

# Installation & Service Manual

## BADU STREAM universel

### 1. General

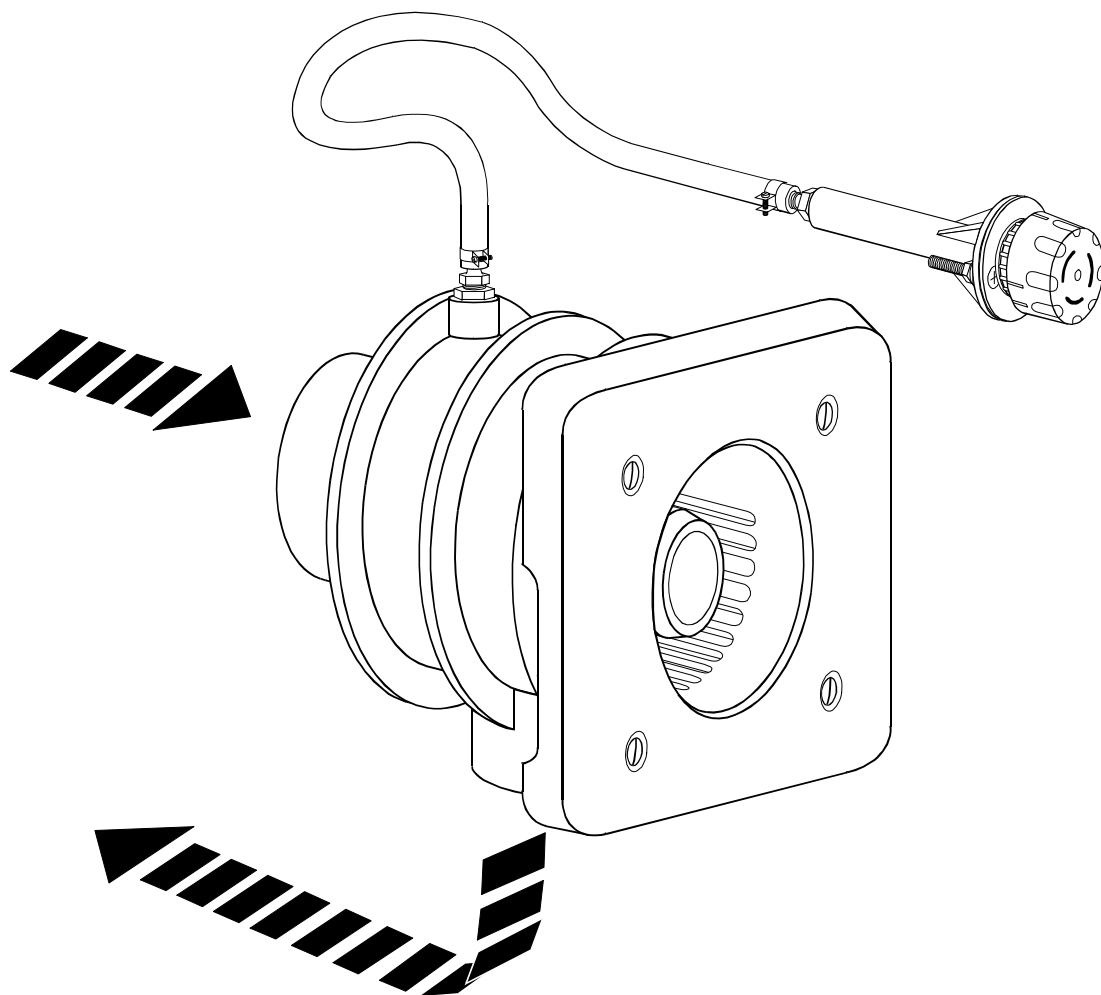
Speck-Pumpen Verkaufsgesellschaft Karl Speck GmbH & Co., Lauf

Country of origin: Germany

Application:

The Badu Stream Universal shall only be used as counter current device in swimming pools.

The manufacturer declines any responsibility in the case of any other application.



## 2. Safety

This operation manual gives basic instructions which are to be observed during installation, operation and maintenance of the pump. It is therefore imperative that this manual be read by the responsible personnel/operator prior to assembly and commissioning. It is always to be kept available at the installation site.

It is not only the general safety instructions contained under this main heading safety that are to be observed but also the specific information provided under the other main headings.

### 2.1 Identification of safety instructions in the operating manual

Safety instructions given in this manual non-compliance with which would affect safety are identified by the following symbol:



see DIN 4844-W9

or where electrical safety is involved, with



see DIN 4844-W 8.

For safety warnings which, when ignored, may constitute a hazard for the machine and its functions, the word

**CAUTION**

is added.

It is imperative that signs affixed to the machine, e.g.

- arrow indicating the direction of rotation
- symbols indicating fluid connections

be observed and kept legible.

### 2.2 Qualification and training of operating personnel

The personnel responsible for operation, maintenance, inspection and assembly must be adequately qualified. Scope of responsibility and supervision of the personnel must be exactly defined by the plant operator. If the staff does not have the necessary knowledge, they must be trained and instructed, which may be performed by the machine manufacturer or supplier on behalf of the plant operator, moreover, the plant operator is to make sure that the contents of the operation manual are fully understood by the personnel.

### **2.3 Hazards in the event of non-compliance with the safety instructions**

Non-compliance with the safety instructions may produce a risk to the personnel as well as to the environment and the machine and results in a loss of any right to claim damages.

For example, non-compliance may involve the following hazards:

- Failure of important functions of the machines/plant
- Failure of specified procedures of maintenance and repair
- Exposure of people to electrical, mechanical and chemical hazards
- Endangering the environment owing to hazardous substances being released.

### **2.4 Compliance with regulations pertaining to safety at work**

When operating the pump, the safety instructions contained in this manual, the relevant national accident prevention regulations and any other service and safety instructions issued by the plant operator are to be observed.

### **2.5 Safety instructions relevant for operation**

- If hot or cold machine components involve hazards, they must be guarded against accidental contact.
- Guards for moving parts (e. g. coupling) must not be removed from the machine while in operation.
- Any leakage of hazardous (e. g. explosive, toxic, hot) fluids (e. g. from the shaft seal) must be drained away so as to prevent any risk to persons or the environment. Statutory regulations are to be complied with.
- Hazards resulting from electricity are to be prevented (see for example, the VDE Specifications and the bye-laws of the local power supply utilities).

### **2.6 Safety instructions relevant for maintenance, inspection and assembly work**

It shall be the plant operator's responsibility to ensure that all maintenance, inspection and assembly work is performed by authorized and qualified personnel who have adequately familiarized themselves with the subject matter by studying this manual in detail.

Any work on the machine shall only be performed when it is at a standstill, it being imperative that the procedure for shutting down the machine described in this manual be followed.

Pumps and pump units which convey hazardous media must be decontaminated.

On completion of work all safety and protective facilities must be re-installed and made operative again.

Prior to restarting the machine, the instructions listed under „Initial Commissioning“ are to be observed.

## **2.7 Unauthorized alterations and production of spare parts**

Any modification may be made to the machine only after consultation with the manufacturer. Using spare parts and accessories authorised by the manufacturer is in the interest of safety. Use of other parts may exempt the manufacturer from any liability.

## **2.8 Unauthorized modes of operation**

The reliability of the machine delivered will be only guaranteed if it is used in the manner intended, in accordance with clause 1 - General of this manual. The limit values specified in the data sheet must under no circumstances be exceeded.

