

Aquastar Easy

1001 4001



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Aquastar Easy 1001 4001

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1 Copyrights

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Knowledge of the instructions contained in this operation manual is indispensable for preventing failure and ensuring faultless operation of the Aquastar. Therefore, it is essential, that the person in charge of operating the equipment is familiar with the present documentation.

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2 Introduction to operation manual

This operation manual is intended to facilitate familiarization with the Aquastar and utilization of the same for the intended purpose.

This operation manual contains important information for safe, proper and economical operation of the Aquastar. Compliance with these instructions will contribute to

- preventing danger
- reducing repair costs and equipment failure, and
- increasing the liability and service life of the Aquastar

This operation manual supplements the instructions provided by existing accident prevention and environmental protection regulations. It must be available at the place of utilization of the equipment at any time and must be read by each person intending to use the Aquastar. This means

- operation, including
- correction measures in case of faulty operation and
- maintenance

In addition to the operation manual and the compulsory accident prevention regulations applicable at the place of utilization of the equipment, the generally subject specific technical rules must be taken into account.

3 Warranty and liability

Warranty and liability claims in the context of damage to person or property shall be excluded where such damage results from one or several of the causes listed below:

- Improper use of the Aquastar
- Improper installation, putting into operation, operation and maintenance of the Aquastar
- Operation of the Aquastar with defective or improper safety devices
- Non-compliance with the instructions contained in the operation manual for installation, putting into operation, operation and maintenance of the Aquastar
- Unauthorized modification of the Aquastar
- Insufficient monitoring of components subject to wear and tear
- Inadequately performed repair of the Aquastar
- Damage of the Aquastar resulting from foreign matter or Force Majeure

Enduring damage due to neglect of the operation manual or due to damaging sealed parts lead to a lapse of the warranty. We do not take any liability for resulting damages thereof! Please read the operation manual carefully before starting operation.

4 Instruction for safety at work

- Each person, involved in the user's facility, in the installation, dismantling, putting into operation, operation or maintenance of the Aquastar must have read and understood the entire operation manual and, in particular, the chapter 'Safety Instructions'.
- The instruction and warning signs calling attention to dangers must be taken into account!



Dangerous voltage!
This is for your own safety

5 Safety instructions

- This equipment has been built and examined according to safety precaution for electronic devices and has left the plant in a perfect safety-related condition
- To keep this status and to guarantee a safe operation, the user must observe the safety instructions, which are included in these instructions
- This installation work may only be undertaken by an authorized and licensed installer or electrical business
- This equipment is not intended for it by persons (including children) with reduced physical, sensory or mental abilities or for lack of experience and/or for lack of knowledge to be used it is, it by a person responsible for their security is supervised or received from it instructions, how the equipment is to be used. Children should be supervised, in order to guarantee that they do not play with the equipment.
- This equipment has been built and examined according to safety precaution for electronic devices and has left the plant in a perfect safety-related condition

- the electrical connection must have separating device built into the permanently installed electrical installation, which enables the disconnection of all electrical contacts with a contact space of min. 3 mm from the mains.
- Pay attention that the supply voltage is correctly protected and an earth-leakage circuit breaker ≤ 30 mA is installed.
- Only use the equipment in dry rooms, in which no combustible gasses and vapors are present.
- Do not put the equipment into operation immediately if it has been taken from a cold to a warm area. The thereby developing condensation water could destroy your equipment
- If the equipment has visible damages, does not work anymore or has been stored under adverse conditions for longer periods, then it is to be expected that a safe operation is no more possible. In this case the equipment is to be secured against unintentional start-up and if necessary to be decommissioned.
- Live parts can be uncovered when opening the cover or removing parts. Before an alignment, maintenance, a repair or change of parts or devices, the equipment must be separated from all voltage supplies, if opening the equipment is necessary. If after that an alignment, maintenance or a repair on the opened equipment under voltage is inevitable, it may only be done by experienced, skilled staff, which has knowledge of the associated dangers and/or the relevant regulations.
- Capacitors in the equipment can still be charged, even if the equipment is separated from all voltage supplies.
- Assembly and/or disassembly of the valve only in a pressure-free status (i.e. empty piping beforehand)
- Valve flow and/or direction of flow must be considered.

**Each person involved in the operation and maintenance of the equipment
must have read and understood the present operation manual!**

It is for your own safety!

6 Residual Risk

6.1 Hazard generated by current



Manipulation of the Aquastar by operating staff is strictly prohibited and may only be performed by duly authorized staff, qualified for electrical work. Compliance with the corresponding instruction and prohibition signs is required.

6.2 Hazard generated by human error



The operating staff must be instructed in regard to the residual danger resulting from electricity and familiarized with correct operation. Efficiency of the safety training must be verified.

6.3 Hazard generated by current during cleaning work



Cleaning of the Aquastar may only be performed after disconnection from power supply (lever switch).

7 General

PRAHER Aquastar controls are significant technical products, which are manufactured with high accuracy to the most modern technical production methods. Entitled complaints will naturally be rectified as fast as possible if they occur. The equipment has a warranty after valid European law. The warranty begins with the purchase date.

ATTENTION! For relief of the sealing system the valve is shipped on intermediate position and is not sealed! Prior to operation it has to be electrically set to position "Filter"!

8 Directions for use

This is a control unit for a **Praher multiport valve** with 6 positions. Aquastar Easy 1001 fully automatic filter backwashing by time, Aquastar Easy 4001 fully automatic filter backwashing by time and pressure.

The Aquastar must never be operated without a Praher V6 valve to avoid damage to the device

A filter pump connection is activated about 10 sec after the respective position is reached.

Additional electrical connection for a Praher ball valve EO510 during the cycle is available.

