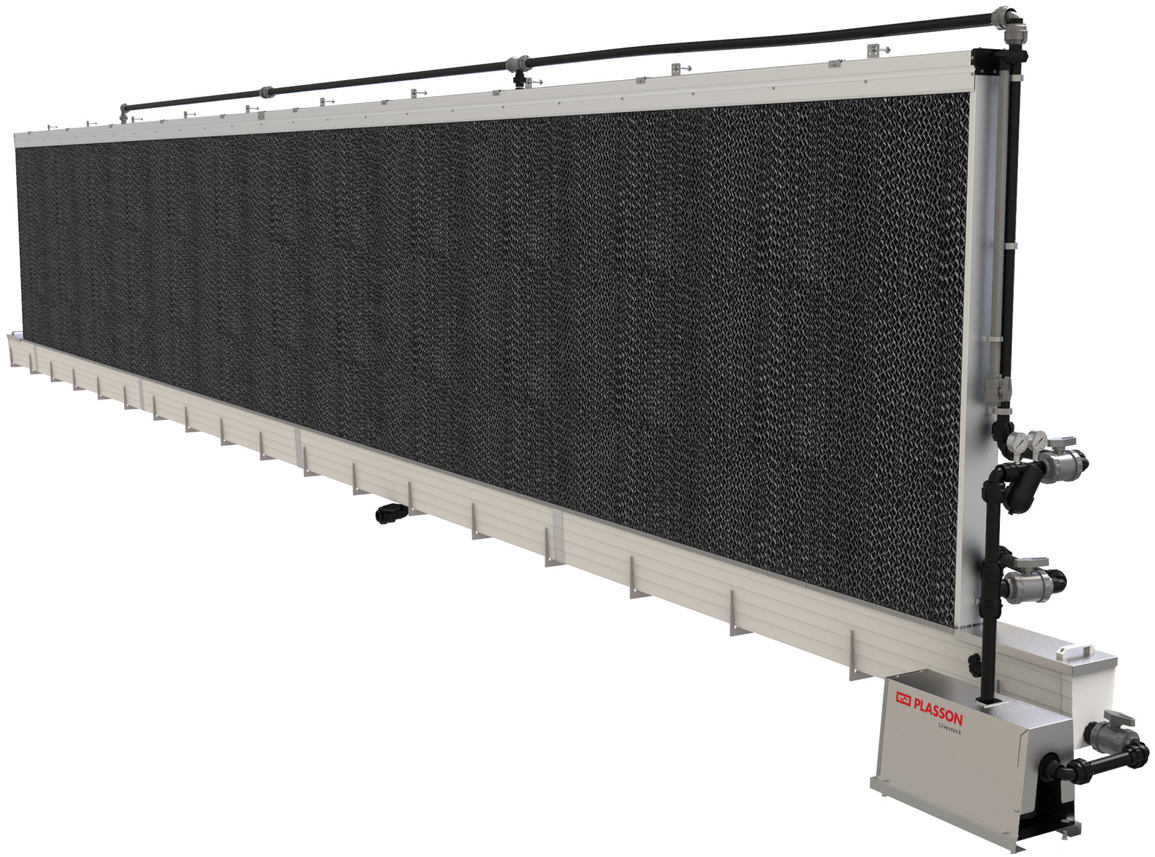
PLASSON®
Livestock



COOLING PAD
Installation and Operation Guide

Rev B | Doc P/N: 080205039E

Global Presence - Local Commitment

Feeding Drinking Climate Housing

Table Of Contents

1. Safety

This chapter contains an overview of the Cooling Pad safety concerns and includes:

- Safety Overview
- Safety Conventions
- Cautions and Warnings
- Storage, Transport, and Installation
- EMC Safety

1.1 Safety Overview

The Plasson cooling pad has been designed to meet all known safety requirements. During normal operation, the cooling pad presents no hazards to the operator or other personnel. However, in certain circumstances, the following potential hazards to operators and maintenance team personnel exist:

- Electrical shock (220 VAC)
- Mechanical hazards (moving parts, pinch points, etc.)
- Slipping hazard
- Heavy object hazard

The information and instructions presented in this document are intended to help personnel work with the cooling pad in a safe, effective, and efficient manner.

1.2 Safety Conventions

Safety information is presented as follows:

⚠ CAUTION

Caution is the signal word used to indicate a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used alert against unsafe practices.

⚠ WARNING

Warning is the signal word used to indicate a potentially hazardous situation which, if not avoided, could result in death or severe injury.

⚠ DANGER

Danger is the signal word used to indicate an imminently hazardous situation which, if not avoided, will result in death or severe injury. This signal word is limited to the most extreme situations.

1.3 Cautions and Warnings

The following instructions and guidelines are necessary to ensure safe operation and long system life. Before performing any work on the system, become familiar with the following safety sections:

1.3.1 General Safety Cautions

⚠ CAUTION

- Read the installation and operation instructions prior to installing or before servicing the system.
- Before working on the system, read all safety standards and instructions to avoid injury or damage to equipment or property.
- Electrical connections must be serviced by a qualified electrician, using certified components only, and according to local regulations and standards.
- Shut off the system before conducting system maintenance.
- Proper operation of the system is not guaranteed if unauthorized parts are used.
- Clean up spills and leaks immediately.
- In case of unusual or irregular noise or vibration, it is necessary to switch off the system.

⚠ CAUTION

- Follow Operation Instructions and Preventive Maintenance procedures to prevent mineral and scale build-up.
- Follow Operation Instructions and Preventive Maintenance procedures to prevent algae growth on wet surfaces.
- DO NOT use water containing chlorine as it will cause corrosion.
- DO NOT use water containing chlorides content higher than 200mg/l as it will cause corrosion.

1.3.2 General Warnings

⚠ WARNING

- **Hazardous Voltage:** Contact with electrical equipment can cause electric shock or burn if the power supply is turned on. Before starting any work on electrical equipment, disconnect the machine from the power socket.

1.4 Storage, Transport, and Installation

⚠ CAUTION

Storage safety:

- Ambient temperature must be between 5°C and 60°C.
- System must not be exposed to humidity, rain, condensation, dust, or direct sunlight during storage.

Transport safety:

- Move the system only when empty of water.
- Move the system using appropriate lifting equipment.
- Avoid heavy vibration during transport.

⚠ CAUTION

Installation safety:

- The operator is responsible for the equipment and must not allow unauthorized persons to use the system or be in its vicinity.
- Whenever you handle or repair the equipment, turn off the power supply first.
- Maintenance and repairs must be carried out by qualified technicians authorized by Plasson.
- Always use Plasson components when replacing any defective components.
- All electrical parts must be grounded and installed by a qualified electrician.
- Pay close attention to the safety symbols on the components, as carelessness can lead to serious injury and even death.

1.5 EMC Safety

All system components comply with IEC EN 61000-6-3, the emission standard for residential, commercial, and light industrial environments.

2. Introduction

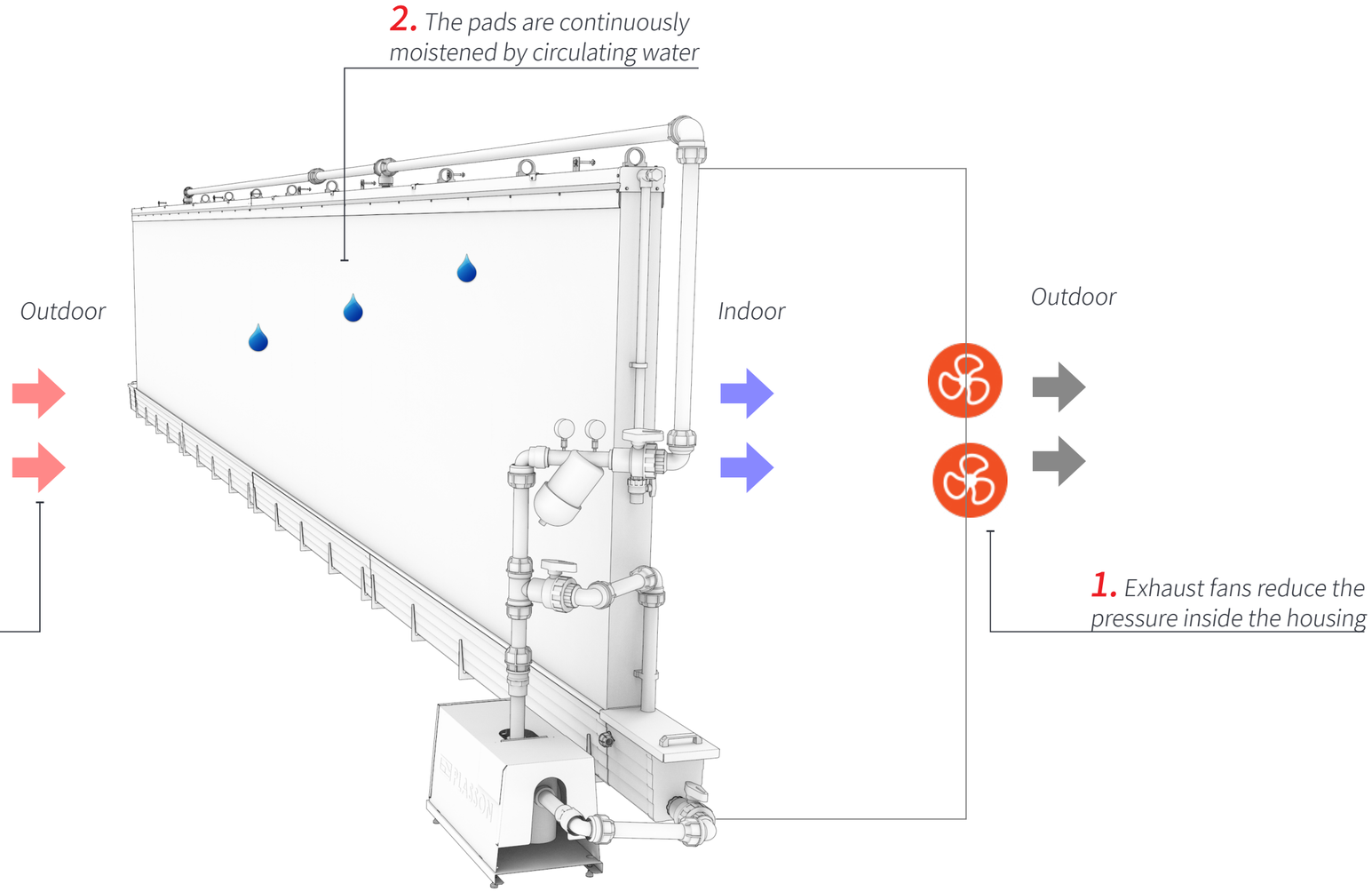
This chapter introduces the Cooling Pad system and includes:

- System Concept
- System Overview
- Water Circulation Subsystem
- Water Distribution Subsystem
- Frame and Pads
- Water Collection Subsystem
- Typical Installation Methods

⚠ CAUTION

The system must be installed by a trained and qualified personnel authorized by Plasson.

2.1 System Concept

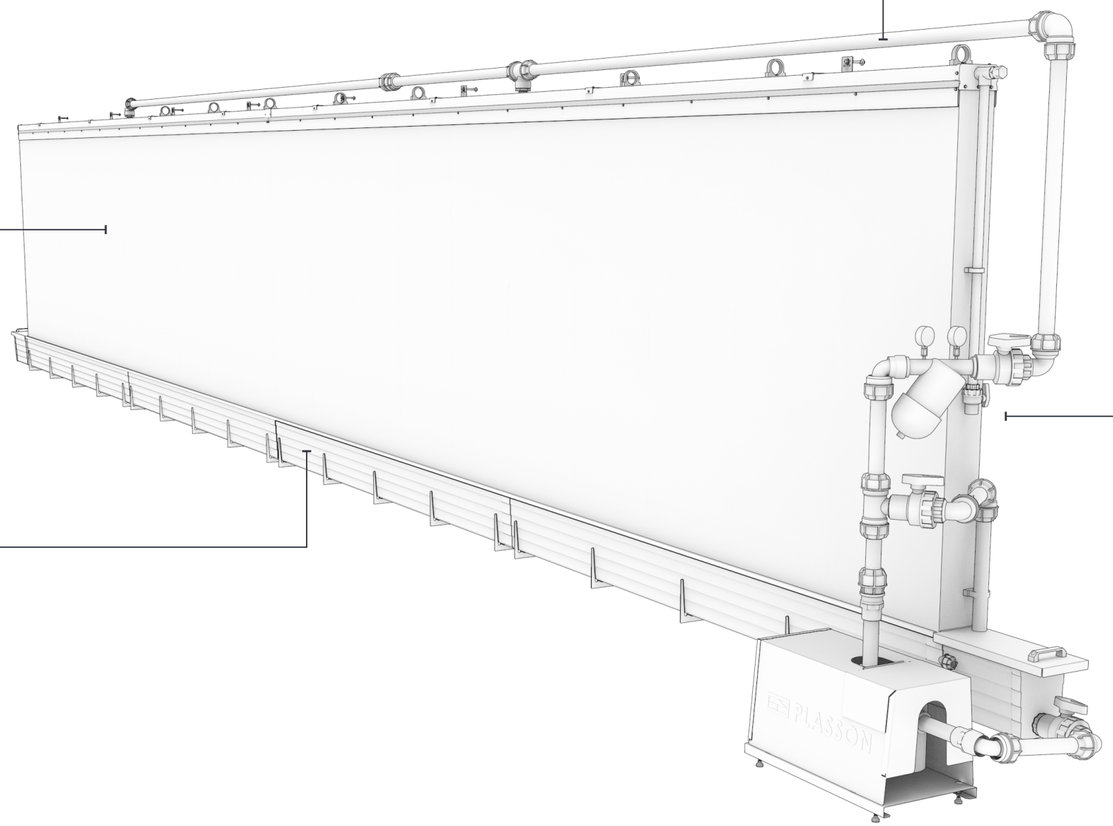


2.2 System Overview

The Plasson cooling pad consists of the following subsystems:

2. *Water Distribution Subsystem – distributes water evenly along the entire set of pads*

3. *Frame and Pads – enable evaporation of water via air forced to flow through the wet pads*



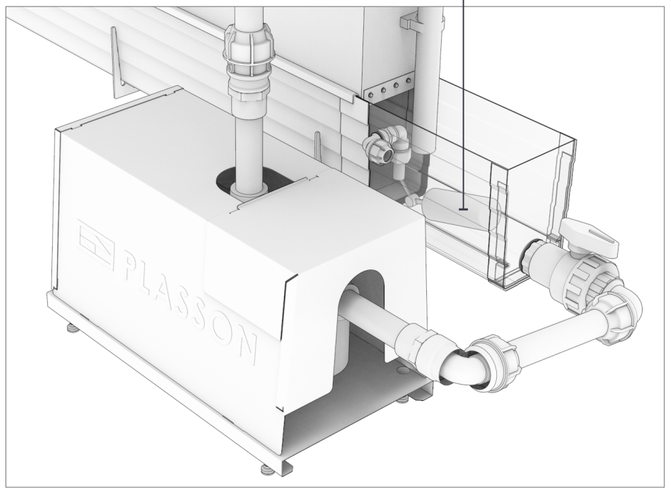
1. *Water Circulation Subsystem – pumps water from the reservoir to the cooling pads*

4. *Water Collection Subsystem – a reservoir collects water that has passed through the cooling pads*

2.3 Water Circulation Subsystem

The water circulation subsystem operates as follows:

A float valve controls water entry into the reservoir and maintains water level in the reservoir



The maintenance valve remains open during normal operation

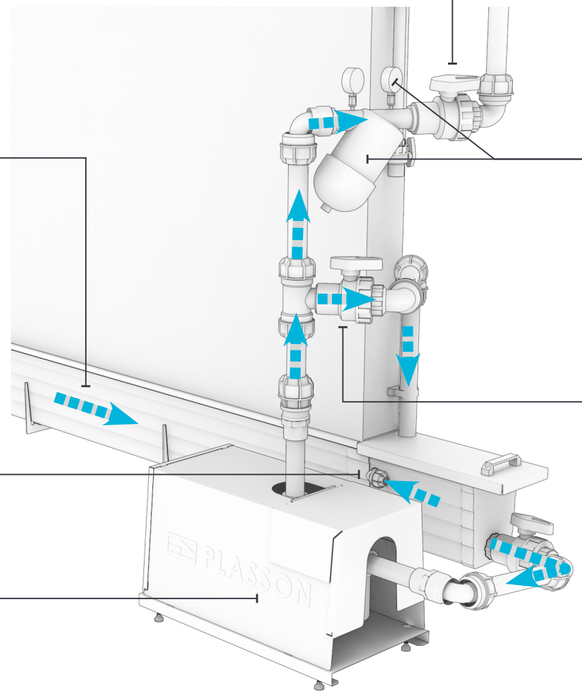
5. *Water returns to the pump from the water collection subsystem*

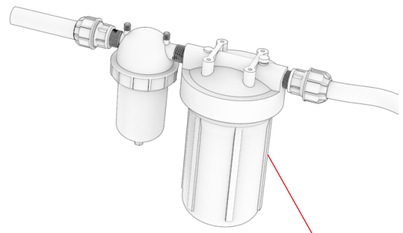
4. *Water is filtered before entering the water distribution subsystem. Pressure gauges indicate when the filter needs maintenance*

3. *A bypass valve allows water to flow back to the reservoir, thus regulating the amount of water which flows to the cooling pads*

1. *Water supply connects to the reservoir through a control float valve*

2. *Water is pumped out of the reservoir*





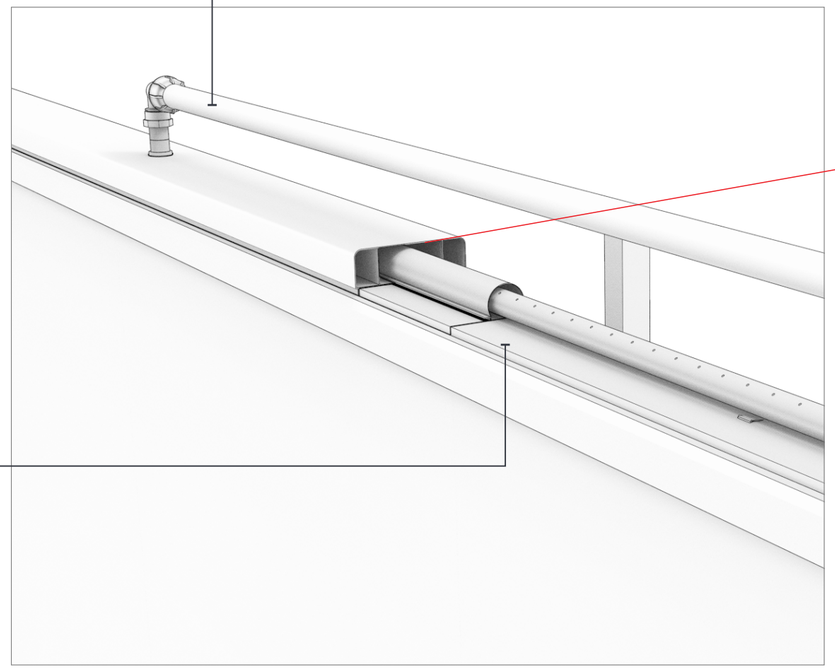
NOTE:

If needed, a hard water treatment filter and water filter can be installed on the water inlet pipe (not included)

2.4 Water Distribution Subsystem

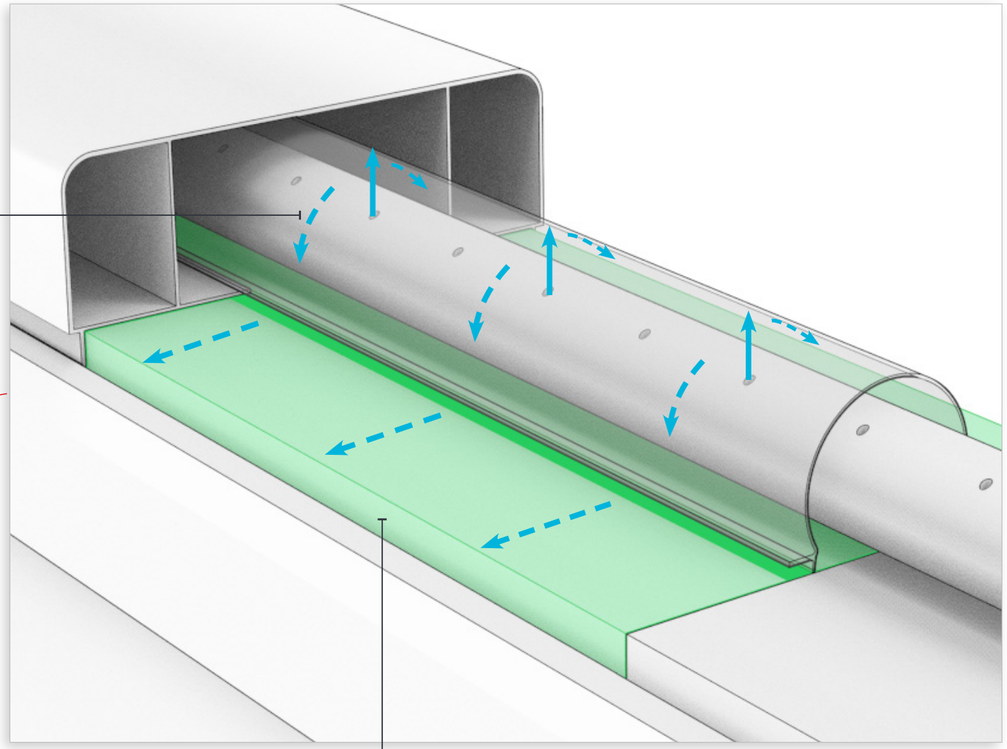
The water distribution subsystem operates as follows:

1. *Water is pumped to two points along the cooling pad system*



2. *Water is distributed along the entire length of the pads*

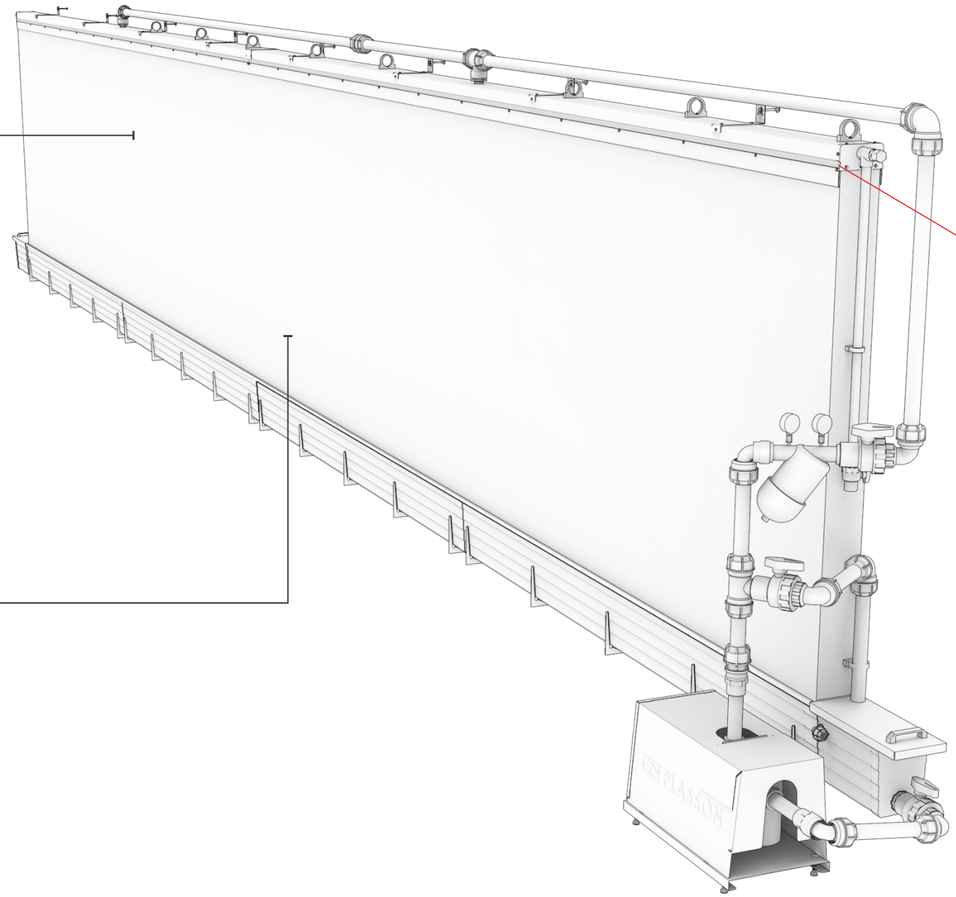
3. *Water under pressure sprays up through holes in the pipe, hitting the top cover and dripping onto the distribution pads*



4. *Distribution pads spread the water along the width of the cooling pads*

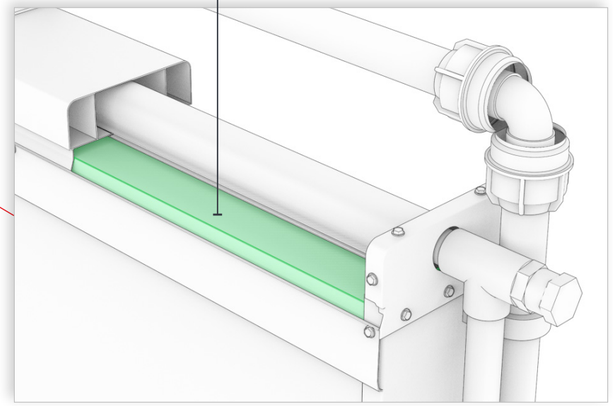
2.5 Frame and Pads

1. *The cooling pads are constructed of a specially formulated paper impregnated with insoluble resin. Pad structure maximizes evaporative efficiency while reducing air flow restriction*



2. *The pads are slid between a lower gutter and a top cover, and are supported by two side covers*

3. *The top layer of pads is used to spread the water evenly over the pads below*

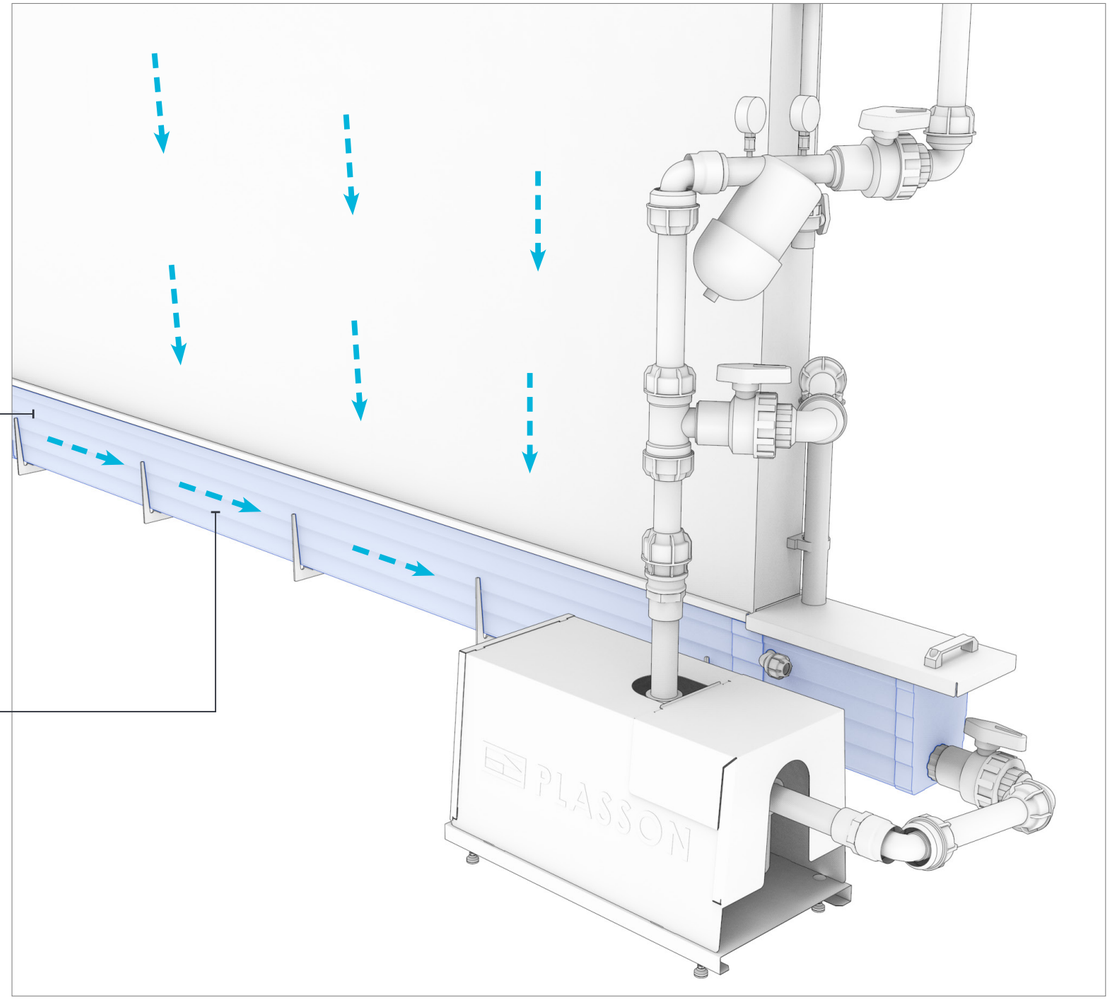


2.6 Water Collection Subsystem

The water collection subsystem operates as follows:

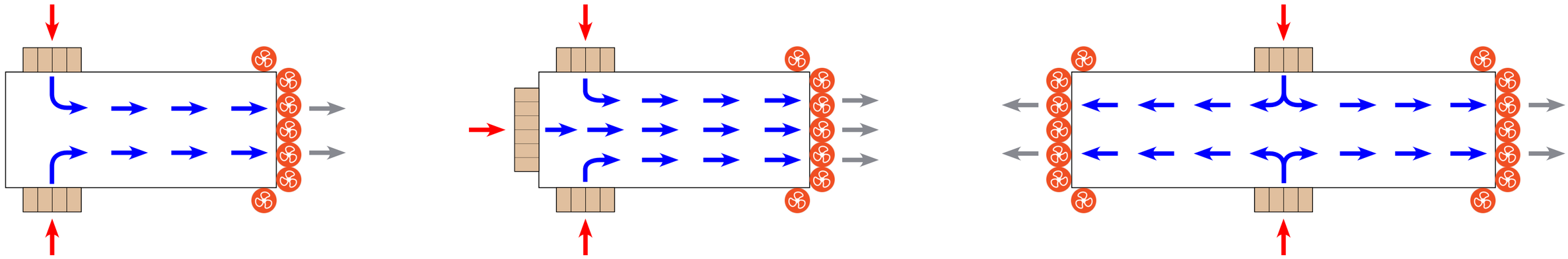
1. Water that has passed through the pads collects in a reservoir channel

2. The reservoir rests at a slight angle, allowing the water to flow back to the water circulation system



2.7 Typical Installation Methods

The following are typical methods for installing the cooling pads:



3. Installation

This chapter reviews the tasks associated with installing the cooling pad system and includes:

- Preparations for Installation
- System Unpacking
- Bill of Materials (BOM)
- Assembly Instructions
- Power and Control Connections
- Final Checkup
- Flushing the System

3.1 Preparations for Installation

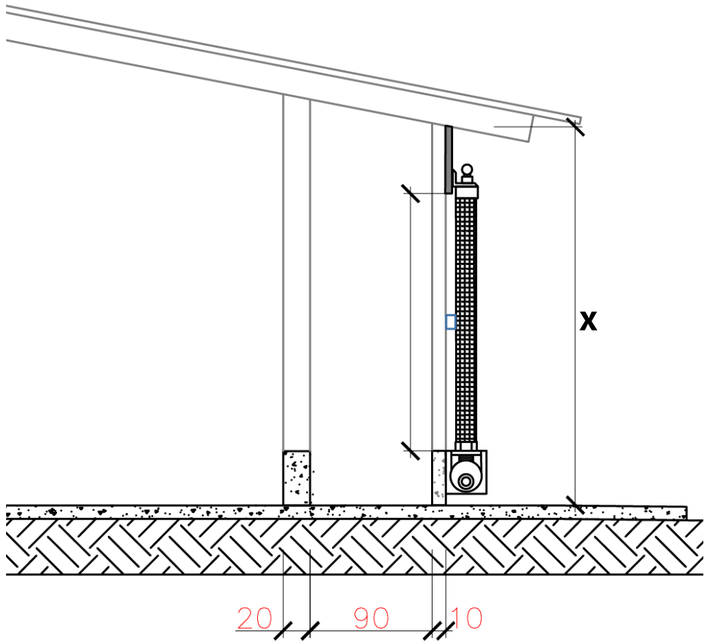
This chapter reviews the tasks associated with preparing the site for installation and includes:

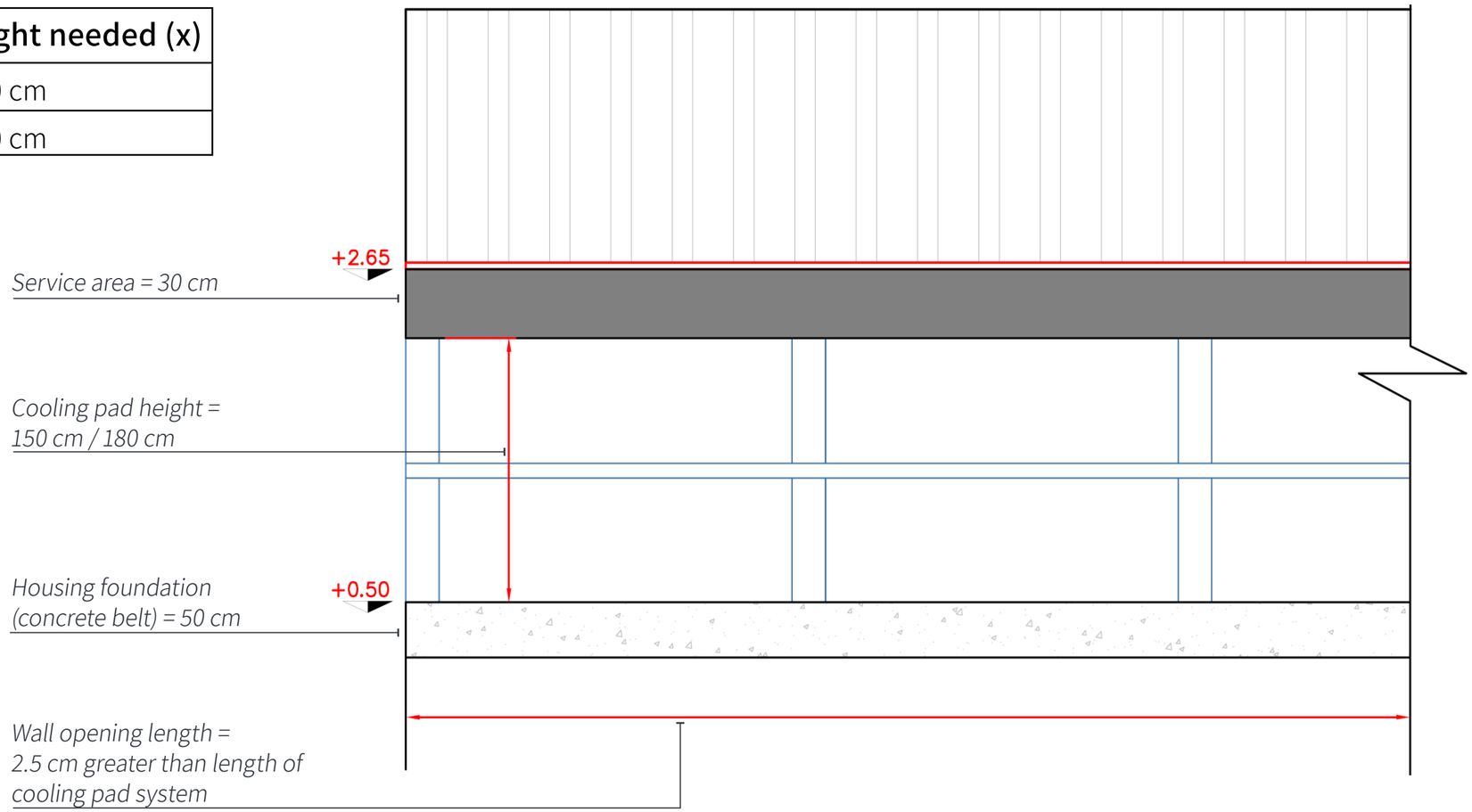
- Housing Preparation
- Required Supplies

3.1.1 Housing Preparation

Minimum height needed for cooling pad installation is as follows:

Cooling pad height	Minimum height needed (x)
180 cm	260 cm
150 cm	230 cm





3.1.2 Required Supplies

Water Supply

Water pressure must be between 1.5 and 2 bar for each cooling pad system.

NOTE:
If water pressure is above 2 bar, a pressure regulator must be installed (not included)

Water Quality

Water quality must conform to the following specifications:

- pH: 6 - 9

Electrical Supply

Single-phase 230V, 50Hz

Communication and Control

The cooling pad is controlled by the house controller (climate control system)

3.1.3 Required Tools

- Hammer drill (SDS) with the following bit diameters:
  - 8, 10
- Drill driver with the following bits:
  - SW-8 (5/16"), SW-13, Phillips
  - 19 mm, 35 mm, 44 mm, 51 mm
- Jigsaw
- Level
- Measuring tape
- Deburring tool with handle
- One of the following approved CPAD reservoir channel adhesives:
  - SMP Adhesive "EVO-STIK Sticks Like Adhesive", white, by Bostik. (Shore A 50-55, Tensile 1.5-1.8 MPA)
  - SMP Adhesive "EVO-STIK Seriously Strong Stuff Ultimate", white, by Bostik. (Shore A 50-55, Tensile 1.5-1.8 MPA)
  - SMP Adhesive "Seal N Flex 310", white, by Bostik. (Shore A 45, Tensile 2 MPA)
- Approved CPAD reservoir channel cleaning agent (ethanol C2H5OH 99.5%)

3.2 System Unpacking

Open the system package and verify that all the parts listed in the BOM are located in the package and are intact. If any part is missing or damaged, contact Plasson.

NOTE:
Unpack the system in a clean and dry area

3.3 Bill of Materials (BOM)

The following table displays the list of parts required to assemble a standard section of the cooling pad system:

NOTE:
Quantity is per 12 meters of cooling pad length

ID #	P/N	Description	QTY.
1	02386717	CPAD RESERVOIR CHANNEL SUPPORT	18(1)
2	02310516	DIN 933 M8X80 SCREW 10.9 ZINC PLATED	-- (1)(4)
3	02323099	DIN 934 M8 NUT ZINK PLATED	--(1)(4)
4	02386711	CPAD RESERVOIR CHANNEL END ABS	1
5	02386709	CPAD RESERVOIR CHANNEL PVC (3M)	5(1)
6	02386710	CPAD RESERVOIR CHANNEL COUPLER ABS	4(1)
7	02386712	CPAD PAD SUPPORT TRAY PVC (3M)	4(1)
8	050400032	TEE-CEMENT PVC 32	2
9	050302032010	ADAPTOR SOCKET M.F. 32-1" CEM-THR	2
10	051701010	THREADED PLUG PVC 1"	2
11	11350032	ONE NUT VALVE, CEMENTED 32MM	2
12	05000033	PVC CEMENTING PIPE 32MM - PN10 (M)	2.5
13	02386663	PVC PIPE 32MM PERFORATED FOR COOL PADS	4
14	050402032010	TEE THR-CEM PVC 32-1"	2
15	02386101	GUTTER FOR COOL PADS AL. 150MM 1.4MM (6M)	2(1)
16	02386107	GUTTER JOINTS FOR COOL PADS AL. FRAME 150MM	1(1)
17	02386114	COOLING PAD SIDE END CORNER	2
18	02386106	UPPER HOOD FOR COOL PADS 150MM (6M)	4(1)
19	02386668	PERFORATED PIPE OMEGA WATER DIFFUSER (3M)	4(1)
20	02386105	LATERAL CLOSING FOR COOL PADS (2M)	2
21	02382004	CPAD COATED PAD H1800XL600XW150MM 45X15DEG	20(3)
22	02386111	DISTRIBUTION PAD L600XH30XW150MM	20
23	02386713	CPAD MAINTENANCE LID SS	2
24	02386715	CPAD CLEANING HOLE D.80 ABS	1
25	02386716	CPAD CLEANING HOLE PLUG D.80 ABS	1
26	02386708	CPAD SIDE FRAME LOWER FIXATION	2
27	02386257	LEVEL VALVE FV34 - 180 - PP350MTP	1

ID #	P/N	Description	QTY.
28	148500025007	L.14 90° ELBOW MALE ADAPTOR (SILVER) 25-3/4"	1
29	140500050	L.14 90° ELBOW (SILVER) 50-50	3
30	148500050020	L.14 90° ELBOW MALE ADAPTOR (SILVER) 50-2"	3
31	050605020010	REDUCING NIPPLE 2"-1"	2
32	32117050IS	PIPE SDR17 SIZE 50	11 (2)
33	148400050020	L.14 TEE MALE ADAPTOR (SILVER) 50-2"-50	1
34	141500050020	L.14 90° ELBOW FEMALE ADAPTOR (SILVER) 50-2"	3
35	02386736	CPAD SILEN 100 PUMP SET CPAD FCP PUMP SET	1
36	140300050020	L.14 FEMALE ADAPTOR (SILVER) 50-2"	1
37	02386727	CPAD CHANNEL END WITH CLEANING HOLE	1
38	02386724	CPAD AZUD MODULAR 100 DISK FILTER 130 MICRON BSP 2" W/CAP	1
39	02205150	THREADED SOCKET 1/4" - 12010304048	2
40	02205756	PRESSURE GAUGE 0-1.0 BAR W/ GLYCERIN	2
41	0516B9020	TANK OUTLET CONNECTOR 2"B	2
42	02386714	CPAD RAINCOVER FOR PUMP	1
43	02386721	CPAD SIDE RAIN COVER FOR PUMP	1
44	02320070	DIN 9021 - M8 LARGE WASHER SS	-- (4)
45	02386667	COOLING PAD PERFORATED PIPE SUPPORT	25 (1)
46	02382466	DIN7504K SELF DRILLING SCREW 4.8X19MM (#10X3/4") GALV.	-- (1)
47	02386720	CPAD TOP BRACKET 175MM	10 (1)

ID #	P/N	Description	QTY.
48	02370666	PLSNST HANDLE	2
49	051507007	90° THREADED ELBOW MALE-FEMALE 3/4"-3/4"	1
50	148400040010	90° TEE WITH THREADED MALE OFFTAKE, D.40XR1"XD.40	1
51	02323212	DIN 965 ZINC PLATED M6X25 SCREW	--
52	02323068	DIN985 M6 NUT ZINK PLATED	--
53	11351020	ONE NUT VALVE, THREADED, G2"XG2"	3
54	02310147	SELF DRILLING SCREW 1/4"-1" W/ WASHER	-- (1)(4)
55	02386722	CPAD PUMP RAIN COVER BASE	1
56	02386723	CPAD PUMP REAR COVER	1
57	02320081	DIN 7985 M6 X 10 SCREW A2 (SS)	--
58	02910024	SWIVEL LEVELING MOUNT, ZINC-PLATED WITH CUSHION M8X32	-- (4)
59	140100050	L.14 COUPLER (SILVER) 50	2 (2)
60	050507020	THREADED ELBOW 2"-2"	1
61	11361020	ONE NUT VALVE, MALE-FEMALE THREADED, 2"X2"	1
62	050107007	THREADED SOCKET, RP3/4"XRP3/4"	1
63	05002032	PVC PIPE HOLDER 32	2
64	05002050	PVC PIPE HOLDER 50	--(1)
65	02320066	DIN 933 M10X25 SCREW ZINK PLATED	--
66	02310061	DIN 125 A10.5 FLAT WASHER, ZINK PLATED	--
67	02324137	DIN 985 M10 NUT ZINK PLATED	--

ID #	P/N	Description	QTY.
68	02323070	DIN 125 A8.4 FLAT WASHER, ZINK PLATED	--
69	02323099	DIN 934 M8 NUT ZINK PLATED	--
70	02910025	HEX HEAD SLEEVE EXPANSION ANCHOR M-8X60 (D.10) SS	-- (1)
71	02910026	CONCRETE WEDGE (EXPANSION) ANCHOR M8X90 SS	--
72	02386737	CPAD PVC CEMENTING PIPE 50MM X 0.2M PN10	2
73	050602063020	NIPPLE THR-CEM PVC 63(50)2"	2

(1) Quantity is per every 3 meters of cooling pad width

(2) Quantity is per every 5 meters of cooling pad width

(3) Cooling pads come with or without coating, at a height of 150 or 180 cm, and with a flute angle of 45/15 or 45/45

