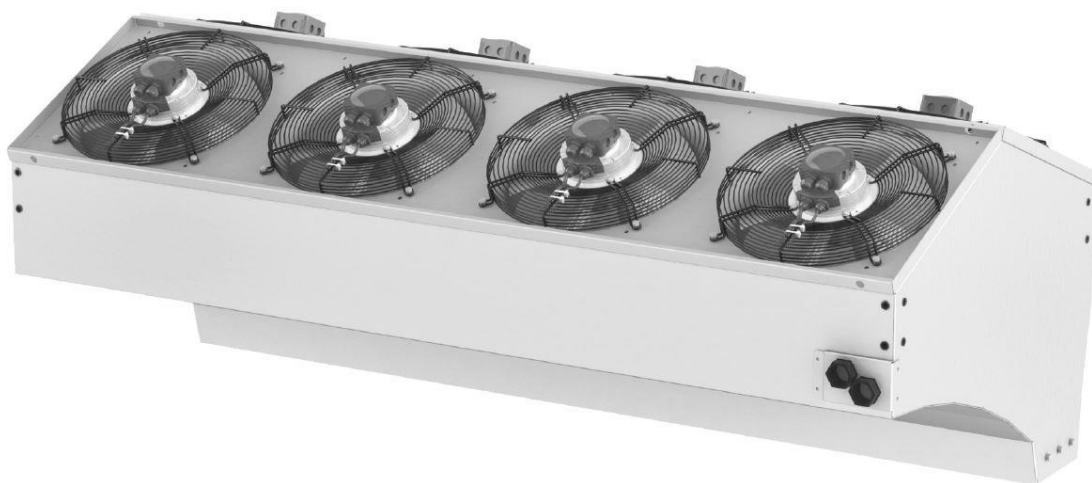


DESIGN INDUSTRIAL AIR CURTAIN **STAVOKLIMA**

Installation and operation manual

AXI SC xx5 model





EN



1. Table of Contents

1.	Table of Contents.....	2
2.	Unpacking, check after transport or warehousing	3
2.1.	Unpacking and check	3
2.2.	Storing of the unit, additional transport recommendations	4
3.	Safety measures	4
4.	Basic information about the unit and its use.....	5
5.	Dimensions of the unit	5
6.	Unit installation	6
6.1.	ZS under-ceiling suspension	6
6.2.	ZN wall-mounting suspension	7
6.3.	General installation information	9
7.	Connection of the unit to heating system	10
7.1.	Heat exchanger control with a valve with electrothermic head	11
7.2.	Setting of independent valve flow pressure (ETVQ)	11
8.	Types of controllers and options for controlling.....	12
9.	Electric connection of the unit.....	12
10.	Commissioning, starting of the curtain.....	13
11.	Optional accessories - depending on equipment level	13
12.	Basic service and maintenance information	13
12.1.	Troubleshooting.....	14
13.	Decommissioning – disposal	15
14.	Important notes.....	15

Explanation of symbols used

 <p>Instructions for mechanical repairs and maintenance.</p>	 <p>Important safety information, technical information, data and device output.</p>
 <p>Important electric information - read carefully - curtain damage hazard in case of wrong installation.</p>	 <p>Important information - please read carefully.</p>

2. Unpacking, check after transport or warehousing

2.1. Unpacking and check

Carefully check the contents of the delivery note, which forms an integral part of the delivery. For the parts that are designated as extra accessories in the delivery note (i.e. they are not part of the veils or are not installed in the system), the completeness with regard to the delivered shipment (usually in a different box) delivered) and to check their integrity. Significant damage to the packaging or box must be reported to the carrier and a basic entry must be made in the transport documents. Immediately inform the transport company responsible for transporting the shipment or the manufacturer (if they are responsible for transport).

All packaging material is environmentally friendly and reusable or recyclable. The non-environmentally friendly parts must be disposed of properly or recycled.

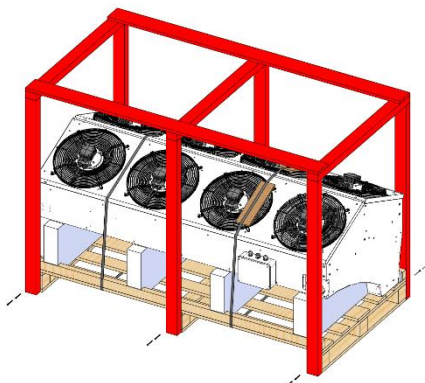
When dismantling the packaging, follow the procedure below:



During transport, the devices are protected by a protective frame.



After the upper pallet is removed, disassemble the braces. The pallets are joined by screws that need to be unscrewed to remove the pallet.



To access the unit, unscrew the screws that attach the protective frame to the pallet. Then, you can remove the structure.

2.2. Storing of the unit, additional transport recommendations



- Observe packaging decals on the curtain. The device in its packaging must not be turned or placed in transport positions other than those supplied and recommended by the manufacturer. Packaging also contains production number and curtain type for easy curtain type identification.
- Use genuine packaging for further transport of the curtain. The packaging is tested for re-use, and a different packaging may cause damage to the curtain.
- Use means with certified sufficient loading capacity for transport and handling; properly qualified persons only may operate the transport means.
- Permissible warehousing conditions: $-10^{\circ}\text{C} \div 50^{\circ}\text{C}$, 50-85% humidity without condensation.
- Do not remove genuine packaging until installation is complete (to avoid device damage). At least 2 persons are recommended for safe handling.



