.

**Before start** The following must be available:

- Compressed air or a vacuum cleaner
- A soft brush

**Warning!** Do not forget to disconnect all current to the unit and the unit parts before service.  
Take care not to damage the slats of the coils.  
Do not touch the hot coils.

**Illustration** The heating coil:



**Procedure** Do as follows to service the heating coils:

Step	Action
1	Check the coils for dust or dirt. If necessary, clean the alu slats by a soft brush or a vacuum cleaner. Alternatively you may blow compressed air through the coil against the normal air direction
2	Straighten any bent slats using appropriate tools
3	Check that the clip-on sensors are properly fixed
4	Air the coil circuits through the exhaust valves of the pipe system (air in the pipe system may reduce the capacity)

## How to service the cooling coil

**Interval** Cooling coils are serviced once annually.

**Before start** The following should be available before start:

- High-pressure cleaner with atomizer or compressed air

**Warning!** Do not forget to disconnect all current to the unit and the unit parts before service. Take care not to damage the slats of the coils during cleaning.

**Illustration** A cooling coil:



**Procedure** Do as follows to service the cooling coils:

Step	Action
1	Carefully clean the coils using a high-pressure cleaner with atomizer or compressed air
2	Deflate the coil circuits through the air escape valve of the tubing system (air in the tubing system may reduce the capacity)
3	Clean the condensate tray under the cooling coil as well as the drain and the drain trap connected to it
4	Check and clean the condensate remover that may be fitted

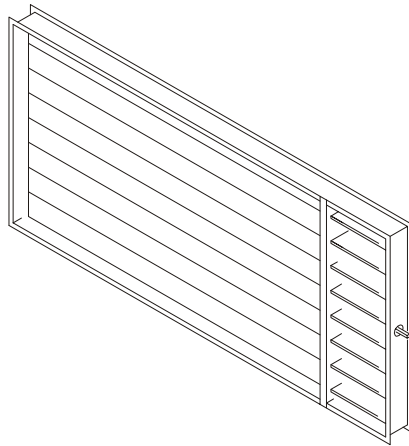
## How to service dampers

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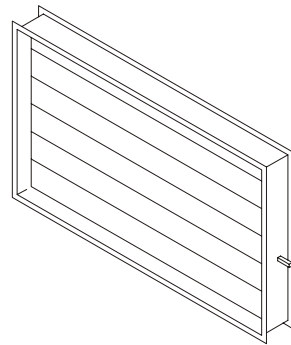
<b>Introduction</b>	There are different kinds of dampers, but they are serviced in the same way.
<hr/>	
<b>Intervals</b>	Once annually.
<hr/>	
<b>Before start</b>	No special tools are needed.
<hr/>	
<b>Warning!</b>	Do not forget to disconnect all current to the unit and the unit parts before service!
<hr/>	
<b>Exception from service</b>	The bearings into which the damper plates are fixed do not need lubrication.

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**Illustration** Dampers:



Bypass damper



Louver damper

**Procedure** Do as follows to service the dampers:

Step	Action
1	Clean the damper louvers
2	Check that the rubber gaskets are fixed and intact
3	Check that the damper louvers can rotate when the damper motor is running and that they close/open completely
4	Check the fixing of the motor/damper shaft
5	Check that the damper setting is in accordance with the current operation mode
6	Adjust the damper motor (or the bars connected to the motor), if the damper does not close tightly

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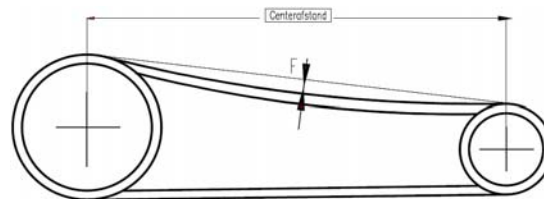
## Adjustment of V-belts

**Adjustment of V-belt tension** A too tight adjustment of V-belt tension produces heavy wearing on ball bearings thus reducing useful life of the bearings.

**Dantherm recommends** Dantherm Air Handling A/S recommends using special tools for tightening V-belts in order to check the values of the table below.

**Correct tension of V-belts** Check the V-belt tension by checking that the deflection (F) is in accordance with the mm indications of the table below. The deflection strength of each belt is dependent of the profile type and the distance between the centres.

