AIR-SEP®

KOREX

www.korexbenelux.com

AIR-SEP® Pressure Maintenance

with touchscreen color display

User manual

AIR-SEP® Type AS-T 20 and 48

AIR-SEP® Type AS-T 100 up to 2400

Version 1.02 (GB)

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1. General and Information

In this user manual, the installation and the operation of the KOREX AIR-SEP® pressure maintenance stations are described. It describes the equipment in its basic configuration with the necessary accessories and with optional accessories. Information about the optional accessories can be found in **Accessories (optional) | Chapter 2.5**.
KOREX shall accept no liability whatsoever for claims arising from the non-observance of this user manual. The national legislation and regulations of the respective country of installation must be complied with (accident prevention, environmental protection, safe and professional working, etc.)

1.1 Liability and Warranty

The equipment is constructed in accordance with the state-of-the-art technology and the recognized safety-related regulations. Nevertheless, when using the equipment risks to the life and limb of the personnel and / or third parties as well as damage to the equipment or to other material assets can occur. There must be no alterations made to the equipment.
The liability of the manufacturer shall be excluded when these can be traced back to one or more causes:

- Use not in accordance with the intended purpose of the equipment.
- Incorrect and / or improper commissioning, operation, maintenance, servicing, repair and installation of the equipment.
- Non-observance of the safety instructions in this user manual.
- Operation of the equipment with defective or incorrectly fitted safety devices / protective equipment.
- The late carrying out of scheduled maintenance and inspection work.
- The use of non-approved spare and accessory parts.

1.2 Symbols Used

WARNING! DANGER! CAUTION! ATTENTION!
The non-observance of these safety instructions can lead to personal injury and / or material damage!

WARNING!
The non-observance of these safety instructions can lead to electric shock which can result in serious personal injury or death.

WARNING!
The surfaces of the product can become so hot that contact with them can lead to personal injury in the form of burns.

1.3 Intended Purpose

The AIR-SEP® unit is a pressure maintenance station for heating, cooling and refrigeration systems. It serves the purpose of maintaining water pressure, the resupplying with water and the degassing of the water in a system. Operation must only take place in corrosion-resistant closed systems with the following waters:

- Not corrosive
- Not chemically aggressive
- Not toxic

The ingress of atmospheric oxygen through permeation into the entire heating and cooling system, top-up water, etc. during operation must be reliably minimized.

1.4 Unacceptable Operating Conditions

The equipment is not suitable for the following conditions:

- In mobile system operation
- For outdoor use
- For use with mineral oils, with flammable media, with distilled water and with Temper
  (**for use with Temper, please inquire about our AIR-SEP® units in special designs!**).

⇨ **INFORMATION!**
Changes to the hydraulics or interfering with the wiring are not permitted.

1.5 Warranty Preconditions

- Professional installation and commissioning of the equipment
- Water-side connections must only be made using stainless steel pipelines
- Carbon steel pipes must not be used
- The integration must take place by means of “Accessory 2” or “Accessory 3” from KOREX
- A DVGW-certified system separator BA must, without fail, be connected upstream in the fresh water feed line (included in “Accessory 1 – Fresh Water Connection”)
- The filling of the system must take place in accordance with VDI 2035 and must be documented
- A plant logbook must be kept

2. Equipment Explanation

The AIR-SEP® unit is a pump-controlled pressure maintenance station. It performs the functions of the pressure maintenance, the expansion, the degassing and the resupply in closed heating, cooling and refrigeration systems. All functions are integrated in just ONE unit whereby the installation is made significantly easier. In addition, there is a space saving of up to 60% when compared with conventional solutions.

The AIR-SEP® unit offers the following securities:

Optimization of all the processes for pressure maintenance, degassing and resupply

- No direct intake of air through the control of the pressure maintenance with automatic resupply
- No circulation problems caused by free bubbles in the circuit water
- Reduction of corrosion damage through the removal of oxygen from the fill and resupply water.

2.1 Function Description

The AIR-SEP® unit is a pressure maintenance station for heating, cooling and refrigeration systems. It performs the functions of the **pressure maintenance, expansion, degassing** and **resupply** with water and / or water-glycol mixtures. The unit consists of at least one valves and control section (A2) - including a touch screen with a colour display (8) - and a degassing and expansion tank (A1).

2.1.1 Pressure Maintenance

The pressure monitoring in the plant system takes place via the pressure sensor (19). AIR-SEP® thereby ensures that the system pressure is optimally maintained at all times.
If the water cools, the pressure in the plant system falls. On undershooting the set pressure, the pressure maintenance pump (10) is switched on and feeds the already degassed water from the expansion tank (A1) back into the system via the pressure maintenance connection (3). The pressure in the plant system increases. On reaching the desired system pressure, the pump - controlled by the pressure sensor - is switched off again.

2.1.2 Expansion

The pressure in the plant system is increased by increases in temperature. On exceeding the set pressure, the overflow valve (11) is opened and allows water to flow out of the system via the expansion line (4) and into the expansion tank (A1) which is closed to the atmosphere. The pressure in the system falls to the set value setting and the overflow valve (11) is closed again. The expanded water is collected in the expansion tank (A1) and used again later for pressure maintenance. The entire hydraulic pipework, including the valves and control section (A2), is mounted on the expansion tank (A1). Optionally, several expansion tanks – also with a second valves and control section - can be connected.

2.1.3 Degassing

For the degassing of the system water, two hydraulic connections “ON (4)” and “OFF (3)” are needed. The “ON” line feeds the gas-rich water to the AIR-SEP® unit. The “OFF” line is a return line to the system for the degassed water. During the degassing, the pump (10) and the overflow valve (11) are in operation. Thereby, a gas-rich partial flow of the system water is fed via the pressure-less expansion tank. Here, the free and dissolved gases are separated from the water by the atmospheric pressure and reliably purged via the degassing valve with an air non-return lock (14). The overflow valve (11) guarantees the hydraulic balancing though the control of the valve stroke. The repetitive processes degas the system efficiently and invasive air is repeatedly separated out. The degassing takes place in the operating modes: resupply, expansion and in the interval and fast degassing.

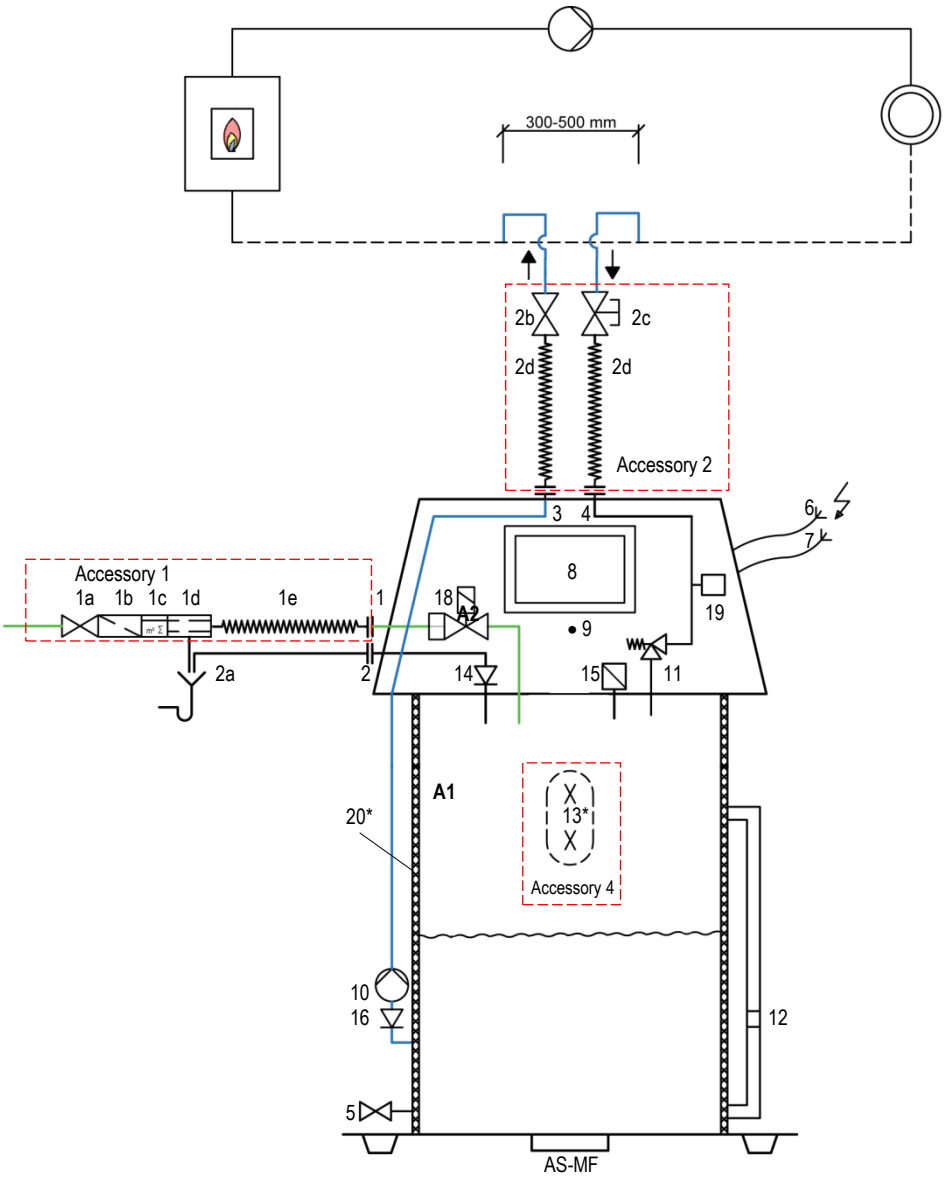
2.1.4 Resupply

If the minimum water level in the expansion tank is fallen below, the resupply valve is opened (18) for so long until the desired water supply, monitored by the level switch on the water gauge glass (12), has been reached again. In doing so, the refill quantities, frequency or capacities of softening or deionization are checked and monitored.

2.1.5 Cleaning

In the settling area of the degassing and expansion tank (A1), salts, minerals and suspended particles are deposited. In addition, the optional magnetite filter (AS-MF) fixes all the magnetic particles in the tank. The sludge and magnetite can be permanently removed from the system via the cleaning opening (13). This serves for the protection of all the components in your system circuit (such as, for example, efficiency pumps, valves, packing glands, etc.) and guarantees the continuous safe operation of the plant.

2.2 Principle Diagram AIR-SEP® - Types AS-T 20 and AS-T 48



A1	Degassing and expansion tank (stainless steel 1.4301 or PE on Type AS-T 20/x-**K**)
A2	Valves and control section (technical level)
1	Resupply connection ¾" ext. thread
2	Safety overflow DN50
2a	Funnel waste trap, customer
3	OFF1" = pressure maintenance
4	EIN 1" = Expansion
5	Emptying
6	Supply voltage 230 VAC / 50 Hz (3-wire via terminal box, 10A fuse)
7	Potential-free alarm signal (max. 230 VAC/1A)
8	AIR-SEP® SmartControl (with touch screen colour display)
9	Switch ON / OFF
10	Rotary pump (pressure maintenance)
11	Overflow valve
12	Water gauge glass with level switch (replaceable)
13*	Cleaning opening (see AIR-SEP® Accessory 4 ↘)
14	Degassing valve with an air non-return lock
15	Safety valve (internal)
16	Suction valve
18	Water magnetic valve with pulse output
19	Pressure transmitter
20*	Heat insulation (not available for AS-T 20/x-**K**!)
AS-MF	Magnetite filter (AIR-SEP® accessory)

AIR-SEP® Accessory 1 – Fresh Water Connection

1a	Ball valve ½"
1b	Dirt trap ½"
1c	Water volume meter
1d	System separator Type BA
1e	Flexible hose ¾" x 1m

