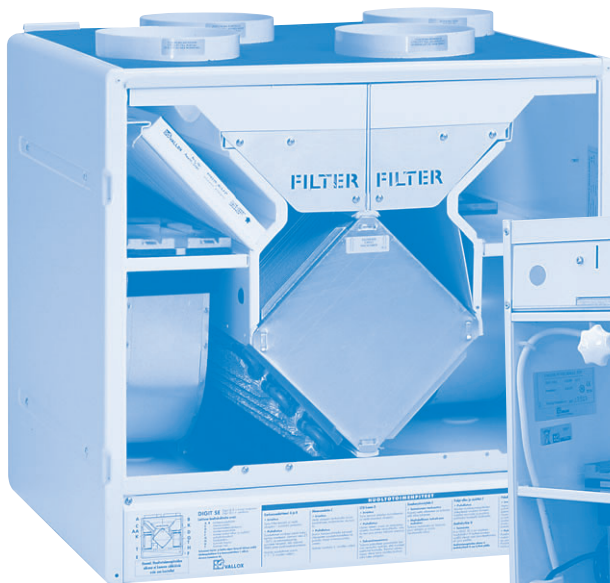


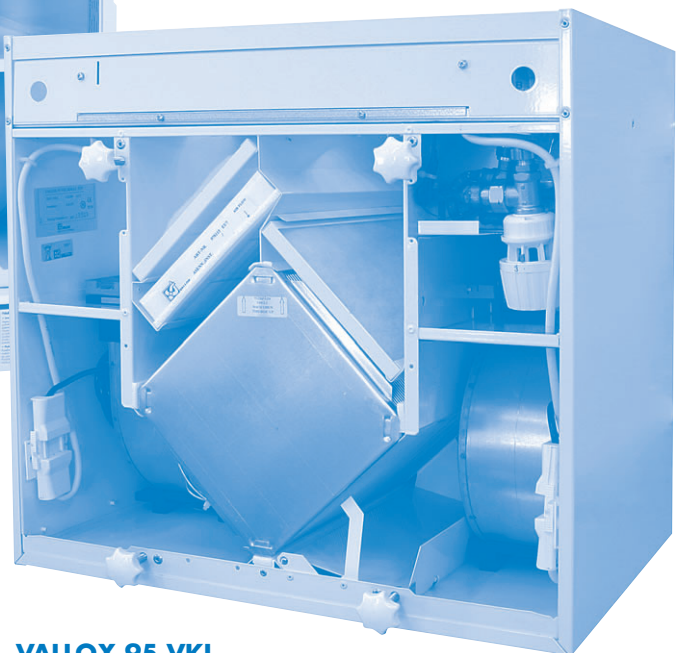


VKL CONNECTIONS

• 1.09.100E
• 5.8.2008
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VALLOX Digit SE VKL



