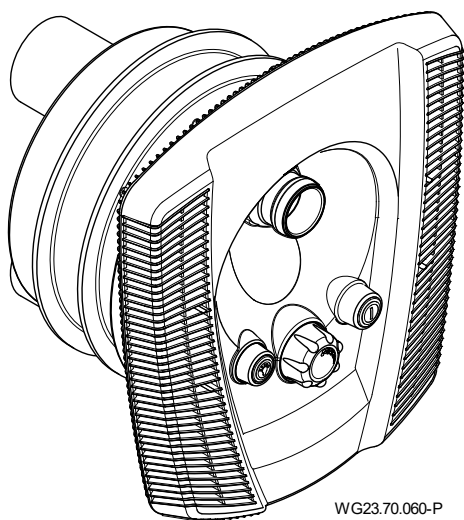


EN Translation of original operation manual

BADUJET Wave

Submerged counter swim unit





BADU® is a trademark of
SPECK Pumpen Verkaufsgesellschaft GmbH

Hauptstraße 3
91233 Neunkirchen am Sand, Germany
Phone +49 9123 949-0
Fax +49 9123 949-260
info@speck-pumps.com
www.speck-pumps.com

All rights reserved.

Contents may not be distributed, duplicated, edited or transferred to third parties without the written permission of SPECK Pumpen Verkaufsgesellschaft GmbH.

This document and all attached documents are not subject to update service!

Subject to technical modifications!

UKCA: Comply Express Ltd, Unit C2 Coalport House, Stafford Park 1, Telford, TF3 3BD, UK

Table of contents

1	About this document.....	6
1.1	Using this manual	6
1.2	Target group	6
1.3	Other applicable documents	6
1.3.1	Symbols and means of representation	6
2	Safety.....	7
2.1	Intended use	7
2.1.1	Possible misuse	7
2.2	Personnel qualification.....	7
2.3	Safety regulations	7
2.4	Protective equipment	7
2.5	Structural modifications and spare parts	7
2.6	Signs	7
2.7	Residual risk	8
2.7.1	Falling parts	8
2.7.2	Rotating parts.....	8
2.7.3	Electrical energy	8
2.7.4	Hot surfaces	8
2.7.5	Suction danger.....	8
2.7.6	Danger of injury at the inlet nozzles.....	8
2.8	Faults	8
2.9	Preventing material damage.....	9
2.9.1	Leakage and pipe breakage	9
2.9.2	Dry running	9
2.9.3	Cavitation	9
2.9.4	Overheating	9
2.9.5	Pressure surges.....	9
2.9.6	Blockages in the pump	9
2.9.7	Drainage	9
2.9.8	Risk of frost	9
2.9.9	Water temperature	9
2.9.10	Safe use of the product.....	9
3	Description.....	10
3.1	Components.....	10
3.2	Function	10
4	Transport and intermediate storage.....	11
4.1	Transport.....	11
4.2	Lifting the pump	11
4.3	Storage	11
4.4	Returns	11
5	Installation.....	12
5.1	Installation site (Qualified specialist)	12
5.1.1	Outdoor installation	12
5.1.2	Installation position	12
5.1.3	There must be ground drainage	12
5.1.4	Ventilation and aeration	12
5.1.5	Structure-borne and airborne noise transmission.....	12
5.1.6	Fasteners	12
5.2	Installation (Qualified specialist)	13
5.2.1	Installation tip concrete pool	13
5.2.2	Installation tip foil/polyester pools	17

5.2.3	Aligning the support ring	20
5.2.4	Protective conduit and hose for air regulator	20
5.2.5	Pipe sizing	20
5.2.6	Laying pipes	20
5.2.7	Pump shaft	20
5.2.8	Electrical control unit	20
5.3	Final assembly (Qualified specialist)	21
5.3.1	Installation example	25
5.3.2	Installing the pump and connecting it to the pipework	26
5.4	Electrical connection (Qualified specialist)	26
5.4.1	Counter swim unit electrical connection	26
5.4.2	Terminal box wall mounting	27
5.4.3	Wiring diagrama 3-phase 400/230V 50 Hz	28
5.4.4	Wiring diagram 1-phase 230V 50 Hz	29
5.4.5	Connection diagram	30
5.5	Supplements for the control boxes with circuit board	30
5.5.1	Benefits	30
5.5.2	Segment display, green and orange LED, fuse	30
5.5.3	Dipswitch for time mode settings	31
5.5.4	Stripping the cable	31
5.6	Disassembly	31
6	Commissioning/Decommissioning	32
6.1	Commissioning	32
6.1.1	Checking how easily the pump rotates	32
6.2	Switching the pump on	32
6.3	Operation	32
6.3.1	Switching the unit on and off	32
6.3.2	Volume regulator	32
6.3.3	LED colour variations	33
6.3.4	Ball nozzle(s)	33
6.3.5	Air regulator	33
6.3.6	Optional accessories	33
6.4	Using the massage hose	33
6.5	Decommissioning	33
6.5.1	Suggestion for winter conditions	33
6.5.2	Assembling the dummy plate	34
7	Faults	35
7.1	Overview	35
7.1.1	Check the pump after the overload switch has tripped	35
7.1.2	Spare parts lists	36
8	Maintenance	37
8.1	Replacing the LED floodlight	37
8.2	Warranty	40
8.2.1	Safety related spare parts	40
8.3	Service addresses	40
9	Disposal	41
10	Technical data	42
10.1	Dimensional drawing	42
10.2	Exploded drawing	43
11	Index	44

Glossary

Unit

Pump built into the system.

Pressure line

Pipe connected to the pressure discharge.

Pump

Machine with motor.

Suction line

Pipe connected to the suction discharge.

1 About this document

1.1 Using this manual

This manual is a component of the pump/unit. The pump/unit was manufactured and tested according to the generally accepted rules of technology. However, if the pump/unit is used incorrectly, not serviced enough or tampered with, danger to life and limb or material damage could result.

- ➔ Read the manual carefully before use.
- ➔ Keep the manual during the service life of the product.
- ➔ Provide access to the manual for operating and service personnel at all times.
- ➔ Pass the manual on to any future owners or operators of the product.

1.2 Target group

This manual is aimed both at qualified specialists and the end customer. Descriptions aimed only at qualified specialists are indicated accordingly (qualified specialist). This indication applies to the whole point. All other points are universally valid.

1.3 Other applicable documents

- Packing list
- Drilling template

1.3.1 Symbols and means of representation

Warnings are used in this manual to warn you of personal injury.

- ➔ Always read and observe warnings.

DANGER

Danger for people.

Non-observance results in death or serious injury.

WARNING

Danger for people.

Non-observance can result in death or serious injury.

CAUTION

Danger for people.

Non-observance can result in light to moderate injury.

NOTICE

Notes to prevent material damage, for better understanding or to optimise the workflow.

Important information and technical notes are specially marked to explain correct operation.

Symbol	Meaning
➔	Instructions for a one-step action.
1. 2.	Directions for a multi-step action. ➔ Observe the order of the steps.

2 Safety

2.1 Intended use

For installation in all types of swimming pool as a talking point, for fitness training, as a wave or air bubble bath, for underwater massage, after medical consultation, for endless no-turn swimming.

Observing the following information is vital for intended use:

- This manual

The pump/unit may only be operated within the application limits, as specified in this manual. Use in water with a salt content exceeding 0.66 g/l must be authorised by the manufacturer/ supplier.

The device can be used commercially.

Any other use or use exceeding this is **not** an intended use and must first be authorised by the manufacturer/supplier.

2.1.1 Possible misuse

- Installing the pump/unit with stress on the pipes.
- The pump/unit is not attached sufficiently.
- Opening and servicing of the pump/unit by unqualified personnel.

2.2 Personnel qualification

This unit can be used by **children** aged 8 and over as well as by persons with limited physical, sensory or mental capacity or by people with a lack of experience or knowledge, provided that they are supervised or have been instructed in the safe use of the unit and understand the resulting dangers.

Children may not play with the unit. Cleaning and **user maintenance** may not be carried out by **children** without supervision.

➔ Ensure that the following work is only performed by trained professionals with the following qualifications:

- For mechanical work, for example replacing ball bearings or mechanical seals: qualified mechanics.
- For work on the electric system: electricians.

➔ Ensure that the following requirements are fulfilled:

- Personnel who do not yet have the appropriate qualifications must receive the required training before being allowed to work on the system.
- The personnels' responsibilities, for example working on the product, electric equipment or hydraulic systems, are set based on their qualifications and the job description.
- The personnel have read this manual and understand the necessary working steps.

2.3 Safety regulations

The operator of the system is responsible for the adherence to all relevant statutory regulations and guidelines.

➔ Observe the following regulations when using the pump/unit:

- This manual
- Warning and information signs on the product
- Other applicable documents
- The valid national regulations for accident prevention
- The internal occupational, operational and safety regulations of the operator

2.4 Protective equipment

Reaching into moving parts, e.g. coupling and/or impeller fan, can cause serious injury.

➔ Never operate the pump/unit without protective covers.

2.5 Structural modifications and spare parts

Alterations or modifications can affect operational safety.

➔ Never modify or alter the pump/unit without the manufacturer's permission.

➔ Only use original spare parts and accessories authorised by the manufacturer.

2.6 Signs

➔ Ensure that all the signs on the complete pump/unit remain legible.

2.7 Residual risk

2.7.1 Falling parts

The lifting hooks on the motor are designed for the weight of the motor. The lifting hooks can break if the complete pump unit is attached.

- ➔ The pump unit, consisting of the motor and the pump, should be attached on both the motor and pump sides. See "Fig. 2" on page 11.
- ➔ Only use hoisting and load-bearing equipment which is suitable and technically sound.
- ➔ Do not stand under suspended loads.

2.7.2 Rotating parts

There is a risk of shearing and crushing due to exposed rotating parts.

- ➔ Only perform servicing when the pump/unit is not in operation.
- ➔ Prior to servicing, ensure the pump/unit cannot be switched back on.
- ➔ Immediately after finishing servicing, reattach or reactivate all protective equipment.

2.7.3 Electrical energy

There is an increased risk of electric shock when working on the electrical system due to the humid environment.

Electrical protective earth conductors which were not installed correctly can also result in electric shocks, for example due to oxidation or cable breakage.

- ➔ Observe VDE and utility company regulations.
- ➔ Build swimming pools and their protection according to DIN VDE 0100-702.
- ➔ Before working on the electrical system, take the following measures:
 - Disconnect system from the power supply.
 - Attach a warning sign: "Do not switch on! The system is being worked on."
 - Ensure that the system is free of voltage.
- ➔ Check the electrical system regularly to ensure it is in proper working condition.

2.7.4 Hot surfaces

The electric motor can reach temperatures of up to 70 °C. There is a risk of being burned.

- ➔ Do not touch the motor during operation.
- ➔ Allow the pump/unit to cool down before servicing it.

2.7.5 Suction danger

The following dangers can lead to drowning:

- Sucking towards, sucking in or jamming of the body or body parts, clothing and jewellery
- Knotting of the hair
- ➔ **Never** operate the system without a suction cover, cover or a light cover if applicable.
- ➔ Do not wear loose swimwear.
- ➔ Use a bathing cap if you have longer hair.
- ➔ Check and clean the suction openings regularly.

2.7.6 Danger of injury at the inlet nozzles

Inlet nozzles and massage accessories operate at high pressure and with high flow speeds. This can result in injuries to eyes or other sensitive body parts.

- ➔ Avoid direct contact of these body parts with the water jet from the inlet nozzles or the massage accessories.

2.8 Faults

- ➔ In case of a fault, immediately switch the pump off and remove it from operation.
- ➔ Have all faults repaired immediately.

Seized pump

If a pump seizes, and is switched on several times repeatedly, the motor can be damaged. Observe the following points:

- ➔ Do not switch the pump/unit on repeatedly.
- ➔ Turn the motor shaft by hand. See point 6.1.1 on page 32.
- ➔ Clean pump.

2.9 Preventing material damage

2.9.1 Leakage and pipe breakage

Non-observance of the curing time of the ABS bonding can result in leaks and flooding

- ➔ Observe the curing time of at least 12 hours for the ABS bonding
- ➔ Provide sufficient ground drainage

Vibrations and thermal expansion can cause pipes to break.

- ➔ Install the pump/unit in a manner which reduces structure-borne and airborne noise transmission. When doing so, observe relevant regulations.

If the pipe forces are exceeded, leaks can occur at the screwed connection or the pump itself.

- ➔ Do not use the pump as a fixed point for the pipe line.
- ➔ Connect pipes free of load and mount them elastically. Install compensators if necessary.
- ➔ If the pump leaks, the unit may not be operated and must be disconnected from the mains power supply.

2.9.2 Dry running

If run dry, mechanical seals and synthetic parts can be destroyed within only a few seconds.

- ➔ Do not allow the pump to run dry. This also applies to checking the rotation direction.
- ➔ Purge air from pump and suction line prior to start-up.

2.9.3 Cavitation

Incorrect configuration of the pipe dimensions and non-observance of the prescribed mounting depth can cause cavitation.

- ➔ If the distance between the pump and the main housing is great, ensure an almost loss-free flow when configuring the pipes.
- ➔ Observe the prescribed mounting depth of 25 cm.
- ➔ Ensure that the suction line does not leak.
- ➔ Open the valves completely.

2.9.4 Overheating

The following factors can result in the pump overheating:

- Excessive pressure on the delivery side.
- Motor overload switch set incorrectly.
- Ambient temperature which is too high.
- ➔ Do not operate the pump with the valves closed, minimum flow rate 10 % of Q_{max} .
- ➔ For pumps with a three-phase motor, install a built-in or external overload switch and set it correctly.
- ➔ Do not exceed the permitted ambient temperature of 40 °C.

2.9.5 Pressure surges

Valves which close suddenly can cause pressure surges which far exceed the maximum permissible housing pressure of the pump.

- ➔ Avoid valves which close suddenly or, if present, close them slowly.

2.9.6 Blockages in the pump

Pieces of dirt in the suction line can clog and block the pump.

- ➔ Remove foreign matter (branches, leaves, clothes, ...) from the suction opening.
- ➔ Check how easily the pump rotates before starting it up and after longer idle or storage periods.

2.9.7 Drainage

An insufficient drain gap can damage the motor.

- ➔ Do not block or seal the drain gap between the pump housing and the motor.

2.9.8 Risk of frost

- ➔ Drain the pump/unit and pipes at risk of freezing in plenty of time.
- ➔ Remove the pump/unit during periods of frost and store it in a dry room.

2.9.9 Water temperature

The water temperature must not exceed 35 °C.

2.9.10 Safe use of the product

Safe use of the product is no longer guaranteed in the following instances:

- If the pipework is not in proper condition.
- If the pump seizes. See point 2.8 on page 8.
- If protective devices are damaged or missing, e.g. protection against accidental contact.
- If there is stress on the pump/unit or pipes during installation.

3 Description

3.1 Components

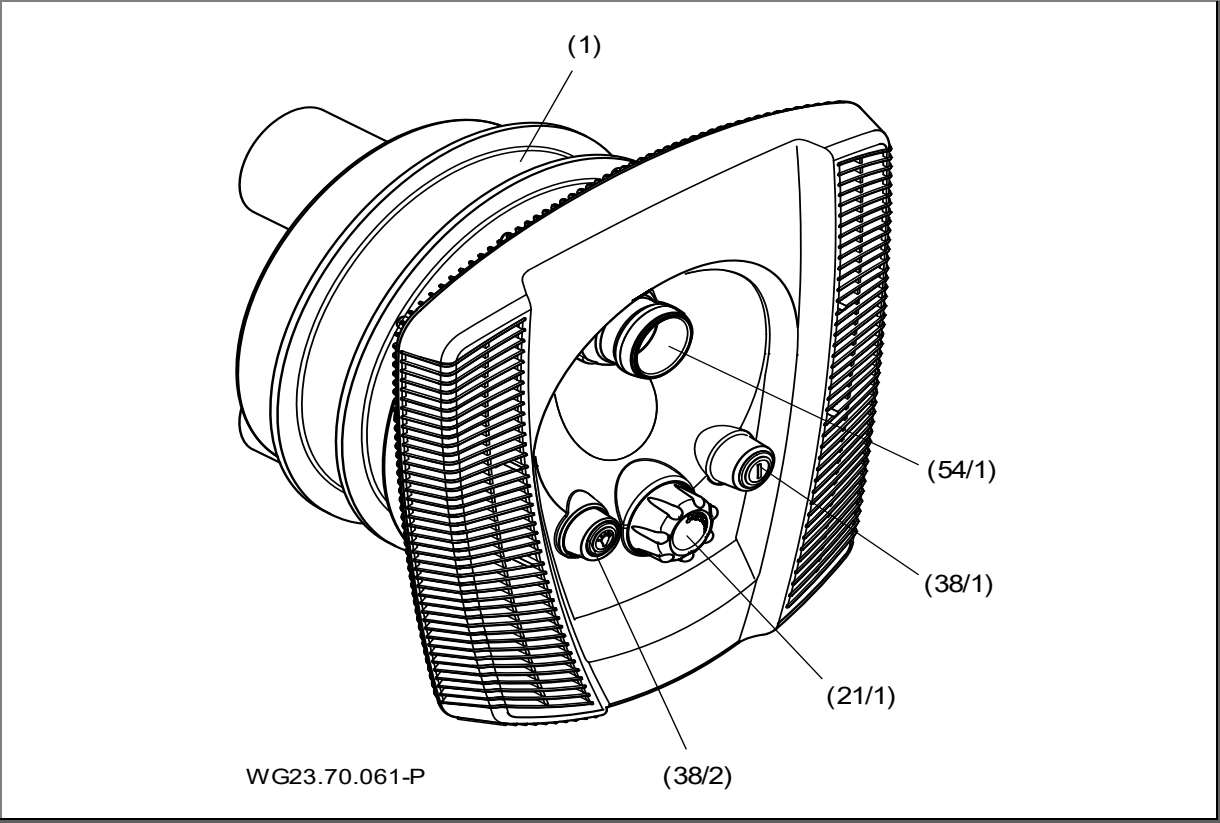


Fig. 1

(1)	Main housing	(21/1)	Air regulator
(38/1)	Pneumatic button pump	(38/2)	Pneumatic button light
(54/1)	Nozzle		

3.2 Function

The pump is connected via the suction and pressure line with the plastic main housing (1). The pump is switched ON/OFF with the pneumatic button (38/1). The pool water is sucked in by the pump via the housing with a low flow rate and pumped back into the pool under high pressure through the nozzles (54/1). The flow rate and therefore the efficiency of the counter swim unit can be set using the adjustable nozzle (54/1). Air can also optionally be mixed into the flow from the nozzle with the air regulator (21/1). The unit is also equipped with underwater LED lighting for effect lighting. This can be turned ON/OFF using the pneumatic button (38/2).