9 Assembly

Device installation – installation of the valve

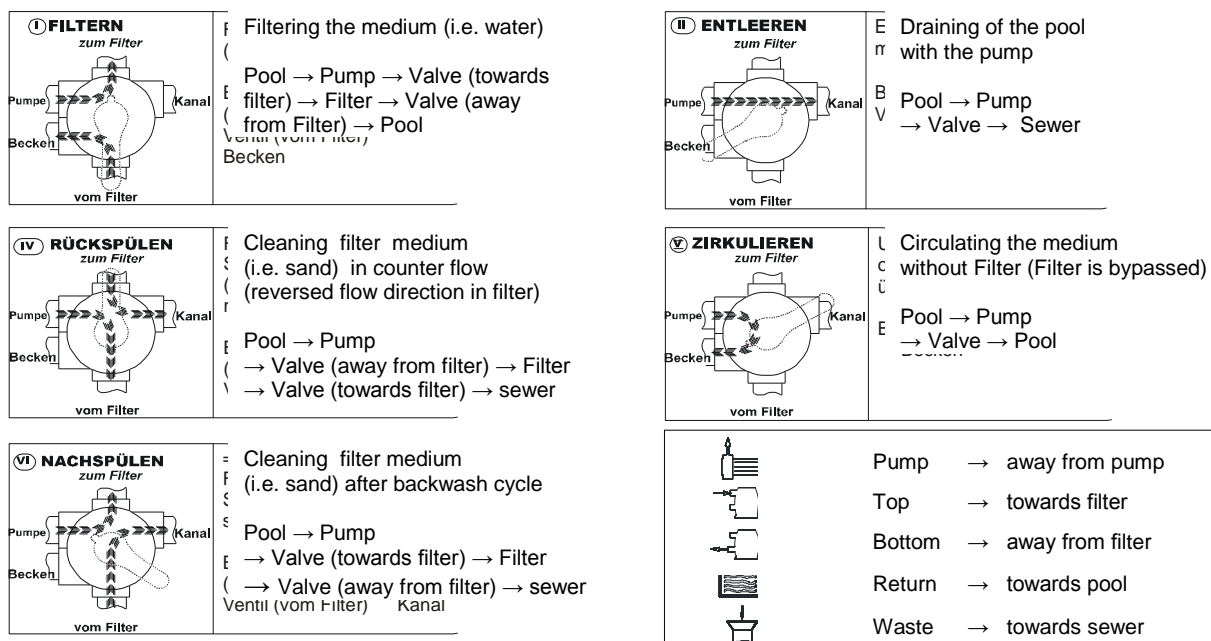
Install the valve in the conduit according to the labeling and the sketch below. Use adapter unions. Threaded connections should be sealed only with Teflon strip. Although the device is functional in any position, it must not be installed with the actuator facing down. If the difference in level between system and tank exceeds 3 meters, stop valves or non-return valves should be installed to prevent severe damage to the actuator and the valve due to excessive pressure and flow.

As filter medium can be washed out during backwashing and rinsing, we recommend fitting the drain with a throttle. Otherwise a stuck valve disk can adversely affect the flawless functioning of the Aquastar. Polluted or grainy filtering media require the use of adequate pre filters.

Important! During a cycle the filter pump motor must be shut off!

The Praher Aquastar Easy is approved for 6-way valves by Praher. Malfunctions can occur with any other valve type as we are unable to guarantee that these valves match the dimensions of the Praher 6-way valves.

9.1 Function- and installation diagram



6 way valve type:

11/2" und 2"

Connections:

thread or solvent socket (all connections open)

Max. operating pressure:

ABS 11/2", 2" 3,5 bar

GFK 11/2", 2" 6 bar

10 Sequence of cycles

Start position FILTER – device ON

- Start of backwash cycle by pressing the test key on the keyboard
- Control lamp 'test key' for backwash cycle is illuminated
- Output 'pump' clamp [13]-[14] switches off (no alley)
- Output ball valve switches from clamp [21]-[20] to [21]-[22]

Valve goes to backwash position

- Pump time delay of approx. 10 sec. elapses
- Output 'pump' clamp [13]-[14] closes
- Preset backwash time is counting down (switch S1)
- Output 'pump' clamp [13]-[14] switches off (no alley)

Valve goes to rinsing position

- Pump time delay of approx. 10 sec. elapses
- Output 'pump' clamp [13]-[14] closes
- Preset rinsing time is counting down (switch S2)
- Output 'pump' clamp [13]-[14] switches off (no alley)

Valve goes to filter position

- Output ball valves switches from clamp [21]-[22] to [21]-[20]
- Pump delay time of approx. 10 sec is counting down
- Output 'pump' clamp [13]-[14] closes

11 Flushing and changeover times

Time delay	10 sec
CHANGEOVER	
Filter – Backwash	approx. 30 sec
Backwash	45 sec / 360 sec
CHANGEOVER	
Backwash time - Rinsing	approx. 22 sec
Rinsing	20 sec / 90 sec
CHANGEOVER	
Rinsing - Filter	approx. 18 sec.
Cycle time	approx. 2 min 34 sec / approx. 9 min

12 Function of membrane keyboard



OFF

Pressing this key switches off the equipment, regardless of the valve position



ON

Pressing this key (yellow control lamp is illuminated) switches on the equipment, valve goes to basic position - Filter



TEST

Pressing this key (green control lamp is illuminated) triggers the backwash cycle for the length of a backwash procedure



DRAIN

Pressing this key (red control lamp is illuminated) sets the valve to position „Waste“
Water is being drained into the sewer system

12.1 Circulate

In order to set the automatic 6- way backwash valve to position „CIRCULATE“ and afterwards again to position „FILTER“, following steps have to be made:

- Go to basic position press key „ON“
- Press keys „TEST“ and „DRAIN“ at the same time (min. 4 sec) until the LED of „TEST“ is illuminated



ATTENTION!

After simultaneous pressing of the keys first the LED of „TEST“ is illuminated and then the „DRAIN“ LED briefly. Only then the LED of „TEST“ starts blinking

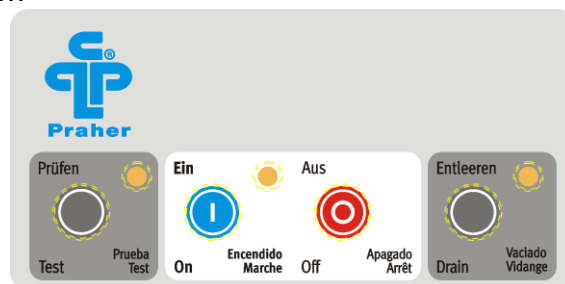
- After „CIRCULATE“ is finished, press OFF
- Go to basic position press key „ON“

