ENGINEERING
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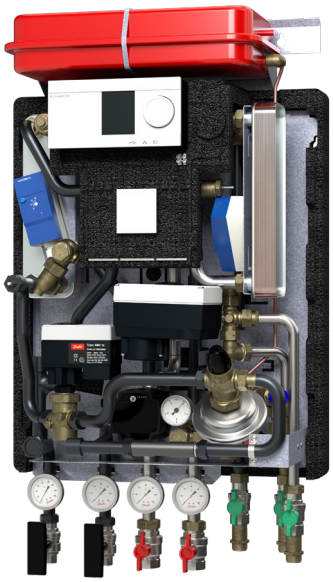
Fact Sheet

Akva Lux II VXe HT

for indirect heating and instantaneous domestic hot water for single-family, semi-detached and terraced houses



FEATURES AND BENEFITS

- Possibility to connect LeanHeat Monitor for remote parameters setting and monitoring.
- Fully insulated with very low heat losses
- Indirect heating, DHW heating based on flow principle.
- Ensuring the lowest return temperature by special Danfoss technologies specifically developed for substations.
- Customer-specific solutions, specially adapted to the applicable technical regulations.
- Advanced electronic control of Domestic Hot ware (DHW) and heating (HE) with weather compensation.
- Capacity: 25 - 50 kW HE / 25 kW FH 35 – 75 kW DHW
- Minimum space required for installation.
- Primary pipes are welded. All other pipes and plate heat exchanger are made of stainless steel AISI316/314, connections with EPDM gaskets.
- Dezincification-free brass CuZn39Pb3
- Electrical wiring from factory - Plug & Play
- Applicable for high or low temperature district heating networks (Tmax = 130°C)

Application

Akva Lux II VXe HT is a fully insulated district heating substation for indirect heating and instantaneous domestic hot water, featuring high performance and simple operation. The Akva Lux II VXe HT covers both the DHW and heating requirements of large and small single-family houses and is also suitable for large projects. The Akva Lux II VXe HT can be used in high or low temperature district heating networks (Tmax = 130°C).

Construction

The Akva Lux II VXe HT substation is available in two main types with a plate heat exchanger for domestic hot water production type XB 06H-1 26 for 1-2 dwellings and heat exchanger type XB 06H-1 40 for 3-4 dwellings. On the heating side the substation is available with heat exchanger type XB 06H-26, 40 and type XB 06L-1 24 for floor heating. The substation also features safety and non-return valve on the cold water connection, ball valves and sensor pockets as well as a differential pressure controller, expansion vessel, energy-efficient circulation pump, control valves with actuators, strainers, and a removable fitting piece for installation of heat meter in the district heating return line. Primary pipes of Akva Lux II VXe HT are welded. The heating temperature is controlled by an electronic ECL 310 controller with weather compensation, which enables further energy savings. The substation is suitable and ready for connecting re-circulation.

Design

The design emphasizes a user-friendly placement of all components. The Akva Lux II VXe HT is supplied with an elegant insulation cover and the removable cover plate in the front insulation allows easy access to components for regulation and maintenance purposes.

Heat exchanger for DHW heating

The substation is based on a brazed, highly efficient plate heat exchanger, which is controlled by a VM2 control valve with AMV 33 actuator.

Domestic hot water recirculation

The substation is prepared for connection to systems with DHW recirculation.

Mounting of heat meter

The substation is equipped with ¾" fitting pieces in the DH return flow for fitting of a heat meter.

Service and maintenance

The substation is very service-friendly and easy to install. It is mounted on the wall and as all pipes are placed in pipe bracket distance, it is possible to establish a nice piping. The removable cover plate in the front allows easy access to the specially designed chamber where most frequently used components such as ECL310 are located. The easy access chamber enables faster commissioning and maintenance without removing the whole cover of the substation. Calculator of the heat meter can also be mounted into this chamber for easy reading.

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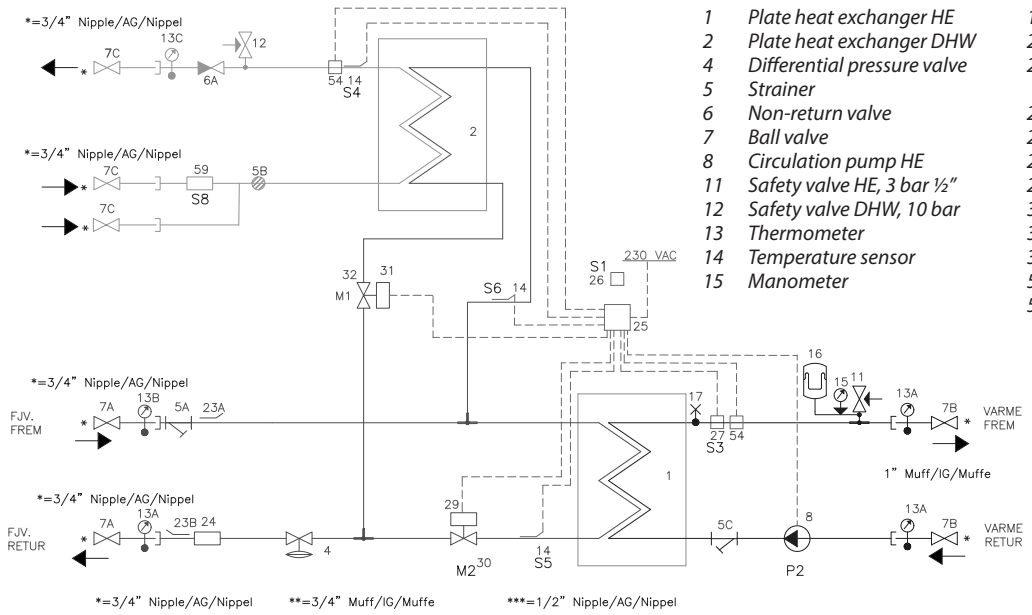
CIRCUIT DIAGRAM (EXAMPLE)