Use this drawing and the table below to establish the correct belt tension:



Belt profile (type)	Centre distance (mm)	Deflection strength (kg)	Deflection, F (mm)
SPA-XPA	500-600	2.7	11

**Procedure** Follow this procedure to adjust the V-belts:

Step	Action
1	Adjust the V-belt by the motor bracket's adjusting screw. Check the table and drawing above for correct tension

## Spare parts

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**Serial number**

When you contact Dantherm Air Handling A/S about spare parts, please inform us of the serial number of the unit for which they should be used. This will help us identify the correct part.

The serial number is indicated on the name plate of the unit.

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**Contact information**

Contact the After Sales Support Department at Dantherm Air Handling A/S:

Tove I. Kristensen      +45 9614 4762  
Spare Part Manager      [tik@dantherm.com](mailto:tik@dantherm.com)

Or contact Dantherm Air Handling A/S's desk at the company number and you will be put through to the relevant contact person:

Tel:                              +45 9614 3700  
Fax:                              +45 9614 3800

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## Fault finding guide

### Fault finding

Identify the problem in the left column, read the cause in the middle column, and follow the instructions in the right column:

Problem	Probable cause	Solution
Rotor exchanger is not running	Driver for the rotor exchanger is defect or with incorrect settings. (See section "Driver for rotor exchanger", page 29)	Contact a technician
	Belt is defective	Contact a technician
Fan is not running	Belt has snapped	Contact a technician
	Motor is defective	
	Pulleys are defective	
	V-belt is defective	
Heating is inadequate	Heating system is defective	Contact a technician
	Fan is not running, see problem: "Fan is not running", above	
Limited air supply	Filter is dirty/clogged	Replace filter according to instruction "How to service the filter", page 19
	Damper position incorrect	Check the damper

## Service agreement

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**Introduction** The unit includes mechanical and electrical parts and the unit is often placed in a rough environment where the components are exposed to different climate conditions. Therefore the unit will need preventative maintenance on a regular basis.

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**Hotline** The After Sales Support Department of Dantherm Air Handling A/S is ready to help you in case of a problem.

To be able to offer quick and efficient help, please have the following information ready when contacting Dantherm Air Handling A/S:

- Name
- Phone no.
- Site/location (unit)
- Company
- Email
- Serial no/order no.
- Country
- Type (unit)
- Description of the problem

Contact Dantherm Air Handling A/S, ask for the After Sales Support department and help will be provided as soon as possible:

Phone: +45 96 14 37 00

Fax: +45 96 14 38 00

Email: [service@dantherm.com](mailto:service@dantherm.com)

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**Preventive maintenance** Dantherm Air Handling A/S offers to do the preventive maintenance on the units so that they at all times will operate according to factory standards.

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**Corrective and emergency repair** In case of malfunctions of the product Dantherm Air Handling A/S offers to do emergency repair on the climate units. Agreements will be made with the customer on response time and price.

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**Setup** Dantherm Air Handling A/S has established a network of service partners to do the preventative maintenance. The partner is trained and certified on the actual climate units. The partner will also carry an adequate number of spare parts – so that any repairs can be made during the same visit.

The agreement will be made with Dantherm Air Handling A/S – and the overall responsibility for the agreement will be Dantherm Air Handling A/S's.

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**Further information** For further information about a service agreement in your country or region, please contact:

Henrik Hersted  
After Sales Support Manager

Dantherm Air Handling A/S

Phone: +45 9614 4767

Mobile: +45 2399 4066

Email: [heh@dantherm.com](mailto:heh@dantherm.com)

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## Technical information

### Overview

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#### Contents

This section covers the following topics:

Please contact Dantherm Air Handling A/S for further technical information.