4 Transport and intermediate storage

4.1 Transport

- ➔ Check the delivery conditions:
 - Check the packaging for transport damage.
 - Determine damages, document them with photographs and contact the distributor.

4.2 Lifting the pump

⚠ DANGER

Goods being transported can fall and result in death or crushing of limbs!

The lifting hooks on the motor are designed for the weight of the motor. The lifting hooks can break if the complete pump unit is attached.

- ➔ Attach the hoisting equipment to both the motor and pump sides if hooks are provided.
- ➔ Use only hoisting and load-bearing equipment which is suitable, technically sound, and can bear enough weight.
- ➔ Do not stand under suspended loads.
- ➔ The motor is the heaviest part of the pump.

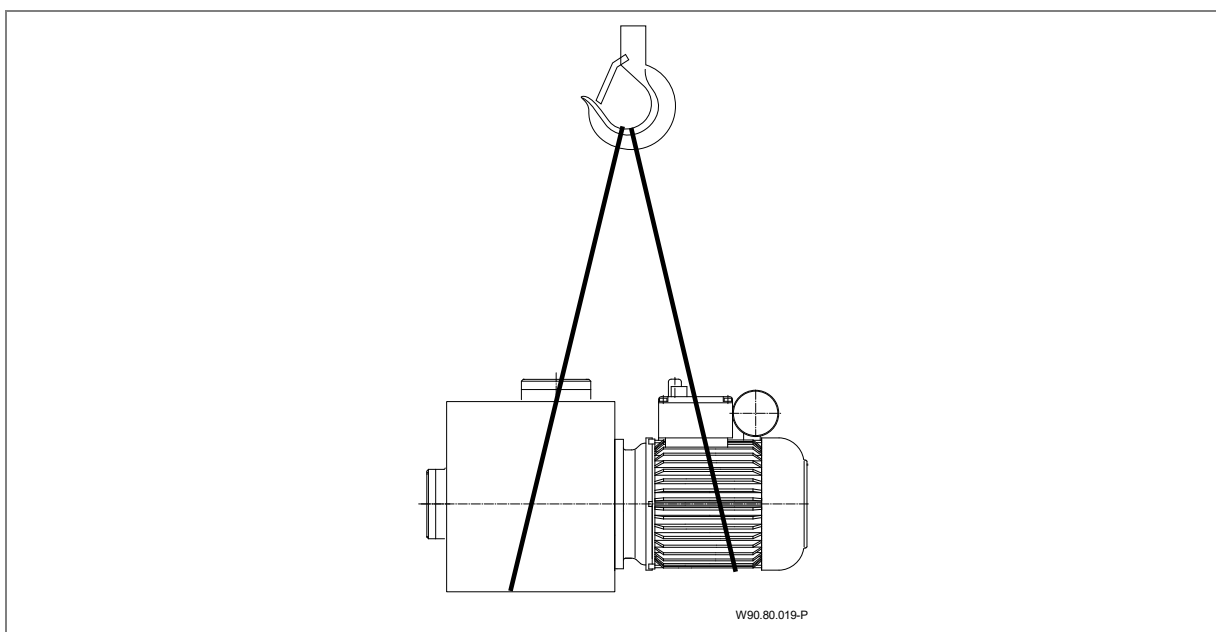


Fig. 2

4.3 Storage

NOTICE

Corrosion is possible due to storage in humid conditions with fluctuating temperatures!

Condensation can corrode windings and metal parts.

- ➔ Store the pump/unit in a dry environment at a temperature which is as constant as possible.

NOTICE

Damage or loss of individual parts!

- ➔ Do not open the original packaging until installation or keep individual parts in the original packaging until installation.

4.4 Returns

- ➔ Drain the pump/unit completely.
- ➔ Rinse and clean the pump/unit with clear water.
- ➔ Pack the pump/unit in a box and send it to the specialist retailer or manufacturer.

5 Installation

5.1 Installation site (Qualified specialist)

5.1.1 Outdoor installation

- ➔ In order to increase the pump's service life, provide simple weather protection.

5.1.2 Installation position

- ➔ The unit is normally installed on the narrow side of the pool with a recommended minimum pool length of 4 m.
- ➔ From a pool width of 4 m, installation on the longer side is also possible.
- ➔ For round and oval pools made from smooth sheet steel or plastic, a minimum radius of 2 m is required.
- ➔ For round and oval pools made from stone or concrete, a flat surface with a minimum width of 480 mm is required.
- ➔ The water depth at the position of installation should be between 1.2 m and 1.5 m. Thus the massage hose can be used appropriately and optimally.
- ➔ The volume flow in the system can lead to circulation in the pool. This can cause an overlap of the volume flow and the return flow which becomes noticeable in the form of an apparent stall in the flow. This happens, above all, when special pool shapes or, for example, steps are installed. Generally, this has only happened very rarely so far and does not constitute a defect. Adjusting the nozzle is usually the simplest remedy here to favourably influence the flow in the pool.

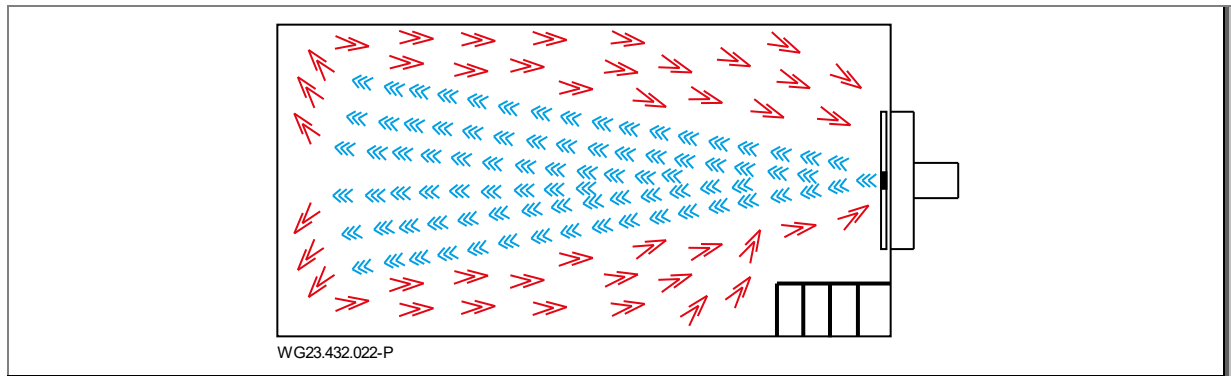


Fig. 3

5.1.3 There must be ground drainage

- ➔ Calculate the size of the ground drain according to the following criteria:
 - Size of the swimming pool.
 - Circulation flow rate.

5.1.4 Ventilation and aeration

- ➔ Ensure sufficient ventilation and aeration. The ventilation and aeration must ensure the following conditions:
 - Prevention of condensation.
 - Minimum distance from fan cover to the wall: 120 mm.
 - Cooling of the pump motor and other system components, for example switch cabinets and control units.
 - Limitation of the ambient temperature to maximum 40 °C.

5.1.5 Structure-borne and airborne noise transmission

- ➔ Observe regulations for structural noise protection, for example DIN 4109.
- ➔ Install the pump in a manner which reduces structure-borne and airborne noise transmission. Vibration-absorbing materials are suitable bases. Examples:
 - Anti-vibration buffers
 - Cork lining
 - Sufficiently hard foam

The airborne noise emission is specified according to EN ISO 20361 in the pump's data sheet.

5.1.6 Fasteners

- ➔ Fasten pump using screws.