### **Cited Standards/Norms and other Documentation**

DIN 4844 Part 1 Supplement 13	Safety marking; Safety symbol W 8
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DIN 4844 Part 1 Supplement 14	Safety marking; Safety symbol W 9
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## **3. Transport and temporary storage**

In order to avoid a damaging and the loss from individual parts to, the original packaging may be opened only before the installation.

## **4. Description**

The Badu Stream Universal is a counter current device which can be installed in any kind of swimming pool.

A high capacity jet pump is connected with a suction and pressure pipe to a compact unit mounted in the pool wall. The front side(pool inside) is completely flat against the pool wall with no protruding parts which could hurt swimmers accidentally.

Water is taken in through the ringshaped outer suction of the body and pumped back into the pool with high speed and pressure through the central jet.

A numatic on/off switch is mounted over the unit above water level together with an air regulator.

The central jet is volume adjustable by turning the jet and the water stream can be enriched with a bubble bath by opening the air regulator.

An optional item is a massage hose which can be connected to the central jet.

## **5. Installation and assembly**

The pump should be installed as closely as possible to the jet housing. If this is not possible the pump can be installed remote at a maximum distance of 10 meters. The longer the distance the larger the pipe section should be (cfr included drawing) as to prevent excessive head loss.

Installation of the pump should be at or under water level. If this is not possible a self priming pump must be chosen. Even in this case the level difference between pump and water level should not exceed 1 meter. In extreme cases where the difference is higher than 1 meter a non-return valve must be installed in the suction line and the return line coming from the pump should go up vertically at least 30cm in order to prevent water loss before priming.

The pipes should be installed under water level and must come up vertically to the pump as close to the pump as possible.

Only bends should be used in the pipe works and no elbows because of head-loss.

The pipe work should be equivalent to PN 10.

The electrical switch box and the pump must be installed in a dry ventilated surrounding and not farther than 10m from the housing in order to secure the good functioning of the numatic switch. The hose connecting this switch to the switch box should be inside a plastic tube for protection..

Please ask assistance of a qualified electrician for the electrical connection of the unit.

The connection to the electrical supply must go through a cut-out which allows cut-out from the supply with a distance of minimum 3mm between the contacts of each pole. The BADU STREAM unit has been built following Class 1 specs. The ambient temperature should not exceed 40° C. The electrical motors of the BADU STREAM pumps are protected by built-in overloads (for 3 ph pumps the thermal cut-out is in the control box; for 1 phase pumps the thermal cut-out may be mounted inside the pump).

If the thermal cut-out is mounted in the control box, please check the amperage indicated on the motor with the set amperage on the cut-out.

The main electrical supply must be secured through an RCCB IFN  $\leq 30\text{mA}$ .

### **5.1 Installation of housing with jet.**

The centre of the housing (10) should be 25cm under water level. Mark holes in pool wall using flange (110) and drill these holes. Make cut out for housing in pool wall. Mount air hose connector (135) into housing using PTFE ribbon.

Mount carefully gasket(100) and mount housing(10) from the backside of the pool wall against the wall(see drawing left under).

Mount second gasket(100) with flange(110) and use bolts to fix front to back with the pool wall in the middle.

For a liner pool use pre-mounting bolts first to secure fixing of the housing to the pool wall and then position liner between third gasket (100) and housing flange.

## **5.2 Installation of air regulator**

The air regulator should be installed 10 cm above water level and not farther than 0.8m from the housing. Mark holes for the fixing bolts(150) with the gasket(160).

Drill central hole  $\varnothing$  12mm and side holes  $\varnothing$  8,5mm at marked spots.  
Mount support(170) with gasket(160) at the backside of the wall and fix these with bolts M8x30mm(150) and then under part of air regulator(180)with gasket(190) with brass bolt M10(200) from the inside of the pool.

Place rubber ring(210) in underpart(180) and screw upper part(220)into underpart(180) and finally fix air hose to hose connector on the housing with the hose clamp.

## **5.3 Installation of pneumatic switch**

The pneumatic switch should be installed 10 cm above water level next to the air regulator. Mark holes for the fixing bolts with the gasket(230).

Drill central hole  $\varnothing$  12mm and side holes  $\varnothing$  8,5mm at marked spots.  
Mount support(240) with gasket(230) at the backside of the wall and fix these with bolts M8x30mm(250) and then under part of pneumatic switch(260)with gasket(270) with brass bolt M10(280) and plastic disc (290) from the inside of the pool.

Place transparent ring(300) into upper part of switch(310) and mount membrane(320) with the flat face on the transparent ring(300). Screw together upper-(310) and underpart(260) carefully together : the membrane(320) should stay in place !

Connect connecting hose to nipple with hose clip.

### **ATTENTION :**

Switch hose should be protected by a rigid or plastic tube leading to the electrical box.

## **5.4 Installation and Connection of the pump**

The pump should be installed in a pit as close to the pool as possible. If this installation is not possible the installation of the pump can be remote respecting the conditions under 5. The pump and the electrical switch box must be installed in a dry and aired surrounding. A drain to prevent flooding of the pump must also be present.

## **6. Commisioning**

If the pump is installed under water level open ball valves in suction- and return line in order to take air out. If a 3 phase pump is installed please check right rotation of the motor.

Never run the pump with closed valves.

When a 21-80 S(self priming) version is used fill pump through opening of the red plug and handtighten this plug after filling. After controlling the rotational direction of 3 ph pumps the pump can be switched on. Priming should occur after approx. 2 minutes depending on the suction height.

When a non self-priming pump is used in an installation of the pump above water level a non-return valve in the suction line is a must.

In this case the pump and the suction line section between pump and non return valve must be filled with water before pump is started.

