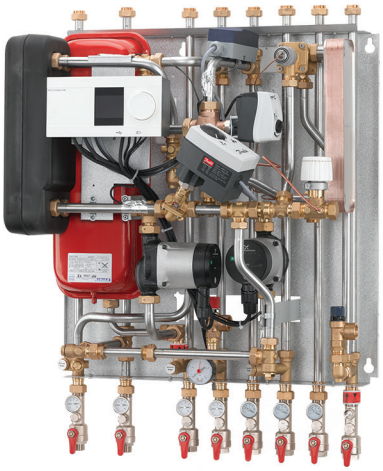
ENGINEERING TOMORROW

Fact Sheet

Akva Lux II VX H2WP

District heating substation for single-family, semi-detached and terraced houses



FEATURES AND BENEFITS

- Substation for large single-family houses
- Indirect heating, DHW heating based on flow principle
- Electronic control of heating (HE) temperature
- Innovative, energy-saving controller PTC2+P in combination with high performance heat exchanger for on-demand water heating without no-load losses
- Capacity: 20-30 kW HE/ 41-53 kW DHW
- Pipes connection in top or bottom of substation = Savings in installations costs
- Pipes and plate heat exchanger made of stainless steel
- Minimized risk of lime scale and bacteria formation

Application

The Akva Lux II VX H2WP is a substation featuring high performance and simple operation. The Akva Lux II VX H2WP is especially suitable for two-pipe systems and systems with floor heating. The substation is available in several capacity variants.

District heating (DH)

The substation is prefabricated with interconnecting components such as fitting piece and sensor pockets for insertion of a heat meter, as well as strainers, ball valves, thermometers and pockets for pressure gauges.

Heating (HE)

The heating side features a pleate heat exchanger and two heating circuits. The radiator heating circuit consists of a safety valve, non-return valve, manometer, thermometers, strainer, expansion vessel, ball valves, multifunctional control valve, actuator and circulation pump, and the floor heating circuit consists of a non-return valve, thermometers, safety thermostat, strainer, ball valves, threeway valve, actuator and circulation pump. The temperature for the heating circuits is controlled by an electronic temperature controller with an outdoor temperature sensor. Depending on substation's application, different heat exchangers dimensioned for central or floor heating can be used.

Domestic hot water (DHW)

The domestic hot water is prepared in a heat exchanger based on the flow principle and the temperature is regulated by the selfacting controller with integrated differential pressure controller - the PTC2+P with esave™ function. Supreme ease of operation is obtained via the combined hydraulic and thermostatic regulation of the PTC2+P controller. The pressure-controlled part allows primary and secondary side flow through the heat exchanger, only when hot water is tapped and blocks the flow immediately after completion of the tapping process. The thermostatic part controls the domestic hot water temperature. Thanks to the quickacting hydraulic control of the heat exchanger, it is largely protected from the formation of lime scale and growth of bacteria. The PTC2+P controller with integrated differential pressure controller compensates for variations in supply temperature and varying differential pressure and thereby ensures a constant domestic hot water temperature at all times. A thermostatic bypass enables tapping of hot water without any delay, – ensuring the best possible efficiency and economy. The cold water connection includes a combined ball valve/ non-return valve and safety valve.

Domestic hot water recirculation

The Akva Lux II VX H2WP is equipped with bypass function as a standard, but it is prepared for DHW recirculation. Switching to DHW recirculation is possible from a constructional point of view, requiring only mounting of a separate circulation set (see options). Equipment for DHW recirculation is optional and must be ordered separately.

Construction

All pipes are made of stainless steel. The connections are made by nuts and gaskets. The substation offers variable connection possibilities, as connection of pipes can be established both in the top or in the bottom of the substation. The Akva Lux II VX H2WP can be delivered with white-lacquered steel cover, with door.

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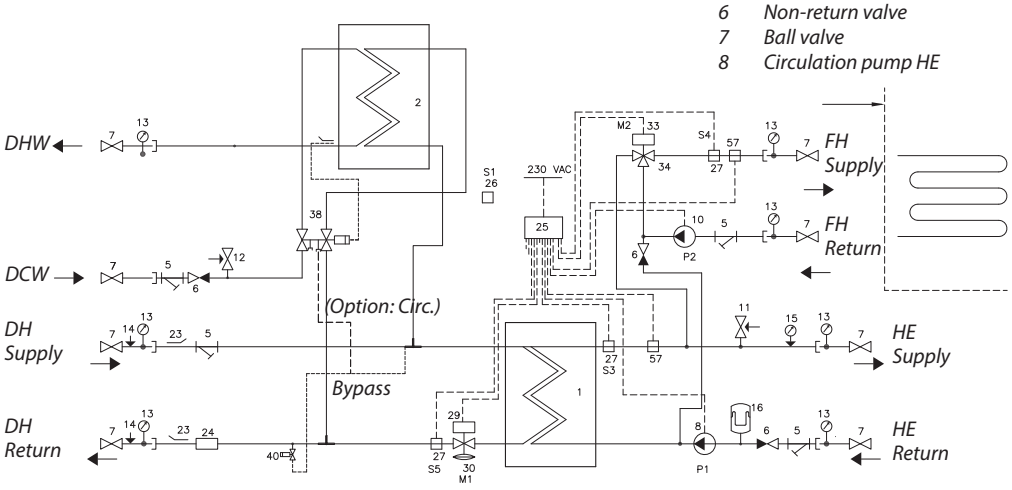
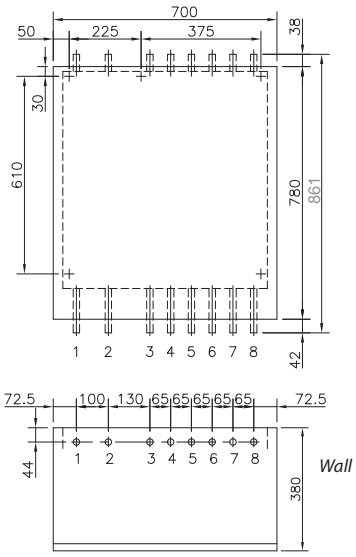
CIRCUIT DIAGRAM – EXAMPLE