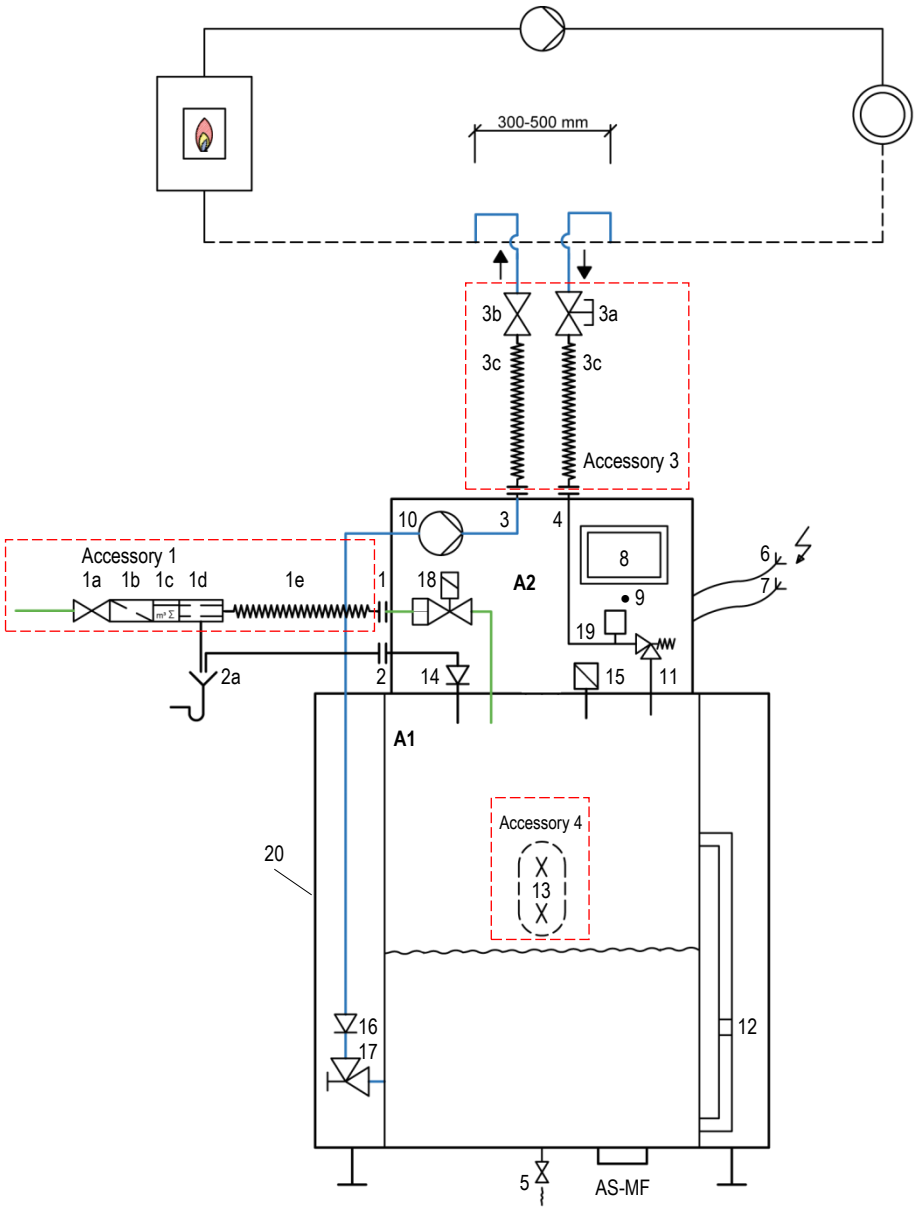
AIR-SEP® Accessory 2 – System Connection DN15

2b	Ball valve ½"
2c	Ball valve ½" with safety cap
2d	Flexible hose ½" x 1m (2x)

AIR-SEP® Accessory 4 – Cleaning Opening

13*	Cleaning opening (not available for AS-T 20/x-**K**!)

2.2.1 Principle Diagram AIR-SEP® - Types AS-T 100 to 2400



A1	Degassing and expansion tank (stainless steel 1.4301)
A2	Valves and control section (technical level)
1	Resupply connection ¾" ext. thread
2	Safety overflow DN50
2a	Funnel waste trap, customer
3	OFF 1" = pressure maintenance
4	ON 1" = expansion
5	Emptying
6	Supply voltage 230 VAC / 50 Hz (3-wire via terminal box, 10A fuse)
7	Potential-free alarm signal (max. 230 VAC/1A)
8	AIR-SEP® SmartControl (with touch screen colour display)
9	Switch ON / OFF
10	Rotary pump (pressure maintenance)
11	Overflow valve
12	Water gauge glass with level switch (replaceable)
13	Cleaning opening (AIR-SEP® Accessory 4)
14	Degassing valve with an air non-return lock
15	Safety valve (internal)
16	Suction valve
17	Angle ball valve with screw connection
18	Water magnetic valve with pulse output
19	Pressure transmitter
20	Cladding at a distance as heat insulation
AS-MF	Magnetite filter (AIR-SEP® accessory)
	<u>AIR-SEP® Accessory 1 –Fresh Water Connection</u>
1a	Ball valve ½"
1b	Dirt trap ½"
1c	Water volume meter
1d	System separator Type BA
1e	Flexible hose ¾" x 1m
	<u>AIR-SEP® Accessory 3 – System Connection DN25</u>
3a	Ball valve 1" with safety cap
3b	Ball valve 1"
3c	Flexible hose 1" x 1m (2x)
	<u>AIR-SEP® Accessory 4 – Cleaning Opening</u>
13	Cleaning opening

2.3 Scope of Supply

The scope of the delivery is described on the delivery note and the contents are displayed on the packaging. Immediately on receipt, check the delivery for completeness and damage. Report transport damage immediately.

2.4 Accessories for Types AS-T 20 and 48 (recommended)

For optimum and time saving connection, we recommend the use of the following AIR-SEP® accessories:

ACCESSORY	ARTICLE DESIGNATION	PART NO.:
Accessory 1	**Fresh water connection** in accordance with DIN 1988 and DIN EN 1717 with a DVGW certified system separator Type BA and water volume meter	Z1
Accessory 2	**System connection DN15** (2 flexible hoses, ball valve and capped ball valve)	Z2
Accessory 4	**Cleaning opening** for the manual cleaning of the tank (not available for Type AS-T 20/x-**K**!)	Z4

2.4.1 Accessories for Types AS-T 100 to 2400 (recommended)

For optimum and time saving connection, we recommend the use of the following AIR-SEP® accessories:

ACCESSORY	ARTICLE DESIGNATION	PART NO.:
Accessory 1	**Fresh water connection** in accordance with DIN 1988 and DIN EN 1717 with a DVGW certified system separator Type BA and water volume meter	Z1
Accessory 3	**System connection DN25** (2 flexible hoses, ball valve and capped ball valve)	Z3
Accessory 4	**Cleaning opening** for the manual cleaning of the tank	Z4

2.5 Accessories (optional)

With optional accessories, the AIR-SEP® can be extended and thereby the range of functions can also be usefully extended:

ACCESSORY	ARTICLE DESIGNATION	PART NO.:
Accessory 1A	**Fresh water connection**, as "Accessory 1" but with contact water volume meter	Z1A
Accessory 1M	**Fresh water connection**, as "Accessory 1" but with M-Bus water volume meter	Z1M
Accessory 1E	**Fresh water connection with a stainless steel non-return valve** and water volume meter (with existing system and without request)	Z1E
AIR-SEP® ION	**AIR-SEP® ION – compact softening fitting** in accordance with VDI 2035 Sheet 1	ION
AIR-SEP® VE	**AIR-SEP® VE – compact complete demineralization fitting** in accordance with DIN EN 12828	VE
Replacement Cartridge	Replacement cartridge for the AIR-SEP® ION (for exchange, 2 replacement cartridges are needed)	IONEK
Replacement Cartridge	Replacement cartridge for the AIR-SEP® VE (for exchange, 2 replacement cartridges are needed)	VEEK
Magnetite Filter	***NEW!*** **Magnetite filter** (for fitting on the tank bottom)	AS-MF
Accessory 23*	**Communication** of two pressure maintenance stations each with a pressure maintenance pump for alternating operation (master / slave)	Z23
Accessory 40*	**Upper level** for the water storage of each pressure maintenance station	Z40
Accessory 41*	**Pressure minimal** with multi-pump systems for the running up of all pumps for quicker pressure maintenance	Z41
AIR-SEP® Interface	NEW! **AIR-SEP® SmartControl Interface** - interface to the AIR-SEP® controller ▪ Remote access to the AIR-SEP® pressure maintenance stations ▪ Visualization ▪ Changing of parameters and data logging ▪ Send error messages by e -mail ▪ Possibility of connection to MODBUS/TCP Interfaces: CAN-Bus, DL-Bus, SD card slot and Ethernet (RJ45)	AS-SCI
Commissioning	**Commissioning** by the KOREX Customer Service (each unit)	473

* Not available for the Types AS-T 20 and 48!

2.6 Accessories for Cooling and Refrigeration Systems

With the following accessories for cooling and refrigeration systems, the AIR-SEP® can be usefully extended and optimized

ACCESSORY	ARTICLE DESIGNATION	PART NO.:
Accessory 5	**Insulation with vapour barrier**, necessary with media temperatures below +14°C, max. suitable to +6°C	Z5
Accessory 51*	**Insulation with vapour barrier in special design**, necessary with media temperatures below +6°C, max. suitable to -10°C (< -10°C additional customer-supplied insulation is needed)	Z51
Accessory 5A*	**Heating sleeve for the overflow valve**, necessary with media temperatures below 0°C	Z5A
PE Tanks-	**PE storage tanks for the storage of glycol-water mixtures**, for fully automatic resupply with 200 litres and a glycol lifting pump	Z13
PE Tanks	**PE storage tanks for the storage of glycol-water mixtures**, for fully automatic resupply with 1000 litres and a glycol lifting pump	Z14X
PE Tanks	**PE storage tanks for the storage of glycol-water mixtures**, for fully automatic resupply with 2000 litres and a glycol lifting pump	Z15
Commissioning	**Commissioning** by the KOREX Customer Service (each unit)	473

* Not available for the Types AS-T 20 and 48!

3 Technical Data

AIR-SEP® Unit Type AS-T … (see the dimension and connection diagram)		**20/2-K 20/4-K**	**20/2 20/4**	**48/4**	**100/4 /6 /8**	**150/4 /6 /8**	**200/4 /6 /8**	**400/4 /6 /8**	**600/4 /6 /8**	**1200/4 /6 /8**	**1600/4 /6 /8**	**2400/4 /6 /8**
Expansion volumes	l	20		48	100	150	200	400	600	1,200	1,600	2,400
Static height, max.	mWS	11 25		25	25 40 60							
Pressure maintenance, max.	barg	1.6 3.0		3.0	3.0 4.5 6.5							
Operating temperature, max.	°C	55	100									
System contents, max.	l	900		2,150	4,500	6,750	9,000	18,000	27,000	54,000	81,000	108,000
Height	mm	750		1260	1170	1460	1760	1570	1450	1880	2380	2400
Width	mm	445			560			790	1020			1350
Depth	mm	495			560			790	1020			1350
Weight	kg	20	21	40	65	77	86	95	104	129	180	330
Resupply pressure	barg	4.0										
Refill quantity	l/min	5.0										
Connection, "expansion" line		R 1/2			R 1							
Connection, "pressure maintenance" li		R 1/2			R 1							
Installation mounting		floor, wall		floor								
Certification mark		CE										
Operating voltage	VAC/Hz	1x 220-240 / 50										
Current consumption	A	2.9			2.9 3.8 4.4							
Power consumption	kW	0.6			0.6 0.7 0.8							
Fuse, electrical cabinet	A	10, medium delay										

4 Installation

Danger – Electric Shock!

- Life-threatening injuries through electric shock
  - Systems in which the unit is installed must be disconnected from the power supply,
  - Ensure that the system cannot be switched on again by other people
  - Installation work on the electrical connections of the unit must be carried out by a skilled electrician only and in accordance with electrical engineering regulations.

Caution – Risk of Injury!

- In the event of defective installation or maintenance work on the connections, burns and other injuries can be caused by hot water or steam under pressure suddenly spurting out.
  - Ensure professional installation
  - Ensure that the system is pressure-less before carrying out maintenance work on the connections

Caution – Risk of Burn Injuries!

- Skin burn injuries can be caused in heating systems through too hot surfaces.
  - Wait until these have cooled down or wear safety gloves
  - The operating company must place appropriate warning signs in the vicinity of the unit

Caution – Risk of Injury through Falls and Collisions!

- Bruises through falling or collision with system components during installation
  - Wear your personal protective equipment
    (safety helmet, protective clothing, protective gloves, safety shoes).

Advice:

Confirm the correct and proper installation and commissioning as in the installation, commissioning and maintenance description. This is a prerequisite for any warranty claims.

Have the initial commissioning and the annual servicing carried out by the Korex Works Customer Service!

4.1 Conditions

4.1.1 Checking the Delivery Condition

The unit is carefully checked and packed before being shipped. Damage during transport cannot be ruled out.

⇨ **Advice!**

On receipt, check the delivery for completeness and damage. Document any transport damage. Contact the haulier to claim for any damage.

4.2 Installation Site

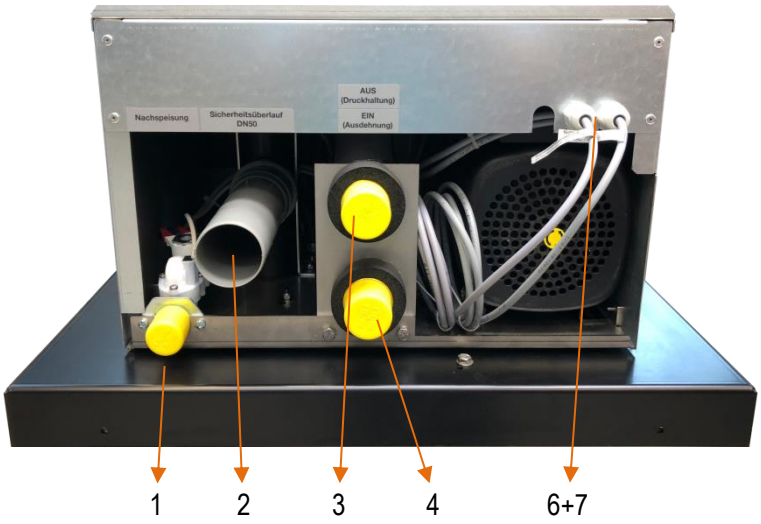
Preparation for the installation of the equipment:

- No access for unauthorized people
  - Frost-free, well ventilated room (room temperature 0°C to 45°C)
- Level and sufficiently load-bearing floor
  - Ensure the sufficient load-bearing capacity of the floor when filling the containers.
  - Ensure that the pressure maintenance station and expansion vessels are placed on one level
- Filling and drainage facility.
  - Provide a filling connection DN15 in accordance with DIN1988 T4
  - Provide an optional cold water mixture
  - Provide a drain for the waste water.
- Electrical connection: 230VAV / 50HZ, 10A with an upstream connected FI circuit breaker: Tripping current 0.03A.
- Use only approved transport and lifting equipment.