5.2 Installation (Qualified specialist)

5.2.1 Installation tip concrete pool

Concrete pool with foil

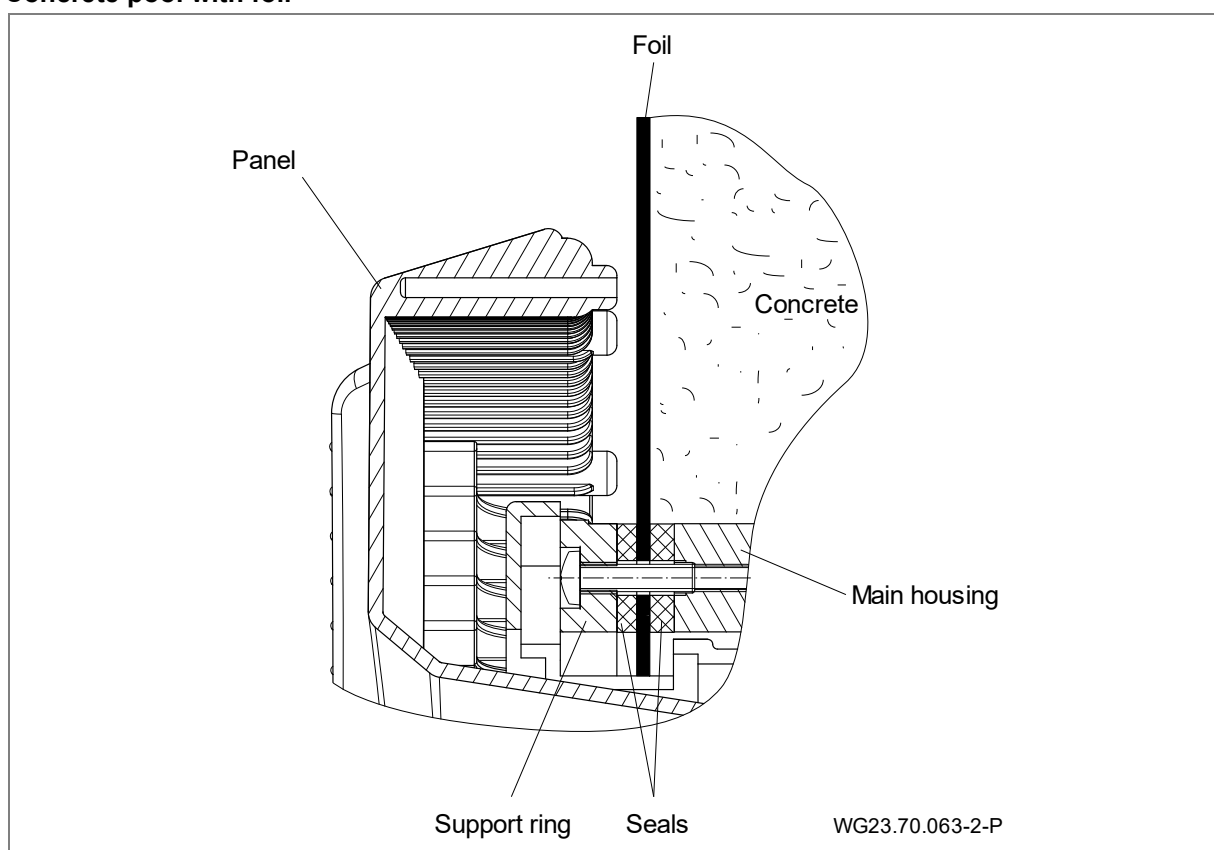


Fig. 4

Tiled concrete pool

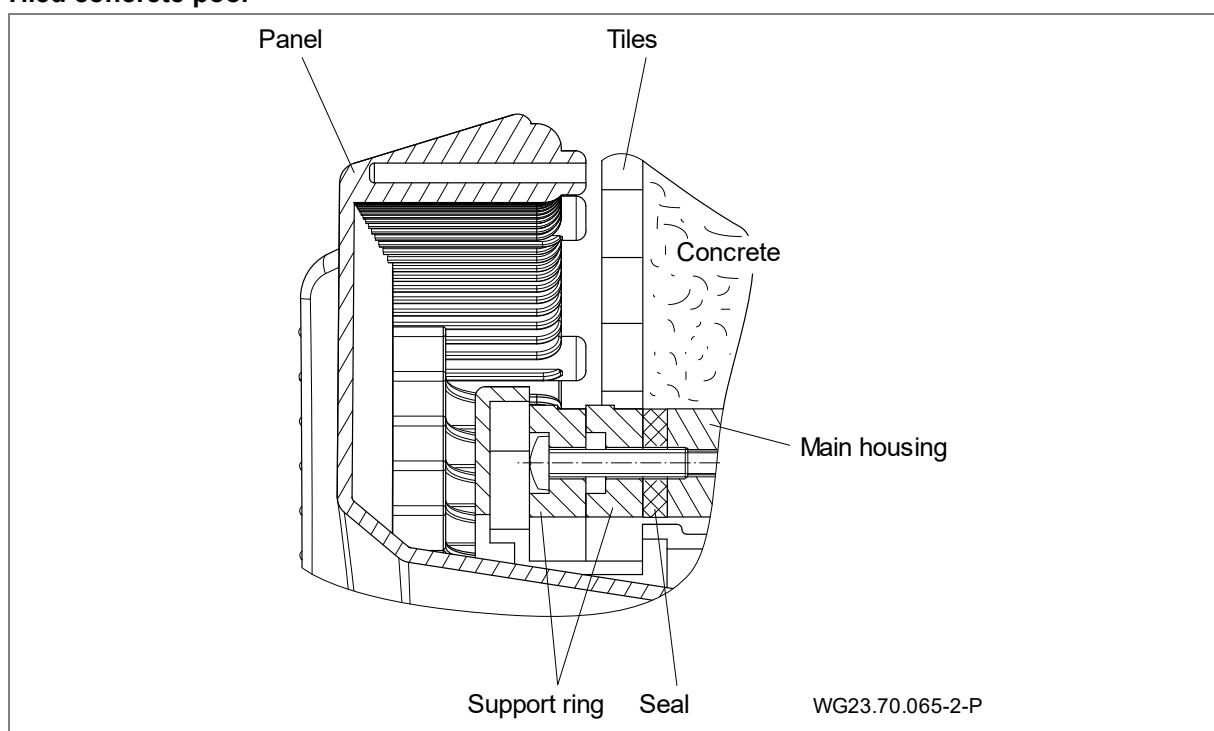


Fig. 5

Pool cutout for concrete pools/formwork

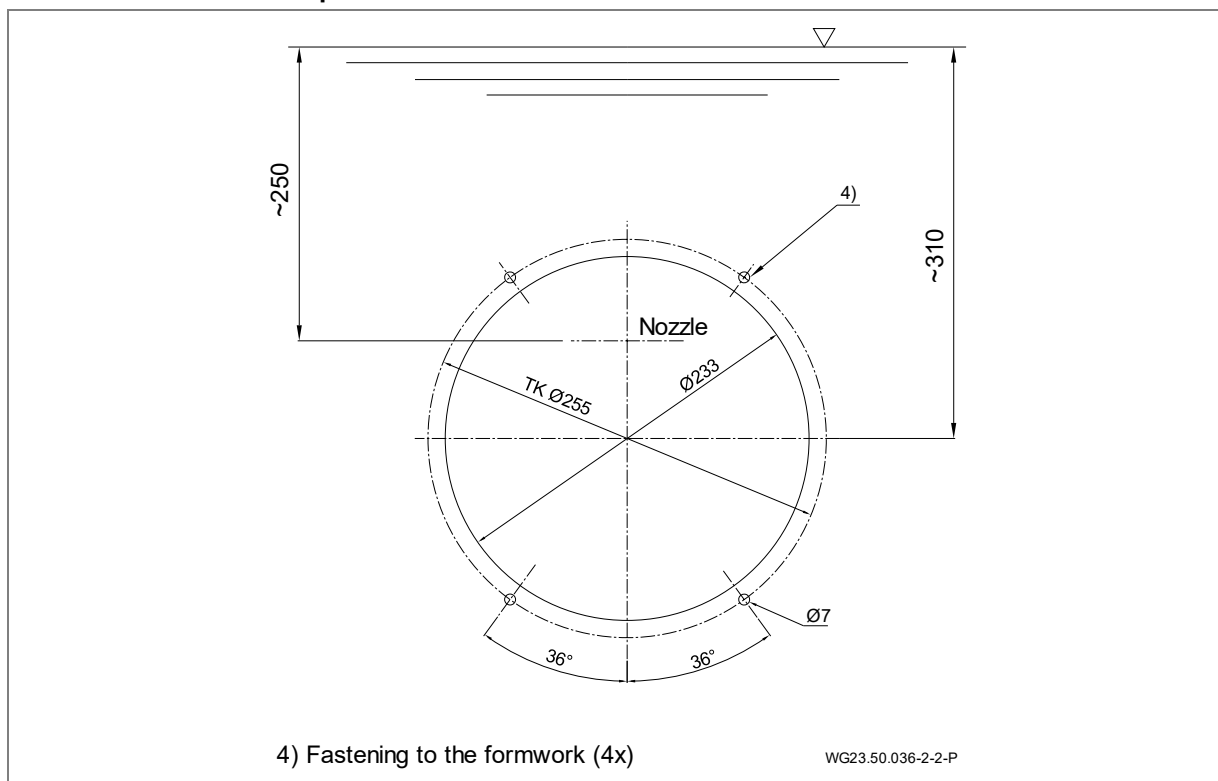


Fig. 6

Installation of formwork for concrete pools

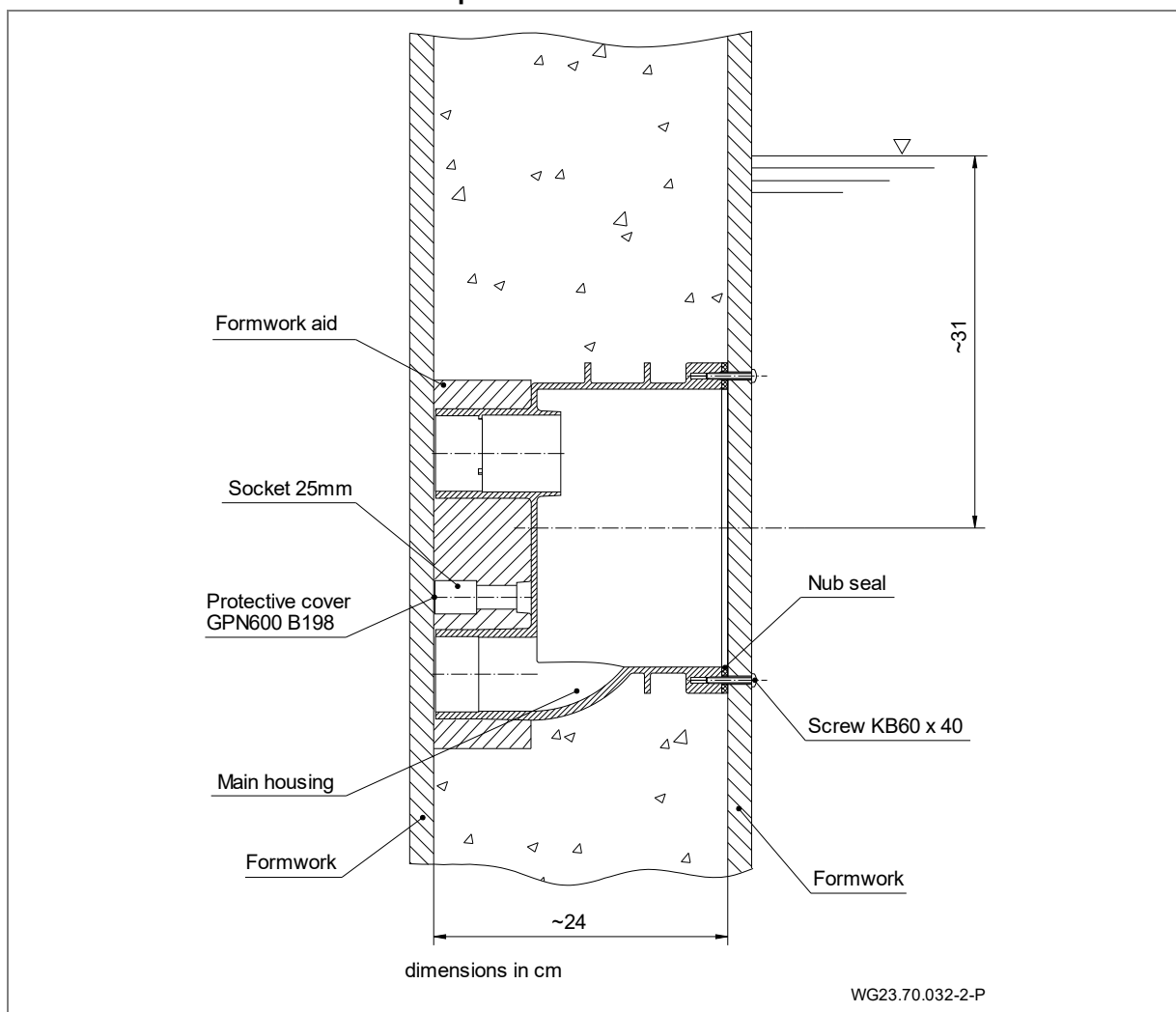


Fig. 7

Mounting the main housing in a concrete pool

NOTICE

Only tighten the screws hand-tight. Do not use any force!

1. Position the top outlet connection (B) above the inlet connection (C).
2. Installation depth: The middle of the nozzle should be attached 25 cm below the water level.
3. Insert the nub seal (26) in the housing (1).
4. Align the main housing (1) and fasten it to the formwork with four tapping screws (52).
5. The dummy plate (30), with the four tapping screws (103), is used to protect the housing during plastering and as a cover in the case of commissioning the swimming pool without the final assembly kit being installed.

➔ Please observe the installation sketch.

Mounting the main housing in a concrete pool with foil lining (A)

➔ Observe 5.2.3: Aligning the support ring

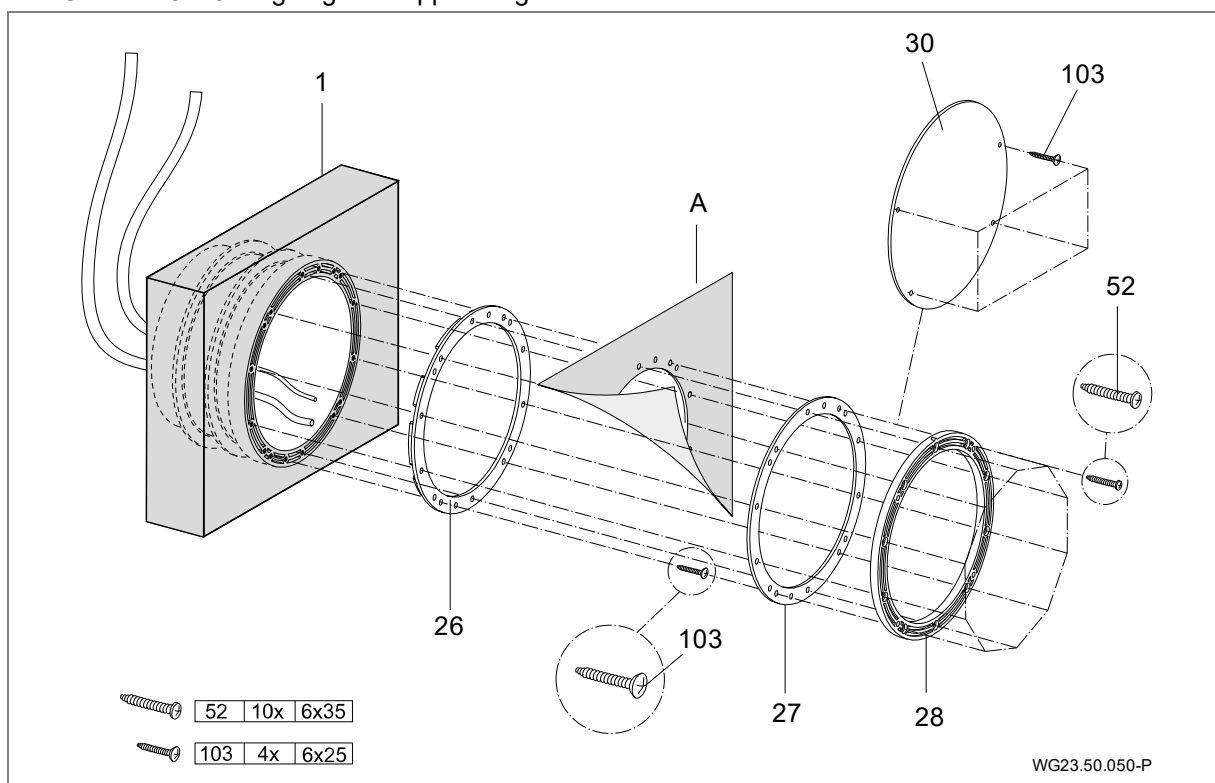


Fig. 8

Mounting the main housing in a tiled concrete pool

→ Observe 5.2.3: Aligning the support ring

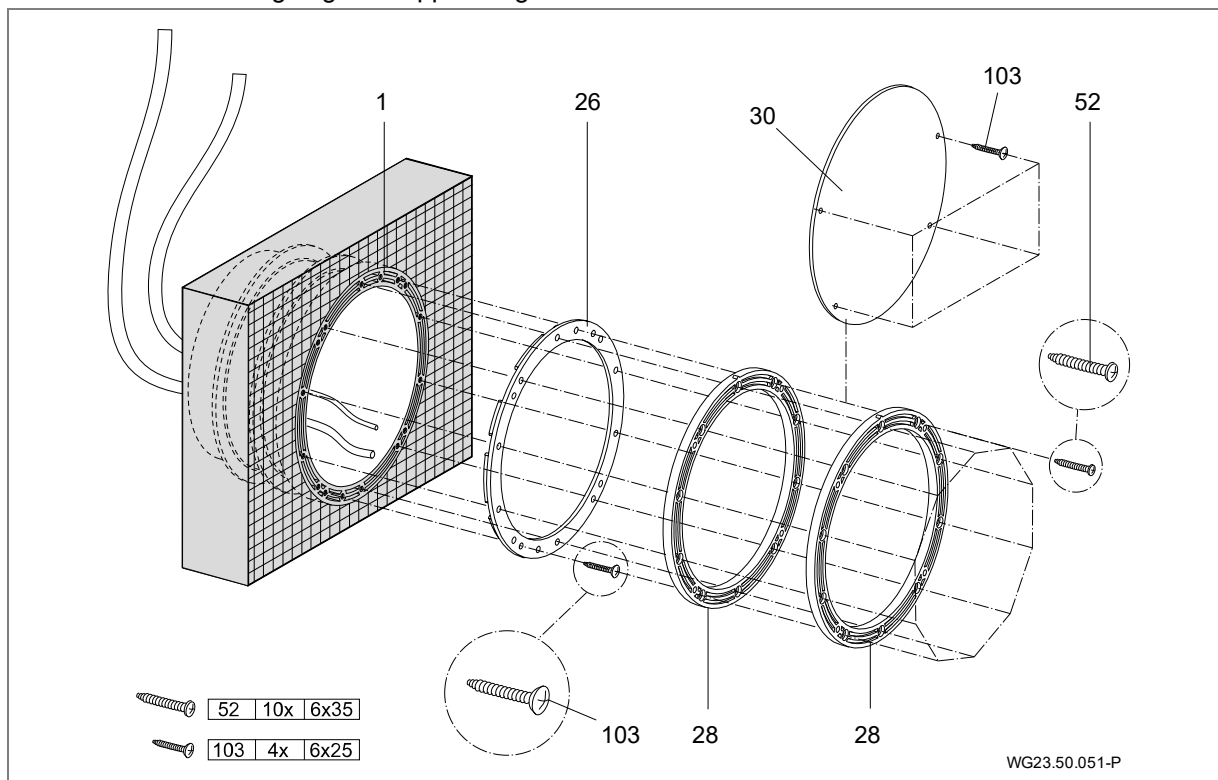


Fig. 9

In a tiled pool the tile thickness is compensated for with an additional support ring (28) and longer tapping screws (52). The parts are optionally available in the additional kit.