## **7. Servicing/Winter protection**

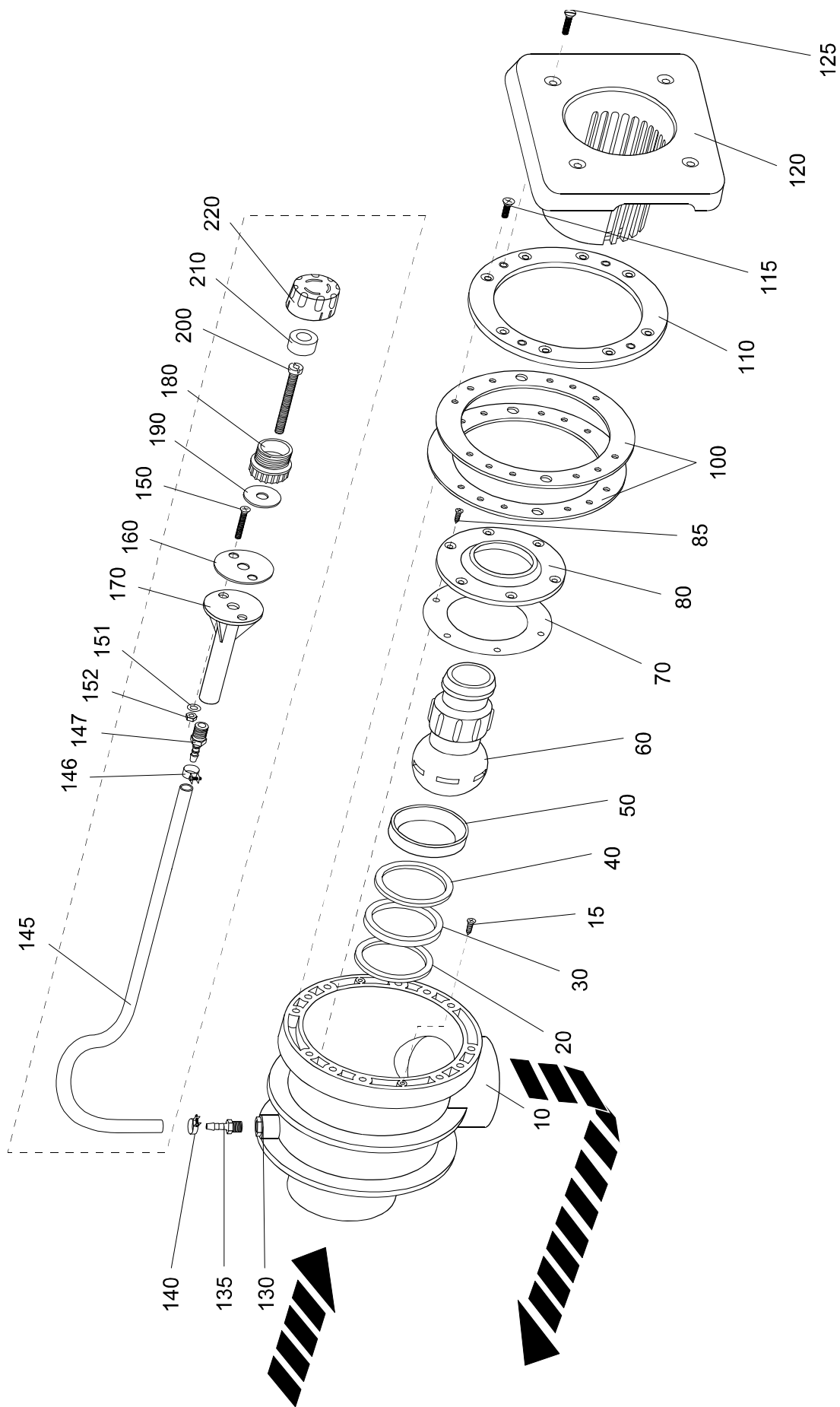
If pool is exposed to frost in wintertime the water level should be lowered under the BADU STREAM housing and the suction and return line emptied. Take the pump inside in a frost free and dry surrounding.

## **8. Leakage**

If the pump leaks between wet end and motor the mechanical seal must be replaced. This should be done by your nearest Speck dealer.