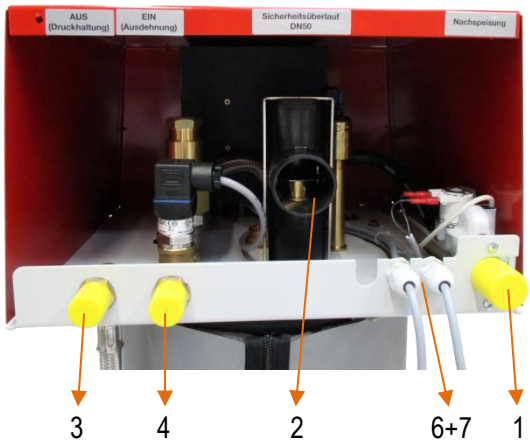
4.3 Hydraulic Connections

Connections for the heating, water and waste water integration

Types AS-T 100 to 2400



Types AS-T 20 and 48



1 Connection for resupply ¾" external thread
(by means of optional "Accessory 1 – Fresh Water Connection")
2 Safety overflow DN50, connection via funnel waste trap(!)
3 OFF = pressure maintenance connection (1" or 1/2" ext. thread) } (via optional Accessory 2 or 3)
4 ON = expansion connection (1" or 1/2" external thread)

4.3.1 Hydraulic Connection Accessories

AIR-SEP® "Accessory 1 - Fresh Water Connection"

AIR-SEP® "Accessory 2 - Connection System DN15"

AIR-SEP® "Accessory 3 - Connection System DN25"

4.4 Electrical Connections

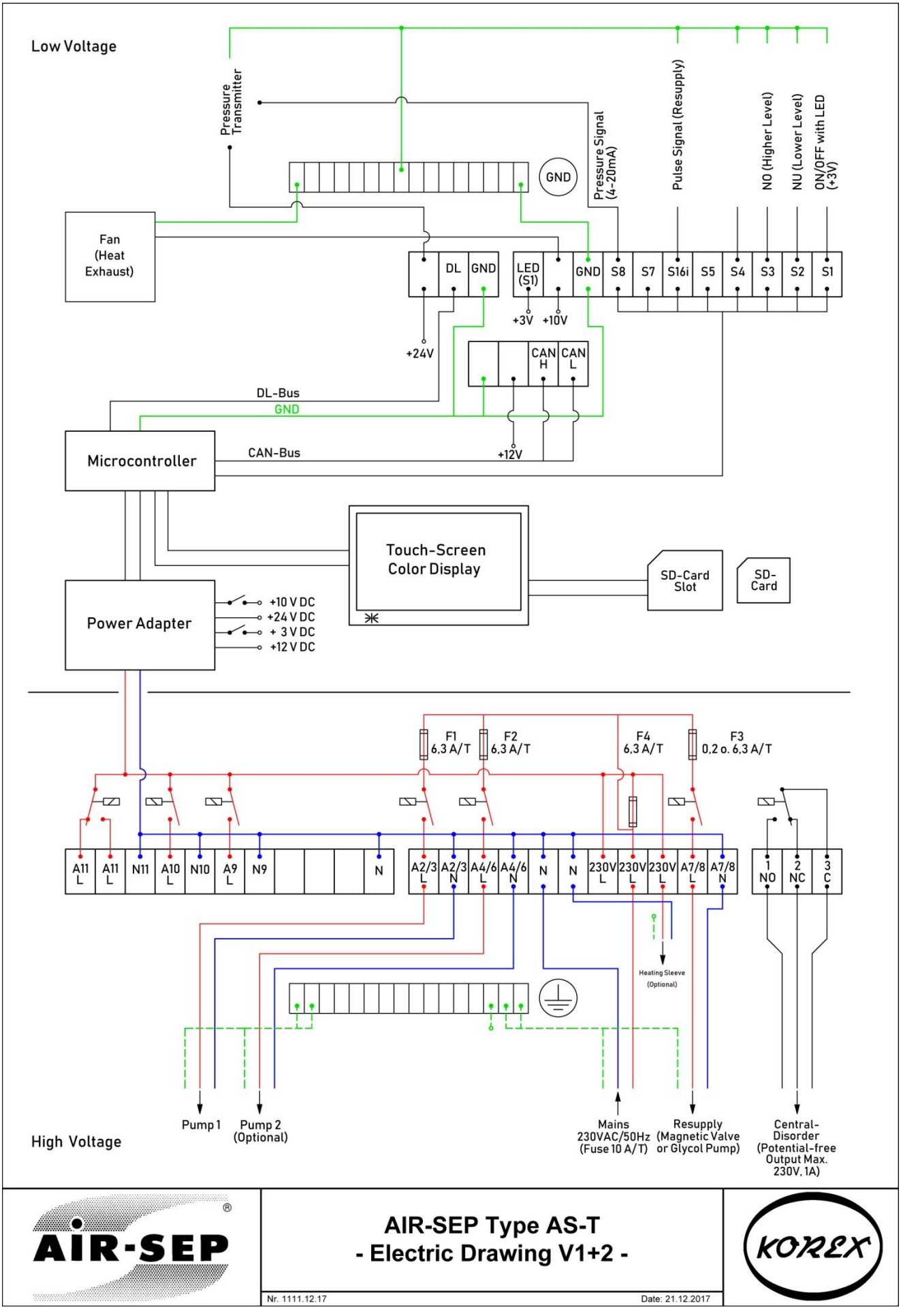
The AIR-SEP® unit is delivered fully wired. Two cable lines are routed to the outside:

6. Supply voltage, 230VAC / 50Hz, 3x 0.75mm² flexible
7. Alarm cable (potential free), max. 230V / 1A, 3x 0.75mm² flexible

The cable for the supply voltage must be connected in a customer-supplied terminal box. The fusing takes place in the customer-provided electrical cabinet with 10A, slow.

The alarm cable is potential free and is complete with a normally open and normally closed contact. In normal operation, [1] and [3] are closed! In the event of a fault, power cut or with the unit switched off, the relay switches off. The contacts [1] and [3] open and [2] and [3] are closed (see 4.4.1 Electric Drawing).

4.4.1 Electric Drawing



4.4.2 Terminal Plate and AIR-SEP® Smart-Control Controller

Each AIR-SEP® SmartControl controller has a plate, located between the low voltage and the 230V terminals, showing the terminal designations. All internal connections have already been made in the factory!

View with the fitted Designation Plate

AIR-SEP® SmartControl Controller with Display

5 Initial Commissioning

5.1 System Requirements

(for the legends see “2.2 Principle Diagram” on pages 7/8)

1. The AIR-SEP® unit is set pressure-dependent in accordance with your specifications and basically needs no correction! (for the pre-settings see the label on the electrical cabinet)

2. The hydraulic connections must be made in accordance with 4.3 (Hydraulic Connections).

3. The pipe network – with closed valves to the AIR-SEP® (3a + 3b and 2b + 2c) - must be charged with at least 1.8 barg pressure.

4. The supply voltage must be connected in accordance with 4.4 (Electrical Connections).

5. The safety overflow (2) and the waste water connection of the system separator (1d) must be connected to the sewer network via a funnel waste trap (2a).

6. The AIR-SEP® unit must be prefilled with mains water via the filling and draining valve (5) so far until the float in the water gauge glass (12) is approx. 10cm above the black level switch
(or up to the marker when present).

5.2 Commissioning

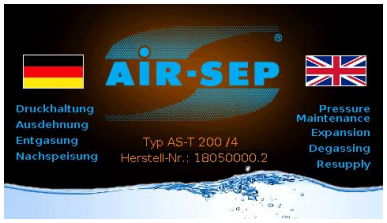
1. Open the technical level. First remove the magnetic frame from the display. Then remove the 4 knurled screws from the front cover (or only the one at the front and loosen the 2 at the sides), gently pull the cover away from the front and lift it off.

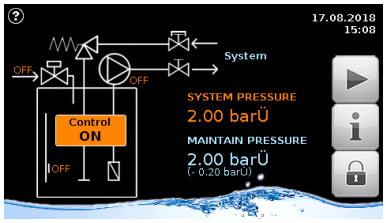
2. Open the shut-off (1a) of the resupply connection.
   ⇨ **Advice!**
   When using AIR-SEP® softening or demineralization cartridges, also use this user manual and follow the instructions!
3. Open the system connections: Ball valve and ball valve with safety cap (3a + 3b and 2b + 2c).

4. Switch on the main fuse on the electrical cabinet.
   ⇨ **Advice!** The switch on the AIR-SEP® must be switched off (up position)!

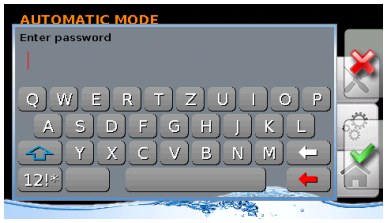
5. The AIR-SEP controller starts. Wait until the LED lights up constant green.

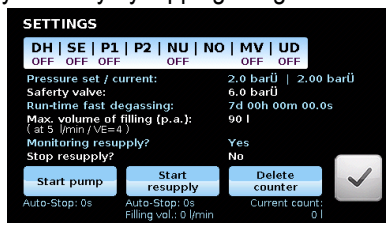
6. Tap – using the stylus or finger –the flag with the language of your choice. You are taken to the homepage.





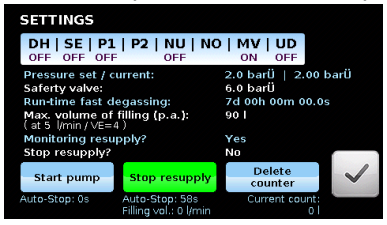
7. Tap the top right-hand button ▶. You are taken to the “Automatic Mode” page. Then tap the centre gear wheel button ⚙ to open the “Settings” page. Enter the **Password “Asdf”** and confirm your entry by tapping the green tick.





8. As the AIR-SEP® unit has been prefilled, to start with there is sufficient water in the vessel (**Lower Level** = “**NU**” = “**OFF**”). **If the “NU” = “ON” the unit has not been filled enough (see 5.1 Section 6)!**
   ⇨ **Advice!**
   The pressure maintenance pump is blocked with the active "Lower Level" (NU = ON)!

9. To check the resupply, tap the “**Start resupply**” button. The magnetic valve opens for a max. 60 seconds and top-up water flows into the AIR-SEP®. In doing so, the “filling rate” must be between 4-7 l/min. The meter reading is increased by the resupplied volume of water.
   The resupply can be stopped early by tapping the “**Stop resupply**” button.



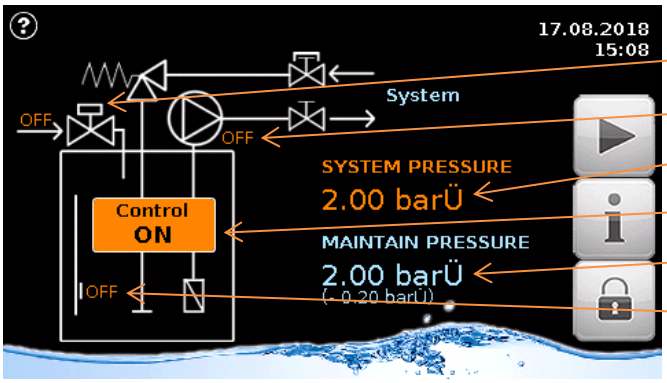
10. Briefly open (3-5 seconds) the ball valve (10a) to vent the pressure maintenance pump (10). The pressure in the system falls simultaneously. Close the ball valve again.
    The system pressure can be read off from the display ("**Pressure … / current:**").

11. Then tap the "**Start pump**" button. The pressure maintenance pump now runs for a max. 60 seconds and the system pressure increases. It is possible - depending on the pressure situation - that the overflow valve is simultaneously active.
    By tapping on "**Stop pump**" the pump operation is stopped.
    ⇨ **Advice!**
    In the event of no or only a small pressure increase, repeat Points 10 and 11 until the "**Pressure current**" is the same as the "**Pressure set**".

12. The pressure maintenance pump is now ready for operation.

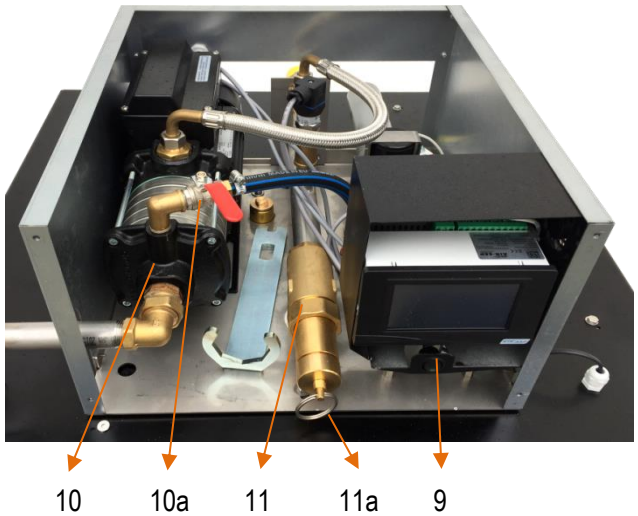
13. By tapping the buttons ☑ + 🏠 you return to the homepage.