VALLOX 95 VKL

TECHNICAL SPECIFICATION

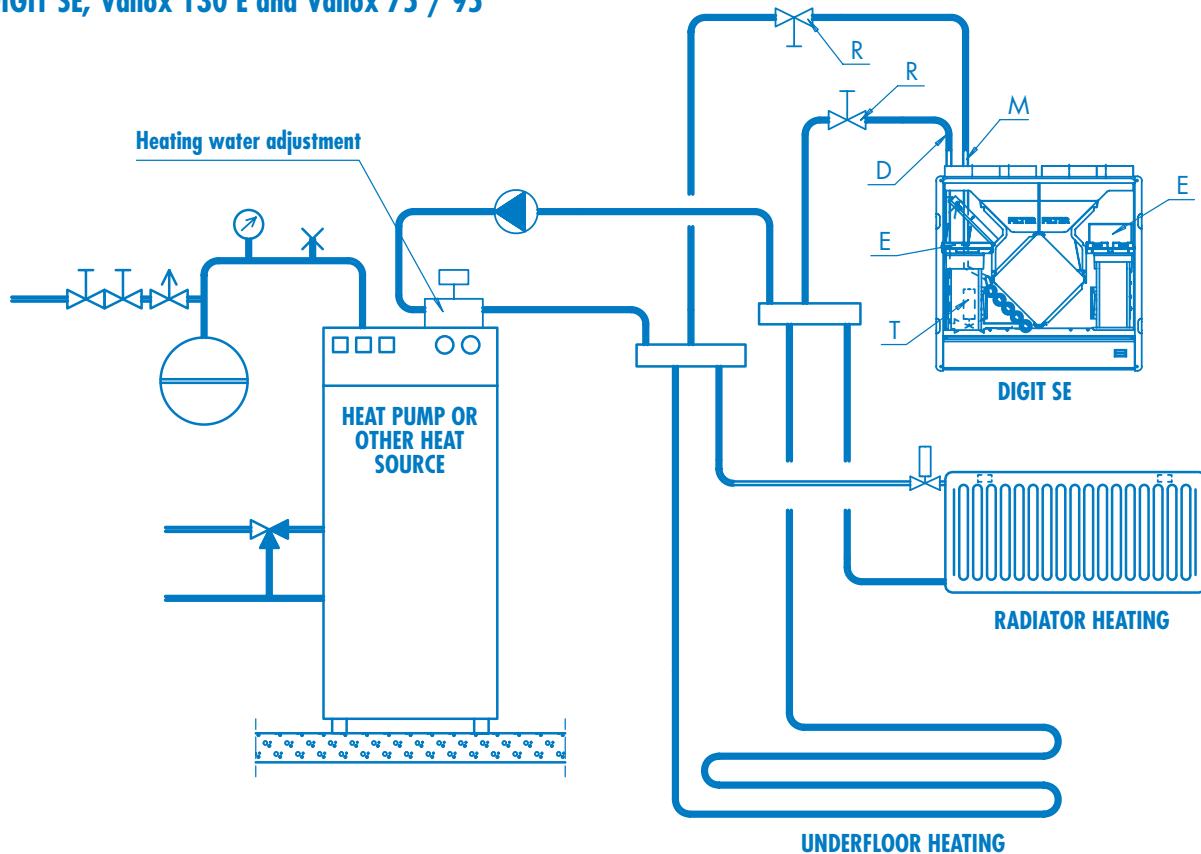
Connections of liquid-circulating post-heating radiator to VALLOX ventilation units:

**VALLOX DIGIT SE VKL / VALLOX 130 E VKL /
VALLOX 75 VKL / VALLOX 95 VKL**

DIRECT CONNECTION

DIRECT CONNECTION TO UNDERFLOOR HEATING OR RADIATOR NETWORK

Units: DIGIT SE, Vallox 130 E and Vallox 75 / 95



Direct connection to underfloor heating and/or radiator heating network

DIGIT SE, Vallox 130 E and Vallox 75 / 95 units can be connected directly to the heating network.

The connection creates a risk of freezing but efforts have been made to minimise the risk with several antifreezing measures.

- DIGIT SE, Vallox 130 E and Vallox 75 / 95 units come standard with several functions protecting against freezing.
 1. The unit stops if supply air temperature goes below the set temperature and automatically starts as soon as temperature rises.
 2. When the unit stops, the self-actuated dampers (E) installed in the fans close.
 3. The electric valve (T) in DIGIT SE opens when the unit becomes dead. The self-actuated valve in Vallox 75 / 95 opens when supply air temperature falls below +12 °C. Vallox 130 E has no adjustment valve as a standard feature.
 4. DIGIT SE issues an alarm of freezing risk at the controller.
- The temperature of heating water shall be adjusted according to the temperature of outdoor air.
- No water must be led into the radiator of the unit until the system has been adjusted for operation and heating is on in the heating network or other measures have been taken to ensure that the radiator will not freeze.
- Water circulation in the heating network connected to the unit and the circulation pump must not be stopped during the heating season.
- The base volume of water flow into the radiator of the unit can be adjusted with valves (R), which can also act as stop valves (not included in the delivery).
- The radiator has Ø12 mm plastic pipes (M) coated with an oxygen diffusion barrier.
- Connection pipes (D), plastic or copper, rated inner diameter 10...13 mm.