(4) Interchangeable parts, depend on site installation requirements

3.4 Assembly Instructions

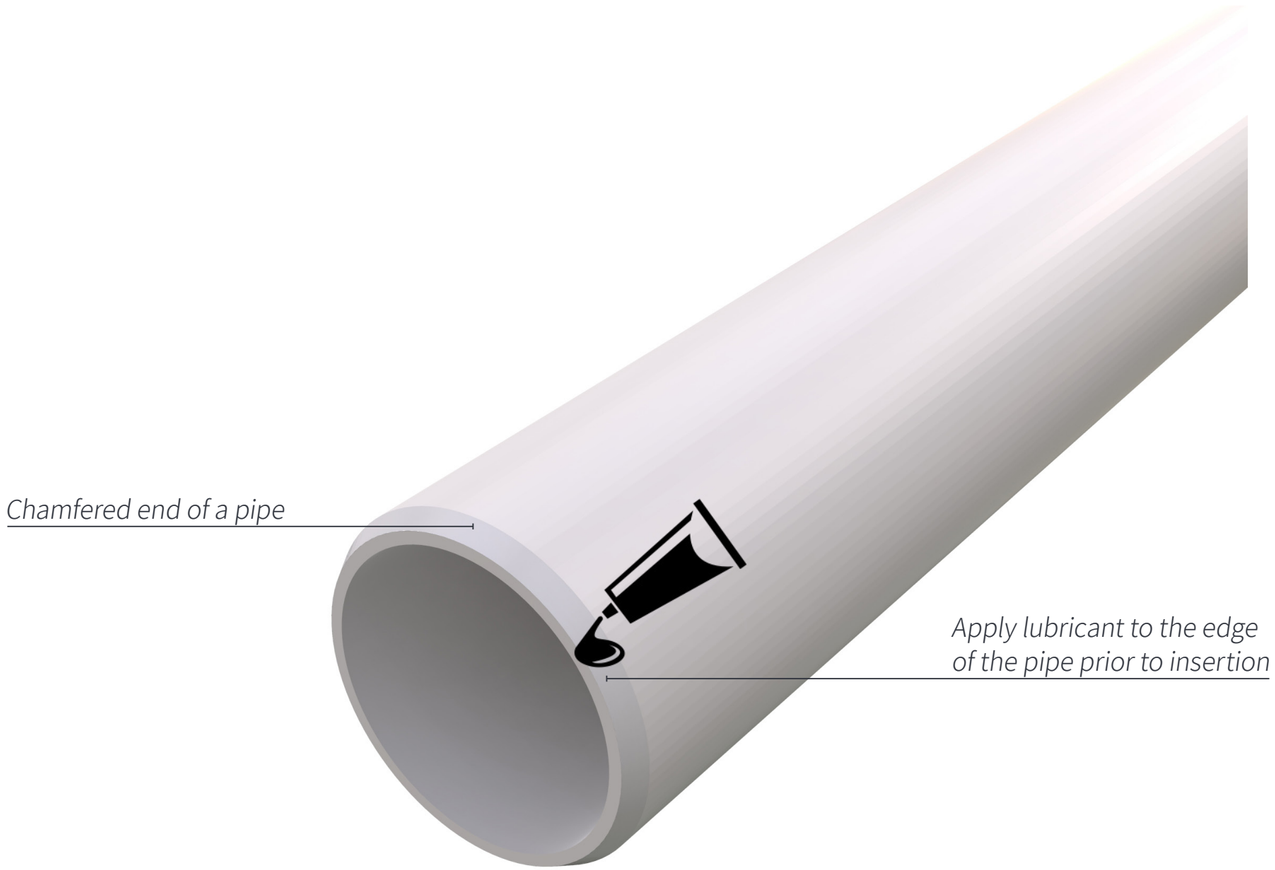
This section reviews the steps required to assemble the system, and includes:

3.4.1 General Assembly Instructions

The following general assembly instructions are utilized at various points during the cooling pad system assembly:

- Chamfering and Lubricating PE Pipes
- Applying Teflon Tape to Threads
- Gluing PVC Pipes

Chamfering and Lubricating PE Pipes

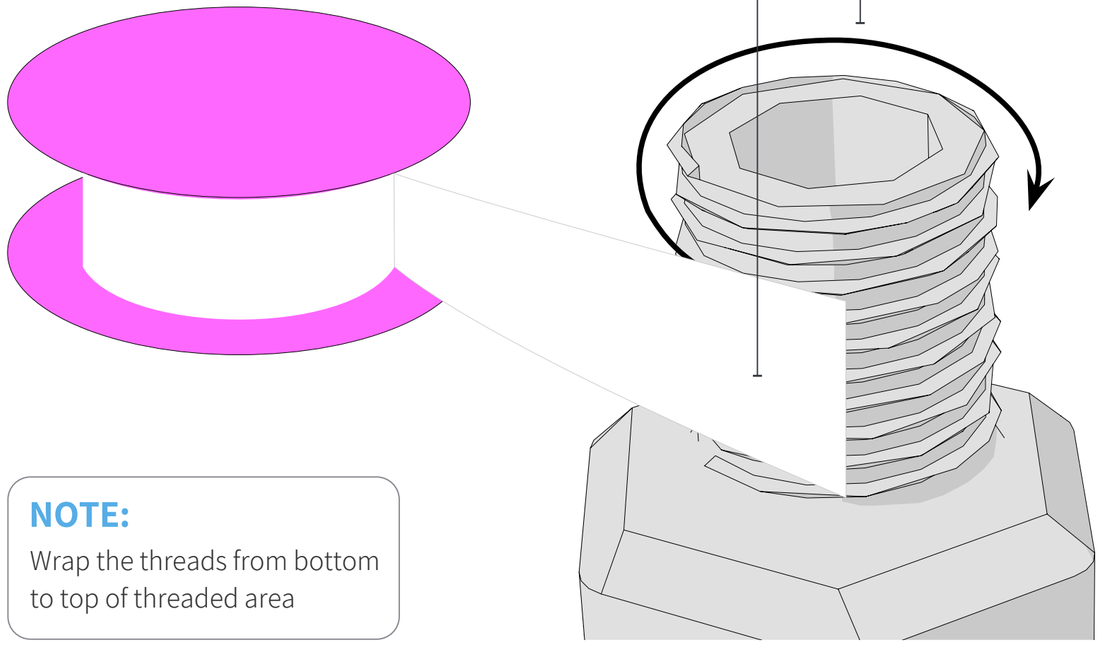


Applying Teflon Tape to Threads

To apply teflon tape to threaded areas, first clean the threads.
Then do the following:

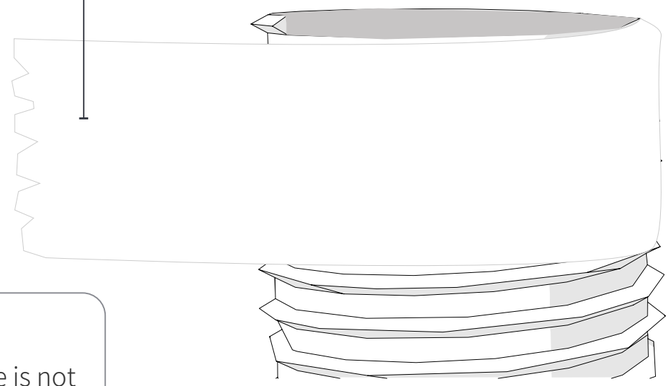
1. *Place the end of the tape flat over the threaded area*

2. *Maintain tension on the tape and wrap it around the threads 15-20 times in the clockwise direction as shown*



NOTE:
Wrap the threads from bottom to top of threaded area

3. *Tear the tape from the roll and smooth the loose end over the threads*



NOTE:
Ensure that the tape is not blocking the pipe opening

Gluing PVC Pipes

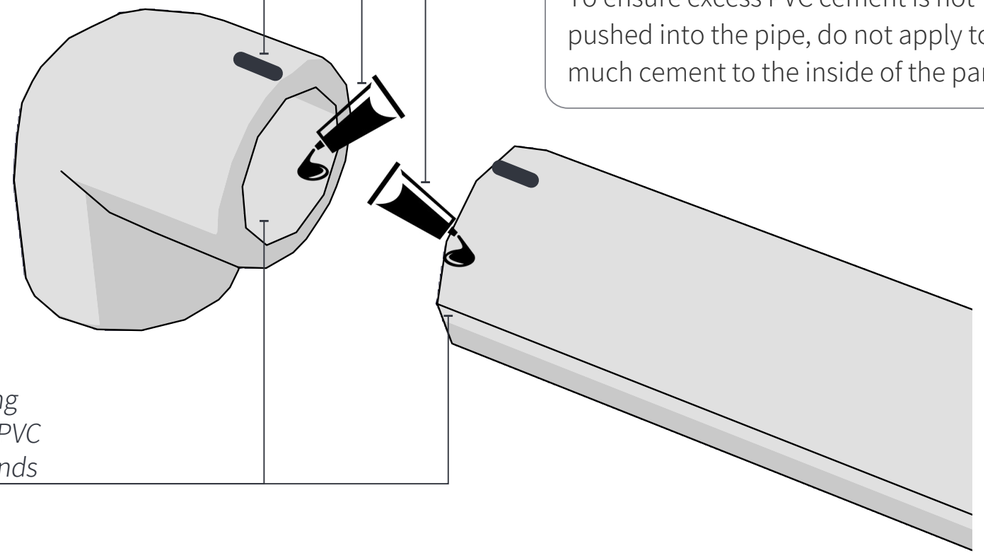
To ensure a proper leak-proof connection between a pipe and fitting, first cut the pipe to length and sand off the saw burrs. Then do the following:

1. *Make marks on the pipe and fitting to ensure correct orientation during insertion*

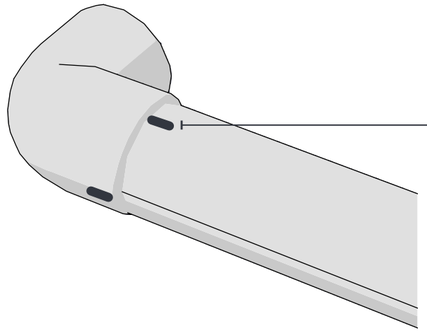
NOTE:
Make sure mark is long enough to still be visible after fitting is assembled

3. *Apply an even layer of PVC cement to both of the parts being attached*

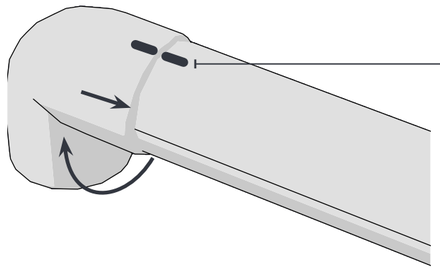
NOTE:
To ensure excess PVC cement is not pushed into the pipe, do not apply too much cement to the inside of the part



2. *Wipe the inside of the fitting and outside of the pipe using PVC primer, and let dry for 10 seconds*



4. *Insert the pipe into the fitting about a quarter turn from its final orientation*



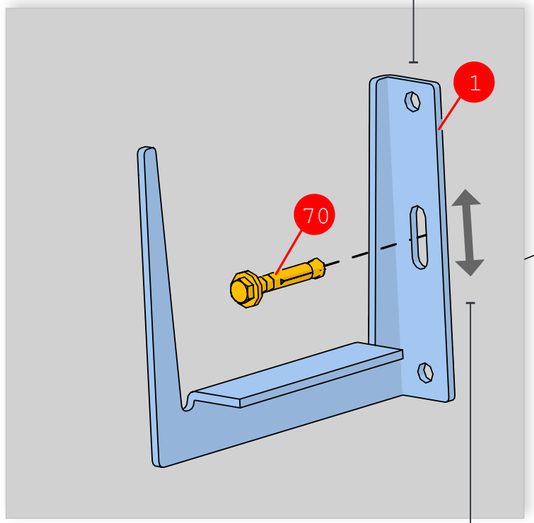
5. *Twist the fitting to its correct orientation while pushing it onto the pipe*

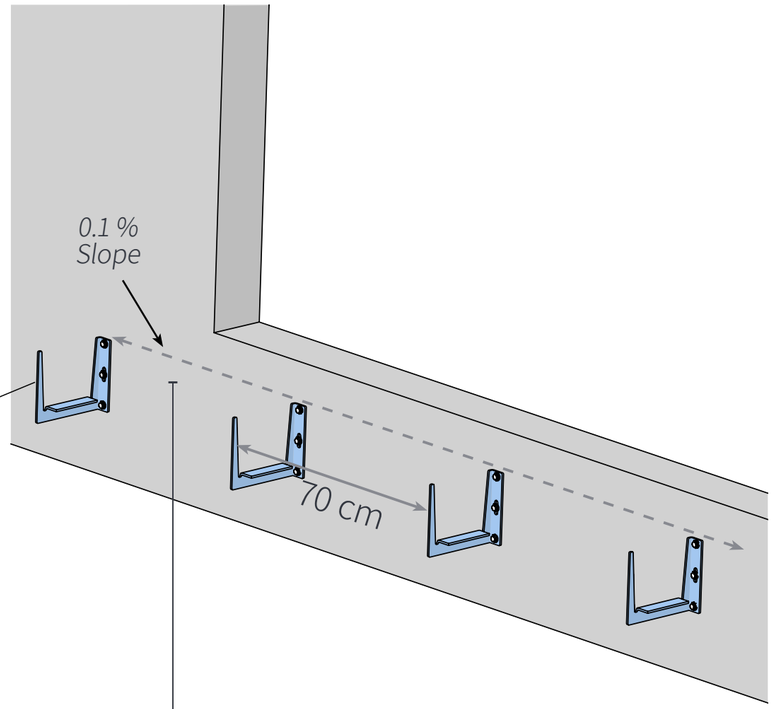
NOTE:
Steps 4-6 should be done quickly, before the cement dries

6. *Hold the pipe and fitting together for 15 seconds to ensure a proper seal*

Step 1: Installing the Reservoir Channel Supports

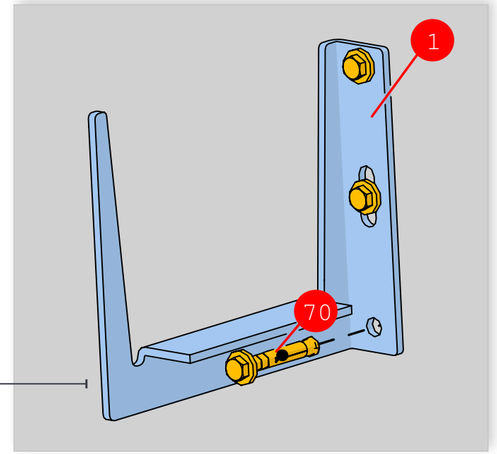
1. *Attach the reservoir channel supports (1) using one anchor (70) through the center slot*





2. *Adjust the channel supports vertically to achieve a 0.1% slope towards the pump*

3. *Drill and insert two anchors through the upper and lower holes of the reservoir channel support to fully secure it*

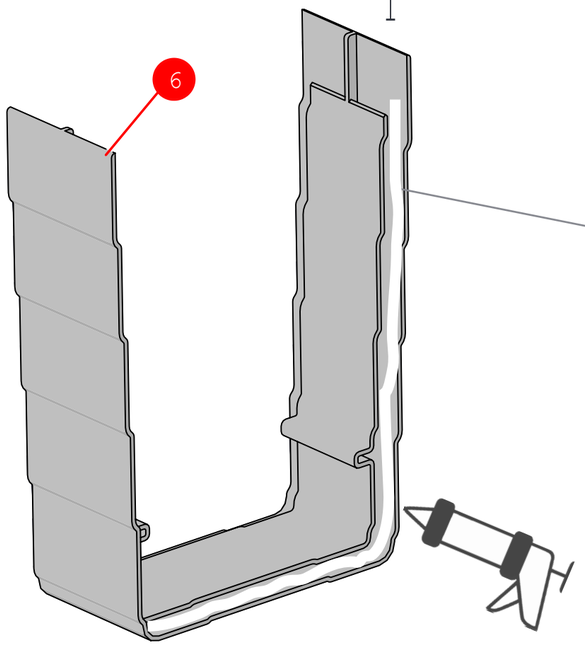


NOTES:

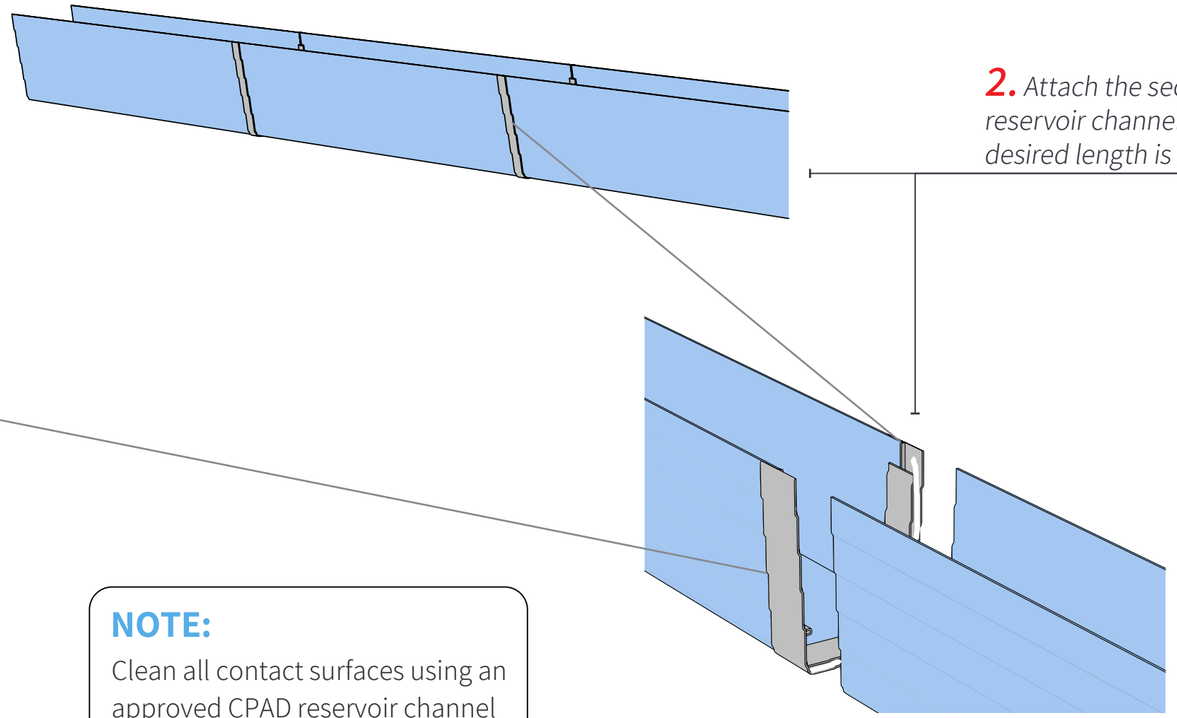
- When a metal frame is used, the system is supplied with M8 hex head screws, washers, and nuts instead of anchors
- This step, and the parts used to mount the reservoir channel, may vary according to the final prepared structure

Step 2: Assembling the Reservoir Channel

1. Fill the contact grooves of the reservoir channel couplers (6) with adhesive

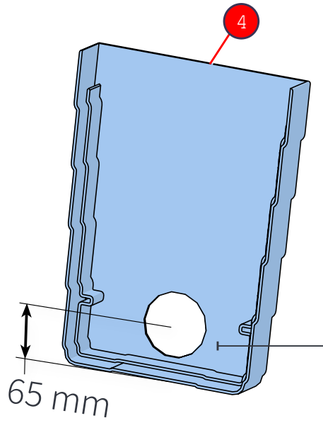


2. Attach the sections of the reservoir channel until the desired length is reached

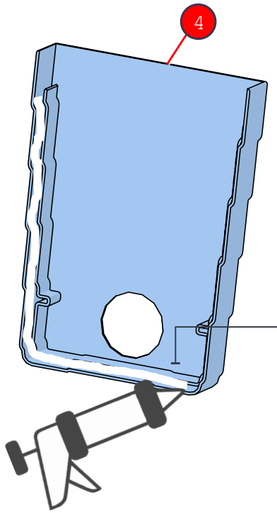


NOTE:

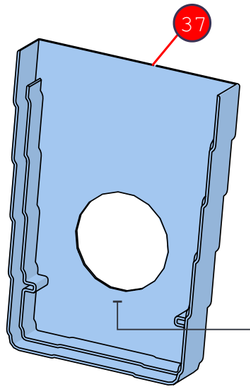
Clean all contact surfaces using an approved CPAD reservoir channel cleaning agent (ethanol C2H5OH 99.5%) prior to applying adhesive.