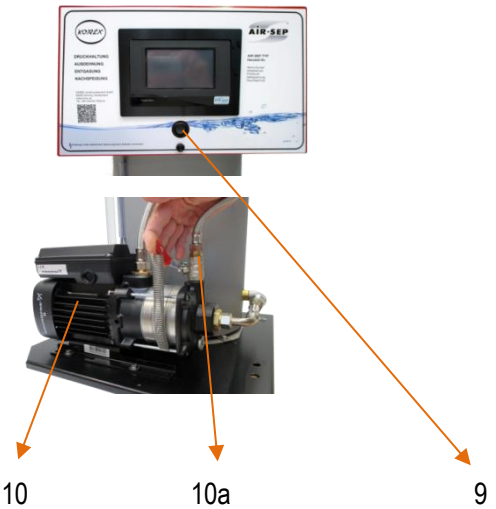
14. Now switch on the AIR-SEP® unit. To do so, press the switch below the display.
    The green LED on the switch indicates the operational readiness. The display indicator of the control changes to "ON" The AIR-SEP® now works in Standard Mode: Pressure maintenance with interval degassing.



- Indicator water magnetic valve (OFF / ON)
- Indicator pressure maintenance pump (OFF / ON)
- Indicator current pressure (system pressure)
- Indicator control (OFF / ON)
- Indicator set pressure / switch-on point
- Indicator Lower Level (OFF / ON)

15. If the system pressure is within the desired pressure maintenance, after approx. 1 minute the first degassing interval begins





5.3 Testing (Types AS-T 100 to 2400)

1. Pull on the ring (11a) of the overflow valve (11).
2. The system pressure sinks and in doing so must fall below the pressure maintenance (p -0.2 barg).
3. The pressure maintenance pump starts and on the display the indicator changes to "ON".
4. Release the ring (11a) again. The indicated value "SYSTEM Pressure" rises again.
5. Once the system pressure has been reached again, the pump stops and the indicator of the pump on the display changes to "OFF".

5.4 Information about Commissioning

Through water extraction, during commissioning the lower level can be reached. On the display the indicator changes to "ON", the pressure maintenance pump switches “OFF” (dry running protection!) and the resupply is activated ("ON"). In the process, fresh water is fed into the degassing and expansion tank (A1) via the magnetic valve (18). The float in the water gauge glass (12) rises. The “Lower Level” is overflown, the indicator changes to "OFF", the magnetic valve (18) remains open ("ON") as the AIR-SEP® unit is still feeding water volume X (depending on unit type) as a resupply volume. The litre-precise recording takes place via the pulse output of the magnetic valve (18).

6 Navigation of the "AIR-SEP® SmartControl"

6.1 Operation

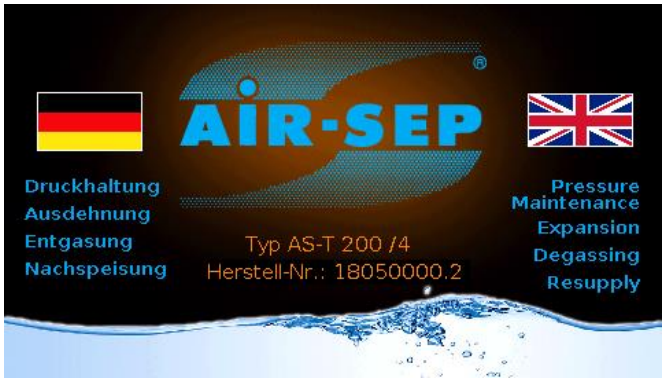
The “AIR-SEP® SmartControl” controller is operated via a 4.3” touch screen display. For easier of handling, an operating stylus is available, inserted at the side of the front cover of the electrical cabinet. The control surfaces can be tapped with this stylus and the display view can be further scrolled by sliding (if available).

6.2 Welcome Screen

The LED status lamp (bottom left) can indicate various conditions. After the hardware initialization, the controller waits for approx. 30 seconds in order to receive all the necessary information for the functions (sensor values, etc.). The controller start takes place after the following sequence:

Red – Orange – Green flashing– Green continuous light

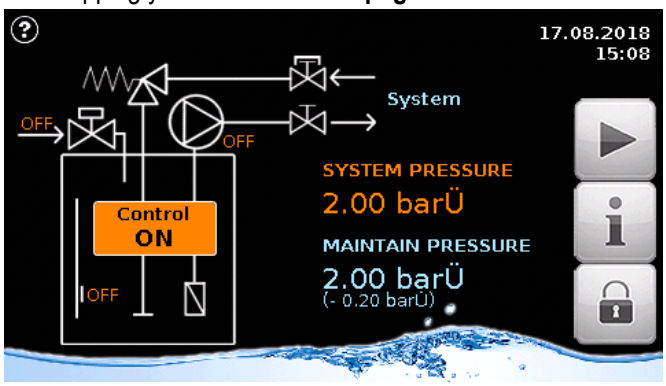
After the start the welcome screen is shown:



Tap – with the stylus or a finger – the flag of the language of your choice. You are taken to the homepage.

6.3 Homepage

After tapping you reach the **homepage**:



Here you receive an overview of all the important information:

- The AIR-SEP® pressure maintenance station is displayed schematically.
- The switching states of the **fresh water magnetic valve** and of the **pressure maintenance pump** (OFF / ON) are shown.
- The status of the **level sensor** is displayed (OFF / ON).
- The information whether the **control** is switched **OFF** or **ON** is shown.
- In addition, the **system pressure** is displayed in the centre.
- The desired **pressure maintenance** with its **switching hysteresis** is likewise displayed.
- The navigation menu is located on the right:

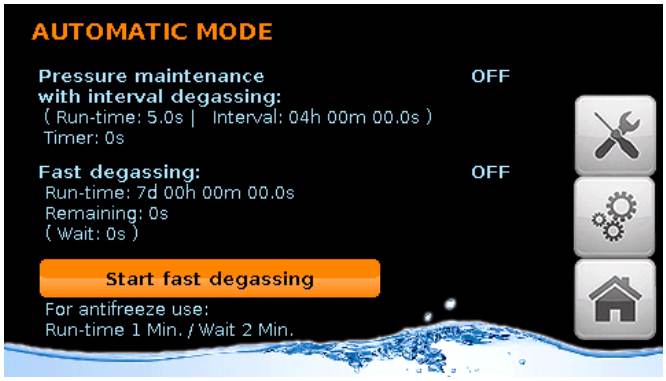
"Automatic Mode"
Status "pressure maintenance with interval degassing"
Status "fast degassing" with the start button
"Maintenance" button (password protected)
"Setting" button for the system parameters (password protected)

"INFO"
Information about "inputs", "outputs" and "messages"

"INTERNAL"
Parameterization by the KOREX Works Customer Service (password protected)

"QUESTION MARK"
? Return to the welcome screen (language selection, type and manufacturer's number) is via the question mark symbol in the top left corner

6.4 Menu "Automatic Mode"



Pressure maintenance with interval degassing: OFF
The main switch (in the middle under the display), and thus also the pressure maintenance together with interval degassing, is switched off.

Pressure maintenance with interval degassing: ON
The main switch, and thus also the pressure maintenance together with interval degassing, is switched on. The timer starts approx. 1 minute after the switching on of the pressure maintenance.

Run time — Time specification during which the degassing, and thus the pressure maintenance pump, is active.

Interval — Time specification of the intervals at which the fast degassing starts.

Fast degassing: OFF
The fast degassing is not active.

Fast degassing: ON
The fast degassing is active and stops automatically at the end of the run time.

Run time — Time specification of the run time of the fast degassing.

Remaining — Shows the remaining time with active fast degassing.

Inactive — Shows the remaining time during which the fast degassing is paused (optional programming).

"Start fast degassing" button
The fast degassing is started by pressing the button.

"Stop fast degassing" button"
Appears after the fast degassing has been started. The fast degassing is stopped by this button before the full run time has elapsed.

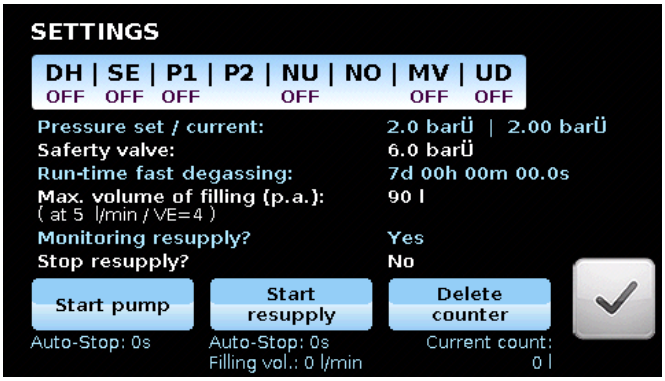
MAINTENANCE (password protected)
Restart of the maintenance intervals following professional maintenance (KOREX customer service or authorized heating system or plant manufacturers).

SETTINGS (password protected)
Input of system parameters and the carrying out of the initial commissioning (heating system or plant manufacturers).
Password: "Asdf"

HOMEPAGE
Return to the homepage.

6.4.1 Service Menu "Settings"

The Settings menu is intended exclusively for the plant manufacturer and is, therefore, password protected!



DH = Pressure Maintenance **SE** = Fast Degassing **P1** = Pump **P2** = Pump 2 (when installed) **NU** = Lower Level **NO** = Upper Level (when installed) **MV** = Magnetic Valve **UD** = [not occupied]

Pressure set / current
Input of the desired pressure maintenance in barg. The pressure maintenance must be at least 0.5 barg above the static height of the system. To change the data, tap on the respective parameter (for example, "2.0 barg").

Safety valve
Here the response pressure of the customer-installed safety valve can be entered. The response pressure of the safety valve should be at least 3.0 barg and must be at least. +1.0 barg above the pressure maintenance.

Run time of the fast degassing
Here, the run time of the fast degassing can be changed. The start of the fast degassing is started via the "Automatic Mode" menu.

Maximum resupply volume (p.a.)
Through the input of a volume of water, the maximum amount per year of supplementary water can be limited.
With the use of upstream softening or demineralization (AIR-SEP® ION or AIR-SEP® VE) the capacity can be monitored here.
With the use of the AIR-SEP® VE fitting, the value must be changed from 5 l/min to 4 l/min.

Resupply monitoring
Here, it can be decided whether the resupply frequency and resupply volume should be monitored.

Resupply disablement
With capacity monitoring (for example, with the use of the AIR-SEP® VE fitting) the resupply is disabled.

The pressure maintenance pump is stopped / started via the "Start pump" / Stop pump" button (even with the control switched off!!!). Through this the pump can be vented during the initial commissioning (**see Initial Commissioning | Chapter 5**).
An "Auto-Stop" timer automatically switches off the output after 1 minute.

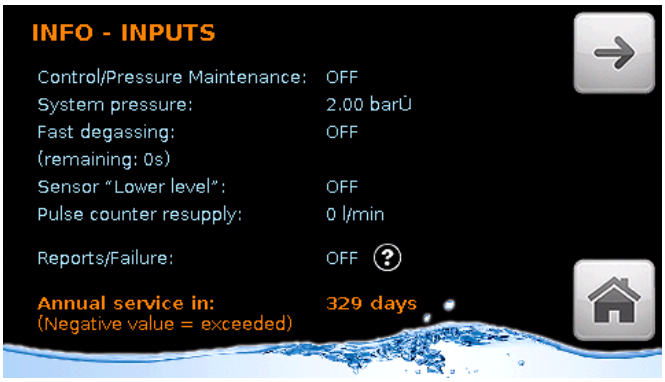
The magnetic valve is opened / closed via the "Start resupply" / "Stop resupply" button (even with the control switched off!!!).
Here it can be checked whether the resupply is functioning.
The filling rate is displayed in l/min and should be between 4-7 l/min.
An "Auto-Stop" timer automatically switches off the output after 1 minute.

Meter reading
Here can be read off, how much water has already been resupplied.
"Delete meter reading"
By clicking here, the meter reading is set to "0". The new monitoring of the maximum resupply volume is started.

6.5 Menu "Information"

Here you receive an overview of the inputs (sensors), outputs (pressure maintenance pump / resupply) and information about messages / faults.

6.5.1 Menu "INFO – Inputs"



Control / pressure maintenance: OFF / ON
The main switch (in the middle below the display), and thus also the pressure maintenance together with interval degassing, is switched off/on.

System pressure: 2.50 barg
Displays the current system pressure in barg.

Fast degassing: OFF / ON
The fast degassing is inactive / active.

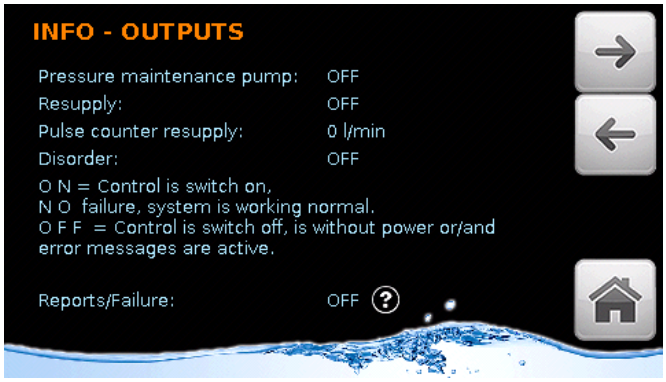
Sensor "Lower Level": OFF / ON
The active level sensor (ON) reports a too low a water level in the expansion and degassing tank. If the control is switched on, the resupply is switched on automatically.

Pulse counter resupply
If the resupply is active, the pulse counter displays the resupply volume per minute (l/min).

Sensor "Under Pressure" OFF
[not occupied]

Reports / Failure OFF / ON
There are no reports / failures present or there are active reports / failures.
Detailed information is received after tapping the question mark.

