EVAstream

Mounting & installation

April 2023 - V 1.0

Table of contents

1	**About this manual**	**3**
1.1	Language	3
1.2	Other relevant documents	3
1.3	Used symbols	3
2	**Safety**	**4**
2.1	Safety warnings and regulations	4
2.2	General safety instructions	4
3	**Product**	**5**
3.1	Intended use and reasonably foreseeable unintended use	5
3.2	Description	5
3.3	General specifications	6
4	**Symmetrical placement EVAstream**	**7**
5	**Mounting the EVAstream**	**8**
5.1	Use of mounting materials	10
5.2	Mounting the EVAstream surface mounted	11
5.3	Mounting the EVA Piezo	14
5.4	Mounting the EVAstream recessed mounted	15
5.5	Ribben uitzagen	17
5.6	Mounting the EVAstream turbine	18
5.7	Optional - Cable extension	24
6	**Create the best swimming zone**	**28**
7	**Check before**	**30**
7.1	Check before turning on the EVAstream	30
7.2	Check before using the EVAstream	30
7.3	Maintenance and repairs	30
8	**Disposal**	**31**
8.1	Decommissioning	31
8.2	Disposal	31
	Attachment 1 - Norm Compliance	32
	Attachment 2 - Enviromental conditions use EVAstream	33
	Attachment 3 - Water values	34
	Attachment 4 - Unintended uses	35

1 About this manual

1.1 Language

This manual is meant for the qualified installer. Read and understand this manual before mounting and using this product. This manual is originally written in English. All other language versions are translations of the original manual.

1.2 Other relevant documents

Document	
EVAstream: Electrical connections - PCB settings	www.evaoptic.com/downloads/
EVAstream: User manual	www.evaoptic.com/downloads/

1.3 Used symbols

This manual contains safety instructions. Ignoring these instructions may lead to injury or damage to the appliance. Each safety instruction is indicated with a signal word. The signal word corresponds with the level of risk of the described hazardous situation.

6 DANGER	This symbol indicates a hazardous situation which, if not avoided, will result in death or serious injury.
6 WARNING	This symbol indicates a hazardous situation which, if not avoided, could result in death or serious injury.
6 CAUTION	This symbol indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE	Indicates a situation that, if not avoided, could result in damage to the product or to the environment.

2 Safety

2.1 Safety warnings and regulations

6 DANGER

Electrical shock hazard. Fatal injury will occur. Switch off all electricity near the pool before installation or service.

6 WARNING

Electrical shock hazard. Risk of electric shock and injury. The product must be installed by a certified electrician. Incorrect installation will cause electrical hazards.

6 WARNING

Electrical shock hazard. Risk of electric shock due to incorrect mounting.

- Make sure you read the enclosed documents carefully.
- Never connect the product to the main power before connecting all loose wires properly.
- Always disconnect the product from the main power before servicing.

6 WARNING

Electrical shock hazard. Risk of electric shock due to leakage of current.

- Make sure to install the turbine with a PE-grounding.

NOTICE

Risk of product damage. Prolonged disturbance of frequency may permanently damage the equipment.

- Never place multiple cables in one conduit.
- Never place the motor control unit near a frequency controller.

2.2 General safety instructions

Follow the NEN1010 guidelines. Follow the specific installation requirements of IEC 60364-7-702: 2010 (Electric low-voltage installations - Part 7-702: Requirements for special installations, spaces, and areas – Swimming pools and fountains). Install the controller in or outside of zone 2 (NOT in zones 0 or 1) according to IEC 60364-7-702: 2010. The power supply must be equipped with an earth leakage circuit breaker (ELCB) with a nominal differential current ≤ 30mA.

The EVAstream was developed as a counter-current swimming machine for use in a swimming pool. Use for any other purpose is not permitted. Requests for exceptions to this should be submitted to the manufacturer for technical analysis. Only after written approval by EVA Tech B.V. may the EVAstream be applied in any other way than as prescribed in this document.

The general terms and conditions of EVA Tech B.V. apply to all our offers and agreements. EVA Tech B.V. expressly rejects the applicability of the general (purchasing) conditions of counterparties. The warranty provisions of the EVAstream and the general terms and conditions of EVA Tech B.V. can be found at www.evastream.nl

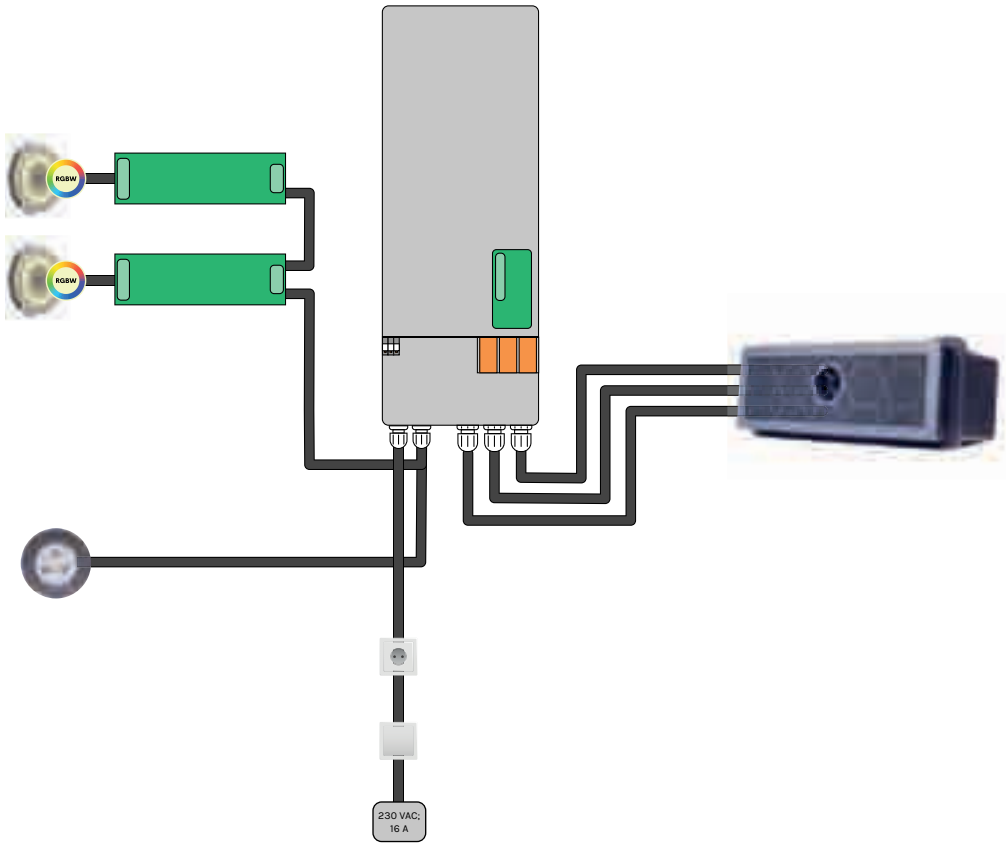
3 Product

3.1 Intended use and reasonably foreseeable unintended use

The EVAstream is intended to be used as a counter-current swimming machine. The PIEZO control panels are intended to be used to control the EVAstream.

3.2 Description

The EVAstream is a counter-current machine. The machine can be equipped with multiple control panels and EVA RGBW underwater lighting. The machine is controlled by the motor control unit (MCU).



Overview of an EVAstream configuration

NOTICE

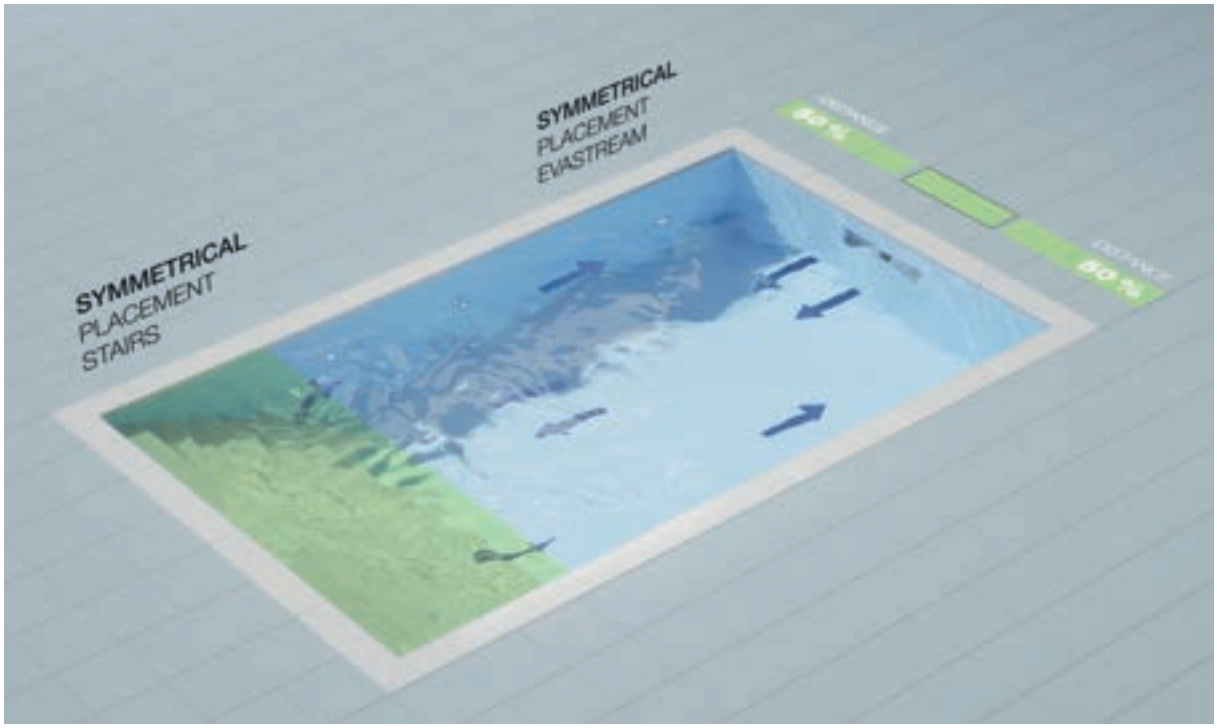
Risk of product damage. Prolonged disturbance of frequency may permanently damage the equipment.

- Never place multiple cables in one conduit.
- Never place the motor control unit near a frequency controller.
- For safety reasons, it is not allowed to mount lights other than EVA Optic to the EVAstream motor control unit.

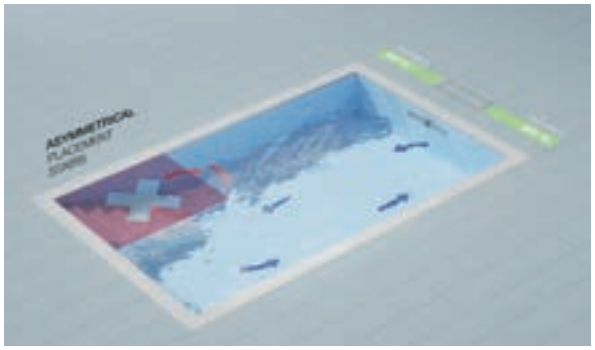
3.3 General specifications

EVAstream	
Power input	230 VAC; 10A
Cable motor	5 m, 16 mm2 Extend with max. 20 m using 25 mm2 cable (Flexible cable of fine copper wire strands)
EVA Piezo	
Cable	10m 7-wired aqua cable Optional: 30m 7-wired aqua cable
DMX	
Cable	2 wires > 0.22 mm2 + shield 110 Ohm

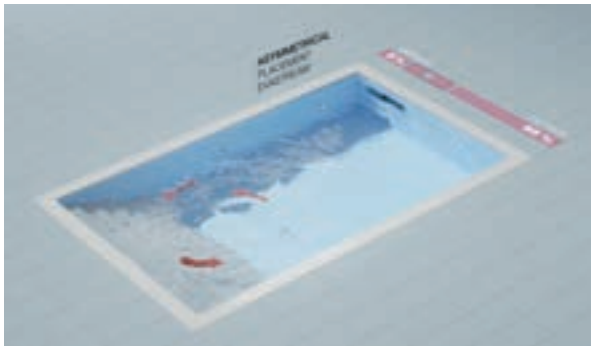
4 Symmetrical placement EVAstream



The importance of symmetrical placement of the EVAstream
To create the optimal swimming experience for the customer, it is important to think carefully about the positioning of the EVAstream in the design phase, for example in relation to elements such as stairs and platforms. Such 'obstacles' can cause a less pleasant swimming experience. For optimal water flow, the EVAstream should be placed in the middle of the pool wall in a symmetrically designed pool.