## **9. Additional information and explanations**

Please go through enclosed drawings and installation schemes

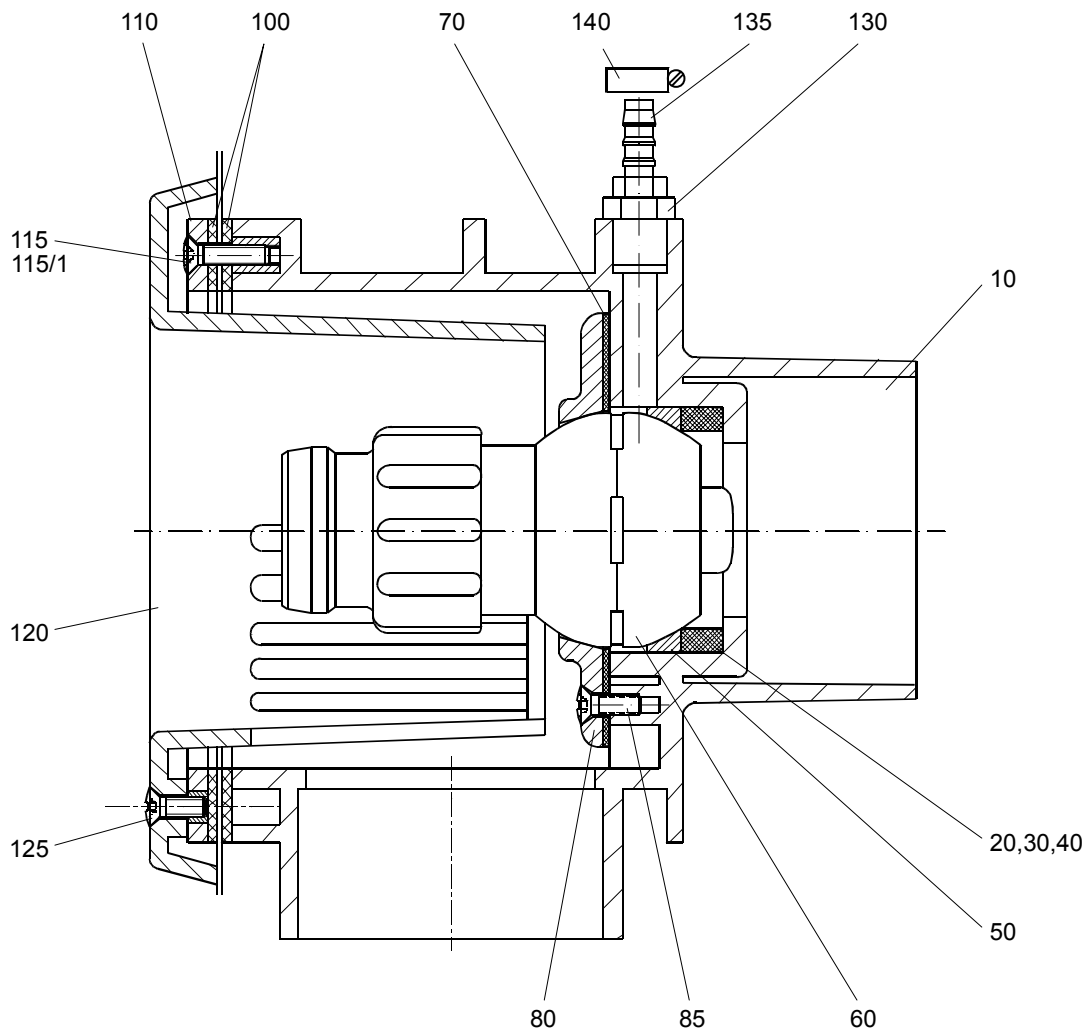


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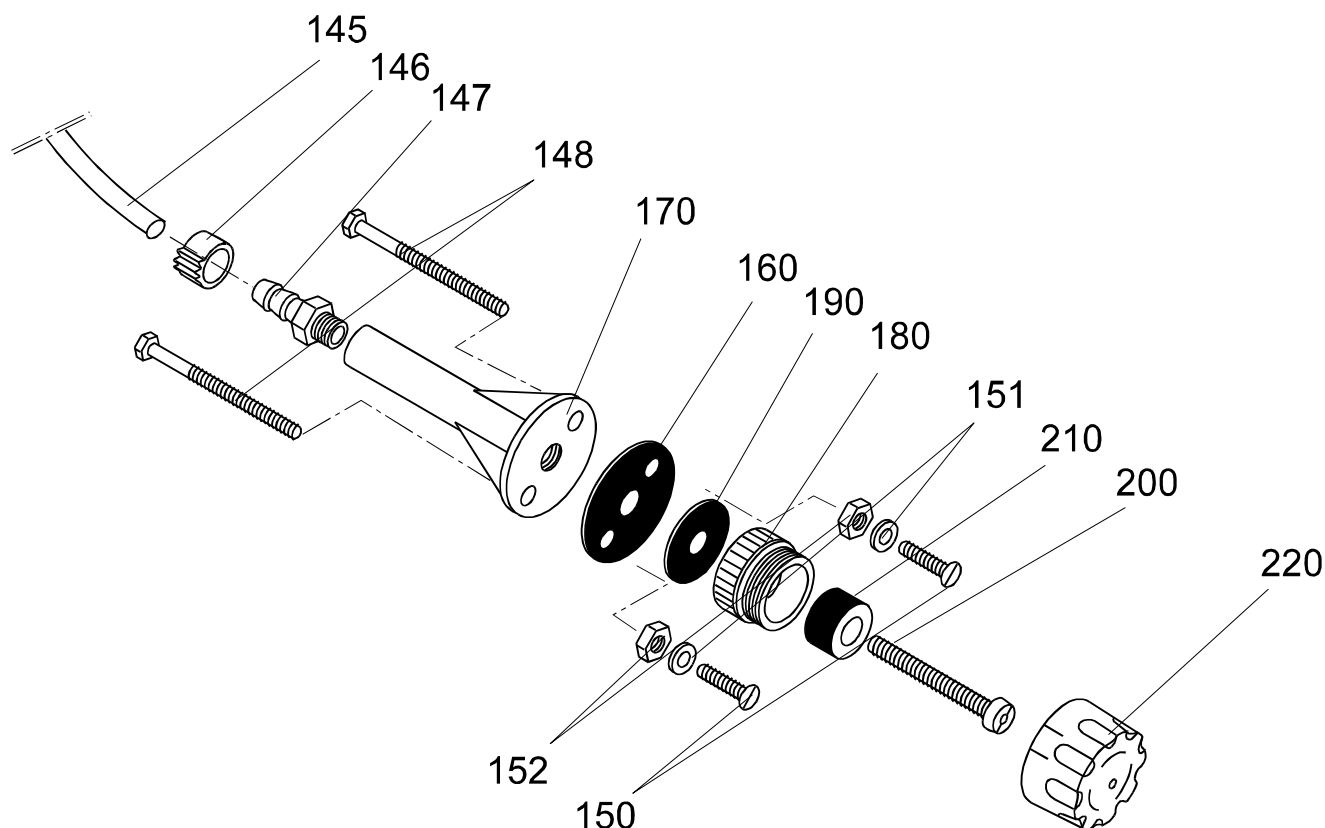
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## BADU STREAM - Universel

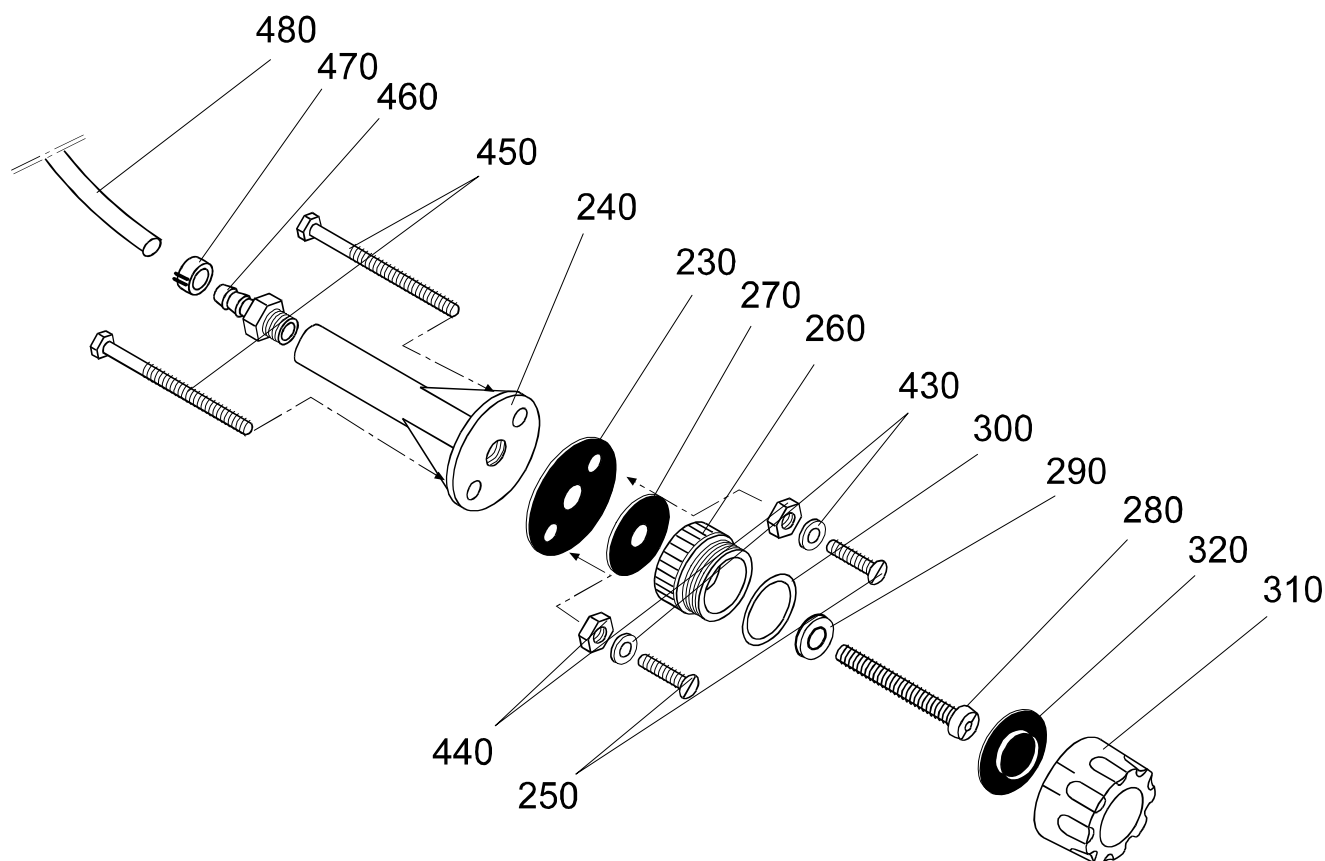


Partno.	Art.No.	Qty	Description
10	2304950001	1	housing version E, suction/return open
15	5879825520	2	flathead bolt 5,5x19mm A4 Form F
20	2302002057	1	gasket 6,2mm
30	2302002157	2	gasket 4mm
40	2302002058	2	gasket 1mm
50	2302002056	1	clamping ring
60	2302002854	1	nozzle, adjustable
70	2306002013	1	gasket 129 x 73 x 1 mm
80	2306002009	1	flange
85	5879825520	6	contersunk head screw 5,5 x 19 mm, A 4, Form F
100	2308002003	2	gasket 190 x 140 x 3 mm, EPDM
110	2308002004	1	clamping ring
115	5879650616	8	oval head screw M 6 x 16, A 4
115/1	5879650625	8	oval head screw M 6 x 25, A 4
120	2304910002	1	cover
125	5879640625	4	oval head screw M 6 x 25 mm, A 4
130	5862711601	1	reduction nipple 16x 1/4" female
135	2301001005	1	hose nipple GES 8, 1/4" male
140	5873011409	1	hose clamp SM 9 A 14 W5, A 4



