

## EVAstream FIT, PRO and MAX

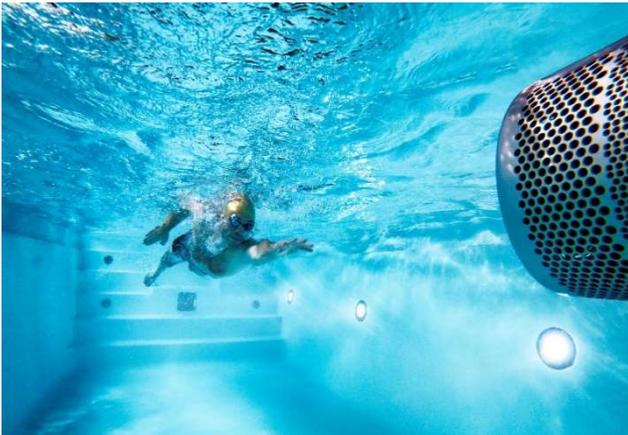
### PART I + II Safety, Mounting and Installation instructions



**Follow the directions for assembly, electrical installation, and use carefully. Failure to comply or inadequate compliance with these important instructions can result in serious personal injury or property damage. We do not accept any claim under warranty and/or liability for material and/or intangible damage as a result of failure to comply with these regulations regarding installation, mounting, and use.**

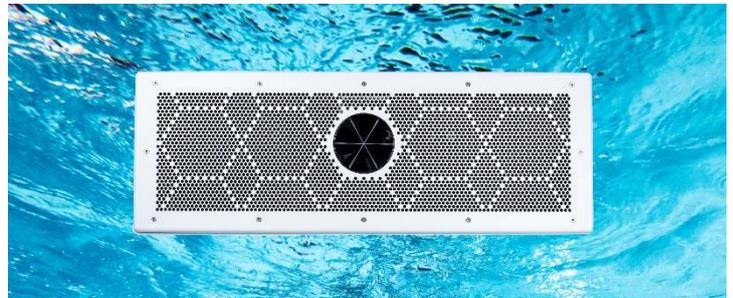
The general terms and conditions of EVA Tech B.V. apply to all our offers and agreements. EVA Tech B.V. expressly rejects the applicability of the general (purchasing) conditions of counterparties.

The warranty provisions of the EVAstream and the general terms and conditions of EVA Tech B.V. can be found at [www.evastream.nl](http://www.evastream.nl)



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*EVAstream recessed*



*EVAstream surface mounted*



EVA products  
wiring diagrams

## Norm compliance

<b>Low-voltage LVD Directive: 2014/35/EU</b>	
■ EN 60364-4-41	
■ EN 60364-7-702	
■ EN 62368-1	
<b>EMC Directive: 2014/30/EU</b>	
<i>EMI Electromagnetic Emission</i>	
■ EN 55032 (CISPR32) Class A, B	
<i>EMC Electromagnetic Compatibility</i>	
■ EN 61000-3-2	■ EN 61000-3-3
<i>EMC Immunity &amp; Safety</i>	
■ EN 61000-4-2	■ EN 61000-4-6
■ EN 61000-4-3	■ EN 61000-4-8
■ EN 61000-4-4	■ EN 61000-4-11
■ EN 61000-4-5	■ EN 61204-3
■ EN 55024	■ EN 61000-6-2
<i>Specific standards</i>	
■ EN 13451-1	■ EN 13451-3
■ EN 16582-1	■ EN 16582-2
■ EN 16582-3	■ EN 16713-2
■ EN 15288-1	■ EN 60204-1



## Electrical specifications

<b>AC/DC POWER SUPPLY</b>		<b>EVAstream FIT</b>	<b>EVAstream PRO</b>	<b>EVAstream MAX</b>
Input	Voltage range	180-264Vac 254-370Vdc	180-264Vac 254-370Vdc	180-264Vac 254-370Vdc
	Frequency range	47-63Hz	47-63Hz	47-63Hz
	AC current (230VAC)	5.5A	9A	11A
	Nominal power	1200VA	2000VA	2400VA
	Power factor (type)	>0.9	>0.9	>0.9
Output	DC bus voltage (stabilized)	26Vdc	28Vdc	28Vdc
	DC bus current	46A	71A	86A
Protections	Short circuit, overload, over voltage, over temperature			
Safety standards	SELV, UL62368-1, CSA C22.2 No. 62368-1, TUV EN62368-1 + A11, EAC TP TC 004, BSMI CNS14336-1 approved, EN55032 (CISPR32) Class A/B, EN61000-3-2/3, EN61000-4-2/3/4/5/6/8/11, EN55024, EN61204-3, EN61000-6-2, BSMI CNS13438.			
<b>MOTOR CONTROL UNIT</b>		<b>EVAstream FIT</b>	<b>EVAstream PRO</b>	<b>EVAstream MAX</b>
Input	Control input	DMX512	DMX512	DMX512
Output	Motor PMSM 3xDC	RPM range 10-100%	RPM range 10-100%	RPM range 10-100%
Housing	Dimensions	660 x 185 x 115 mm (cable gland on bottom)	660 x 185 x 115 mm (cable gland on bottom)	660 x 220 x 115 mm (cable gland on bottom)
	IP rating	IP20	IP20	IP20
Working temp.	Max. 32°C, mount in a dry and condensation-free area			
Safety measures	EVA Torque control, Voltage/current control, Mosfet temperature control			