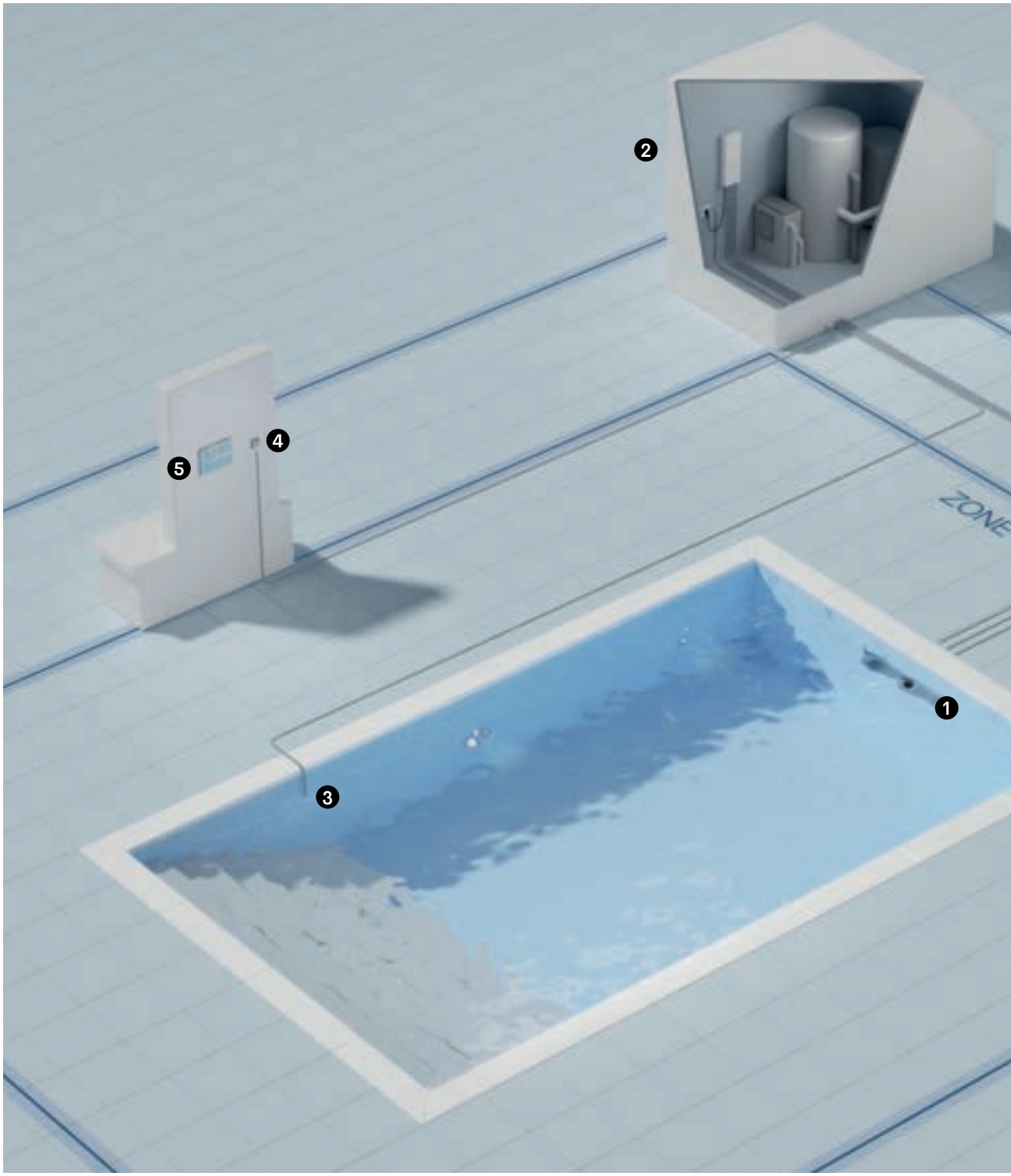


Blockages in the water circulation
Suppose you have placed a staircase in the corner of the pool. As a result, the circulation of the flow is not equal on both sides of the pool, because the staircase influences the flow. The flow of the EVAstream is still just as powerful, but the user experiences the current as if it were faltering.



Flow with asymmetrical placement
When a turbine is not placed symmetrically in the pool, the circulation of the current is not equal on both sides of the pool. The current of the EVAstream is still just as powerful, but it creates a kind of vortex in the middle of the pool.

5 Mounting the EVAstream





1. EVAstream turbine

Water suction takes place through the grids around the machine. Always make sure that the suction parts are completely free of obstacles. These parts of the machine must not be closed or blocked in any way (EN 13451-1/3).

For instructions on how to mount the turbine, go to 5.4.

2. Motor Contol Unit

The motor control unit (MCU) of the EVAstream is placed in the technical area near the pool (a dry and condensation-free environment, zone 2). Ensure that the MCU is placed with the cable glands facing down.

3. EVA Piezo

Start/stop or adjust the speed of your EVAstream swimming workout at the touch of a button, right from the pool.

For instructions on how to mount the EVA Piezo, go to 5.3.

4. ON/OFF switch

If the EVAstream is permanently connected to 230V mains, the installation must additionally be equipped with an on/off switch mounted near the swimming pool where the EVAstream is located.

5. EVA Experience web app

Use the EVA Experience web app to manage the EVAstream.

For instructions on how to set up the tablet environment, please refer to the manual Eletrical connections & PCB settings

5.1 Use of mounting materials:

- Only use the accessories/bolts/screws/nuts that are supplied by EVAstream.
- Only use the original mounting accessories. Warranty expires irrevocably if other materials are used.
- For safety reasons, it is not allowed to mount lights other than EVA Optic to the EVAstream motor control unit.
- Make sure that the EVAstream cable (or any other cabling!) cannot be sucked in by the machine.

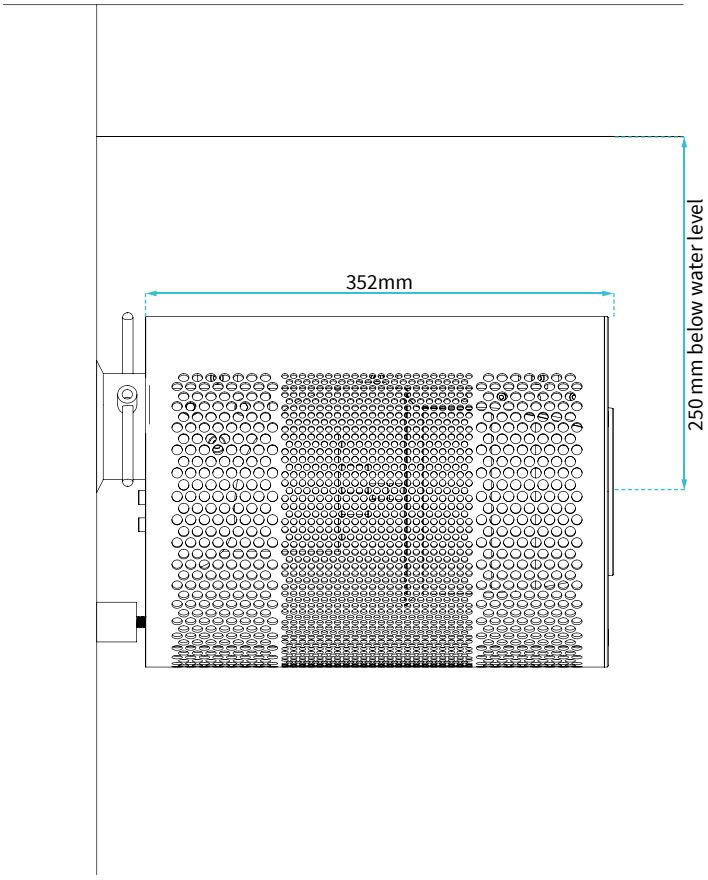
5.2 Mounting the EVAstream surface mounted

1. EVAstream mounted with powerful suction cups

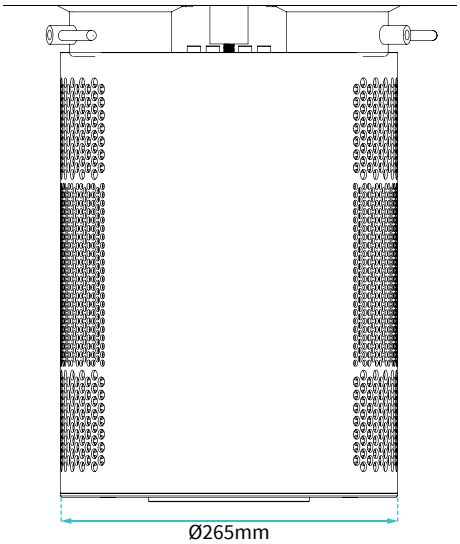
- Mounting depth: 250 mm below water level.
- Mount the EVAstream horizontally on wall, in the middle of the poolwall.
- When the EVAstream is permanently mounted in the pool, it must be grounded.







side view

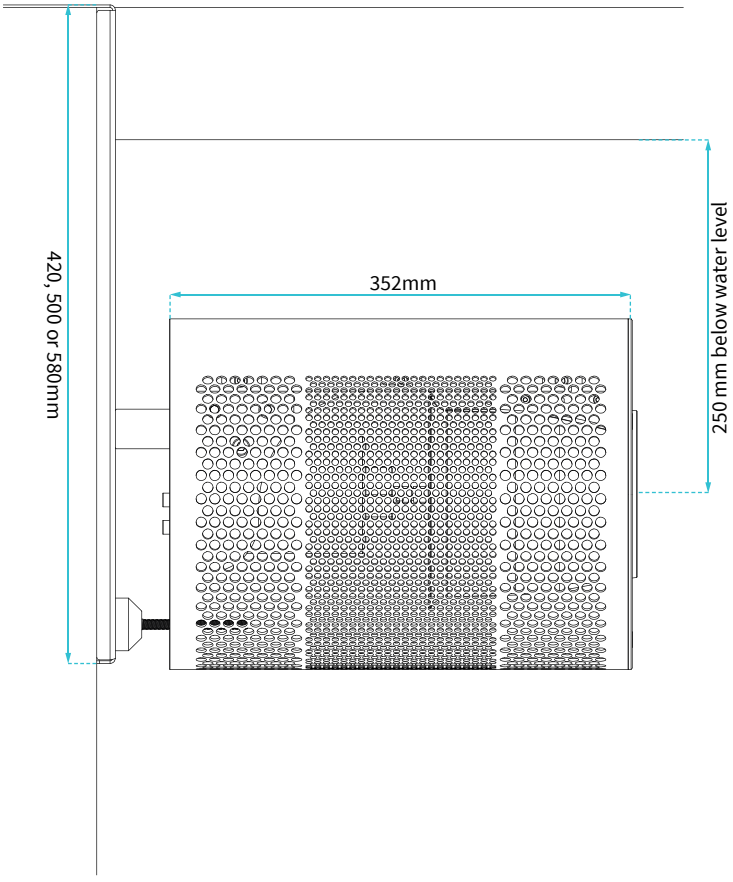


top view

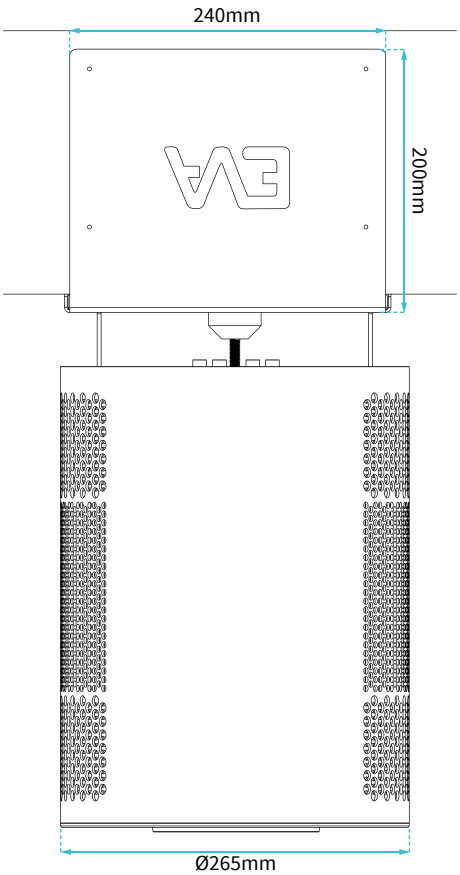
2. EVAstream mounted with fixed position on the wall