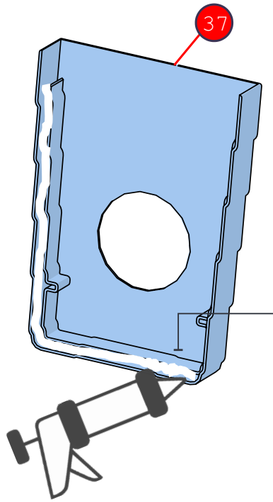
3. *Drill a 51 mm hole in the reservoir channel end (4) that is placed on the pump side of the channel*



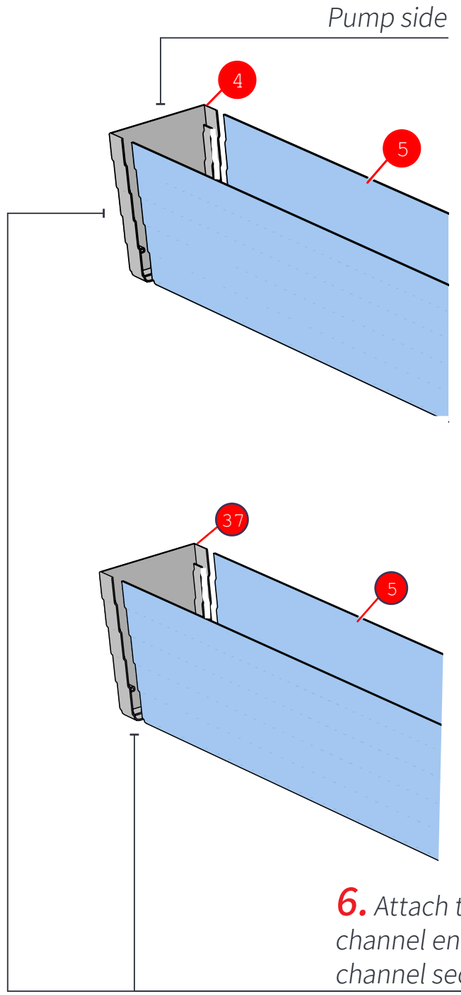
4. *Fill the contact grooves with adhesive*



5. *Verify the prefabricated hole of the reservoir channel end (37) that is placed on the other side of the channel is free of burrs*

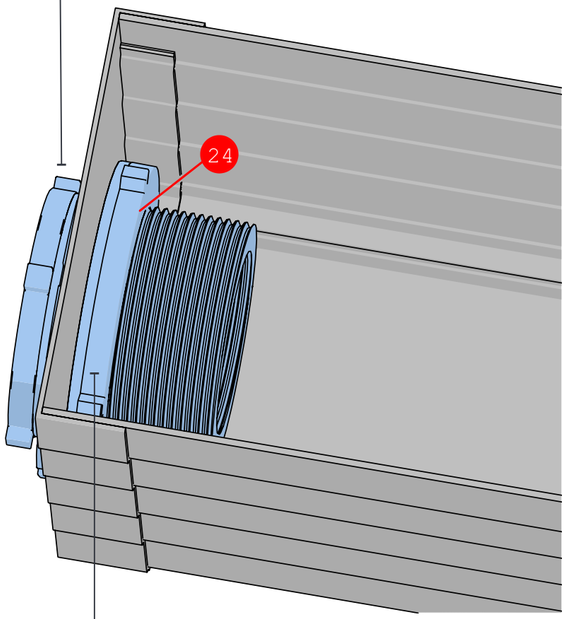


6. *Fill the contact grooves with adhesive*



6. *Attach the two reservoir channel ends (4, 37) to two channel sections (5)*

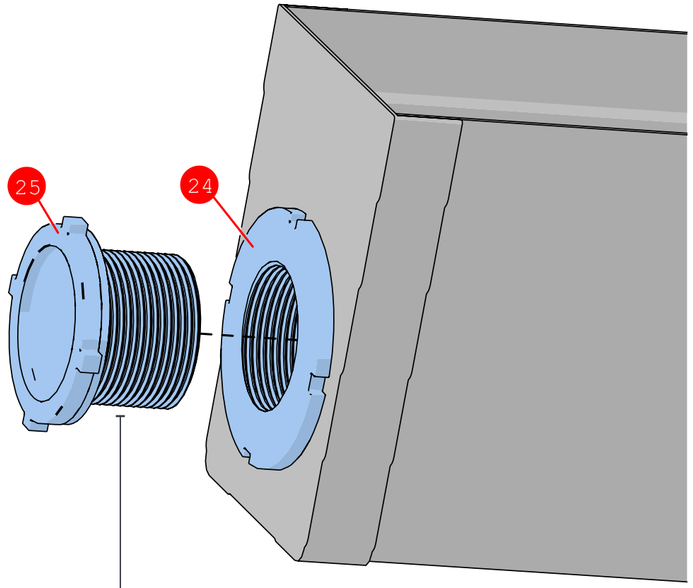
7. Insert the cleaning hole sleeve (24) into the 110 mm hole on the reservoir channel end



8. Thread the closing nut onto the cleaning hole sleeve

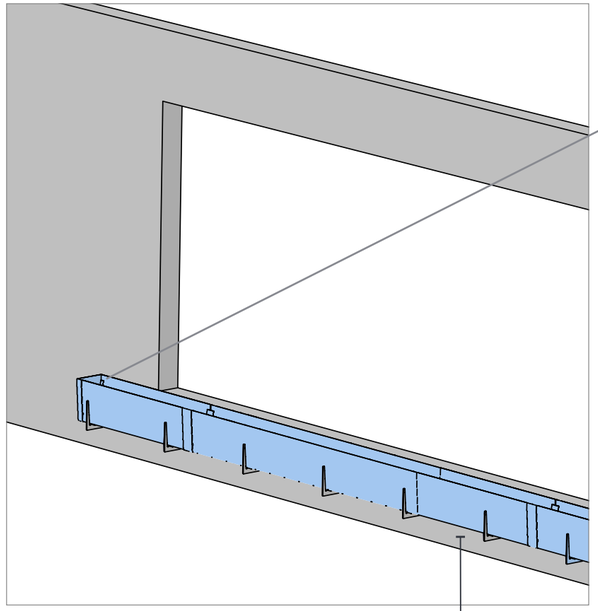
NOTE:

Verify the sealing washer is located on the inside of the reservoir channel

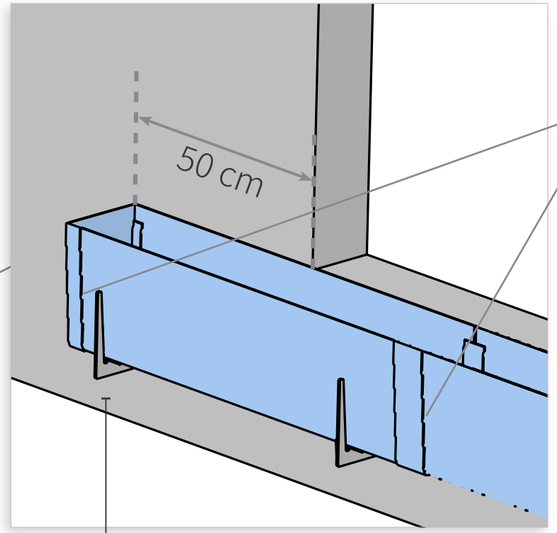


9. Thread the cleaning hole plug (25) into the cleaning hole sleeve

Step 3: Assembling the Drainage Pipe

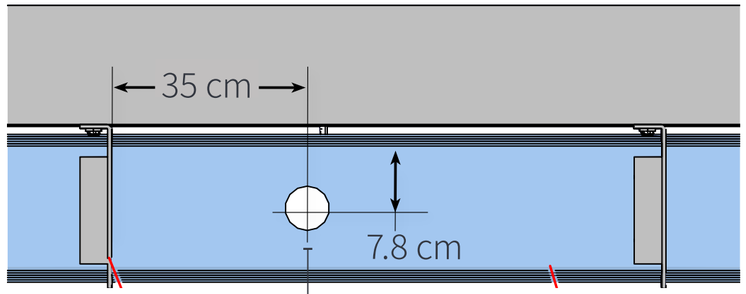


1. Lay the assembled reservoir on the channel supports



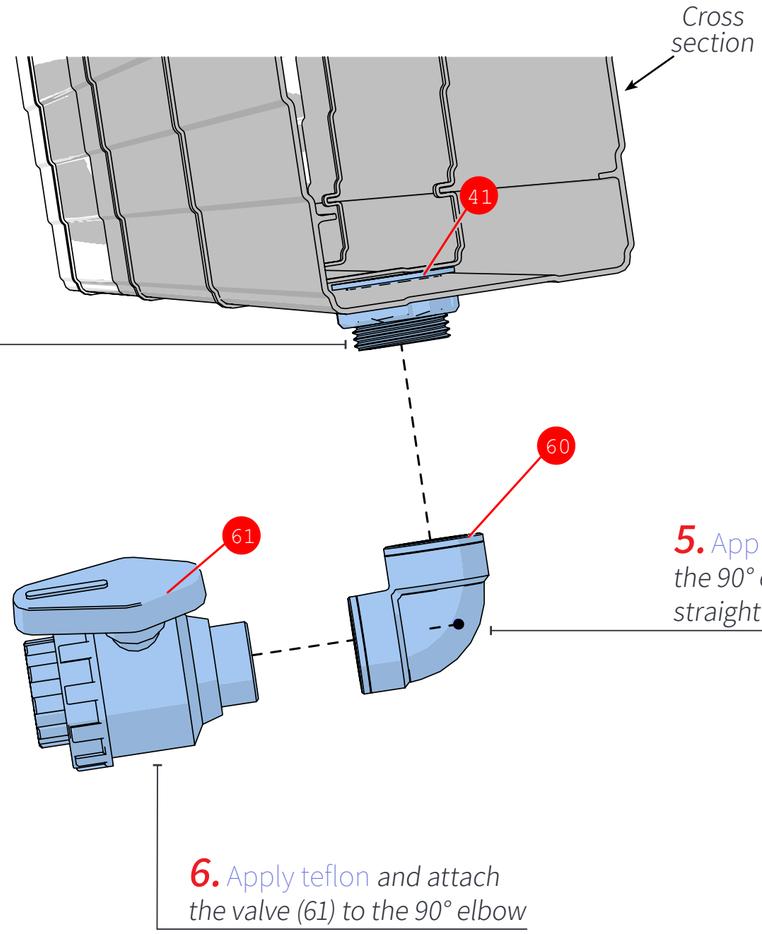
2. Verify that the end of the reservoir is 50 cm away from the opening of the wall on each side

NOTE:
Reservoir channel couplers and reservoir channel ends should not be placed directly on a reservoir channel support



3. Drill a 51 mm hole in the bottom of the reservoir channel

NOTE:
Verify that the bottom hole is not obstructed by the reservoir supports and is located at the lowest point of the reservoir



4. Apply teflon , *insert the straight adaptor (41) into the hole, and secure it with the closing nut*

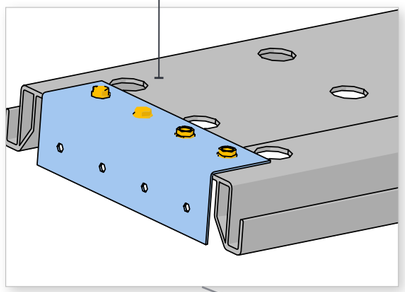
NOTE:
Verify the sealing washer is located on the inside of the reservoir channel

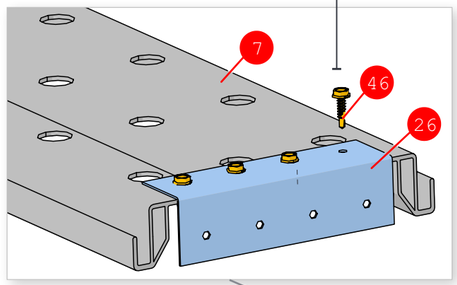
5. Apply teflon *and attach the 90° elbow (60) to the straight adaptor*

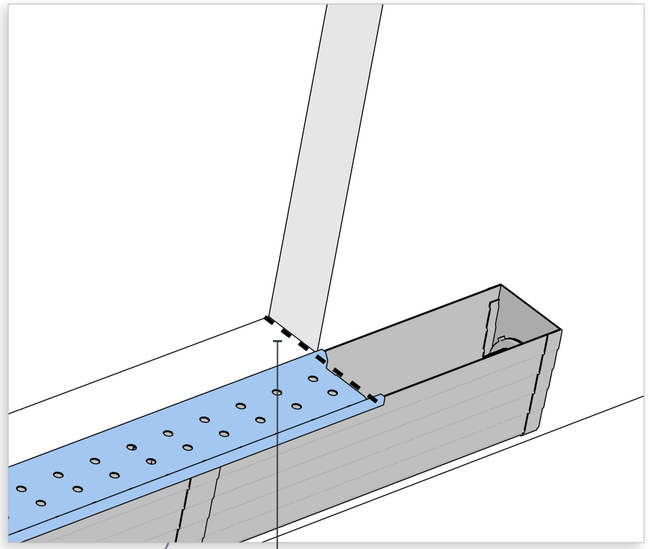
6. Apply teflon *and attach the valve (61) to the 90° elbow*

Step 4: Placing the Support Trays

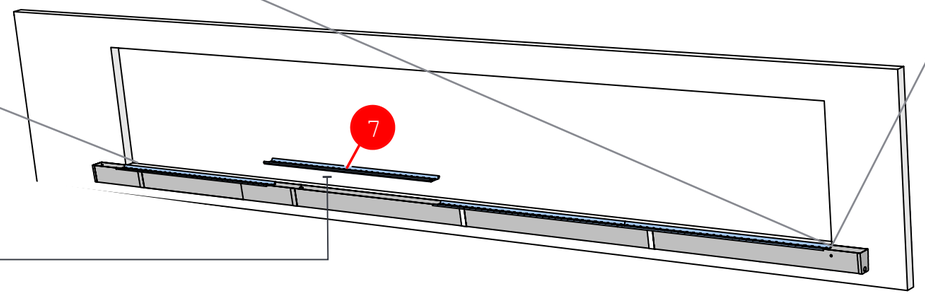
1. *Connect CPAD side frame lower fixations (26) to two end support trays (7) using self-drilling screws (46)*





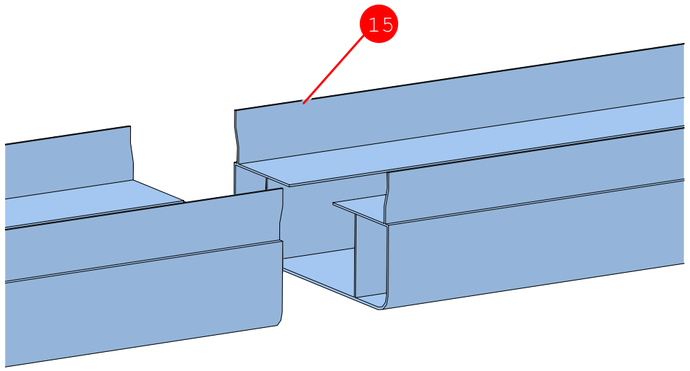


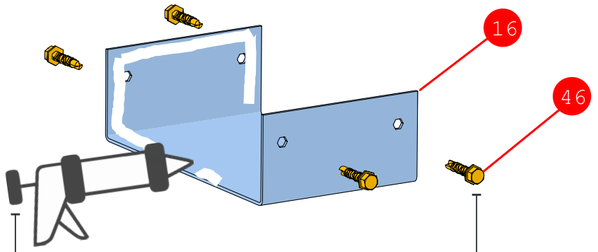
3. *Verify that the end of the support tray is aligned with the edge of the wall opening*



2. *Place the support trays (7) on the reservoir channel*

Step 5: Preparing Upper Frame

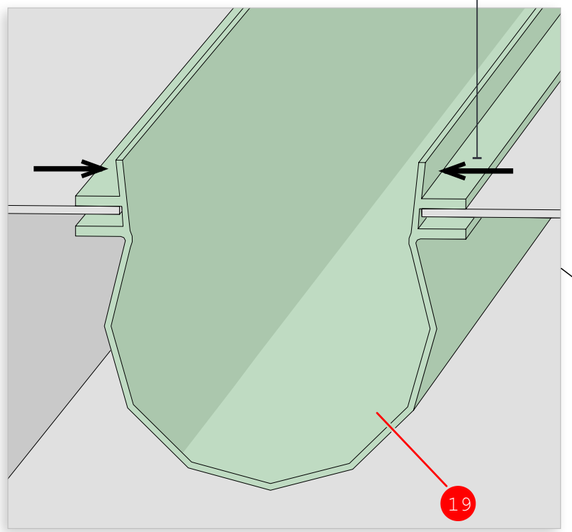


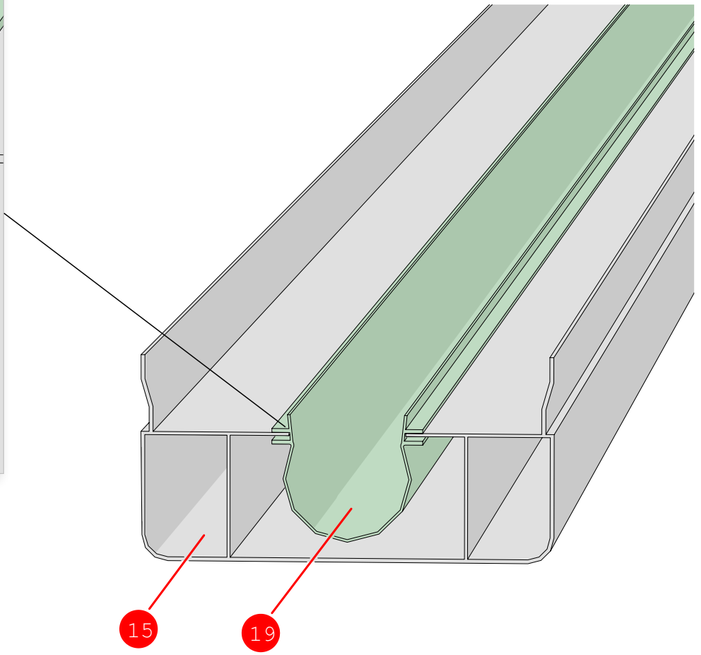


1. *Apply RTV silicone onto the inner surface of the gutter joints (16)*

2. *Connect two gutter sections (15) together using a gutter joint, and attach using self-drilling screws (46)*

3. *Push the edges of the diffuser (19) inwards, place the diffuser into the gutter, and release the edges so that they insert into the gutter edges*



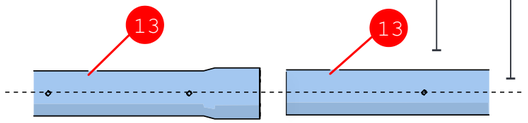


NOTE:
To facilitate assembly, the parts in steps 5 and 6 are placed upside-down

Step 6: Preparing the Perforated Pipe

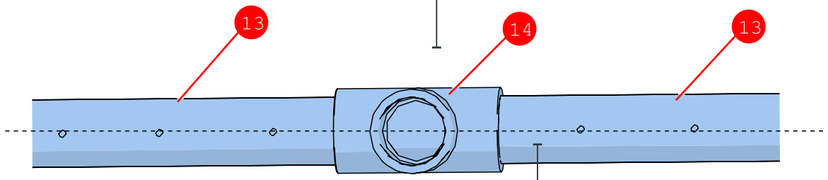
1. *Apply glue and connect perforated pipe sections (13) together until the desired length is achieved (see Note below)*

Verify that the holes are facing the same direction



NOTE:
The pipe consists of sections connected by T-connectors at 1/4 and 3/4 distance of the full cooling pad length. The pipe overhangs by 25 mm on both sides of the system

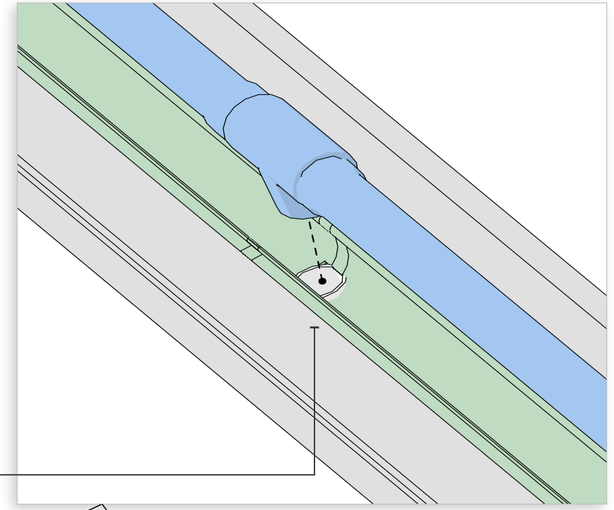
2. *Cut the end of the perforated pipes (13), apply glue , and connect together using a T-connector (14)*



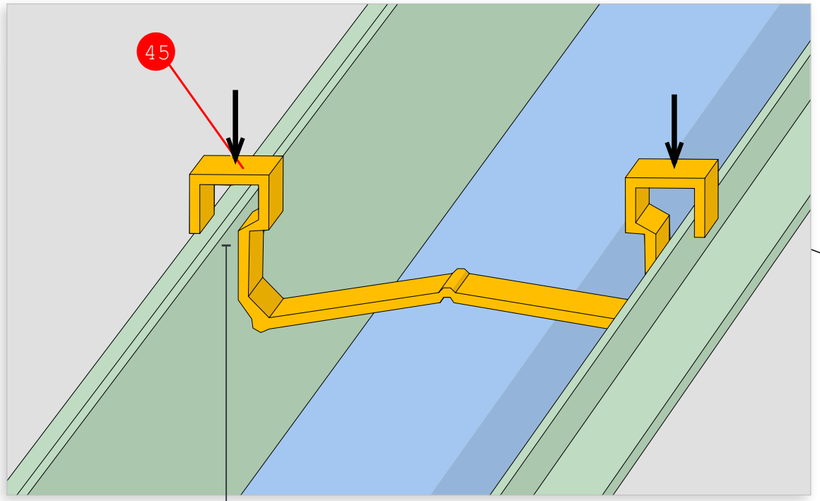
Verify that the holes in the perforated pipes face the same direction as the top of the T-connector

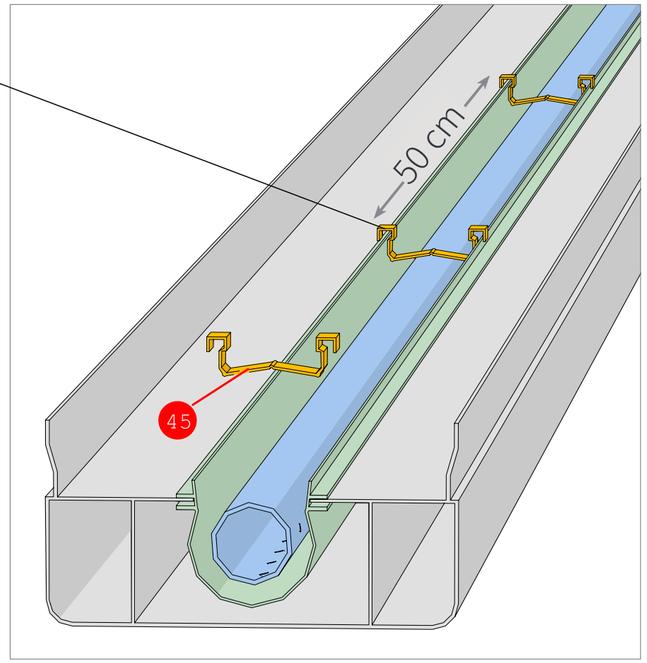
3. *Drill 35 mm holes into the diffuser and gutter in two locations*

NOTE:
The two holes are drilled at 1/4 length and 3/4 length of the cooling pad system



4. *Place the perforated pipe into the diffuser, ensuring the T-connectors are fully inserted into the diffuser and gutter holes*

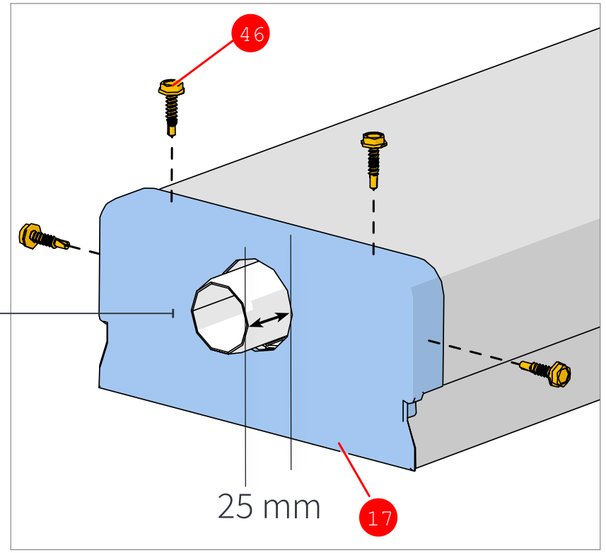




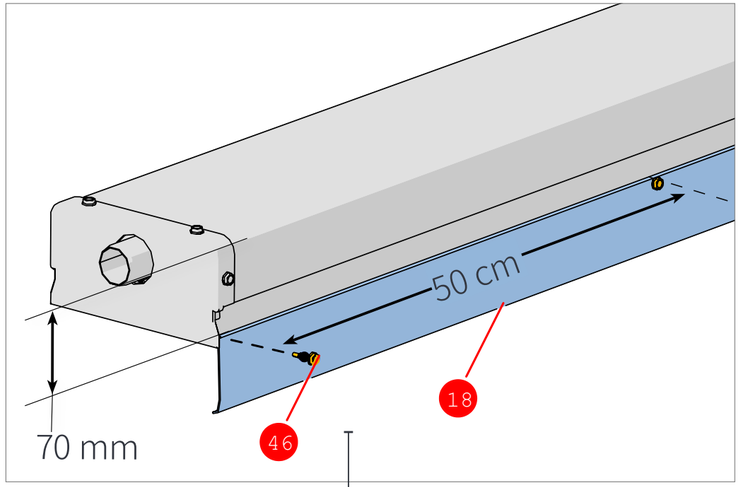
5. *Snap pipe supports (45) onto the diffuser edges every 50 cm to hold the perforated pipes in place*

Step 7: Mounting Upper Frame

1. *Drill a 35 mm hole into the cooling pad side end corner (17) and attach it to end of the gutter using self-drilling screws (46)*