3. Safety measures

The curtain has been manufactured in line with the government decrees and Czech standards harmonized with the EU regulations mentioned in the manufacturer's declaration of conformity.

The above mentioned product complies with the following standards:

ČSN EN 60335-1 ed.3 ČSN EN 60335-2-30 ed. 3
ČSN EN IEC 61000-6-2 ed. 4 ČSN EN 61000-6-3 ed. 2

The above mentioned product complies with the following directives:

- Directive 2009/125/EC of the European Parliament and of the Council establishing a framework for the setting of eco-design requirements for energy-related products.
- Government Decree No. 118/2016 Coll. Directive 2014/35/EU of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits.
- Government Decree No. 117/2016 Coll. Directive 2014/30/EU of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to electromagnetic compatibility.
- Government Decree No. 481/2012 Coll. (Regulation of the European Parliament and of the Council No. 2014/35/EU, Regulation of the European Parliament and of the Council No. 2011/65/EU).
- Government Decree on restriction the use of some hazardous materials found in electrical and electronic products.

Observe generally applicable national provisions and other related regulations. Unplug the curtain from mains before any service intervention. Connection and earthing of the electric device or components thereof must be in line with laws applicable in the country of use. Only qualified staff may carry out any electric service works.

Observe applicable laws, in particular:

- on safety of electric and thermal appliances,
- on central heat distribution systems,
- on fire safety,
- do never exceed working pressure and temperature specified in the production label.



Follow standards and rules applicable in the country of use, in particular the fire safety of appliances and heat sources, and the fire technical properties of materials - flammability levels. Place the curtain 150mm from B, C1, C2 level flammable materials, and 400mm and 1000mm for C3 level easily flammable materials in the radiation direction (air flow from the curtain).

4. Basic information about the unit and its use

An air curtain is a device, which produces a natural air barrier against penetration of cold air into heat environment (in summer, it operates as a protection against penetration of hot summer air to the spaces being either cooled or air conditioned). These devices are suitable for basic and non-aggressive environment. The permitted temperature range in the space is 5–40 °C.

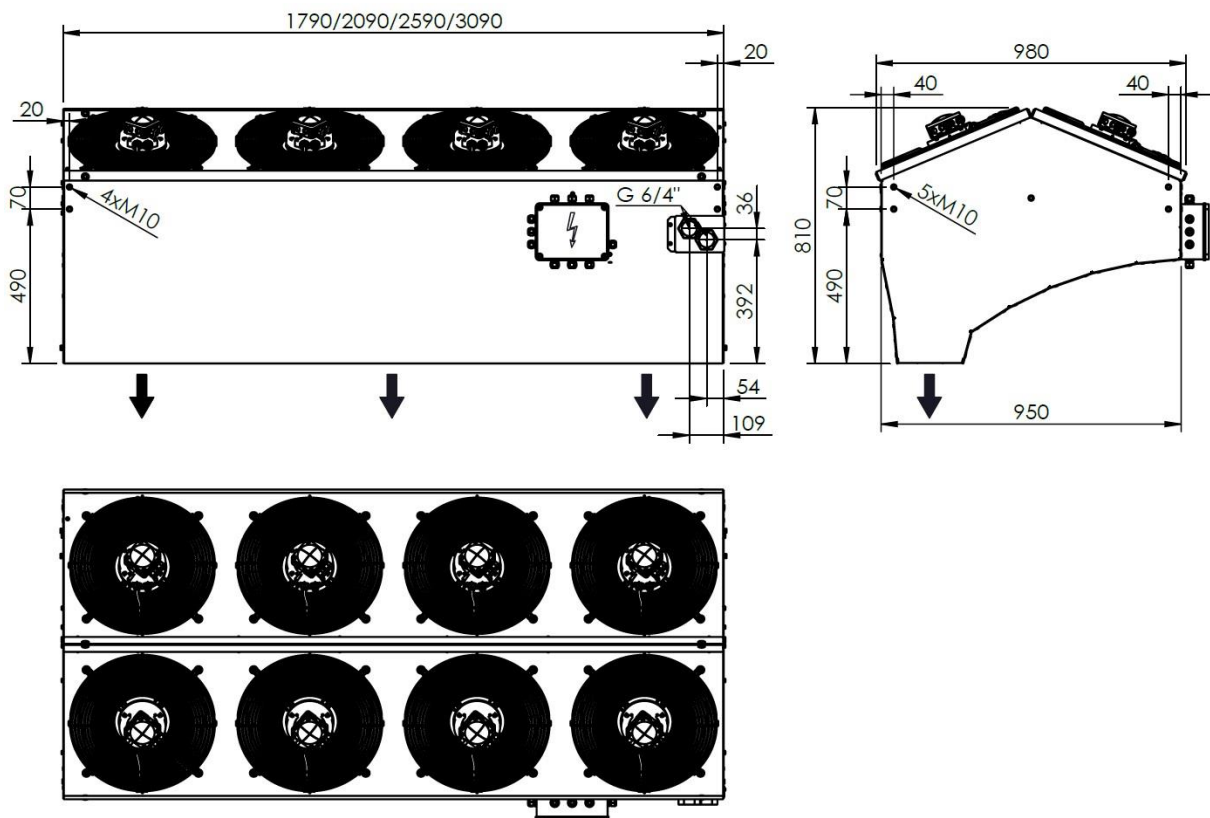
For the curtaining purposes, either circulation air of the environment temperature or the circulation air heated by hot-water or electric heater may be used. The use of the device can save high cooling costs in the air conditioned spaces. Full performance of the curtain may be provided only when maintenance is regular and proper. All controls are accessible and well maintained.