NOTE! When using a plastic pipe pay attention to the temperature stability of the pipe.



Digit SE minimum supply air temperature during heating period in underfloor heating connection

Water temperature °C	Water flow dm ³ /s	Supply air temperature °C (and radiator power kW) at different air flow rates					
		35 dm ³ /s	(kW)	60 dm ³ /s	(kW)	80 dm ³ /s	(kW)
25	0.03	19	(0.3)	18	(0.45)	17.5	(0.5)
25	0.05	19.5	(0.35)	18	(0.45)	18	(0.6)
30	0.03	21	(0.4)	19	(0.5)	19	(0.7)
30	0.05	21	(0.4)	20	(0.6)	19	(0.7)
35	0.03	23	(0.45)	21.5	(0.65)	20	(0.8)
35	0.05	23.5	(0.5)	22	(0.7)	20	(0.8)

Vallox 75 / 95 minimum supply air temperature during heating period in underfloor heating connection

Water temperature °C	Water flow dm ³ /s	Supply air temperature °C (and radiator power kW) at different air flow rates					
		20 dm ³ /s	(kW)	30 dm ³ /s	(kW)	50 dm ³ /s	(kW)
25	0.03	21	(0.2)	20	(0.3)	18	(0.35)
25	0.05	22	(0.25)	21	(0.35)	19	(0.4)
35	0.03	28	(0.4)	26	(0.5)	23	(0.65)
35	0.05	29	(0.4)	27	(0.55)	24	(0.7)

The adjustment valve in Vallox 75 / 95 keeps maximum supply air temperature at circa 21°C.

Calculation of the energy consumption of post-heating radiator in Vallox 95 during the heating season at different supply air temperatures and air flows.

VALLOX 95 JYVÄSKYLÄ /test year 1979 energy calculation		Heating radiator power 500 W Energy consumption of supply air heating radiator during the heating season, kWh (heat recovery freezing protection included) (outdoor air temperature 12 °C as heating threshold)						
Adjustment position	Extract air flow dm ³ /s	Supply air temperature setpoint						
		10°C	12°C	14°C	16°C	18°C	20°C	22°C
7	87	292	665	1320	2060	2707	3098	3302
6	79	229	562	1185	1929	2621	3057	3278
5	71	154	430	969	1700	2425	2966	3231
4	61	73	280	701	1336	2071	2717	3102
3	53	37	197	538	1082	1741	2429	2932
2	37	1	49	230	578	1018	1518	2020
1	26	0	0	43	246	539	887	1239