## Safety regulations for installation and mounting EVAstream



**WARNING! Switch off all relevant live cables before starting installation.**



**RISK OF ELECTRIC SHOCK OR INJURY. The EVAstream and its control accessories must be installed by a certified electrician in accordance with applicable local rules and regulations. Incorrect installation can cause electrical hazards.**

- Follow the instructions in this manual carefully. For questions or ambiguities, please contact your distributor/reseller or visit [www.evastream.nl](http://www.evastream.nl).
- EVA Tech B.V. guarantees that this product is free from defects in material and/or workmanship, under normal conditions, use and maintenance, for two (2) years from the original invoice date. Visit [www.evastream.nl](http://www.evastream.nl) for product data sheets and our full warranty terms.
- 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  $\leq 30\text{mA}$ .
- The EVAstream comes equipped with a connection cable with plug. If the EVAstream is permanently connected to 230V mains, the installation must additionally be equipped with a main switch/isolation switch in the room where the Motor Control Unit is installed. This switch is necessary to de-energise the installation during maintenance and work. In addition, an on/off switch must be mounted in the room where the swimming pool with EVAstream is located. Users should use this on/off switch to turn on the machine right before use and to turn it off immediately after use.
- 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.
- 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. This not only ensures an adequate supply of water, but also ensures that the suction power always remains within the required levels (EN 13451-1/3).
- Make sure that the EVAstream cable (or any other cabling!) cannot be sucked in by the machine.

### Use of accessories and 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.
- Make sure that the accessories and mounting hardware used meet the requirements and guidelines that apply to your specific application.
- Extend the cable after 5 metres with  $3 \times 25\text{mm}^2$  cable to a maximum total cable length of 25m. Always lay the cables in a jacket pipe up to the Motor Control Unit in the technical room to allow for replacement.
- For safety reasons, it is not allowed to mount lights other than EVA Optic to the EVAstream motor control unit.

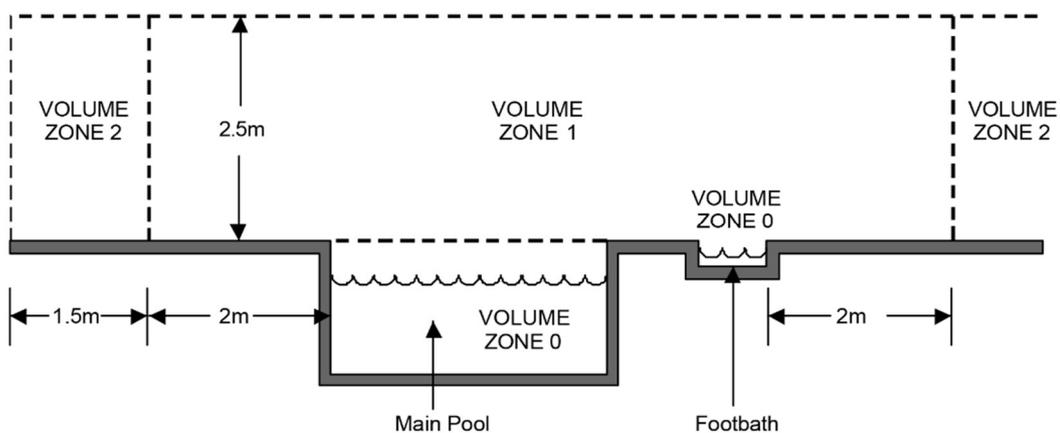
## PART II - Mounting and Installation instructions

### Mounting Motor Control Unit EVAstream



**WARNING! Interrupt the power supply for (de)mounting work or other installation work.**

Install the controller unit in a dry, condensation-free area in zone 2 or outside (ambient temperature max. 32 ° C). Do NOT mount of the controller unit in zones 0 or 1. It should preferably be mounted in the technical area of the pool.