Technical conditions for curtain operation:

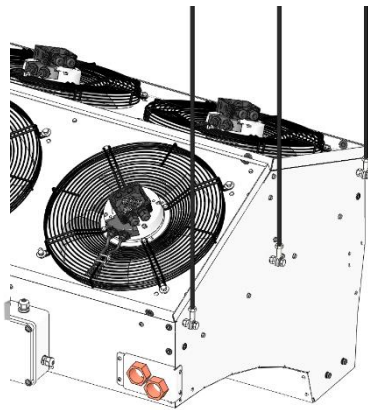


- max. media working temperature 90°C/pressure 1.6MPa – unless specified otherwise,
- fan power supply - 230V-50Hz/2x 230V-50Hz
- max. surrounding temperature 40 °C,
- IP rating of hot water curtain - IP 54,
- The curtain is specially designed for industrial environment,
- Minimum pressure difference 23kPa must be provided for use of a 2W valve (applies only to a pressure-independent valve).

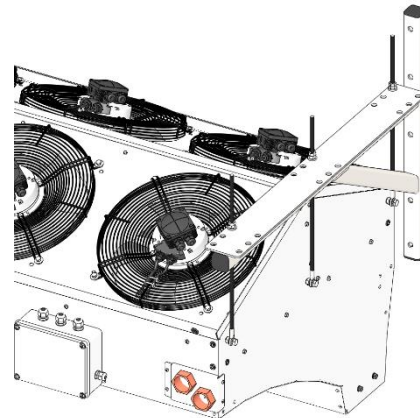
5. Dimensions of the unit



6. Unit installation



Installation under ceiling



Wall-mounted

6.1. ZS under-ceiling suspension

The door unit is hung in six hanging places on the unit casing. The suspension points are accessible from the outside and the unit is equipped with rivet nuts (threads M10) from the factory.

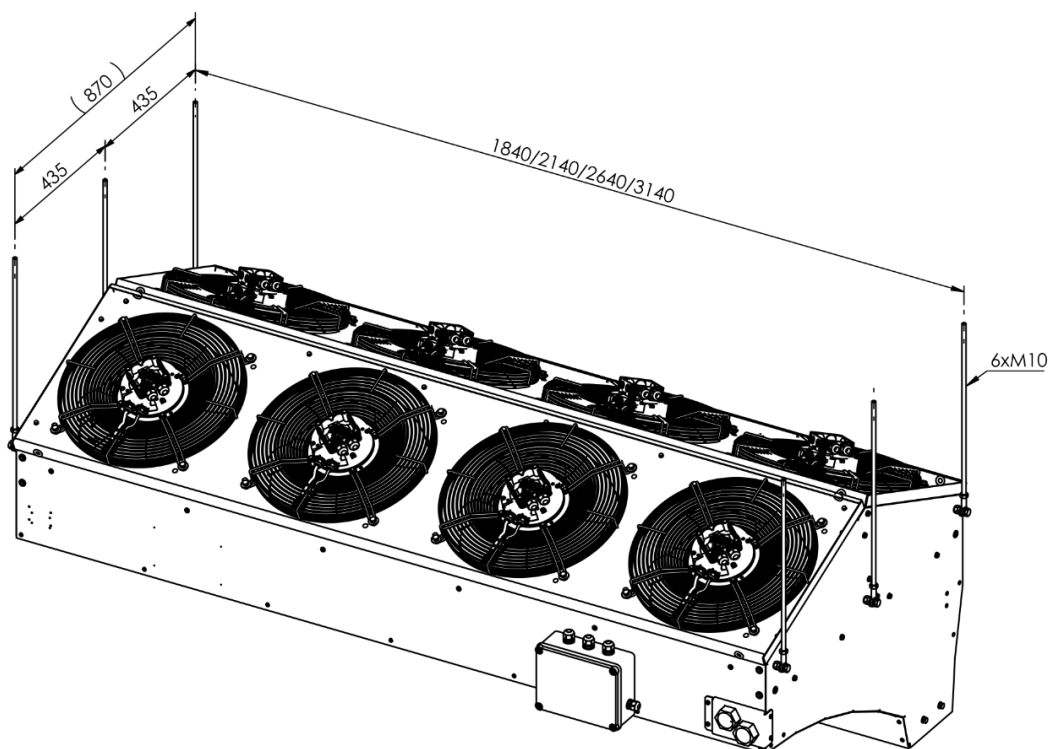
The following is supplied as an accessory to the ZS suspended ceiling hinges (on order):

6x threaded rod M10x1000, 6x anchor M10/40, 6x suspension eye M10, 6x nut M10, 6x screw M10x45, 6x flat washer size 10, 10x flexible washer size 10.