NON-FREEZING CONNECTION

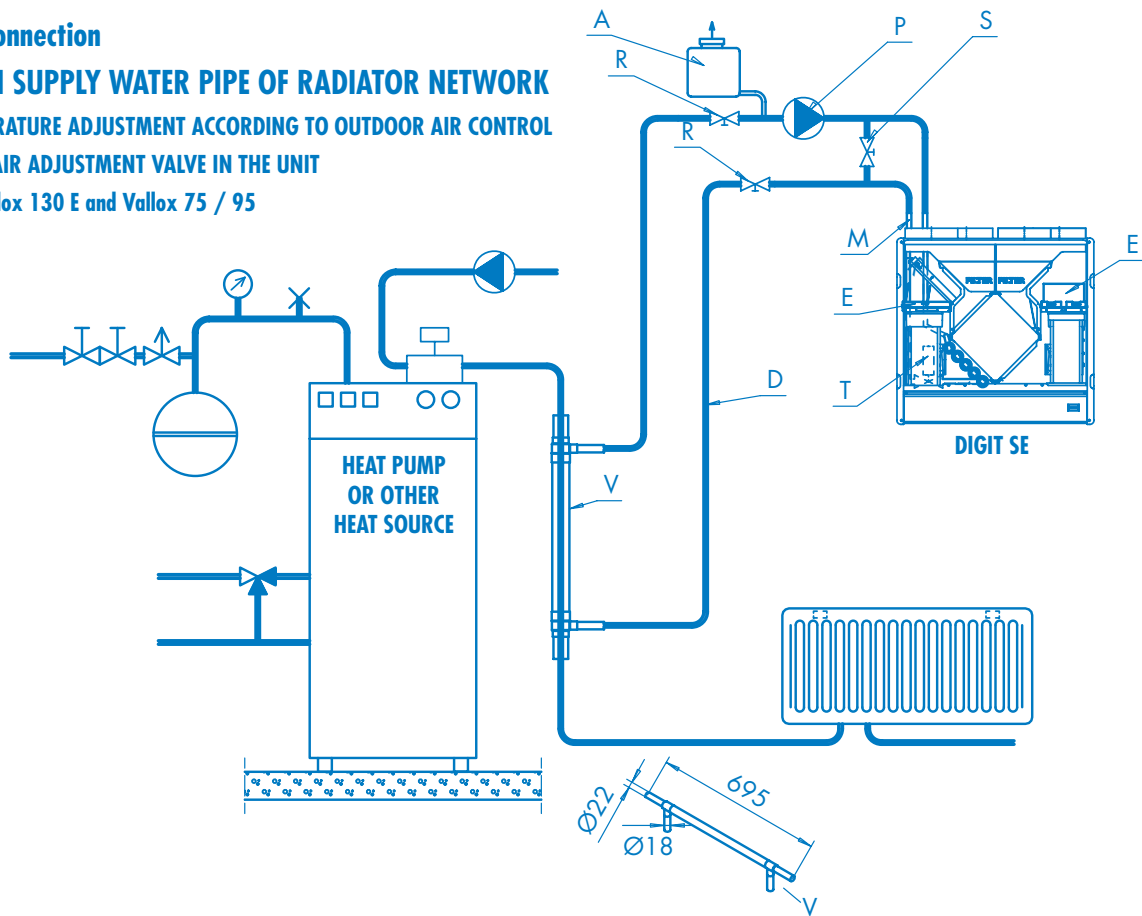
Non-freezing connection

EXCHANGER IN SUPPLY WATER PIPE OF RADIATOR NETWORK

SUPPLY AIR TEMPERATURE ADJUSTMENT ACCORDING TO OUTDOOR AIR CONTROL

SEPARATE SUPPLY AIR ADJUSTMENT VALVE IN THE UNIT

Units: DIGIT SE, Vallox 130 E and Vallox 75 / 95



Non-freezing connection of post-heating radiator. Patent No. 82547

You need no other antifreeze protection if you choose a non-freezing heat transfer solution, either a 15...30% water-glycol mixture used in cars or a less toxic alternative.

