



Smart Cooling™ Adiabatic Pre-Cooling System Installation Manual – for YORK YVAA



Dear Customer,

Thank you for choosing Smart Cooling™.

We provide customers with advanced pre-cooling adiabatic systems that reduce energy consumption, boost chiller capacity, and protect chiller condensers.

This manual contains useful information for assembly, set up, and usage of your Smart Cooling™ equipment. For the smooth operation of your Smart Cooling™ device we recommend reading this manual carefully and following its instructions precisely. Our support team is at your disposal.

This is installation manual for adiabatic pre-cooling system Smart Cooling™.

Smart Cooling™ system is powered by PRO10 control panel.

For system startup and adjustment please see PRO10 manual.

Manufacturer: Blue Energy Global, Skolas street 18, Ogre, Latvia, LV5001



Warning

Read all instructions, warnings, and labels carefully, as they contain important details for safe installation and maintenance of your Smart Cooling™ device. Refer to the Application chapter to turn off the device and eliminate pressure immediately. Make sure you have read the "Prohibited actions - safety precautions" before installing and using the device.

This manual is an integral part of the product issued according to directive **2006/42/CE**, and is provided to the user to ensure all information on installation and usage of the device has been made available.

The manufacturer is not responsible for any kind of damage derived from improper installation and/or usage, in actual or possible disregard of the instructions provided by this manual. We recommend saving this manual for future reference.

Check the model of the high-pressure device you have purchased. It is required to read the data on the capacity card. Upon receiving the device, ascertain that the device has not been damaged during transportation and all the necessary accessories are included. Please inform us immediately (or within eight working days), in writing, if any irregularities have been identified.

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REQUIREMENTS

Warning!

Wear safety clothing and protective equipment at all times always.



Before installing and operating the device, read these operating instructions thoroughly and save them for future reference. Before operating the unit, make sure the installation has been carried out correctly by an authorized dealer and all installation instructions have been followed precisely.

The information in this manual is aimed at experienced technicians only, not for the general public. This manual does not contain warnings advising unskilled personnel of potential dangers in attempting to install the device. Any attempt to install, operate or service the device without the proper technical expertise may result in serious injuries or death.

Intended use and working principle

Note that the Smart Cooling™ device's primary function is to improve the efficiency of air conditioning and freezing devices and reduce energy consumption.

The adiabatic pre-cooling system concept behind Smart Cooling™ is based on adiabatic evaporative cooling: the delicate process of spraying treated water using a fine water mist to cool intake air flowing into the condensers in advance without damaging or incurring efficiency loss on the condensers.

Water purification also plays a significant role, therefore Smart Cooling™ has a four-step water treatment module to safeguard condensers from dust, calcium, and mineral deposits, algae and bacteria. The pressure in the adiabatic system ranges from 70 to 140 bar and provides highly effective water spraying and evaporation.

The PRO 10 controller provide ensures the operation of the adiabatic system is maximized while maintaining minimal water consumption. The controller analyzes air temperature, air humidity, chiller load and its daily cycle. Based on these finely measured parameters, the PRO 10 automatically alternates operating modes resulting in 100% water evaporation and maximum efficiency.

For optimum performance, it is important to make sure that the condenser coils and filters of the cooler are clean, and the correct load for the device is being generated.

1. It is necessary to clean the condenser using non-toxic cleaning agents.
2. Make sure the condenser must be completely clean, with no deposits on the tubes.

By following these guidelines and regularly servicing your Smart Cooling™ device, you prolong the life of your cooling equipment and significantly reduce energy consumption.

Make a thorough check of the equipment delivered on site. Use professional tools and materials for proper results.

ATTENTION! - Do not operate pre-cooling system when the ambient temperature are below 0° or over +65°C. Do not leave the pump exposed to very low temperatures as it may freeze*. If there is a possibility of freezing, the system must be prepared for temperatures below 0 ° C, more information on preparing the system can be found in the maintenance manual. As the pre-cooling system in operation uses water, the operation below 0° degrees will damage the pumps and can break or crack the hoses and pipes. Operation of the device above 65° C can cause the motor to overheat when the device is operating.

*DAMAGE CAUSED BY FROST IS NOT COVERED BY WARRANTY.

IMPROPER / INCORRECT USAGE

Improper usage of the equipment is the usage thereof for purposes the device is not intended for. The examples of improper usage are the operation of the device during rain or storm.

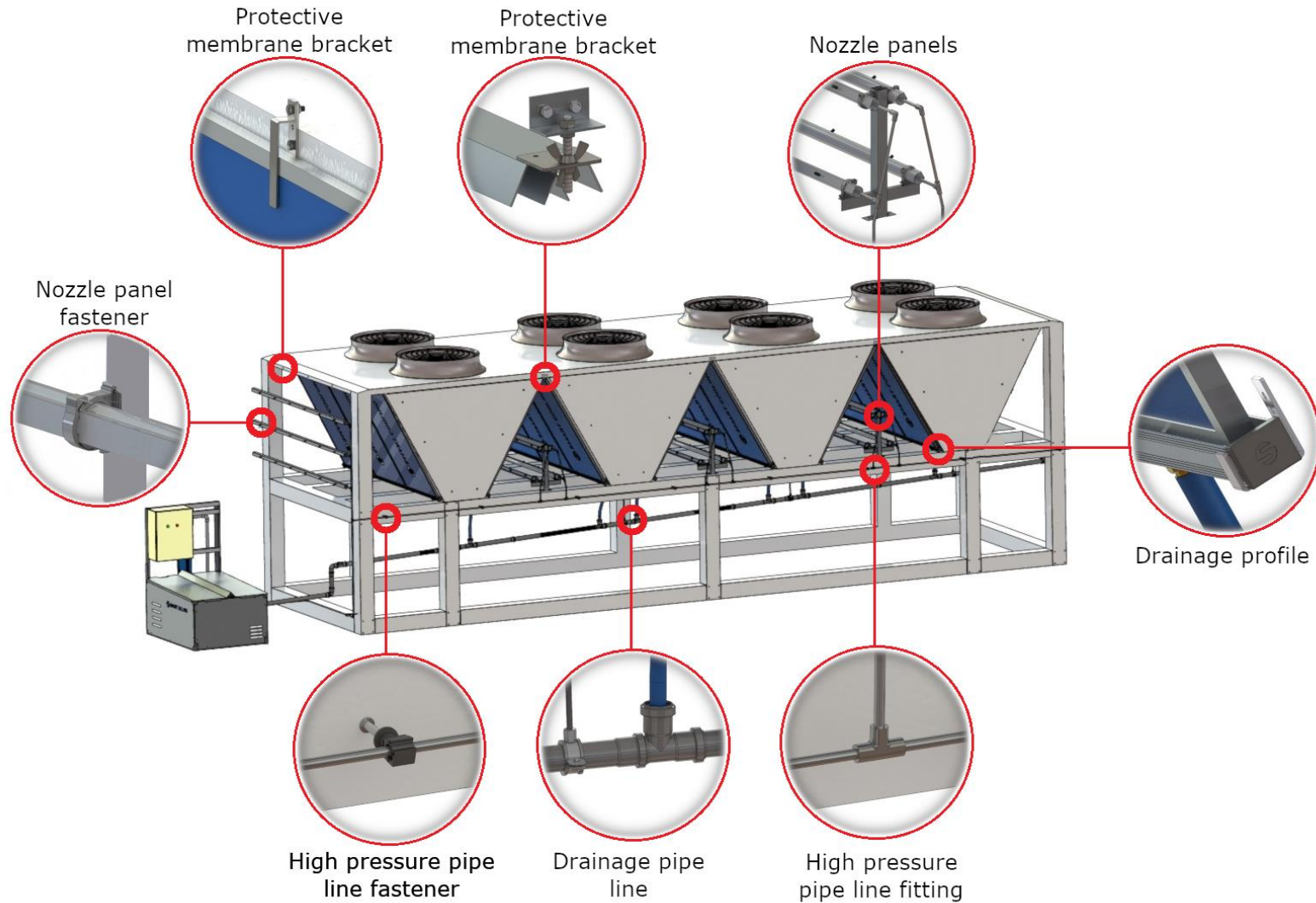
The incorrect usage of our devices is defined as the usage thereof in violation of the rules provided for by the operation and maintenance manual. Failure to comply with the provided instructions may cause harm to the user or damage to the device. Below we provide a number of examples of incorrect usage:

- INCORRECT CONNECTION / USAGE OF THE ENCLOSED APPLIANCES
- INCORRECT PERFORMANCE OF OPERATIONAL ACTIONS
- FAILURE TO USE ORIGINAL SPARE PARTS
- LAUNCHING THE DEVICE WITHOUT WATER
- MAINTENANCE WORKS ON THE DEVICE PERFORMED BY UNQUALIFIED PERSONNEL
- USAGE OF THE DEVICE FOR THE PURPOSES IT IS NOT INTENDED FOR
- LACK OF MAINTENANCE

ATTENTION! - You must comply with the following instructions thoroughly in order to avoid damage that the user may suffer due to the malfunction of the device. By performing any prohibited actions, you violate the warranty terms; the manufacturer bears no responsibility for damage of any kind resulting from the performance of prohibited actions.

- Do not obstruct the flow of water from the high-pressure hose. Otherwise, the hose may be ruptured, which puts the user of the device in danger.
- Do not remove the inner protective film of the device while the pump is in operation.
- Do not use the power cord or connective hoses to haul the device.
- Do not use the electricity plug to turn the device on or off.
- Do not place the device onto wet surfaces, or where puddles are possible during rain.
- Do not activate the device when you are not wearing appropriate footwear.
- The device runs on clean water; never use water from sinks, lakes, ponds etc. - impurity damages damage the shutters and cause irreparable damage to the device.
- Spraying cleaning agents that contain asbestos or other substances hazardous for human health is strictly prohibited.
- Do not cover the device and never place the device in places with poor ventilation.
- Be sufficiently alert when operating the device. Do not use the device if you feel tired or when being under the influence of alcohol or medications.
- Do not perform repairs on the pump when in operation or powered.
- Do not attempt repairs on the power cord or try to repair any damage on your own. If damaged, the power cord will be replaced completely by the technical support service.
- Do not aim the water hose at the device or any components thereof (cables, plugs). This may cause electric damage and injure the user.
- Each electric component must be protected against drops of water in order to avoid short circuits.
- Do not place any heavy objects onto the device.
- Never operate the pump without water; it may damage the internal components of the pump.
- Never touch the electric plug or plug sleeve with wet hands.
- Never add or use the following substances in the cleaning vessel or water supply system: solvents, color oils, fuel, etc., or any other flammable liquids, even dissolved in water: the fumes that will occur while the liquid is sprayed under high pressure will also be easily combustible and highly dangerous. This may also cause irreparable damage to the device.