5.2.2 Installation tip foil/polyester pools

Foil pool

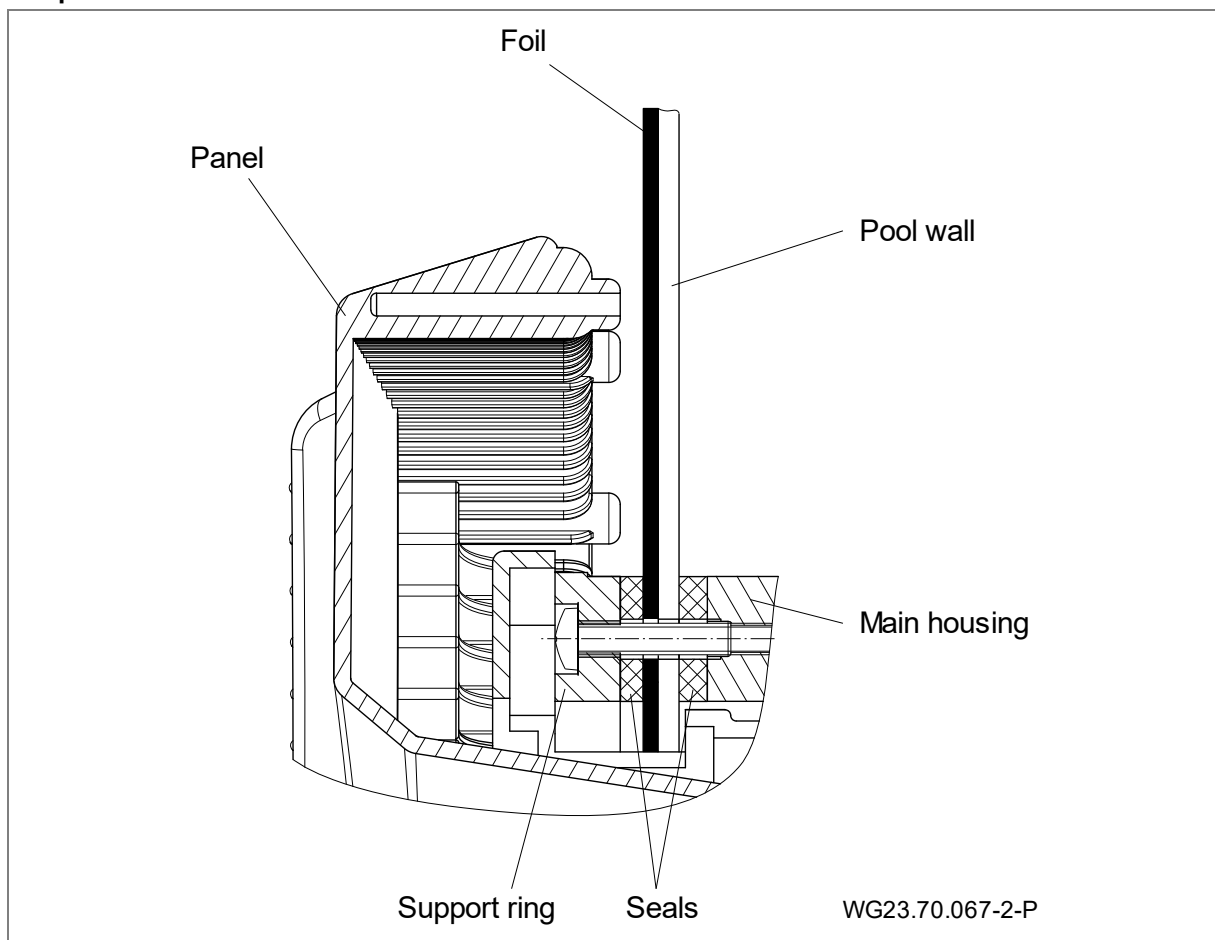


Fig. 10

Polyester pool

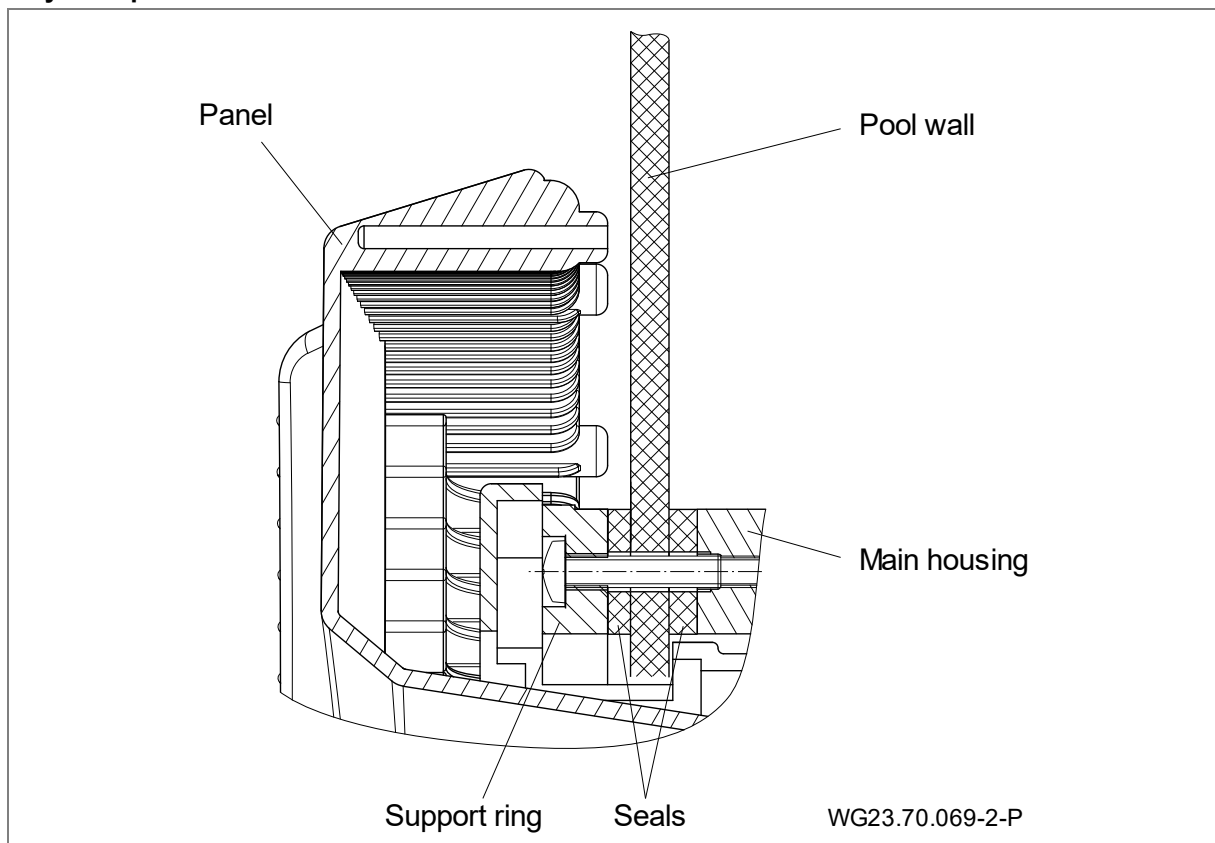


Fig. 11

Pool cut-out for foil/polyester pools

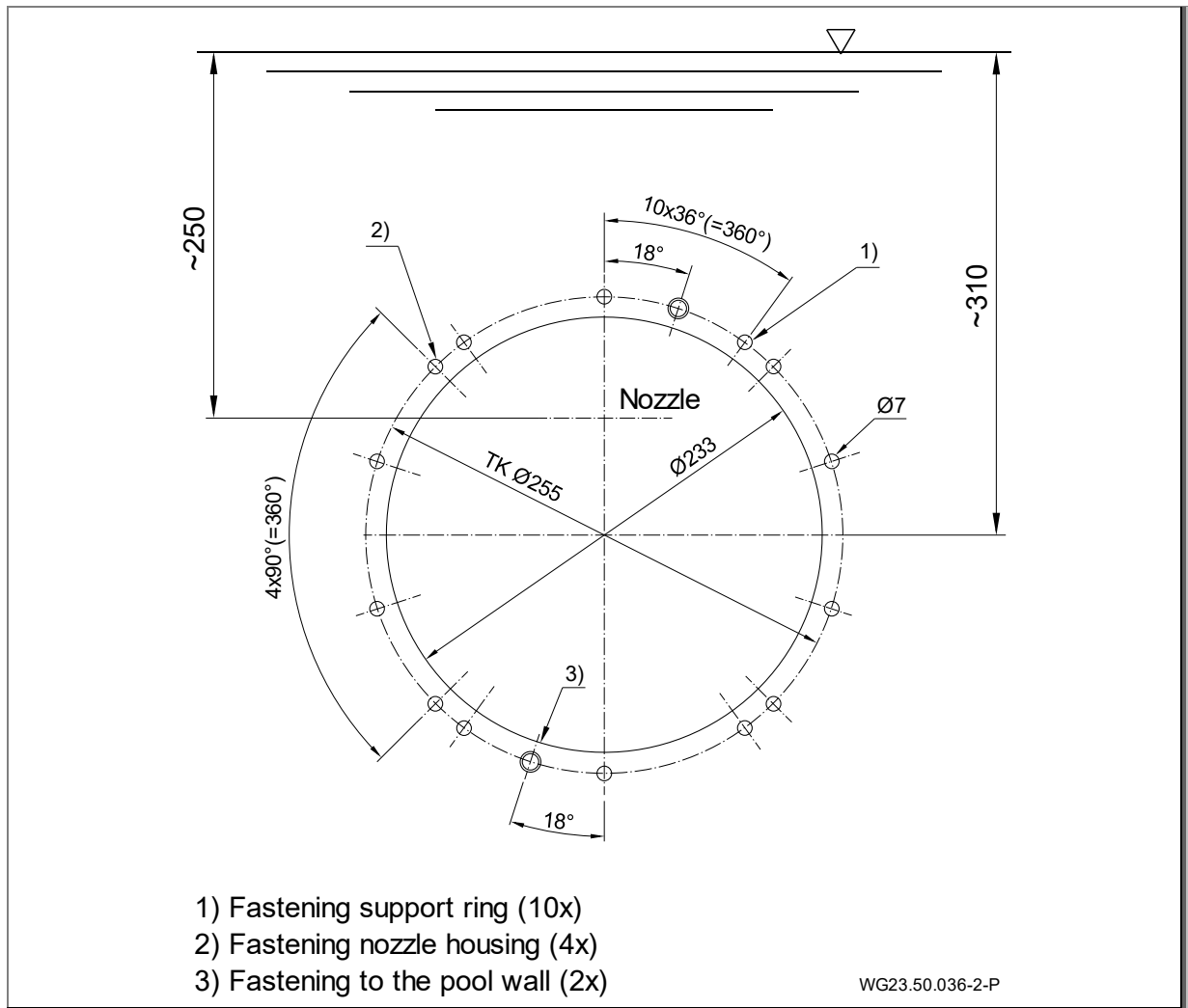


Fig. 12

Mounting the main housing in a foil, polyester, steel or aluminium pool (A)

NOTICE

Only tighten the screws hand-tight. Do not use any force!

1. Position the top outlet connection (B) above the inlet connection (C).
 2. Installation depth: The middle of the nozzle should be attached 25 cm below the water level.
 3. Drill holes using the enclosed drilling template.
 4. Cut out the housing opening in the pool wall.
 5. Insert the nub seal (26) in the housing (1).
 6. Align the housing (1), place it onto the outer pool wall and fasten it to the pool wall (without film) using the two tapping screws (103).
 7. Lay the clamp ring seal (27) from the inside of the pool.
 8. The pool wall is clamped between the support ring (28) and the main housing (1) with the tapping screws (52).
 9. The dummy plate (30), with the 4 tapping screws (103), is used to protect the housing during plastering and as a cover in the case of commissioning the swimming pool without the final assembly kit being installed.
- ➔ Please observe the installation sketch.

Mounting the main housing in a polyester pool (A)

➔ Observe 5.2.3: Aligning the support ring

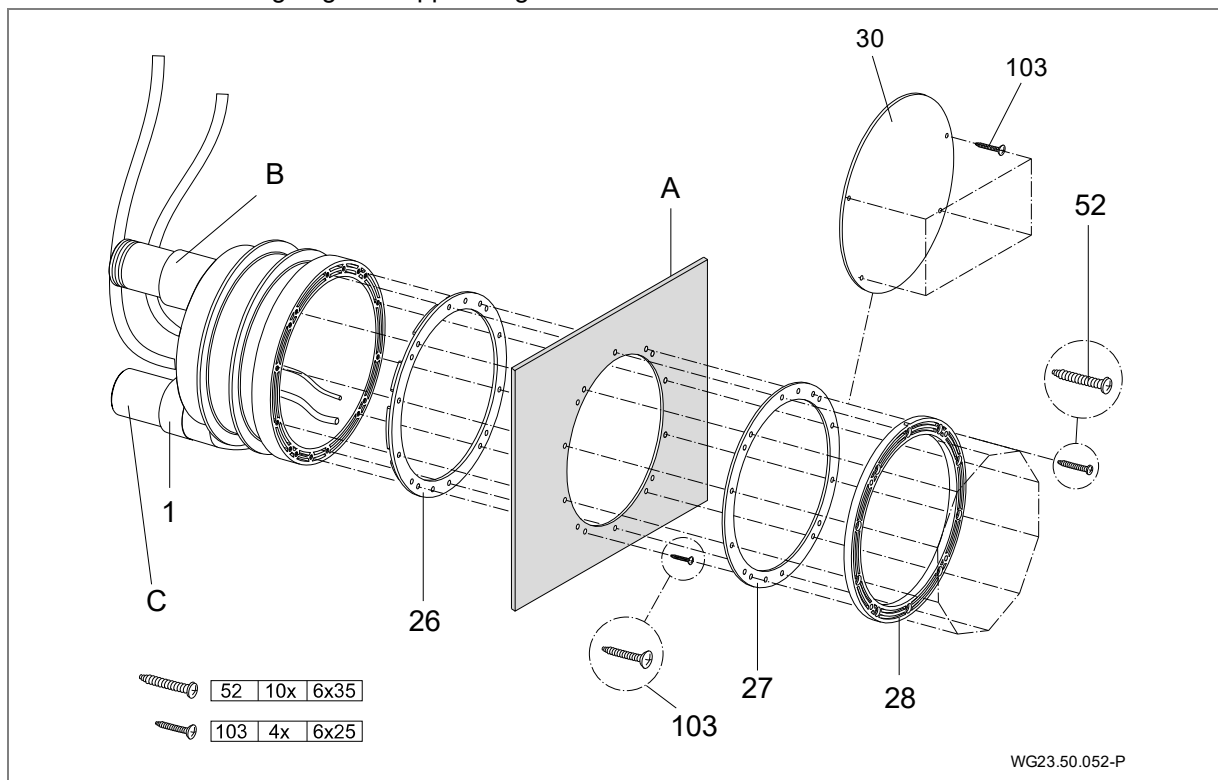


Fig. 13

Mounting the main housing in a foil pool (A)

➔ Observe 5.2.3: Aligning the support ring

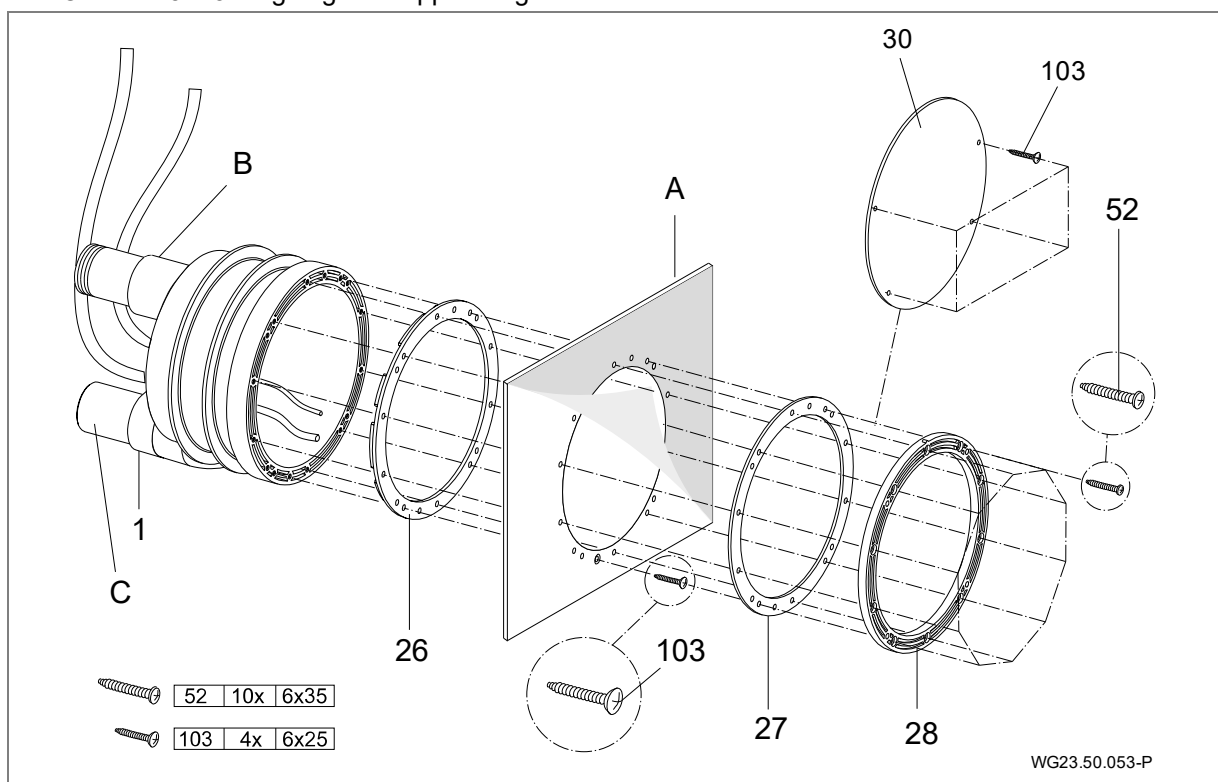


Fig. 14

5.2.3 Aligning the support ring

The four holes marked (1) must always be positioned at a 45° angle to the centre axis.

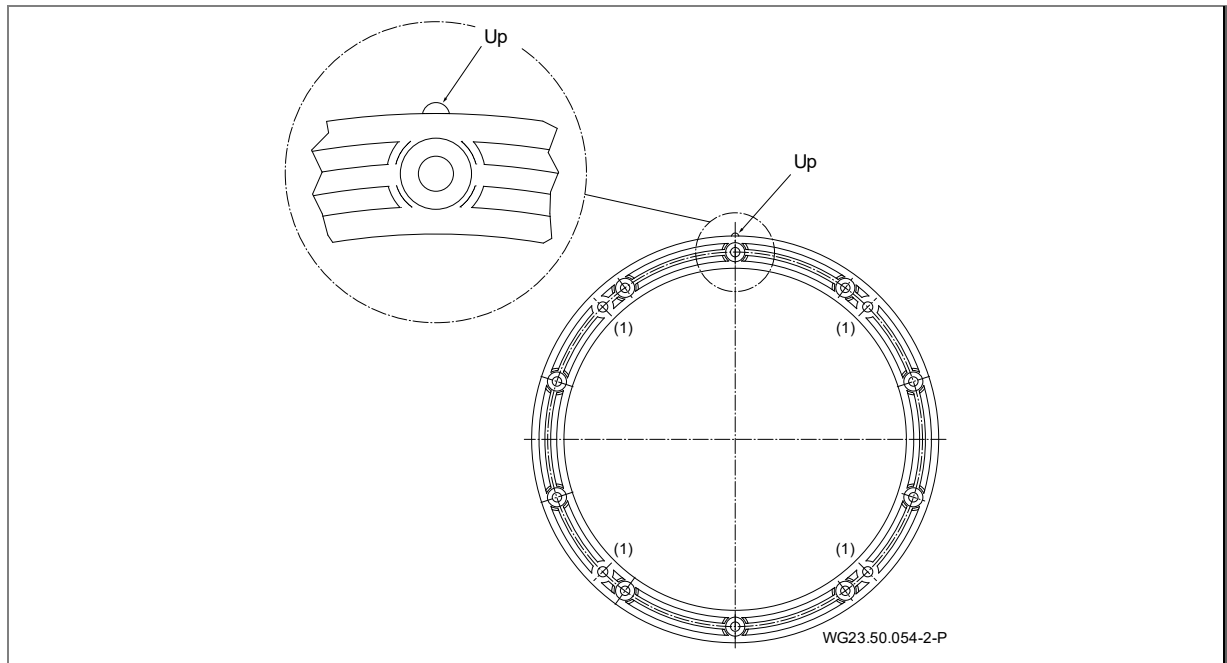


Fig. 15

5.2.4 Protective conduit and hose for air regulator

Lay and fasten the protective conduit and the hose for the air regulator above the water level.

5.2.5 Pipe sizing

Suction lines which are too long have significant disadvantages:

- Higher resistance, therefore poorer flow characteristics and a higher risk of cavitation.

5.2.6 Laying pipes

NOTICE

The main housing and the screw connections are made of ABS. A curing time of at least 12 hours for the bonding **must** be observed!

- ➔ Keep the suction and pressure lines as short and straight as possible.
- ➔ If possible, lay the suction and pressure lines below the water level.
- ➔ Install a shut-off valve in both the suction and pressure lines.
- ➔ Avoid valves which close suddenly or, if present, close them slowly.
- ➔ If the pump is positioned further away, the pipe dimensioning has to be adapted so that an almost loss-free flow is ensured.
- ➔ Use elbows instead of angles.
- ➔ At a distance of between 5 m and 10 m:
 - At 45 m³/h: Suction line d125/Pressure line d125
 - At 58 m³/h: Suction line d140/Pressure line d140
 - At 75 m³/h: Suction line d160/Pressure line d140

5.2.7 Pump shaft

Store the pump unit in a shaft adjacent to the pool. The installation room must have proper aeration and ventilation and a sufficient ground drain. A connection for equipotential bonding has to exist in the pump shaft. See "Installation example" on page 25.

- ➔ Please observe the pipe dimensions.

5.2.8 Electrical control unit

The control for the counter swim unit is to be located in a dry room. Connection of the supply lines and pump is to be carried out in accordance with the enclosed wiring diagram. The applicable regulations (VDE) are to be observed. Maximum distance between pool and control box 10 m!

NOTICE

The control box may only be mounted to the existing holes.

5.3 Final assembly (Qualified specialist)

⚠ WARNING

Injury due to suction if the suction panel is not mounted!

➔ Mount the suction panel.

All guarantee rights and claims for compensation are rendered invalid for damage resulting from the suction panel not being mounted or being mounting incorrectly.

NOTICE

Only tighten the screws hand-tight. Do not use any force!

After the installation of the main housing (pre-assembly kit):

1. Glue in the cable protection hose and the hose for air supply. (Fig. 16)
2. Position the nozzle housing (102.1) on the main housing (1).
3. Lead the pneumatic hoses (47) and floodlight cables through the protective conduit (14) and seal with the cable gland (20).
4. Attach the air pipe to the air regulator (21), assembled on site, with a clamp (8).
5. Attach the nozzle housing (102.1) to the main housing (1) with 4 tapping screws (95). (Fig. 17)
6. Lead the pneumatic hoses through the openings in the cover (93) and fasten them to the corresponding buttons with hose clamps (46); Light ON/OFF left; Pump ON/OFF right. (Fig. 18)
7. Fasten the cover (93) to the nozzle housing with the four screws (113). Insert the two pneumatic buttons through the light cover (110) in the nozzle housing and lock by turning it clockwise. (Fig. 19)
8. Secure the cover for the air regulator. (Fig. 20)
9. Connect the jet pump (92) to the main housing (1) on the suction and pressure sides using the half screw (98, 99, 100), the rubber bracket (79) and the corresponding clamps (75).
10. Connect the pump motor according to the wiring diagram.
Pay attention to the correct direction of rotation for three-phase motors! Only carry out the direction of rotation check when the pump is completely filled with water!
11. Switching on and off from the pool using pneumatic buttons.
 ➔ Pump ON/OFF (38/1) - right hand button
 ➔ Light ON/OFF (38/2) - left hand button
12. With the air regulator (21/1) air can be added to the nozzle from the pool.
 ➔ OPEN – Left rotation
 ➔ CLOSE – Right rotation