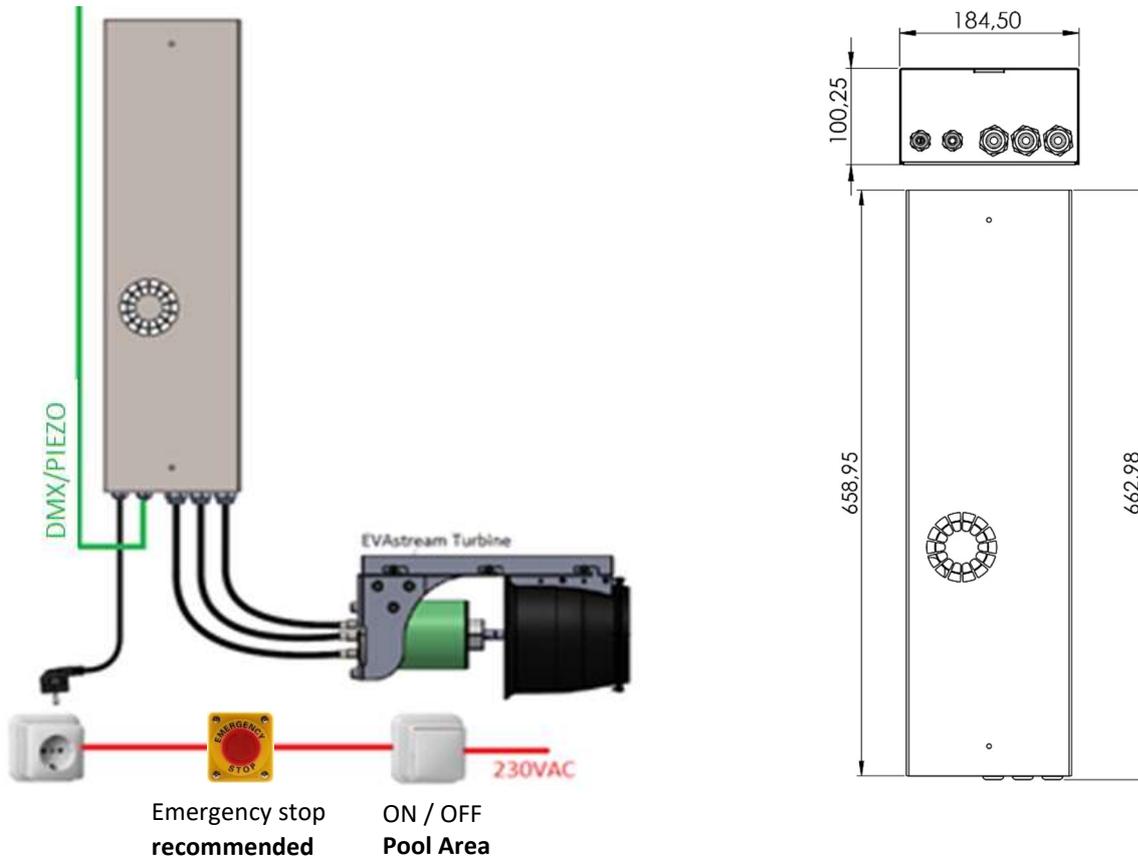
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- Ensure at least 10 cm of space around the unit for efficient heat management.
- Always mount the controller unit with the swivels down.
- A 16A fuse must be installed in the installation +RCD <30mA.
- The EVAstream comes equipped with a connection cable with plug.
  - If the EVAstream is permanently connected to 230V mains, the installation must additionally be equipped with a main switch/isolation switch in the room where the Motor Control Unit is installed.
- **When not in use, the machine must be switched off.**
- Electrical connection according to the diagram below. **Connect all cables, including the cables to the EVAstream machine, before connecting the installation to the mains current!**

#### To check before use

- Before use, it is mandatory to check whether the nominal voltage of the device corresponds to the local mains voltage.
- A switch for switching the phase +N on/off must be accessible near the pool (*place it in or outside of zone 2*).
- The electrical connections must be covered.
- Earth wire connections must be checked after assembly to ensure proper operation.
- Using the EVAstream is only permitted after it has been confirmed that the installation complies with the EMC Directive 2014/30/EU and that the conformity of the installation complies with the Low Voltage Directive 2014/35/EU.
- The system must be switched off after use.

## Motor Control Unit with external controller (DMX, Piezo, etc.)



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## Mounting EVAstream general

### Dimensions, position, and depth

- Mount the EVAstream horizontally on/in the wall, in the middle of the wall.
- Maximum mounting depth: the EVAstream can be placed a maximum of 500 mm (50 cm) below the water level (bottom of the machine).
- Advised mounting depth: from 250 mm to a maximum of 280 mm (water level up to the centre of the front plate of the outlet opening).