- Mounting depth: 250 mm below water level.
- Mount the EVAstream horizontally on wall, in the middle of the poolwall.
- Please note that the fixed stainless steel parts must be connected to the ground





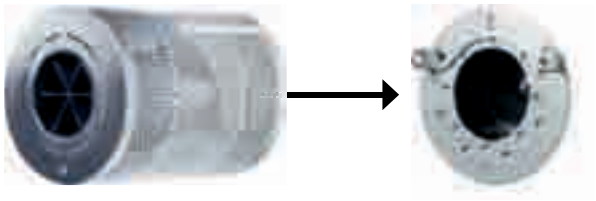
side view

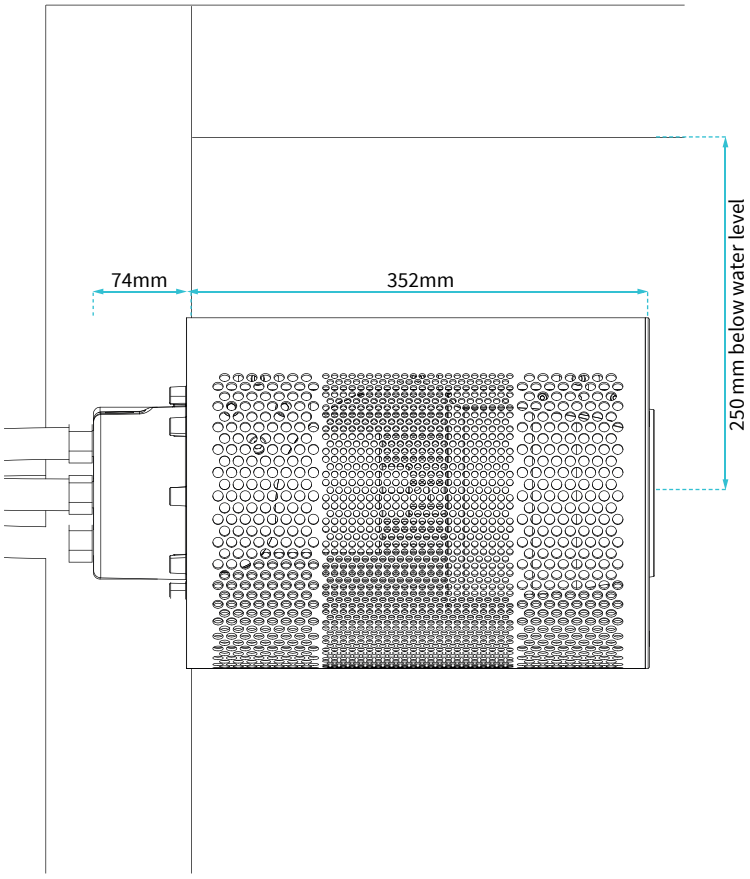


top view

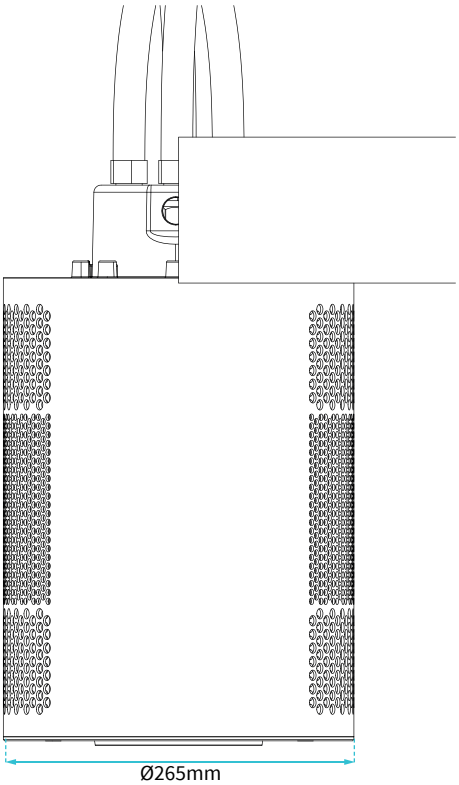
3. EVAstream mounted on an installation niche

- Mounting depth: 250 mm below water level.
- Mount the EVAstream horizontally on wall, in the middle of the poolwall.
- Please note that the fixed stainless steel parts must be connected to the ground





side view



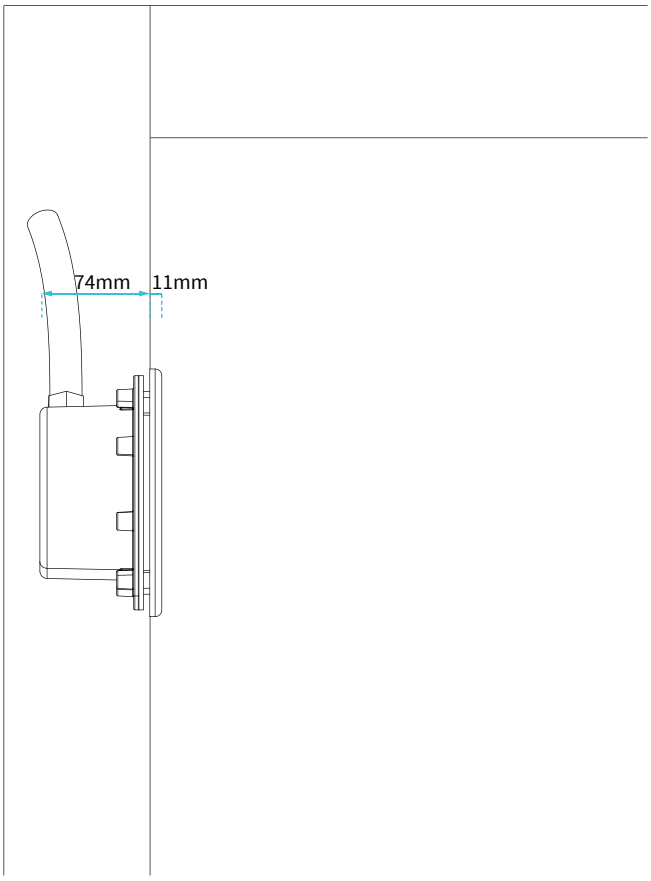
top view

5.3 Mounting the EVApiezo

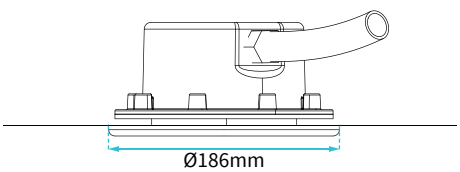
EVA Piezo mounted on an installation niche

- Mount the EVA Piezo in a place in the pool where you can use it easily





side view



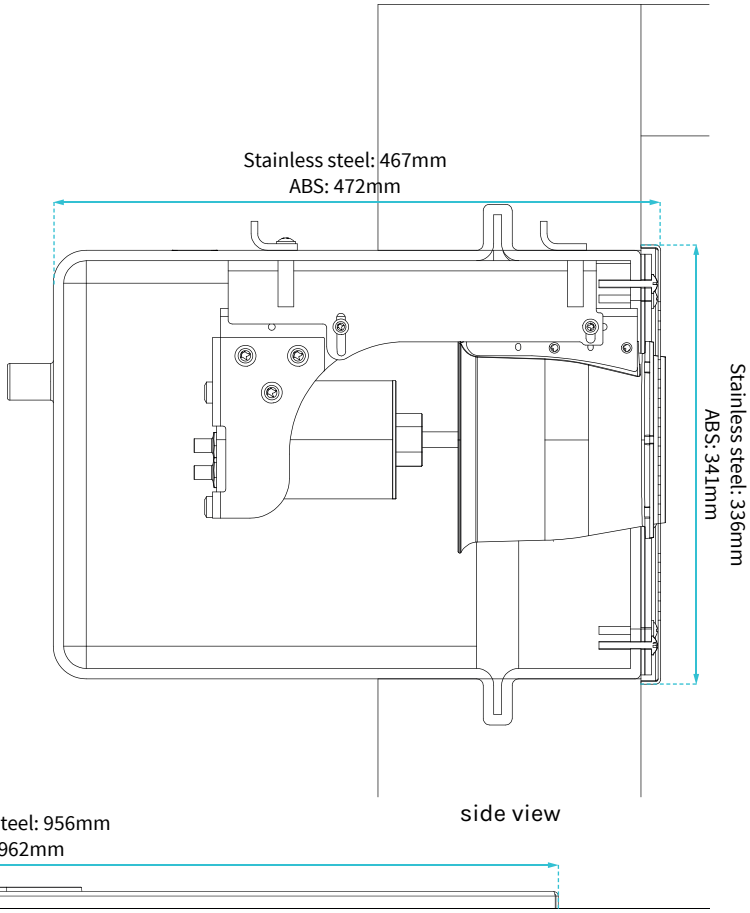
top view

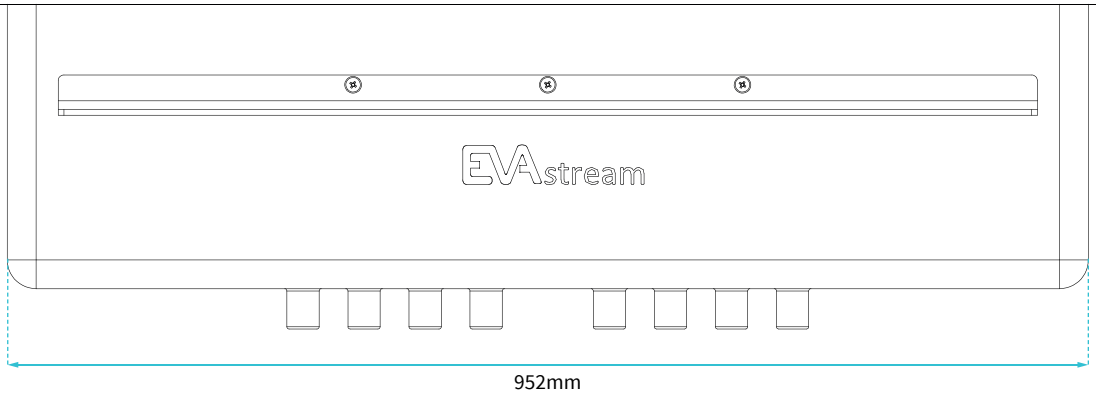
5.4 Mounting the EVAstream recessed mounted

1. EVAstream installation niche PP

- Mounting depth: 250 mm below water level (centre of the turbine).
- Mount the EVAstream horizontally on in the middle of the poolwall.
- See 5.5 (page 17) for mounting the turbine.