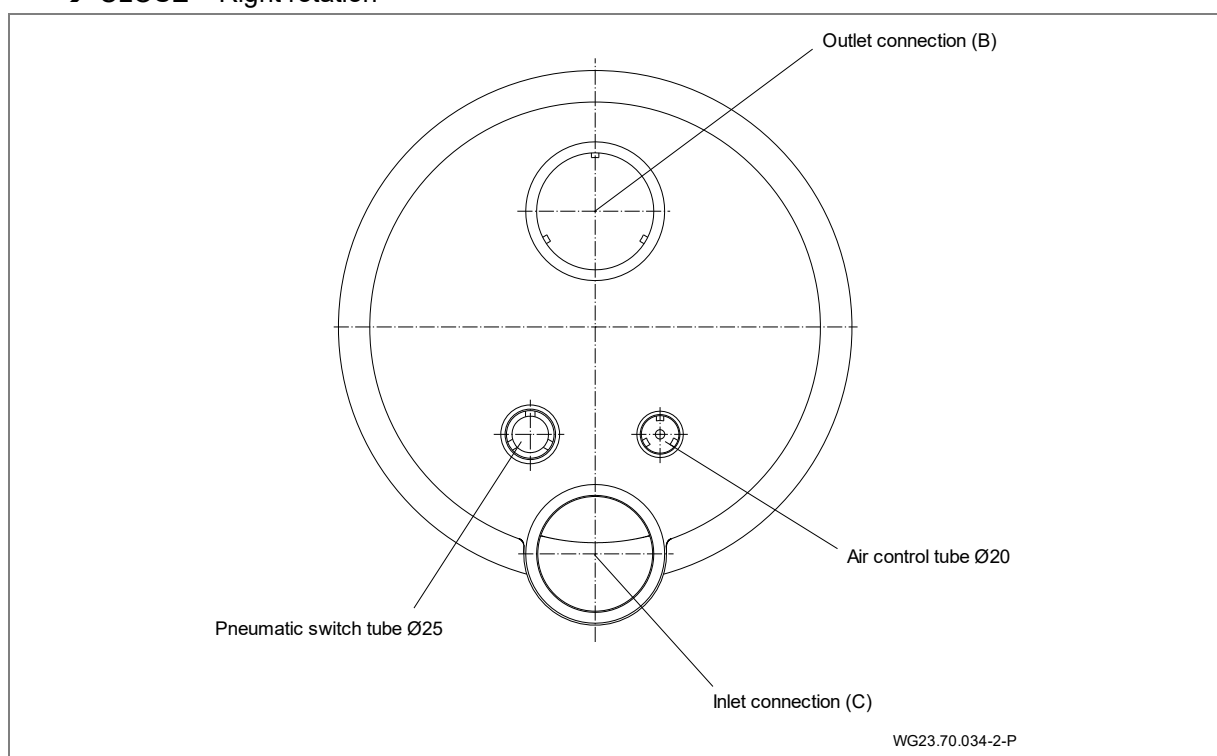


Fig. 16

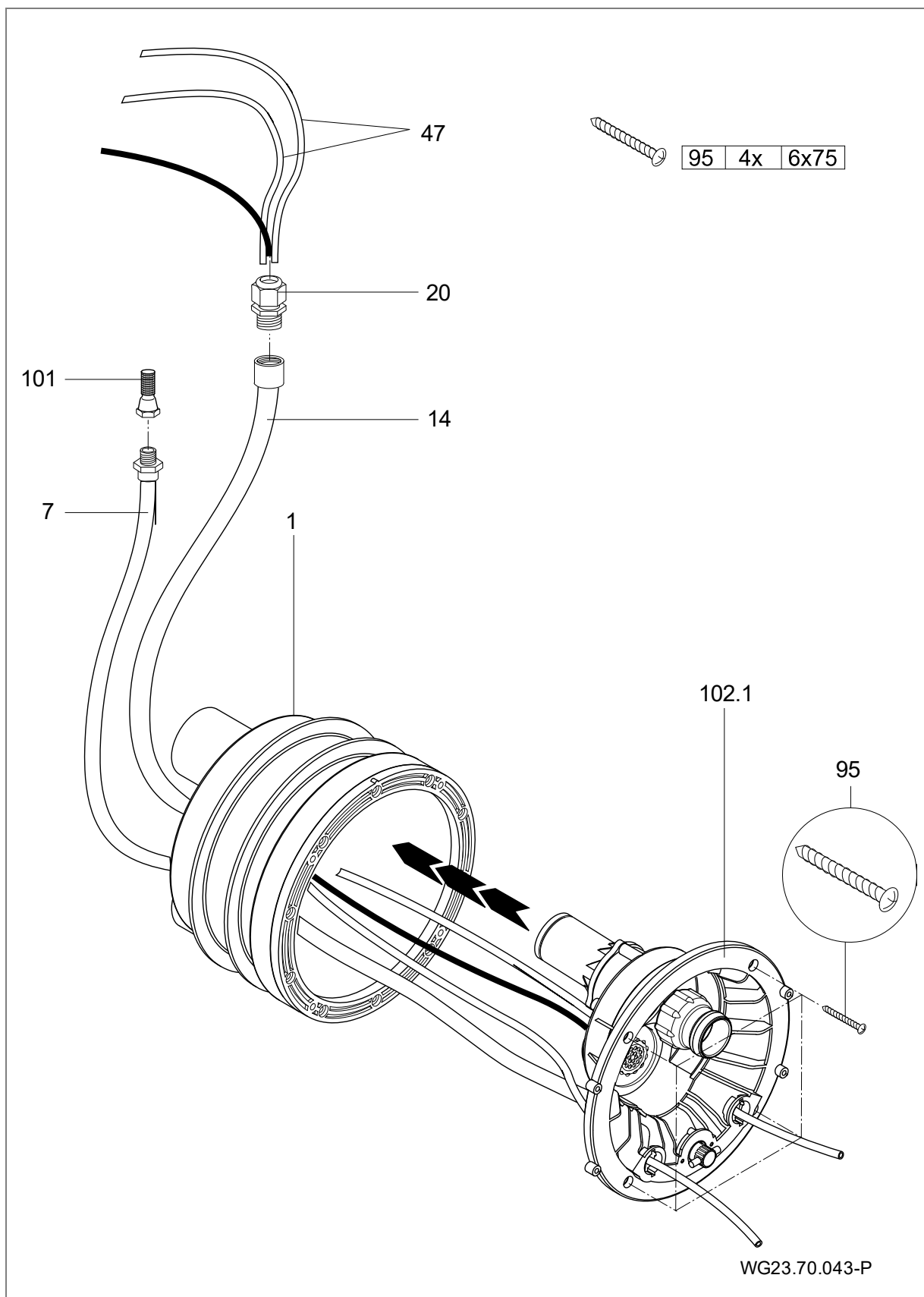


Fig. 17

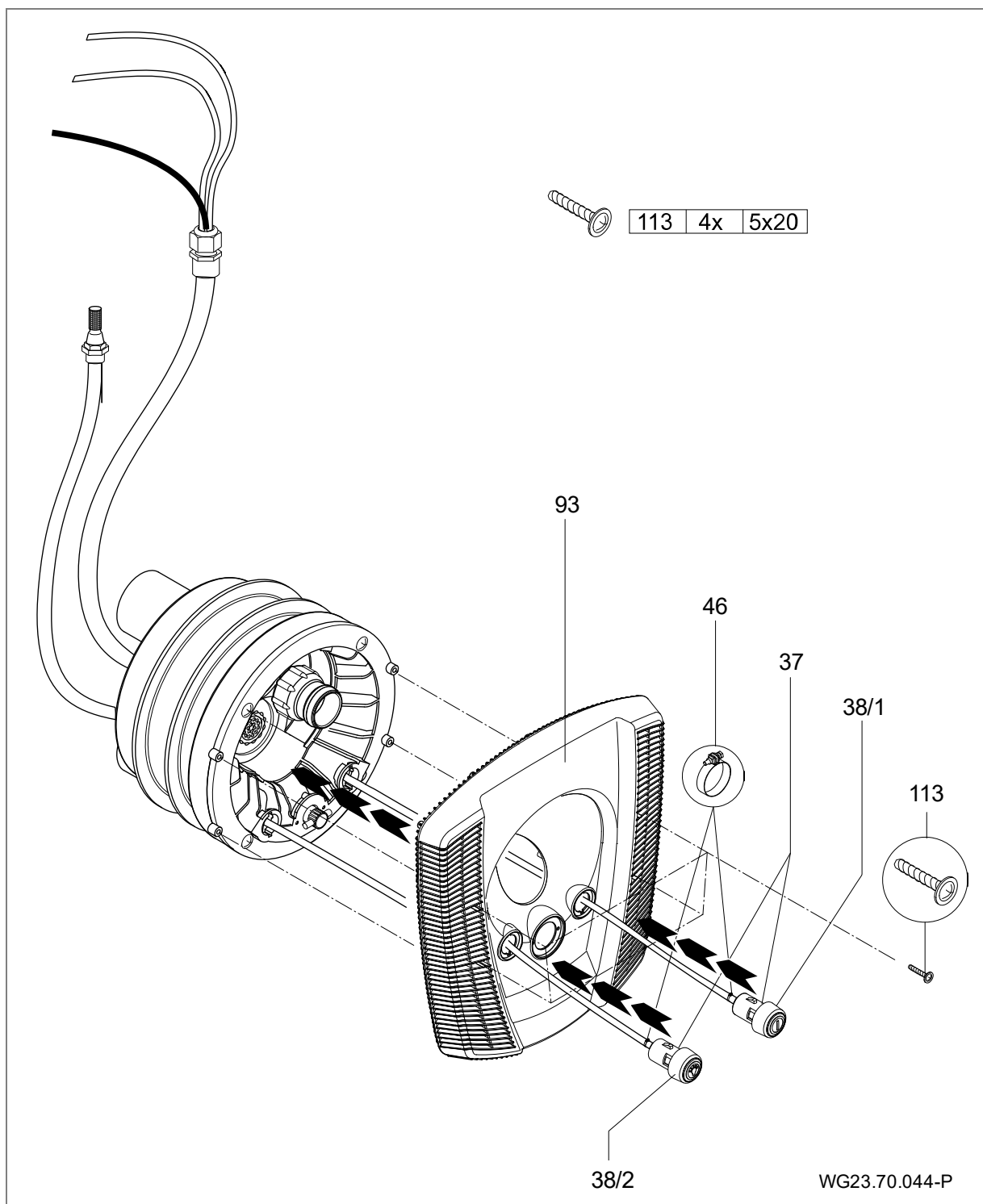


Fig. 18

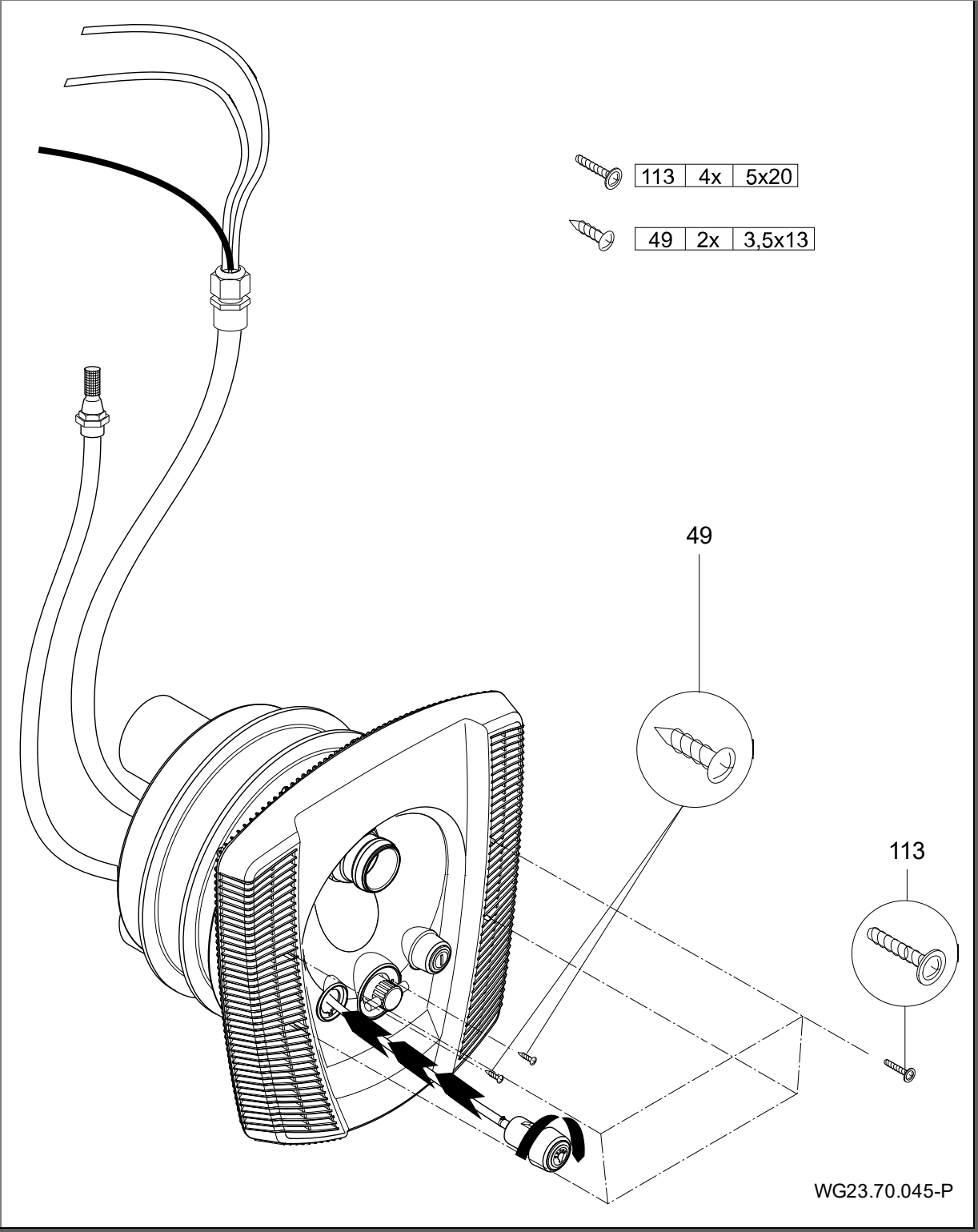
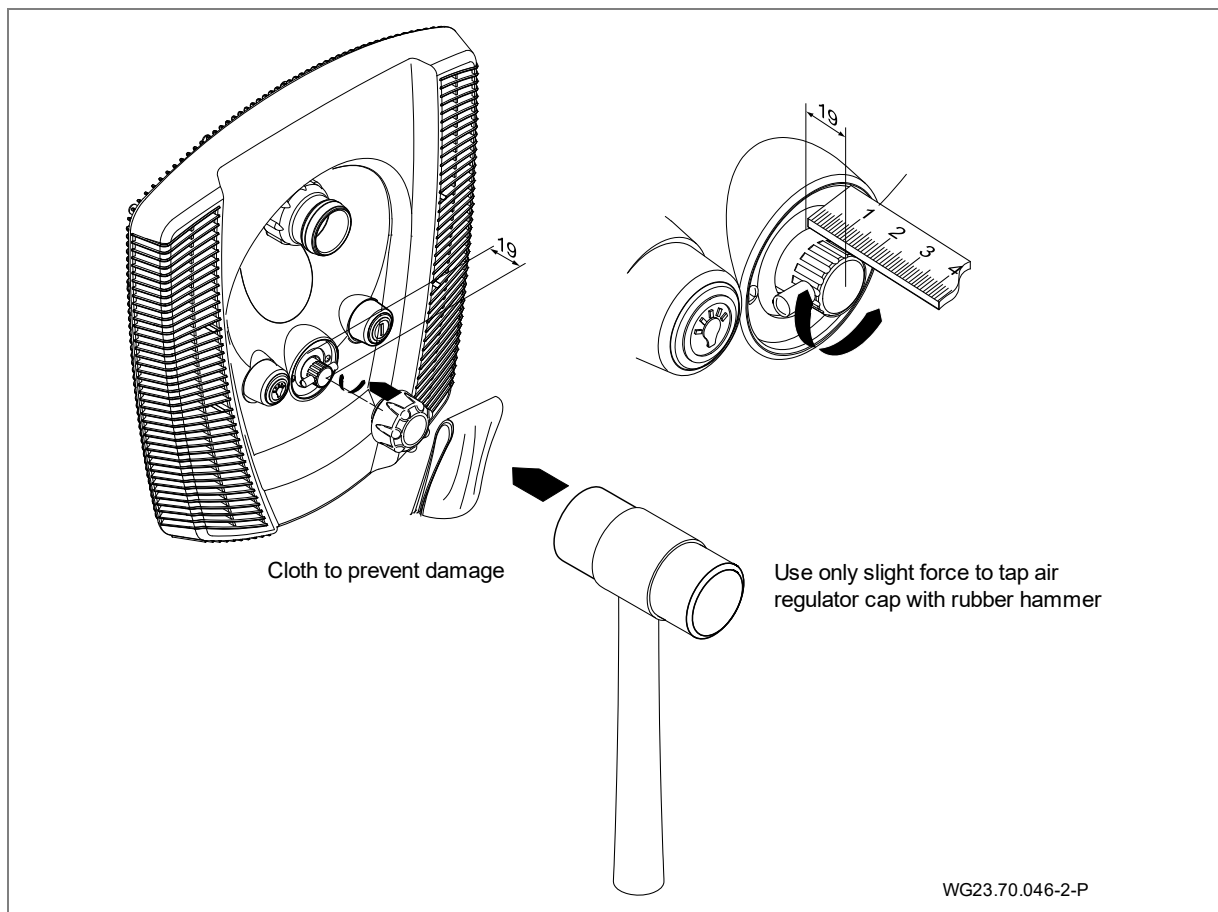


Fig. 19



5.3.2 Installing the pump and connecting it to the pipework

1. Fasten the pump horizontally on a vibration-absorbing base.

NOTICE

The pump can be damaged by unauthorised mechanical strains being placed on the pump!

- ➔ Take the pipe up directly before the pump and connect it free of tension.

2. Connect the pipe free of tension according to the VDMA standard sheet 24277. Use compensators if necessary.
3. Ensure that any leaks cannot cause consequential damage. Install a suitable retainer if necessary.
4. There must be ground drainage
 - ➔ Calculate the size of the ground drain according to the following criteria:
 - Size of the swimming pool
 - Circulation flow rate

5.4 Electrical connection (Qualified specialist)

⚠ WARNING

Risk of electric shock due to incorrect connections!

- ➔ Electrical connections must always be carried out by authorised specialists.
- ➔ Observe VDE and utility company regulations.
- ➔ Install pumps for swimming pools and their protection according to DIN VDE 0100-702.
- ➔ Install a disconnecting device with at least a 3 mm contact gap per pole to interrupt the power supply.

⚠ WARNING

Risk of electric shock due to voltage on the housing!

- ➔ A built-in or external overload switch which is set correctly must be installed for pumps with three-phase or A.C. motors without motor protection. In doing so, observe the values on the motor name plate.
- ➔ Protect power supply with a ground fault circuit interrupter, nominal residual current $I_{FN} \leq 30$ mA.
- ➔ Only use suitable pipe types according to regional regulations.
- ➔ Adjust minimum diameter of the electrical pipes to accommodate the motor output and pipe length.
- ➔ Do not bend or squash the pipes.
- ➔ If hazardous situations can occur, provide an emergency off switch according to DIN EN 809. The builder/operator must make a decision according to this standard.