Installation procedure:

- 1) Measure the position of the unit and its distance from the ceiling and prepare the threaded rods to the required length.
- 2) Mark the anchor points and drill the ceiling holes for fitting the anchors according to the drilling diagram.
- 3) Fit the threaded rods into the prepared ceiling anchors and tighten the nuts. Fit the ends of the threaded rods with eyelets.
- 4) Raise the unit with the pallet to the desired position and attach the eyelets to the unit using the supplied screws.

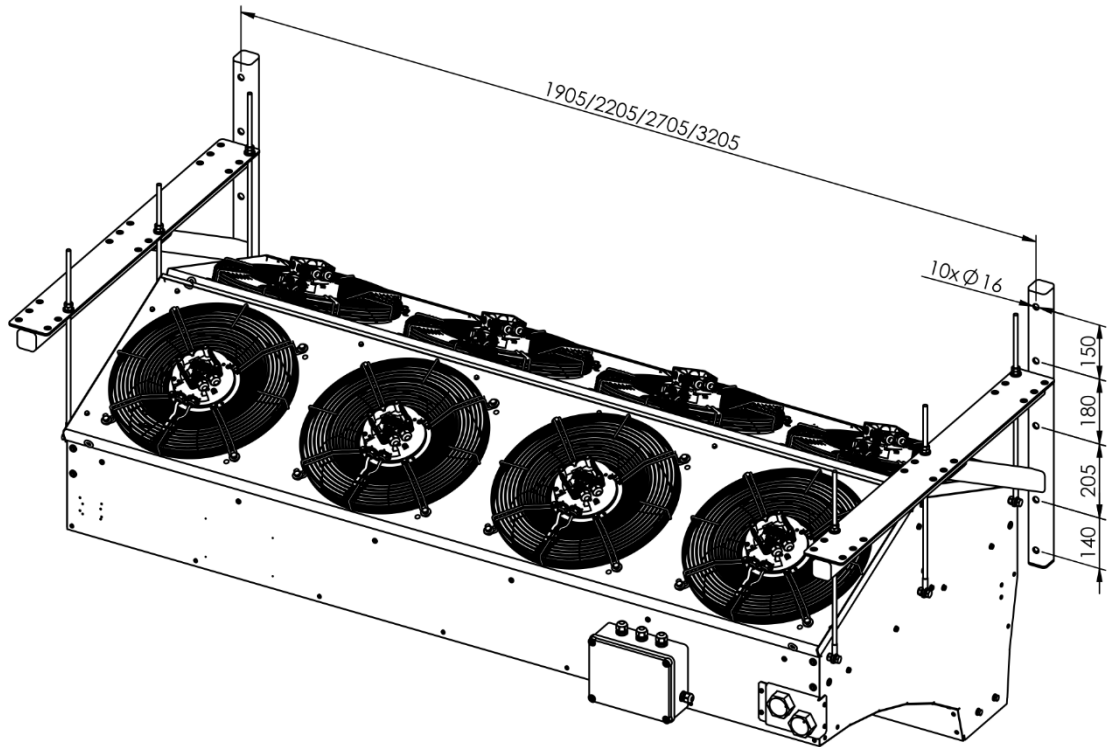


6.2. ZN wall-mounting suspension

The door unit is hung in six hanging places on the unit casing. The suspension points are accessible from the outside and the unit is equipped with rivet nuts (threads M10) from the factory.

The following is supplied as an accessory to the ZN wall hangings (on order):

2x Wall bracket, 6x threaded rod M10x1000, 6x hanging eye M10, 18x nuts M10, 6x screw M10x45, 6x flat washer size 10, 10x flexible washer size 10.

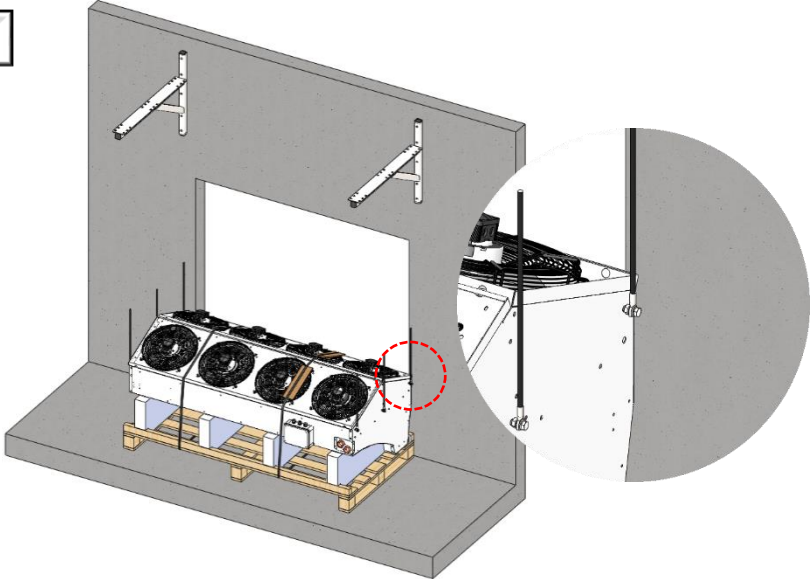


Installation procedure:

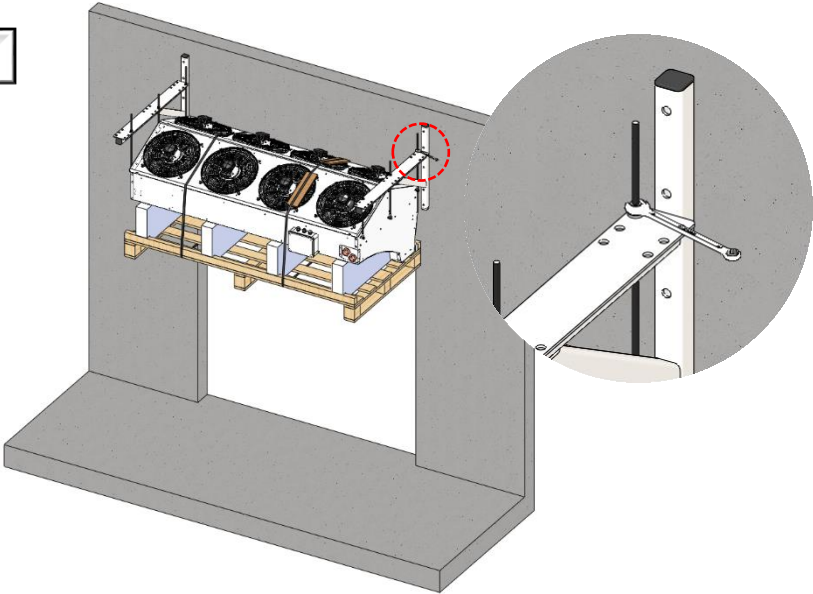


- 1) Measure the location of the unit and the wall bracket according to the drilling diagram above.
- 2) Mark the anchoring points and drill holes in the wall for inserting the dowels (not included in the delivery).
- 3) Attach the wall hanger to the wall using adequate fasteners (not included) (Figure 1).
- 4) Install the threaded rods with hanging eyes on the unit, which you will attach to the unit with the supplied screws (Figure 2).
- 5) Lift the pallet unit using suitable lifting equipment and thread the threaded rods through the holes in the wall hangers (Figure 3). Secure with nuts and tighten carefully. Check the correct suspension of the unit.
- 6) Remove the securing straps and remove the pallet under the unit (Figure 4).

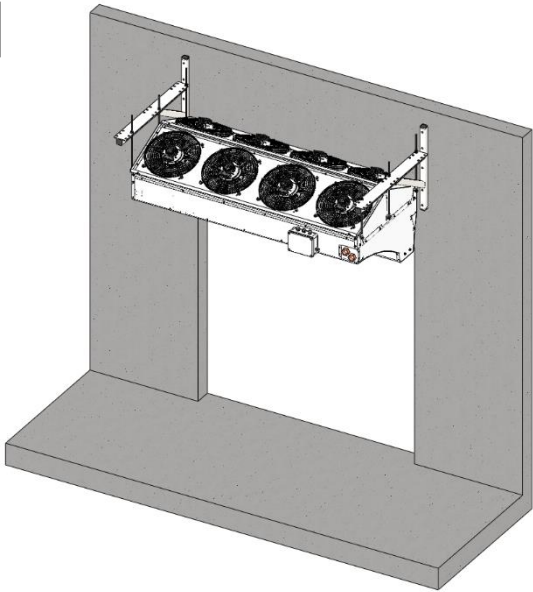
1



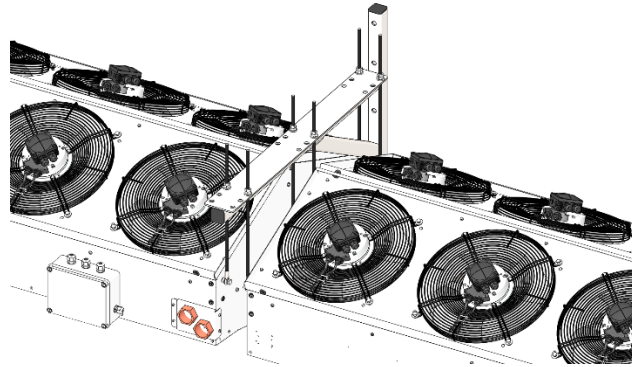
2



3



In case of the wall-mounted installation, any number of the units can be combined to cover doors wider than one unit. Use joint wall-mounted hanger for the connection.



6.3. General installation information



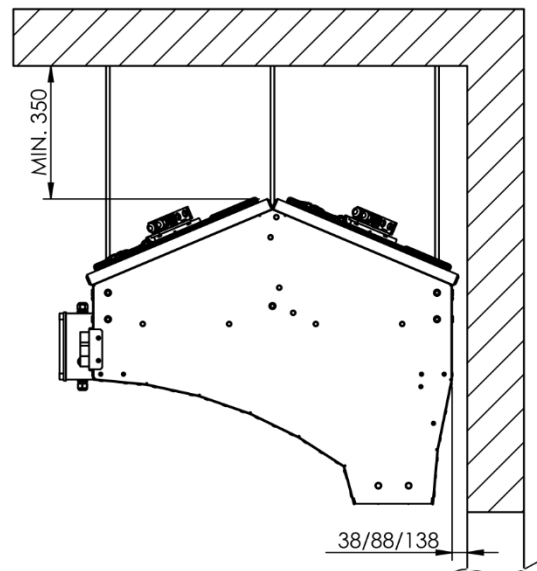
Observe the minimum distances from the ceiling and wall in order to fully utilize the performance potential of the unit.