Recommended installation depth waterline 250mm (max 280)



### Connecting the turbine cables

- Put the cable, without end sleeves, in the connector.
- Pull the lock down, Cable will be pressed under the connector



## A. Mounting | Mounting the EVAstream surface-mounted version

- Mount the EVAstream horizontally on/in the wall.
- Advised mounting depth: from 250 mm to a maximum of 280 mm (water level up to the centre of the front plate of the outlet opening).
- The surface-mounted version of EVAstream comes standard without mounting parts. Several solutions can be mounted on the backside of the EVAstream.
- A flat, even surface is a prerequisite for correctly mounting the EVAstream to the pool wall. There should be no voltage on the machine and/or mounting materials.
- The machine should be placed horizontally with the levelling foot.
- Check the power cables for damage before use. If the power cables are damaged, the EVAstream should not be used.
- Make sure that the cables of the EVAstream on the surfaces around the swimming pool cannot create any dangerous situations.

**Please note that fixed stainless steel parts must be connected to earth.**



*EVAstream with  
mounting option  
EVA-SM-A00*



*EVAstream with  
mounting option  
EVA-SM-A01/02/03*

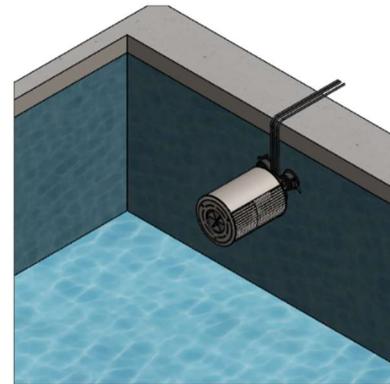
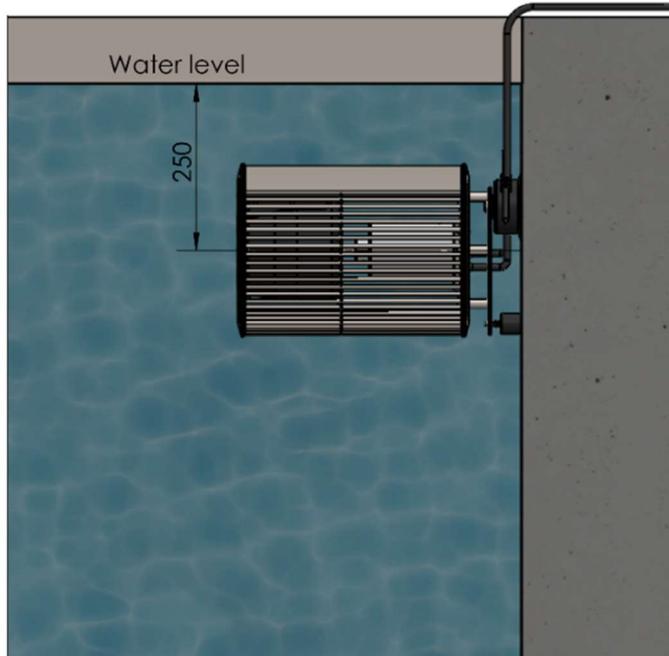


*Mounting option  
EVA-SM-A04/05*



## Mobile mounting EVAstream surface-mounted version

EVA-SM-A00 – Set of 2 powerful suction cups incl. adjusting bolt

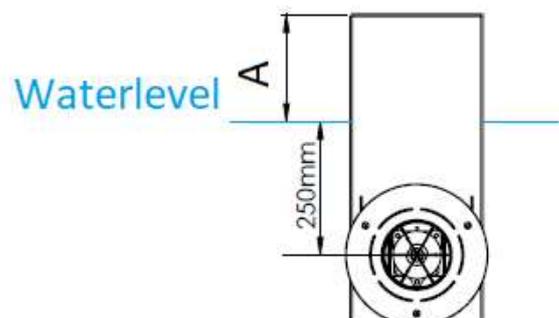
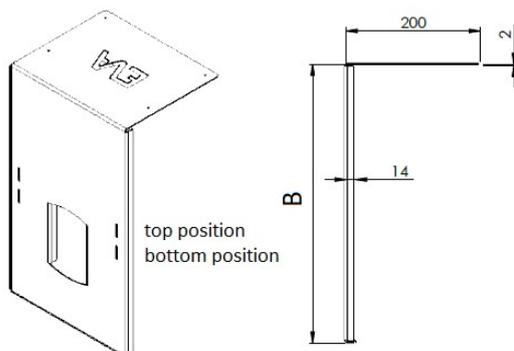