## Air regulator

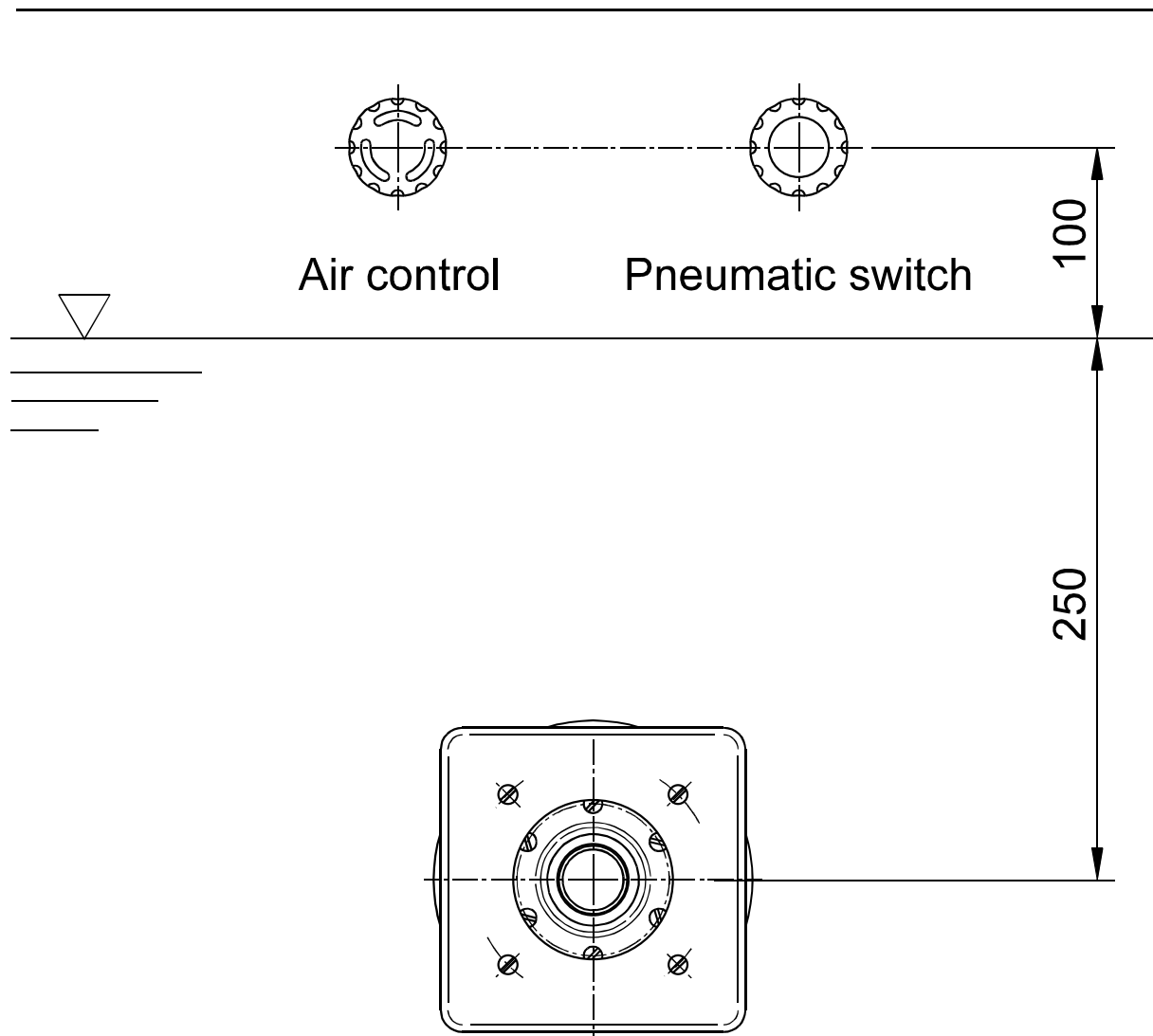
Part No.	Order No.	Qty	Description
145	2301001007	1	PVC-hose, 8 x 3 mm, 800 mm
146	2301004001	1	Hose clamp 13/8, A 2
147	2301001005	1	Hose socket, GES 8, R ¼", plastic
148	5869330880	2	Hexagon head cap screw M 8 x 80 mm, plastic
150	5879630830	2	Countersunk head cap screw M 8 x 30 mm, A 2
151	5871250800	2	Flat washer, 8,4 mm, A 4
152	5879340800	2	Nut M 8, A 2
160	2301001013	1	Gasket 60 x 11 x 2 mm with 3 holes
170	2301001009	1	Mounting support for air control
180	2301002022	1	Bottom part for air control, white
190	2301002025	1	Gasket for air control 42 x 11 x 2 mm, white
200	2307007008	1	Cylinder head bolt M 10 x 25 with hole, Ms
210	2301002024	1	Rubber insert for air control, 16 x 30 x 18 mm
220	301002026	1	Top part for air control, white