Use only adequate anchors and dowels. Carefully consider the installation situation and the suitability of the use of anchoring and connecting material and the load-bearing capacity of the building structure. The manufacturer is not responsible for inappropriately used dowels or other inappropriate connecting and hanging material.

Make sure all nuts are correctly fitted to all parts of the assembly. Pay attention to the end position of the threads so that the unit does not loosen and fall by turning.

After installation, check the horizontal position in both directions. Be careful not to cross and twist the device when tightening the individual hinges and sleeves. Always carefully assess the load-bearing capacity of the ceiling or wall. Mount the device only in statically stable beams.

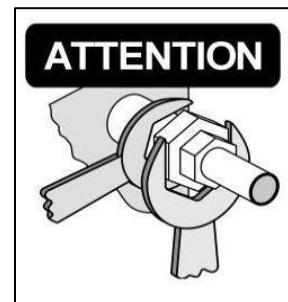
Always hang the device on all suspension points.



7. Connection of the unit to heating system



Please check all hot water connections for readiness and perfect condition before connecting media to the curtain. Furthermore, please check the hot distribution for components or other measures to ensure zero transmission of static, dynamic, and dilatation forces at the input and output neck connections. No excessive force may be applied when connecting the hot water circuit of the building to the curtain's heat exchanger. By the neck of the air conditioner there is a mark that notes use of two keys so that no stressing of the necks occurs in the course of tightening or loosening. **When bolting and tightening up the screw union of the heat exchanger must be secured by a clamp against undesired rotation that may subsequently result in deformations or damage to pipe necks on the heat exchanger.**



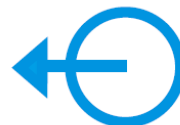
In view of the above, the manufacturer clearly recommends brass half-fittings of the appropriate size depending on the connection dimensions of the heat exchanger (1" x 3/4", 5/4" x 1", 6/4" x 5/4") for connecting the heat exchanger neck to the hot water system. It is also possible to connect flexible connection hoses (can be ordered as PPH accessories, length 300 mm, DN 20, 25, 32) or the so-called bellows compensator.

Any non-compliance with the instructions above results in rejection of any complaint.

By default, neck for the hot water heater is located on the right hand side on the front part of the curtain (may be placed elsewhere upon request). The inputs are identified by round marks – medium input red with arrow pointing inside, and medium output blue with arrow pointing outside.



Media input



Media output



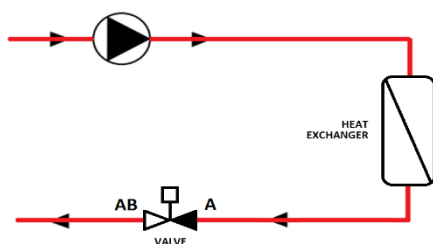
Do not swap the return and supply neck positions - this may cardinaly change performance and parameters of the heater with consequent impact on the hydraulic system. Do not exceed max temperature and pressure for which the curtain is rated.

The function of the electrothermal valve drive is determined by the respective type of regulation. The connection is then made directly to the socket indicating the media inlet. Functions of the electrothermal drive see article 6.1.

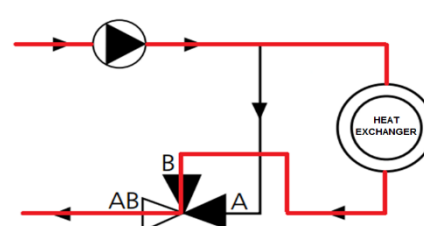
Pay attention to quality of media fed to the curtain; check for installation of cleaning valve downstream the curtain (not included in the supply). Observe max temperature and media pressure to avoid heat exchanger damage. To make sure the heat exchanger operates correctly, drain the exchanger (sludge valve) and purge the cleaning valve because construction or assembly impurities may be present in the system. Deaerate the heat exchanger for perfect operation of the heat exchanger. Install the closing valves on both pipes downstream the curtain (ball valves) \bowtie . Connection thread right above the curtain must be removable and not fixed.

As required by the customer, a not embedded 2-way or 3-way valve with control head can be delivered for the hot water heat exchanger. The valve drive may be either self-acting (thermostatic) or electrothermic.

Instructions for electric connection of the valve is included in the wiring scheme for connection of the curtain. Specific wiring scheme or valve instructions are available upon request only.



Connection of 2-way TV, ETVQ valve



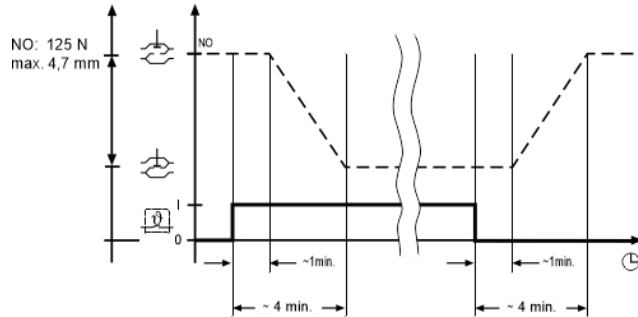
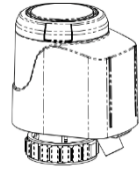
Connection of 3-way TV, ETVT valve

7.1. Heat exchanger control with a valve with electrothermic head

The electrothermic valve drive can be supplied to the hot water heat exchanger as embedded either as 2-way (ETVQ) or 3-way (ETVT).

“Normally open” version (NO).