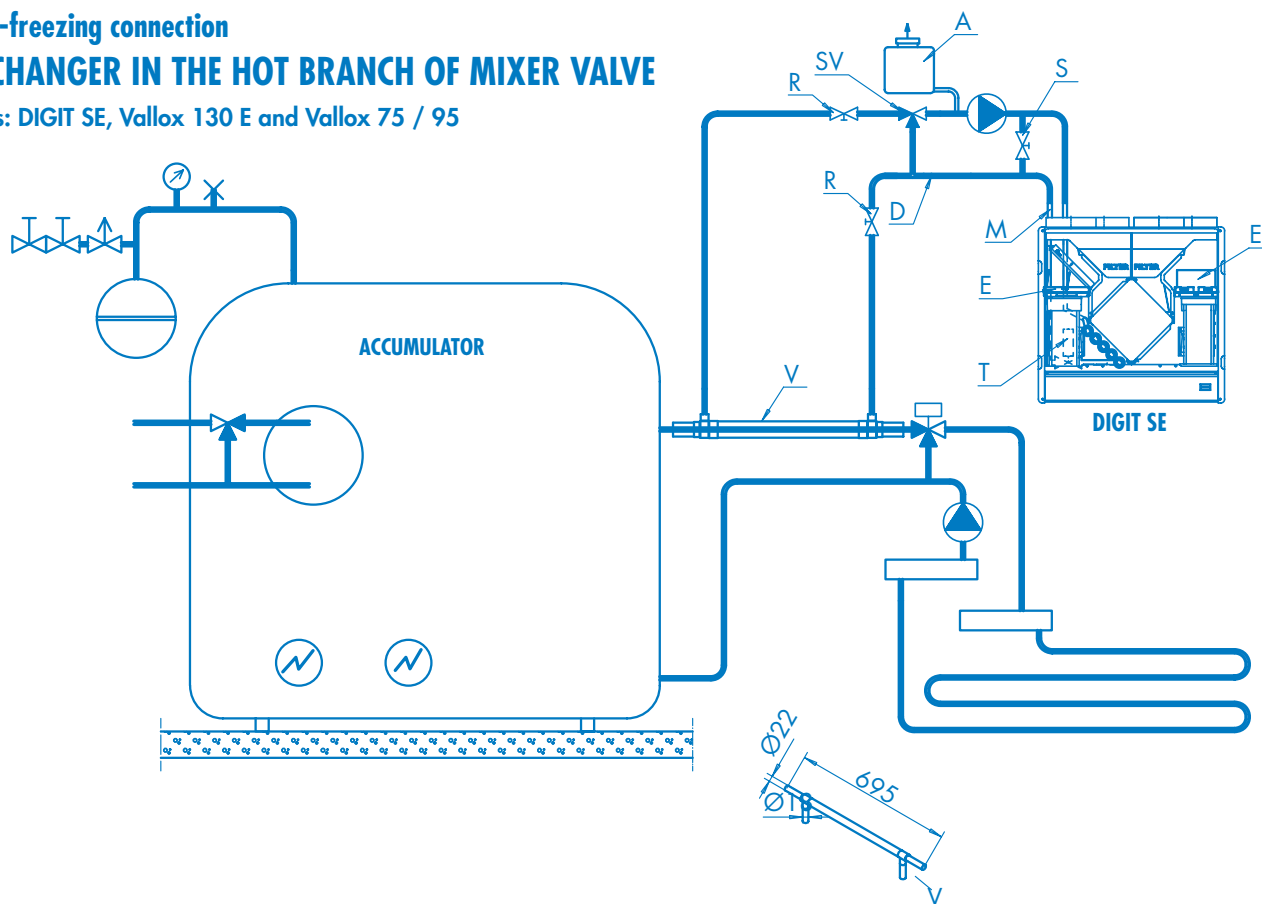
- In the connection shown in the example exchanger V is connected to the supply pipe of the radiator network.
- The unit delivery does not include piping parts with the exception of exchanger V, which is included in the DIGIT SE and Vallox 130 E deliveries. The Vallox 75 / 95 delivery does not include an exchanger.
- Supply air temperature mainly adjusts according to the temperature of supply water. If needed, air temperature can also be adjusted with valve T.
- Valve T is not included in the Vallox 130 E unit delivery.
- Valve T requires bypass S.
- When the unit stops, the self-actuated dampers (E) installed in the fans close.
- Pump P is a standard heat pipe pump. Pump power is 0.05...0.1 l/s and pressure 5...20 kPa.
- Open expansion tank A circa 2.5 litres. Installed on the suction side of the pump.
- Stop valves R are also installed in the pipe system.
- The radiator has Ø12 mm plastic pipes M coated with an oxygen diffusion barrier.
- Connection pipes D, made of plastic or copper, with a rated inner diameter of 10...13 mm.