Topic	See page
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## Dimensions

**Dimension table** All measurements are in mm:

	BasX2	BasX4	BasX6	BasX10	BasX14
Height <sup>**)</sup>	1440	1700	1920	2180	2440
Width	1220	1220	1440	1440	1700
Width with rotary heat exchanger	1220	1220	1440	1700	2180
Length, cross-flow heat exchanger	1440	1440	1440	1995	2365
Length, rotary heat exchanger	480	480	480	480	480
Length, fan <sup>*)</sup>	850	850	850	1035	1220
Length, filter <sup>*)</sup>	850	850	850	850	850
Length, heating-/cooling module <sup>*)</sup>	480	480	480	480	480
Length, cooling module with inspection door <sup>*)</sup>	960	960	960	960	960

<sup>\*)</sup> ½ height, module

<sup>\*\*)</sup> Height excl. base frame

**Configuration 1 and 3**

Below is the lengths of both configuration 1 and 3:

	BasX2	BasX4	BasX6	BasX10	BasX14
Length, configuration 1	2660	2660	2660	3030	3400
Length, configuration 3	3140	3140	3140	4065	4805

## Driver for rotor exchanger

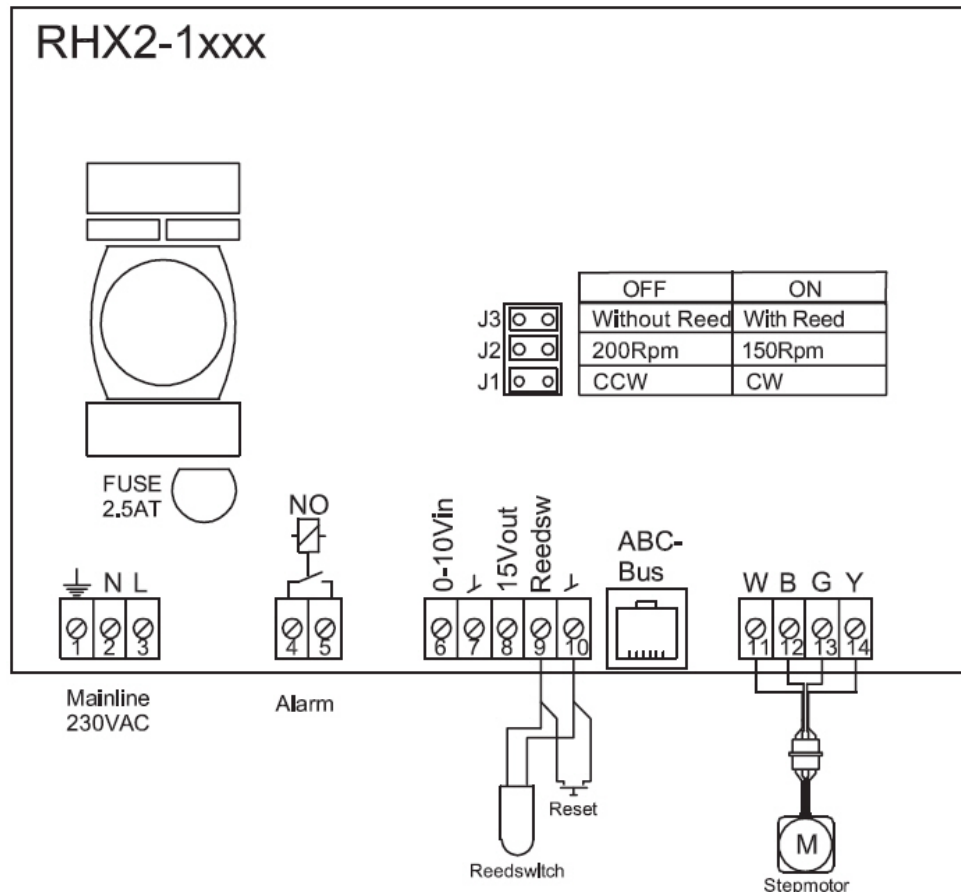
### Description

The rotor exchanger is run by a step motor with a control box. The unit is provided with a revolution controller consisting of a magnet attached to the rotor exchanger and a reedswitch connected to the control box (see the wiring diagram below).

The motor and the control box are placed right behind the cover plates of the module in the same side as the control panel.

### Wiring diagram

This shows the wiring diagram:



BR923A01A

### Jumpers

The control box PCB is fitted with 3 jumpers, J3, J2 and J1.