When the thermal drive is under voltage, the electrically heated sensor heats up. Upon “dead time” expiration for continuous opening of thermic drive due to cooling down of the sensor.

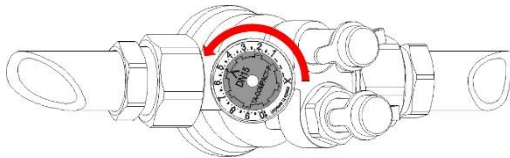


Note:

The time delay (dead time) needs to be considered during the functional test; the opening and closing time depends on surrounding temperature. Electric data: 230V/50Hz-3V, IP 54.

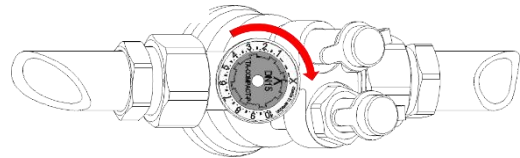
7.2. Setting of independent valve flow pressure (ETVQ)

Setup



Turn the setting wheel to required value, e.g., 5.0

Closing



Turn the setting wheel counterclockwise to position X.

q_{max} values

Nastavení

	1	2	3	4	5	6	7	8	9	10
DN 32	800	1220	1620	2060	2450	2790	3080	3350	3550	3700

q_{max} = l/h pro každé nastavení při zcela otevřené regulační kuželce

8. Types of controllers and options for controlling

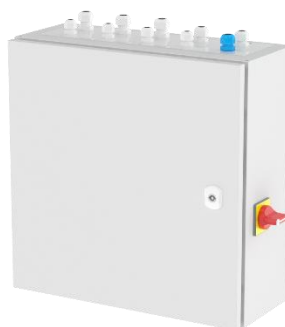
UNIREG DIT EC

Unireg is a distribution board suitable for controlling units with a hot water heater with a 230V motor, where it is not possible to integrate control electronics into the unit. The system enables the use of all functions of the Ditronic Touch controller. The selection of an adequate type of Unireg must be determined according to the power consumption of the given units (power limitation in "A"). The Ditronic controller is governed by its own user manual.

Unireg DIT EC
distribution



Unireg DIT EC
PLUS distribution



Unireg DIT EC
DUAL distribution



Unireg DIT EC
TRIPLE distribution

Control type	UNIREG DIT EC	UNIREG DIT EC PLUS	UNIREG DIT EC DUAL	UNIREG DIT EC TRIPLE
Designed for max unit current	14 A	16 A	32 A	48 A
Unit power supply	230 V	3x230 V	3x230 V	3x230 V
Control signal	0-10 V			
Speed control	0 – 100%			
Electrical coverage	IP 20		IP 65	
Dimensions (width x height x depth)	300x400x170 mm	300x400x170 mm	500x500x210 mm	500x700x210 mm

9. Electric connection of the unit



The curtain must be protected by a suitable circuit breaker according to its electric parameters – refer to attached electric wiring. Connect the ready-to-install cables to the terminals following the attached electric wiring schemes, make connection check, equipotential bonding, and finally turn the power supply on. Use the cable wires with cross section suitably rated according to the current load – refer to electric wiring documentation.

Make sure the cable is neither twisted nor deformed in any way. Keep free ends of the cable wires sufficiently long for easy handling and cut the wire only after you are sure the wire is long enough.

Observe generally applicable national provisions, particularly ČSN 12 2002 and other related regulations. Unplug the curtain from mains before any service intervention. Provisions of ČSN 332190, 332000-5-51 ed. 3, and 33 2000-5-54 ed. 3 must be observed for connecting and earthing of the electric devices. Qualified electrician only may perform any electric service works (qualification according to Section 6 of Decree of ČBU No. 50/78 Coll.).



During assembly, carefully check everything and carry out the initial review of the device. Check operation of the FU1-FU3 electric fuses (Ditronic) for interior circuits (for fuse values, refer to the box of electronics), and make sure that the external components (accessories), which may have an essential impact on correct function of the device, operate.

ATTENTION: The delivery note serves as a warranty sheet!

10. Commissioning, starting of the curtain



Before commissioning make and check:

- covers and shell of the curtain are in perfect condition,
- mechanic fixing and anchoring of the curtain,
- ability to remove the filter and its cleanliness,*/**
- function of circulating pump (not included in the device),**
- correct connection of media and tight connections,**
- tightness and function of the valves,*/**
- availability of power voltage,
- correct connection of all curtain cables,
- fitting and setting of a pre-circuit breaker (not included in the device),
- free from mechanical impurities or objects.

* if installed

** hot-water version only

Initial review of the electric appliance according to ČSN 331500 and ČSN 33 2000-6-61 ed. 2 must be made upon commissioning.

11. Optional accessories - depending on equipment level



The most frequent accessories include thermostatic or electrothermic valves for the temperature control (chapter 7.1 and 7.2). The valves are supplied as **not embedded**, for all available valve types refer to the catalogue.

Another accessory used is the door contact (either magnetic or mechanic). The contacts are placed on the door wings or door parts in order to signal the position of the door.

An optional accessories may be e.g., room thermostat, hanging of the curtain, 0–10V signal control of the curtain over the superior BMS, and more. Selection of an appropriate type of accessories must be supported by the controller type.

For all accessories offered for the AXI SC curtain, refer to the catalogue documentation.