6.5.2 Menu "INFO – Outputs"



Pressure maintenance pump : OFF / ON
Shows whether the pressure maintenance pump is inactive / active.

Resupply: OFF / ON
Shows whether the resupply is inactive / active.

Pulse counter resupply
If the resupply is active, the pulse counter displays the resupply volume per minute (l/min).

Disorder ON / OFF
A disorder is signalled via a potential-free output as normally open / normally closed contact. In active operation and with no malfunctions present, the relay is "ON". There are NO disorder present.
If the Disorder is "OFF", either the control is switched off, is without power and /or error messages are active.

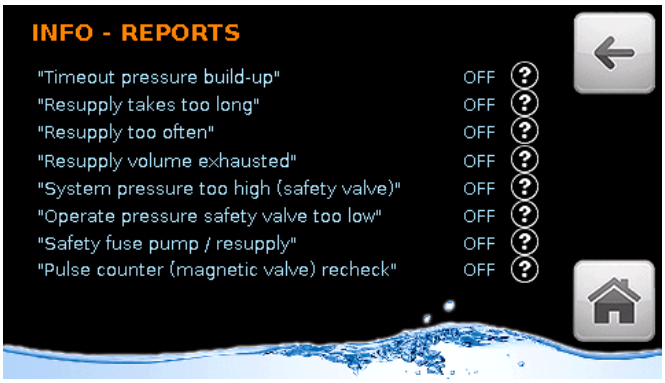
Reports / Failures OFF / ON
There are no reports / failures present or there are active reports / failures.

Navigation arrows
Via these arrows, you can scroll to the menus "Inputs", "Outputs" and "Reports / Failures".

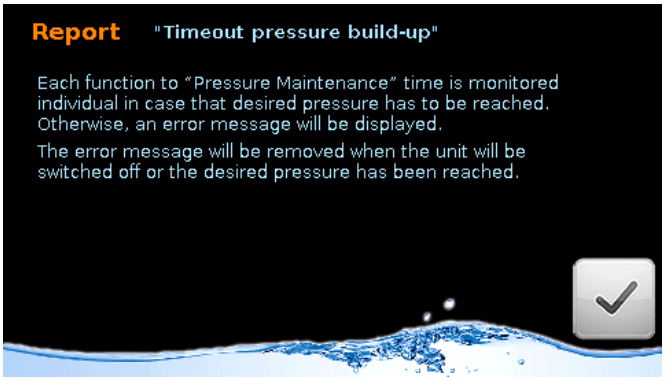
Homepage
Return to the homepage.

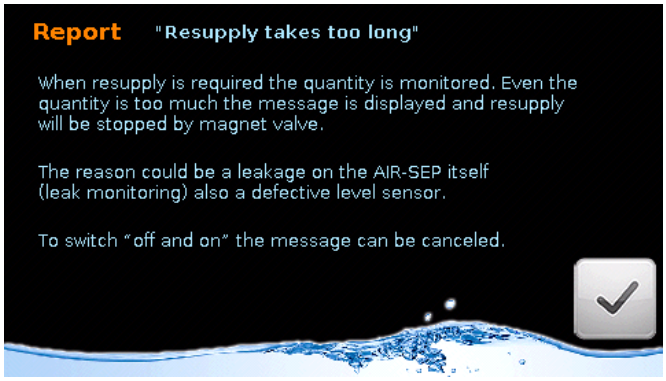
6.5.3 Menu "INFO - Reports"

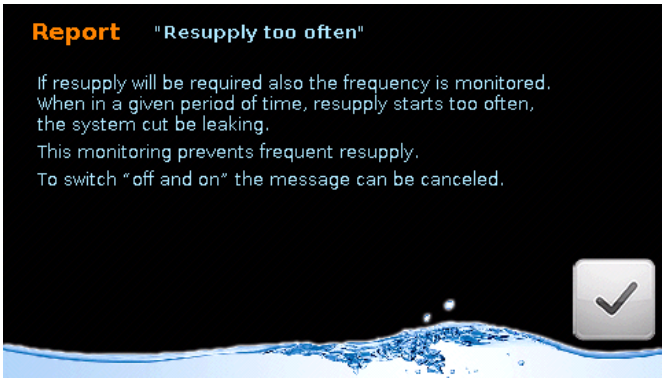
Here you see an overview of the possible reports. If a report / failure is active (ON), by tapping on the respective question mark you receive all the necessary information about it.

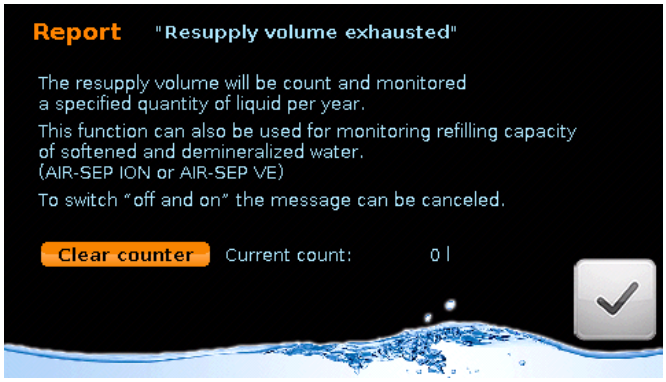


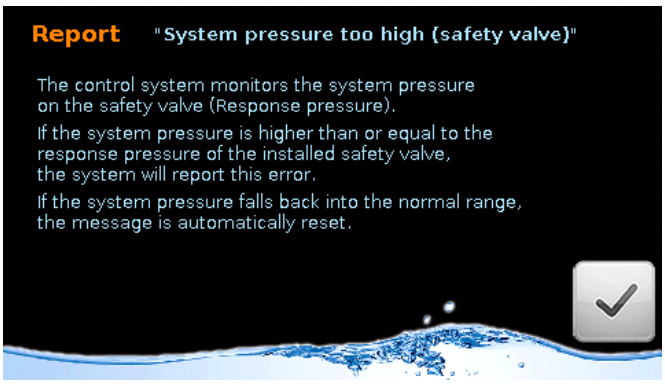
You receive detailed instructions on how you can acknowledge the fault and delete the report:

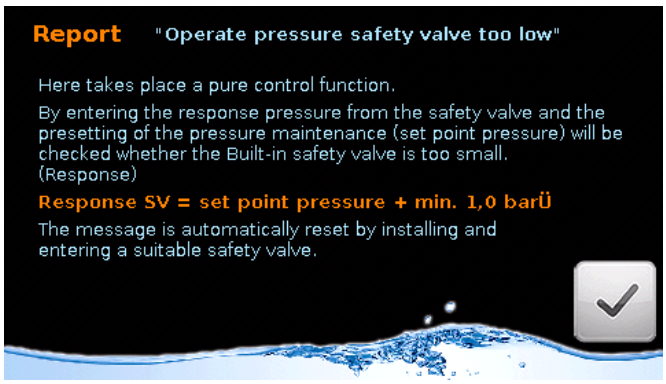


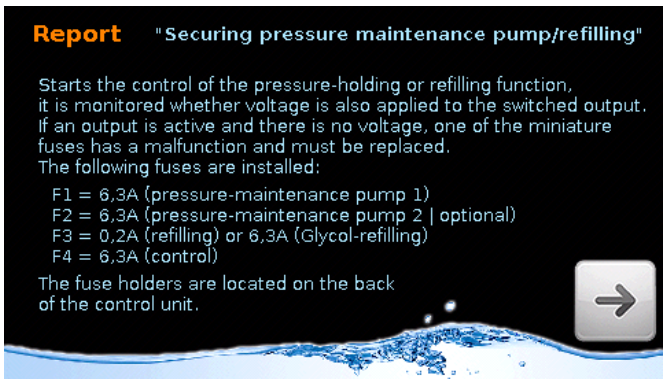


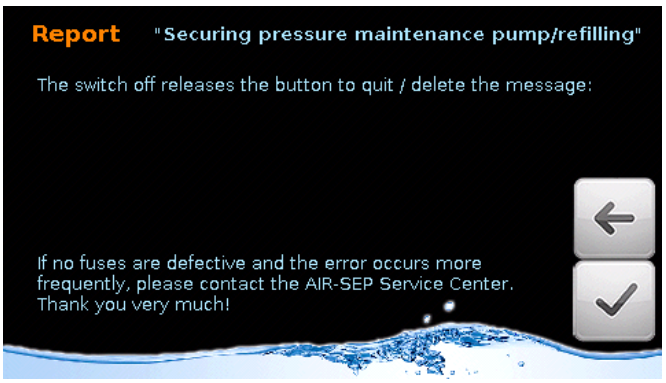


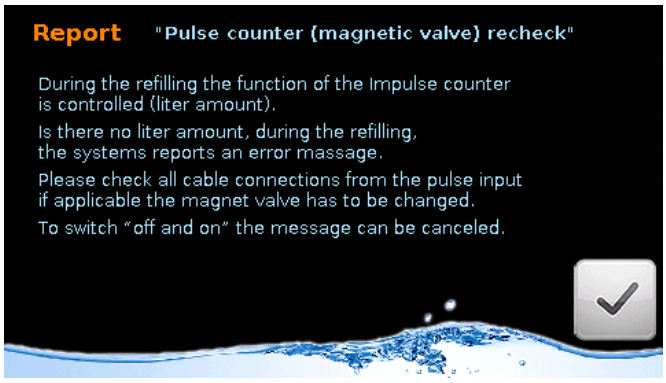






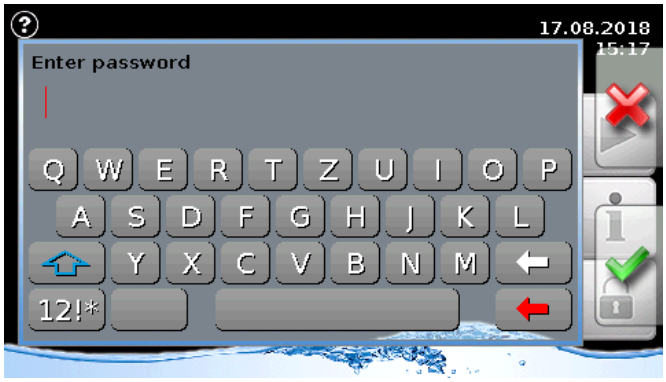






6.6 Factory Customer Service Menu "INTERNAL Settings / Parameters"

This menu is intended exclusively for the KOREX Factory Customer Service and can only be opened through the entry of a correct password.

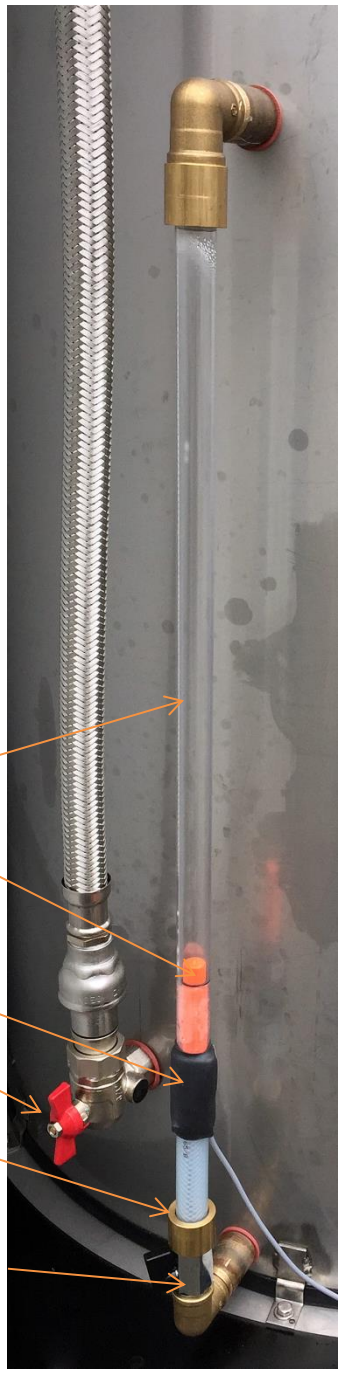


7. Component Parts

7.1 Pressure Transmitter (19)

Serves for the recording of the system pressure.

7.2 Water Gauge Glass with Level Switch (12)



A water gauge glass (12) for the monitoring of the fresh water supply.

The fill level of the water in the expansion tank can be seen in the water gauge glass (12). The float (12b) shows the fill level at the upper ring.
At the lower end of the water gauge glass (12) there is a sleeve (12a) with a reed switch. If the float is sitting at the bottom, the fresh water supply takes place. The water magnetic valve (18) opens and the pump (10) switches off (dry running protection).

The float in the water gauge glass can fall to the lower level (12b) Here the falls, which may only take place a maximum of 5 times (Type AS-T 20/48) or 4 times per hour (Type AS-T 100-2400) are counted by the electronics. The fresh water magnetic valve remains closed afterwards and the electronics send out an error message (the monitoring can be switched off, see 6.4.1 Settings).

When the resupply is completed, the water magnetic valve closes again.
After a blocked time of 5 (AS-T 20/48) or 10 seconds (from AS-T 100), the pump (10) is released again.