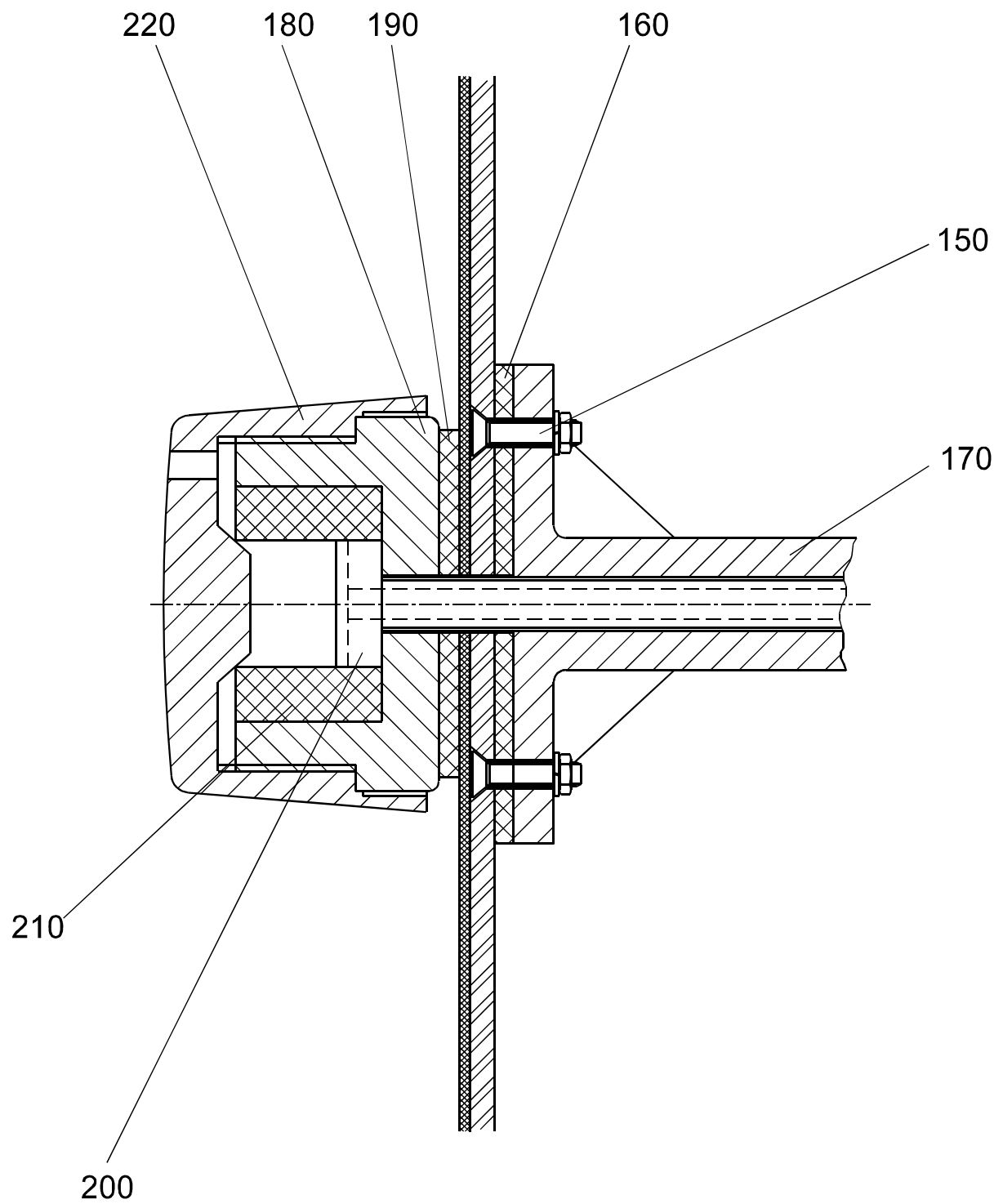
## Pneumatic switch

Partno.	Order No.	Qty	Description
230	2301001013	1	Gasket 60 x 11 x 2 mm with 3 holes
240	2301001009	1	Mounting support for air control
250	5879630830	2	Countersunk head cap screw M 8 x 30 mm, A 2
260	2301002022	1	Bottom part for air control, white
270	2301002025	1	Gasket for air control 42 x 11 x 2 mm, white
280	2307007008	1	Cylinder head bolt M 10 x 25 with hole, Ms
290	2302001042	2	Flat washer, 21 x 10,5 x 2 mm, plastic
300	2302001039	1	Ring E 133-8
310	2301002200	1	Top part for pushbutton, white
320	2302001040	1	Rubber below
430	5871250800	2	Flat washer, 8,4 mm, A 4
440	5879340800	2	Nut M 8, A 2
450	5869330880	2	Hexagon head cap screw M 8 x 80 mm, plastic
460	2301001005	1	Hose socket, GES 8, R ¼", plastic
470	2302001048	1	Hose clamp S 7/7 ZY
480	2302001047	1	PVC-hose, 4 x 1,5 mm, 10 m