12. Basic service and maintenance information



All curtains are thoroughly checked and tested by the manufacturer before dispatch. The most frequent errors root from misunderstanding of the curtain function or incorrect cabling and connection. For this, observe instructions from the manufacturer to avoid complex troubleshooting. In no case try to operate the curtain when connected in a different way - the curtain may operate for a while as you wish or expect but this irreversible step may result in damage beyond repair and loss. No warranty claims can be accepted with respect to this damage.

The AXI SC air curtains are supplied **without a filter** in front of the heat exchanger in standard, and therefore, special attention needs to be paid to the heat exchanger condition check. The regularity of checks depend on environment in which the device is operated. To access the heat exchanger, demount the upper plate of the curtain (with fans) being fixed around the circumference by bolts.



Before any work with the curtain, disconnect the electric power supply, mains supply for the curtain. Electric shock hazard!!!

Observe generally applicable national provisions, particularly ČSN 12 2002 and other related regulations. Unplug the curtain from mains before any service intervention. Provisions of ČSN 332190, 332000-5-51 ed. 3, and 33 2000-5-54 ed. 3 must be observed for connecting and earthing of the electric devices. Qualified electrician only may perform any electric service works (qualification according to Decree of ČBU No. 50/78 Coll., § 6 is required).

Please contact your vendor or distributor for a service agreement. You will get regular service and excellent care of your curtain.



Quarterly checks:

- Curtain hanging and tightening of all bolt connections. Then, check tightening of exhaust spline bolts – they are accessible on the side of the curtain; rotate the splines to tighten up the central splines (by tightening of inner treaded pin).
- Disconnect the closest fan from the power box to check the space of the heat exchanger and to remove dirt or objects, if any. Then, demount the top plate with the fans. Use vacuum cleaner to remove dust from the heat exchanger. When using steam for cleaning, set as lowest temperature as possible and as lowest pressure as possible for not to damage the heat exchanger.*
- Before winter, check in particular the anti-frost protection function, superior circulating pump (not included in the supply of the device), setting of thermostatic or electrothermic valve.*
- Re-test tightness of the curtain or of installed fittings on the water side. If a sludge filter is installed before the curtain – clean the filter and check deaeration of the heat exchanger.*
- Check cleanliness of the motor suction grid and inner or outer parts of the curtain. Do not wash the motor body with water! Wipe with lukewarm towel only – motor winding damage hazard; after the motor is cleaned, do not turn the curtain on for at least 60 minutes – let the curtain dry. Use vacuum cleaner to remove dust from the suction grid. Proceed carefully when wiping the exhaust splines!
- Check curtain safety with respect to electric shock hazard according to applicable ČSN or national standards, including earthing inspection.
- Thorough cleaning of the exhaust splines (tighten up, if necessary).



* if installed

12.1. Troubleshooting

Problem	Possible cause	Remedy
The curtain can not be turned on	Curtain circuit-breaker is off	Turn on
	Mains failure	Inspection
	Door contact*	Check connection or interconnection
	Anti-frost protection*	Inspection
	Controller position "0"	Check, > position than "0"
	External contact*	Check connection or interconnection
Noisy motor	Defective motor mount	Check - replacement
Motor overheats (motor thermal contact turns off)	Defective motor mount or winding	Replace fan curtain
	Heavily soiled motor – insufficient cooling	Check, clean
	Excessive temperature of intake air	Inspection
The fan delivers little air only	Soiled suction grid of the fan	Check – clean
The curtain does not heat	Broken or clogged medium supply	Check - replacement
	Little air flows through the heat exchanger	Check - remove
	Soiled heat exchanger splines	Check – clean
	Insufficient media temperature	Remove
	Medium does not circulate	Check, deaerate
	Temperature achieved in line with controller setup	Controller setup
	Defective drive of electrothermic valve	Check setup, or replace if defective
Automatic operation disconnection	Overheated motor	Find out and clear the cause
	Door contact	Check correct function (refer to controller description)
	External clock	Check correct function (refer to controller description)

* if installed

13. Decommissioning – disposal



After the expiration of the service life, the curtain must be disassembled and disposed of. Only qualified company may disassemble the device. The product or components thereof must be disposed in environmentally-friendly manner at the end of its service life.

The components of the curtain must be separated and sorted out by type of material for disposal. Dispose of the metal and plastic components at your local collection yard. The transport packaging of the product is made of common recyclable material (paper, polyethylene, wood) and is labelled as such according to ČSN 77 0052-2.

As far as disposal is concerned, it is operator's responsibility to comply with applicable national provisions in the country of use. In addition, follow regulations and laws of your country applicable to waste disposal. Separated collection and recycling of the products may help to protect environment and human health.

14. Important notes



The door curtains are intended to avoid heat or cold loss, filtration, and heating, or for ventilation in combination with mixing accessories. Other uses are not intended. The manufacturer accepts no liability for damage resulting from use other than intended. Observe this manual in operation of the curtains.

Installation, electric connection, and repairs must be carried out by qualified persons according to § 6 of Decree No. 50/78 Coll. or according to applicable national standards and regulations. An expert company is needed to connect the heating medium.

Before the start of the heating season, it is necessary to provide the required amount of heating medium with the design values for curtains with the hot water heater.

The manufacturer reserves right to changes for marketing or production reasons without prior notice!



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