5.4.1 Counter swim unit electrical connection

- ➔ The circuit is wired ready for connection. The connections are carried out in accordance with the wiring diagram.
- ➔ Connect the pneumatic hoses of the pneumatic buttons with the control box.
- ➔ The control box may only be mounted to the existing holes.

Connection onsite:

- Ground fault circuit interrupter $I_{FN} \leq 30$ mA
- Lines must be protected and laid in accordance with the pertinent standards and local conditions (line length, ambient temperature, type of laying, etc.). These are DIN VDE 0100 Part 400 and DIN VDE 0100 Part 500 i.a. The rated flow of the pump must also be observed.
- We recommend the use of an automatic circuit breaker with a tripping characteristic for higher starting currents (motors, pumps).
- Short circuit breaking capacity $I_{cw} \leq 6$ kA
- All-pole emergency off switch with 0 and 1 labelling.
- ➔ A connection has to be provided for equipotential bonding, that is connected with the earthing strap.

Further information is provided in the connection diagram. The above-mentioned parts are not included in delivery and must be provided on site for the installation of the unit.

5.4.2 Terminal box wall mounting

The terminal box should only be mounted on the wall using the holes provided for this purpose. Securing by other means is not permitted.

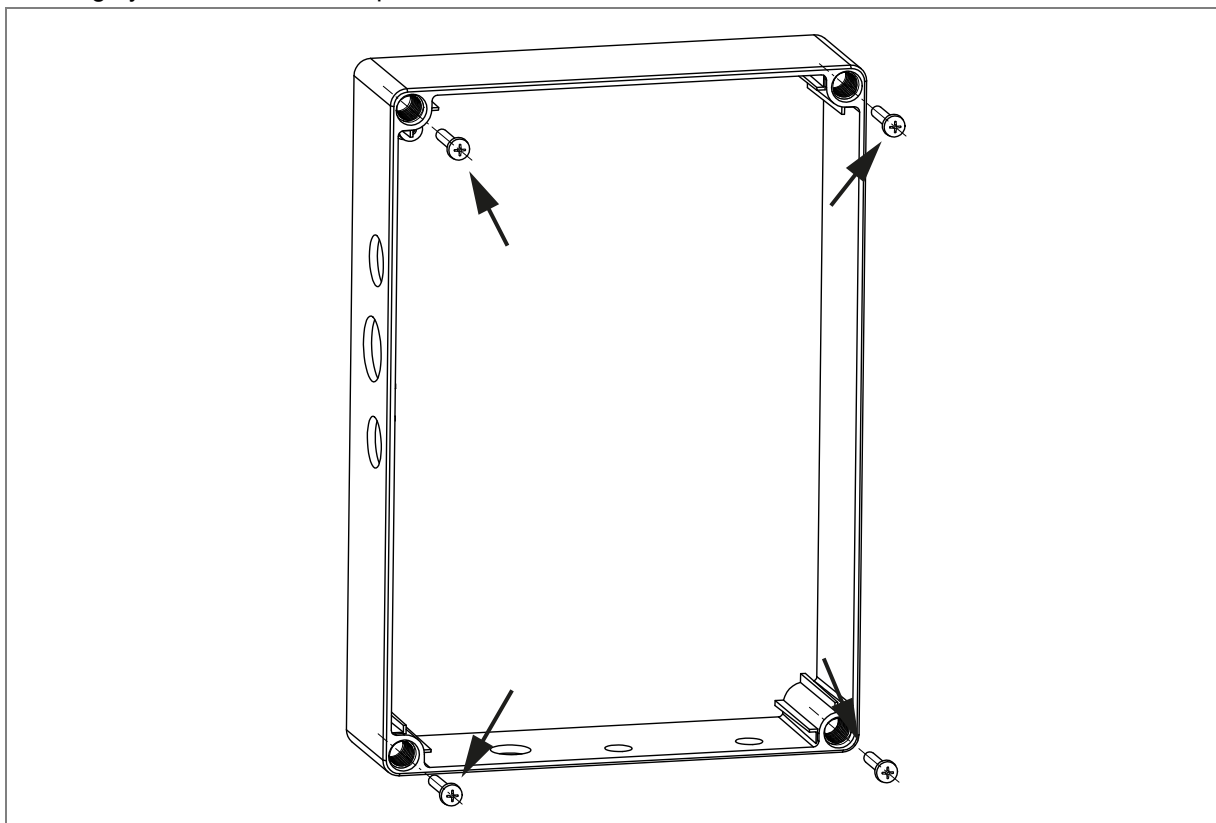


Fig. 22

5.4.3 Wiring diagrama 3-phase 400/230V 50 Hz

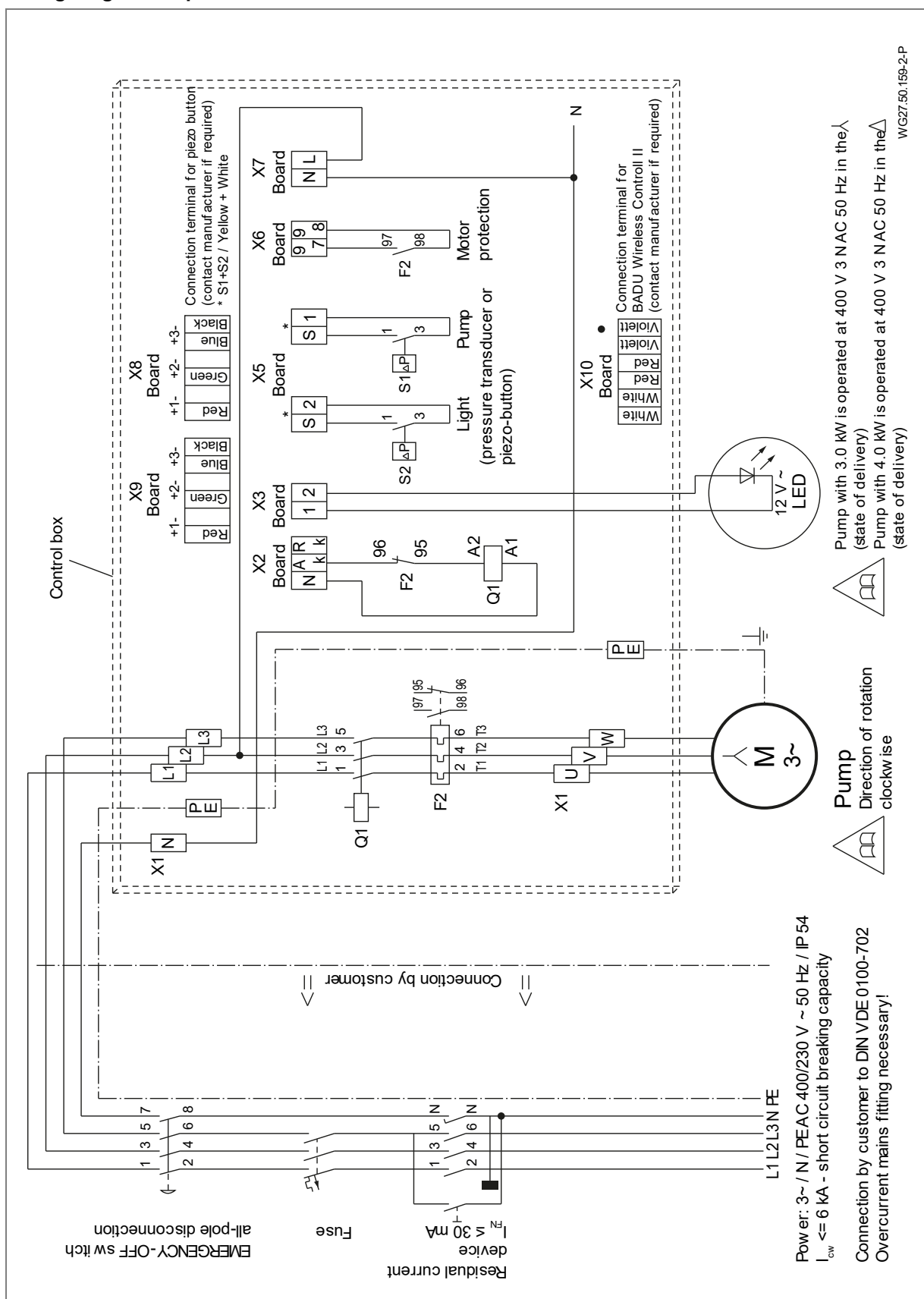


Fig. 23

5.4.5 Connection diagram

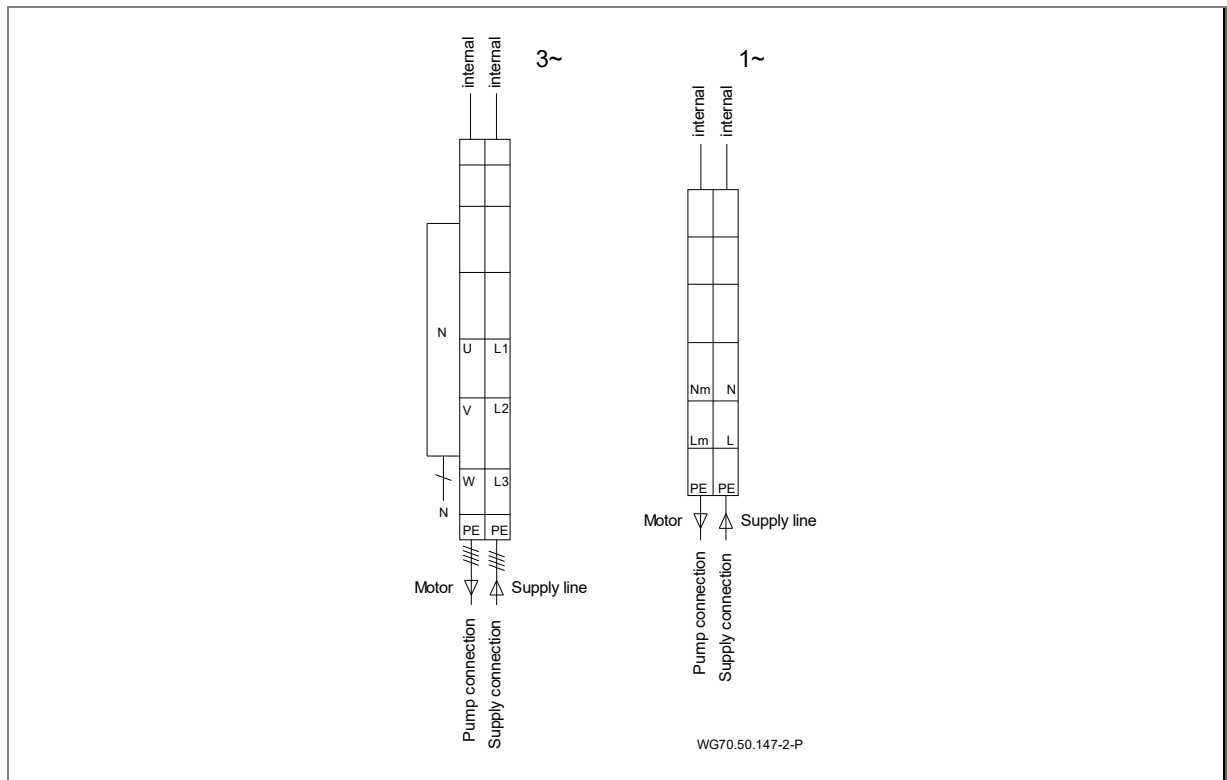


Fig. 25

5.5 Supplements for the control boxes with circuit board

5.5.1 Benefits

- Pump/LED turns off after a certain amount of time (time mode).
- Error recognition due to circuit board display.
- Clear recognition when the motor protection is triggered.
- Safety benefits.
- Overloading the transformer is impossible.

5.5.2 Segment display, green and orange LED, fuse

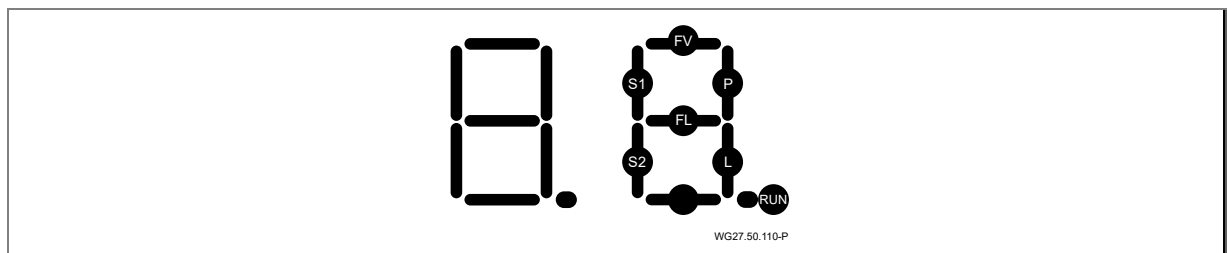


Fig. 26

RUN flashes when the microprocessor is working.

S1 lights up when one of the pump's buttons is pressed.

P lights up, the pump should now work and the pump's protection should be on.

P flashes, the pump should be turned on in time mode and the pump's protection should be on.

S2 lights up when the LED light button is pressed.

L lights up, the LED light should now be on.

L flashes, the LED light should now be on in time mode.

Error message

FL lights up if there is a short circuit in the cable to the LED floodlight.

FL flashes if there is a disruption in the cable to the LED floodlight.

Note: The error message ***FL*** only occurs if the condition "LED light turned on" is met. Normally, without there being an error in the lighting circuit, this segment can light up briefly due to the inrush current in the LED lighting module!

FV lights up if the voltage in the microprocessor overloads.

Green and orange LEDs on the circuit board

green LED lights up: Power supply present in the circuit board [Volt].

orange LED lights up: Motor protection has triggered (over current).

➔ Check the motor protection settings.

Circuit board fuse

Replaceable fuse: 3.15 A T

The fuse only needs replacing if the green LED [V] is not lit up.

5.5.3 Dipswitch for time mode settings

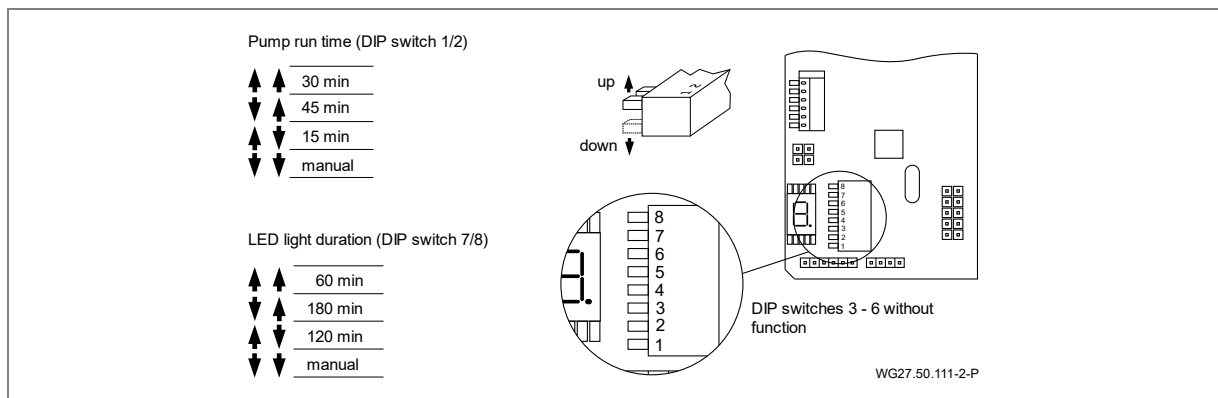


Fig. 27

5.5.4 Stripping the cable

➔ The cable for the power supply should be stripped to a length of 15 – 17 cm.

5.6 Disassembly

1. Loosen cable screw (20) and disconnect floodlight from the control box.
2. Loosen air regulator (21/1) by turning it anti-clockwise.
3. Unlock and remove pneumatic button (38/1; 38/2) by turning it anti-clockwise.
4. Loosen screws (49).
5. Loosen screws (95.1).
6. Remove cover (93).
7. Loosen screws (95) and remove nozzle housing (102.1).
8. Loosen screws (52), support ring (28) and support ring seal (27).

6 Commissioning/Decommissioning

6.1 Commissioning

NOTICE

The pump/unit can be damaged if it runs dry!

- ➔ Ensure that the pump/unit is always full of water. This also applies to checking the rotation direction.

6.1.1 Checking how easily the pump rotates

After longer idle periods, the pump must be checked for how easily it rotates while it is switched off.

- ➔ Place a screwdriver in the groove on the end of the motor shaft on the fan side and turn it.
 - or –
- ➔ If there is not a groove on the end of the motor shaft: Remove the fan cover and turn the fan wheel manually in the motor rotation direction.

6.2 Switching the pump on

1. Open the valves completely.

NOTICE

The pump can be damaged if it runs dry!

- ➔ Purge air from the pump and suction line.

2. Switch the pump/unit on.

NOTICE

If the pump has a three-phase motor and it turns in the wrong direction, the pump/unit is louder and has a lower capacity.

3. For three-phase motors: Ensure that the motor turns in the direction of the arrow labeled on the fan hood. If the motor rotates in the wrong direction, notify an electrician.
4. Check the mechanical seal for leaking.

6.3 Operation

6.3.1 Switching the unit on and off

The unit can be switched on and off by pressing the pneumatic button (38/1) which is built into the cover. There is no electrical operating unit in the pool.

6.3.2 Volume regulator

The pump's performance can be regulated with the volume regulator (21/1). In this way each swimmer can set the nozzle stream individually.

⚠ CAUTION

Injury due to massage with full nozzle stream.

- ➔ Maintain a sufficient distance in order to avoid damage to health.

NOTICE

The pump/unit may be damaged due to operation with a closed volume regulator.

- ➔ Only operate the pump/unit with an open volume regulator.

6.3.3 LED colour variations

The colour variants of the LEDs can be switched by pressing the button 38/1 again. The LED light must be switched on for this. The OFF and ON keys must be pressed within two seconds to switch the LED light variant. If this OFF-ON key sequence is switched between 3 and 5 seconds, the colour variant named below always appear "one second discrete". If the unit is only switched on after 5 seconds or later, the last selected colour variant appears.