General Arrangement Scheme



Order of Smart Cooling™ System Installation

- Unpack **Smart Cooling™** equipment on the installation site
- Check whether all components are included
- Locate the brackets placing for ducts and drainage profile and mark them
- Fix the brackets and fasteners with screws
- Install U profile and top fixation
- Install membranes according to the drawings in this manual
- Assemble ducts with nozzles according to the drawings in this manual
- Install ducts in place
- Connect electrical wiring
- Check all connections

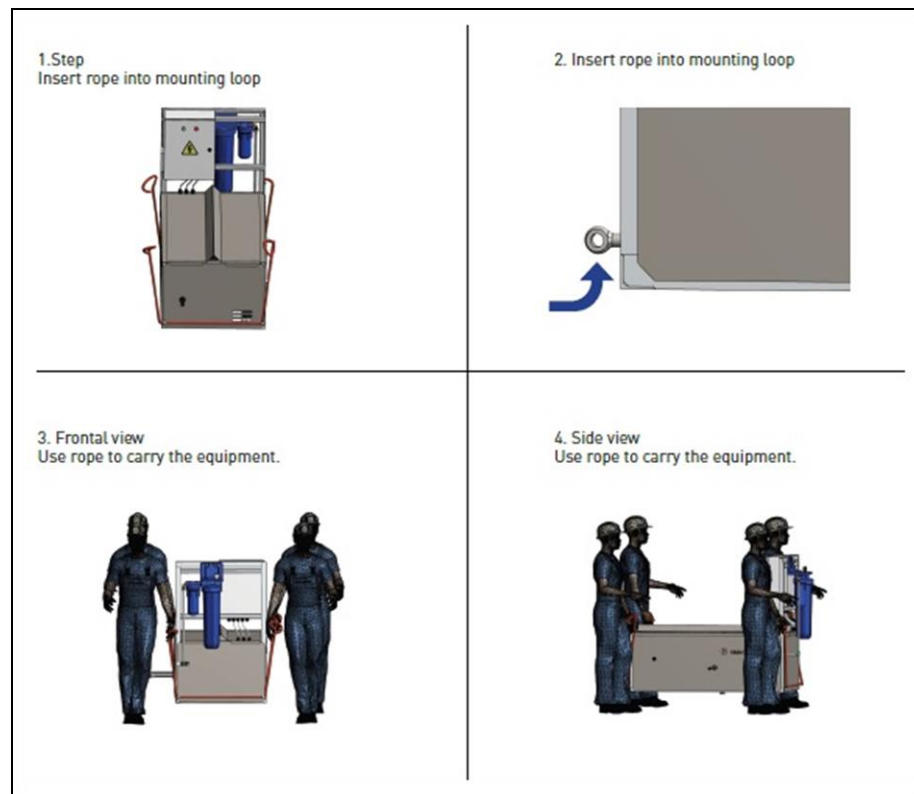
Transportation of Smart Cooling™ pump station

The illustration shows the correct transportation of the **Smart Cooling™** pump station. Improper transportation of the **Smart Cooling™** pump station can damage it, use only transport loops designed for lifting the pump station.

Raise the **Smart Cooling™** pump station using all the loops provided at the same time.

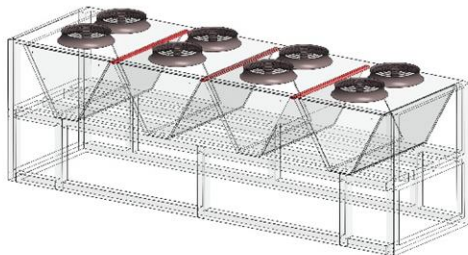
The **Smart Cooling™** pump station must be placed on a level surface, no additional fastening is required.

Additional Information about **Smart Cooling™** pump station weight and dimensions you can find in the documentation that came with the shipment.



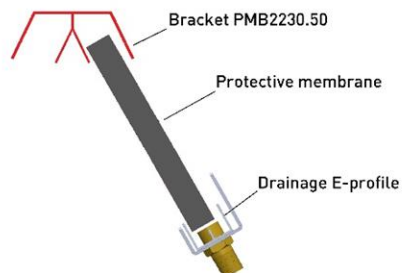
Fastening protective membrane bracket – inside condensers

- 1** View from side 1.
Areas marked in red indicate where to fasten the protective membrane bracket



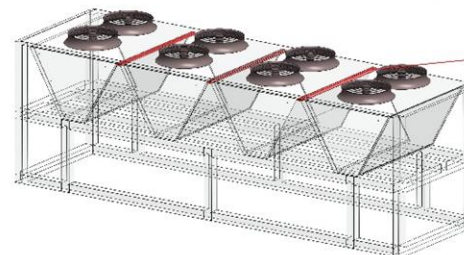
The areas marked with a red indicates where you need to fasten the protective membrane bracket

- 2** Protective membrane bracket PMB2230.151 bracket is used to fasten the edges of the protective membrane

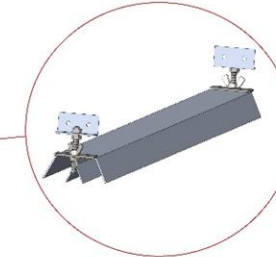


Protective membrane bracket PMB2230.151 bracket is used inside condensers

- 3** Find the right bracket

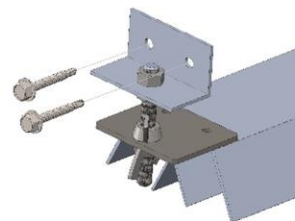


PMB2230.50



Detail view of the protective membrane bracket

- 4** Fasten protective membrane bracket

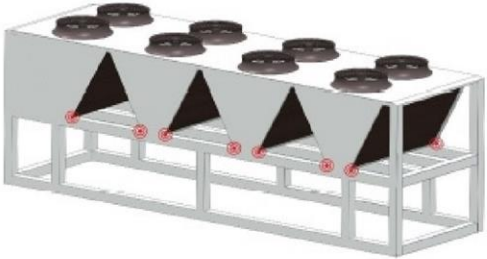


- * Screw DIN 7504-K ZN - 4.8x13
- * Be careful when using screw with drill - don't damage chiller tubes or condenser

You must use screw with drill to fasten protective membrane bracket

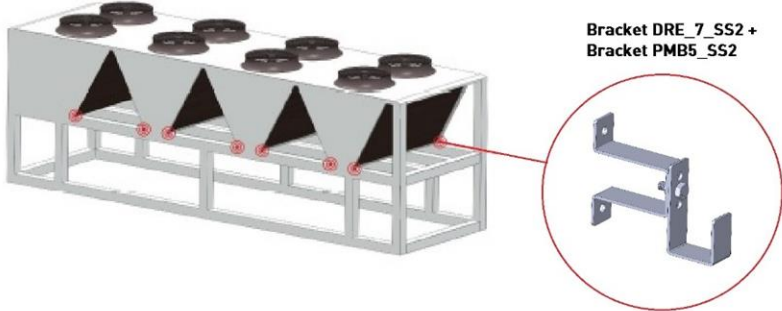
Fastening drainage E-profile bracket

1 View from side 1
 Ⓧ Places where drainage profile bracket DRE_7_SS2 must be fastened



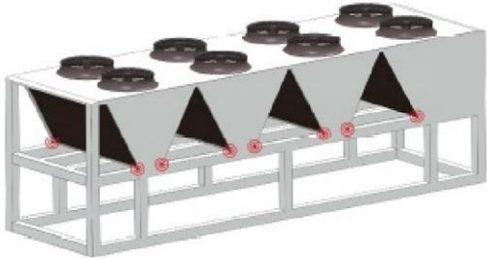
The areas marked with a red dot indicate where you need to fasten the drainage bracket

3 Find the right bracket



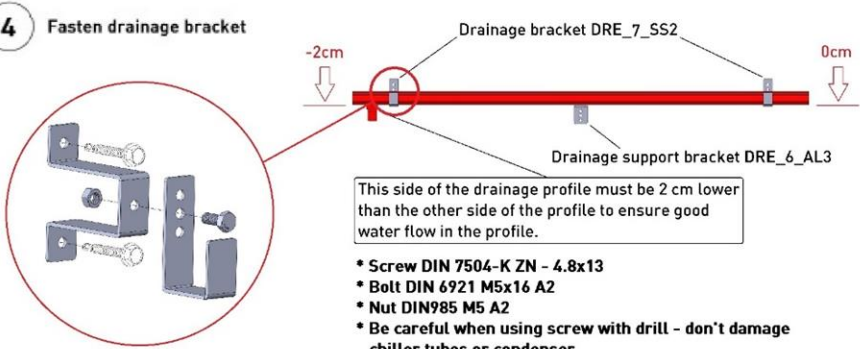
Bracket DRE_7_SS2 + Bracket PMB5_SS2

2 View from side 2
 Ⓧ Places where drainage profile bracket DRE_7_SS2 must be fastened



The areas marked with a red dot indicate where you need to fasten the drainage bracket

4 Fasten drainage bracket



Drainage bracket DRE_7_SS2

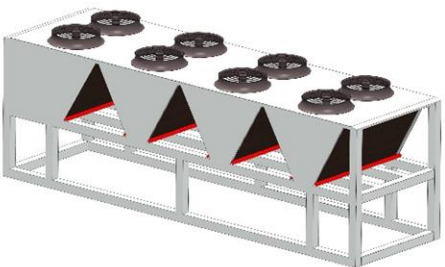
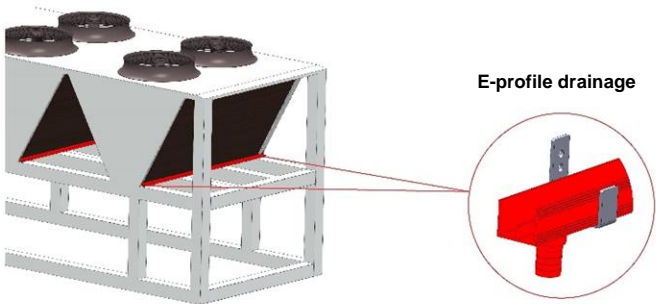
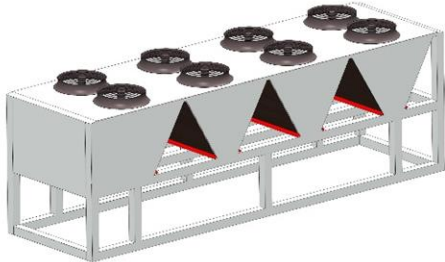
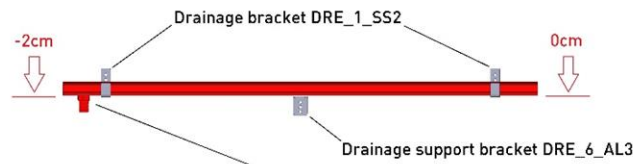
Drainage support bracket DRE_6_AL3

This side of the drainage profile must be 2 cm lower than the other side of the profile to ensure good water flow in the profile.