It is imperative, that the jumpers are set for the current operating situation

Rotation guard – jumper 3			Setting
The unit is fitted with a rotation guard as standard			ON
Max. motor speed – jumper 2			J2 Setting
Model	Rotor diameter, mm	Motor speed, RPM	
BasX 2	800	150	ON
BasX 4	1050	200	OFF

Continued overleaf

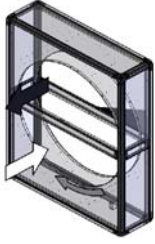
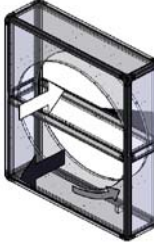
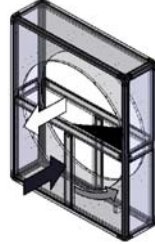
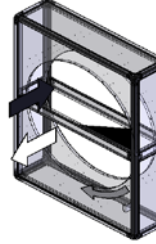
## Driver for rotor exchanger, *continued*

### Jumpers, *continued*

Max. motor speed – jumper 2			J2 Setting
Model	Rotor diameter, mm	Motor speed, RPM	
BasX 6	1250	150	ON
BasX 10	1550	200	OFF
BasX 14	1950	150	ON

### Jumper 1, motor rotation

Direction of motor rotation for rotor exchanger – jumper 1

J1: OFF	J1: ON	J1: ON	J1: OFF
			
Pos. right unit with fresh air inlet in the bottom	Pos. right unit with fresh air inlet in the top	Pos. left unit with fresh air inlet in the top	Pos. left unit with fresh air inlet in the bottom

### Technical data

The control box has a built-in thermal fuse preventing an overload of the electronics.  
**A separate type G fuse must be installed to protect the main cable.**

	Controller inputs
Supply voltage:	50 – 60 Hz, 230 V AC +/- 15 %
Max. prefuse:	16 A
Voltage signal	0 – 10 V DC
Impedance (voltage signal)	10 kOhm
Serial communication	RS485 ABC-Bus
Rotation guard	Reed switch (also active in purging operation)
Supply for Hall element	15 V DC (internal pull-up 1.1 kOhm resistance)
	Controller outputs
Relay output for alarm	NO relay 5 A, 250 V
LED indication	2-colour (green/red)
Torque	2 Nm, 4 Nm and 6 Nm
Enclosure	IP54

*Continued overleaf*

## Driver for rotor exchanger, *continued*

### Controller environmental data

This table shows the controller environmental data:

Power consumption	Motor size <sup>*)</sup> , Nm	Power, W
Standby/holding torque	-	3 W
Max. load/150RPM	2 Nm	45 W
	4 Nm	90 W
	6 Nm	150 W

<sup>\*)</sup> Actual size is apparent from the motor name plate

### Functions

The functions below are available in the control:

<b>Purging operation</b>	Rotation	10.0 RPM
	Purging interval	8 hours
	Purging timer	120 seconds
<b>Motor stop</b>	Reference < 0.5 % of max. RPM	
<b>Motor start</b>	Reference > 1 % of max. RPM	

### Indication of operating state

During operation, the LED diode in the front of the control box will provide information on the operational state

Diode display	Information
Green	Normal operation and motor running
Green blink	The LED will blink each time the rotation guard is activated
Red	General alarm
Red blink	Rotation guard alarm; To reset rotation guard alarm, the rotation guard input must be short circuited (see wiring diagram)

If the controller cannot detect rotation, the motor is ramped down to 0 RPM and the speed is then ramped up to the reference speed. This is repeated 3 times, and only then is the alarm relay activated and the diode blinks red. Until the motor has been ramped up 3 times no alarm is indicated.

## Flow calculation for plug fans

**Flow calculation** BasX modules with plug fans are fitted with a measuring device on the suction side and the inlet ring of the fan.

The flow through the fan can be calculated by measuring the differential pressure between these two points. The formula is shown below.

**Flow calculation** The connexion between flow and differential pressure is as follows:

$$V = K * \sqrt{\Delta p_w}$$

Symbol	Description	Unit
V	Measured flow	[m <sup>3</sup> /h]
$\Delta p_w$	Pressure difference	[Pa]
K	Constant specifically valid for each single unit size (see table below under "K-factor")	-

**K-factor**

K for each single unit size can be found in the table below:

Type	K-Factor
BasX 2	60
BasX 4	121
BasX 6	154
BasX 10	252
BasX 14	381



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