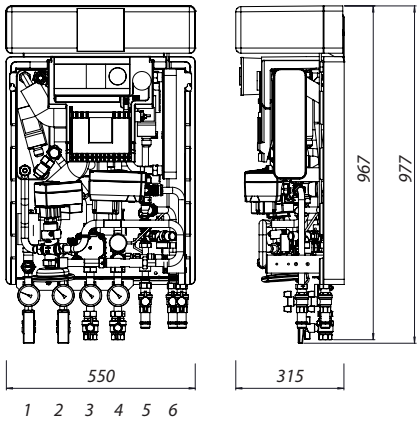


1	*Plate heat exchanger HE*
2	*Plate heat exchanger DHW*
4	*Differential pressure valve*
5	*Strainer*
6	*Non-return valve*
7	*Ball valve*
8	*Circulation pump HE*
11	*Safety valve HE, 3 bar ½"*
12	*Safety valve DHW, 10 bar*
13	*Thermometer*
14	*Temperature sensor*
15	*Manometer*
16	*Expansion vessel 12 L*
23	*Sensor pocket for heat meter ½"*
24	*Fitting piece for heat meter 3/4" × 110 mm*
25	*Controller Danfoss ECL*
26	*Outdoor sensor Danfoss ESMT*
27	*Sensor Danfoss ESMC*
29	*Actuator HE Danfoss AMV*
30	*Combi valve Danfoss VM2*
31	*Actuator DHW Danfoss AMV*
32	*Combi valve Danfoss VM2*
54	*JUMO*
59	*Flow switch*

Design specifications:

Nominal pressure (primary):	PN25
Nominal pressure (DHW):	PN10
Nominal Pressure (HE):	PN6 (3)
Max. supply temperature:	130 °C (design temp.)
Min. ΔP:	See capacity examples
Brazing material (HEX):	Copper
Weight:	Max. 55 kg
Insulation:	Polypropylene EPP λ 0.039
Electrical supply:	230 V AC
Dimensions (mm):	
with insulation:	H 967 × B 550 × T 315
Connections sizes:	
DH, DCW, DHW:	G ¾" ET (ext. thread)
HE:	G 1" ET (ext. thread)
Circulation:	G ¾" ET (ext. thread)

Dimensional sketch:



Basic type	Code No
Akva Lux II VXe HT, Type 1 HE + Type 1 DHW, Fully insulated	145F0656
Akva Lux II VXe HT, Type 2 HE + Type 1 DHW, Fully insulated	145F0657
Akva Lux II VXe HT, Type 3 HE + Type 1 DHW, Fully insulated, Safety function*	145F0658
Akva Lux II VXe HT, Type 1 HE + Type 2 DHW, Fully insulated	145F0659
Akva Lux II VXe HT, Type 2 HE + Type 2 DHW, Fully insulated	145F0660
Akva Lux II VXe HT, Type 3 HE + Type 2 DHW, Fully insulated, Safety function*	145F0661

**Safety function = AMV13 / Jumo safety thermostat*

DHW: CAPACITY EXAMPLES 10 °C / 50 °C

Substation type	DHW capacity [kW]	Supply flow primary [°C]	Return flow primary [°C]	Pressure loss Primary [*kPa]	Flow rate primary [l/h]	DHW tap load [l/min]
Type 1 (XB06H-1 26)	35	75	18	16	528	12,6
	41	90	15,5	13	473	14,8
	60	130	13,1	12	441	21,6
Type 2 (XB06H-1 40)	55	75	17,7	33	825	19,8
	60	90	15,1	23	698	21,6
	75	130	12,4	15	548	27,0

** Calculated at 70% of the heating capacity + DHW capacity of 40 kW at a district heating supply temperature*

HEATING: CAPACITY EXAMPLES

Substation type	HE capacity [kW]	HE circuit primary [°C]	HE circuit secondary [°C]	Pressure loss primary [*kPa]	Flow rate primary [l/h]	Flow rate secondary [l/h]	Residual pressure UPM3 15-75 [kPa]
Type 1 (XB06H-1 26)	25	75/44,2	40/65	28	698	860	64
	25	90/51,5	50/70	18	558	1 075	58
	35	130/50,4	50/70	9	378	1 505	33
Type 2 (XB06H-1 40)	43	75/44,5	40/65	9	1 220	1 479	46
	47	90/51,5	50/70	28	1 050	1 935	17
	50	130/50,3	50/70	8	540	2 150	7
Type 3 (XB06L-1 24)	20	75/30	30/40	9	382	1 720	36
	25	90/30	30/40	14	358	2 150	14
	25	130/30	30/40	5	215	2 150	14

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