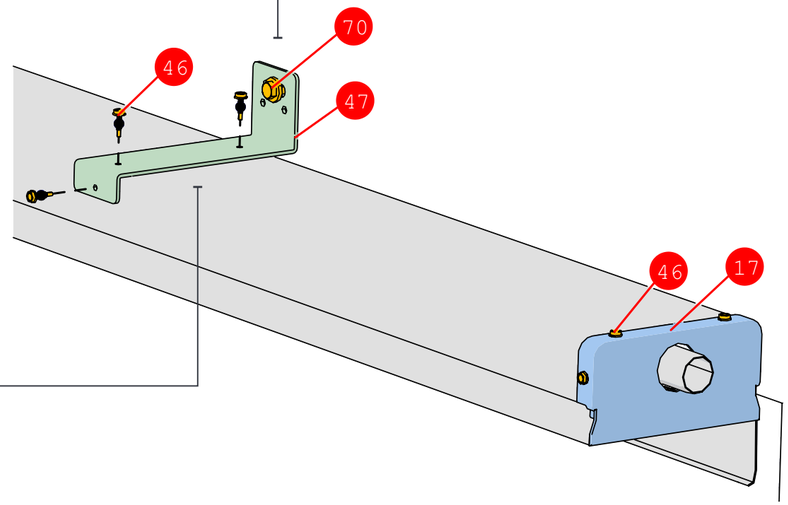
2. *Repeat step 1 on the other end of the gutter*



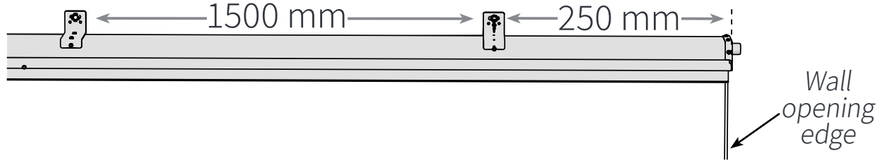
3. *Attach the upper hood (18) to the gutter using self-drilling screws (46) every 50 cm*

NOTE:
Only the hood which is placed against the wall is installed in this step

4. *Using a level, attach a support bracket (47) to the wall with an anchor (70) every 1500 mm*



5. *Attach the gutter to the support bracket with self-drilling screws (46)*

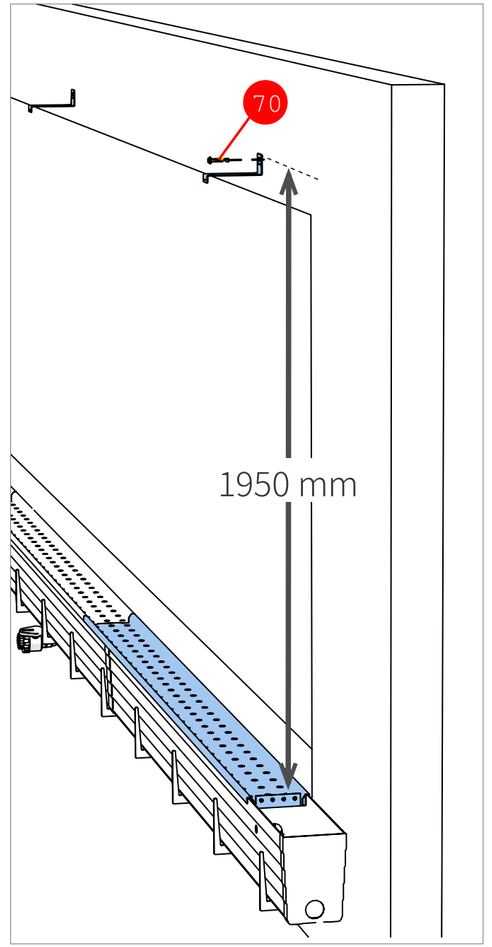


NOTE:

For 1800 mm pads, drill the support bracket anchor (70) holes 1950 mm from the bottom of the support tray. For 1500 mm pads, drill the support bracket anchor holes 1650 mm from the bottom of the support tray

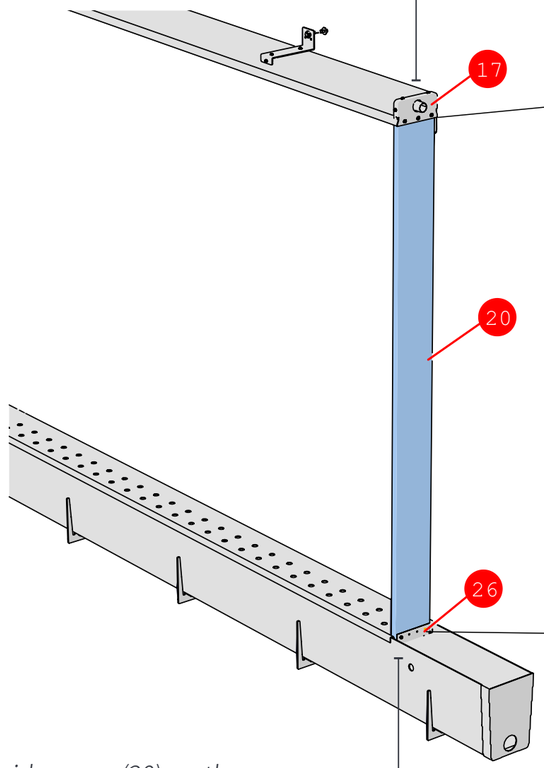
NOTES:

- Verify that the edge of the gutter is in line with the edge of the wall opening
- The upper frame and reservoir channel must be perfectly aligned. If needed, install spacers between the wall and the support brackets

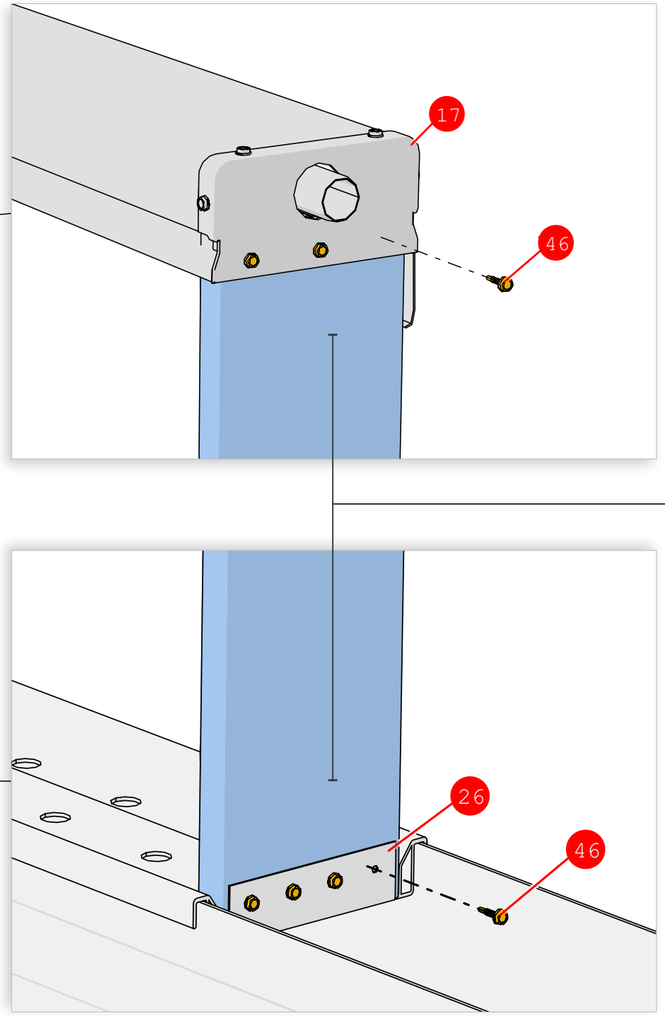


Step 8: Installing the Cooling Pads

1. *Cut the side cover (20) to length*



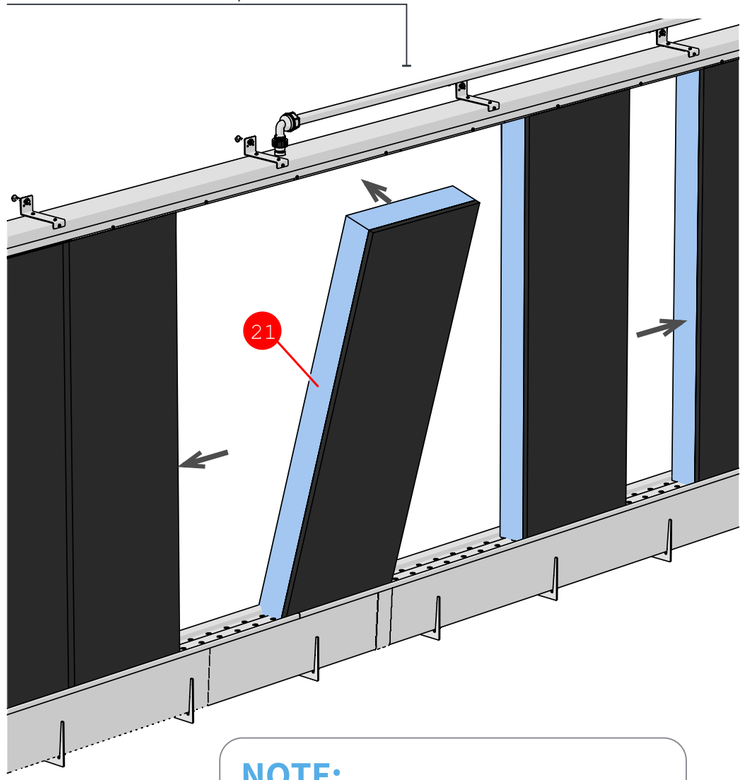
2. *Place the side cover (20) on the inside of the gutter side cover (17) and support tray bracket (26)*



3. *Attach the side cover to the gutter side cover with three self-drilling screws (46) and to the support tray bracket with four self-drilling screws (46)*

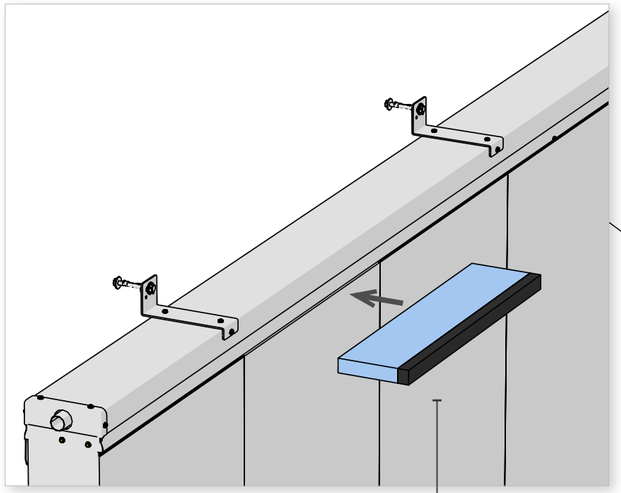
4. *Repeat steps 1 - 3 on the other side of the cooling pad system*

5. *Insert the cooling pads (21) and slide them into place*



NOTE:

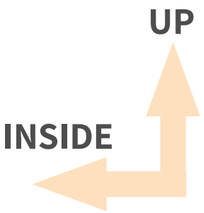
If the final cooling pad is too wide, measure the remaining width needed and add 3 - 5 cm for a tight fit. Cut the cooling pad to width



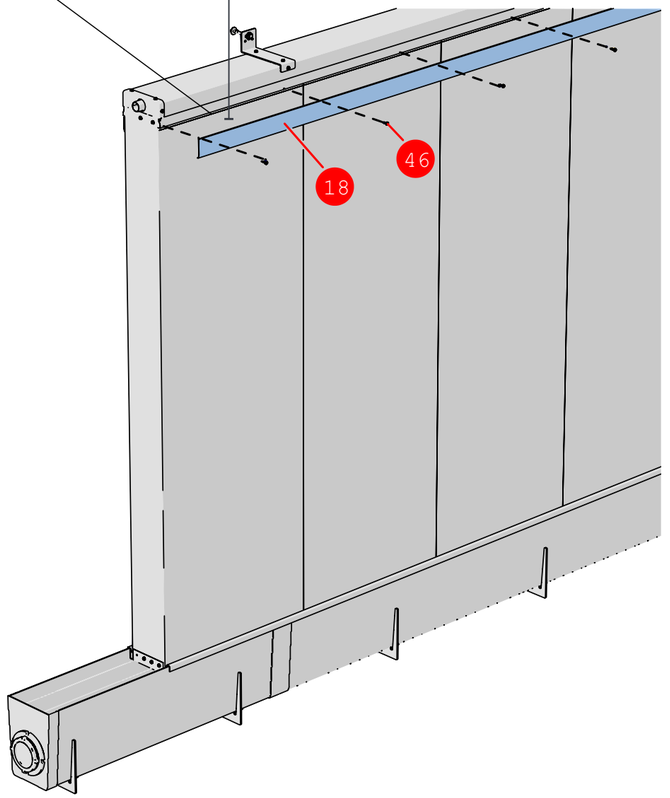
6. *Insert distribution pads (22) on top of the cooling pads*

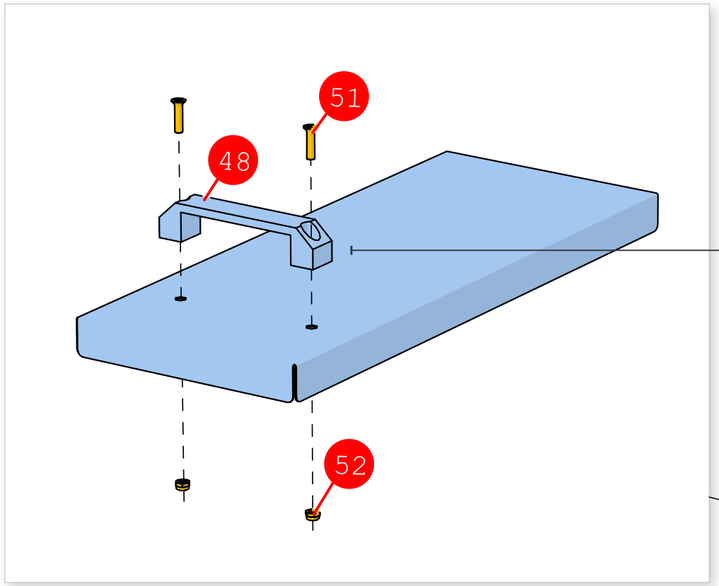
NOTE:

Verify that the pads are installed according to the orientation arrows printed on the side of each pad, and that the black coating is facing out



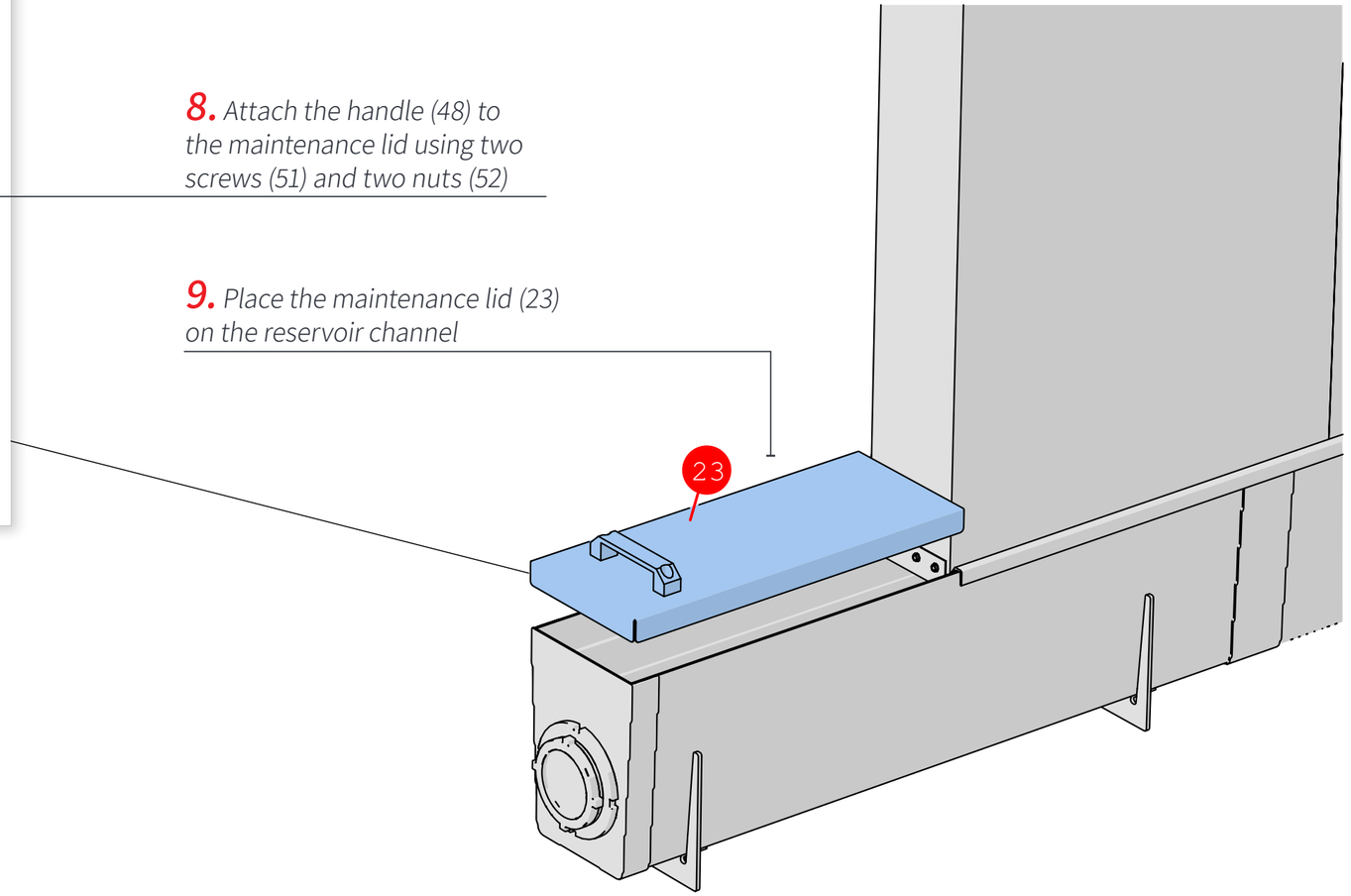
7. *Attach the outward facing hood (18) to the gutter with self-drilling screws (46) every 50 cm*





8. *Attach the handle (48) to the maintenance lid using two screws (51) and two nuts (52)*

9. *Place the maintenance lid (23) on the reservoir channel*

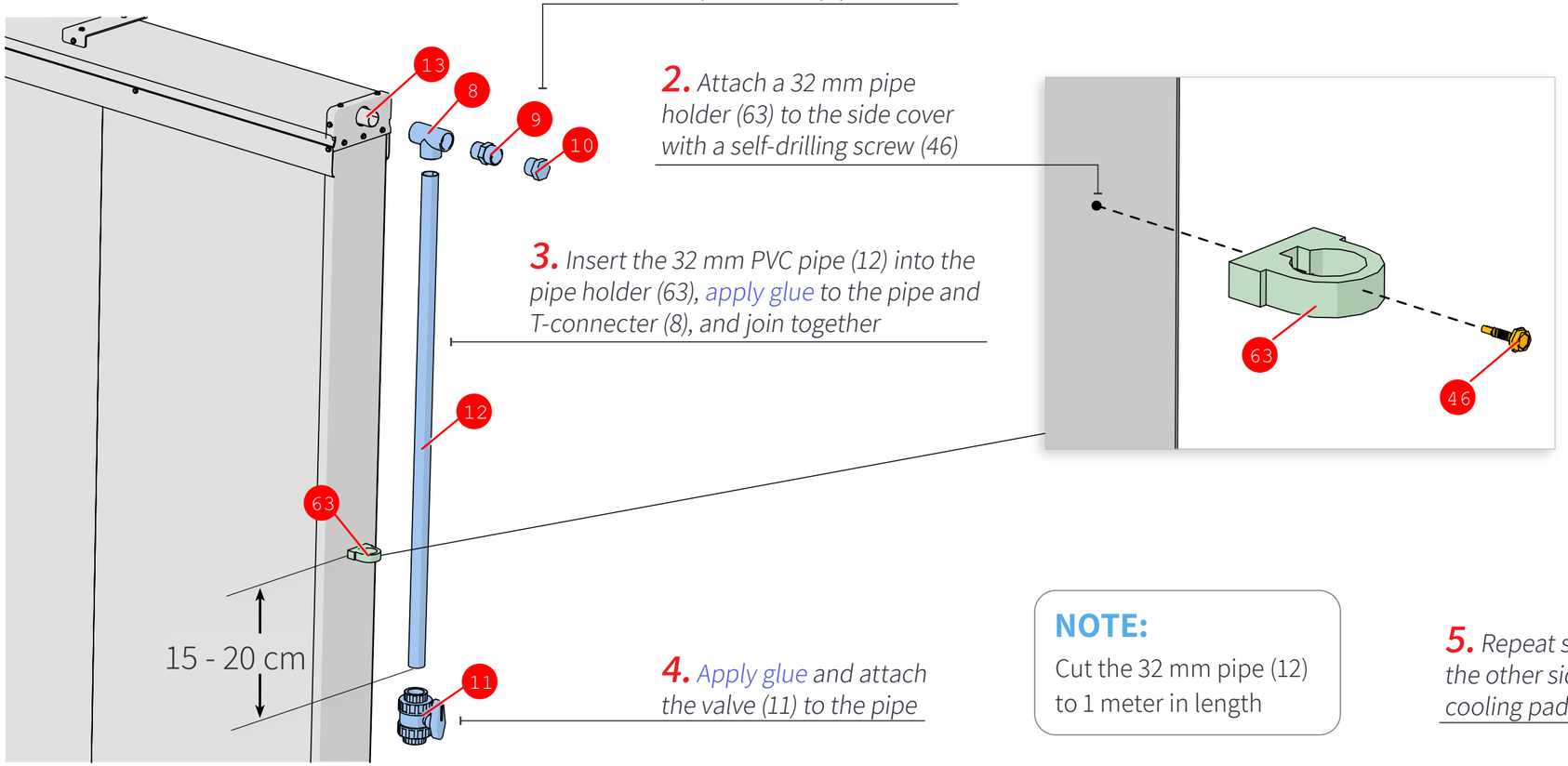


Step 9: Installing Drainage Valves

1. *Apply glue and attach the T-connector (8), adaptor socket (9), and plug (10) to the perforated pipe (13)*

2. *Attach a 32 mm pipe holder (63) to the side cover with a self-drilling screw (46)*