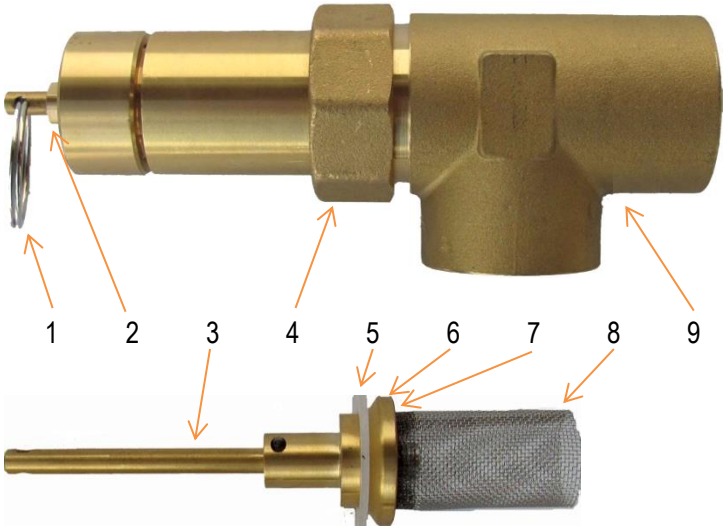
After the closing of the ball valve (12c), the water gauge glass can be cleaned or be replaced. The disassembly takes place by lifting and disengaging. This must be done with the greatest of care so that the glass is not broken. The cable and plug (12d) can be pulled out behind the casing.

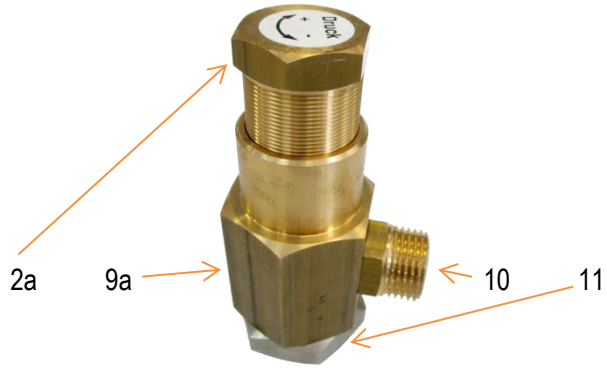
7.3 Suction Valve (16)

The suction valve (16) behind the casing must close tightly as the pump is not self-priming. With a defective or dirty valve, close all shut-offs to the heating system, close the angle ball valve (17, from AS-T 100) and replace the suction valve (16).

7.4 Overflow Valve (11)

Overflow valve complete with body, nozzle and upper section





Legend:

1 Pull ring
2 Pressure setting screw, 11mm
2a Pressure setting screw, 27mm
3 Push rod
4 Union nut
5 Sealing ring (outer)
6 Supporting disc
7 Sealing ring (inner)
8 Dirt trap
9 Overflow valve body 5/4”
9a Overflow valve body 3/4"
10 Connection for the union nut of the flexible overflow line
11 Valve seat

Adjustment of the pressure setting:

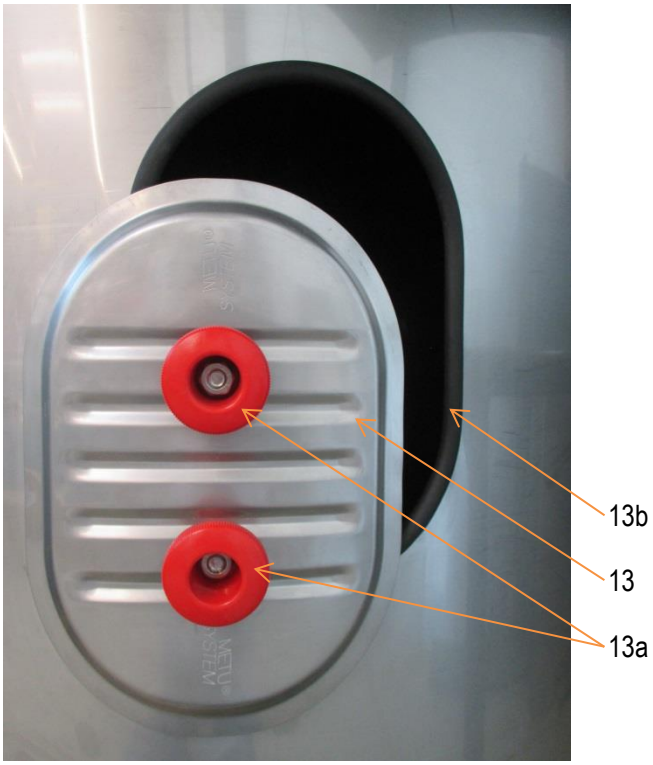
- Via the pressure adjustment screw (2 and / or 2a) (pressure +/-)
- With a running pressure maintenance pump ("ON") a higher pressure of approx. +0.5 barg occurs
- With a switched off pressure maintenance pump ("OFF") the system pressure must fall and be equal to the pressure maintenance (pressure maintenance = static height + at least 0.5 barg)

Maintenance / Cleaning:

- Close all valves to the heating system
- Switch off the AIR-SEP® at switch (9) **+++ATTENTION+++ Voltage is still present!!!**
- Briefly open the ball valve on the pressure maintenance pump (only Type AS-T 20/48)
- Open the front cover (via the 4 or 3 knurled screws)
- Fully loosen the pressure setting screw (2) (turn it clockwise)
  TIP: *Make a note of the number of turns!*
- Open the union nut (4 or 10), if necessary, use the internal Allen key (from Type AS-T 100)
- Completely pull out the overflow valve upper section or completely screw out the overflow valve body (9a). In doing so, the pressure setting screw (2a) remains in the overflow valve body (9a).
- Clean the dirt trap (8) and seals (5+7) and the internal spring with seal.
- Clean the internal nozzle and the valve seat (11) with cleaning felt.
- Reassemble in the reverse order
- With the Allen key, tighten the union nut (4) only hand-tight
- Retighten the pressure setting screw (2) (turn it anticlockwise)
- Go to the menu "Settings" (see 6.4.1)
- Open all the valves to the heating system and follow the instructions in accordance with "5.2 Commissioning"
- Pressure adjustment is possibly required (see above)
- Functional check
- Close the front cover and switch on the AIR-SEP® unit at switch (9) again.

7.5 Water Magnetic Valve with Pulse Output (18)

7.6 Cleaning Opening



For cleaning purposes, the cleaning opening cover (13) must be carefully removed by means of the star screws (13a).

The sealing profile (13b) may possibly need replacing.

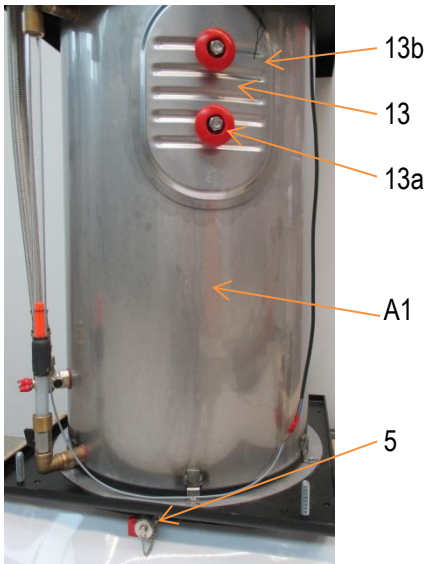
8. Fault Overview / Maintenance / Cleaning

8.1 Fault Finding:

Before starting the fault finding, without fail, the supply voltage must be switched off!

Fault	Cause
Pump (10) doesn't start.	- No or defective power supply to the motor. - Defective micro-fuse (on the back of the AIR-SEP® SmartControl controller) - Control current circuit has failed or is defective. - Motor defective. - Pump blocked by contamination.
Pump (10) runs but delivers no water.	- Air in the pump (vent the pump). - Suction or pressure line blocked. Pump blocked. - Suction line leaking. - Suction valve (16) blocked.
Pump (10) runs with reduced performance	- Suction or pressure line contaminated. - Pump contaminated. - Suction valve (16) blocked.
No pressure maintenance and / or. cycling of the pump	- Check the overflow valve (11) / suction valve (16).
Lack of water	- The shut-off valve (1a) might be closed. - The dirt trap (1b) is blocked. - The sieve in the magnetic valve (18) is blocked - The float (12b) doesn't rise.
Level switch	- The gauge glass (12) is defective and / or broken. - No float movement possible due to sediment; clean if necessary.
Air in the heating element	- Open the thermostatic valve. The venting takes place by means of the water flow only with open thermostatic valves.

8.2 Desludging of the Expansion Tank



Once per year, drain off the water in the tank (A1) by means of the ball valve (5) and through the cleaning opening behind the cladding vacuum out the salts and minerals.

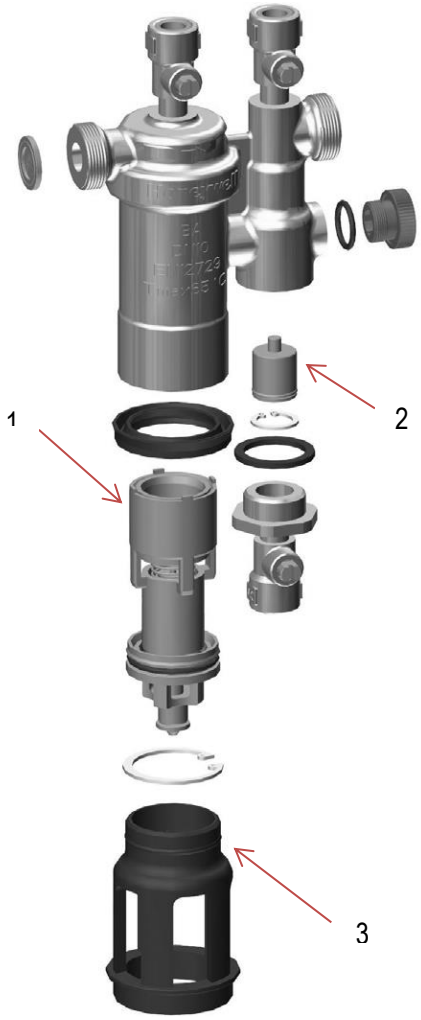
To do so, the cleaning opening cover (13) must be removed using the star screws (13a).

The sealing profile (13b) under it might possibly need to be replaced.

8.3 System Separator for Fresh Water:

Servicing

The regular servicing of the System Separator BA is obligatory.
Accordingly, service contracts between the operating company and the installer make sense. The checking of the correct and proper functioning of the valves takes place after the first year of operation, then at intervals dependent on the operating conditions, but after one year at the latest. The ball valve connections present in each pressure zone enable a functional check using an appropriate pressure measurement device (Service Case No. 6600.00.902). The design of the system separator with a cartridge system allows simple and problem-free servicing of the valves.



Function Description:

System separators of the type BA are divided in 3 pressure zones. In Zone (1) the pressure is higher than that in Zone (2) and there higher than that in Zone (3). A discharge valve is connected to Zone (2) which opens at the latest when the differential pressure between Zone (1) and (2) has fallen to 0.14 bar. Water from Zone (2) flows into the open, both non-return valves close and thereby separate Zone (2) from Zones (1) and (3). Thus, the risk of back pressure or back suction into the supply network is avoided. The pipeline is disconnected and the drinking water network is protected

No.	Description	Nominal Size
1	Cartridge insert complete	3/8”
2	Backflow preventer complete	3/8”
3	Drain connection	

Fault	Cause	Remedy
Discharge valve opens without discernible cause	Water hammer in the water network	Fit a pressure release device before the system separator
	Fluctuating inlet pressure	Fit a pressure reducer before the system separator
	Cartridge insert is dirty	Remove and clean the cartridge insert
Discharge valve doesn't close	Sediment on the valve seat	Remove and clean or replace the cartridge insert
	Damaged O-ring	Remove and replace the cartridge insert
	Leaking discharge valve	Remove and clean or replace the cartridge insert
Flow rate too low	Input-side dirt trap is blocked	Remove and clean the dirt trap

8.4 Servicing

The AIR-SEP® unit must be serviced annually. Service work must only be carried out by the contractual partner or by specialist companies trained by KOREX. We recommend the taking out of a KOREX service contract.

The work must be recorded (see 9.1, Page 31).

The EPDM and armoured hoses fitted in the unit must be replaced after 5 years at the latest.

The water magnetic valve must be replaced after 7 years at the latest.

8.5 Service Request

A service visit can be requested from KOREX Verfahrenstechnik GmbH on the telephone number +49 (0)8105-77822-10.

8.6 Cleaning the Overflow Valve

At the latest at the end of the continuous degassing period, the overflow valve together with the dirt trap must be cleaned (see 7.4, Page 26). Checking is also necessary after long periods of operation.

9 Appendices

KOREX Benelux B.V.
RAADHUISPLEIN 27A
2411 BD Bodegraven

Tel: +31 (0) 172 611 719

9.1 Commissioning and Service Records

Checks Type: _____

Manufacturer's No.: _____

1.	**Connection of the pipework**
1.1	Pressure line:
1.2	Expansion line
1.3	Fresh water line:
2.	**AIR-SEP unit**
2.1	Functional check of the components:
2.1.1	Fresh water feed:
2.1.3	Fresh water magnetic valve:
2.1.4	Pressure maintenance pump:
2.1.5	Overflow valve:
2.1.6	Fuses:
2.1.7	Programme:
2.1.8	Alarm signal:
2.1.9	Level switch:
2.1.10	Pressure transmitter check:
2.2	Functional check of the process:
2.2.1	Pressure release
2.2.2	Fresh water feed in dependence on the level switch check:
2.2.3	Pressure build-up on the pressure transmitter check (control)
2.2.4	Set value check:
2.2.5	Degassing process:
3.	**Noise and vibration:**
4.	**Screws, nuts:**
5.	**Cleaning:**
6.	**External appearance:**

7. Location and date: _____

8. Record signature: _____

9.3 Plant Logbook

Commissioning by the company: .....