12.2 Winter Position

Winter Position as release for the sealing system during winter time

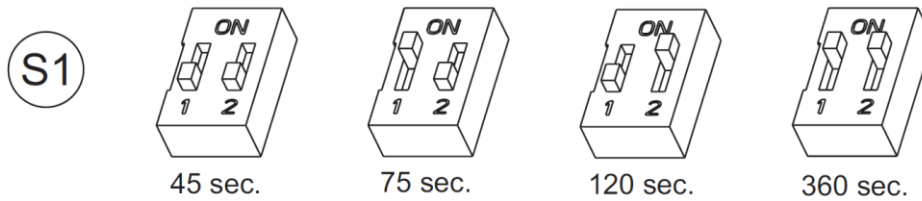
- Press key „On“ for basic position
- Press keys „Test“ and „On“ at the same time (min. 4 sec) until the Aquastar start to run
- When the winter position has been reached the Aquastar will automatically turn itself off
- Press key „On“ for basic position

The valve does not seal anymore



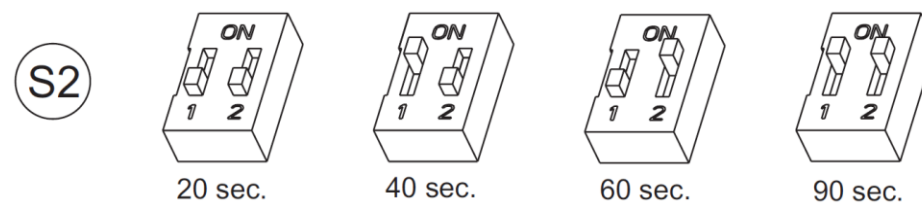
13 Backwash time

The backwash time is set with the switch S1 on the control board. Four backwash times are available.



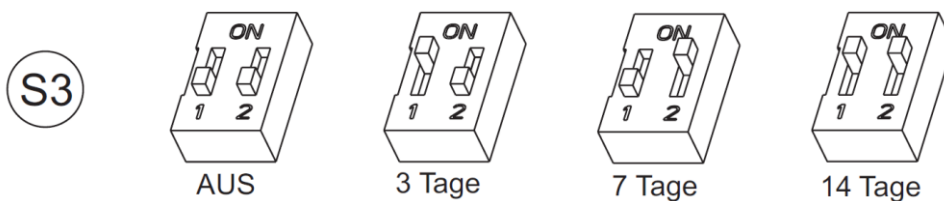
14 Rinsing time

The rinsing time is set with the switch S2 on the control board. Four rinsing times are available.



15 Switchpoints backwash time

The switchpoints for backwash time are set with switch S3 on the control board. Four switchpoints for backwashing are available.



ATTENTION! Prior to setting/adjusting the switchpoints 'backwashing' the valve needs to be on position 'FILTER' and the Aquastar has to be turned off (see page 11)

15.1 Time of activation of backwash cycle

Example: Backwash every Monday 09:15

- set switch S2 to switch point 7 days and
- turn on the Aquastar at 09:15 (press „ON“ button on the keyboard)

In order to alter the time of activation, just press the "TEST BUTTON" on the keyboard at the wanted activation time.

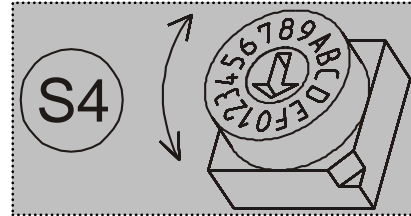
Example: Change activation from Monday 09:15 to Friday 08:00

- „TEST“ Button at the keyboard on Friday 08:00

16 Setting of the electric pressure switch (only at Aquastar Easy 4001)

The maximum operating pressure in the valve is measured by an electronic pressure switch. The activation pressure of the pressure switch is set by switch S4 on the circuit board. For changing the activation pressure, turn the arrow by using a screw driver clockwise/ or anti-clockwise, until the arrow shows the wanted pressure (see chart)

Position	bar	Position	bar
0	0,5	8	1,3
1	0,6	9	1,4
2	0,7	A	1,5
3	0,8	B	1,75
4	0,9	C	2,0
5	1,0	D	2,5
6	1,1	E	3,0
7	1,2	F	3,5



17 Electric Connection

d) Connection to the supply voltage

L1 N 24V AC/DC 100 – 240 V AC (170 -300 DC)

e) Connection for pump

potential free: I max. 8 A

For position 'filter', 'backwash', 'rinse', 'waste' and 'circulate' and after a time lag of approx. 10 sec. the clamps [13 -> 14] are connected.

f) Connection for external equipment

For position 'filter' the clamps [21 -> 20] are connected

For position 'waste' and 'circulate' and for the whole backwash cycle the clamps [21 -> 22] are connected

Technical data

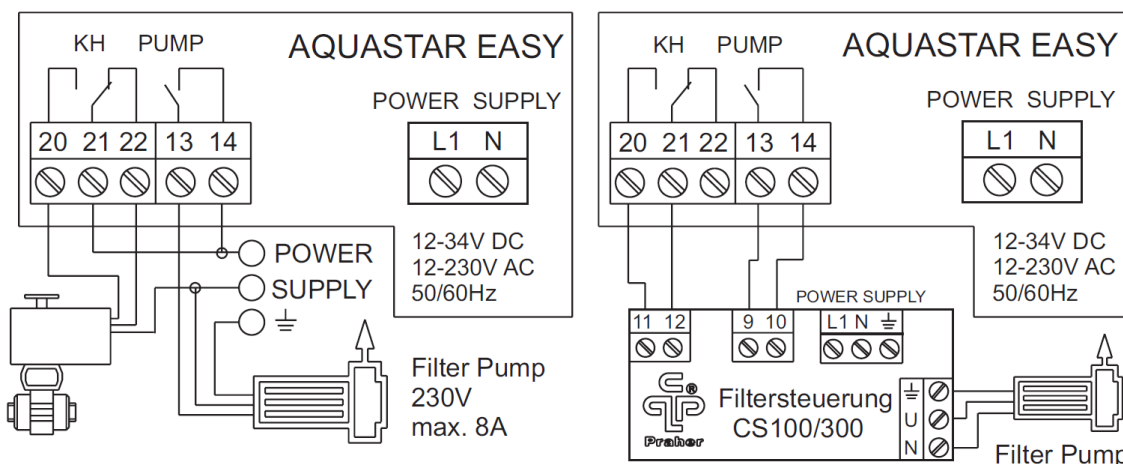
Voltage: 24 V AC/DC / 100-240V AC (170 – 300V DC)

