

► Venkon XL
Fan coils

Venkon XL

Fan coils, recirculation air.
Heating, cooling for raised external pressure

► **Technical catalogue**

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Venkon XL:
XL performance
guaranteed



With the Venkon XL, you are opting for a decentralised air handling unit, at the same time as meeting all the expectations of a high-performance design.

01 ▶ Product information



Schaubinsland Duisburg (Germany)

Venkon XL – The right solution for every challenge

Fan coils are used in comfort buildings of all types with high heating and cooling requirements as well as exacting user requirements.

The Venkon XL models have been optimised for applications that require higher performance with raised external pressure.

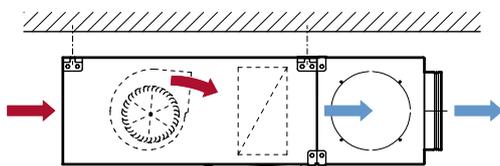
EC technology

EC fans can be operated infinitely variably within a low fan speed range even at low air volumes with intelligent, integrated electronics on demand and this energy-efficiently. Every model has sufficient power in reserve for fast temperature control and increased output requirement.

Intelligent motor management permanently detects the operating state of the fans and keeps the pre-set speed constant, regardless of the fan length and external influences. All EC fans are fitted with a running motor thermal contact.

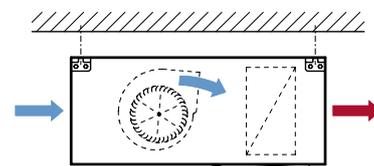
Treated air can be routed specifically to ventilation end components on site using the optional connection unit for circular pipes.

Cooling example



Side view
Venkon XL with connection unit for circular pipe

Heating example



Side view
Venkon XL

Product data



Product advantages

- ▶ for applications with high external pressure
- ▶ large-dimensioned heat exchanger for maximum possible output
- ▶ slimline design for installation in suspended ceilings
- ▶ easy to install



Features

- ▶ four sizes
- ▶ ISO Coarse or ePM10>5-% filter available ex-factory
- ▶ continuously variable EC fans
- ▶ optional connection unit for circular pipe
- ▶ comprehensive range of accessories

Heating

- ▶ LPHW

Cooling

- ▶ CHW

Installation

- ▶ suspended ceiling installation

Heat exchanger

- ▶ 4-pipe (can also be used as 2-pipe)

KaControl

- ▶ optional

Filter class:

- ▶ ISO Coarse as standard
- ▶ optionally with ePM10>50% (M5)

Condensation pump

- ▶ max. delivery height: 8 m at 4.5 l/h
- ▶ max. pump volume: 18 l/h at 0.5 m

Condensation connection:

- ▶ outside diameter 15 mm

Unit models

- ▶ basic unit
- ▶ basic unit with connection unit for circular pipe fitted

Performance data

Cooling output¹⁾ [kW]

- ▶ 0,7–16,9

Heat output²⁾ [kW]

- ▶ 1,7–52,9

Operating limits

- ▶ max. operating pressure: 10 bar
- ▶ min. entering water temperature: 4 °C
- ▶ max. entering water temperature: 90 °C
- ▶ min. entering air temperature: 15 °C
- ▶ max. entering air temperature: 40 °C
- ▶ relative humidity: 20–60 %

Applications

Buildings of all kinds that need to be cooled and / or heated.



Hotels



Showrooms and shop floors



Offices and commercial buildings



Restaurants and cafés

¹⁾ at CPW 7 / 12 °C and $t_{L1} = 27$ °C, 48% relative humidity

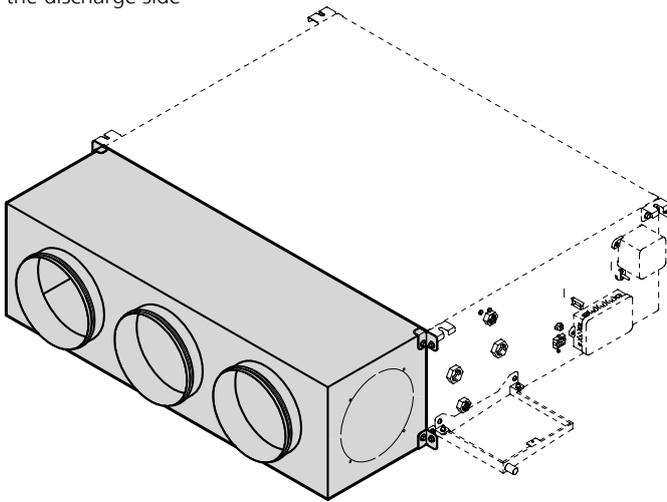
²⁾ at LPHW 82/71 °C, $t_{L1} = 20$ °C

Selection guide: Overview of models

Model	Heat exchanger model	Air volume ¹⁾	Cooling output ²⁾	Heat output ³⁾	Sound pressure level ⁴⁾	Further information
		[m ³ /h]	[kW]	[kW]	[dB(A)]	
1	2-pipe	110 – 680	0,7–3,4	2,2–11,9	31–55	▶ Page 14
	4-pipe		0,7–3,4	1,7–5,4		▶ Page 16
2	2-pipe	395 – 1465	2,8–7,9	7,4–25,7	36–59	▶ Page 14
	4-pipe		2,8–7,9	4,5–11,3		▶ Page 16
3	2-pipe	405 – 2200	2,7–11,2	7,7–38,8	37–60	▶ Page 14
	4-pipe		2,7–11,2	5,1–18,5		▶ Page 16
4	2-pipe	845 – 2975	5,6–16,9	15,9–52,9	39–62	▶ Page 14
	4-pipe		5,6–16,9	9,5–24,8		▶ Page 16

Optional layout:

Venkon XL with connection unit for circular pipe on the discharge side



¹⁾ at 30 Pa external pressure, ISO Coarse filter, continuously variable

²⁾ total, with CHW 7/12 °C, t_{L1} = 27°C, 48% rel. h.