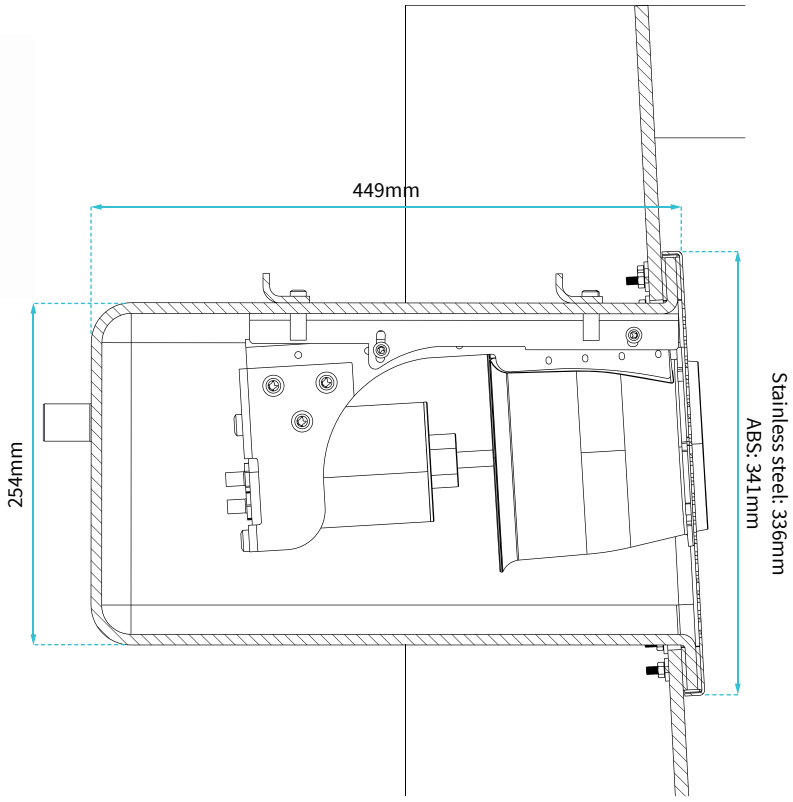




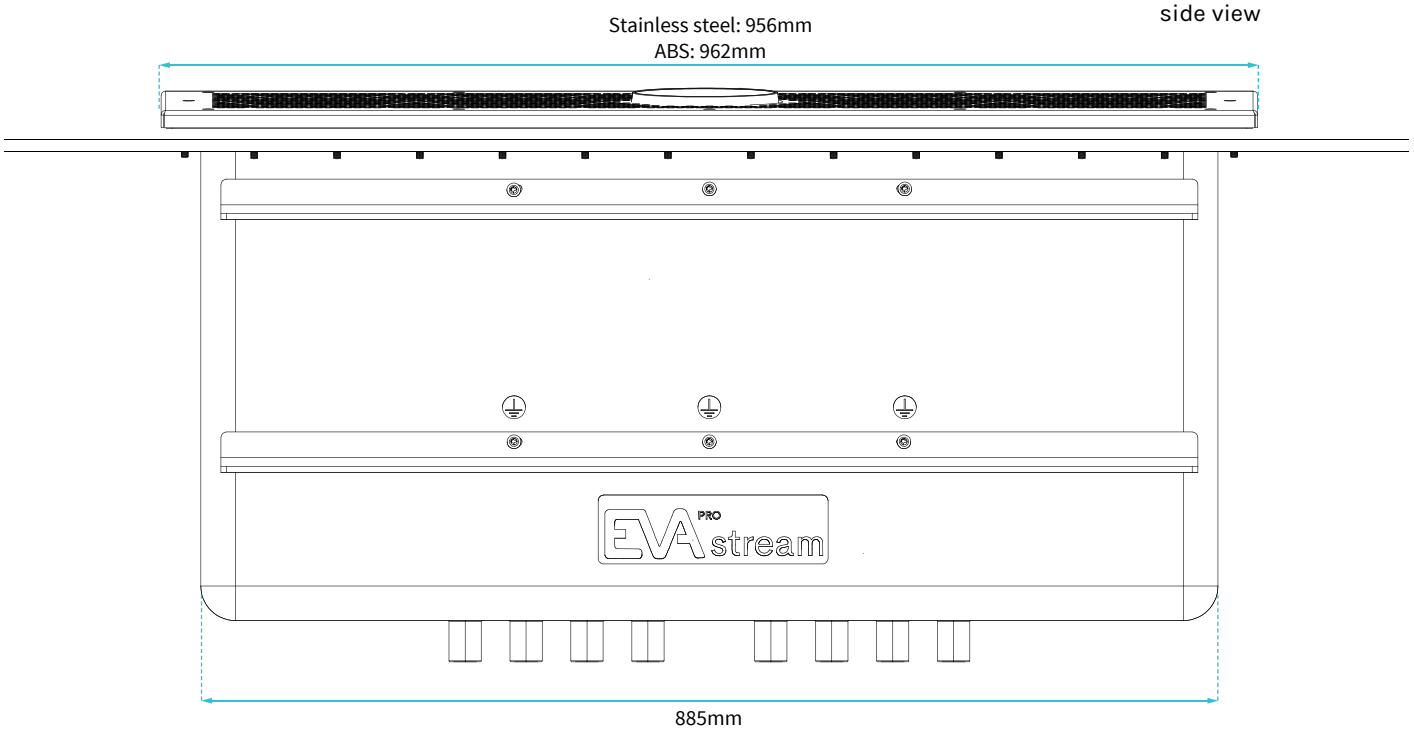
2. EVAstream installation niche POLY

- Mounting depth: 250 mm below water level (centre of the turbine).
- Mount the EVAstream horizontally in the middle of the poolwall.
- See 5.5 (page 17) for mounting the turbine.





side view

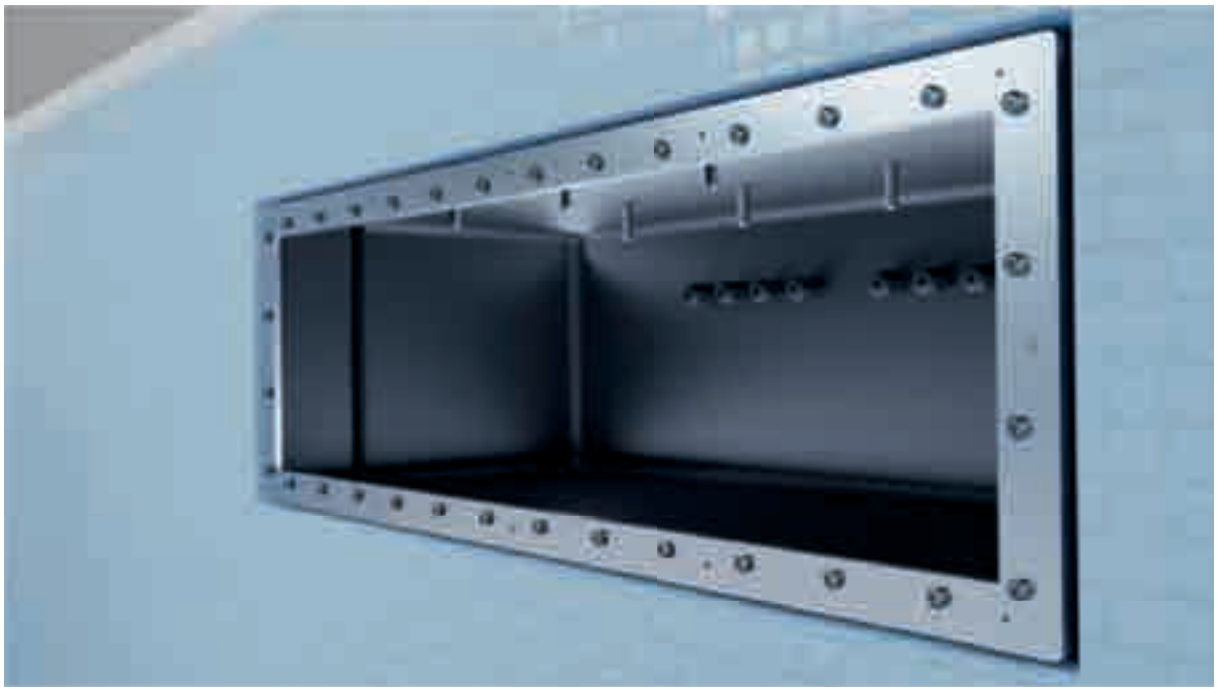


top view

5.5 Remove the ribs

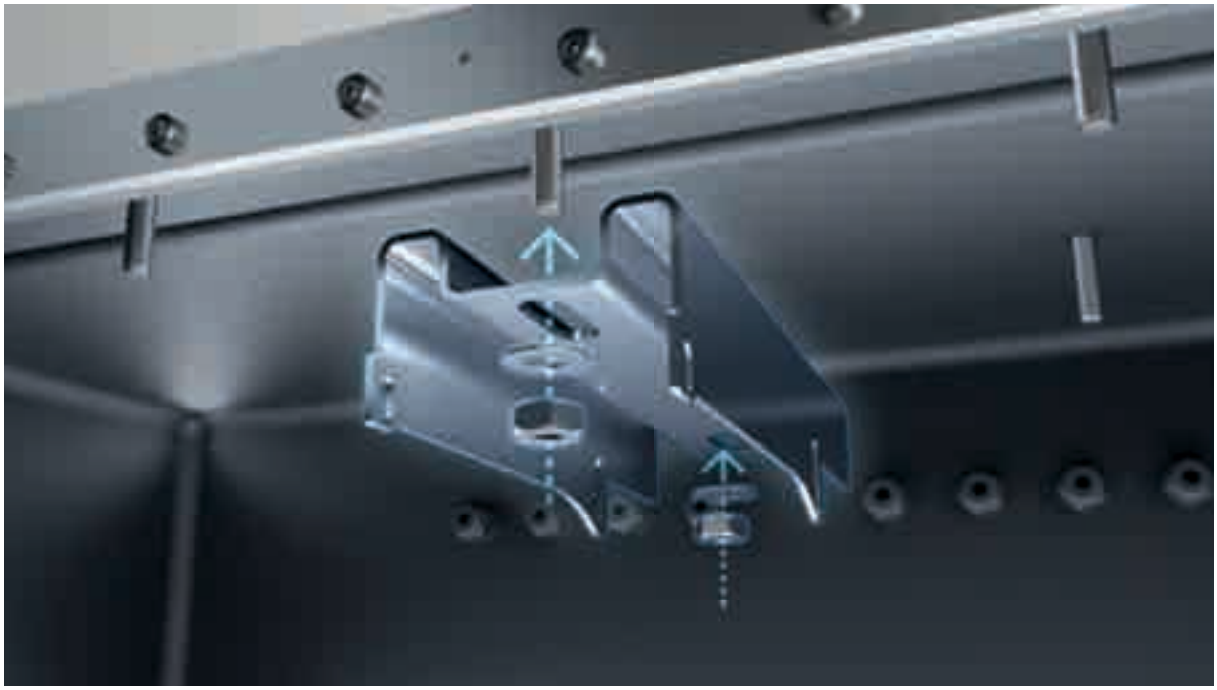


1. Remove the ribs with a saw suitable for plastic
Use a saw suitable for plastic and saw off the ribs according to the blue dotted line.