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## Mobile mounting EVAstream surface-mounted version

EVA-SM-A01/02/03 – Mounting bracket 2mm RVS 316

	A		B	
	Top	Bottom		
SM-A01	0	40	418	mm
SM-A02	80	120	498	mm
SM-A03	120	160	578	mm



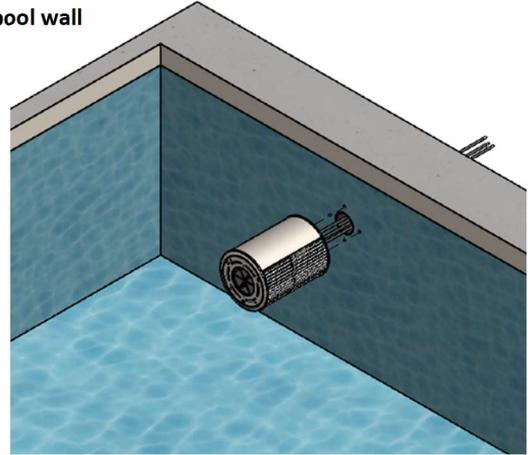
**Please note that fixed stainless steel parts must be connected to earth.**

## **Fixed mounting EVAstream surface-mounted version**

EVA-SM-AA-04 Mounting bracket 3mm RVS 316 for fixed mounting on pool wall



The cable can go through the wall by using a inlet  
(Turbine is equipped with 3 cables of 16mm<sup>2</sup>)



**Please note that fixed stainless steel parts must be connected to earth.**

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## **Fixed mounting EVAstream surface-mounted version**

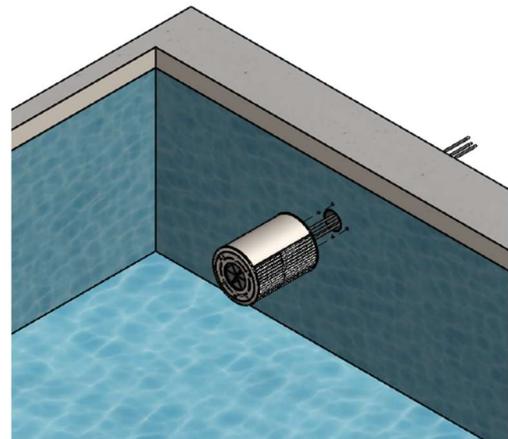
EVA-SM-AA-05 Fixed mounting incl. EVAstream niche with 3 swivels and mounting plate 5mm

For the most optimal situation, we recommend to combine the EVA-SM-AA-05 with the EVA-SM-04 mounting bracket.

If the pool has an inclination angle, the EVA-SM-04 mounting bracket is necessary.



*Mounting option  
EVA-SM-A05+A04*



**Please note that the fixed stainless steel parts must be connected to earth.**

## B. New installation | Mounting EVAstream integrated versions (Concretefoil, Polyester, Liner)

Various standard installation housings and matching grids are available for mounting 1 or 2 EVAstreams in a swimming pool.

### Need to know

For optimal water flow and swimming experience, the EVAstream should be placed symmetrically in the middle of the pool wall. Keep this in mind as you design the pool and place other elements such as steps, platforms etcetera. If you have any questions please contact us ([sales@evaoptic.com](mailto:sales@evaoptic.com)).

### General mounting rules recessed

- Mount the installation housing horizontally in all directions in the wall for correct horizontal mounting of the EVAstream turbine.
- Advised mounting depth: from 250 mm (ideal depth) to a maximum of 280 mm (water level up to the centre of the front plate of the outlet opening).
- The EVAstream installation housing is equipped with multiple M20 swivels with the possibility of connecting a conduit to the technical space. Each EVAstream turbine is equipped with 5 metres 3x1x16mm<sup>2</sup> cables. The minimum cable length is 3 metres.
- If it is necessary to extend the cable, please use 3x1x25mm<sup>2</sup> cable (flexible cable made of fine copper wire strands) to a maximum total cable length of 25m (we recommend to use EVA-C25M1-x cable and EVA-CCB-16x25 cable connection box). The cable connection box must be placed above the ground, in an accessible place.
- Always lay the cables in a jacket pipe up to the Motor Control Unit in the technical space to allow for replacement. For the control options a separate jacket pipe needs to be installed.