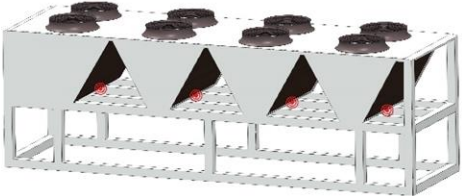
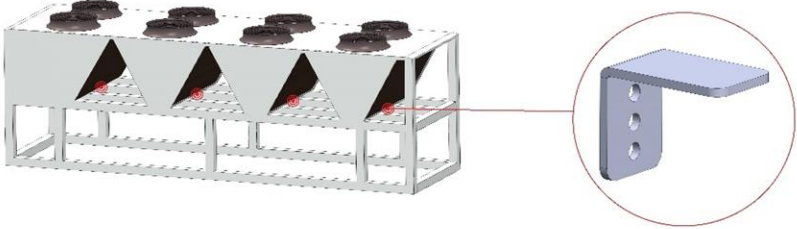
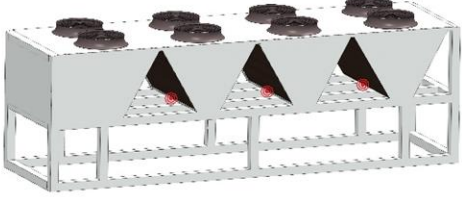
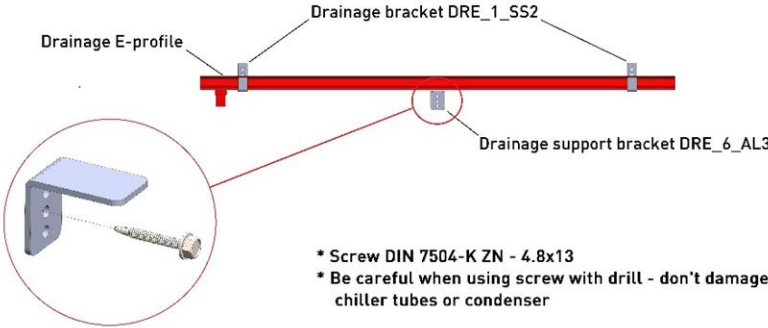
- * Screw DIN 7504-K ZN - 4.8x13
- * Bolt DIN 6921 M5x16 A2
- * Nut DIN985 M5 A2
- * Be careful when using screw with drill - don't damage chiller tubes or condenser

You must use screw with drill to fasten drainage bracket

Fastening E-profile Drainage

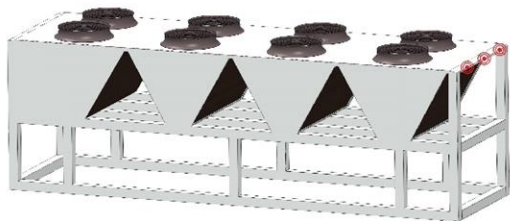
<p>1 View from side 1  ● Places where drainage profile must be fastened</p> <p>The areas marked with a red, indicate where you need to fasten the drainage profile</p>	<p>3 Find the E-profile drainage</p>  <p style="text-align: right;">E-profile drainage</p> <p style="text-align: center;">Detail view of the E-profile Drainage</p>
<p>2 View from side 2  ● Places where drainage profile must be fastened</p> <p>The areas marked with a red, indicate where you need to fasten the drainage profile</p>	<p>4 Fasten drainage profile</p>  <p style="text-align: center;">This side of the drainage profile must be 2 cm lower than the other side of the profile to ensure good water flow in the profile.</p> <p>* Be careful when inserting drainage profile - don't damage condensers You must insert drainage E-profile into the drainage brackets DRE_1_SS2</p>

Fastening E-profile Drainage Support Bracket

<p>1 View from side 1  ● Places where drainage profile support bracket DRE_6_AL3 must be fastened</p> <p style="text-align: center;">The areas marked with a red dot indicate where you need to fasten the drainage bracket</p>	<p>3 Find the right bracket</p>  <p style="text-align: center;">Detail view of the drainage bracket</p>
<p>2 View from side 2  ● Places where drainage profile support bracket DRE_6_AL3 must be fastened</p> <p style="text-align: center;">The areas marked with a red dot indicate where you need to fasten the drainage bracket</p>	<p>4 Fasten drainage bracket</p>  <p style="text-align: right;">* Screw DIN 7504-K ZN - 4.8x13 * Be careful when using screw with drill - don't damage chiller tubes or condenser</p> <p style="text-align: center;">You must use screw with drill to fasten drainage bracket</p>

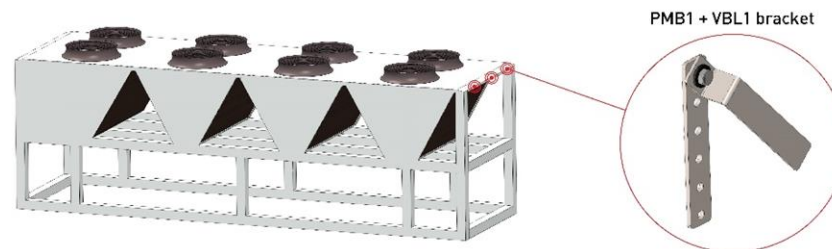
Fastening Protective Membrane Bracket – Outside Condensers

- 1** View from side 1
 ● Places where protective membrane bracket PMB1 + VBL1 must be fastened



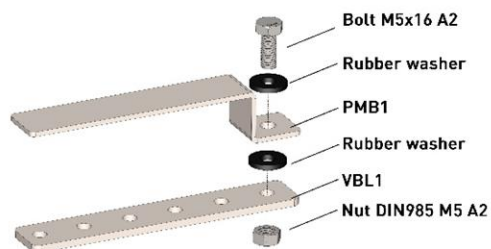
The areas marked with a red dot indicate where you need to fasten the bracket

- 3** Bracket to fasten up side of protective membrane



Detail view of the protective membrane bracket PMB1 + VBL1

- 2** Assembly of bracket PMB1 + VBL1 (all necessary components are included in the set)



There you can see bracket assembly sequence and necessary components

- 4** Fasten protective membrane bracket

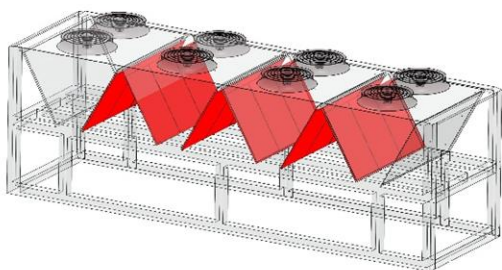


* Screw DIN 7504-K ZN - 4.8x13
 * Be careful when using screw with drill - don't damage chiller tubes or condenser

You must use screw with drill to fasten protective membrane bracket

Fastening Protective Membranes – inside condensers

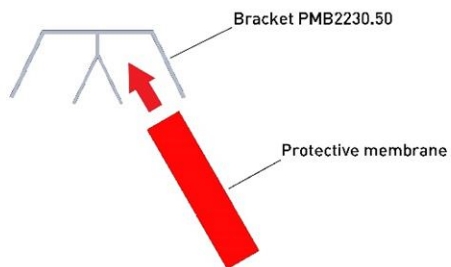
1 View of installed membranes



The areas marked with a red, indicates where you need to fasten the protective membrane

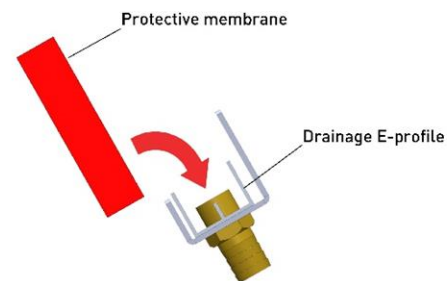
2 Start mounting protective membrane

First step is to insert up side of membrane in to bracket PMB2230.50



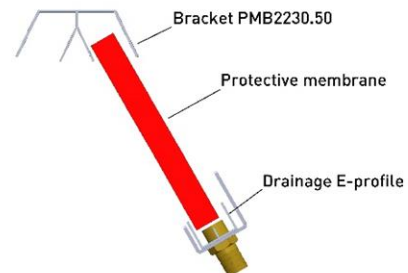
Insert membrane very carefully - don't damage chiller condenser

3 Insert protective mebrane in to drainage E-profile



Remember that you need to keep pushing membrane upside into bracket NPB2230.50 until you have inserted bottom of membrane into drainage E-profile

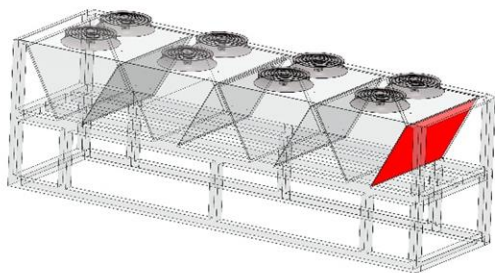
4 Scheme of correctly inserted protective membrane



Insert membrane very carefully - don't damage chiller condenser

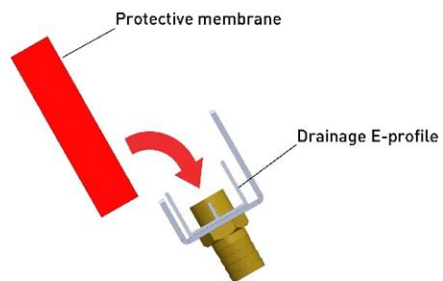
Fastening Protective Membranes– outside condensers

1 View of installed membranes



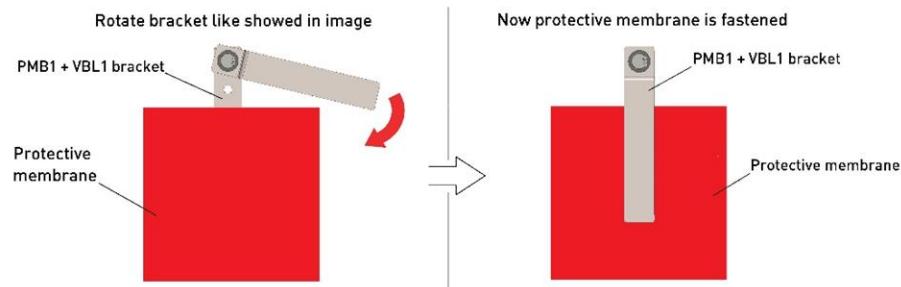
The areas marked with a red, indicates where you need to fasten the protective membrane

2 Start mounting protective membrane Insert protective membrane in to drainage E-profile



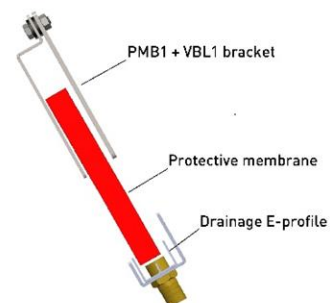
Insert membrane very carefully - don't damage chiller condenser

3 Fastening up side of the protective membrane



Important: there must not be gaps between the protective membranes. The area of the condensers must be fully covered by the membranes to prevent water from entering the condenser.