.....

.....

Date of the commissioning: .....

Flushing of the heating system in accordance with EN 14336 done: ☐ Yes ☐ No

Pressure maintenance commissioned in accordance with the manufacturer's instructions:
☐ Yes ☐ No

Maximum end pressure [d] $p_{e.max}$ = ... bar(g)

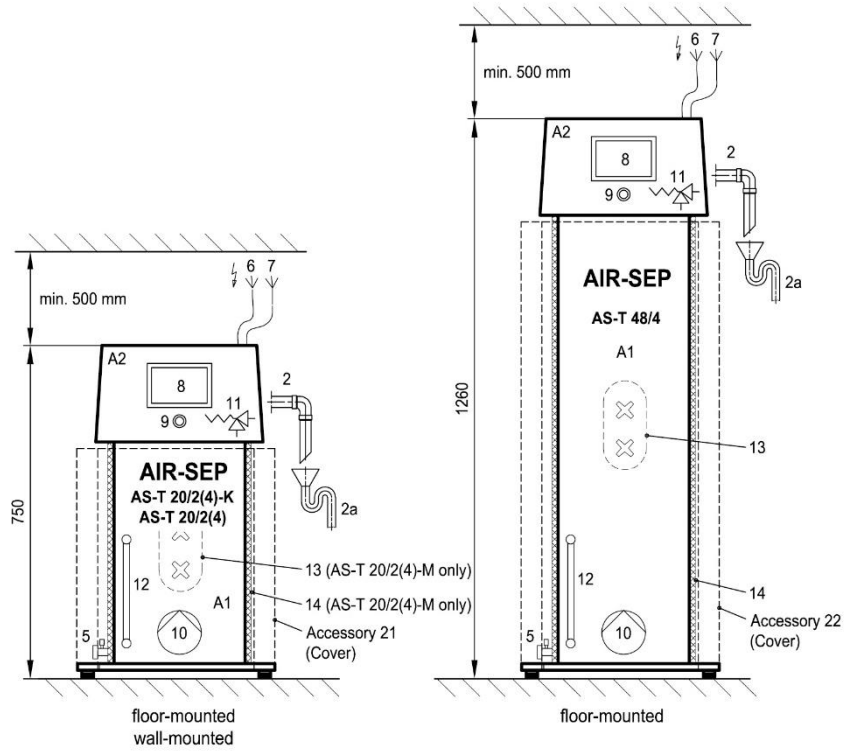
- With pump pressure maintenance System set pressure [d] p_{set} = ... bar(g)

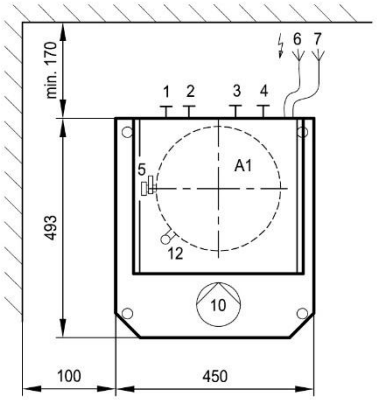
Meter reading water meter fill and resupply water before the initial filling: Z = ... m^3

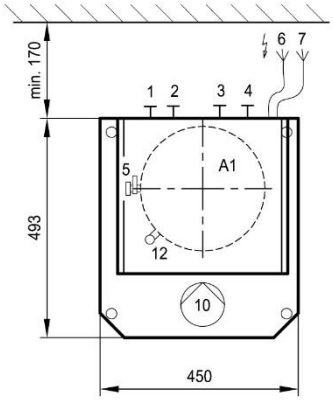
Date	Meter reading Z_{new} in m^3	Water volume $V=Z_{new}-Z$ in m^3	Sum of alkaline earths or total hardness in mol/m^3 or °d	pH level	Conductance in µS/cm	System Pressure p_{sys} in bar	Additive 1	Additive 2	Comments	Signature
Guide values	-	a)	b)	8.2 to 10.0 c)	< 1500	d)	e)	e)	-	-
Commissioned on:										

a) From no. 7
b) In accordance with VDI 2035 Sheet 1
c) With systems with aluminium or aluminium alloys 8.2 to 8.5 (9.0)
d) To be determined by the designer, for example, in accordance with VDI 4708 Sheet 1 (>Pa.min<Pe.max)
e) To be filled in by the designer

9.4.1 Dimension and Connection Diagram, Types AS-T 20 and AS-T 48, Page 1 of 2

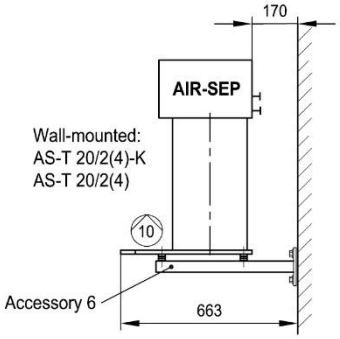






Application type:	AS-T 20/2(4)-K	AS-T 20/2(4)	AS-T 48/4
Max. return temperature [°C]	70°	100°	100°
Vessel made of	plastics	metal (SS)	metal (SS)
Connected load	230V/50 Hz	230V/50 Hz	230V/50 Hz
Pressure setting [barg]	1,6 (3,0)	1,6 (3,0)	3,0
Static height [mWs]	11 (25)	11 (25)	25
Weight [kg]	34	34	38

Legend: K = plastics



AIR-SEP type AS-T 20/2(4)-K AS-T 20/2(4) AS-T 48/4

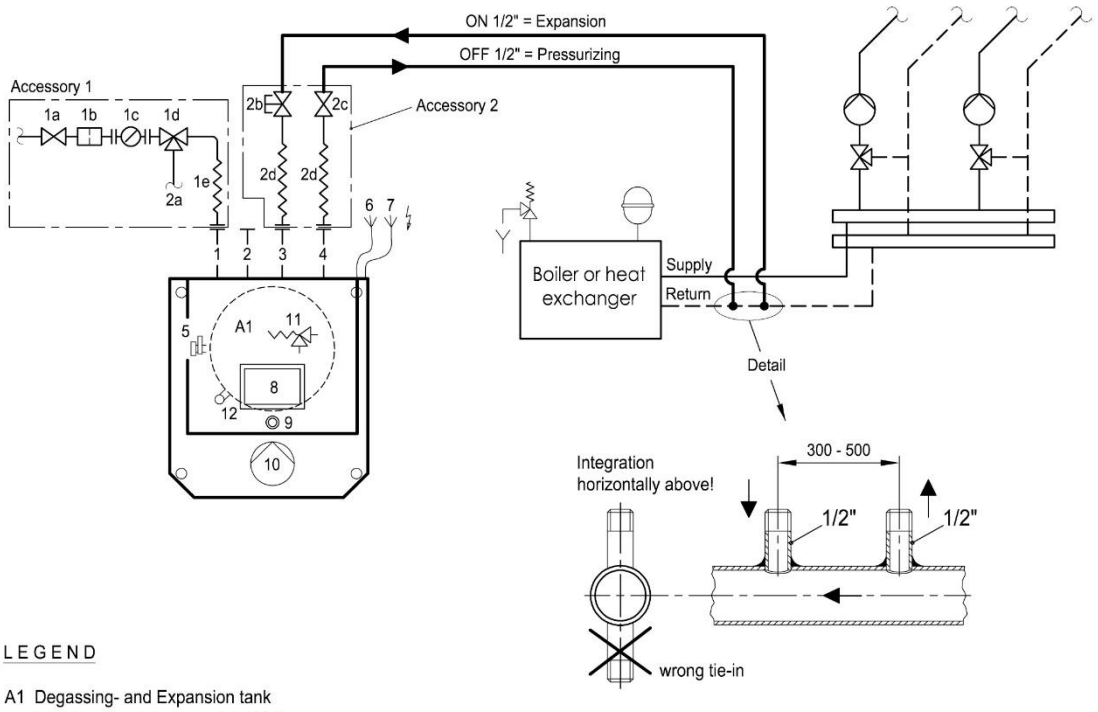
PRESSURE MAINTENANCE, EXPANSION, DEGASSING and RESUPPLY

Dimension and Connection Diagram
Dimension subject to change

1049.07.2017 K

9.4.1 Dimension and Connection Diagram, Types AS-T 20 and AS-T 48, Page 2 of 2

Integration :



LEGEND

A1 Degassing- and Expansion tank (plastics or stainless steel 1.4301)
A2 Valve control range (technique level)

1 Fresh water connection with magnetic valve ¾"
2 Safety overflow DN50
2a System separator, on site
3 OFF ½" = pressurizing
4 ON ½" = expansion
5 Drain ¾"
6 Power supply 230 VAC/50Hz (3-core for junction box, 10A fuse)
7 Potential-free collective alarm (max. 230 VAC, 3A)
8 AIR-SEP SmartControl (control unit)
9 Switch ON / OFF
10 Centrifugal pump (pressurizing)
11 Overflow valve
12 Watergauge glass with levelswitch (replaceable)
13 Cleaning hole (Accessory 4)
14 Insulation

AIR-SEP Accessory 1 - Connection fresh water

1a Shut-off valve ½"
1b Dirt trap ½"
1c Water meter
1d Protect valve RPZ type BA
1e Flex. hose 1,0 m ½"

AIR-SEP Accessory 2 - Connection system DN25

2b Protect shut-off valve ½"
2c Shut-off valve ½"
2d Flex. hose 1,0 m ½" (2x)

AIR-SEP Accessory 4 - Cleaning hole

13 Cleaning hole

AIR-SEP Accessory 6 - For Wallmounting

- 2 pcs. cantilever
- 4 pcs. rubber metal buffer with fastening screws

AIR-SEP Accessory 21 - Sheathing

Sheathing of powder-coated steel plate for AS-T 20/2-K and AS-T 20/2-M

AIR-SEP Accessory 22 - Verkleidung

Sheathing of powder-coated steel plate for AS-T 48/4-M

KOREX

AIR-SEP type AS-T 20/2(4)-K AS-T 20/2(4) AS-T 48/4

PRESSURE MAINTENANCE, EXPANSION, DEGASSING and RESUPPLY

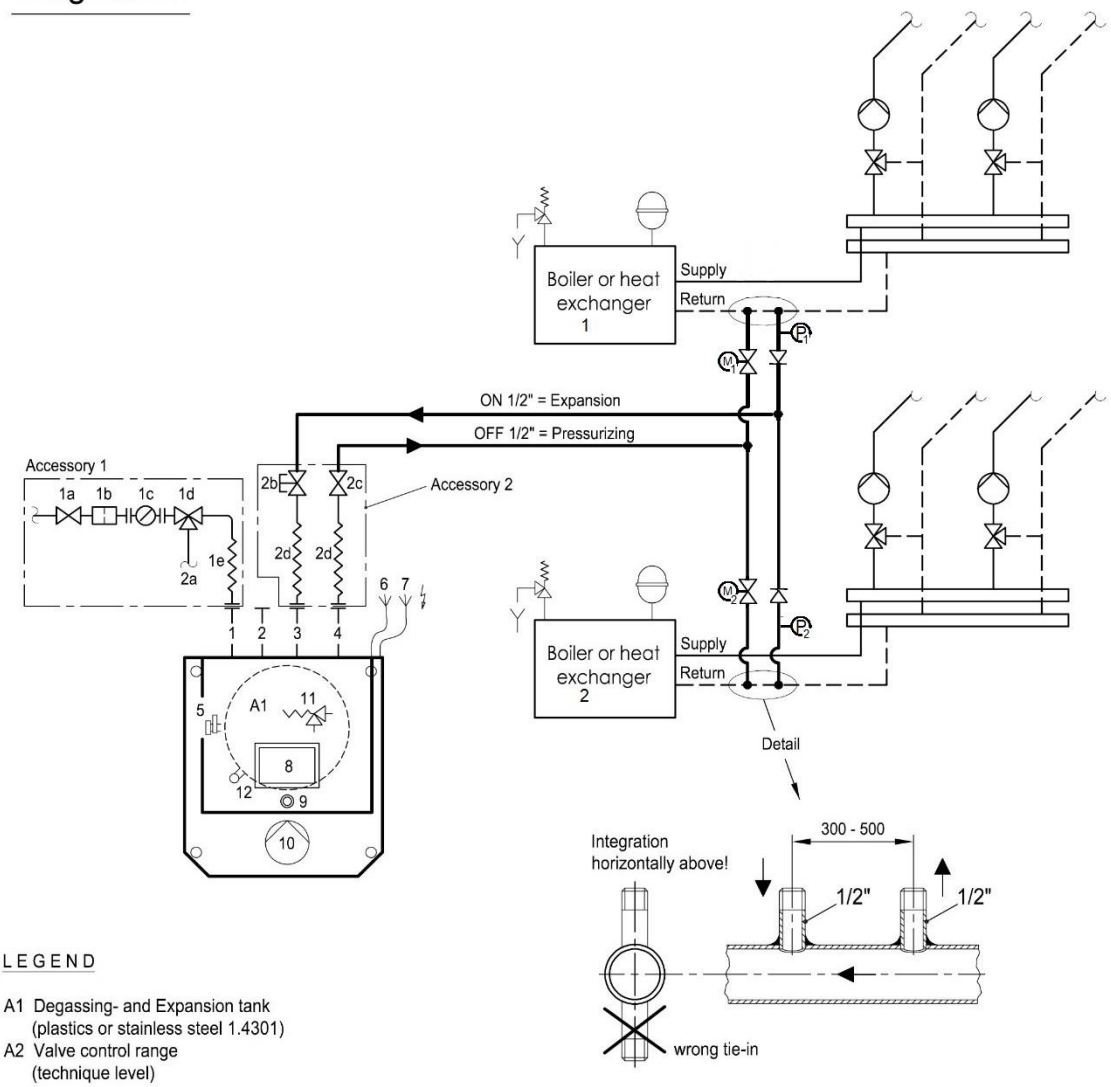
Dimension and Connection Diagram
Dimension subject to change