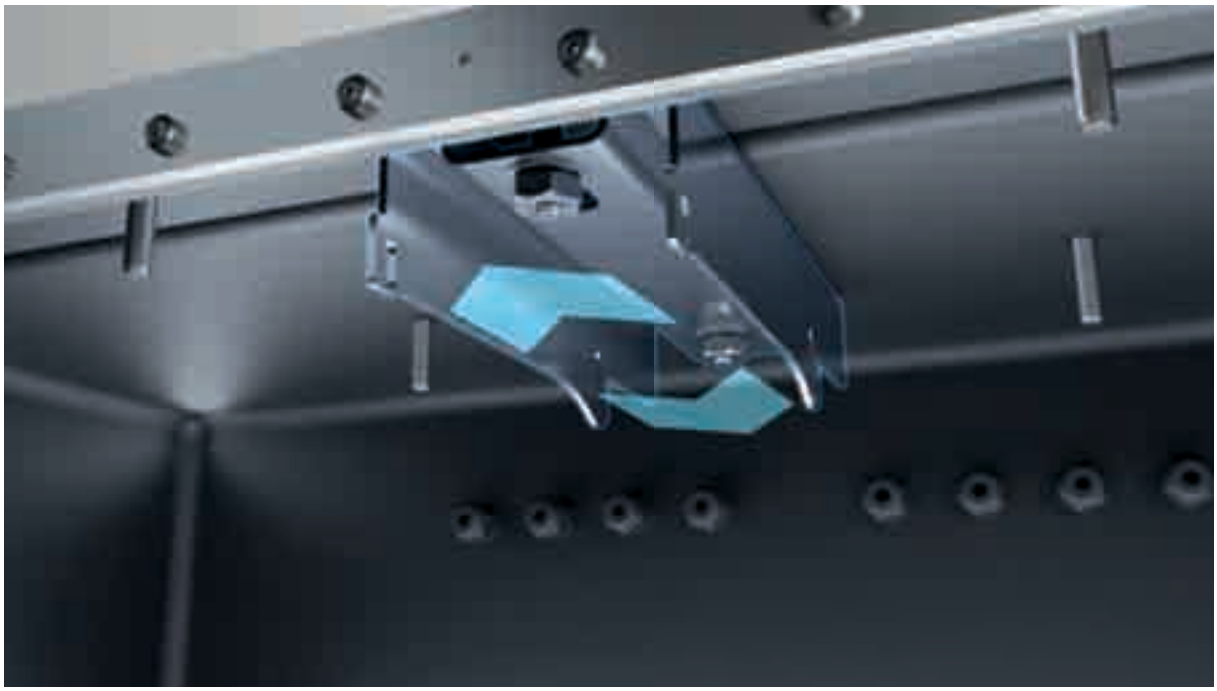


2. Empty installation niche
The installation niche is now completely empty and ready for mounting the turbine.

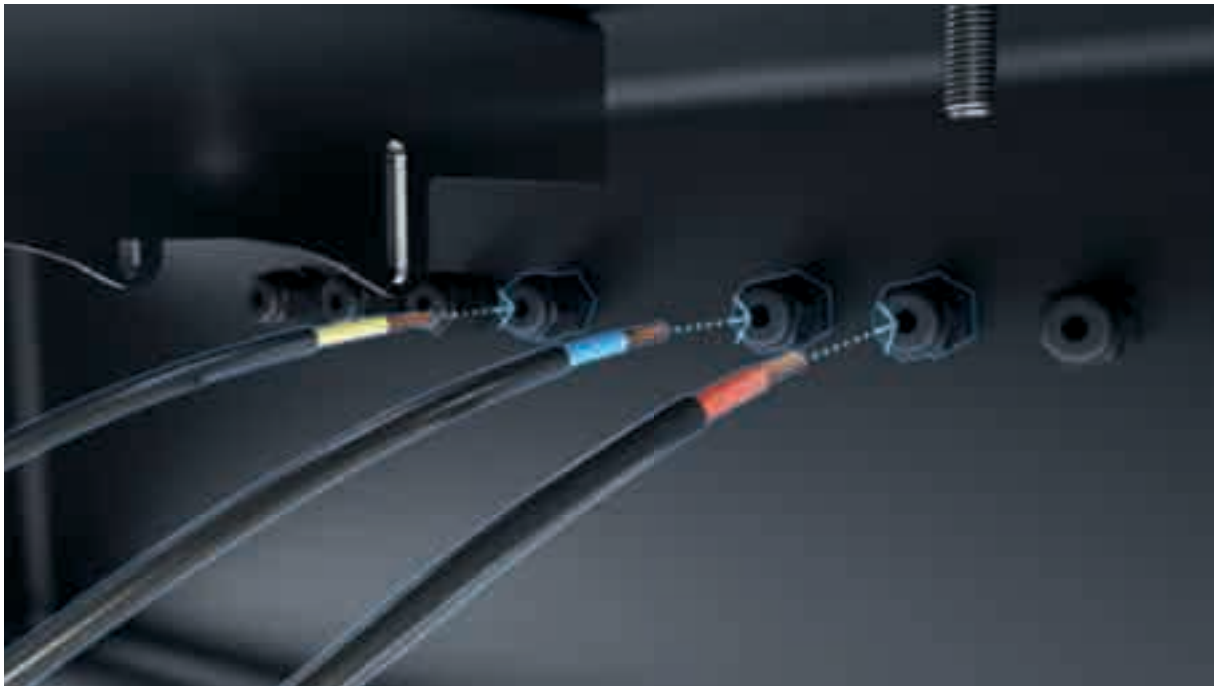
5.6 Mounting the EVAstream turbine



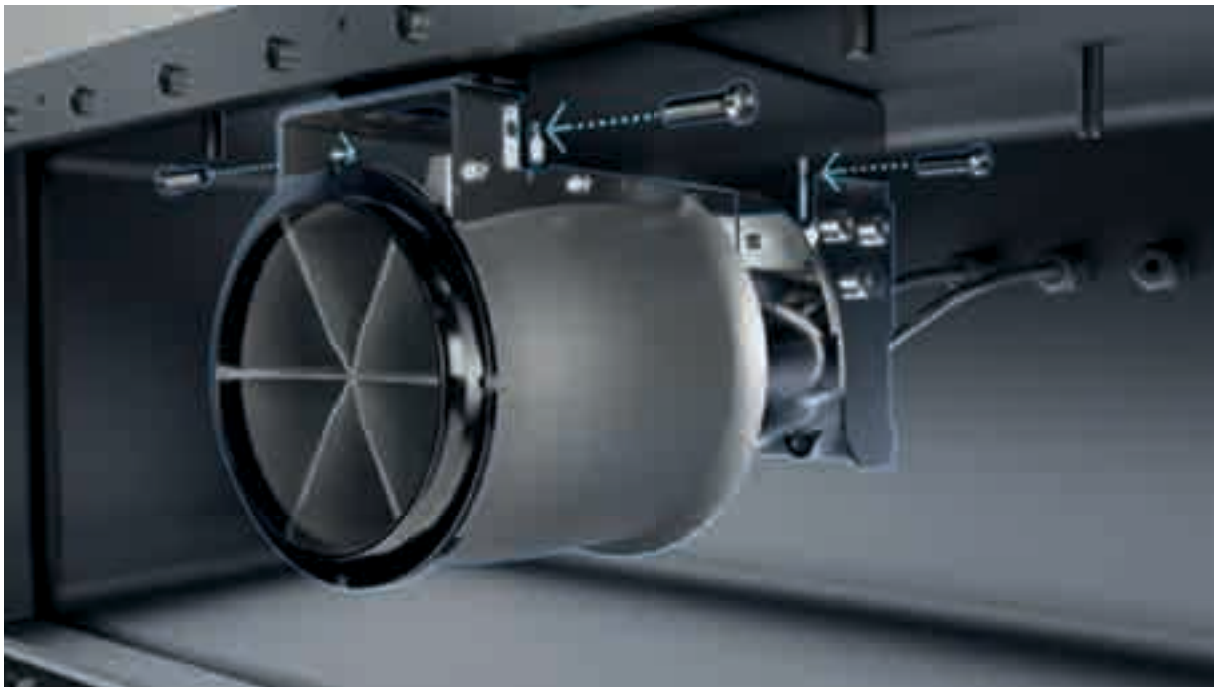
1. Mount the bracket in the niche
Use the washers and M12 nuts.



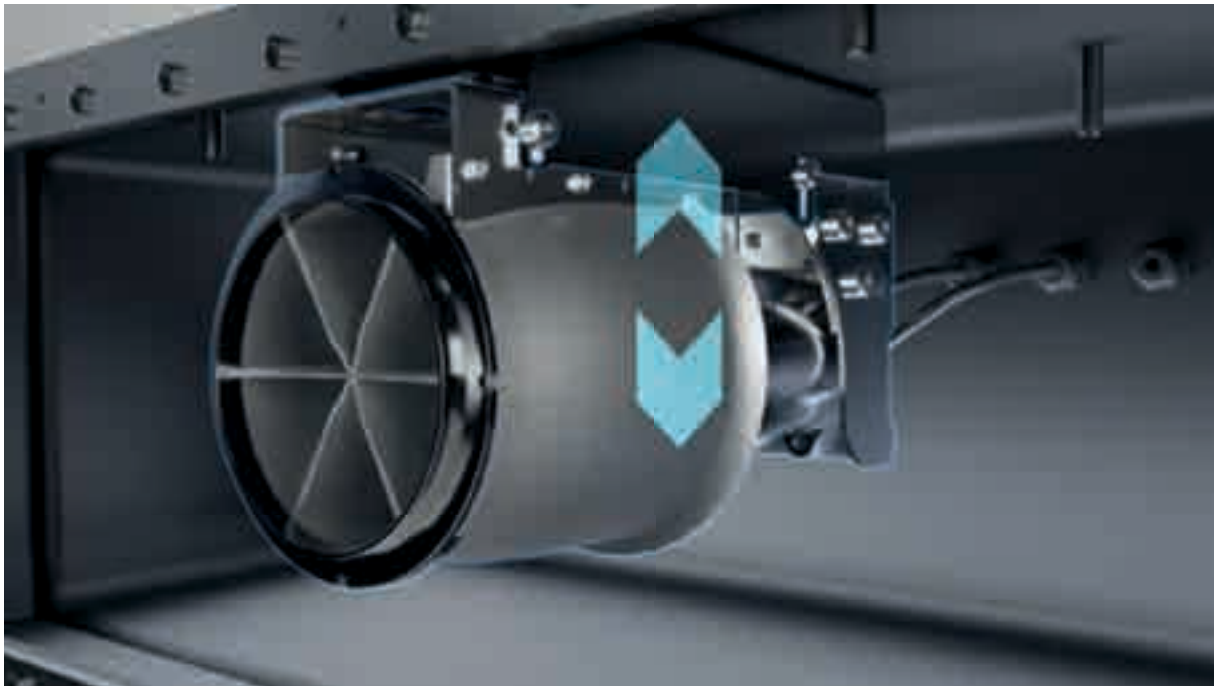
2. The bracket is still adjustable
Make sure the bracket can be moved forwards and backwards.



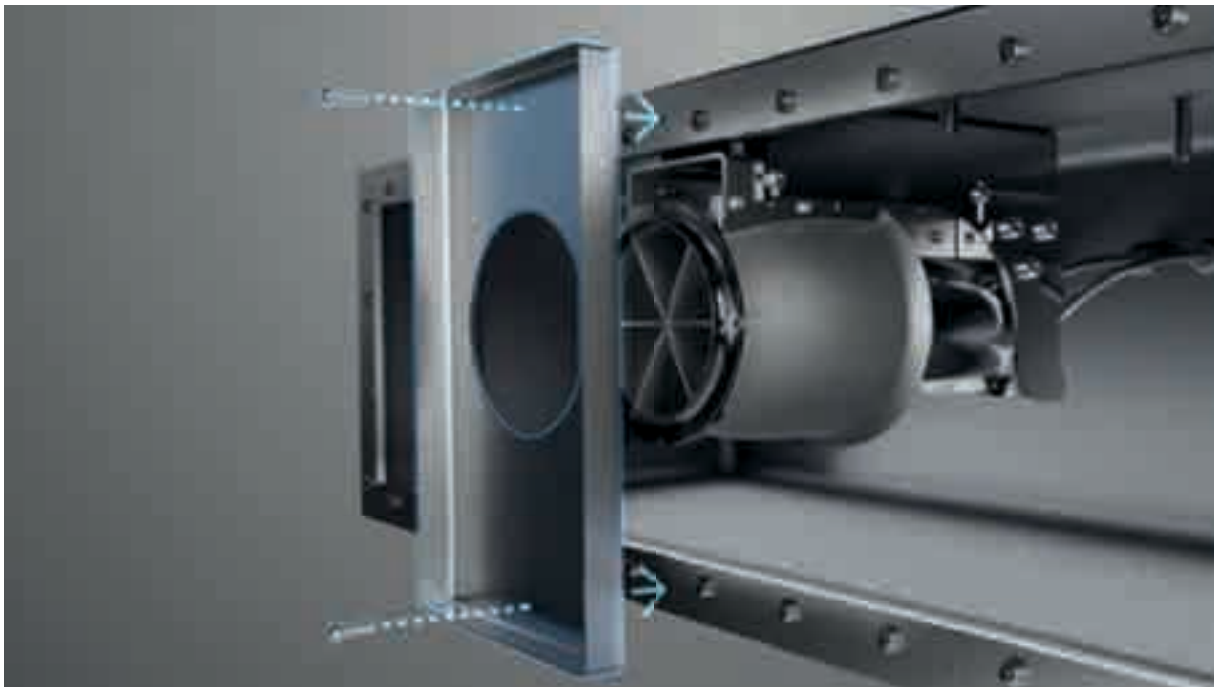
3. Put the turbine cables through cable glands
Use red, orange and black cables. Do not change the colors of the cables!