Protection: IP 65

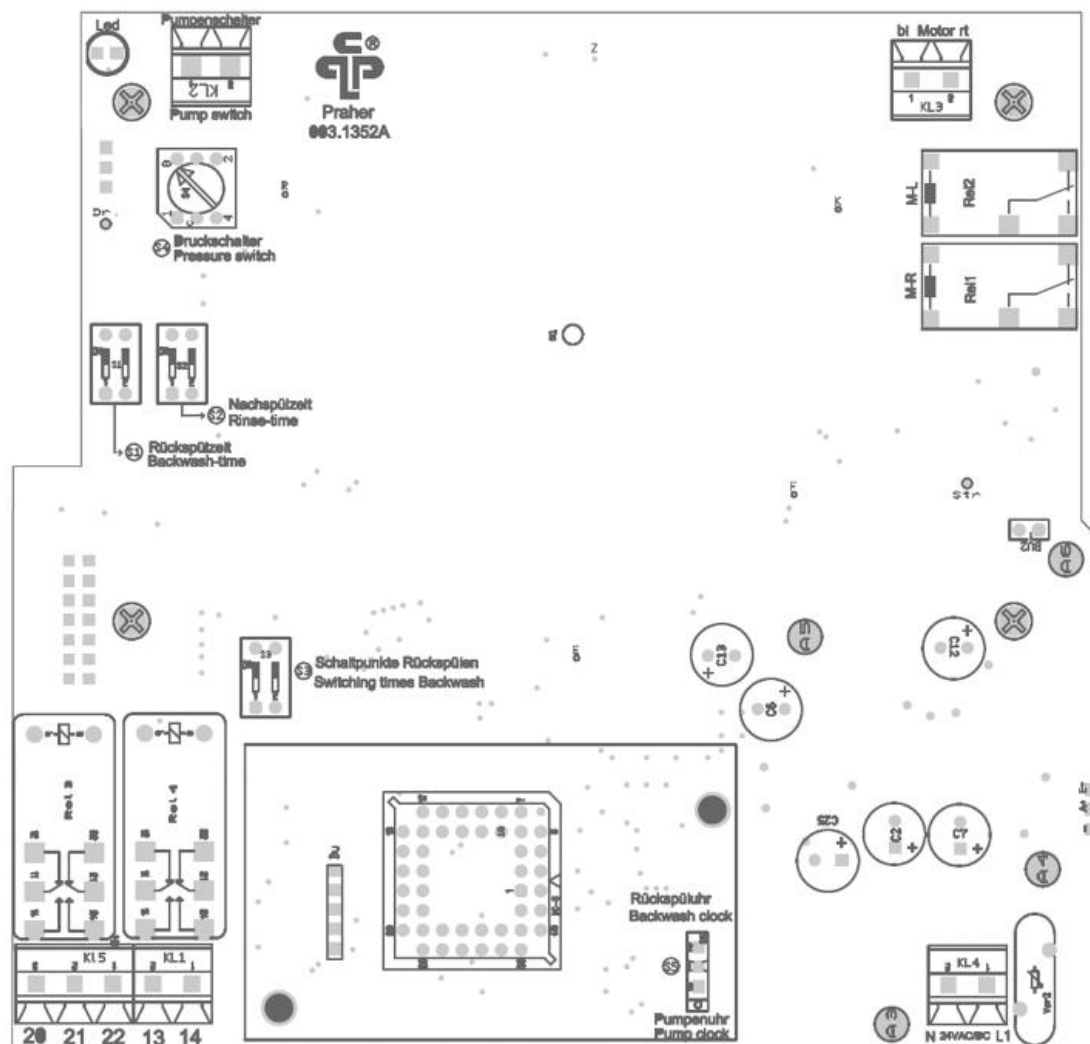
Frequency: 50-60 Hz

Max. Power: 15 Watt 1 1/2", 2"

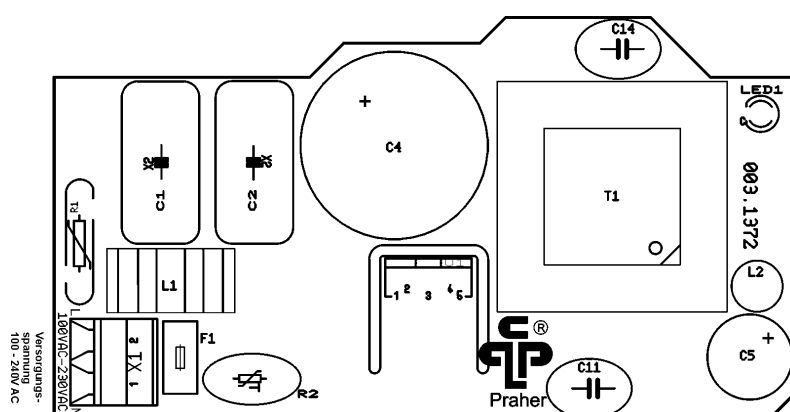
18 Connection diagram for pump and Praher ball valve EO510