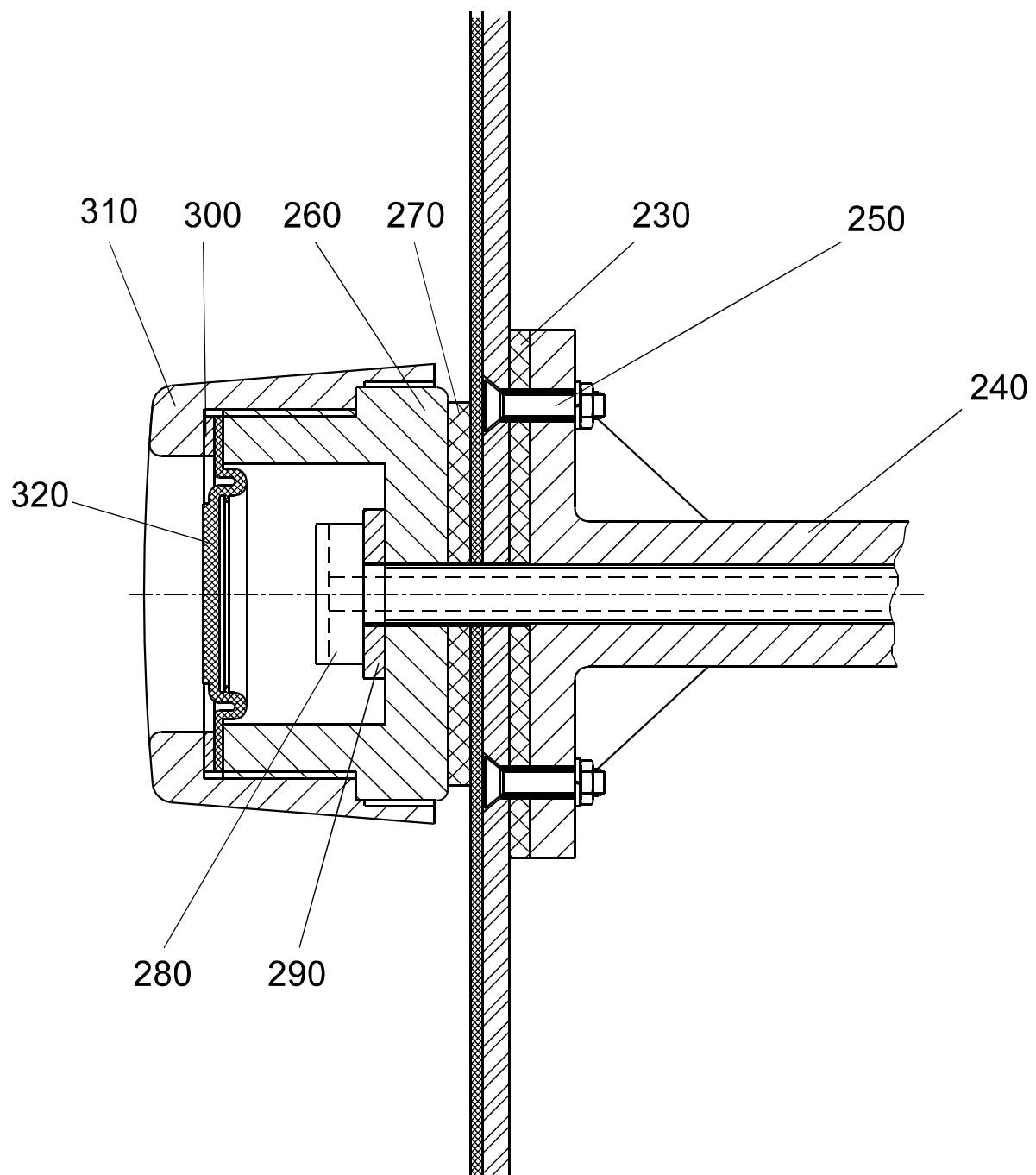
# Installation BADU STREAM

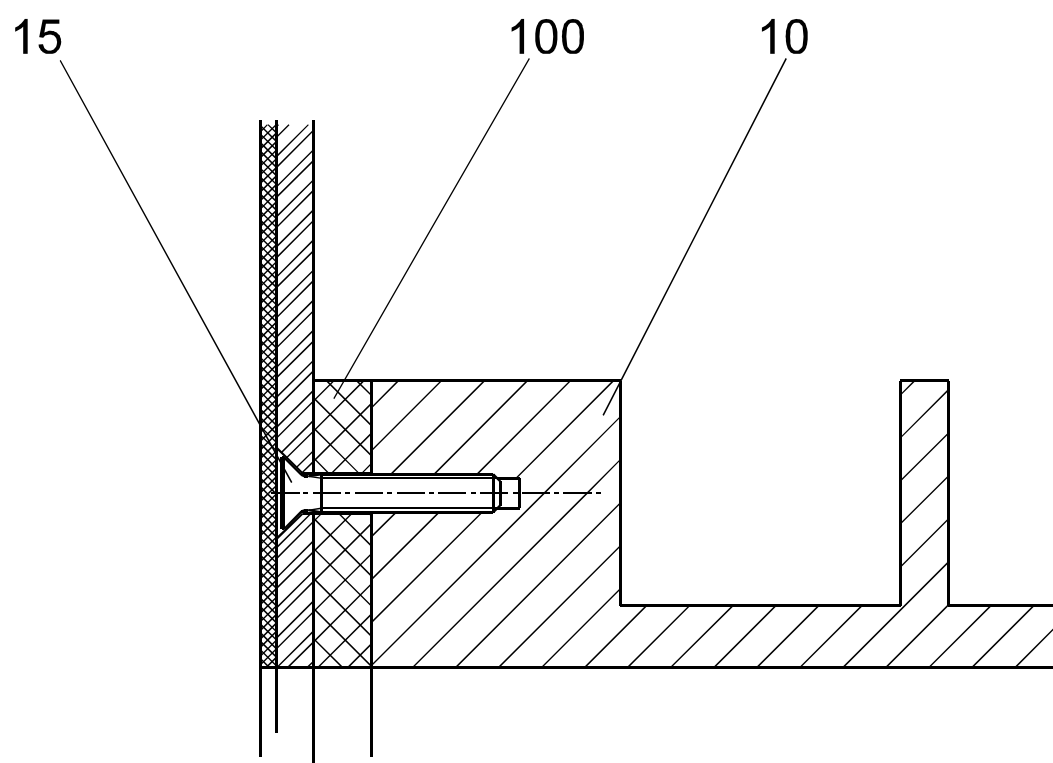
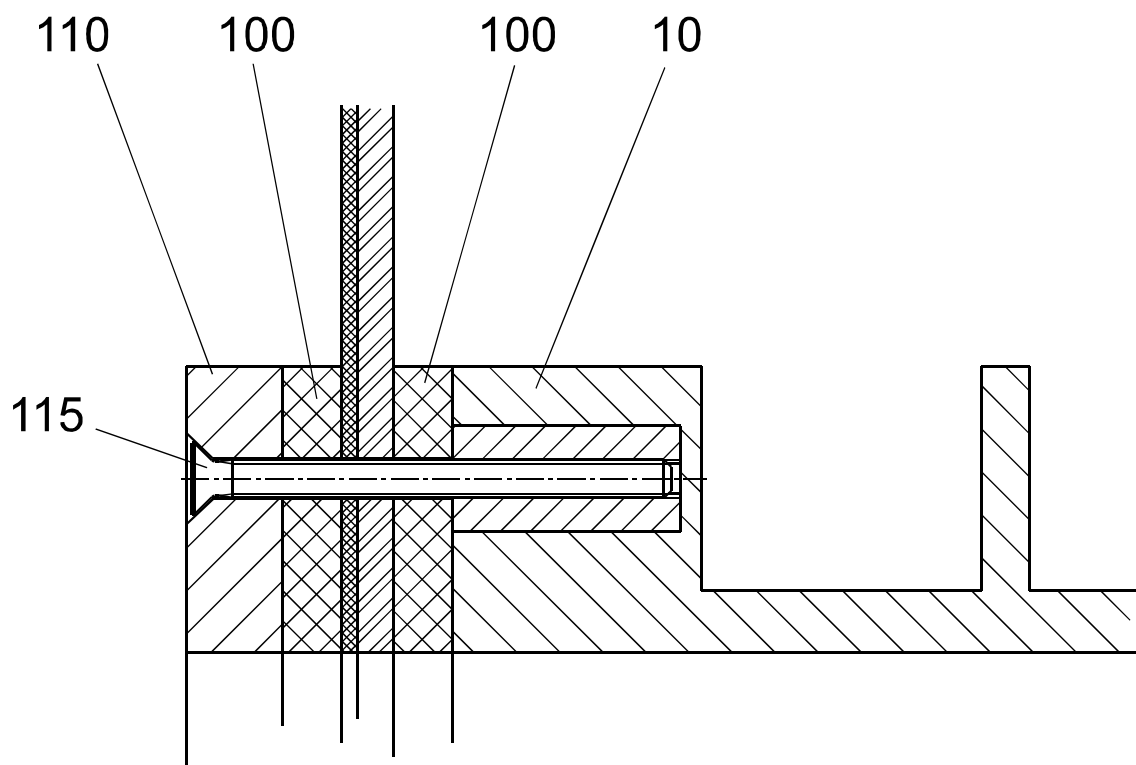