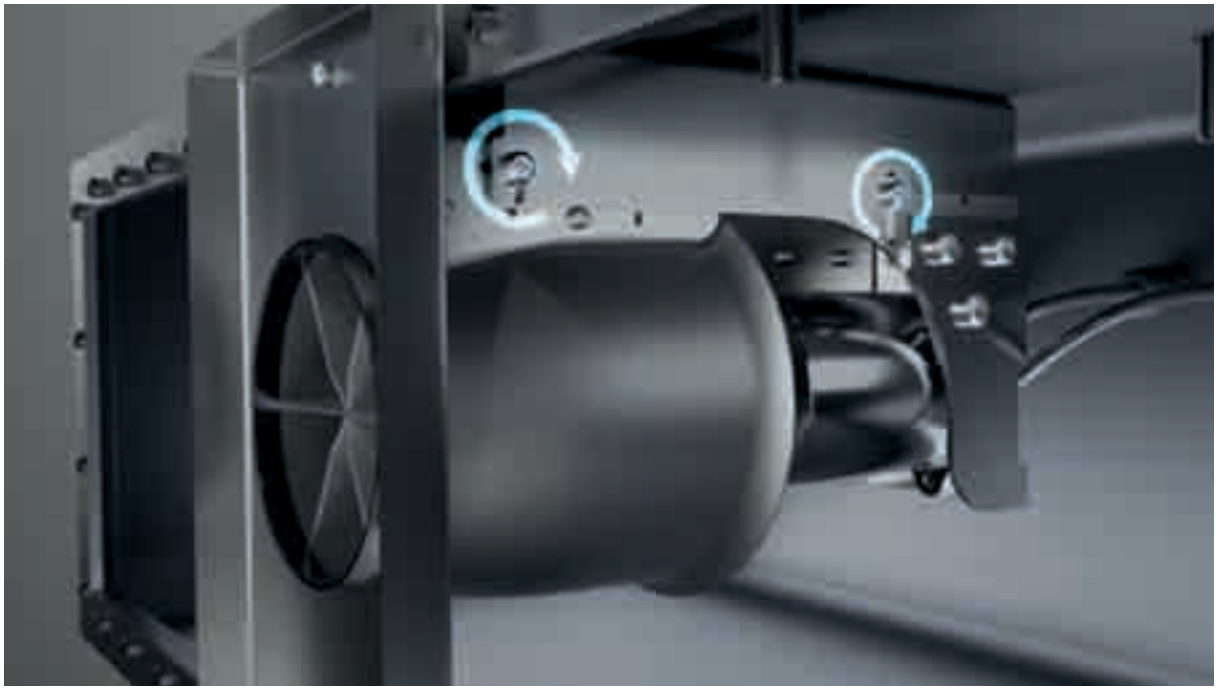
4. Mount the turbine to the bracket
Use the M6x10 screws.



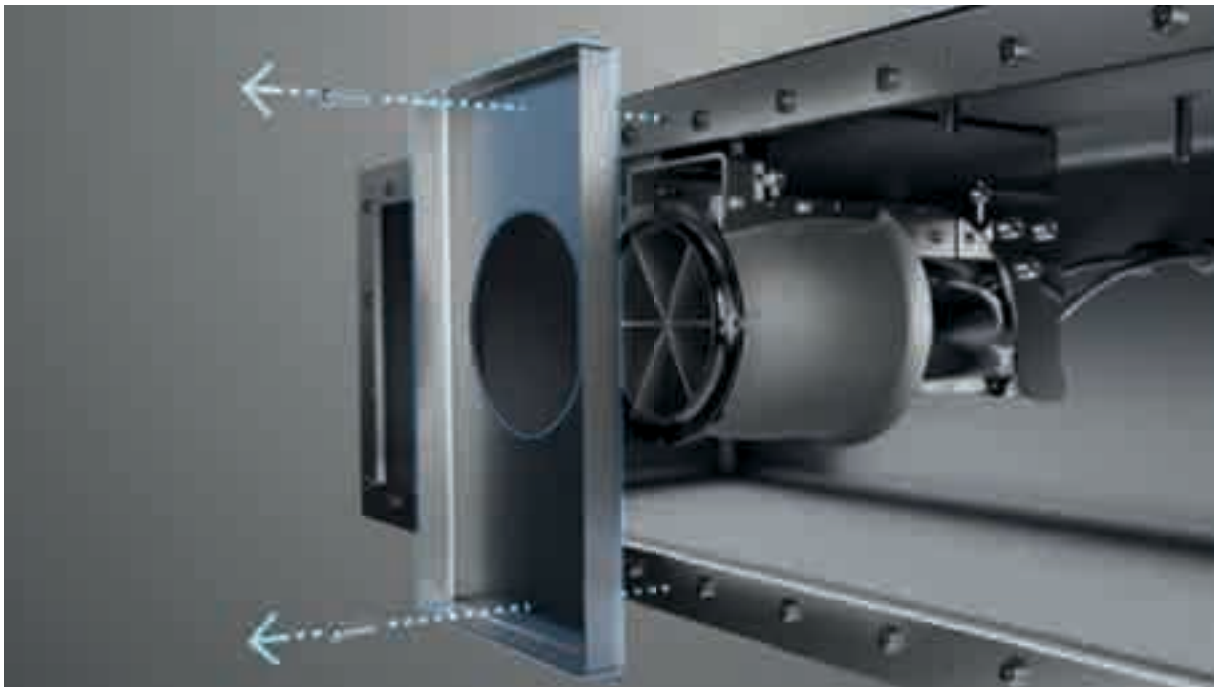
5. The turbine is still adjustable
Make sure the turbine can be moved up and down.



6. Mount the adjusting plate to the niche
To ensure the correct horizontal position of the turbine



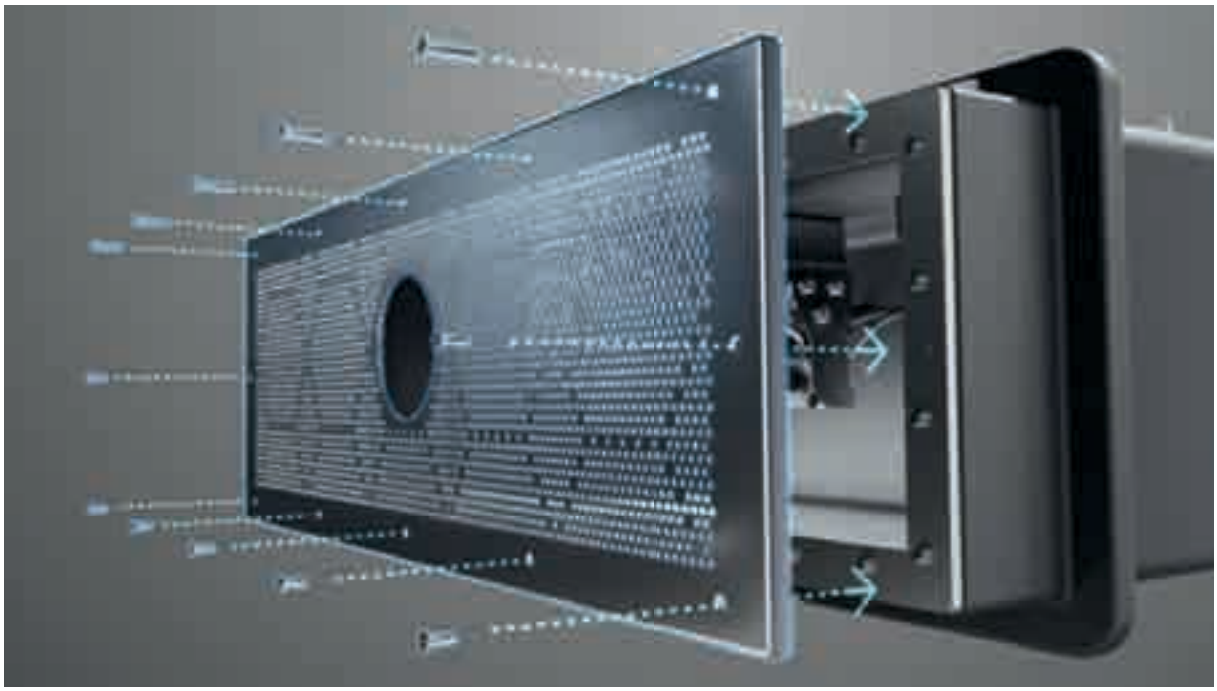
7. Tighten the turbine to the bracket
The front of the turbine must be pressed against the adjustment plate to ensure the correct position. Secure the turbine by tightening the screws.



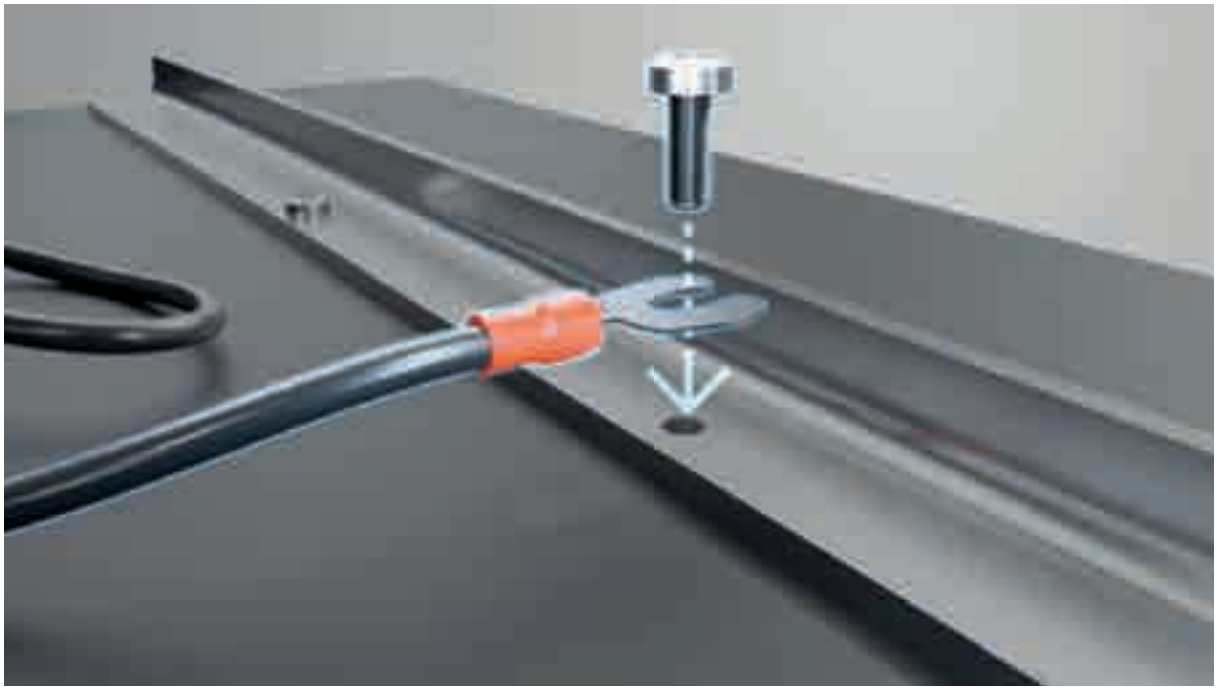
8. Remove the adjustment plate
This was only used to ensure the correct horizontal position of the turbine



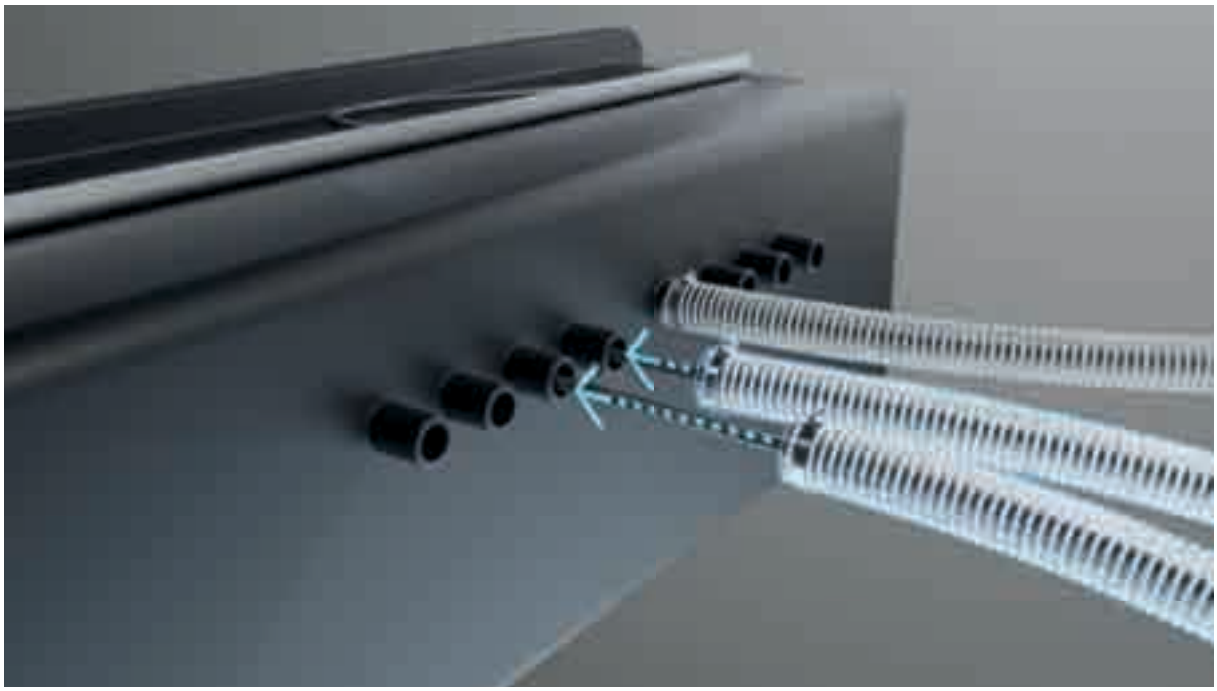
9. Tighten the bracket to the niche
Secure the bracket to the niche by tightening the nuts. The turbine is now set to the correct base height and completely fixed mounted.