### Grounding of turbine in niche

The turbine has to be connected to ground, made for the pool (PE connection)

- Stainless steel Niche – PE Connection on the back of the Niche
- PP/PE Niche – PE Connection on top of the Niche

### Turbine adjustment (important)

After installation, the turbine must be adjusted. With the installation depth of 25cm centre of turbine under water level, the turbine must be mounted horizontally. We have enclosed a mounting mold to help you with the correct adjustment.



### Additional mounting guidelines for concrete pools when using SS316 installation niche

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 Stainless Steel installation shaft must be protected against these harmful substances with a PE film (building protection film).

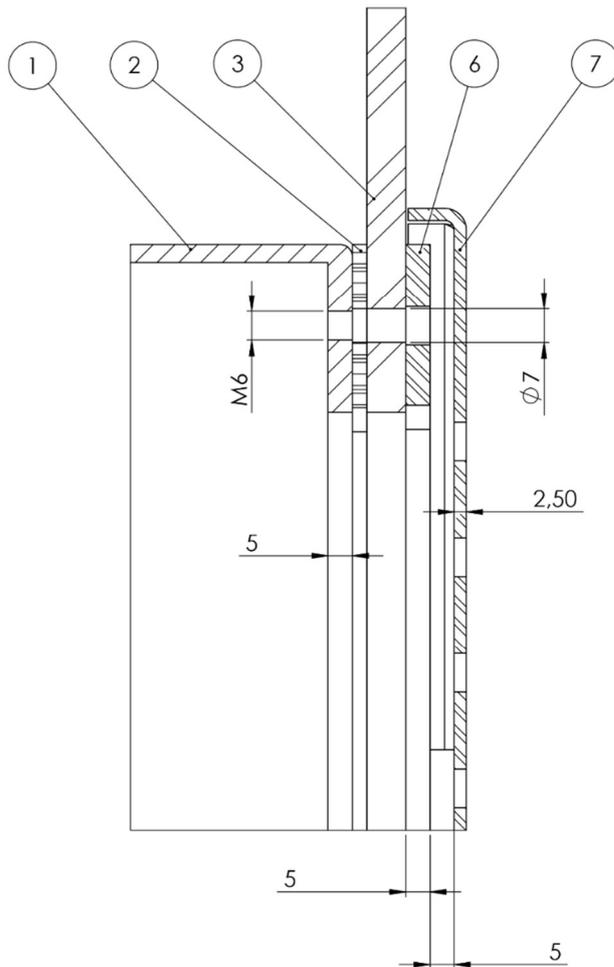
### Additional mounting guidelines for concrete pools when using PP/PE installation niche

The installation niche must be sanded before the concrete is poured.