NOTE!

- **Automatic deaerators must not be installed in the water-glycol circuit.**
- **When using a plastic pipe pay attention to the temperature stability of the plastic pipe.**

Non-freezing connection EXCHANGER IN THE HOT BRANCH OF MIXER VALVE

Units: DIGIT SE, Vallox 130 E and Vallox 75 / 95



Non-freezing connection of post-heating radiator. Patent No. 82547

You need no other antifreeze protection if you choose a non-freezing heat transfer solution, either a 15...30% water-glycol mixture used in cars or a less toxic alternative.

- In the example connection heat exchanger V has been installed in the hot branch of the mixer valve of the heating network.
- The unit delivery does not include piping parts with the exception of exchanger V, which is included in the DIGIT SE and Vallox 130 E deliveries. The Vallox 75 / 95 delivery does not include an exchanger.
- Supply air temperature mainly adjusts according to the temperature of supply water, controlled with a three-pass valve SV. If needed, air temperature can also be adjusted and restricted with valve T.
- Valve T is not included in the Vallox 130 E unit delivery.
- Valve T requires bypass S.
- When the unit stops, the self-actuated dampers (E) installed in the fans close.
- Pump P is an ordinary heat pipe pump. Pump power is 0.05 l/s and pressure 5...20 kPa.
- Open expansion tank A circa 2.5 litres. Installed on the suction side of the pump.
- Stop valves R are also installed in the pipe system.
- The radiator has Ø12 mm plastic pipes M coated with an oxygen diffusion barrier.
- Connection pipes D, made of plastic or copper, with a rated inner diameter of 10...13 mm.

NOTE!

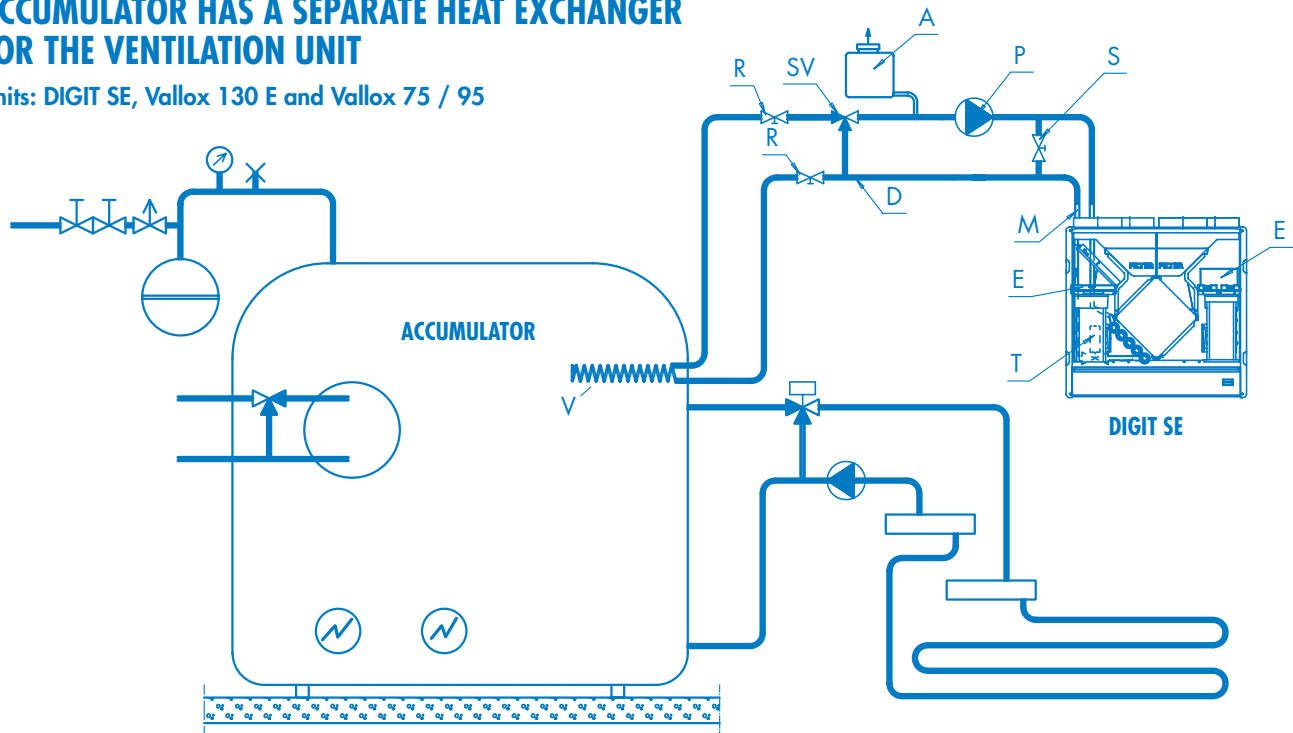
- **Automatic deaerators must not be installed in the water-glycol circuit.**
- **When using a plastic pipe pay attention to the temperature stability of the plastic pipe.**