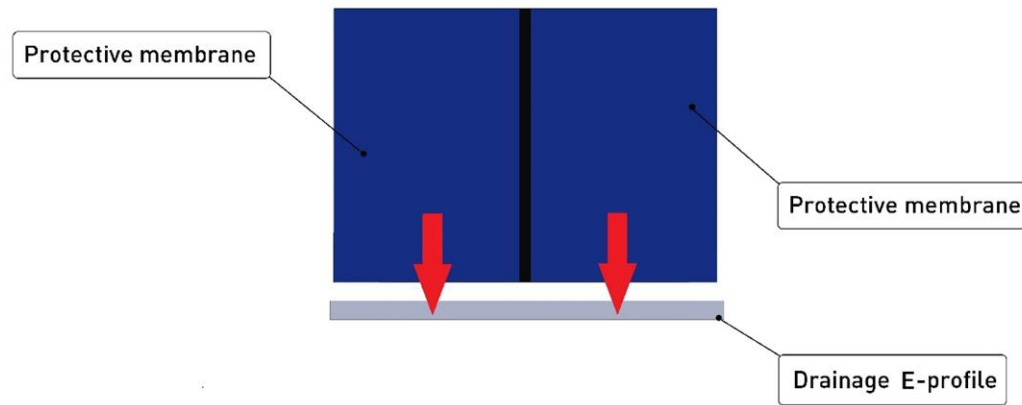
4 Scheme of correctly inserted protective membrane



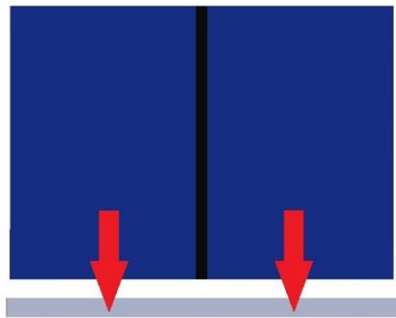
Insert membrane very carefully - don't damage chiller condenser

Check whether protective membranes are mounted correctly

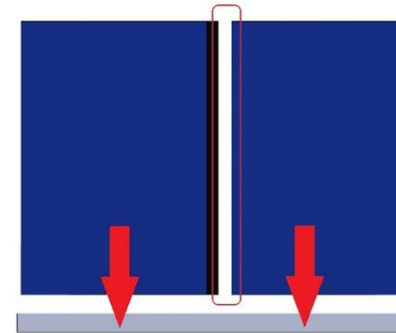
Important: There must be no gap between the protective membranes. All area of condensers must be covered by the protective membranes.



 **OK**



 **WRONG**

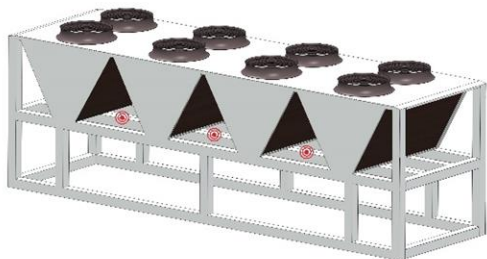


Fastening Nozzle Panel Bracket – inside condensers

1

View from side 1

⦿ Places where nozzle panel bracket NPB20 must be fastened

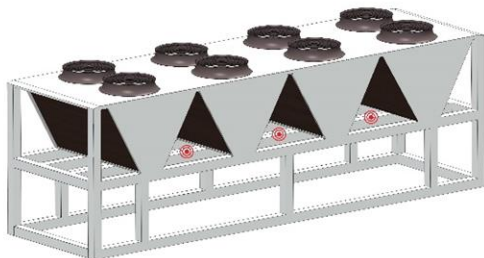


The areas marked with a red dot indicates where you need to fasten the nozzle panel bracket

2

View from side 2

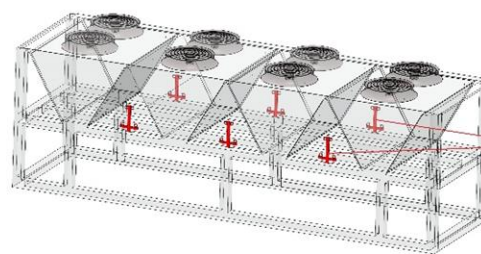
⦿ Places where nozzle panel bracket NPB20 must be fastened



The areas marked with a red dot indicate where you need to fasten the bracket

3

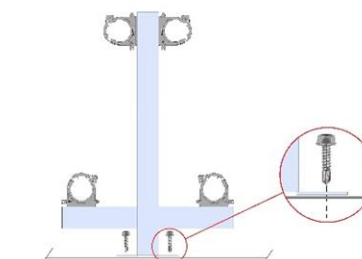
Find the right bracket



Detail view of the nozzle panel bracket

4

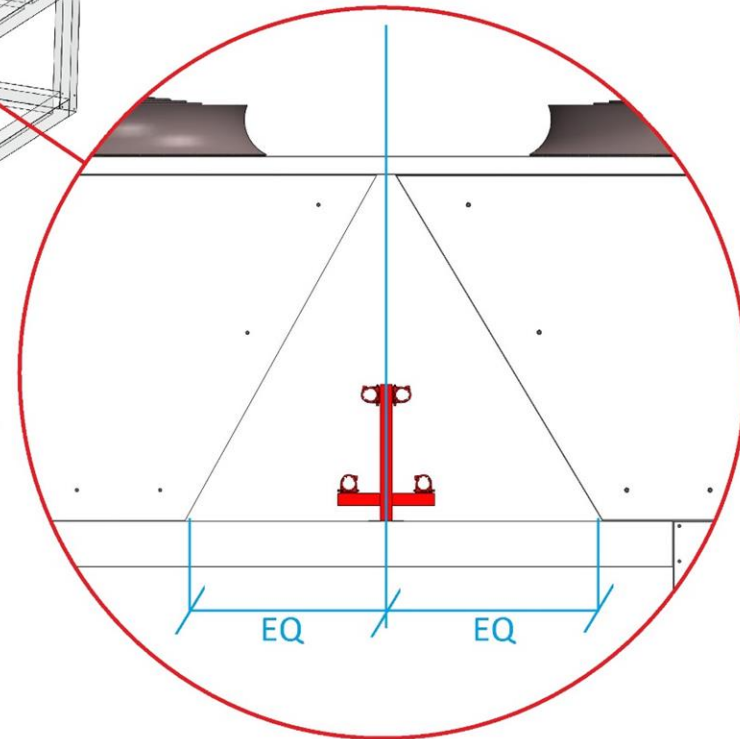
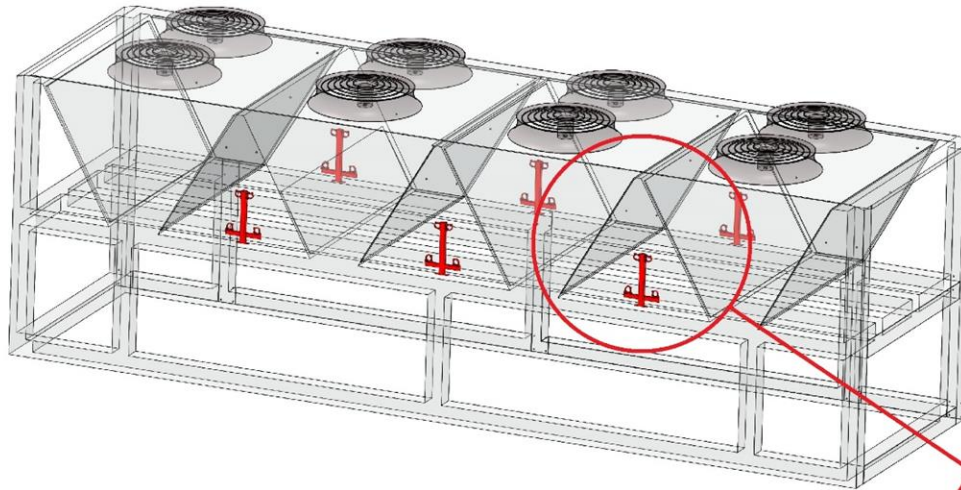
Fasten nozzle panel bracket



- * Screw DIN 7504-K ZN - 4.8x13
- * Be careful when using screw with drill - don't damage chiller tubes or condenser

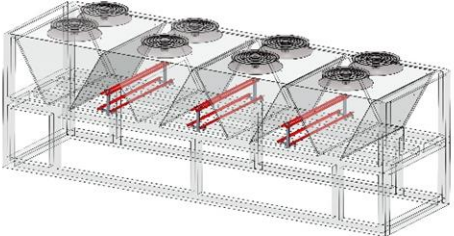
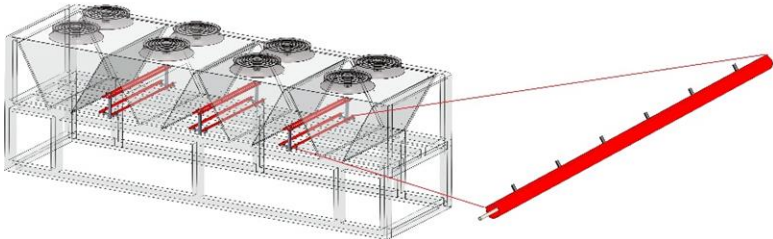
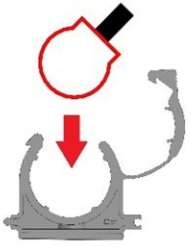
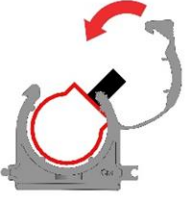

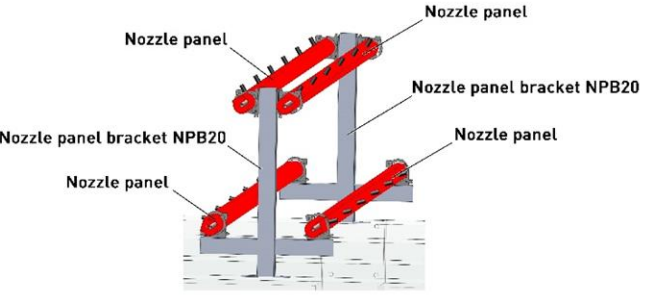
Chiller frame

You must use screw with drill to fasten nozzle panel bracket on chiller frame



- **Nozzle panel bracket must be fastened on the middle of every chiller section.**
- **In the picture you can see that the best place to measure the middle of the section is the bottom of the condenser.**