## Polyester / liner pools

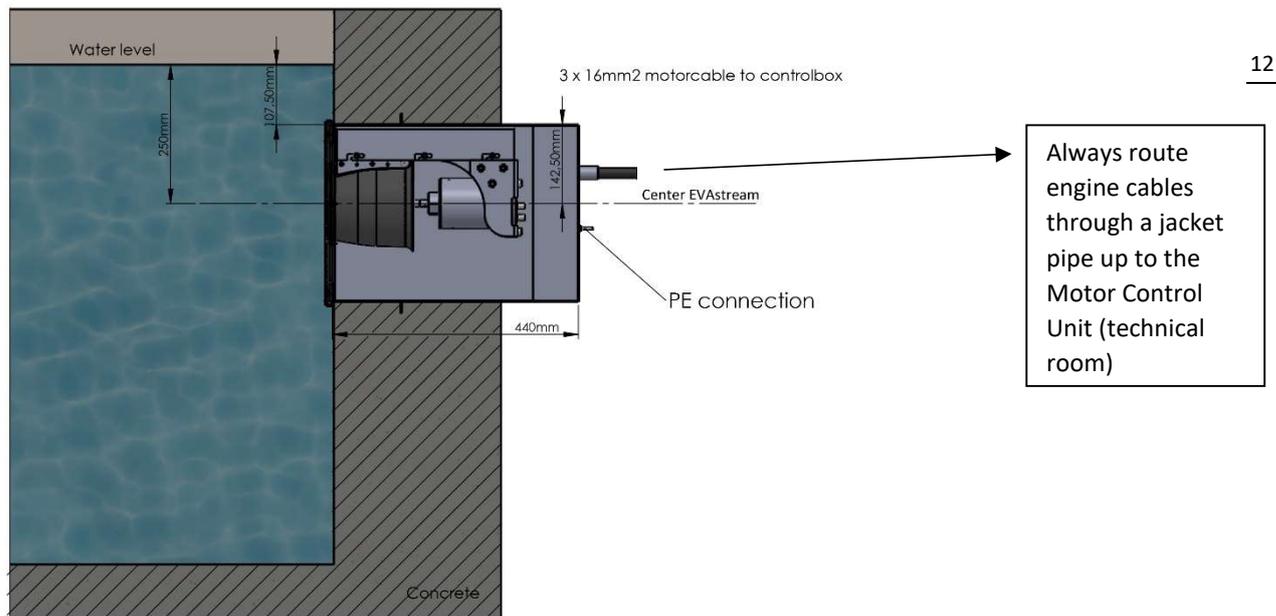
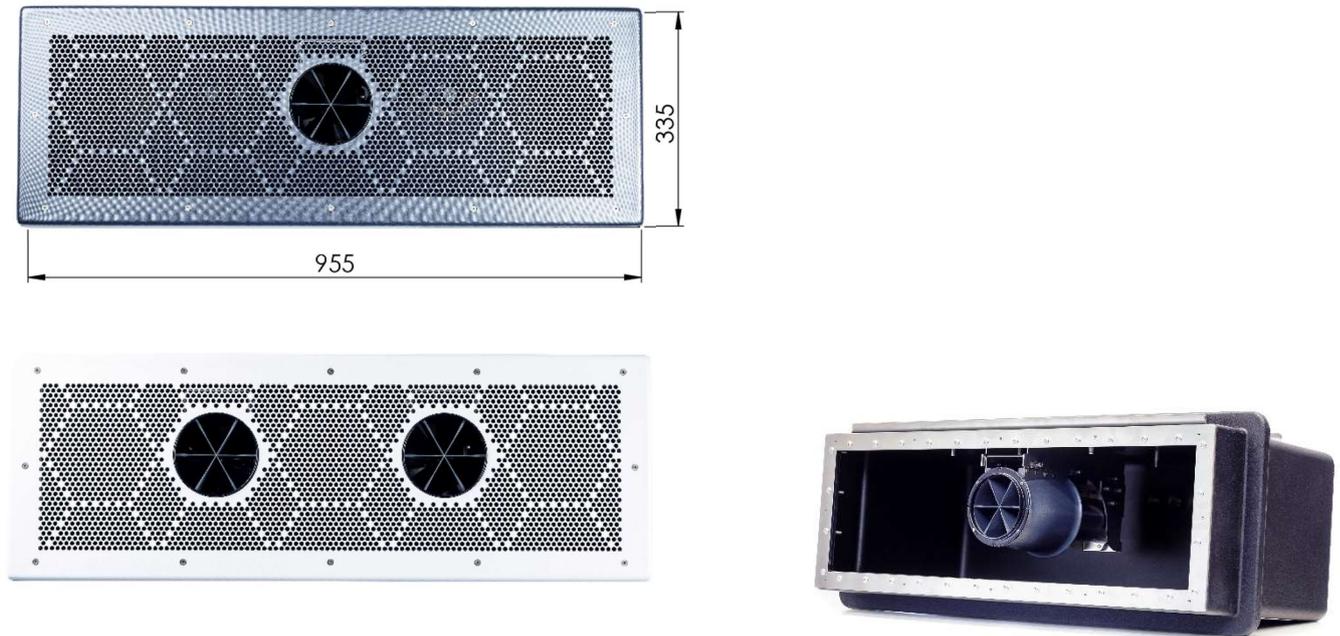
### Additional mounting guidelines for Polyester/Liner pools

Gasket kits are available for the installation housings. Make sure that this gasket is properly connected to the pool wall.

