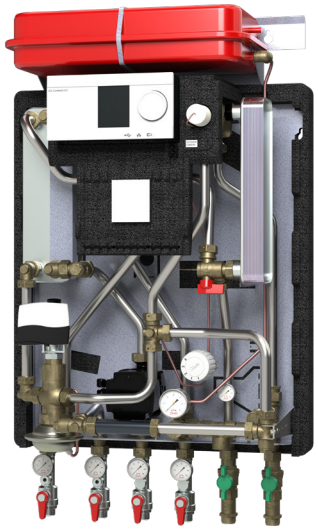
ENGINEERING
TOMORROW

Fact Sheet

Akva Lux II VXe fully insulated substation

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
- Innovative, energy-saving controller PTC2+ P in combination with high performance heat exchanger for on-demand water heating without no-load losses function
- 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 heating (HE) with weather compensation.
- Pipes and heat exchanger made of stainless steel, connections with EPDM gaskets.
- Capacity: 35-55 kW DHW, Radiator 20-30 kW, Floor heating 15 kW

Application
Akva Lux II VXe 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 covers both the DHW and heating requirements of large and small single-family houses and is also suitable for large projects.

Construction
The Akva Lux II VXe 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, thermostat, strainers, bypass valve, an energy-saving domestic hot water controller Danfoss PTC2+P, and a removable fitting piece for installation of heat meter in the district heating return line.
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 and leak detection equipment.

Design
The design emphasizes a user-friendly placement of all components.
The Akva Lux II VXe 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 thermostatic and pressure controlled PTC2+P DHW controller.
The Danfoss PTC2+P DHW controller with integrated differential pressure controller and energy saving function ensures that the heat exchanger is cold during standby.

Bypass (thermostatic circulation)
The substation supplied with a thermostatically controlled bypass, which ensures that hot water is produced immediately, when tapping starts. The bypass temperature is set with due consideration of the best DHW comfort and energy savings balance. DHW re-circulation can be easily added to the substation when it is required.

Domestic hot water recirculation
The substation is prepared for connection to systems with DHW recirculation. Switching to DHW recirculation is possible from a constructional point of view, requiring only mounting of a separate circulation set (see options).

The circulation temperature is set independently of the set DHW temperature. This ensures the best possible DHW comfort, very low standby losses and return temperature and thus a very good district heating economy.

Mounting of heat meter
The substation is equipped with 3/4" 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 and PTC2+P 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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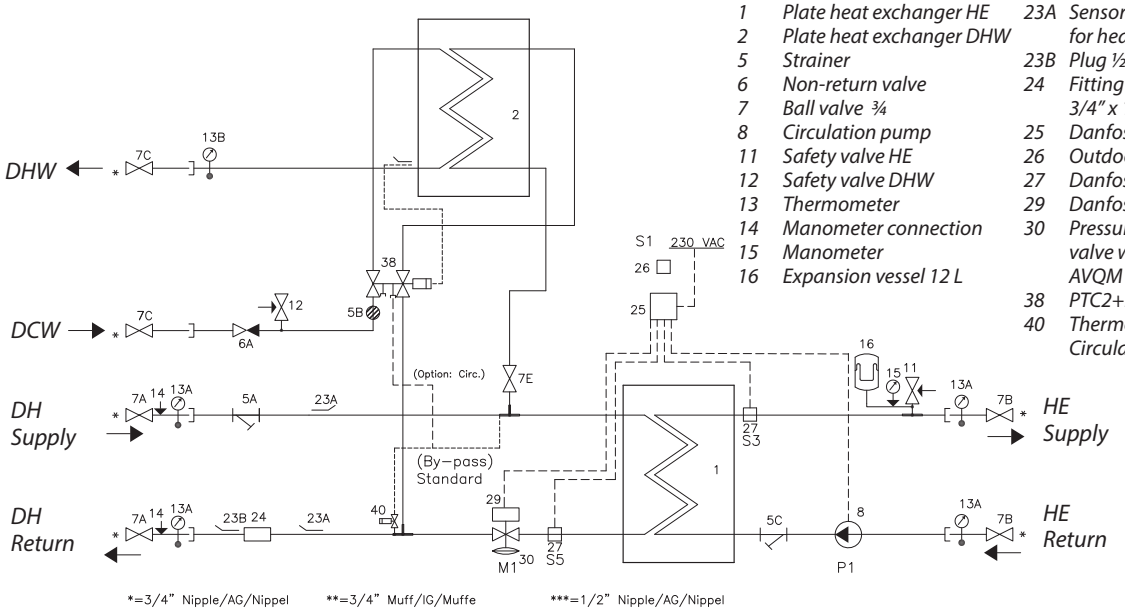
CIRCUIT DIAGRAM (EXAMPLE)