19 Control board



Circuit board for 100 – 240 V AC



20 Power supplies to be used when connecting 24V

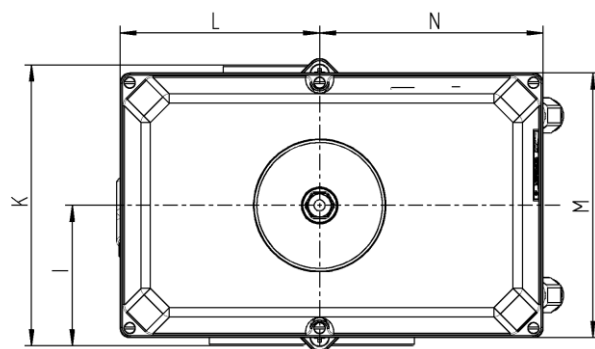
Isolation transformer

Nominal voltage: 24V
Power: 63VA
Open circuit voltage max. 28VAC

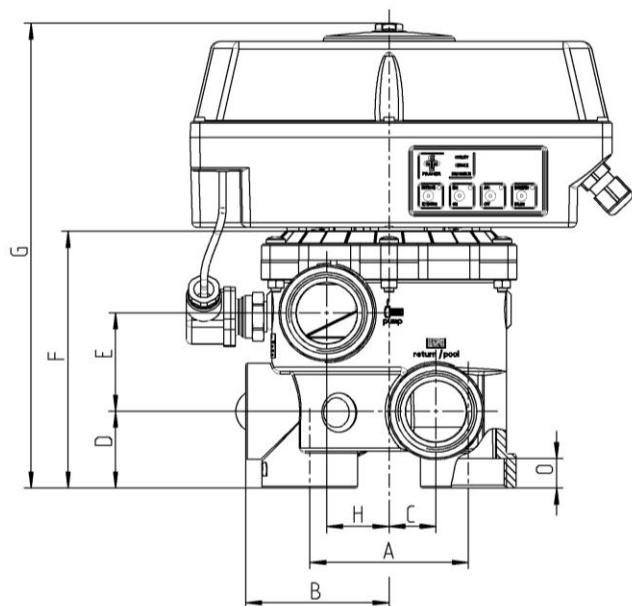
used power supply

Nominal voltage: 24V DC
Nominal Current: mind. 2A

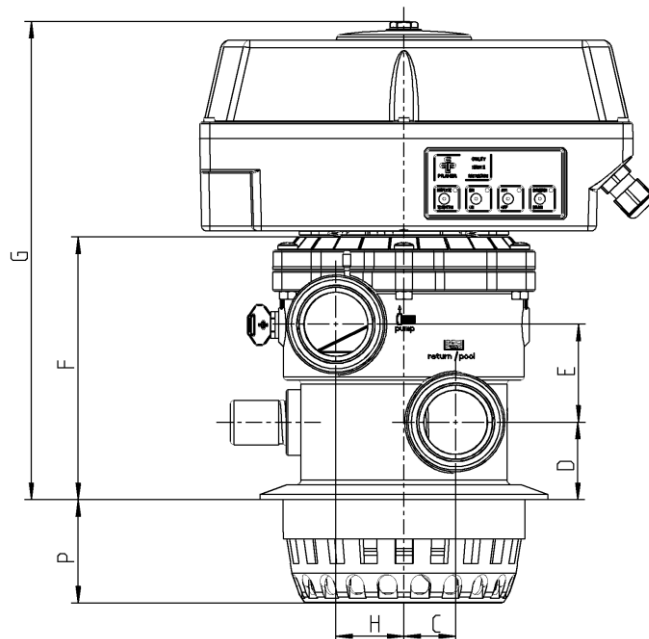
21 Dimensions



Side Mount



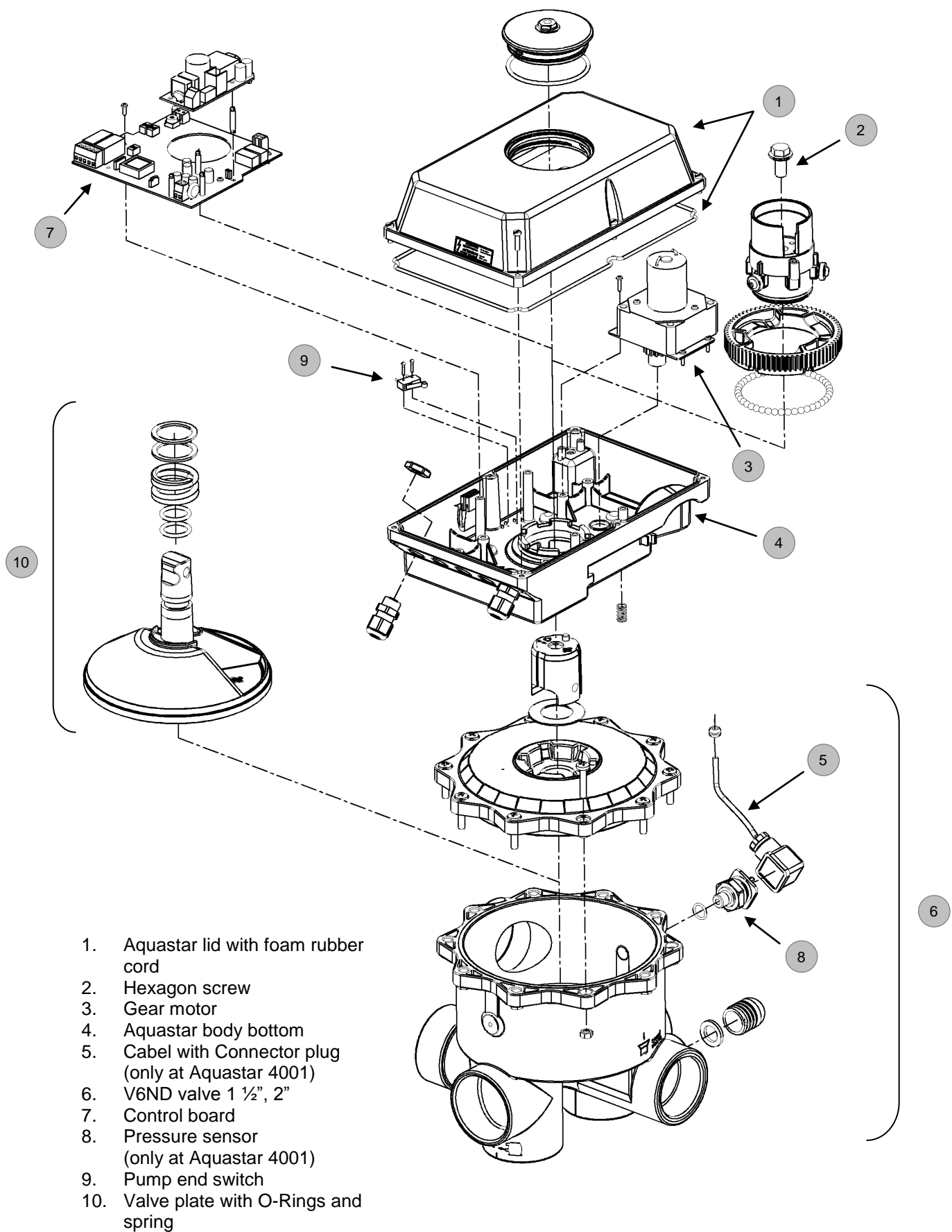
Top Mount



	1 ½" SM	1 1/2" TM	2" SM
A	99,5	X	110
B	90	X	114
C	29,5	31,5	38
D	48	47	60
E	61,5	59,5	81
F	163,5	160	210
G	295	291	339
H	39	42,5	36
I	87,5	90	114
K	175	180	228
L	125	125	125
M	165	165	165
N	140	140	140
O	18,5	18,5	26
P	X	62,5	X