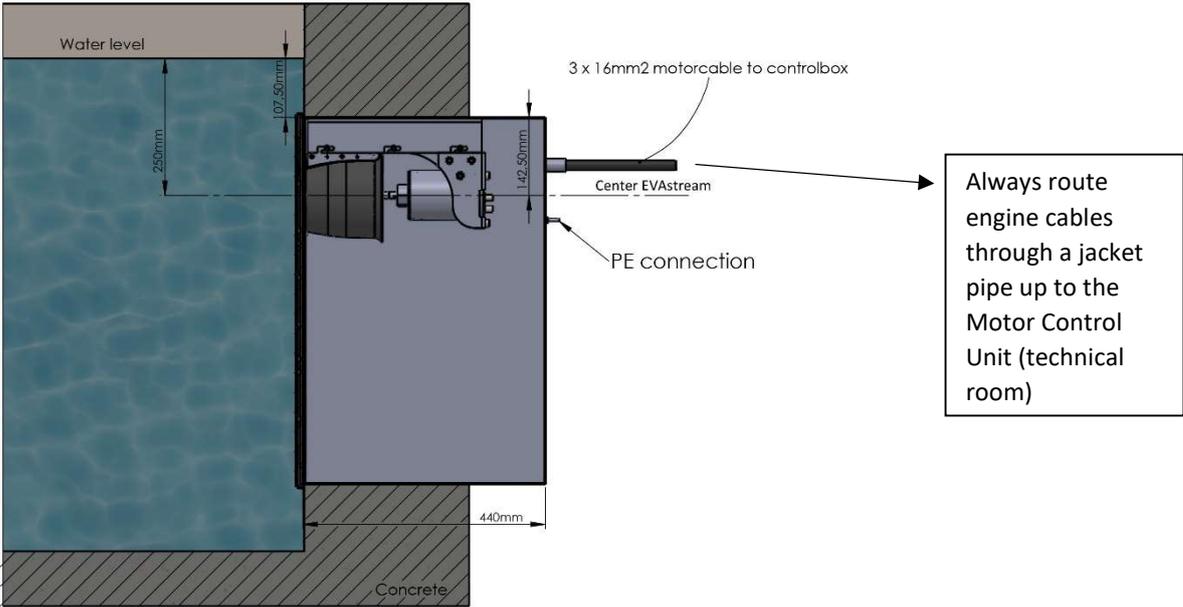
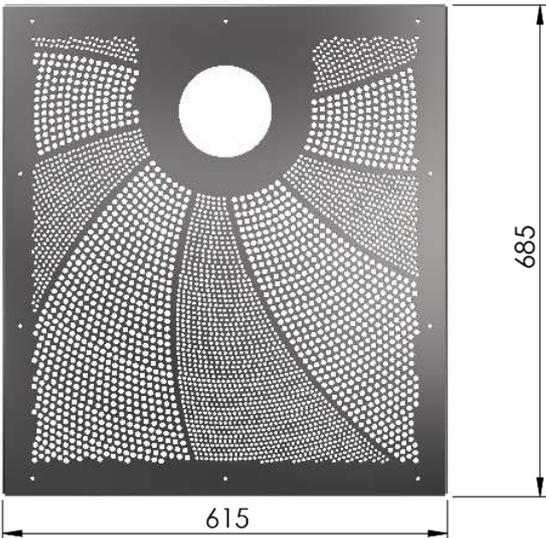


- |    |                        |
|----|------------------------|
| 1  | Wall penetration       |
| 2  | Silicon sealing        |
| 3  | Polyesterwall          |
| 6  | Flange                 |
| 7  | Cover plate            |
| M6 | Screws for flange      |
| M5 | Screws for cover plate |

## B.1. Installation EVAstream WideX1 FIT/PRO/MAX



## B.2. Installation EVAstream Square FIT/PRO



## Check before switching on EVAstream swimming machine

- 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.

## Use

- Always read the included user manual before using the machine. The user manual is also published online at [www.evastream.nl](http://www.evastream.nl).

## 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 machine. 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.

## Environmental conditions for EVAstream use

### *Requirements for water composition and environment*

#### Environmental conditions use EVAstream

- Ambient temperature of power supply box: 0 °C to 32 °C (mounting in a dry condensation-free room).
- Advised Mounting depth: Centre of the Turbine at 250mm
- Water temperature: +5° C to +35° C.

#### 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):  $0.5 \leq \text{VBC} \leq 1.5 \text{ mg/l}$
  - Open-air swimming pool  $\geq 20 \text{ m}^2$  – Free available chlorine (FAC):  $0.5 \leq \text{VBC} \leq 3.0 \text{ mg/l}$
  - Open-air swimming pool  $< 20 \text{ m}^2$  – Free available chlorine (FAC):  $0.5 \leq \text{VBC} \leq 5.0 \text{ mg/L}$
  - All basins – Bound available chlorine:  $< 0.6 \text{ mg/l}$
- The basin and the available accessories must be free of electrolysis.
- Installation housing must be properly earthed to prevent electrolysis.
- Cyanuric acid:  $\leq 100 \text{ mg/l}$
- Metals:  $\approx 0 \text{ mg/l}$
- Carbonate hardness:  $\geq 2^\circ\text{dH}$  ( $^\circ\text{dH} = \text{mmol/l} \times 2.8$ ); ( $^\circ\text{eH} = \text{mmol/l} \times 3.5$ ); ( $^\circ\text{fH} = \text{mmol/l} \times 5.0$ )
- Ozone:  $0 \text{ mg/l}$
- $\Sigma\text{chlorite} + \text{chlorate}$ :  $\leq 30 \text{ mg/l}$
- Redox potential:  $\geq 700 \text{ mV}$

#### 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).

EVA products | wiring diagrams



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