10. Mount the frontplate to the niche
Use the M5x12 screws with a stainless steel frontplate.
Use the M5x16 screws with an ABS frontplate.

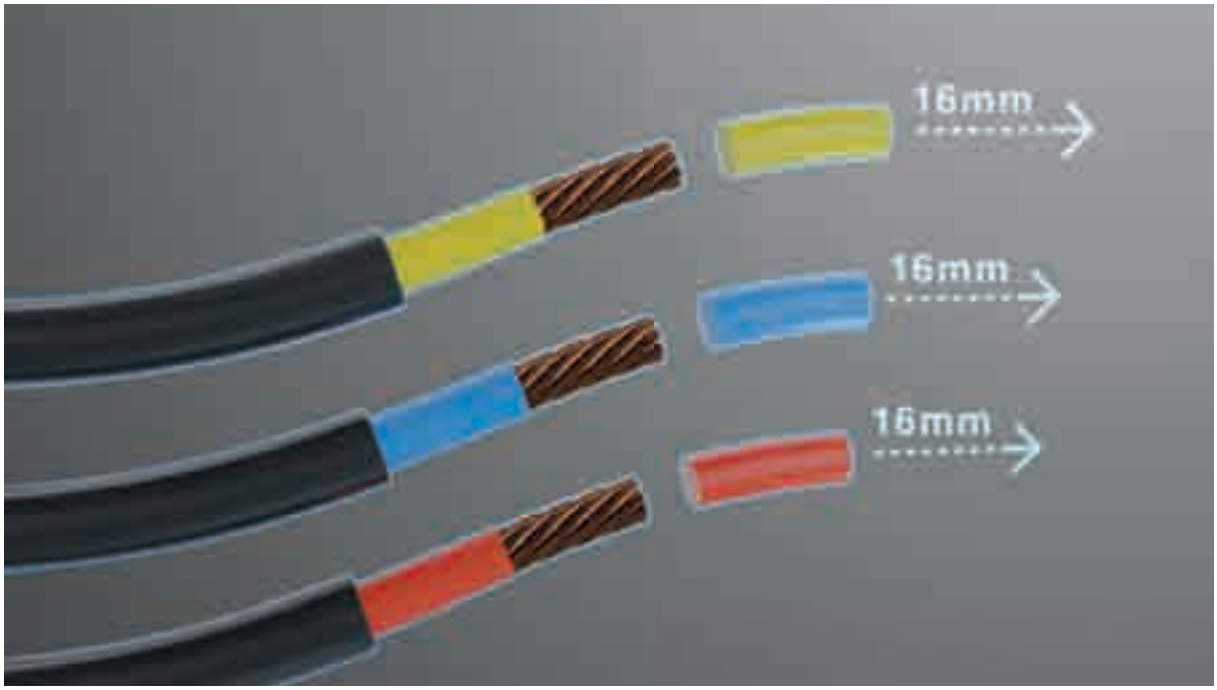


11. Ground the installation niche
The installation niche needs to be grounded on the top of the niche.



12. Mount the conduit pipes
The cables need to be placed in separate conduit pipes.

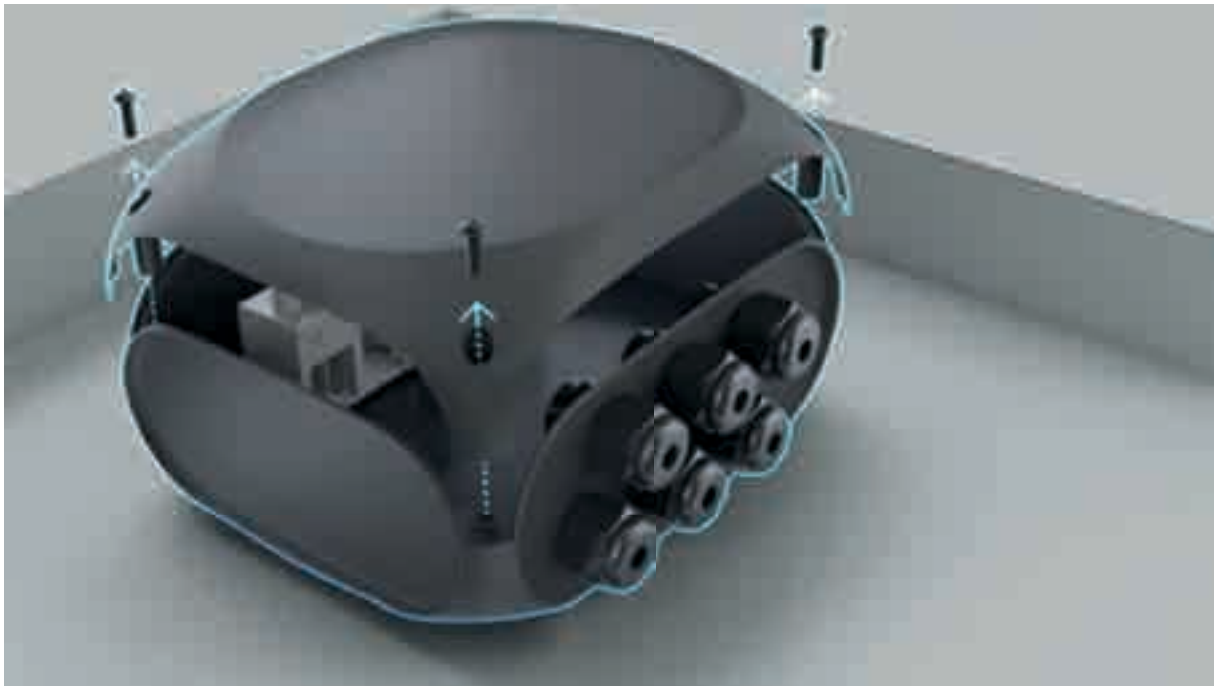
5.7 Optional - Cable extension



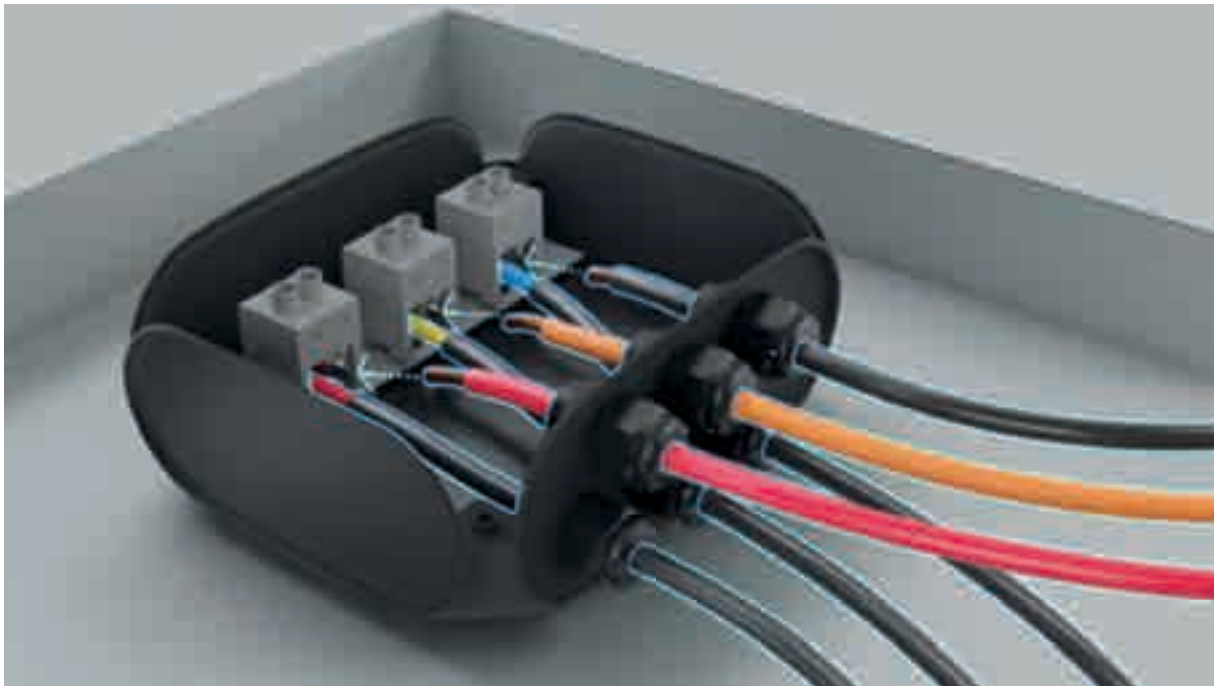
1. Dismantling the cables
Make sure the cables are properly finished. Dismantling length should be 16 mm.



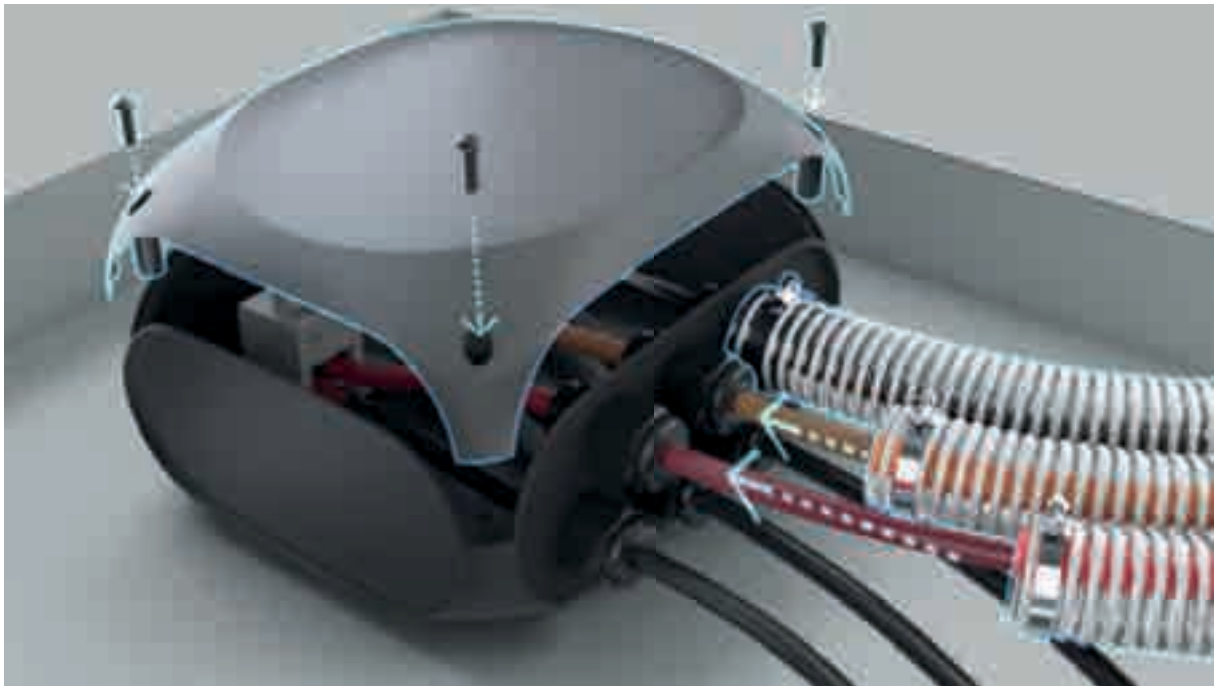
2. Choose your cable
Use 3x1x25mm2 cable to a maximum cable length of 20 meter (total maximal 25 meter inclusive existing cable).