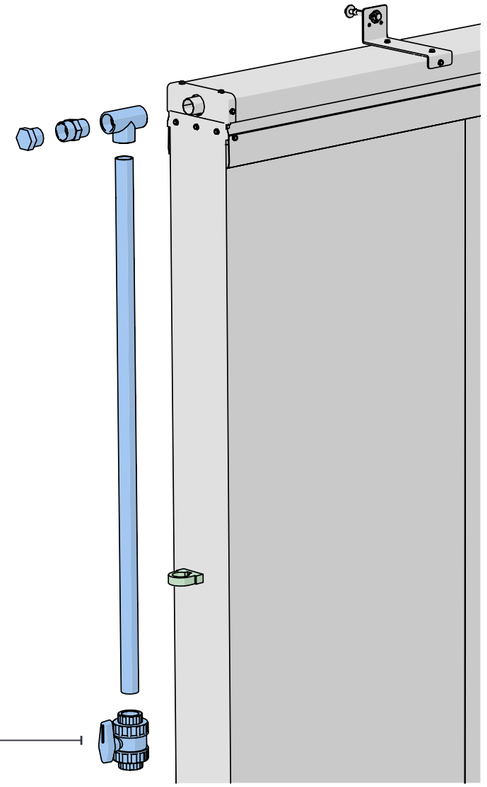
3. *Insert the 32 mm PVC pipe (12) into the pipe holder (63), apply glue to the pipe and T-connecter (8), and join together*



4. *Apply glue and attach the valve (11) to the pipe*

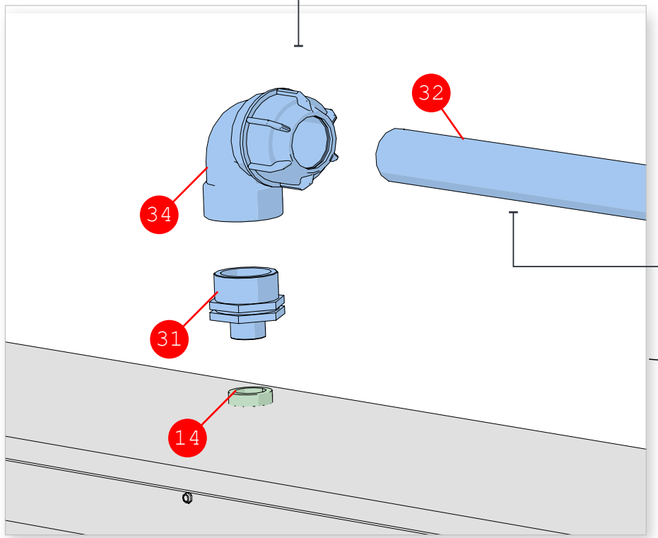
NOTE:
Cut the 32 mm pipe (12) to 1 meter in length

5. *Repeat steps 1-4 on the other side of the cooling pad system*



Step 10: Installing Distribution Pipe

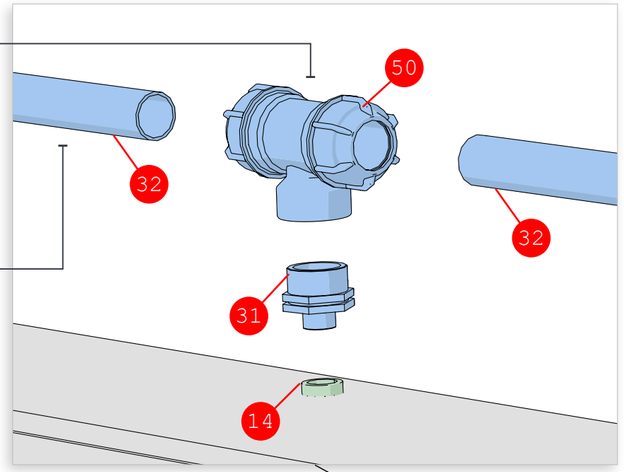
1. *Apply teflon and attach the reducing nipple (31) to the T-connector (14) sticking out of the gutter. Apply teflon to the other side of the reducing nipple and attach the 90° elbow (34) to it*

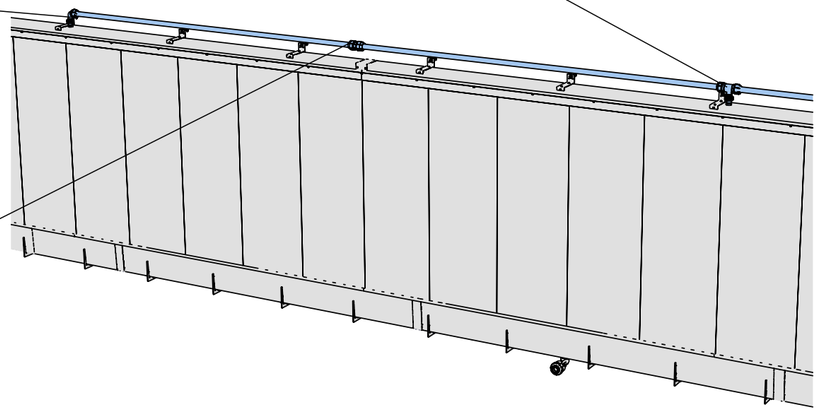


2. *Attach the distribution pipe (32) to the 90° elbow*

3. *Apply teflon and attach the reducing nipple (31) to the T-connector (14) sticking out of the gutter. Apply teflon to the other side of the reducing nipple and attach the 90° T-connector (50) to it*

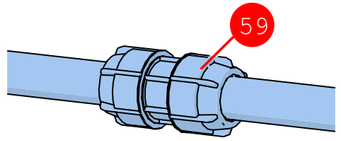
4. *Attach the distribution pipes (32) to the 90° T-connector*



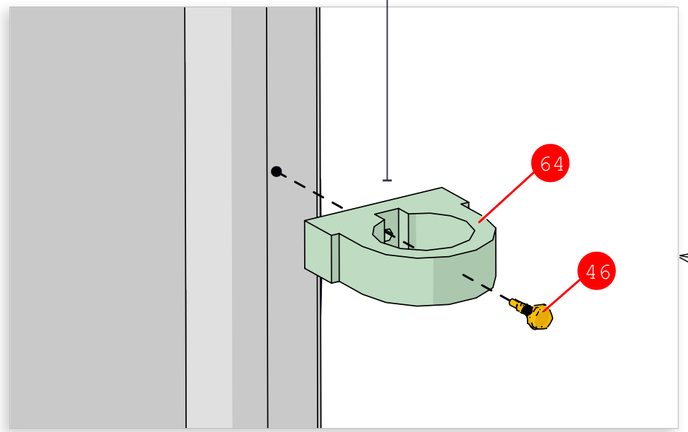


NOTE:

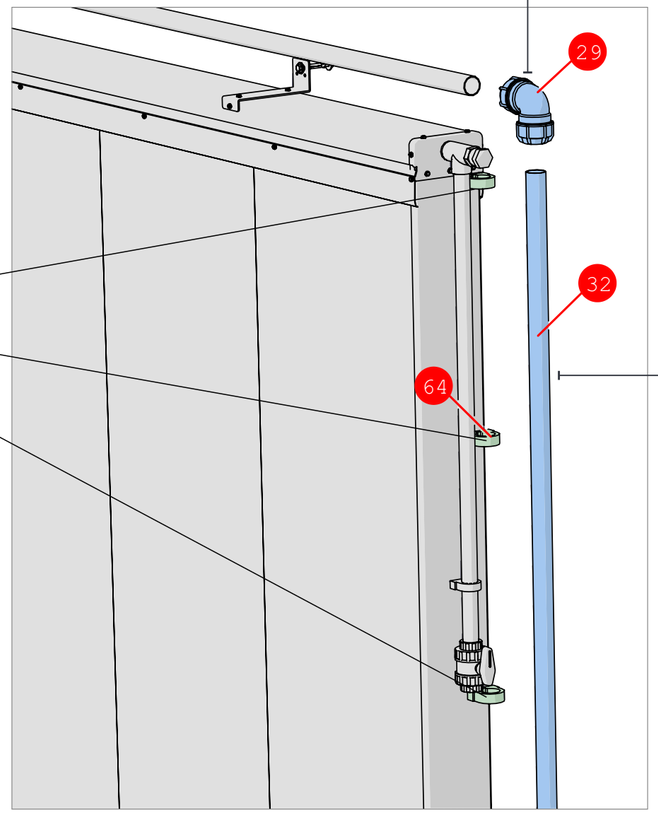
To increase length of distribution pipe, attach two pipes together using a coupler (59)



5. *Attach three 40 mm pipe holders (64) to the side cover with self-drilling screws (46)*



6. *Attach the 90° elbow (29) to the distribution pipe*



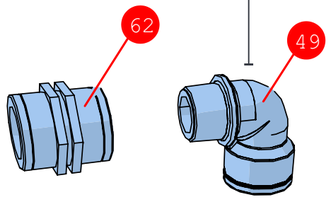
7. *Push the pipe (32) into the pipe holders (64) and attach it to the 90° elbow*

NOTE:

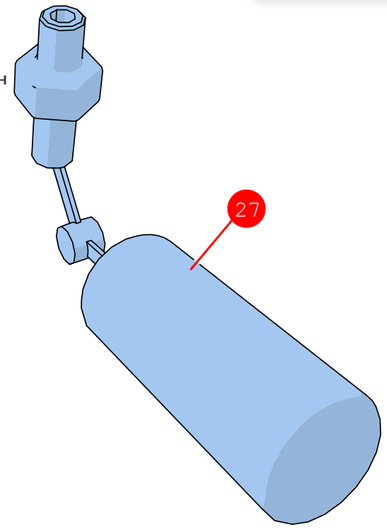
Cut the end of the distribution pipe as close as possible to the side cover to allow for connecting the vertical pipe (32) to the pipe holders (64)

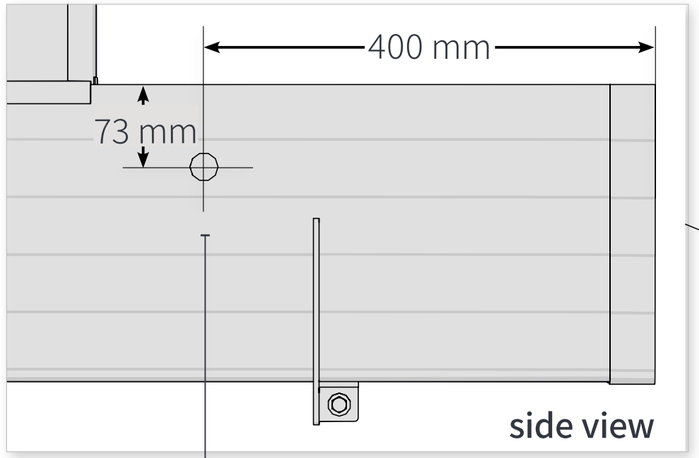
Step 11: Assembling Water Inlet and Float

1. *Apply teflon and attach the socket (62) to the 90° elbow (49)*



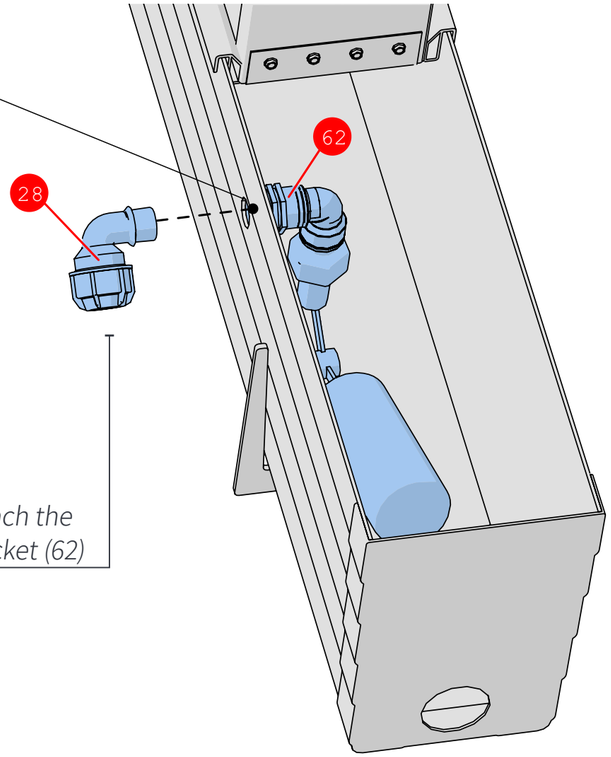
2. *Apply teflon and attach the float (27) to the 90° elbow (49)*



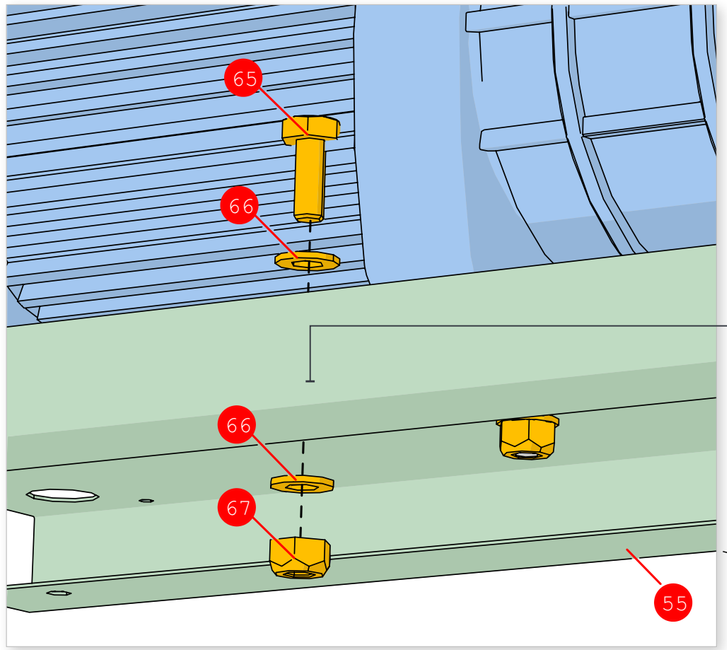


3. *Drill a 25 mm hole in the reservoir channel*

4. *Apply teflon and attach the 90° elbow (28) to the socket (62)*

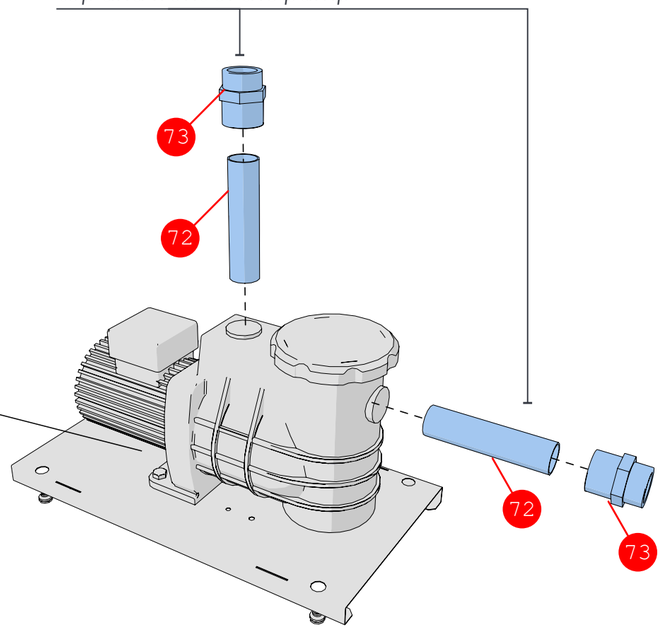


Step 12: Assembling Pump and Filter

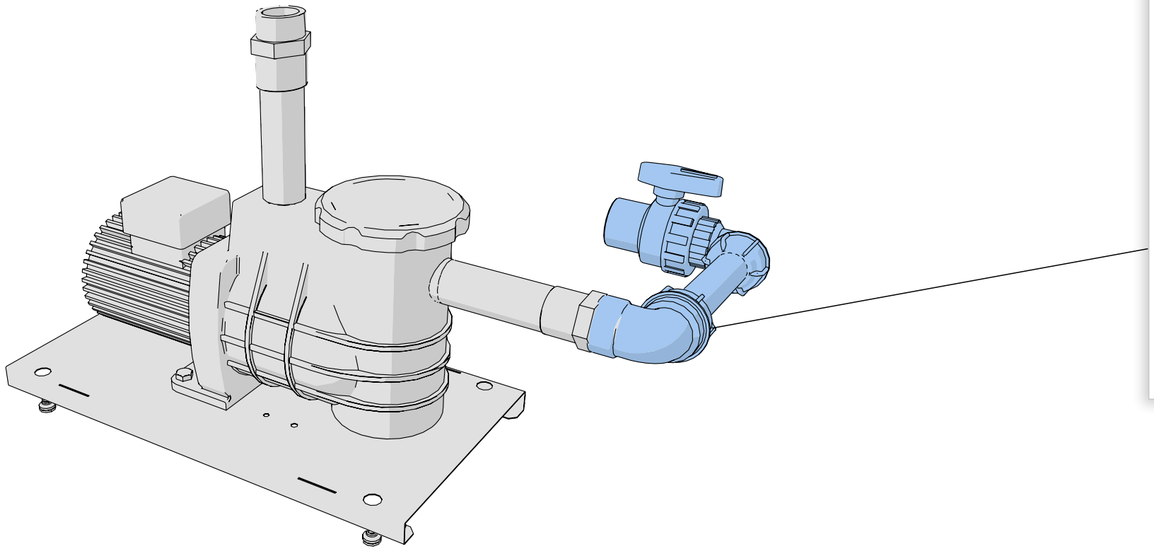


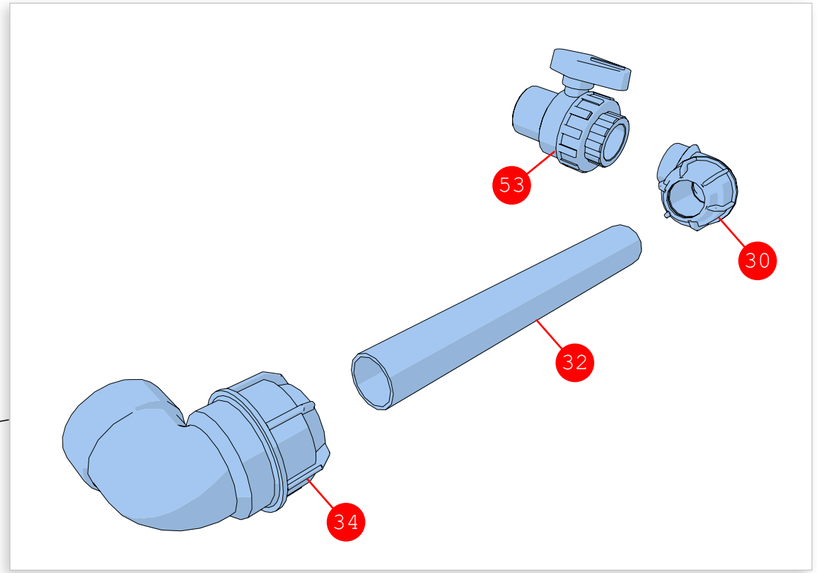
1. *Attach the pump (35) to the base (55) using screws (65), washers (66), and nuts (67)*

2. *Apply glue and attach the PVC pipes (72) and socket (73) to the top and front of the pump*



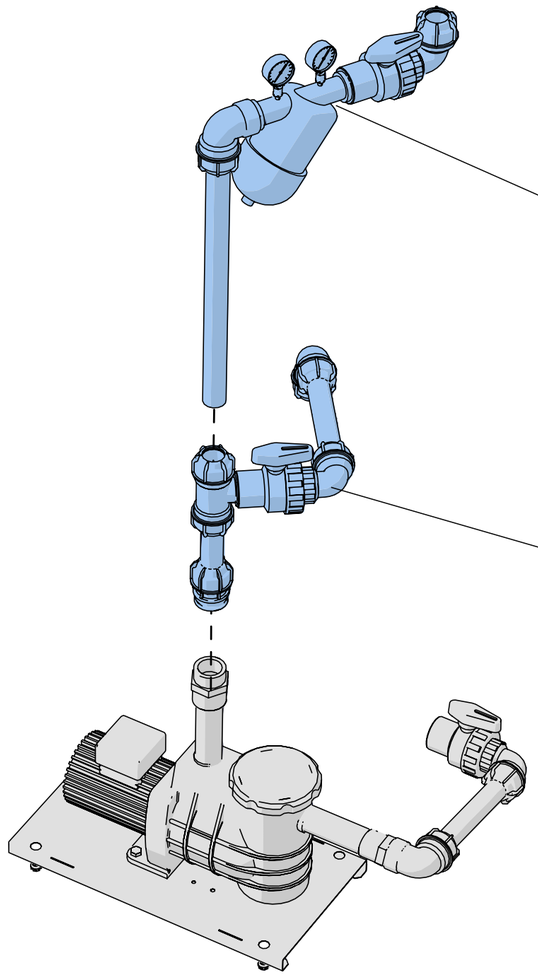
3. *Assemble the following parts and attach them to the pump*