Fastening Nozzle Panels – inside condensers

<p>1 <u>View from side 1</u>  Ⓧ Places where nozzle panels must be fastened</p> <p style="text-align: center;">The areas marked with red indicates where you need to fasten nozzle panels</p>	<p>3 Find the right nozzle panel</p>  <p style="text-align: center;">In every section of chiller there must be fastened 4 nozzle panels</p>
<p>2 <u>How to fasten nozzle panels in to a plastic fastener</u></p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Step 1</p> </div> <div style="text-align: center;">  <p>Step 2</p> </div> <div style="text-align: center;">  <p>Nozzle panel is fastened</p> </div> </div>	<p>4 Fasten nozzle panels</p>  <p style="text-align: center;">View of correctly fastened nozzle panels</p>

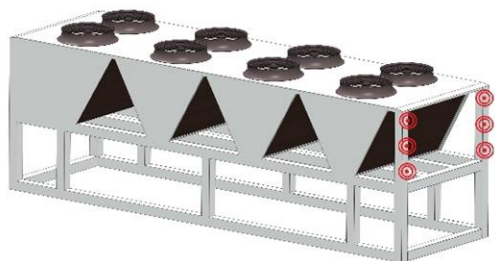
Screw in the last nozzle panel only after system flushing! Make sure residue do not get into nozzle panel tubes.

Fastening Nozzle Panel Bracket – outside condensers

1

View from side 1

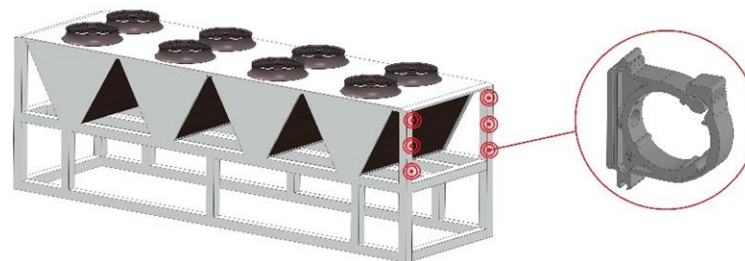
• Places where Plastic nozzle panel bracket must be fastened



The areas marked with red dot indicates where you need to fasten plastic nozzle panel bracket

3

Find the right bracket

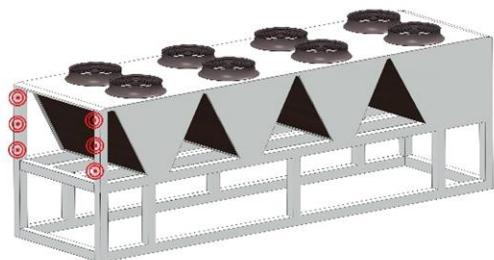


Detail view of the nozzle panel bracket

2

View from side 2

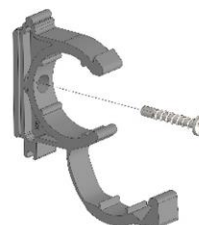
• Places where Plastic nozzle panel bracket must be fastened



The areas marked with red dot indicates where you need to fasten plastic nozzle panel bracket

4

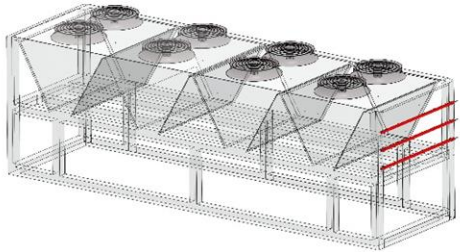
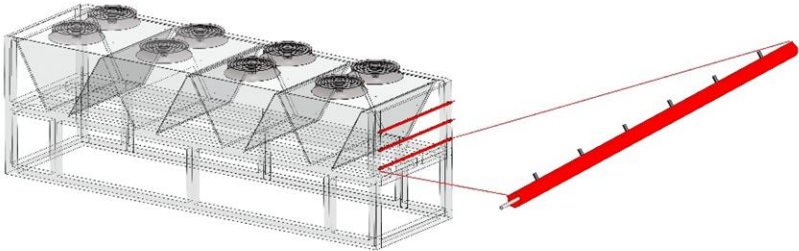
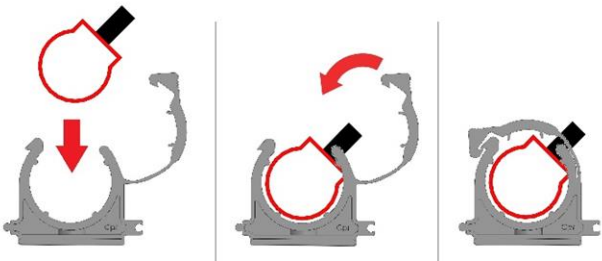
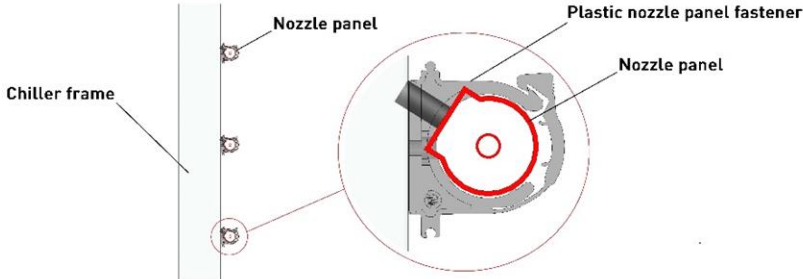
Fasten nozzle panel bracket



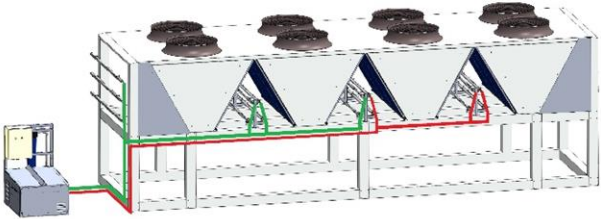
- * Screw DIN7504 - N PH ZN 4.8x25
- * Be careful when using screw with drill - don't damage chiller tubes or condenser

You must use screw with drill to fasten plastic nozzle panel bracket

Fastening Nozzle Panels – outside condensers

<p>1 View from side 1 ⦿ Places where nozzle panels must be fastened</p>  <p>The areas marked with red indicates where you need to fasten nozzle panels</p>	<p>3 Find the right nozzle panel</p>  <p>There must be 3 nozzle panels attached to each end of the chiller</p>
<p>2 How to fasten nozzle panels in to a plastic fastener</p>  <p>Step 1 Step 2 Nozzle panel is fastened</p>	<p>4 Fasten nozzle panels</p>  <p>Chiller frame Nozzle panel Plastic nozzle panel fastener Nozzle panel</p> <p>View of correctly fastened nozzle panels</p>

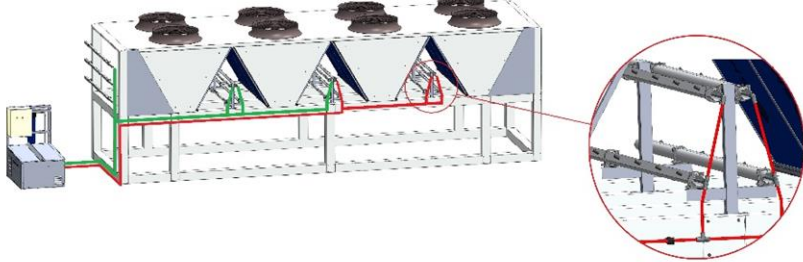
Fastening Stainless-Steel High-Pressure Pipeline

1 View from side 1


● High pressure stainless steel pipeline

— Green line indicates circuit 1 stainless steel pipeline
 — Red line indicates circuit 2 stainless steel pipeline


3 Connect nozzle panels to the high pressure stainless steel pipeline



In the image you can see principle, how to connect nozzle panels to high pressure stainless steel pipeline


2 Fitting types used to connect stainless steel pipeline

L-Type




SS pipe line

S-Type



SS pipe line

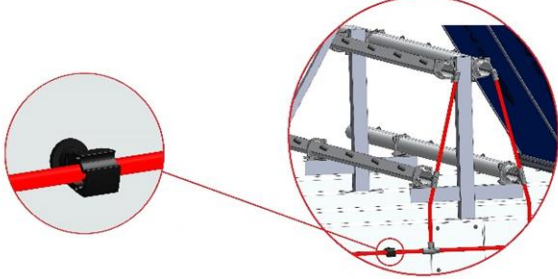
T-Type



SS pipe line

Red line is stainless steel pipe line


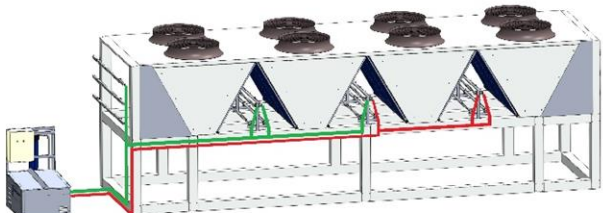


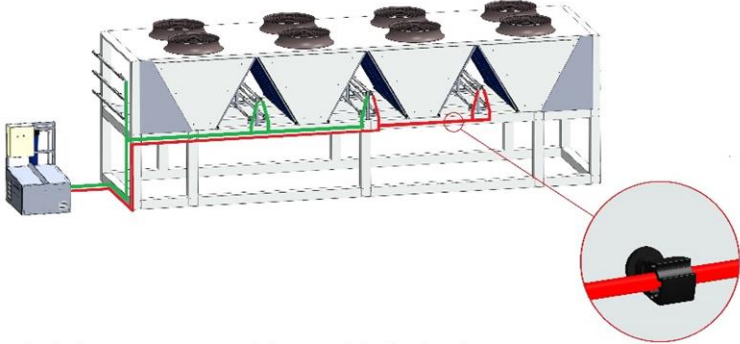
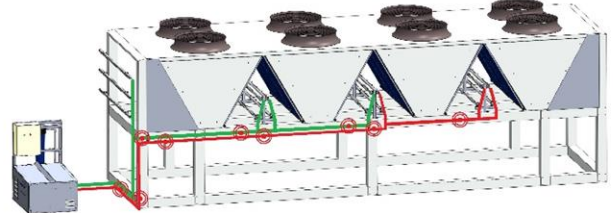

4 Fasten stainless steel pipeline



For stainless steel pipeline fastening use plastic fasteners

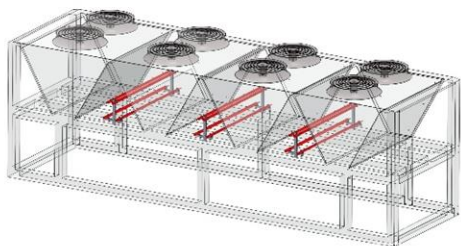
Use a torque tool for the duct installation! Tightening of screws on fittings must comply with 2.2 Nm (newton meters).