1049.07.2017 K

AIR-SEP

9.4.2 Connection Diagram for 2 Sources, Types AS-T 20 and AS-T 48,

Integration :



LEGEND

A1 Degassing- and Expansion tank (plastics or stainless steel 1.4301)
A2 Valve control range (technique level)

1 Fresh water connection with magnetic valve ¾"
2 Safety overflow DN50
2a System separator, on site
3 OFF ½" = pressurizing
4 ON ½" = expansion
5 Drain ¾"
6 Power supply 230 VAC/50Hz (3-core for junction box, 10A fuse)
7 Potential-free collective alarm (max. 230 VAC, 3A)
8 AIR-SEP SmartControl (control unit)
9 Switch ON / OFF
10 Centrifugal pump (pressurizing)
11 Overflow valve
12 Watergauge glass with levelswitch (replaceable)
13 Cleaning hole (Accessory 4)
14 Insulation

AIR-SEP Accessory 1 - Connection fresh water

1a Shut-off valve ½"
1b Dirt trap ½"
1c Water meter
1d Protect valve RPZ type BA
1e Flex. hose 1,0 m ½"

AIR-SEP Accessory 2 - Connection system DN25

2b Protect shut-off valve ½"
2c Shut-off valve ½"
2d Flex. hose 1,0 m ½" (2x)

AIR-SEP Accessory 4 - Cleaning hole

13 Cleaning hole

AIR-SEP Accessory 6 - For Wallmounting

- 2 pcs. cantilever
- 4 pcs. rubber metal buffer with fastening screws

AIR-SEP Accessory 21 - Sheathing

Sheathing of powder-coated steel plate for AS-T 20/2-K and AS-T 20/2-M

AIR-SEP Accessory 22 - Verkleidung

Sheathing of powder-coated steel plate for AS-T 48/4-M

AIR-SEP Heating & Cooling
P1 & P2 Pressure sensor
M1 & M2 Ball Valve
Back valve

KOREX

AIR-SEP type AS-T 20/2(4)-K AS-T 20/2(4) AS-T 48/4

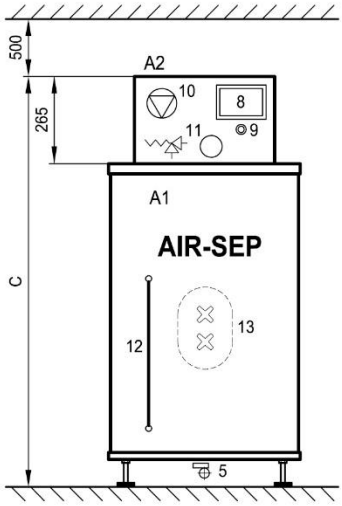
PRESSURE MAINTENANCE, EXPANSION, DEGASSING and RESUPPLY

Dimension and Connection Diagram
Dimension subject to change

1049.07.2017 K

AIR-SEP

9.4.2 Dimensions and Connections Diagram, Types AS-T 100 to AS-T 2400



Legend

A1 Degassing- and Expansion tank (stainless steel 1.4301)

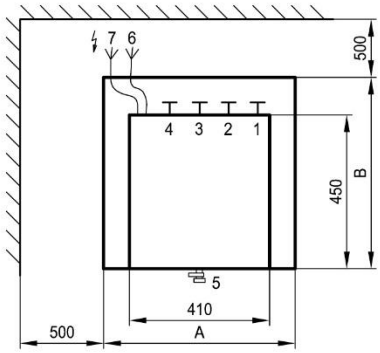
A2 Valve control range (technique level)

1 Fresh water connection with magnetic valve 3/4"
2 Safety overflow DN50 (drain like press.-relief valve)
2a System separator, on site
3 OFF 1" = pressurizing
4 ON 1" = expansion
5 Drain ¾"
6 Power supply 230VAC / 50Hz (3-core for junction box, 10A fuse)
7 Potential-free collective alarm (max. 230VAC, 3A)
8 AIR-SEP SmartControl (control unit)
9 Switch ON / OFF
10 Centrifugal pump (pressurizing)
11 Overflow valve
12 Watergauge glass with levelswitch (replaceable)
13 Cleaning hole (Accessory 4)

AIR-SEP Accessory 1 - Connection fresh water
1a Shut-off valve ½"
1b Dirt trap ½"
1c Water meter
1d Protect valve RPZ type BA
1e Flex. hose 1,0 m ½"

AIR-SEP Accessory 3 - Connection system DN 25
3a Protectet shut-off valve 1"
3b Shut-off valve 1"
3c Flex. hose 1,0 m 1" (2x)

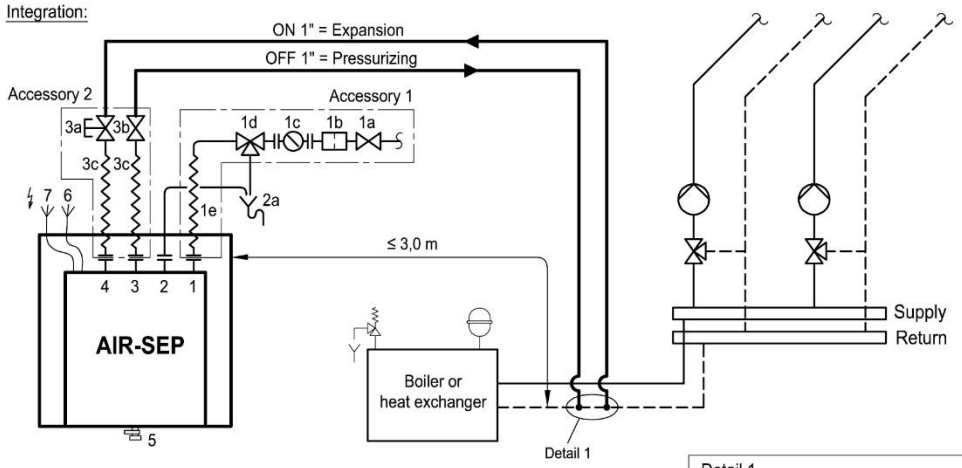
AIR-SEP Accessory 4 - Cleaning hole
13 Cleaning hole

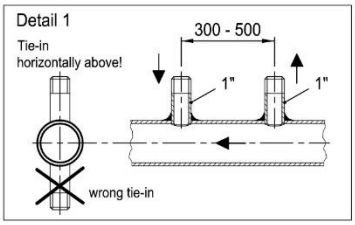


Sizes and weights

Type AS-T	Width A [mm]	Depth B [mm]	Height C [mm]	Weight [kg]
100/4 (6/8)	560	560	1170	65
150/4 (6/8)	560	560	1460	77
200/4 (6/8)	560	560	1760	86
400/4 (6/8)	790	790	1570	95
600/4 (6/8)	1020	1020	1450	106
1200/4 (6/8)	1020	1020	1880	131
1600/4 (6/8)	1020	1020	2380	180
2400/4 (6/8)	1350	1350	2400	330

Integration:





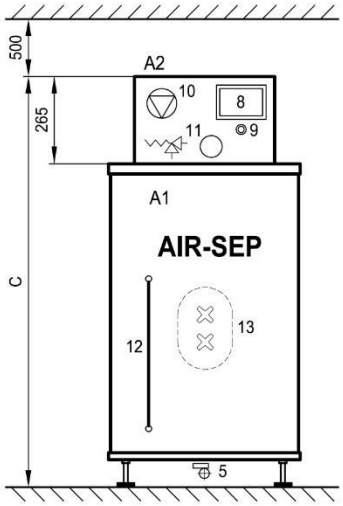
The illustrations are not to scale!

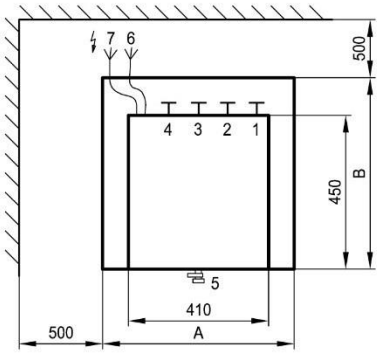
AIR-SEP type:
AS-T 100/4 150/4 200/4 400/4 600/4 1200/4 1600/4 2400/4 (..6/8)
PRESSURE MAINTENANCE, EXPANSION, DEGASSING and RESUPPLY

Dimension and Connection Diagram (for systems up to 100°)
Dimension subject to change

1050.07.2017 K

9.4.3 Connections Diagram for 2 Sources, Types AS-T 100 to AS-T 2400





Legend

A1 Degassing- and Expansion tank (stainless steel 1.4301)

A2 Valve control range (technique level)

1 Fresh water connection with magnetic valve 3/4"
2 Safety overflow DN50 (drain like press.-relief valve)
2a System separator, on site
3 OFF 1" = pressurizing
4 ON 1" = expansion
5 Drain ¾"
6 Power supply 230VAC / 50Hz (3-core for junction box, 10A fuse)
7 Potential-free collective alarm (max. 230VAC, 3A)
8 AIR-SEP SmartControl (control unit)
9 Switch ON / OFF
10 Centrifugal pump (pressurizing)
11 Overflow valve
12 Watergauge glass with levelswitch (replaceable)
13 Cleaning hole (Accessory 4)

AIR-SEP Accessory 1 - Connection fresh water
1a Shut-off valve ½"
1b Dirt trap ½"
1c Water meter
1d Protect valve RPZ type BA
1e Flex. hose 1,0 m ½"

AIR-SEP Accessory 3 - Connection system DN 25
3a Protectet shut-off valve 1"
3b Shut-off valve 1"
3c Flex. hose 1,0 m 1" (2x)

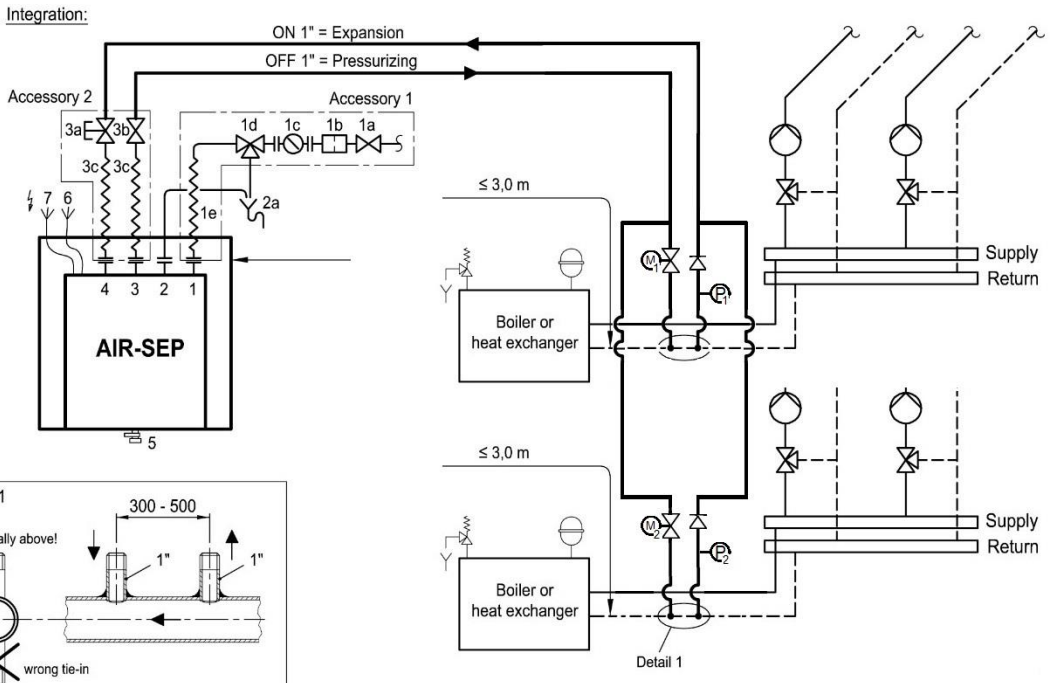
AIR-SEP Accessory 4 - Cleaning hole
13 Cleaning hole

AIR-SEP Heating & Cooling
P1 & P2 Pressure sensor
M1 & M2 Ball Valve
Back valve

Sizes and weights

Type AS-T	Width A [mm]	Depth B [mm]	Height C [mm]	Weight [kg]
100/4 (6/8)	560	560	1170	65
150/4 (6/8)	560	560	1460	77
200/4 (6/8)	560	560	1760	86
400/4 (6/8)	790	790	1570	95
600/4 (6/8)	1020	1020	1450	106
1200/4 (6/8)	1020	1020	1880	131
1600/4 (6/8)	1020	1020	2380	180
2400/4 (6/8)	1350	1350	2400	330

Integration:



The illustrations are not to scale!

AIR-SEP type: 2 Sources

AS-T 100/4 150/4 200/4 400/4 600/4 1200/4 1600/4 2400/4 (..6/8)

PRESSURE MAINTENANCE, EXPANSION, DEGASSING and RESUPPLY

Dimension and Connection Diagram (for systems up to 100°)
Dimension subject to change

1050.07.2017 K

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