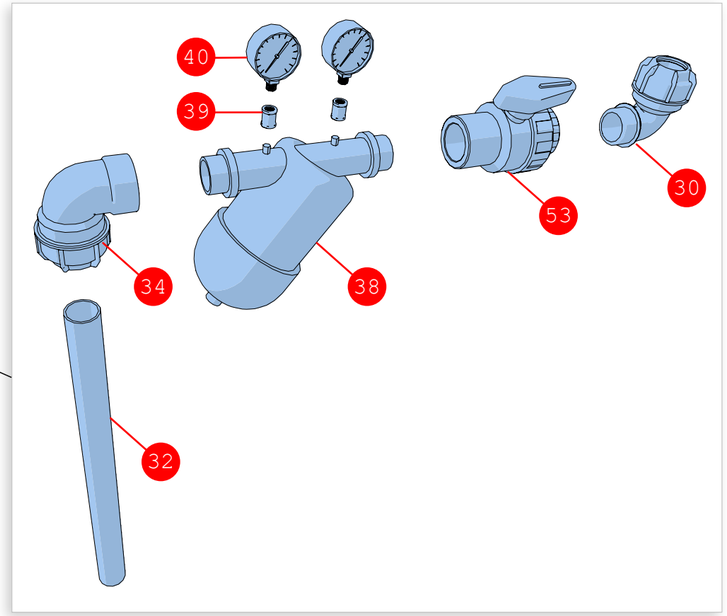




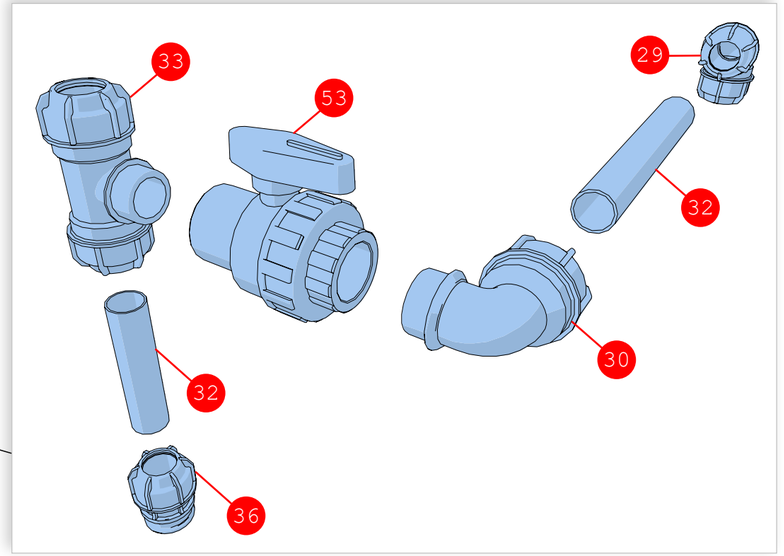
NOTE:
Apply teflon to all threads

4. *Assemble the following parts and attach them to the pump*

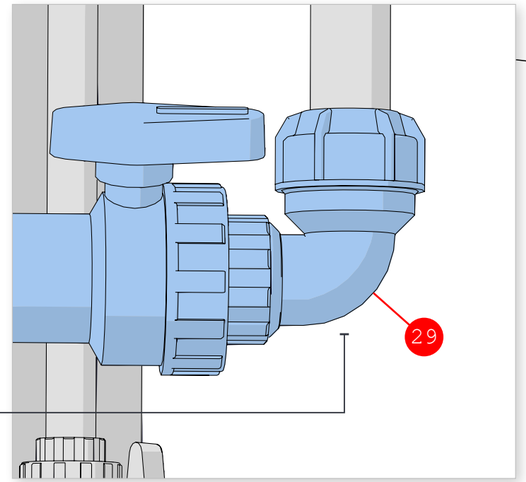




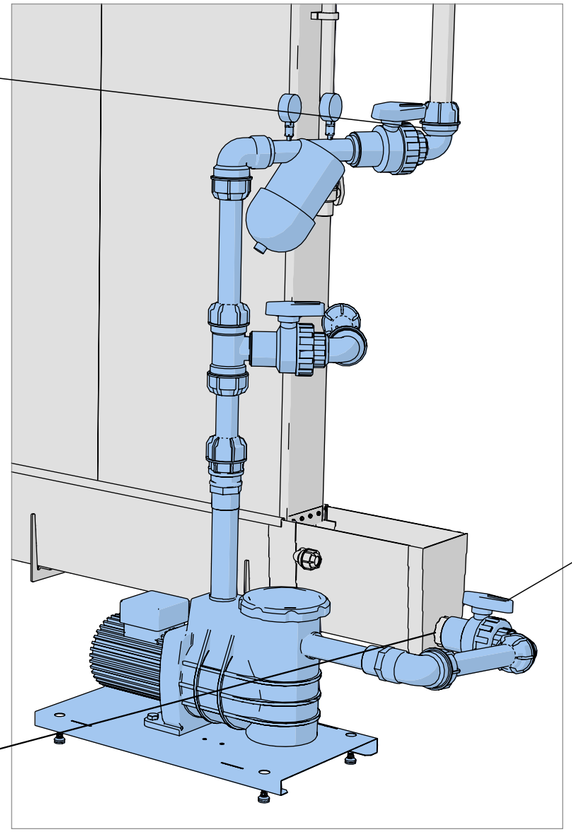
NOTE:
Apply teflon to all threads

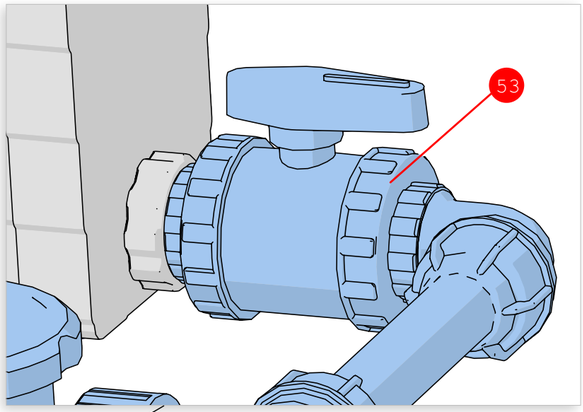


Step 13: Connecting Pump/Filter Assembly to System

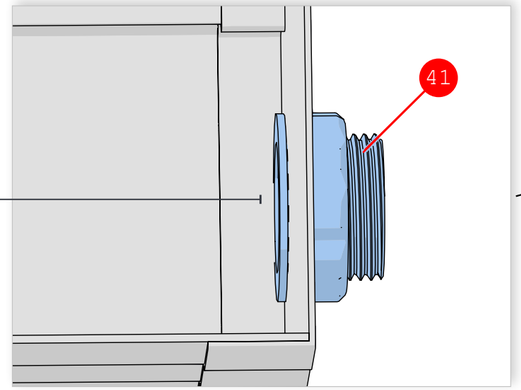


1. *Attach the 90° elbow (29) to the distribution pipe*



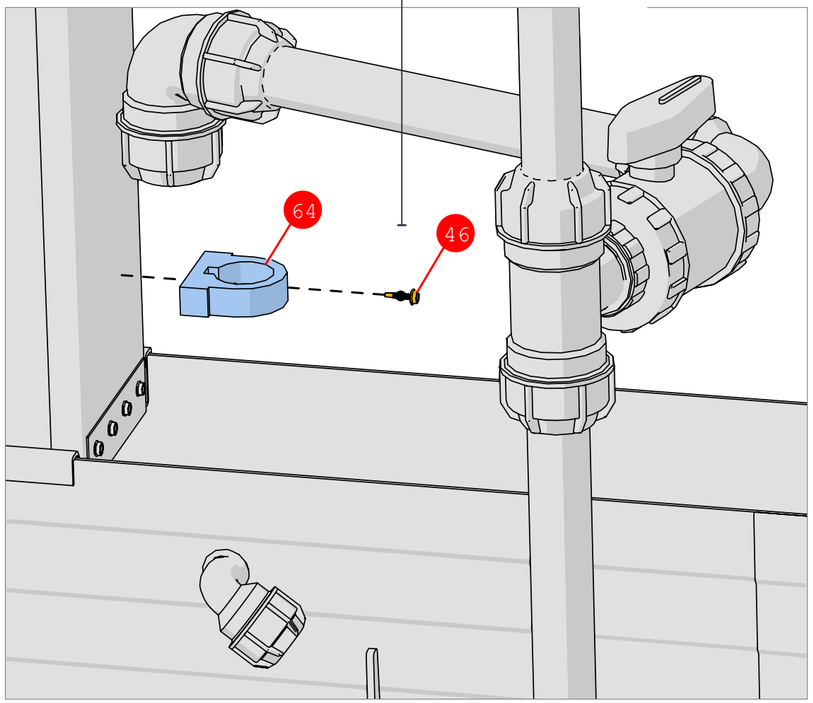


3. *Apply teflon and attach the threaded nut valve (53) to the straight adaptor*



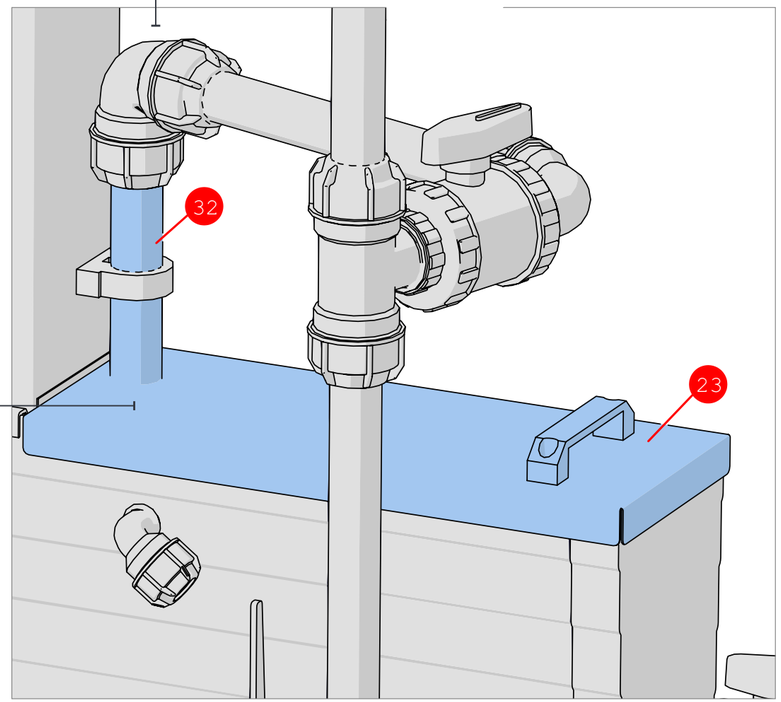
2. *Insert a straight adaptor (41) into the reservoir channel end and thread the washer onto the adaptor*

4. *Attach a 40 mm pipe holder (64) to the side cover using a self-drilling screw (46)*

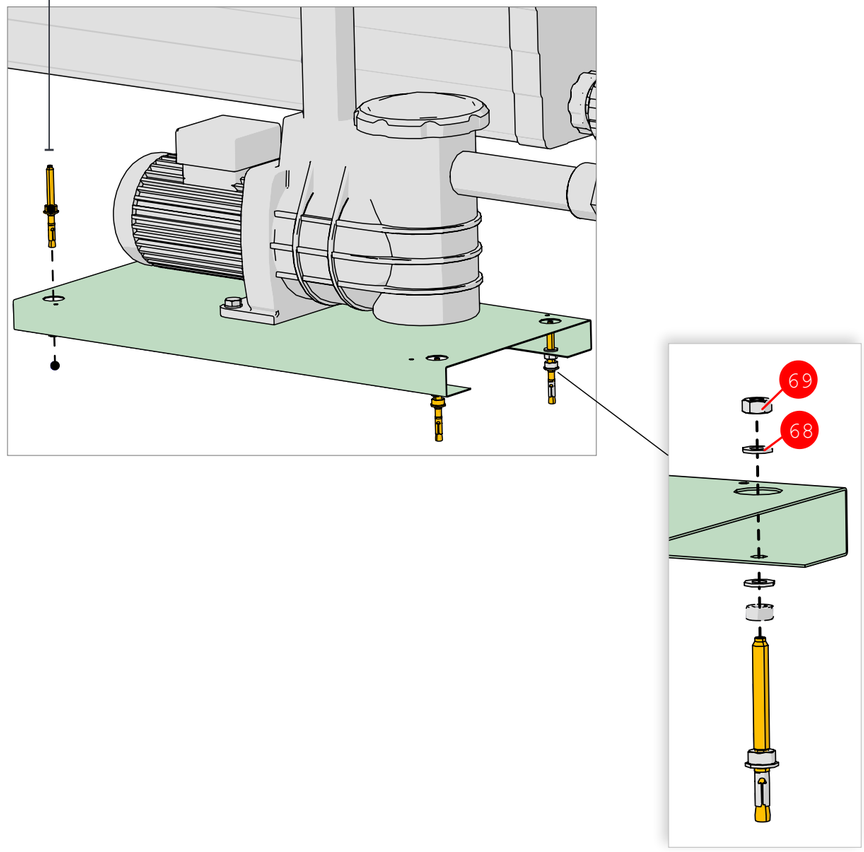


5. *Push the pipe (32) into the pipe holder, insert one end into the reservoir channel, and attach the other end to the 90° elbow*

6. *Cut a 50 mm slot in the maintenance lid (23) and place the lid on the reservoir channel*

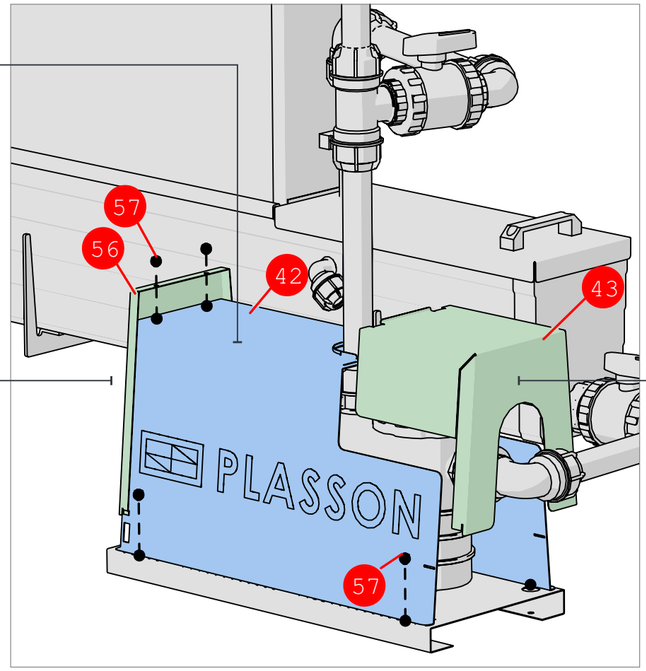


7. *Attach the pump to the ground using anchors (71), nuts (69), and washers (68)*



8. *Attach the pump raincover (42) using M6 screws (57)*

9. *Attach the rear pump cover (56) using M6 screws (57)*



10. *Snap in the side raincover (43)*

3.5 Power and Control Connections

Connect the pump power cable to the cooling pad system control cabinet

3.6 Final Checkup

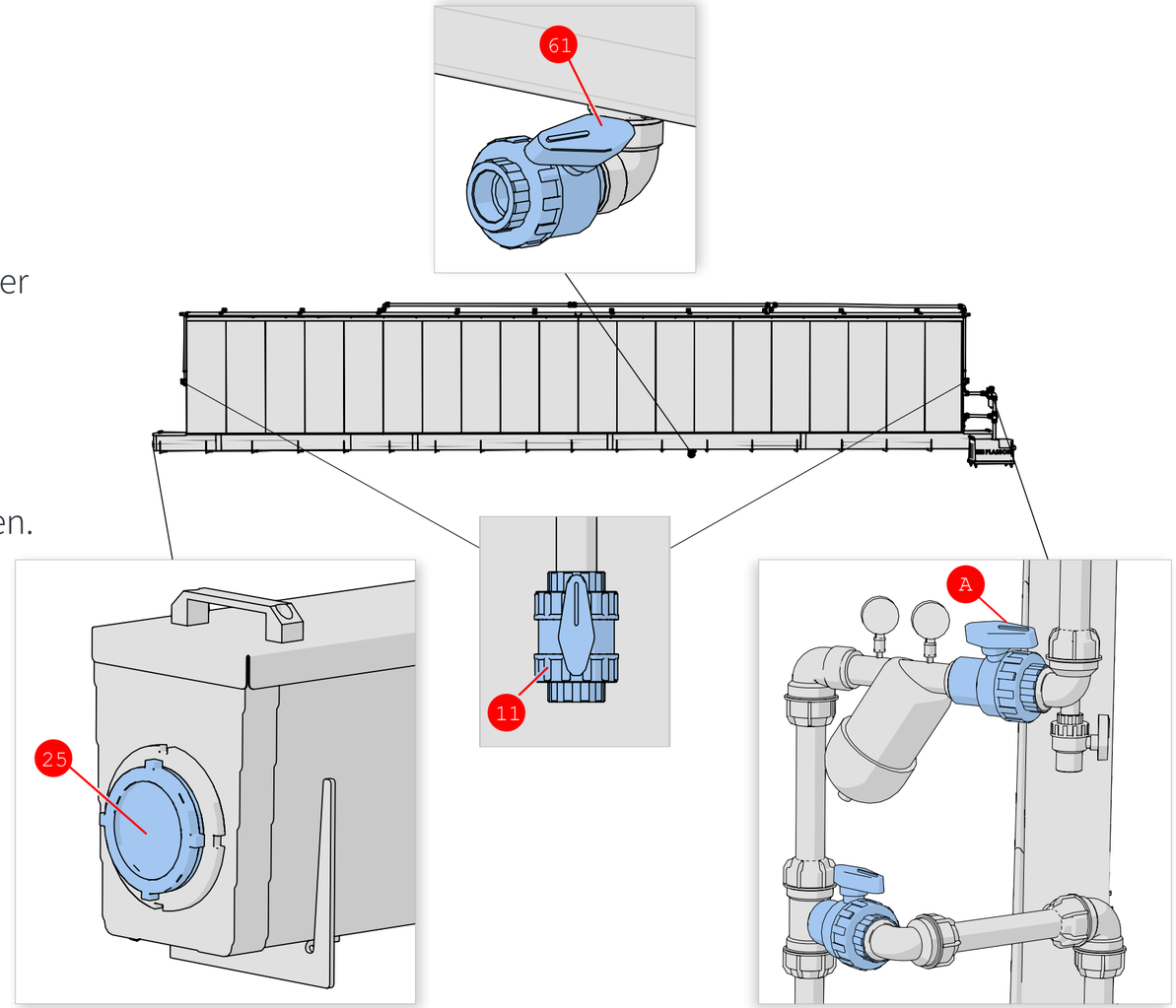
To complete the final checkup, verify the following:

- All spaces between the housing walls and the cooling pad system are sealed (this is the customer's responsibility)
- All parts are in place, all screws are fastened, and the system is clear of any tools or unused parts

3.7 Flushing the System

To flush the system before starting it up for the first time, do the following:

1. Make sure that the cleaning plug (25) and valve (61) are closed.
2. Fill the reservoir channel with water to 3/4 capacity.
3. Open the valve (61) and empty the water from the reservoir to remover the debris from installation.
4. If needed, repeat steps 1-3.
5. Repeat step 1-2.
6. Verify that the drainage valves (11) and maintenance valve (A) are open.
7. Turn on the pump manually.
8. Flush the system for two minutes.
9. Close the drainage valves (11).
10. Repeat step 8.
11. Turn on the pump.
12. Check the reservoir channel and the filters. If needed, perform a cleaning according to step 3.
13. When done, repeat steps 1-2.



4. Operation Instructions

This chapter reviews the tasks associated with first-time operation of the system after installation or after system was emptied and includes:

- System Startup
- System Shutdown

4.1 System Startup

When starting up the system after installation or performing maintenance, first implement the steps in sections 3.6 and above. Then do the following:

1. Open the water supply and let the reservoir channel fill until the water reaches the float.
2. If necessary, adjust the float until the water level reaches 3/4 of the reservoir channel height (see *Adjusting Water Level*).
3. Start the pump manually and verify that the water level is maintained.
4. Verify that water spreads over all cooling pads within 30-40 seconds.
5. Verify that water is not leaking from any connections in the system.
6. Verify that there is no flooding of water in the reservoir channel.
7. If necessary, adjust the bypass valve.
8. Verify that the housing is sealed.
9. Verify there are no obstructions (i.e., open curtain, tunnel door etc.) reducing the air flow from the outside through the cooling pads.
10. Start the exhaust fans.
11. Verify that there is a temperature difference between the inside and outside of the house.
12. During operation, repeat the following checks:
    a. Verify stable water level in the reservoir channel.
    b. Verify that the water level doesn't drop below 1/2 the height of the reservoir channel.
    c. Adjust the bypass valve and recheck its effect on the temperature difference.
12. Shut off the system.

NOTE:
When the pump empties the water in the reservoir channel, adjust the bypass valve to increase the amount of water that returns to the reservoir channel

NOTE:
Adjust the pump duty cycle for optimized performance of the system (temperature reduction vs. reservoir water filling)

4.2 System Shutdown

To shut down the system for a long-term shutoff period, do the following:

1. Clean the cooling pads.
2. Shut off power to the pump.
3. Shut off the water supply.
4. Drain the water out of the system.

5. Preventive Maintenance

This chapter reviews the tasks associated with preventive maintenance of the system and includes:

- Maintenance Checklist
- Preparations for Maintenance
- Visual Inspection
- Cooling Pad System Maintenance and Cleanup
- Water Filter Cleaning
- Water Pump Filter Cleaning
- Water Pump Replacement
- Cooling Pad Replacement

5.1 Maintenance Checklist

Task Name	Daily	Weekly	Monthly	Quarterly	Annually
Visual Inspection	X				
Cooling Pad System Maintenance and Cleanup			X		X
Water Filter Cleaning		X			
Water Pump Filter Cleaning		X			
Water Pump Replacement	as needed				
Cooling Pad Replacement	as needed				

5.2 Preparations for Maintenance

Do the following prior to conducting maintenance on the cooling pad system:

- Read the installation and operation instructions
- Read all safety standards and instructions to avoid injury or damage to equipment or property
- Shut off the system
- Clean up any spills and leaks in the cooling pad area

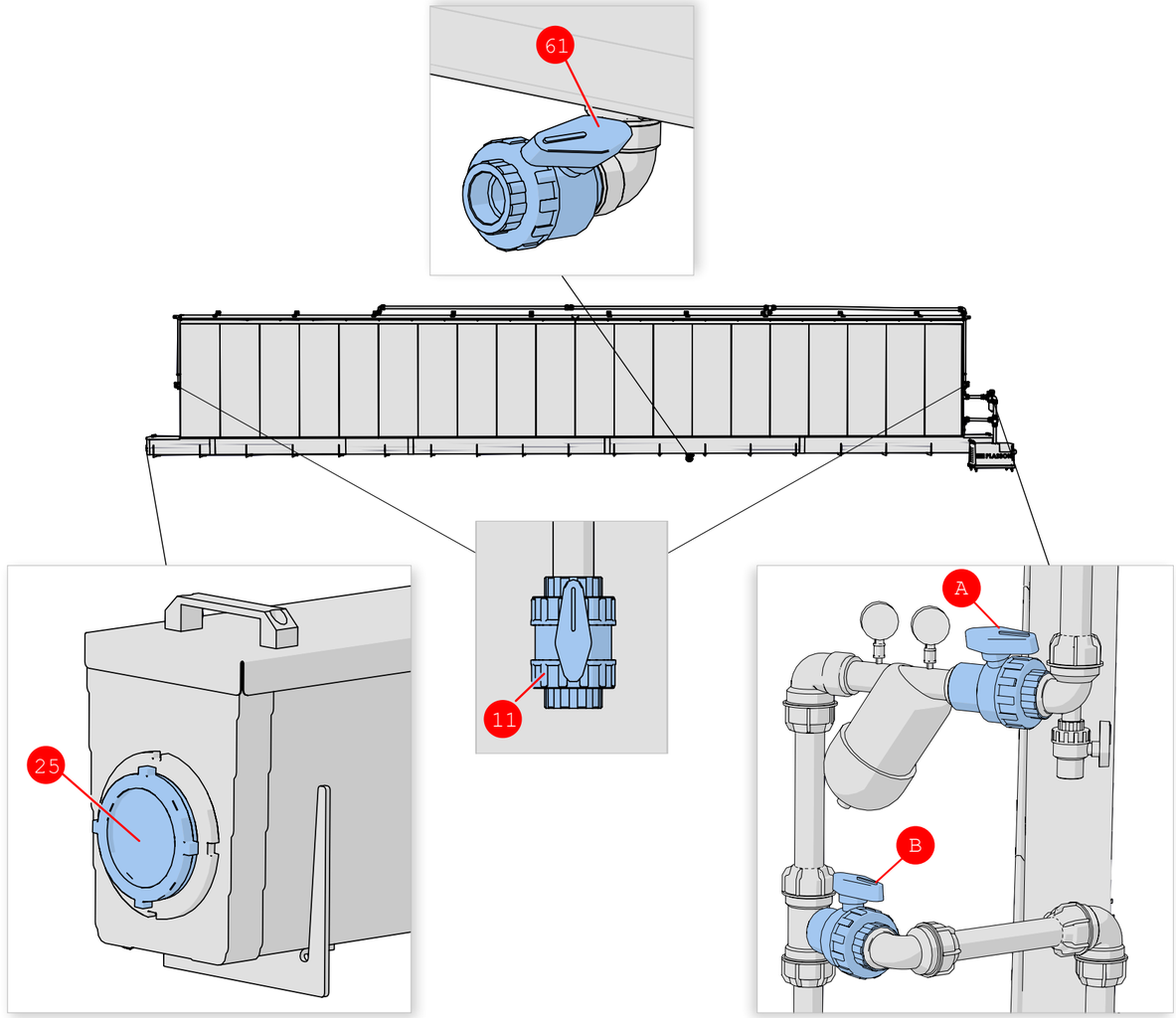
⚠ CAUTION

- Electrical connections must be serviced by a qualified electrician, using certified components only, and according to local regulations and standards
- Assembly, maintenance, and replacement of spare parts must be done by Plasson authorized technicians only
- Proper operation of the system is not guaranteed if unauthorized parts are used

5.3 Visual Inspection

As part of the visual inspection, verify the following:

- All holes between the housing walls and the cooling pad system are sealed
- Cooling pads are not damaged or clogged
- Maintenance valve (A) is open
- Bypass valve (B) is adjusted as done during System Startup
- Drainage valves (11) on both side of the cooling pad system are closed
- Plug (25) at the end of the reservoir channel is closed
- Valve (61) on the bottom of the reservoir channel is closed



5.4 Cooling Pad System Maintenance and Cleanup

Do the following to ensure maximum cooling pad performance:

5.4.1 Preventing algae growth

- Once a day, dry the cooling pads completely
- Twice a week, clean the reservoir channel
- Once a week, clean the water filters
- Once a month during operating season, remove and brush the cooling pads with a soft bristled brush and then flush the system to remove debris
- Use an algaecide when cleaning the pads
- Ensure the reservoir channel is in a location free of debris

⚠ CAUTION

Do not use chlorine with a concentration level that is greater than 1ppm (parts per million).