Fastening Stainless-Steel Pipeline

<p>1 View from side 1</p> <p> High pressure stainless steel pipeline</p>  <p> Green line indicates circuit 1 stainless steel pipeline  Red line indicates circuit 2 stainless steel pipeline</p>	<p>3 Fasten stainless steel pipeline</p>  <p>In the image you can see stainless steel pipeline bracket</p>
<p>2 Places where you must use stainless steel pipeline</p>  <p>Red dot indicates places where you must fasten stainless steel pipeline bracket, the fastenings must be no more than 1,5 m apart.</p>	<p>4 Fasten bracket</p>  <p>* Screw DIN7504 - N PH ZN 4.8x25 * Be careful when using screw with drill - don't damage chiller tubes or condenser</p> <p>For stainless steel pipeline fastening use plastic bracket and screw with drill</p>

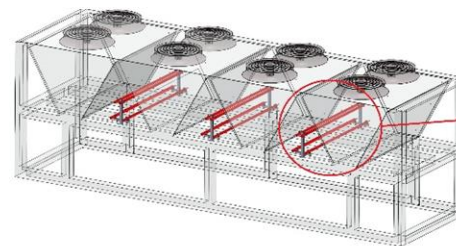
Regulation of nozzle panels – inside condensers

- 1** **View from side 1**
 ● Places where nozzle panels must be regulated



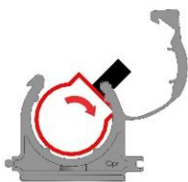
The areas marked with red indicates where you must regulate nozzle panels

- 3** **Nozzle panels between inside condensers**

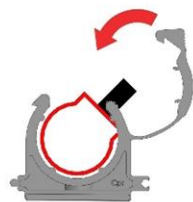


In every inside section of chiller there are 4 nozzle panels

- 2** **How to regulate nozzle panels**

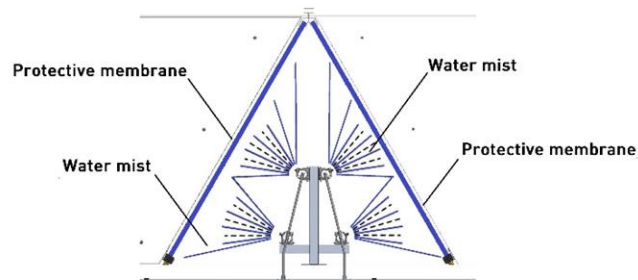


Open the plastic fastener to turn the nozzle panel to its correct position




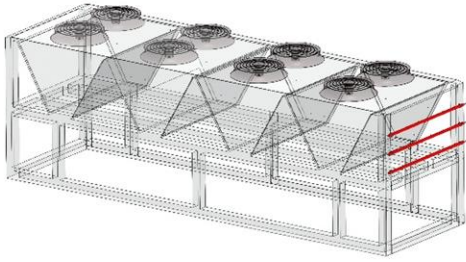
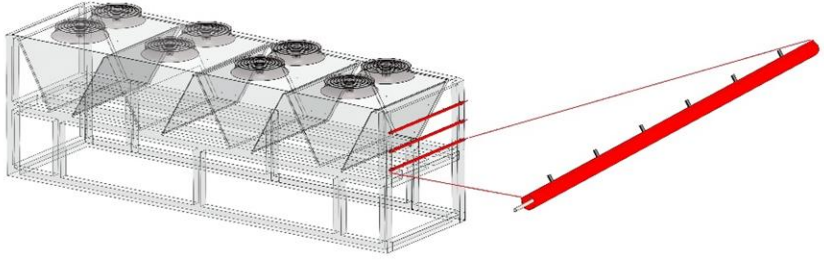
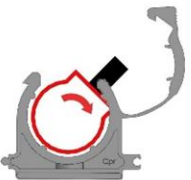
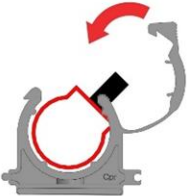
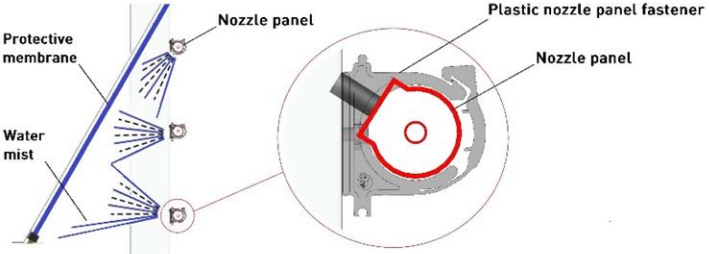
When nozzle panel is correctly positioned, simply close the plastic fastener

- 4** **Correct regulation of nozzle panels**



Proper adjustment of the nozzle panels is when the water mist covers the largest possible area of the membrane

Regulation of Nozzle Panels – outside condensers

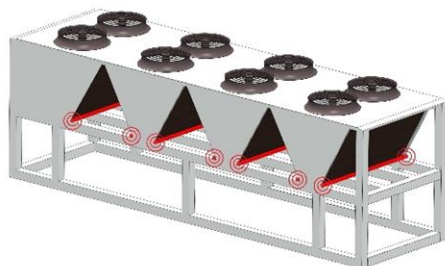
<p>1 <u>View from side 1</u>  Places where nozzle panels must be regulated</p>  <p style="text-align: center;">The areas marked with red indicates where you must regulate nozzle panels</p>	<p>3 Correct regulation of nozzle panels</p>  <p style="text-align: center;">On the end of chiller there are 3 nozzle panels</p>
<p>2 How to regulate nozzle panels</p>  <p style="text-align: center;">Open the plastic fastener to turn the nozzle panel to its correct position</p>  <p style="text-align: center;">When nozzle panel is correctly positioned, simply close the plastic fastener</p>	<p>4 Right regulation of nozzle panels</p>  <p style="text-align: center;">Proper adjustment of the nozzle panels is when the water mist covers the largest possible area of the membrane</p>

Fastening plastic caps on drainage E-profile

1

View from side 1

● Places where plastic cap for E-drainage must be fastened

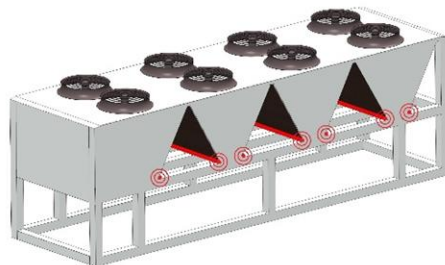


The areas marked with the red indicates E-drainage and red dot indicates places on drainage profile, where you must fasten plastic caps

2

View from side 2

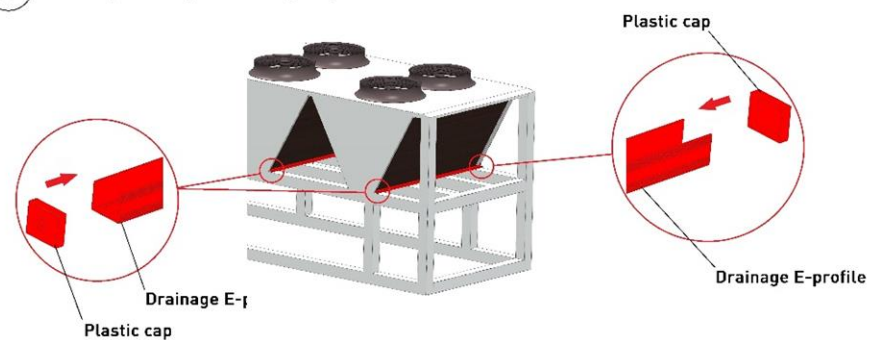
● Places where plastic cap for E-drainage must be fastened



The areas marked with the red indicates E-drainage and red dot indicates places on drainage profile, where you must fasten plastic caps

3

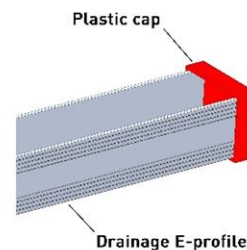
Fasten plastic caps on drainage E-profile