NON-FREEZING CONNECTION

Non-freezing connection

ACCUMULATOR HAS A SEPARATE HEAT EXCHANGER FOR THE VENTILATION UNIT

Units: DIGIT SE, Vallox 130 E and Vallox 75 / 95



Water radiator connection with adjustment valve connected to the heat exchanger of accumulator

Non-freezing connection of post-heating radiator.

You need no other antifreeze protection if you choose a non-freezing heat transfer solution, either a 15...30% water-glycol mixture used in cars or a less toxic alternative.

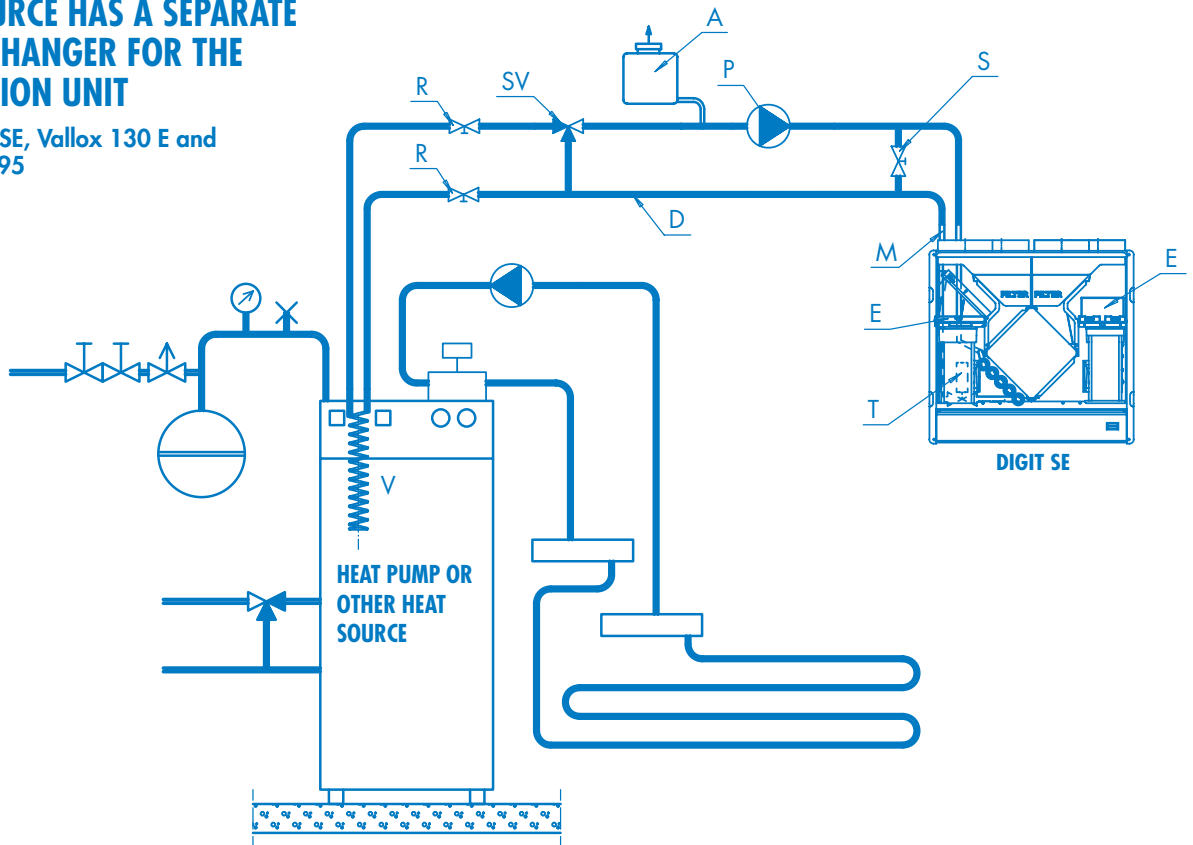
- In the example connection heat exchanger V has been installed in the water tank of the accumulator.
- Exchanger V is included as an option in the accumulator delivery.
- The unit delivery does not include piping parts.
- Supply air temperature mainly adjusts according to the temperature of supply water, controlled with a three-pass valve SV. If needed, air temperature can also be adjusted and restricted with valve T.
- Valve T is not included in the Vallox 130 E unit delivery.
- Valve T requires bypass S.
- When the unit stops, the self-actuated dampers (E) installed in the fans close.
- Pump P is an ordinary heat pipe pump. Pump power is 0.05... 0.1 l/s and pressure 5...20 kPa.
- Open expansion tank A circa 2.5 litres. Installed on the suction side of the pump.
- Stop valves R are also installed in the pipe system.
- The radiator has Ø12 mm plastic pipes M coated with an oxygen diffusion barrier.
- Connection pipes D, made of plastic or copper, with a rated inner diameter of 10...13 mm.

NOTE!

- **Automatic deaerators must not be installed in the water-glycol circuit.**