The colour variant cannot be changed by the BADU JET Wireless Control II but only by the buttons on the unit.

Colour sequence:

- Red
- Green
- Blue
- Green – Red
- Green – Blue
- Red – Blue
- Green – Red – Blue

Change of colour:

- one second discrete
- 30 seconds slowly dimming
- flashing
- seven seconds dimming
- flickering "rolling out"

6.3.4 Ball nozzle(s)

The direction of the ball nozzle(s) (54) can be adjusted. The nozzles should normally be set horizontally or pointing slightly upwards. This provides the greatest effect for swimming against the current.

6.3.5 Air regulator

The air regulator (111) allows air to be added to the water jet so that an air bubble bath effect can be attained. The amount of air can be adjusted.

6.3.6 Optional accessories

- Attachable massage nozzle
- Massage hose (with pulsator)
- Attachable pulsator
- Wireless control

6.4 Using the massage hose

WARNING

Injury due to incorrect use!

- ➔ Consult a doctor before using the massage hose on the affected body parts. No liability is accepted for misuse of the massage hose.
- ➔ Children may **not** use the massage hose!

1. Close the volume regulator (21/1) in the counter swim unit.
2. Place the blind coupling onto one of the nozzles (54) and click it into place.
3. Place the massage hose coupling onto the second nozzle and click it into place.
4. Hold onto the massage hose. **Do not** let it swim loosely in the pool!
5. Switch the counter swim unit on.
6. Re-open the volume regulator (21/1) if required.

6.5 Decommissioning

1. Turn the pump off and disconnect it from the power supply.
2. Lower the water level of the pool down to the lower edge of the inlet connection.

6.5.1 Suggestion for winter conditions

For outdoor counter swim units that could be subjected to frost during the winter.

- ➔ Please observe the point "Decommissioning" on page 33.
- 1. Remove the pump during periods of frost and store it in a dry room.
- 2. Leave the shut-off valves half open so that the housing and lines can drain.
- 3. Support the suction and pressure lines to relieve them. See "Fig. 22" on page 27.
- 4. Water caused by rain can drain through the half-opened shut-off valves to the waste duct.

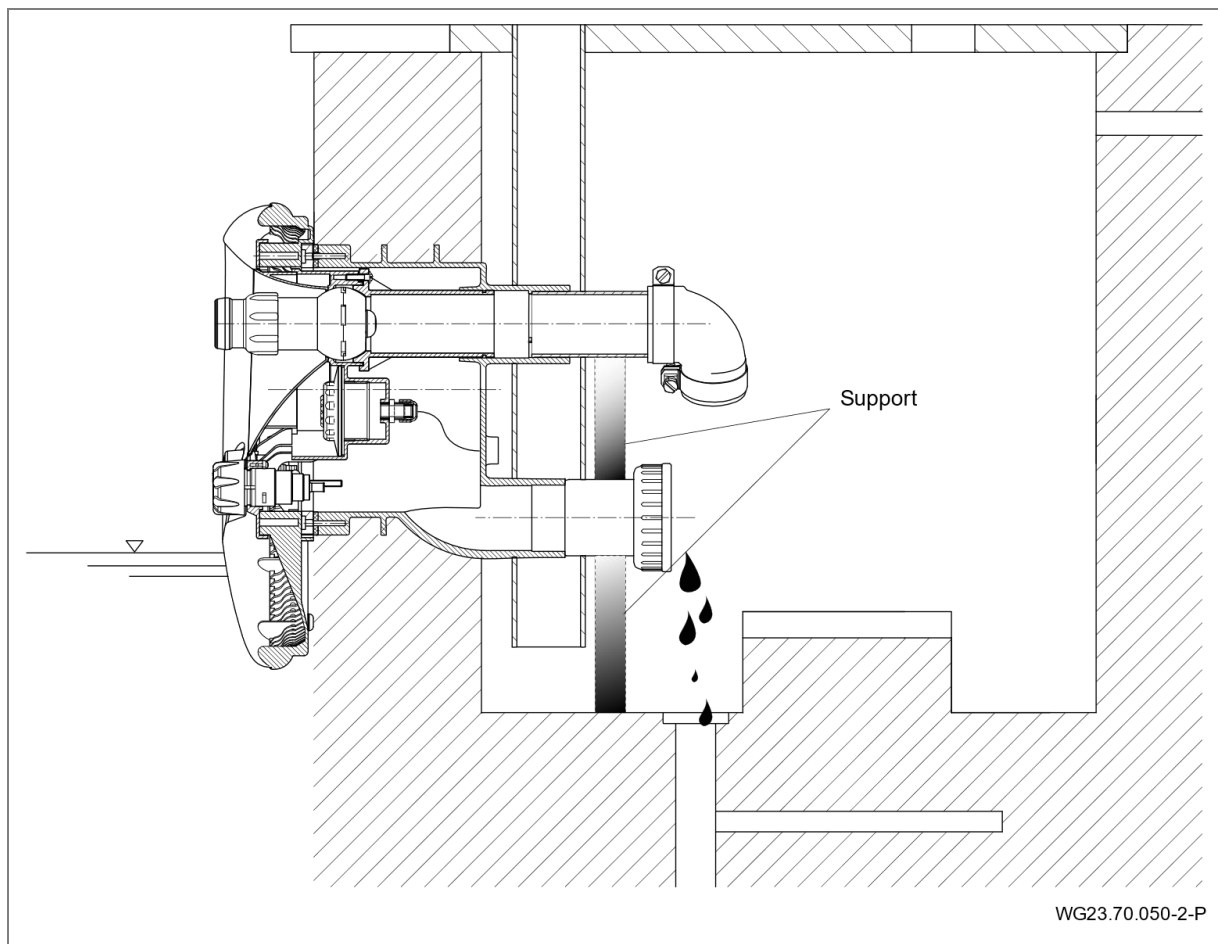


Fig. 28

6.5.2 Assembling the dummy plate

The following steps are necessary in order to assemble the dummy plate:

1. Observe the point "Disassembly " on page 31.
2. Attach the dummy plate (30) under the support ring (28) and fasten it to the main housing (1) using four tapping screws (103). See "Fig. 13" and "Fig. 14" on page 19.

7 Faults

NOTICE

It is normal for a few drops of water to escape from the mechanical seal from time to time. This is especially true during the break-in period.
Depending on the water quality and number of operating hours, the mechanical seal can begin to leak.
→ If water leaks constantly, have the mechanical seal replaced by a qualified technician.

NOTICE

We recommend first informing the swimming pool contractor if there are irregularities.

7.1 Overview

Problem: Pump is switched off by the built-in or external overload switch.

Possible cause	Solution
Overload.	→ Check pump. See point 7.1.1 on page 35.
Media temperature too high.	→ Wait for the motor winding to cool down and the motor protection to turn back on. → Reduce the media temperature.

Problem: Pump seizes.

Possible cause	Solution
Mechanical seal is stuck.	→ Turn the motor shaft. See point 6.1.1 on page 32. → Clean pump and pump parts.

Problem: Pump leaks.

Possible cause	Solution
Mechanical seal is worn or damaged.	→ Have a professional replace the mechanical seal.

Problem: Loud motor noise.

Possible cause	Solution
Faulty ball bearings.	→ Have a mechanic replace the ball bearings.
Direction of rotation is wrong (3~).	→ Have a qualified electrician check it.

Problem: No water jet despite the unit being turned on.

Possible cause	Solution
Air in the system.	→ Tighten screw connections. → Replace the seals.
Leakage in the suction line.	→ Tighten screw connections. → Check for leaks.

7.1.1 Check the pump after the overload switch has tripped

If the motor has been switched off by the built-in or external overload switch, carry out the following steps:

1. Disconnect the system from the power supply.
2. Turn the motor shaft on the fan side using a screwdriver and check whether it turns easily.

If the motor shaft is difficult to turn:

1. Remove the screwdriver.
2. Notify Customer Services or your swimming pool builder and have the pump tested.

If the motor shaft is easy to turn:

1. Remove the screwdriver.
2. Open the valves completely.
3. Reconnect to the power supply.

NOTICE

If the pump seizes and is repeatedly switched on, the motor can be damaged.

➔ Ensure that the pump/unit is only switched on once.

4. Wait until the built-in overload switch automatically switches the motor on after it has cooled down.
– or –
Reset the motor overload switch.
5. Have an electrician test the power supply, fuses and power consumption.
6. If the built-in or external overload switch switches the motor off again, notify Customer Services.

7.1.2 Spare parts lists

Spare parts lists for each pump can be found on the website www.speck-pumps.com.

8 Maintenance

NOTICE

➔ Before maintenance work, close all shut-off valves and drain all pipes.

When?	What?
Regularly	➔ Remove foreign matter from the suction opening. ➔ Turn the motor shaft (after long idle periods). ➔ Tighten the screws.
If there is a chance of frost	➔ Drain pump and pipes sensitive to frost in good time.

➔ After completing all maintenance work, perform all necessary measures for start-up. See point 6.1 on page 32.

Due to the various water components the parts made of stainless steel have to be cleaned periodically to avoid possible corrosive damage.