Plastic caps must be fastened on every ending of drainage E-profile

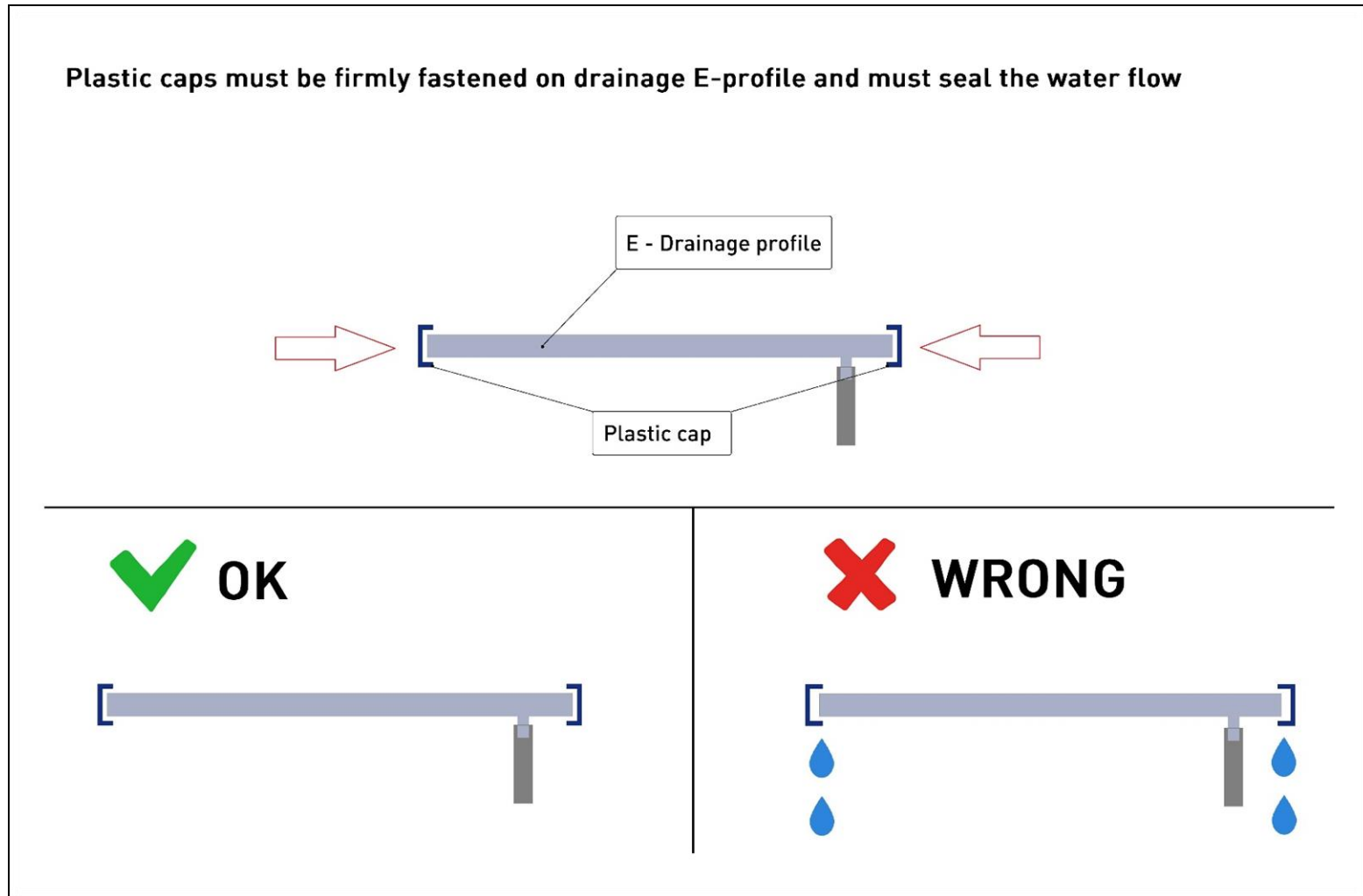
4

Plastic caps must be firmly fixed

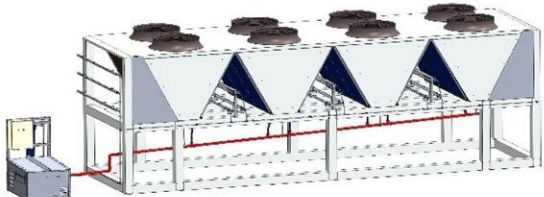
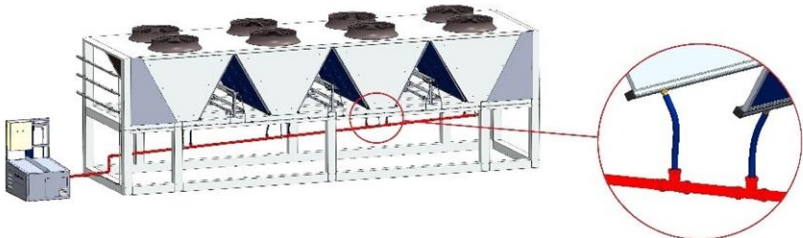
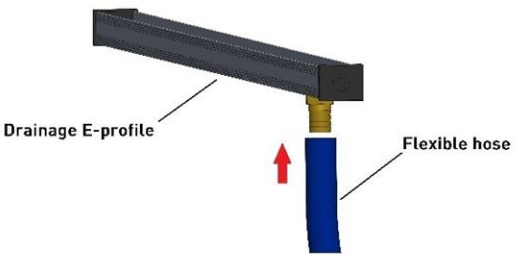
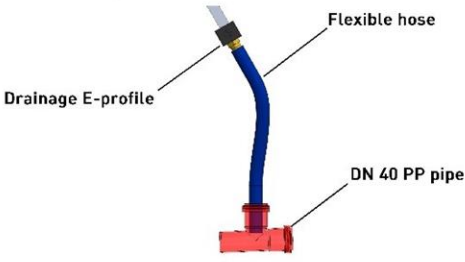


You must use a sealant to prevent water leakage from drainage E-profile

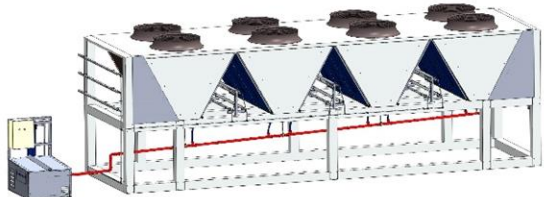
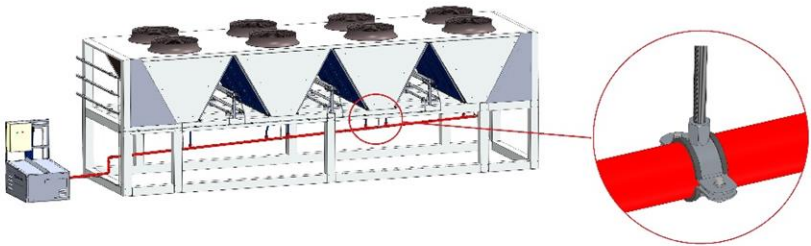
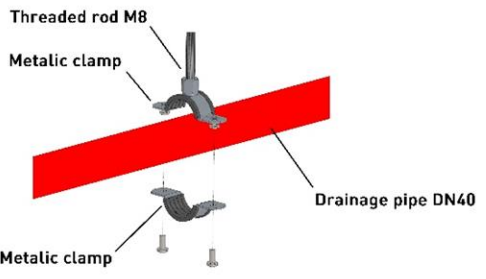
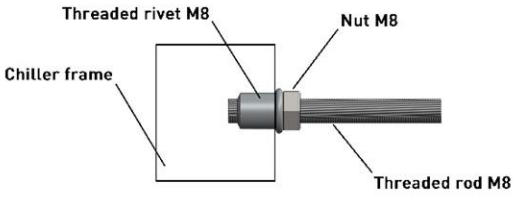
Check for water leakage around the plastic caps



Mounting Drainage Pipeline

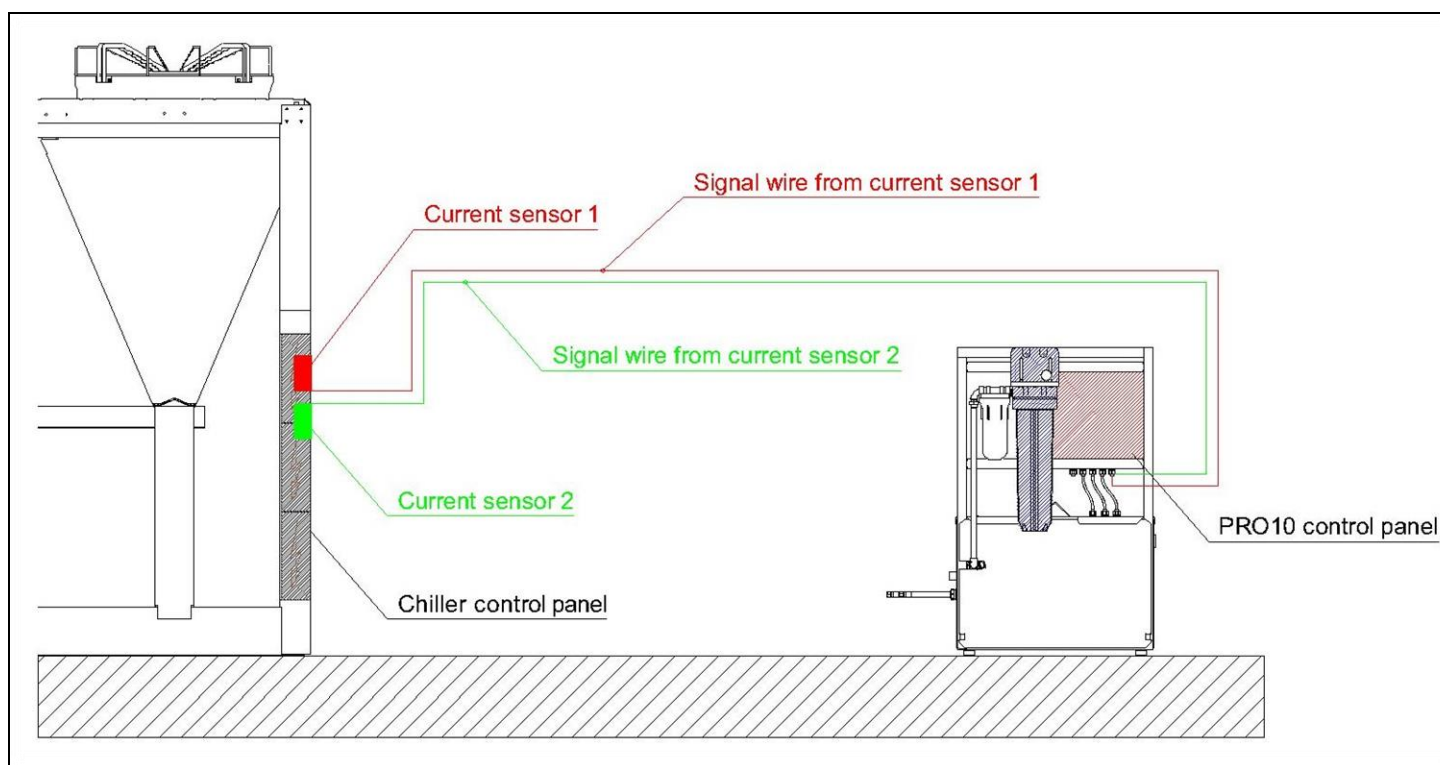
<p>1 View from side 1 ● Drainage water DN40 pipeline</p>  <p>Red line indicates where is drainage water pipeline</p>	<p>3 Connect drainage pipeline with drainage profiles</p>  <p>In the image you can see how to connect drainage profiles with drainage DN40 pipeline</p>
<p>2 Connecting drainage E-profile with flexible hose</p>  <p>You must push on flexible hose on to drainage profile fitting</p>	<p>4 Drainage connection to DN40 pipeline</p>  <p>In the image you can see how deep you need to insert flexible hose in to a DN40 pipe fitting</p>

Fastening Drainage Pipeline

<p>1 View from side 1 ● Drainage water DN40 pipeline</p>  <p>Red line indicates where is drainage water pipeline</p>	<p>3 Fasten drainage pipeline</p>  <p>In the image you can see how to fasten drainage pipeline with metallic pipe clamp The drainage pipe must be sloping to ensure good water flow Sloping must be 2 cm on every 1 meter of drainage pipeline</p>
<p>2 Fastening drainage pipeline</p>  <p>You must use metallic clamp to fasten drainage pipeline</p>	<p>4 Fastening drainage pipeline to the chiller frame</p>  <p>You must use threaded rivet and nut to fasten threaded rod in to a chiller frame</p>

Installation of Current Sensor

1. Install the current sensor on the **phase wire** of the chiller main fan cable.
2. The number of current sensors depends on the number of circuits in the chiller.
3. Use the electric wire (2*0.75) to connect the current sensor to the PRO10 control panel.
4. Wires must be installed onto the plastic conduit.
5. Use the connection scheme, which is found at the PRO10 control panel box.