1	Plate heat exchanger HE
2	Plate heat exchanger DHW
5	Strainer
6	Non-return valve
7	Ball valve ¾
8	Circulation pump
11	Safety valve HE
12	Safety valve DHW
13	Thermometer
14	Manometer connection
15	Manometer
16	Expansion vessel 12 L
23A	Sensor pocket ½"/10x1, plug M10 for heat meter
23B	Plug ½" with O-ring
24	Fitting piece for heat meter 3/4" x 110 mm
25	Danfoss Controller ECL 310/A337
26	Outdoor sensor, ESMT
27	Danfoss sensor, ESMC
29	Danfoss actuator HE, AMV 150
30	Pressure independent control valve with integrated flow limiter AVQM
38	PTC2+P controller
40	Thermostat for Bypass/ Circulation

Design specifications:

Nominal pressure (primary):	PN16
Nominal pressure (DHW):	PN10
Nominal Pressure (HE):	PN6
Max. supply temperature:	120 °C (design temp.)
Min. ΔP:	See capacity examples
Brazing material (HEX):	Copper

Weight: Max. 55 kg

Insulation: Polypropylene EPP λ 0.039

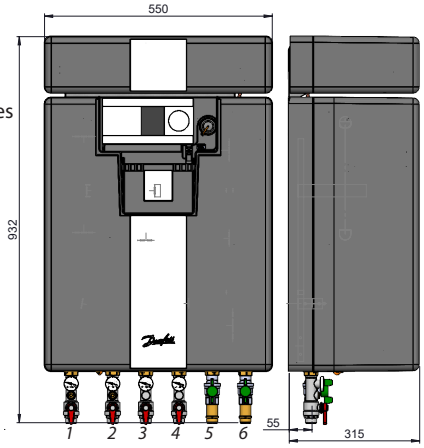
Electrical supply: 230 V AC

Dimensions (mm):
with insulation: H 932 × B 550 × T 315

Connections sizes:
DH, DCW, DHW, HE: G ¾" IT (ext. thread)
Circulation: R ½" ET (ext. thread)

Recirculation:
Remember to order circulation set for systems that feature DHW recirculation.

Dimensional sketch:



Connections:
1. District heating (DH) supply
2. District heating (DH) return
3. Heating (HE) return
4. Heating (HE) supply
5. Domestic hot water (DHW)
6. Domestic cold water (DCW)

Basic type	Code No
Type 1 HE+type 1 PWH, EPP insulated cover**	145F0589
Type 2 HE+type 1 PWH, EPP insulated cover**	145F0590
Type 1 HE+type 2 PWH, EPP insulated cover**	145F0591
Type 2 HE+type 2 PWH, EPP insulated cover**	145F0592
Type 3 HE+type 1 PWH, safety function*, EPP**	145F0593
Type 3 HE+type 2 PWH, safety function*, EPP**	145F0594
Type 1 HE+type 1 PWH, safety function*, EPP**	145F0595
Type 2 HE+type 1 PWH, safety function*, EPP**	145F0596
Type 1 HE+type 2 PWH, safety function*, EPP**	145F0597
Type 2 HE+type 2 PWH, safety function*, EPP**	145F0598

*Safety function = AMV13 / Jumo safety thermostat
** EPP insulated cover

Option prices (loose delivery)	Option
Circulation set incl. pipe for mounting on site	145H4438
KFE filling and drain valve ¼" (for mounting in ball valve)	145H3717

DHW: CAPACITY EXAMPLES 10 °C/50 °C

Plate heat exchanger HEX	DHW capacity [kW]	Supply flow primary [°C]	Supply flow secondary [°C]	Pressure loss Primary [*kPa]	Flow rate primary [l/h]	DHW tap load [l/min]
XB06H-1 26 Type 1	35	65	22	25	714	12.5
	35	90	16	8	414	12.5
XB06H-1 40 Type 2	55	65	25	49	1116	19.7
	55	90	16	16	636	19.7

* Heat meter not incl.

HEATING: CAPACITY EXAMPLES

Plate heat exchanger HEX	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 15-70 [kPa]
XB06H-1 26 Type 1	20	75/46	40/65	37	594	688	59
	20	80/50	45/70	37	588	688	59
	20	90/52	50/70	28	462	860	53
XB06H-1 40 Type 2	30	75/45	40/65	58	882	1038	46
	30	80/50	45/70	57	876	1038	46
	30	90/52	50/70	41	696	1308	31
XB06L-1 24 Type 3	15	75/31	30/40	19	300	1296	29
	15	80/31	30/40	18	270	1296	29
	15	90/31	30/40	17	222	1296	29

* Heat meter and DHW capacity not incl.

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