Dimensions in mm

22 Exploded view drawing Aquastar Easy 1001 / 4001



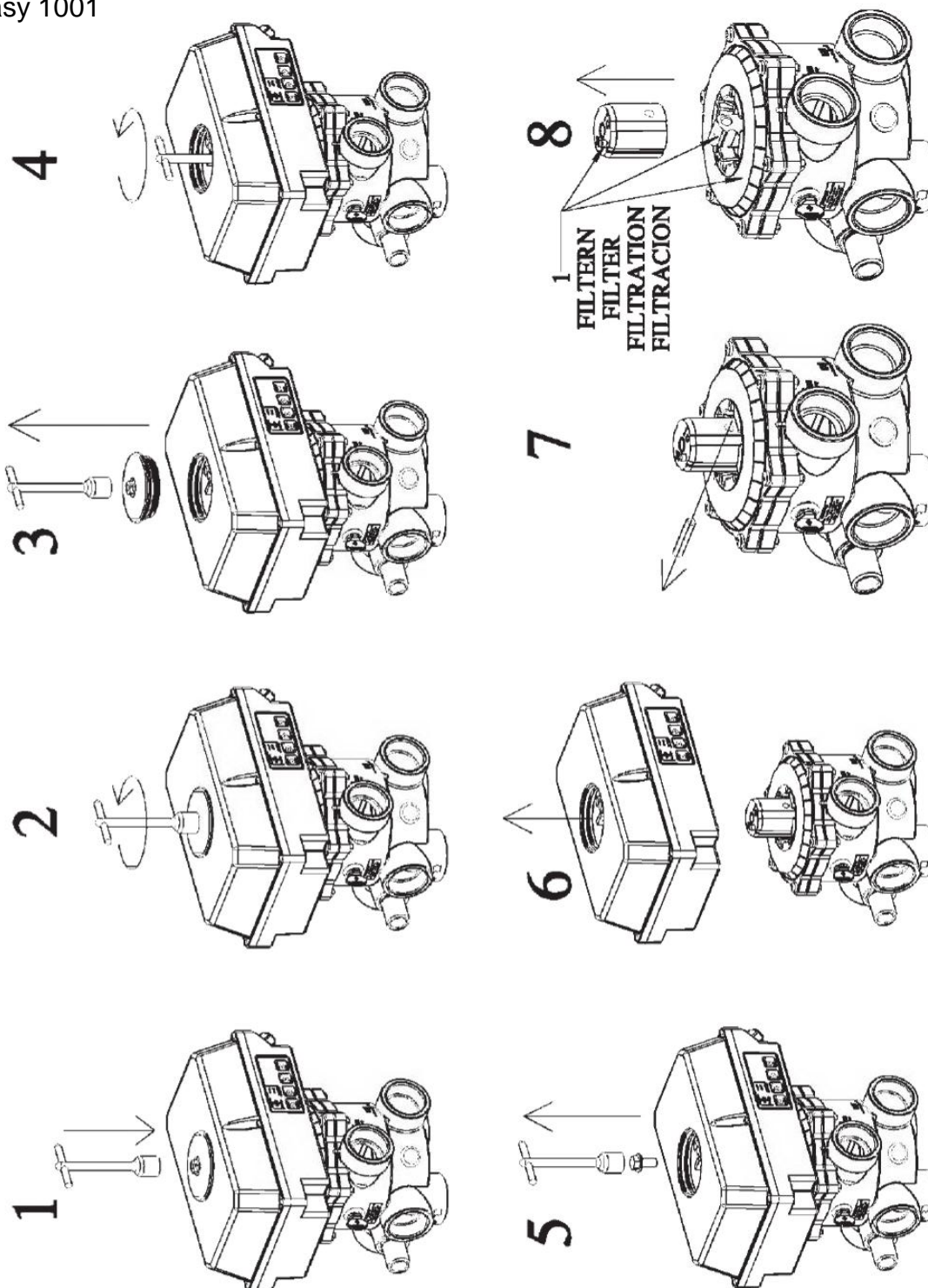
23 Dismantling Aquastar Easy 1001 / 4001

For dismantling the electronic drive off the valve a box spanner with a wrench size of 15mm is needed.

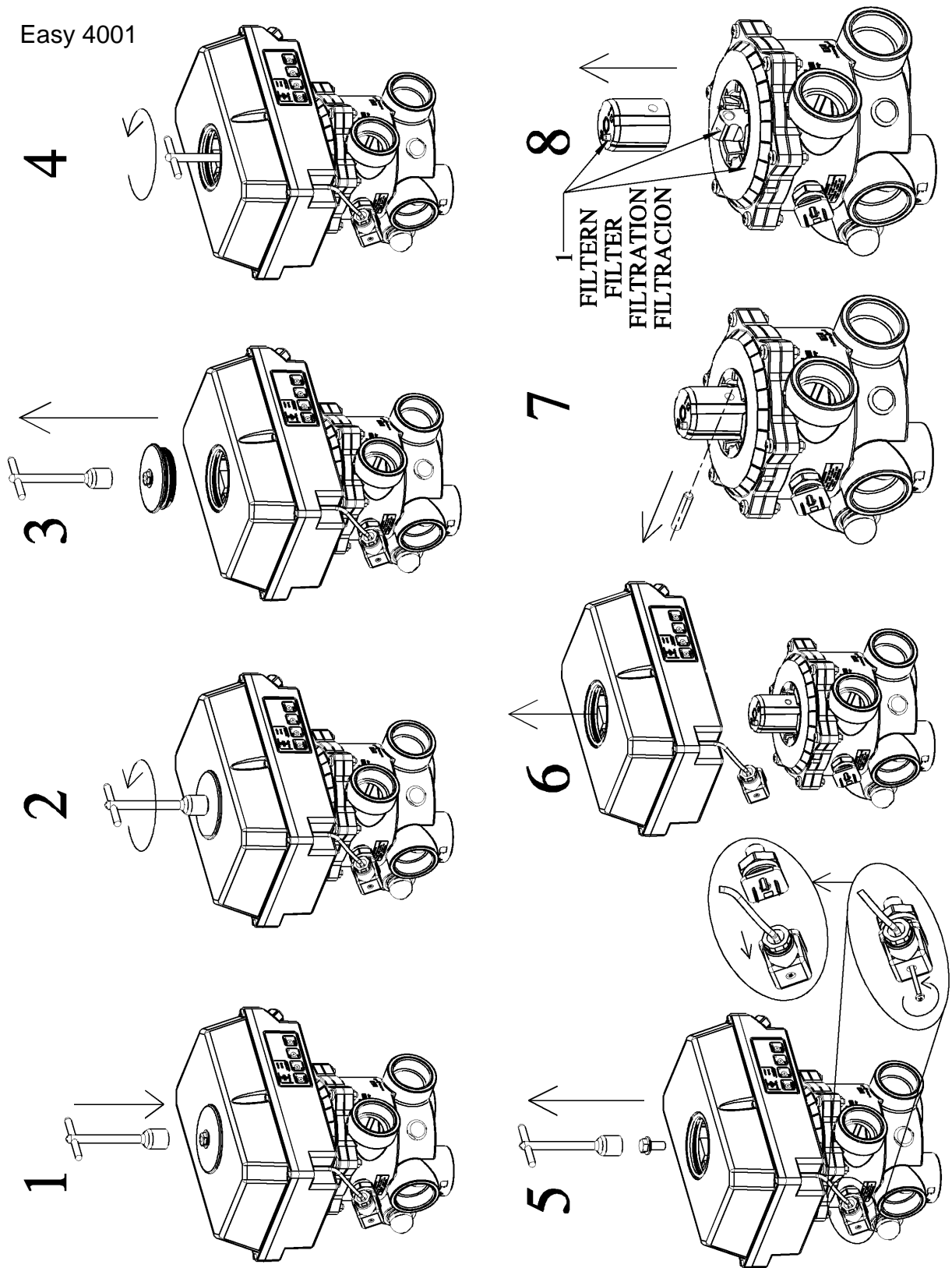
Carry out Installation in reverse order (step 8 – 1)