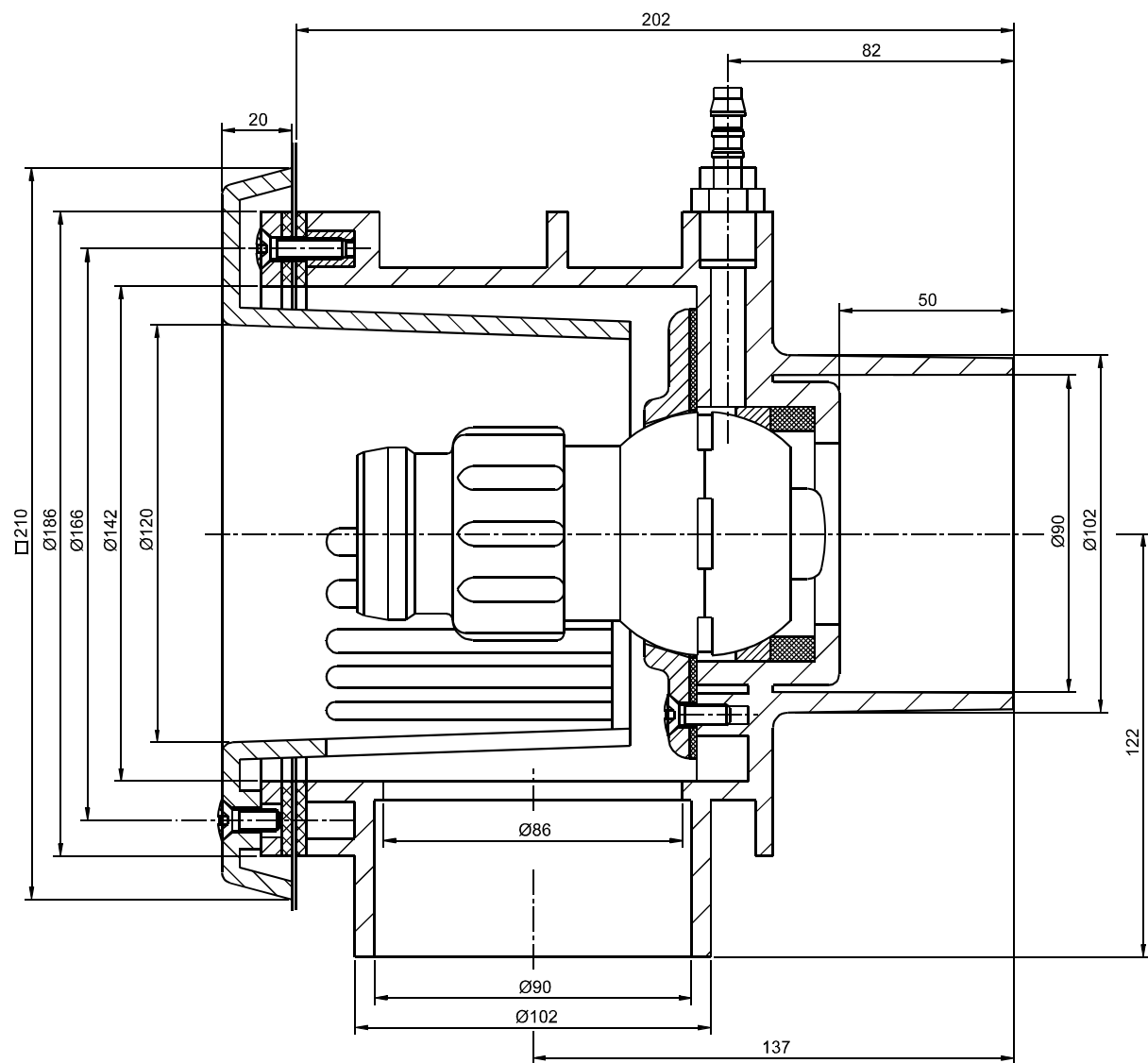
# Air control



# Pneumatic switch

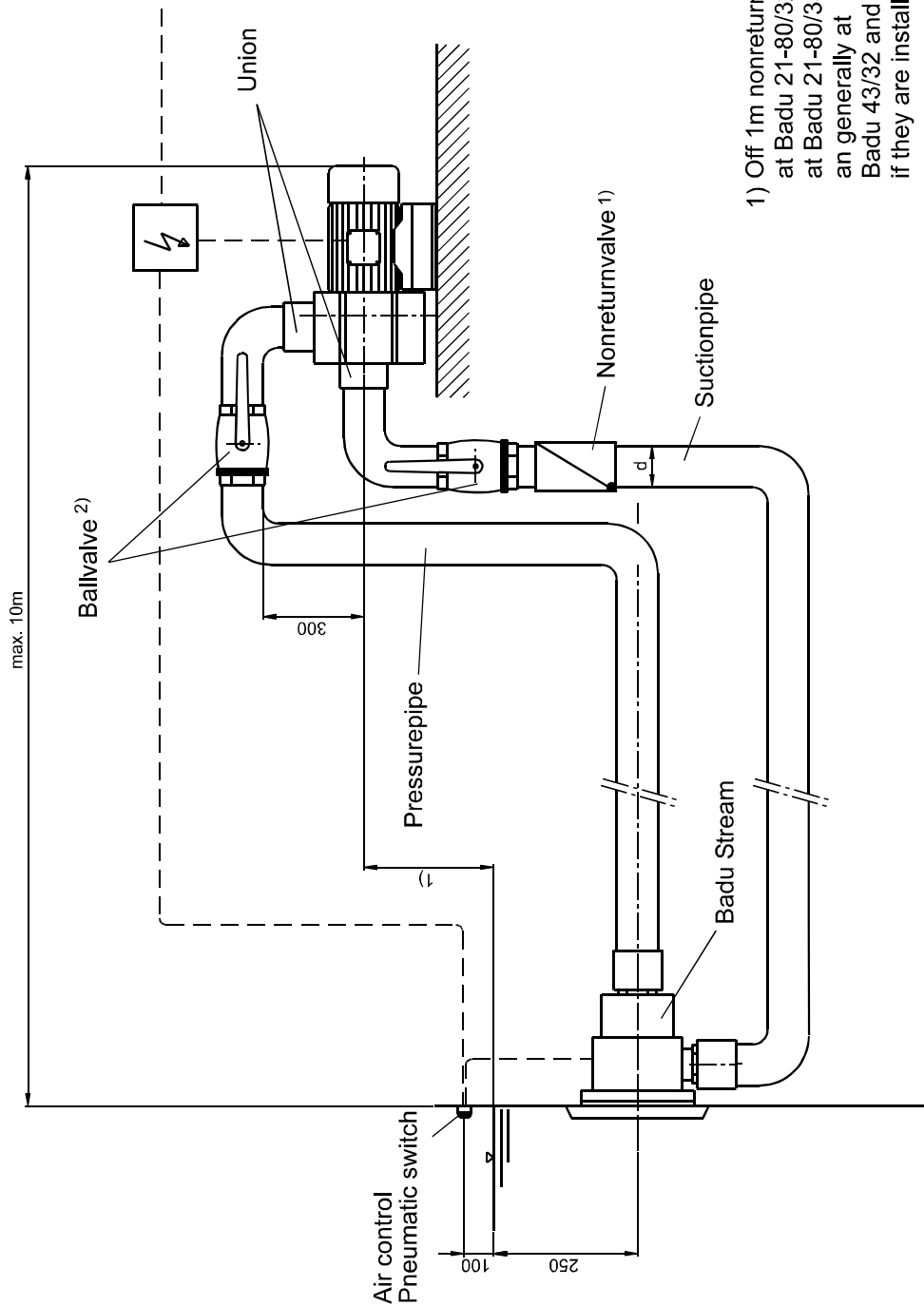








## Installation BADU Stream universel



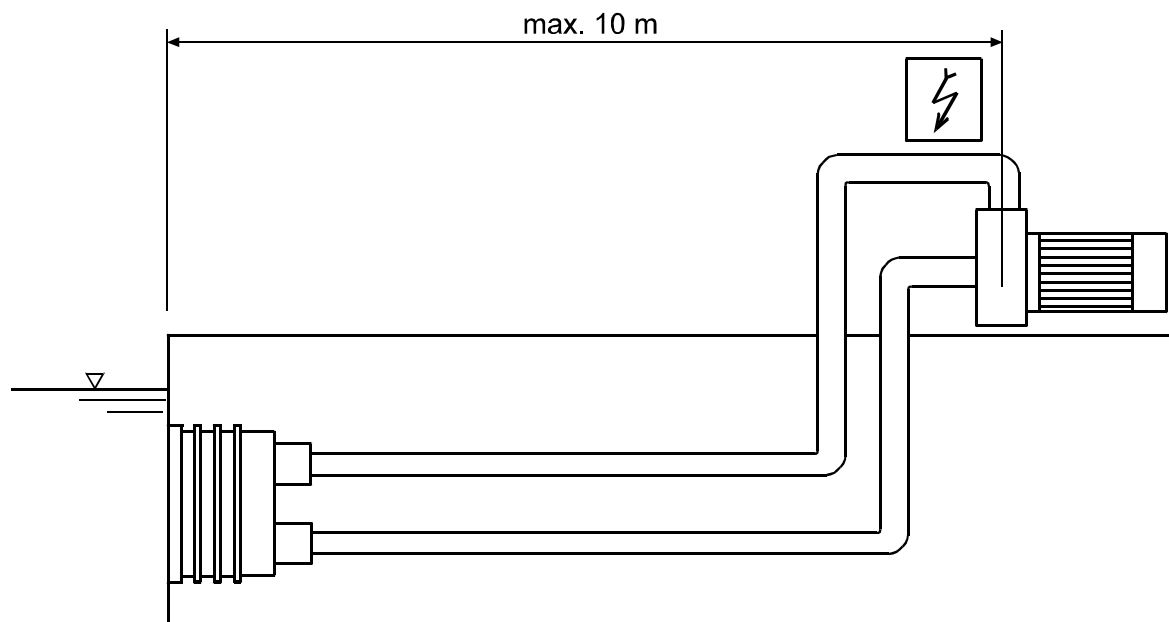
1) Off 1m nonreturnvalve is necessary  
at Badu 21-80/32 SG  
at Badu 21-80/33 SG  
an generally at  
Badu 43/32 and Badu 21-50/43  
if they are installed over the waterlevel

2) necessary if the pump is installed under  
the waterlevel

Attention!  
Only use bend in the pipe

# BADU JET universel

## Ø pipeline PVC



Suctionpipe with 2 bends  
Pressurepipe with 3 bends

Distance in m

Q (m <sup>3</sup> /h)		5 m	7,5 m	10 m
30	S	d 90	d 90	d 110
	P	d 90	d 90	d 90
40	S	d 110	d 110	d 125
	P	d 110	d 110	d 110
55	S	d 140	d 140	d 160
	P	d 140	d 140	d 140