1	Plate heat exchanger HE	10	Circulation pump FH
2	Plate heat exchanger DHW	11	Safety valve HE
5	Strainer	12	Safety valve DHW
6	Non-return valve	13	Thermometer
7	Ball valve	14	Pocket for pressure gauge
8	Circulation pump HE	15	Manometer
		16	Expansion vessel
		23	Sensor pocket for heat meter
		24	Fitting piece for heat meter 3/4" x 110 mm
		25	Controller Danfoss ECL210/A260
		26	Outdoor sensor, ESMT
		27	Sensor Danfoss, ESMC
		29	Actuator HE, AMV 13
		30	Multifunctional control valve AHQM
		33	Actuator HE, AMV 150
		34	Three-way valve VMV
		38	PT°C 2 controller
		40	Thermostat for bypass/circ.
			Options:
		57	Safety thermostat monitor

Design specifications:

Nominal pressure (prim./sec.):	PN 16 / PN3
Max supply temperature:	120 °C (design temperature)
Min. ΔP:	See capacity examples
Brazing material (HEX):	Copper
Weight incl. cover:	Max. 60 kg (incl. packing)
Cover:	White-lacquered steel
Electrical supply:	230 V AC
Dimensions (mm):	
Without cover:	H 860 x W 650 x D 365
With cover:	H 860 x W 700 x D 380
Connections sizes:	
DH:	G ¾" (ext. thread)
DCW + DHW + HE + FH:	G ¾" (int. thread)
Circulation:	G ¾" (ext. thread)



top view

Connections:

1. District heating (DH) supply
2. District heating (DH) return
3. Heating (HE) return
4. Heating (HE) supply
5. Floor heating (FH) supply
6. Floor heating (FH) return
7. Domestic hot water (DHW)
8. Domestic cold water (DCW)

Options:

- Cover, white-lacquered steel, with door
- Electronic controller Danfoss ECL310
- Circulation set for DHW recirculation
- Connection of pipes can be established in the top or in the bottom of the substation
- Pipe insulation
- Mounting of heat meter (supplied by customer)
- Supplementary fitting set for change of fitting piece size ¾ x 110 mm to fitting piece size 1" x 190 mm

Recirculation:

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

DHW: CAPACITY EXAMPLES, 10°C / 45°C

Capacity [kW]	Plate heat exchanger	Supply flow primary [°C]	Return flow primary [°C]	DHW tap load [l/min]	Pressure loss primary [bar]	Flow rate primary [l/h]
32,3	XB 06H-1 26	55	21,8	13,16	0,36	840
32,3	XB 06H-1 26	60	18,9	13,16	0,24	680
32,3	XB 06H-1 40	55	19,0	13,16	0,27	770
32,3	XB 06H-1 40	60z	18,9	13,16	0,24	680
41,0	XB 06H-1 26	60	20,4	16,83	0,41	890
41,0	XB 06H-1 26	70	16,8	16,83	0,23	660
53,0	XB 06H-1 40	60	19,1	21,67	0,55	1110
53,0	XB 06H-1 40	70	15,7	21,67	0,31	840

HEATING: CAPACITY EXAMPLES

Capacity [kW]	Plate heat exchanger	HE circuit primary [°C]	HE circuit secondary [°C]
23	26	70 / 38	33 / 60
30	40	70 / 38	33 / 60
10	40	60 / 30	33 / 60
35	26	95 / 41	38 / 70

TOTAL

Pressure loss primary (total[1]) [bar]	Flow Primary (total[1]) [l/h]
0,50[3]	980
0,60[3]	1120
0,27[2]	880
0,38[4]	760

[1] Calculated at 70% of the heating capacity + DHW capacity of 32.3 kW with heat exchanger XB06H-1 26 at a district heating supply temperature of 55[2] °C or 60[3] °C (DHW 10/45°C) or 65[4] °C (DHW 10/50 °C).

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