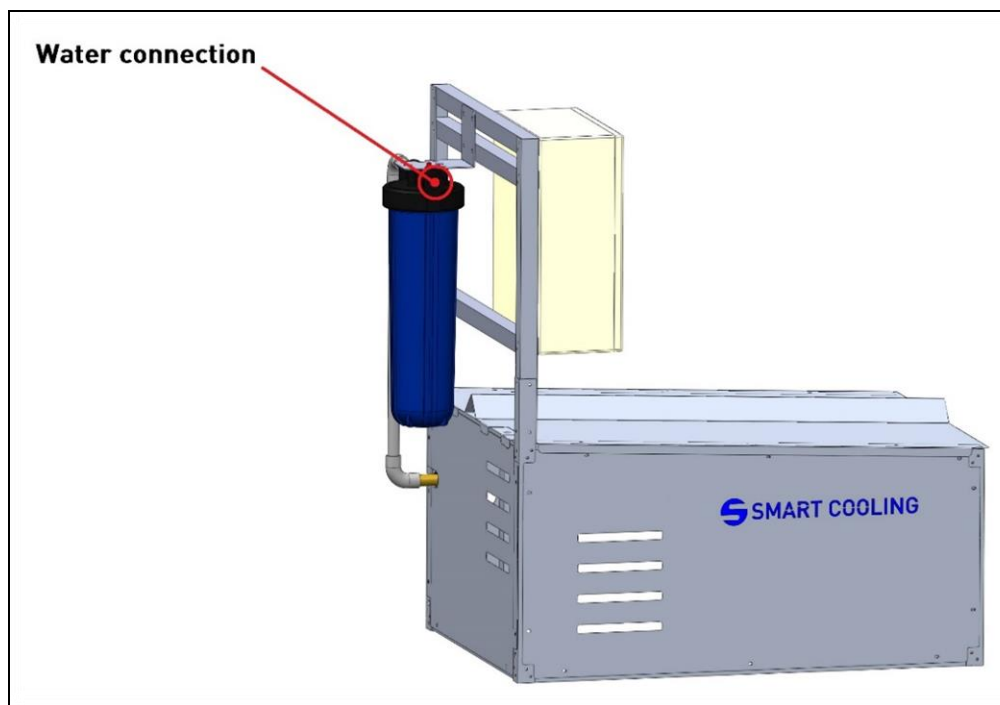


WARNING:

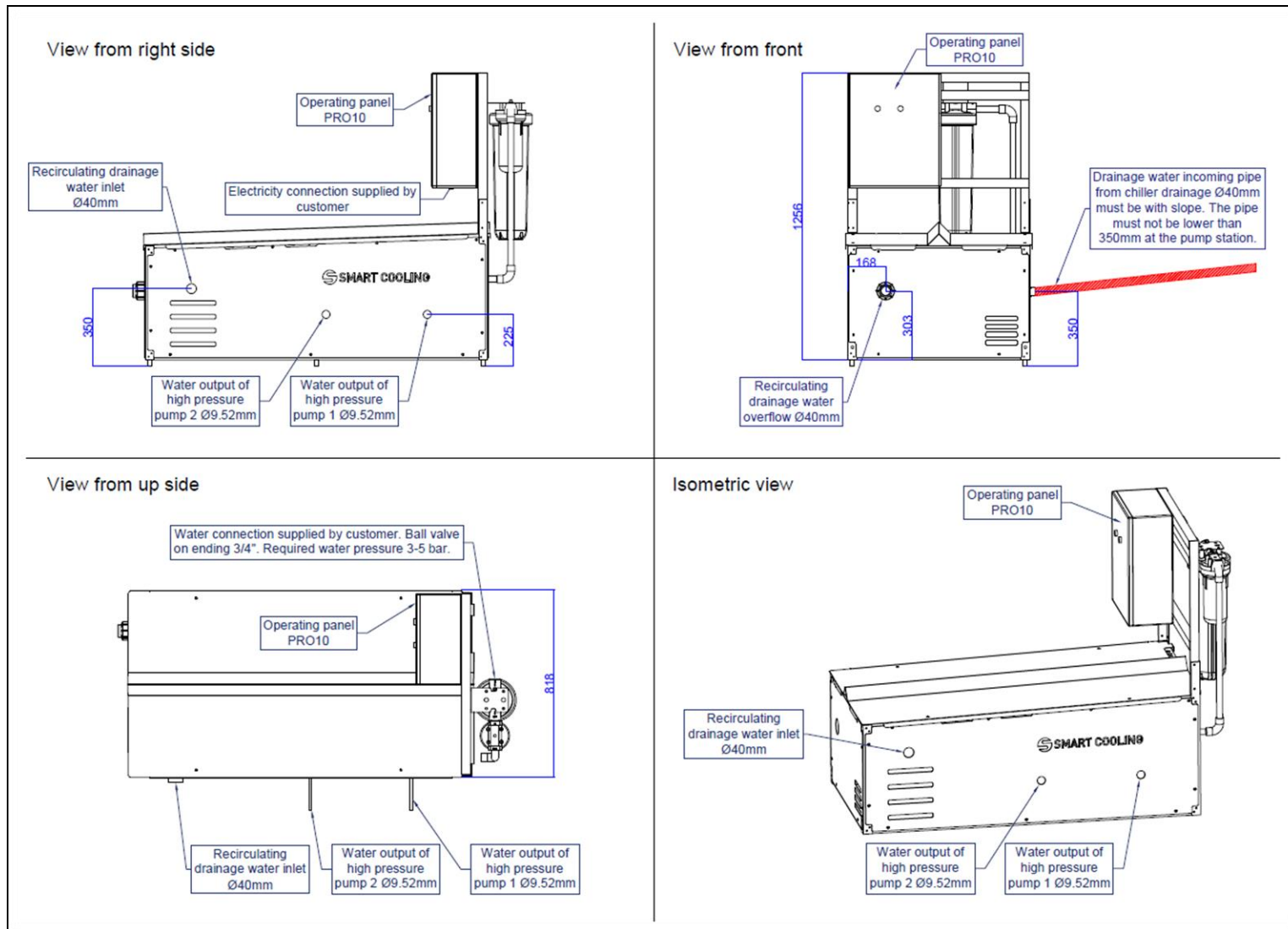
Turn off electricity at the main control cabinet before installing the current sensor!

Water supply requirements

1. Water connection supplied by customer, ball valve $\frac{3}{4}$ " on ending, flow rate according to the model (see the technical specifications on the data plate on PRO10 control panel).
2. Required water pressure 3-5 bar.
3. Supplied water quality requirements for Smart Cooling pump station:
 - Total hardness ≤ 50 mg/L – Test method (APHA 4110 B)
 - Salt content ≤ 100 mg/L – Test method (Argentometry)
 - Chloride ≤ 60 mg/L – Test method (APHA 2340 B)



Pump station connections



Electricity Connection

The electricity wiring connection must be conducted by professional electricians only. The power cables for main supply should be installed into flexible halogen-free corrugated plastic conduits.

Electricity supply, according to the model (see the technical specifications on the data plate on PRO10 control panel)

Electrical scheme of **Smart Cooling™** PRO10 control panel and pump station you can find in PRO10 control panel box.

ATTENTION!

The device stops working when the power supply is off. If the device has not been turned off, it restarts automatically as soon as the power supply is resumed.

Smart Cooling™ System Startup

When all parts are connected and electrical connections are linked:

1. Make sure that water and electricity are being supplied to the system.
2. When open ball valve on water inlet, you must see incoming water pressure on manometer, which is placed on water inlet filter case.
3. Check if there isn't any water leaks on water line in pump station.
4. Unscrew the last nozzle in each nozzle duct line (if not done previously).
5. All circuit breakers and emergency stop switch must be turned on.
6. Startup button on high pressure pump casing must flash when electricity is being supplied, if it's not so you must switch on it.
7. Start the system, so that the nozzle duct line operates for 1 minute to clean the dust that could have penetrated the tubes of nozzle duct during assembly.
8. When cleaning is finished, switch off PRO10 control panel, screw the nozzles back and switch on the PRO10 control panel once again.
9. System automatically will start operate on it's default settings, to change PRO10 control panel settings please read PRO10 manual.

For the following steps – please read the “PRO10 Manual”, there you will find all information about PRO10 control panel. PRO10 control panel is used to manage adiabatic precooling system Smart Cooling™.

ATTENTION!

Smart Cooling™ adiabatic pre-cooling system comes with a “Installation completion checklist” that must be completed after installation and sent back to **Smart Cooling™**.

TROUBLESHOOTING

In the event of anomalous operation, refer to the following table. Should trouble persist, refer to an expert technician authorized by the manufacturer.



CAUTION:

Before taking any action, switch off the device electric power supply.

TROUBLE	CAUSES	REMEDIES
The pump turns but fails to reach the prescribed pressure	The pump draws in air	Clean or replace the drain valve
	Worn or dirty suction/delivery valves	Clean or replace
	Inadequate or worn nozzle	Check and/or replace
	Worn gaskets	Check and/or replace
	Clogged suction filter	Clean or replace
	Adjustment valve core	Clean or replace
Irregular swings in pressure	Worn or dirty suction/delivery valves	Check/clean or replace
	Air intake	Check the suction pipes
	Worn gaskets	Check and/or replace
Drop in pressure	Worn nozzle	Change nozzle
	Suction/delivery valves dirty	Check/clean or replace
	Adjustment valve core worn or jammed	Check and/or replace
	Worn gaskets	Check and/or replace
Noise level	Air intake	Check suction pipes

	Suction/delivery valves worn, dirty or jammed	Check clean and/or replace
	Worn bearings	Check and/or replace
Water in oil	Worn water-oil seal rings	Check and/or replace
Water leakage from head	Worn gaskets	Replace
	Worn O-rings	Replace
Oil leakage	Worn oil seal rings	Replace
Motor fails to start	Plug not inserted properly	Check plug, cable, switch
	No current	Check plug, cable, switch
Motor hums but fails to start	Voltage lower than prescribed	Check the electrical system is adequate
	Pump is jammed or frozen	Turn the motor by hand (see MAINTENANCE section)
	Electrical extension of inadequate cross-section	Replace the extension
The motor stops suddenly	The thermal cut-out has tripped due to overheating	Check if the voltage is as required. Turn off the switch and leave it to cool for a few minutes

These operations must be carried out exclusively by technical personnel!