3. Place the EVA connection box
The cable connection box must be placed above the ground (accessible)



4. Connect the cables
Use red, orange and black cables. Do not change the colors of the cables!



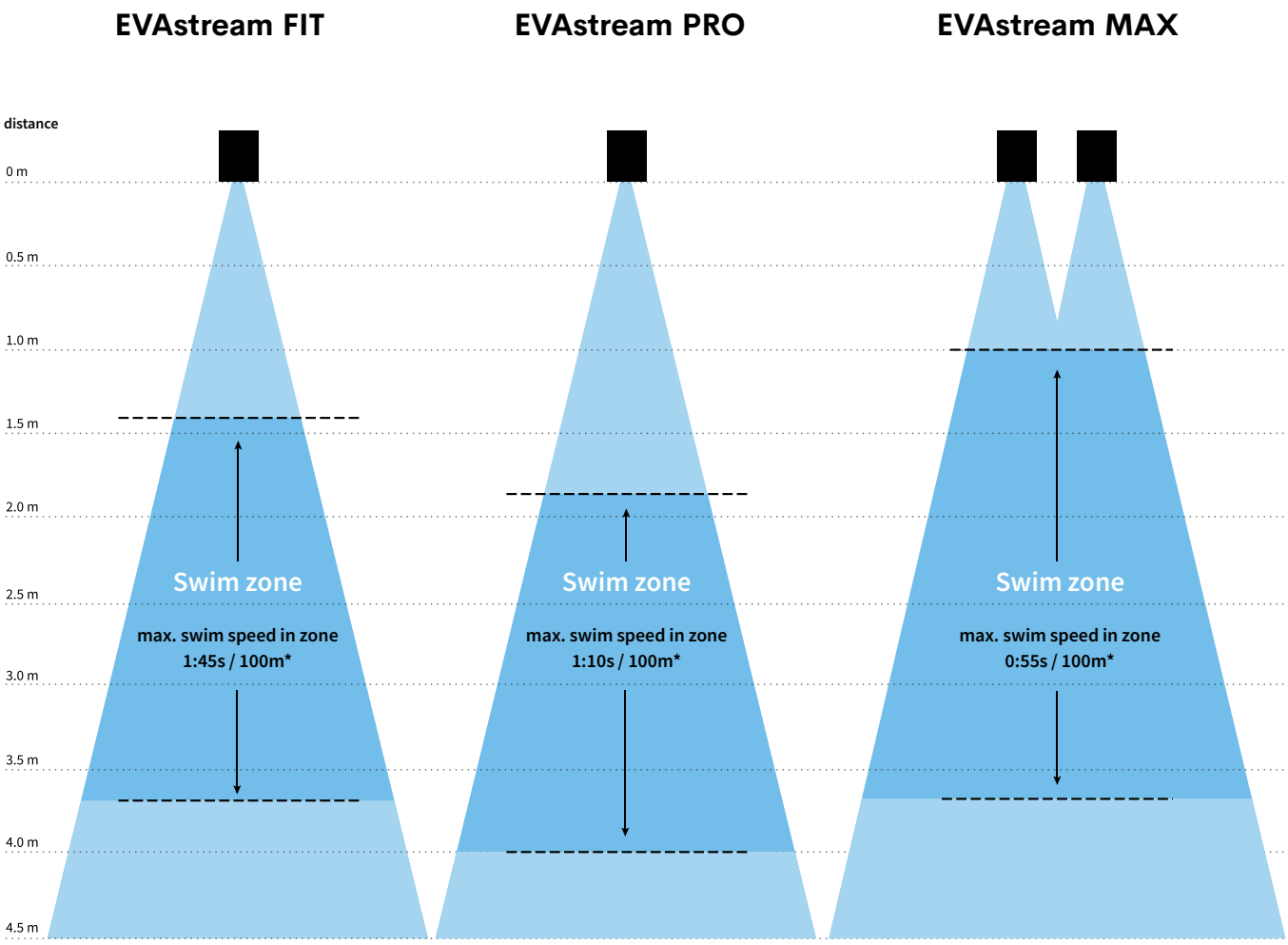
5. Mount the conduit pipes
The cables need to be placed in separate conduit pipes and close the connection box.

6 Create the best swimming zone

The customer's swimming experience fully depends on the correct placement of the turbine. By placing the turbine at exactly the right height, you ensure that the current reaches the swimmer's chest.

1. Determine swimming zone

You start by determining the swimming zone of the user. Did he or she choose an EVAstream Fit, Pro or Max? Then you can use the images to determine exactly what the user's swimming zone is. This is always the same per type, regardless of the height of the swimmer.



**Measurements adult proffesional swimmer. Body size and mass affect swim speed*

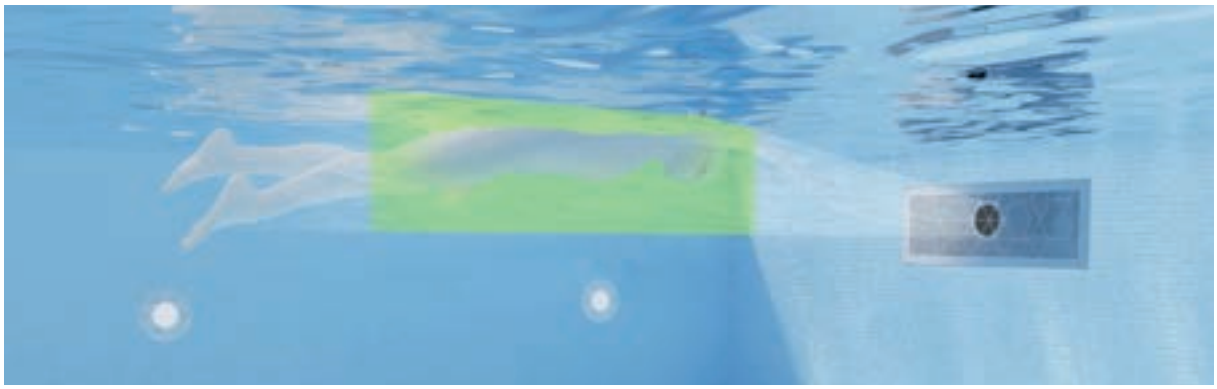
2. Turbine placement EVAstream 250 mm

For the positioning of the turbine we advise 250 milimeters (centre of the turbine) below water level. Mount the EVAstream horizontally in the wall, in the middle of the wall.



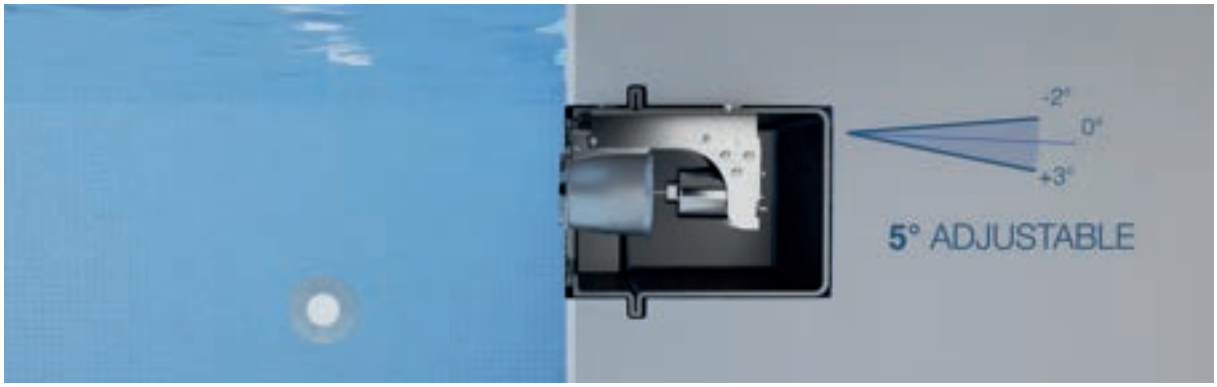
3. Check the swimming zone

The flow is directed at the torso and not at the head, so that there is free breathing space while swimming. The current is also wide and stable enough to encompass the entire body. When you swim over the water flow, or you get water in your face, the turbine has to be adjusted.



4. Adjust the turbine if necessary

You can adjust the turbine a little higher or lower with the adjustment jig at the customer's request. The turbine can be adjusted a maximum of 2 degrees downwards or 3 degrees upwards using adjusting bolts on the side. This way you ensure that every customer has an optimal swimming experience.



7 Check before

7.1 Check before switching on the EVAstream

The machine and the basin in which it is placed must be completely free of obstacles (small and large) before the machine is switched on.

The EVAstream machine may only be operated underwater. Always fully submerge the machine before use. Serious and permanent damage to the machine can occur if the EVAstream is not submerged during use.

7.2 Check before using the EVAstream

Always read the included user manual before using the machine. The user manual is also published online at www.evastream.nl.

7.3 Maintenance and repairs

The EVAstream comes equipped with a connection cable with plug. If the EVAstream is permanently connected to 230V mains, the installation must also be equipped with a main switch/isolation switch in the space where the Motor Control Unit is installed. During maintenance and work, this switch must be used to de-energise the installation.

In the space where the swimming pool with EVAstream is located, an on/off switch must be mounted for the user (in case of a permanent connection to 230V mains). Users should use this on/off switch to turn on the machine right before use and turn it off immediately after use.

Never open the turbine. Any form of maintenance or repair must be carried out at the factory of EVA Tech B.V. In case of an established defect, the machine must be dismantled and transported to the EVA Tech B.V. factory in the Netherlands in agreement with the supplier.

Any attempt to open the machine will cause permanent and irreparable damage. Warranty expires immediately after any attempt to open the machine.

8 Disposal

8.1 Decommissioning

6 WARNING

Electrical shock hazard. Risk of electric shock and injury. Make sure to disconnect the product from the mains cable before decommissioning.

1. Switch off the power.
2. Switch off the power around the swimming pool.
3. Disconnect the mains cable.
4. Disconnect all other cables.

8.2 Disposal

Before disposing of the different materials, separate them into recyclables, normal waste and special waste. Comply with local legal regulations and provisions when disposing the product and the individual components. A product marked with the WEEE symbol must be sent for separate collection of electrical and electronic devices. Contact your supplier for more information.

Attachment 1

Norm compliance

EMC Directive: 2014/30/EU	Low-voltage LVD Directive: 2014/35/EU
EMI Electromagnetic Emission	EN 60364-4-41
EN 55032 (CISPR32) Class A, B	EN 62368-1
	EN 60364-7-702
EMC Electromagnetic Compatibility	
EN 61000-3-2	
EN 61000-3-3	
EMC Immunity & Safety	
EN 61000-4-2	
EN 61000-4-3	
EN 61000-4-4	
EN 61000-4-5	
EN 61000-4-6	
EN 61000-4-8	
EN 61000-4-11	
EN 55024	
EN 615204-3	
EN 61000-6-2	
Specific standards	
EN 13451-1	
EN 13451-3	
EN 16582-1	
EN 16582-2	
EN 16582-3	
EN 16713-2	
EN 15288-1	
EN 60204-1	

Attachment 2

Environmental conditions use EVAstream

Ambient temperature of power supply box
(mounting in a dry condensation-free room):
0°C to 32°C

Water temperature:
+1°C to +35°C

Attachment 3

Water Values

The user of the EVAstream is responsible for providing the right conditions for an optimal product life cycle. To fulfil the warranty conditions, the EVAstream should only be used in basins with a water composition within the following limits:

- pH value: 6.8 – 7.8
- Maximum chlorine levels for water:
    - Indoor swimming pool – Free available chlorine (FAC): 0.5 ≤ VBC ≤ 1.5 mg / l
    - Open-air swimming pool >= 20 m2 – Free available chlorine (FAC): 0.5 ≤ VBC ≤ 3.0 mg/l
    - Open-air swimming pool < 20 m2 – Free available chlorine (FAC): 0.5 ≤ VBC ≤ 5.0 mg/L
- All basins – Bound available chlorine: < 0.6 mg/l
- The basin and the available accessories must be free of electrolysis.
- Installation housing must be properly earthed to prevent electrolysis.
- Cyanuric acid: ≤ 100 mg/l
- Metals: ≈ 0 mg/l
- Carbonate hardness: ≥ 2°dH (°dH = mmol/l x 2.8); (°eH =mmol/l x 3.5); (°fH = mmol/l x 5.0)
- Ozone: 0 mg/l
- chlorite + chlorate: ≤ 30 mg/l
- Redox potential: ≥ 700 mV

Attachment 4

Unintended uses

- Not for use in potentially explosive areas.
- Not for use in an aggressive environment (gases, acids, vapours, substances, oils).
- Not for use in dirty water.
- The turbine should not be used above water.
- Depending on the type of concrete, the installation shaft must be protected. When using concrete with high chloride and sulphate constituents (e.g. Thermotec), the back of the installation shaft must be protected against these harmful substances with a PE film (building protection film).

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