8.1 Replacing the LED floodlight

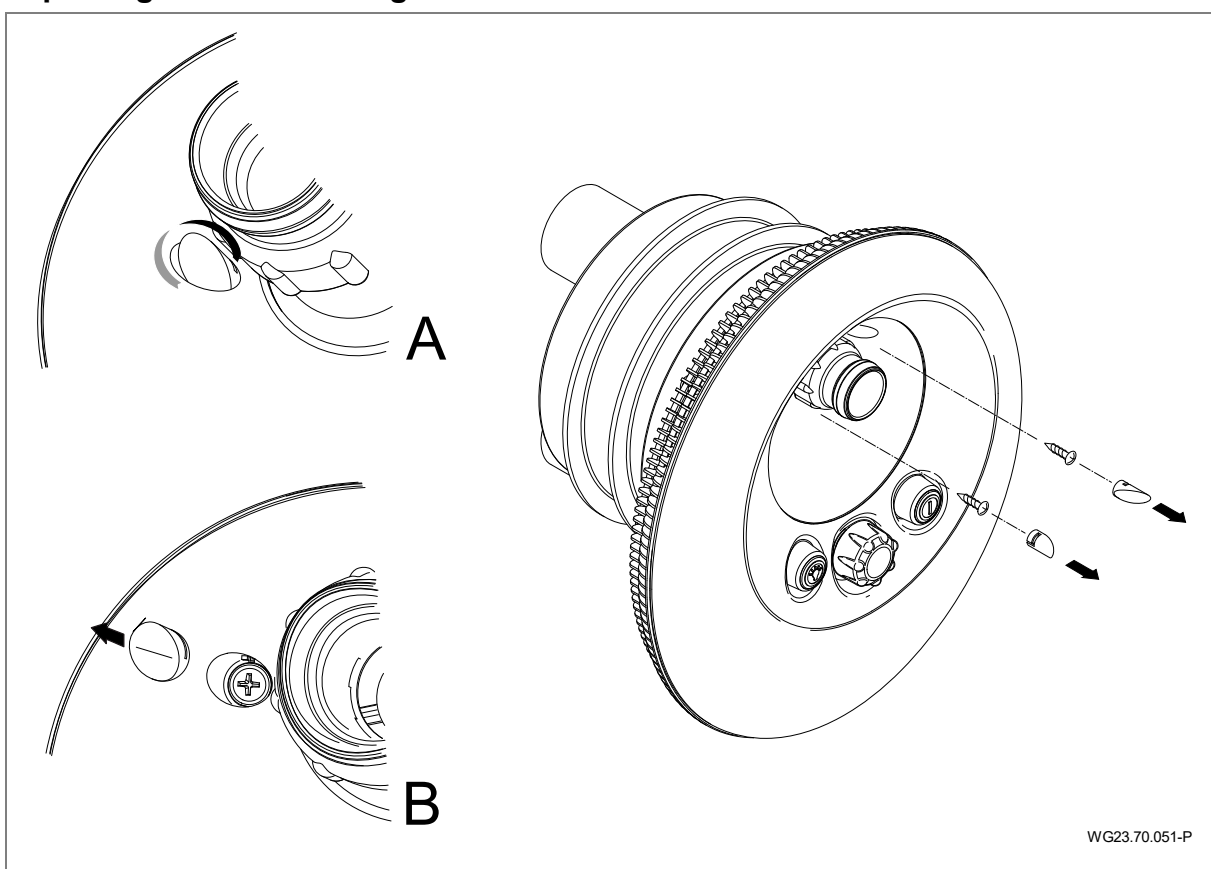


Fig. 29

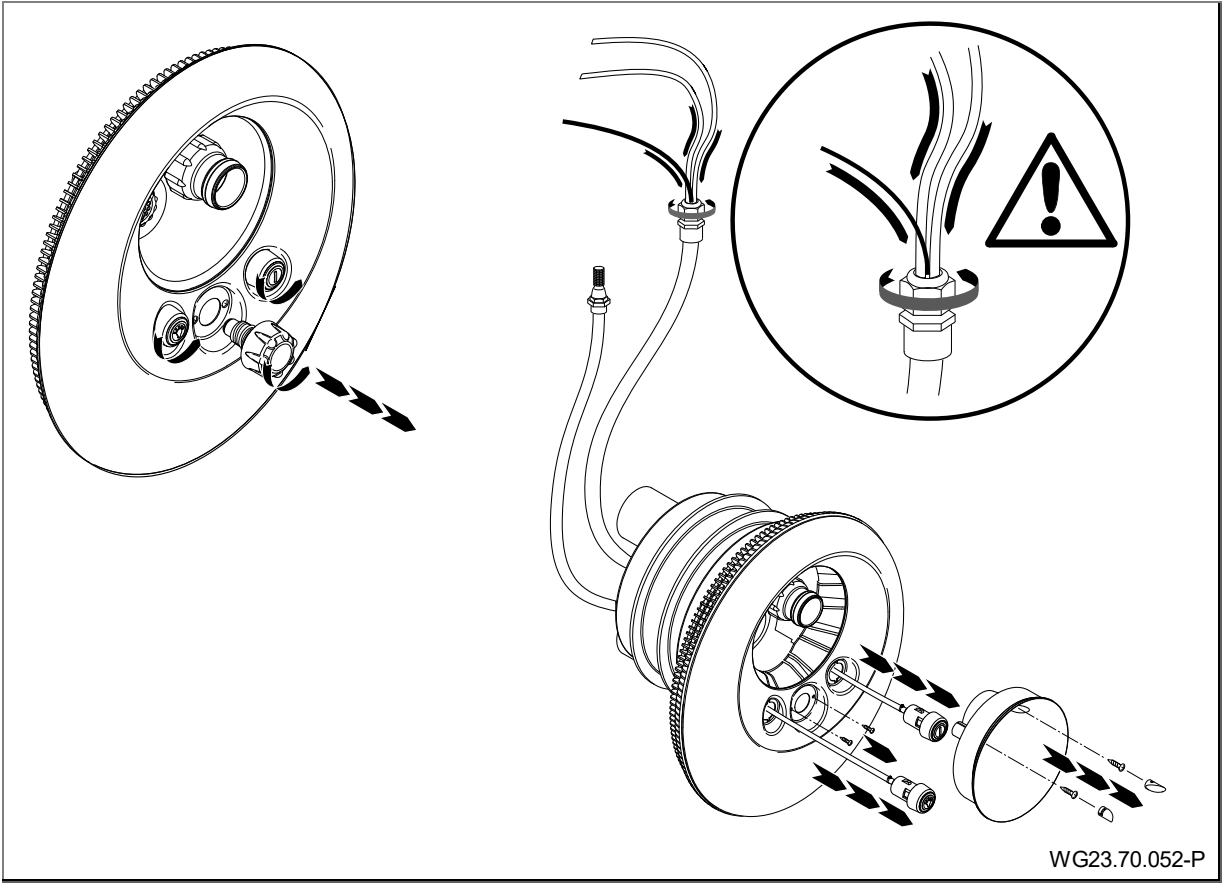


Fig. 30

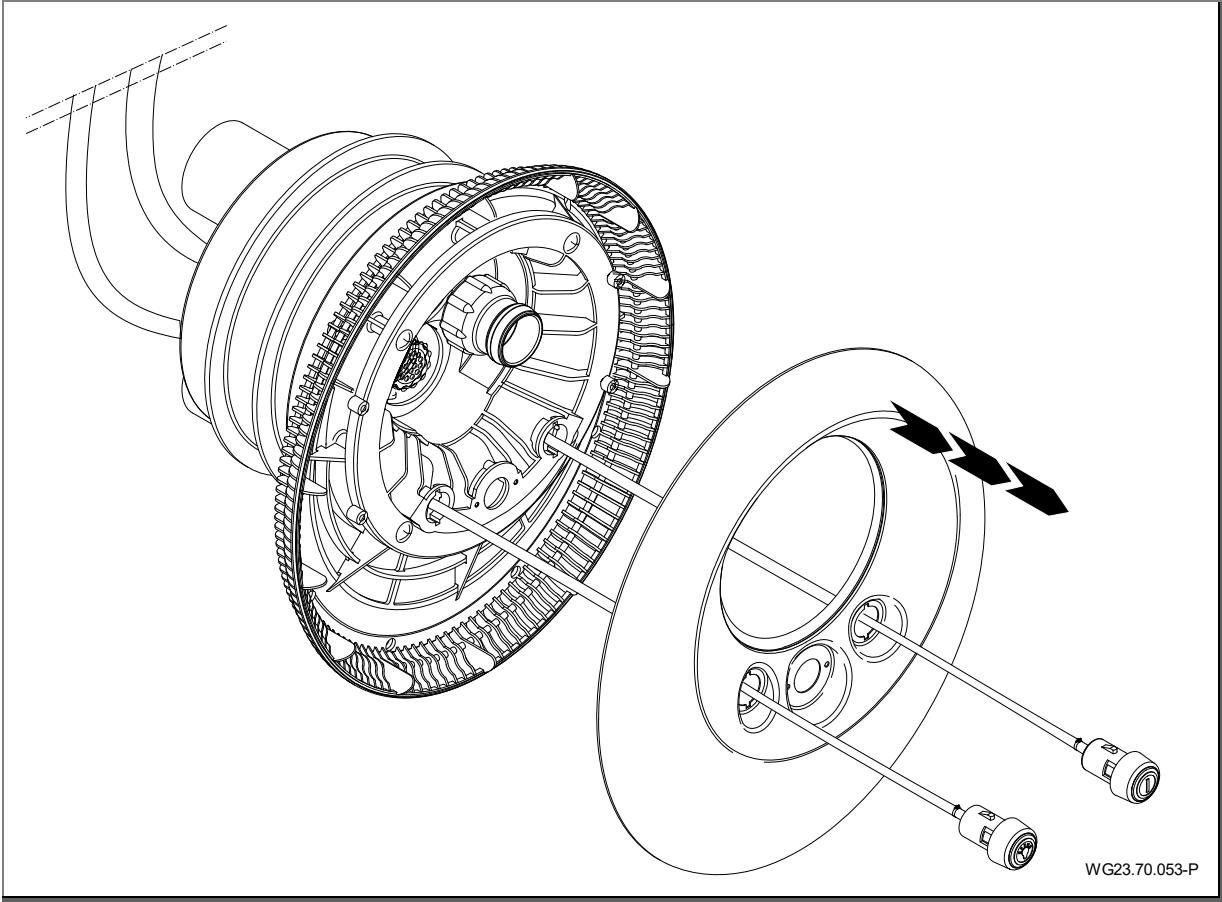


Fig. 31

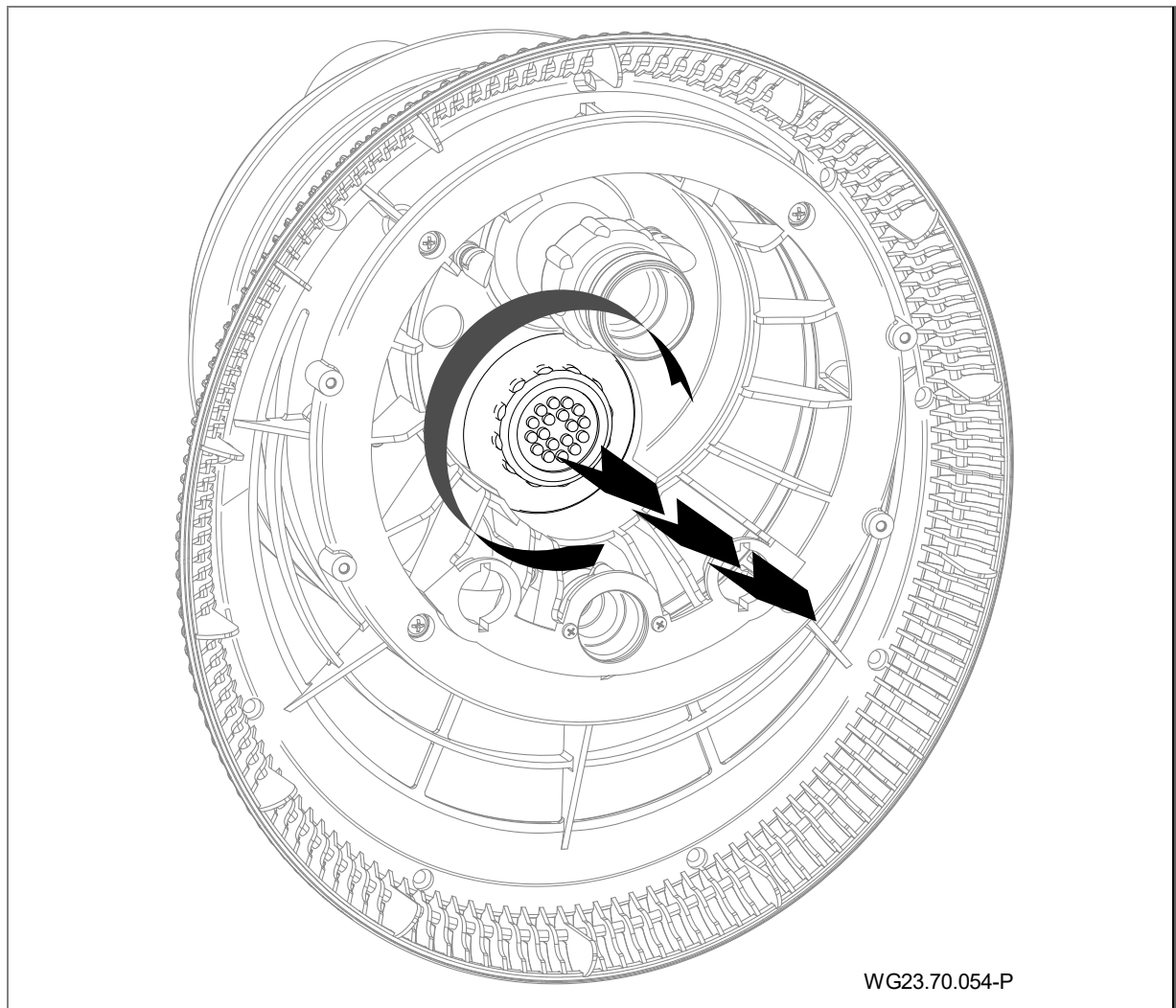


Fig. 32

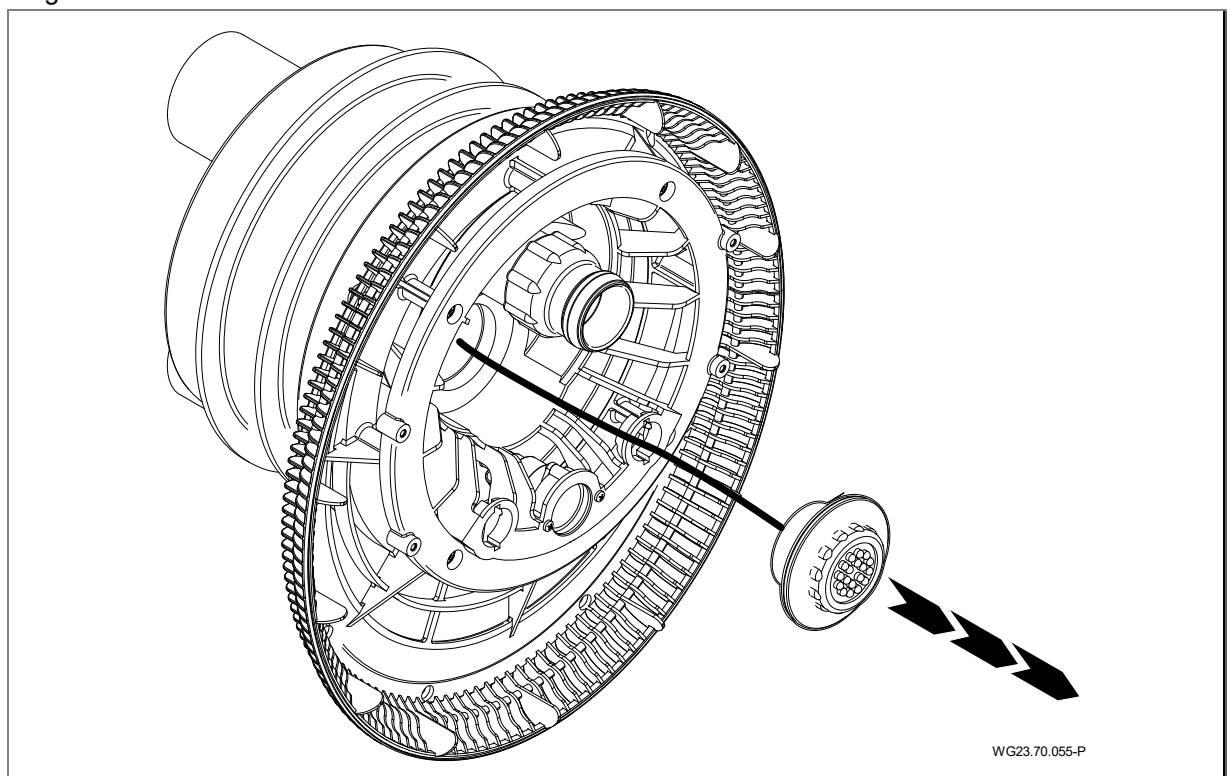


Fig. 33

Inserting the new LED spotlight and assembly of the system in reverse order. Mounting the air regulator, See "Fig. 19" on page 24.

8.2 Warranty

The warranty includes the devices delivered and all components. However natural wear and tear (DIN 3151/DIN-EN 13306) on all turning and dynamically loaded components, including electronic components under tension, is not covered under the warranty.

Failure to comply with the safety instructions may void the warranty.

8.2.1 Safety related spare parts

- Suction housing (107)
- Light cover (110)
- Cover (93)

8.3 Service addresses

Service addresses can be found on our website

www.speck-pumps.com.

9 Disposal

- ➔ Collect harmful media and dispose of it according to the regulations.
- ➔ At the end of its service life, the pump/unit or individual components must be disposed of correctly. Disposal in the household waste is not permitted!
- ➔ Dispose of the packaging materials in the household waste in accordance with the local regulations.

10 Technical data

Technical data at 50 Hz	BADU JET Wave	
Jet pump	21-60/43 GT 27°	21-60/44 GT 27°
Pump flow rate [m³/h]	58	54
Voltage	400/230 V	400 V/ Y
Power input P ₁ [kW]	3.18	2.89
Power output P ₂ [kW]	2.60	2.20
Number of nozzles (40 mm)	1	
Outlet pressure at nozzle [bar]	1.10	1.00
Outlet speed centred 2 m in front of the nozzle [m/s]	~ 1.20	~ 1.10
Max. massage pressure [bar]	1.60	1.40
Nozzles can be swivelled in all directions [degrees]	60	
Attachable massage hose (with pulsator)	Yes, against surcharge optional	
Nozzle for selective massage	Yes, against surcharge optional	
Salt content	max. 0.066 % / 0.66 g/l	
Energy efficiency	IE 2	
Class of isolation (motor)	F	
Weight (pump)	25.9	17.2

10.1 Dimensional drawing

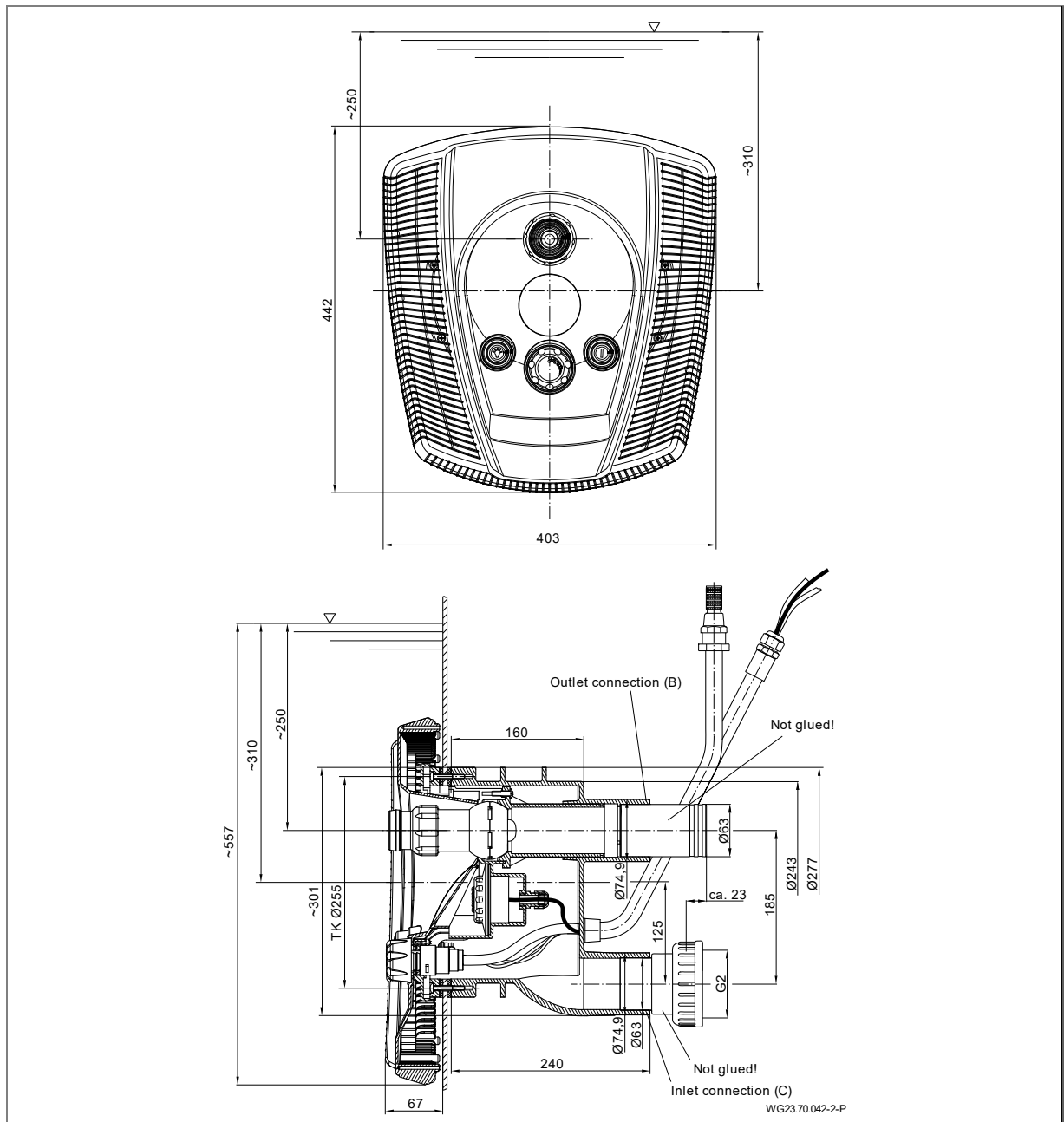


Fig. 34

10.2 Exploded drawing

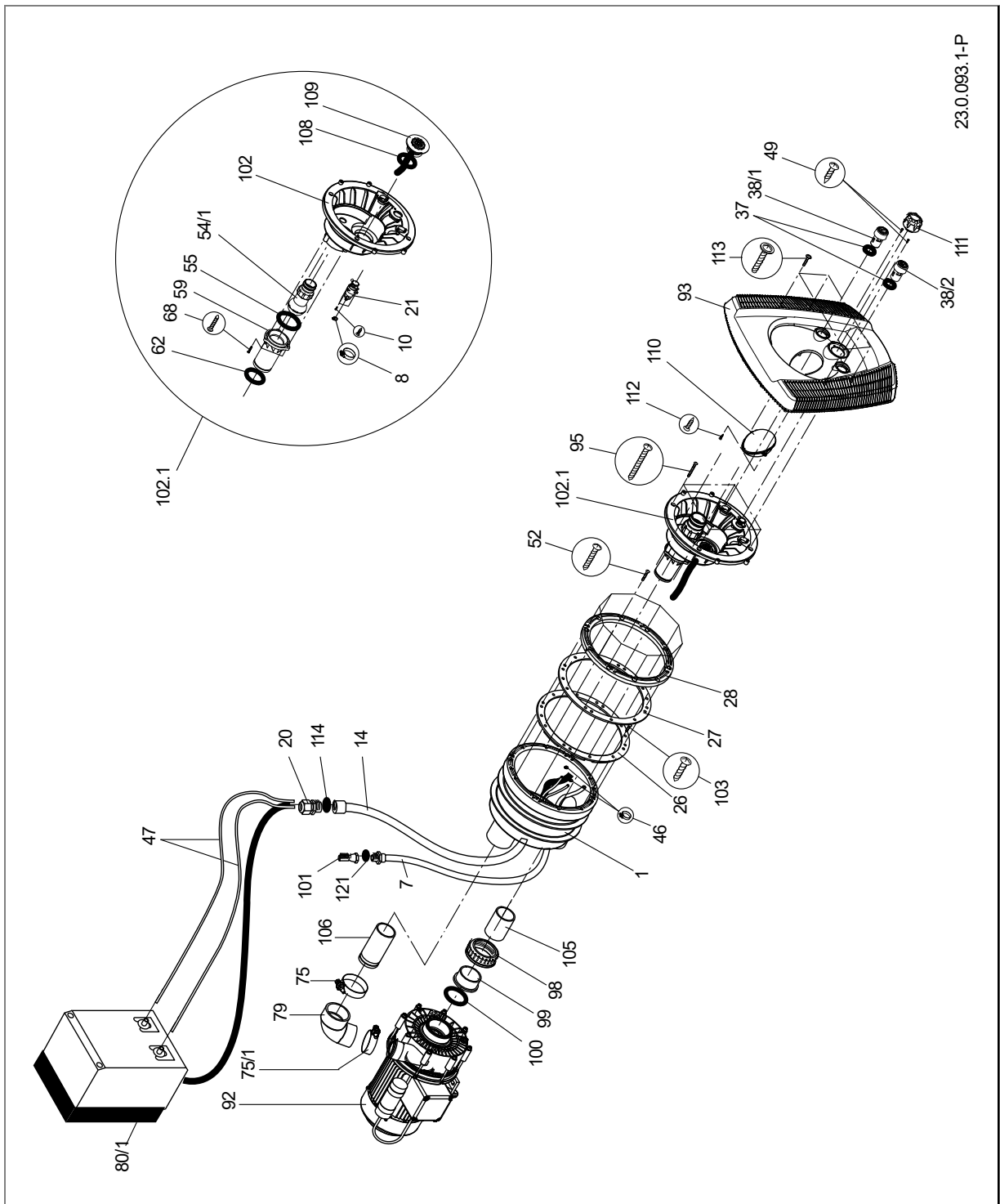


Fig. 35

11 Index

C

Commissioning 33

D

Decommissioning 33, 34

Disposal 42

E

Electrical connection 27

F

Faults 8, 36

Frost 9

I

Installation 13, 14

Intended use 7

M

Maintenance 38

Mechanical seal 36

O

Operation 33

Q

Qualified specialist 13, 14, 27

S

Spare parts 7

Storage 12

Suggestion for winter conditions 34

T

Technical data 43

Transport 12

W

Warranty 41

Wiring diagram 30