- **When using a plastic pipe pay attention to the temperature stability of the pipe.**

Non-freezing connection HEAT SOURCE HAS A SEPARATE HEAT EXCHANGER FOR THE VENTILATION UNIT

Units: DIGIT SE, Vallox 130 E and
Vallox 75 / 95



Non-freezing connection of post-heating radiator.

You need no other antifreeze protection if you choose a non-freezing heat transfer solution, either a 15...30% water-glycol mixture used in cars or a less toxic alternative.

- In the connection shown in the example heat exchanger V is installed in the heat source.
- Exchanger V is included as an option in the heat source delivery.
- The unit delivery does not include piping parts.
- Supply air temperature mainly adjusts according to the temperature of supply water, controlled with a three-pass valve SV. If needed, air temperature can also be adjusted and restricted with valve T.
- Valve T is not included in the Vallox 130 E unit delivery.
- Valve T requires bypass S.
- When the unit stops, the self-actuated dampers (E) installed in the fans close.
- Pump P is an ordinary heat pipe pump. Pump power is 0.05... 0.1 l/s and pressure 5... 20 kPa.
- Open expansion tank A circa 2.5 litres. Installed on the suction side of the pump.
- Stop valves R are also installed in the pipe system.
- The radiator has Ø12 mm plastic pipes M coated with an oxygen diffusion barrier. Connection pipes D, made of plastic or copper, with a rated inner diameter of 10... 13 mm.

NOTE!

- **Automatic deaerators must not be installed in the water-glycol circuit.**
- **When using a plastic pipe pay attention to the temperature stability of the plastic pipe.**



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