5.4.2 Preventing Mineral and Scale Build-up

- Minimize the number of on/off wetting cycles
- If necessary, allow more water to flow over the cooling pads

⚠ CAUTION

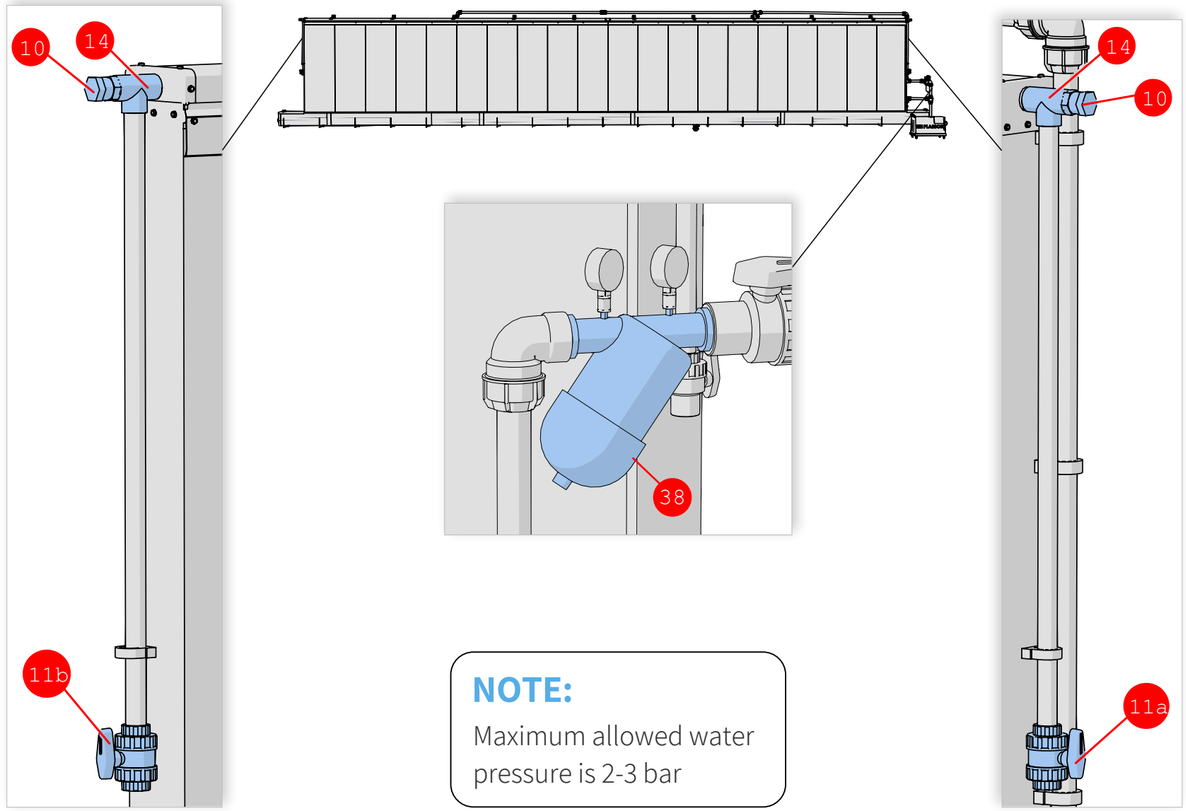
Water must be at a pH level of between 6 and 9

5.4.3 Cleaning the Distribution Pipe

1. Connect a high-pressure water line to the drainage valve (11a).
2. Open the valve (11b) at the other end.
3. Open the filter (38) and remove the filtering disks.
4. Flush the distribution pipe.

If the distribution pipe still appears to be clogged, do the following:

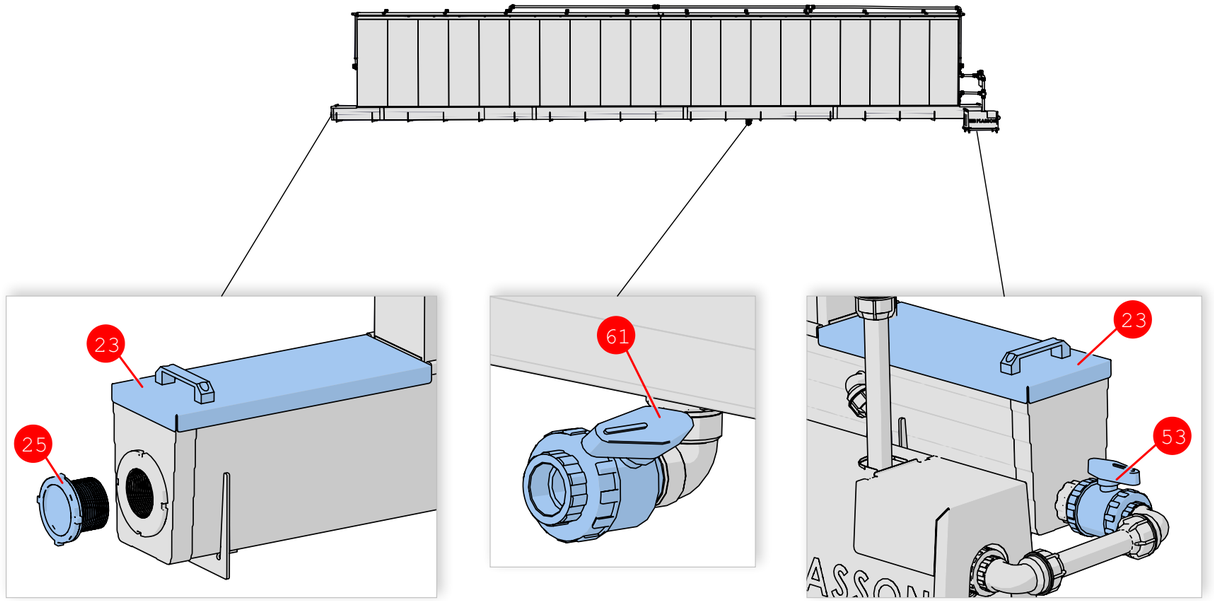
1. Remove the plug (10) at both ends of the distribution pipe.
2. Insert a brush or a cleaning rod wrapped with a cloth into the pipe and thoroughly clean the inside.
3. Connect a high-presure water line to a T-connector (14).
4. Flush the distribution pipe.



NOTE:
Maximum allowed water pressure is 2-3 bar

5.4.4 Cleaning the Reservoir Channel

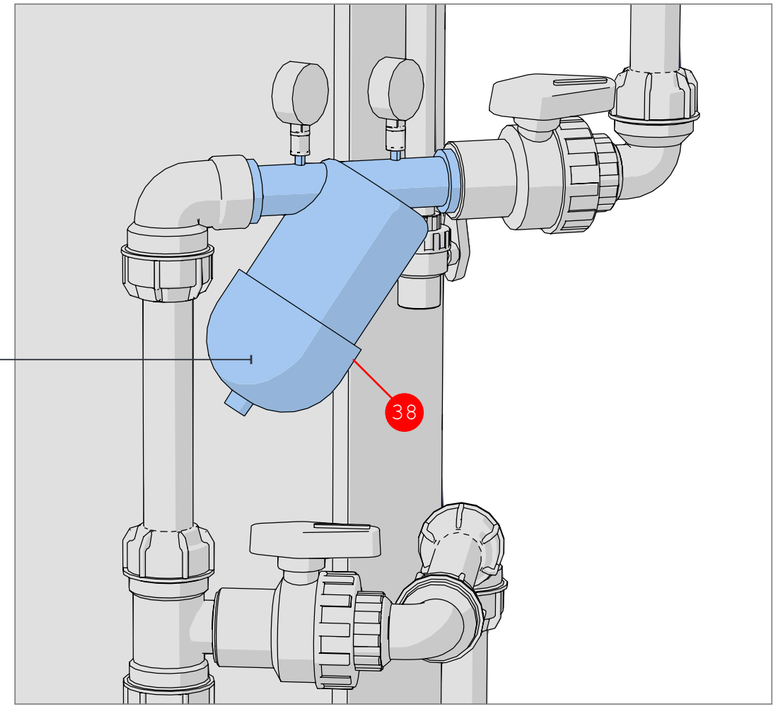
1. Open the cleaning hole plug (25) and drainage pipe valve (61) to drain the water from the reservoir channel.
2. Remove the maintenance lids (23) located on both sides of the reservoir channel.
3. Remove the pump (see steps 1 and 2 in Water Pump Replacement).
4. Verify the pump inlet valve (53) is open.
5. Use water to flush and clean the reservoir channel.
6. If there is still dirt in the channel, use a cleaning rod wrapped with a cloth to clean the dirt, then use water again to flush and clean the reservoir channel.



5.5 Water Filter Cleaning

Do the following steps when the difference between the two pressure gauges is more than 0.8 bar:

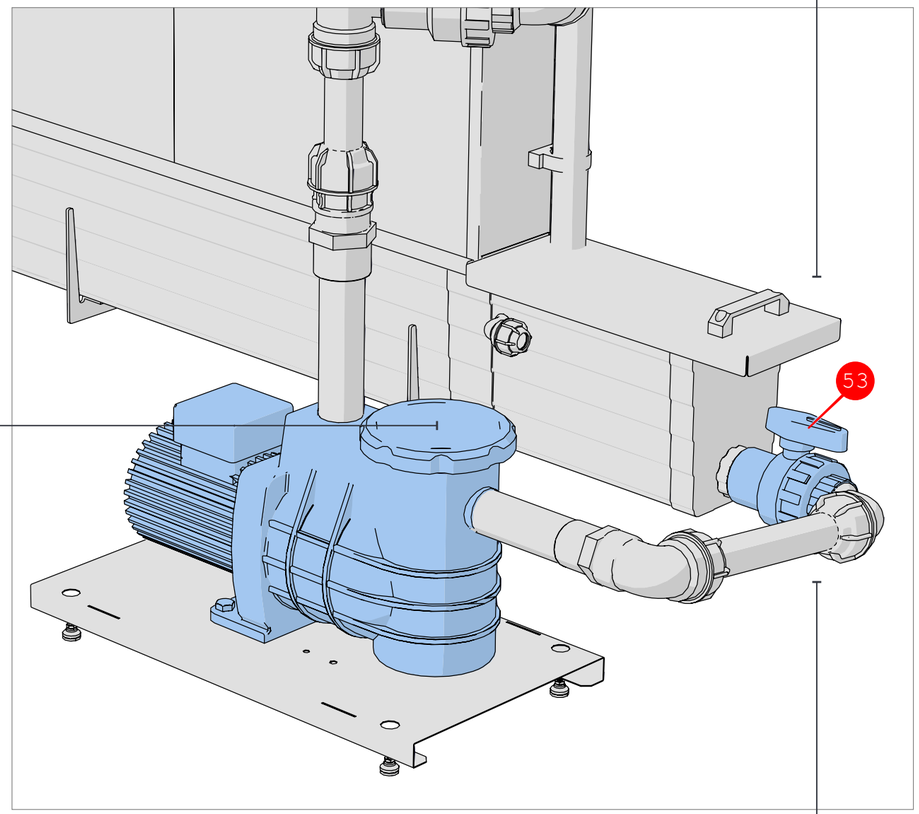
1. *Shut off the system*
2. *Let the water drain to the reservoir channel*
3. *Open the filter (38) and separate the filter disks*
4. *Clean the filter disks gently using a brush and clean water*
5. *Reinstall the filter*



5.6 Water Pump Filter Cleaning

Do the following steps when the pad wetting time is longer than usual or the pump is clogged:

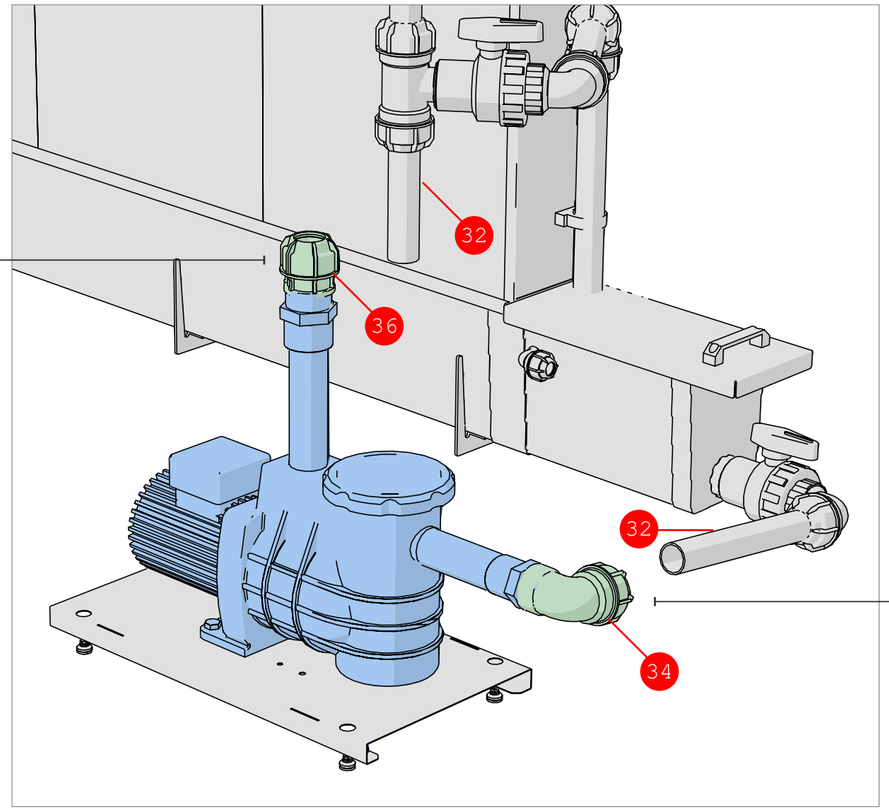
1. *Close the valve (53)*
2. *Shut off the system*
3. *Let the water drain to the reservoir channel*
4. *Open the filter cover and separate the filter disks*
5. *Clean the filter disks gently using a brush and clean water*
6. *Reinstall the filter*
7. *Open the valve (53)*



5.7 Water Pump Replacement

To replace the water pump, first unplug the pump power cable and remove the pump rain cover. Then do the following:

1. *Detach the adaptor (36) from the pipe (32)*



2. *Detach the elbow adaptor (34) from the pipe (32)*

3. *Remove the pump and replace with a new one (see Step 12: Assembling Pump and Filter)*

5.8 Cooling Pad Replacement

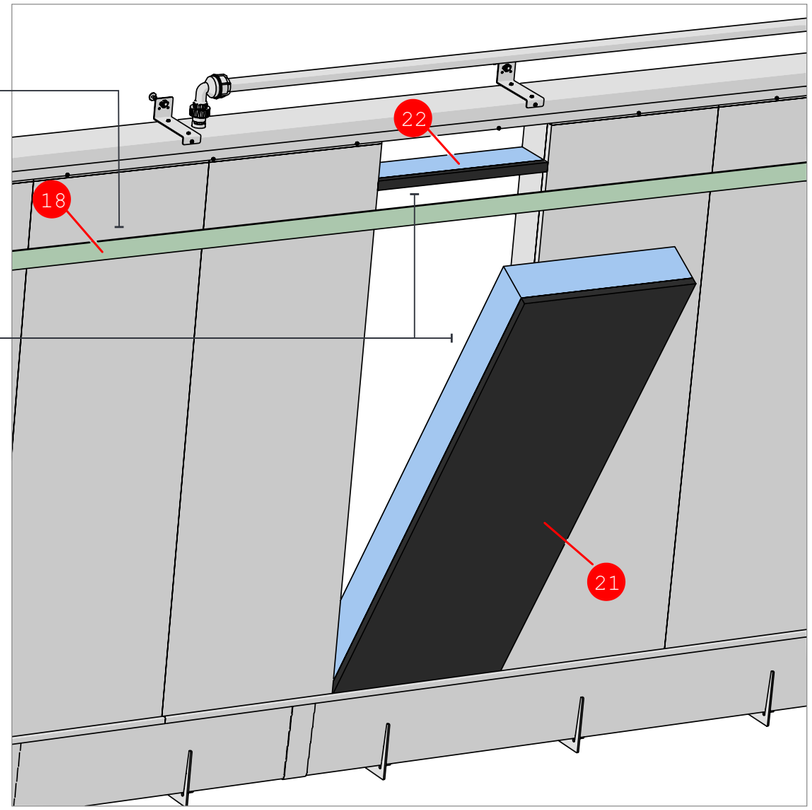
To replace a cooling pad, do the following:

1. *Remove the upper hood (18)*

2. *Tilt the cooling pad (21) forward and remove both the cooling pad and distribution pad (22)*

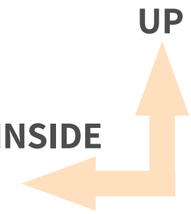
3. *Insert a new cooling pad and distribution pad*

4. *Reattach the upper hood (18)*



NOTE:

Verify that the new pads are installed according to the orientation arrows printed on the side of the pads, and that the black coating is facing out



NOTE:

If the new cooling pad is too wide, measure the remaining width needed and add 3 - 5 cm for a tight fit. Cut the cooling pad to width

6. Troubleshooting

This chapter reviews issues that may appear during operation of the system and suggests steps to resolve these issues:

Problem	Solution
Temperature in the housing is not decreasing	Verify that the pads are all wet
	Verify that the exhaust fans are working properly
	Verify that the house is sealed (i.e., doors and other openings are closed)
	Verify that the curtain covering the cooling pads is raised
	Verify that the cooling pads are not blocked up by dirt
Cooling pads are not becoming wet	Verify proper level of water in the reservoir channel
	Verify that the pump is operating correctly
	Verify the pump was primed and that there is no air in the pipes
	Verify that the two valves near the water filter are in the proper position
	Verify that that bypass valve is in the proper position
	Verify that the filter is not clogged
	Verify that the holes in the perforated pipe are not clogged and that water reaches the entire length of the pipe

7. Technical Specifications

Maximum cooling pad length	27 meters on each side of the housing
Maximum distribution pipe length	15 meters
Pump flow rate	200 - 250 L/min
Filter grade	400 micron
Filter head loss	0.15 - 0.2 bar

8. Warranty

8.1 Limited Warranty

8.1.1 Plasson Ltd ("PLASSON") warrants cooling pad system products sold by Plasson or authorized representatives or distributors to be free of defects in material and workmanship, under normal usage and conditions, for a period of twelve (12) months from the date the Product was sold to its original purchaser, as evidenced by the original invoice.

* The warranty does not include or cover media pads which are considered disposable and should be replaced periodically.

8.1.2 This Limited Warranty extends only to the original purchaser of the product and is not transferable in any manner.

8.1.3 PLASSON shall have no obligation under this Limited Warranty until invoices for the products are fully paid.

8.1.4 This Limited Warranty extends solely to products sold by PLASSON.

8.1.5 Under this Limited Warranty, PLASSON reserves the right to inspect the Product to determine the validity of buyer's claim and PLASSON, in its sole discretion, shall have the option of:

(a) **Replacing** warranted PLASSON Product (F.O.B. point of purchase) without charge.

(b) **Repairing** the warranted Product without charge for Products returned to point of purchase.

No warranty extension will be granted for any replacement part(s) furnished to the purchaser in fulfillment of this warranty.

8.1.6 This Limited Warranty shall not apply to Product that has failed due to or been damaged by (a) accident, misuse, abuse, improper application, negligence, alteration, force majeure occurrence(s), transportation, improper storage or installation or handling, failure to operate products in accordance with manufacturer instructions, or failure to maintain the recommended operating, charging, or storing environments in accordance with manufacturer instructions; (b) unauthorized repair, maintenance, service, or modification of product by the purchaser or a third party or attachment to or use of non-PLASSON supplied equipment; (c) disasters such as fire, flood, lightning or improper electric current, or other casualty

8.1.7 or physical damage, acts of aggression or terrorism by any person or entity, corrosion or excessive dirt, dust or other foreign material; (d) failure to perform reasonable maintenance, normal wear and tear, nor where the connected voltage is more than 5% above the nameplate voltage and (e) any damage from the use of water softeners or treatments, chemicals or descaling materials.

8.1.8 Claims under this Limited Warranty must be made to PLASSON representative/distributor in writing. The Product must be returned to the point of purchase with documentation and appropriate packing. PLASSON reserves the right of inspection to determine validity of purchaser's claim of defective product under the terms of this Limited Warranty.

8.2 Limitation of Liability

8.2.1 This limited warranty constitutes the only warranty made by Plasson concerning the product and it hereby excludes any and all other warranties, expressed or implied, including any warranties of merchantability or fitness for a particular purpose.

8.2.2 Under no circumstances shall Plasson be liable to the purchaser or any user for consequential, indirect, special, punitive, or incidental damages of any kind, including loss of use or profits.

8.2.3 In no event will Plasson be liable for damages or losses that exceed, in the aggregate, the amount paid by purchaser for the product.

8.3 Governing Law

This Limited Warranty shall be governed by and construed in accordance with the laws of the State of Israel. Any action brought relating to this Limited Warranty shall be instituted and litigated in the competent courts of Tel-Aviv-Jaffa, Israel

Edited: May 2019

Revision History

Revision	Date	Description	Approval
A	31/08/2020	Initial release	Shaul S.
B		Updtaed instructions for cooling pad v2	

PLASSON®
Livestock

Feeding Drinking Climate Housing

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Thank you!

Rev B | Doc P/N: 080205039E