Inspection glass (step 2) and hexagon screw (step 4) to be screwed stalwartly (4Nm – 8Nm)

Easy 1001



Easy 4001

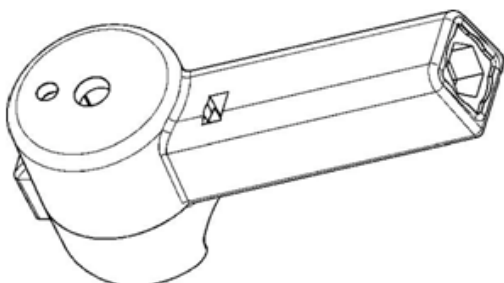


24 Application – Connection für external equipment

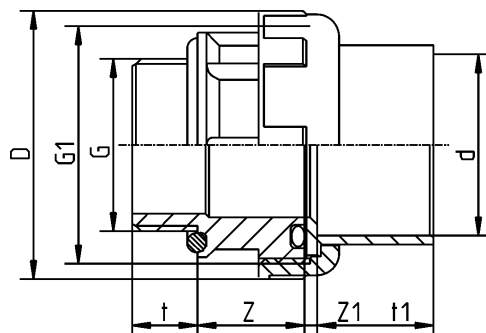
- Ball valve EO510 for example: drain
- Salt chlorination
- Dosing units
- Connection for external heating

25 Aquastar Easy Accessories

Emergency grip
Art.Nr. 101862

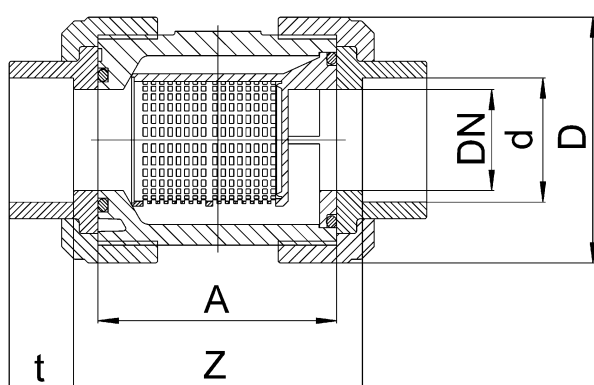


OCEAN-adaptor unions
male thread – solvent socket



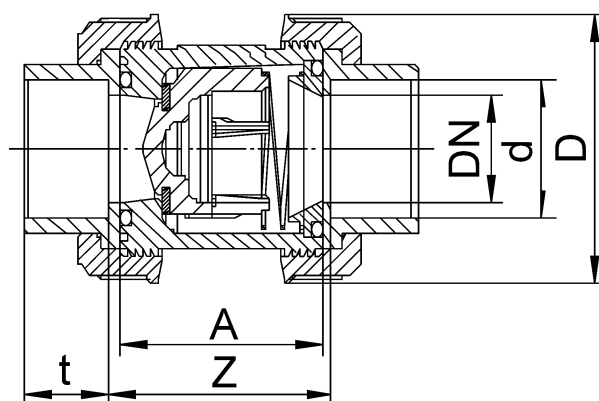
d - D	T	T1	Z	Z1	D	E1
50-1,5" BSP	18	31,5	30	3	74	2 1/4"
48,4-1,5" NPT	18	31,5	30	3	74	2 1/4"
50-2" BSP	23,5	31,5	36	3	92	2 3/4"
63-2" BSP	23,5	38,5	36	3	92	2 3/4"
60,3-2" NPT	23,5	38,5	36	3	92	2 3/4"

Line strainer S4



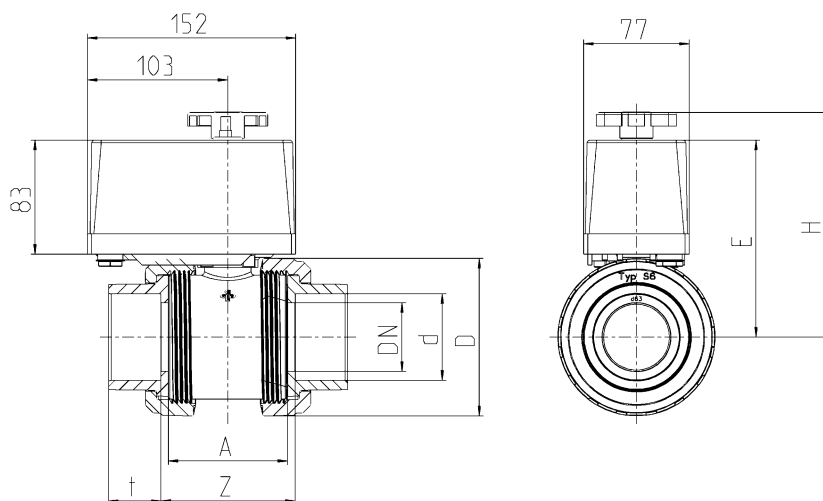
d	DN	A	Z	t	D	PN
50	40	95	104	31,5	101	16
63	50	109	121	38,5	124,5	16

Check valve S6



D	DN	A	Z	t	D	PN
50	40	77	87	31,5	101,5	16
63	50	87	99	38,5	115,3	16

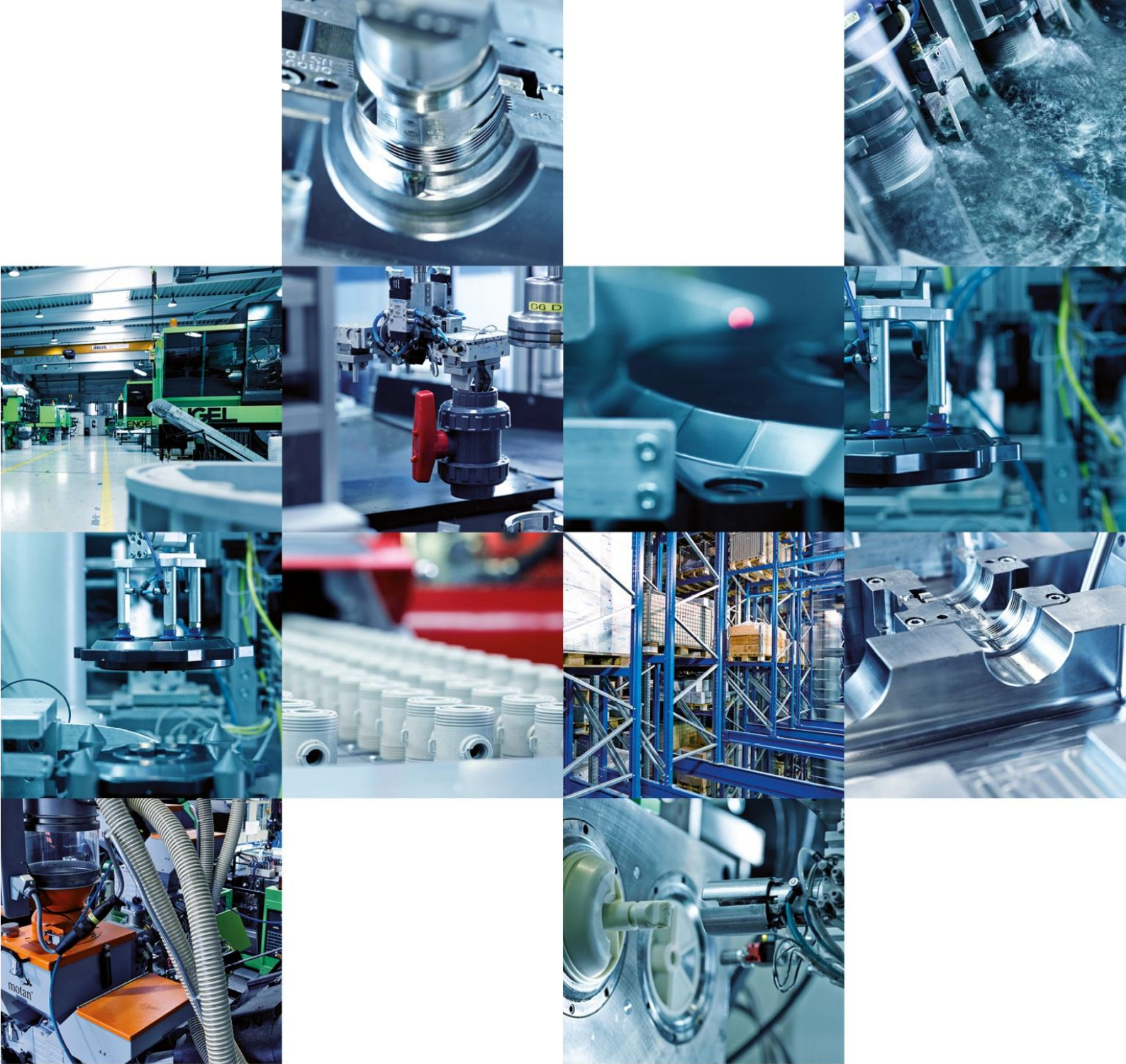
PVC ball valve DN32 – DN50 S6 EO510 ECO 230V



PVC	S6		
DN	32	40	50
d	40	50	63
G	1 1/4"	1 1/2"	2"
A	77	77	87
D	101,5	101,5	115,3
E	138,5	138,5	143,5
H	159	159	164
t	26,5	31,5	38,5
Z	87	87	99
PN	16	16	16
max. bar	3	3	3

26 Troubleshooting

- **All LEDs on the keyboard are flashing at the same time**
 - Motor overload
 - The pressure is too great on lifting the valve disk because the maximum water column of 3m was exceeded
 - The pump does not switch off on lifting the valve disk
 - The V6 valve is soiled or clogged by foreign matter
- **The drive rotates continually without approaching a position**
 - Device was driven without matching valve
 - Please return for repair; damage has already occurred in this case
- **The drive continually triggers the backwash cycle**
 - Rotary switch S4 is set to too low a pressure
 - See chapter 16 Setting of the electric pressure switch (only at Aquastar Easy 4001)
 - The system contains pressure boosting components (e.g., Solar absorbers)
 - Set the pressure sensor so that the Aquastar does not trip at this increased pressure
 - The pressure sensor was retrofitted on a device that has a blue pressure sensor switch below the PCB
 - Use the translation list enclosed with the pressure switch set, and set S3 or S4 accordingly
- **The pump fails to switch on or off**
 - Slide switch S5 is in the wrong position
 - Set it to position „Backwash Clock“
 - Relay burnt out
 - The maximum pump current of 8A was exceeded
 - The pump is not properly connected
 - The pump must always be looped via contacts 13-14
- **The disk is not lifting freely, or the drive is not running smoothly, or flow noises can be heard**
 - The pump does not switch off on lifting the valve disk
 - The pump must always be looped via contacts 13-14
 - The drop from the water surface to the valve is too great
 - Make sure that the total water column does not exceed 3m.
 - The V6 valve is soiled or clogged by foreign matter
 - Clean the valve and use a pre-filter



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