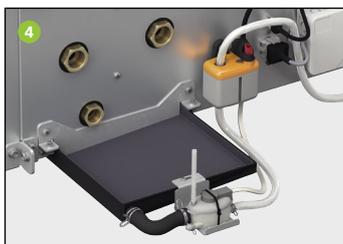
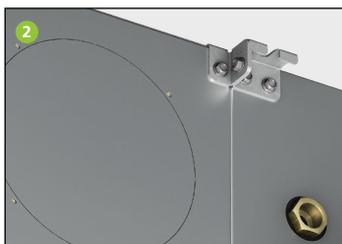
³⁾ at LPHW 82/71°C, t_{L1} = 20°C

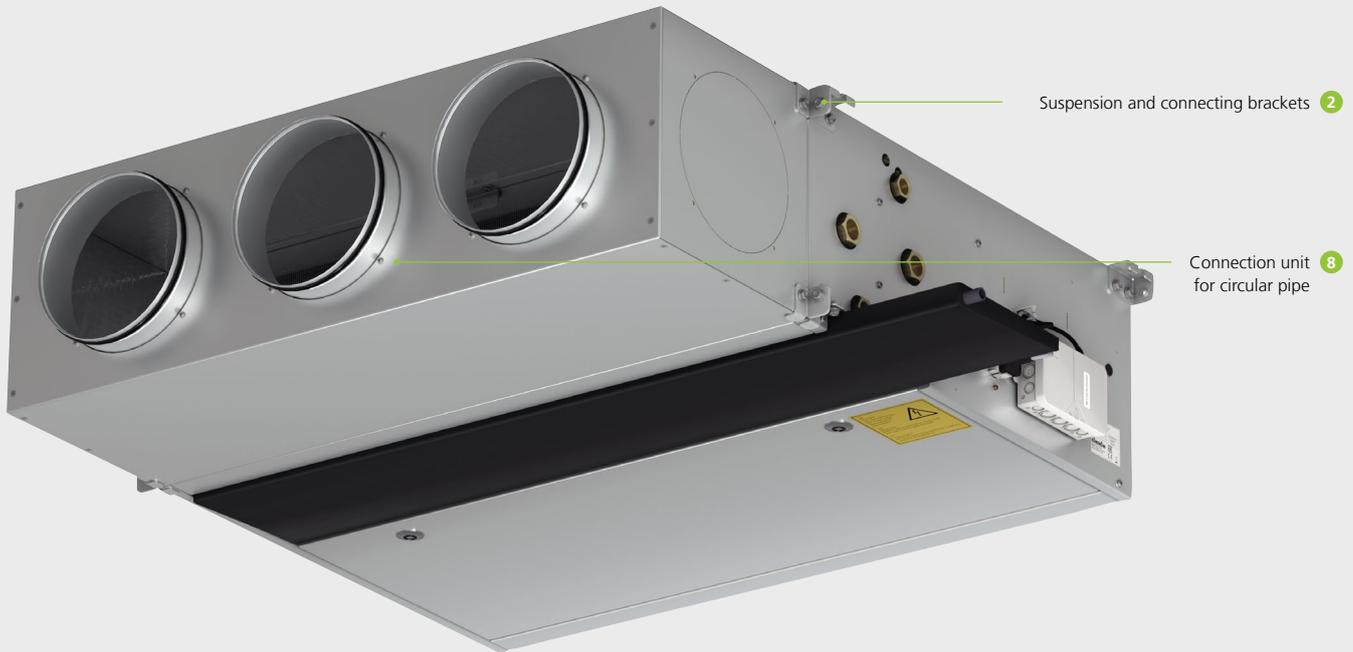
⁴⁾ The sound level was calculated based on an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081).

Venkon XL at a glance



Features





Example with connection unit for circular pipe fitted

1 Radial fan

- ▶ direct-driven radial fan with forward-curved impeller, continuously variable EC model

2 Suspension and connecting brackets

- ▶ for simple ceiling mounting
- ▶ provides for air-tight connection to connection unit for circular pipe

3 Condensation tray

- ▶ can be simply and conveniently removed for maintenance / cleaning
- ▶ projects out of the side of the unit to collect condensation produced at the valves

4 Condensation pump (optional)

- ▶ available as an accessory
- ▶ for controlled discharge of condensation produced with wet cooling
- ▶ includes mounting bracket for float switch

5 Electrical connection

- ▶ electromechanical or KaControl
- ▶ networking options using higher-level systems with interface cards with KaControl (e.g. Modbus)

6 Filter

- ▶ easily removable
- ▶ optional filter classes
ISO Coarse (G0) or
ISO ePM10>50% (M5)

7 Differential pressure switch

- ▶ optionally factory-fitted (on units with ISO PM10>50% filter)
- ▶ for the control of the filter pressure difference

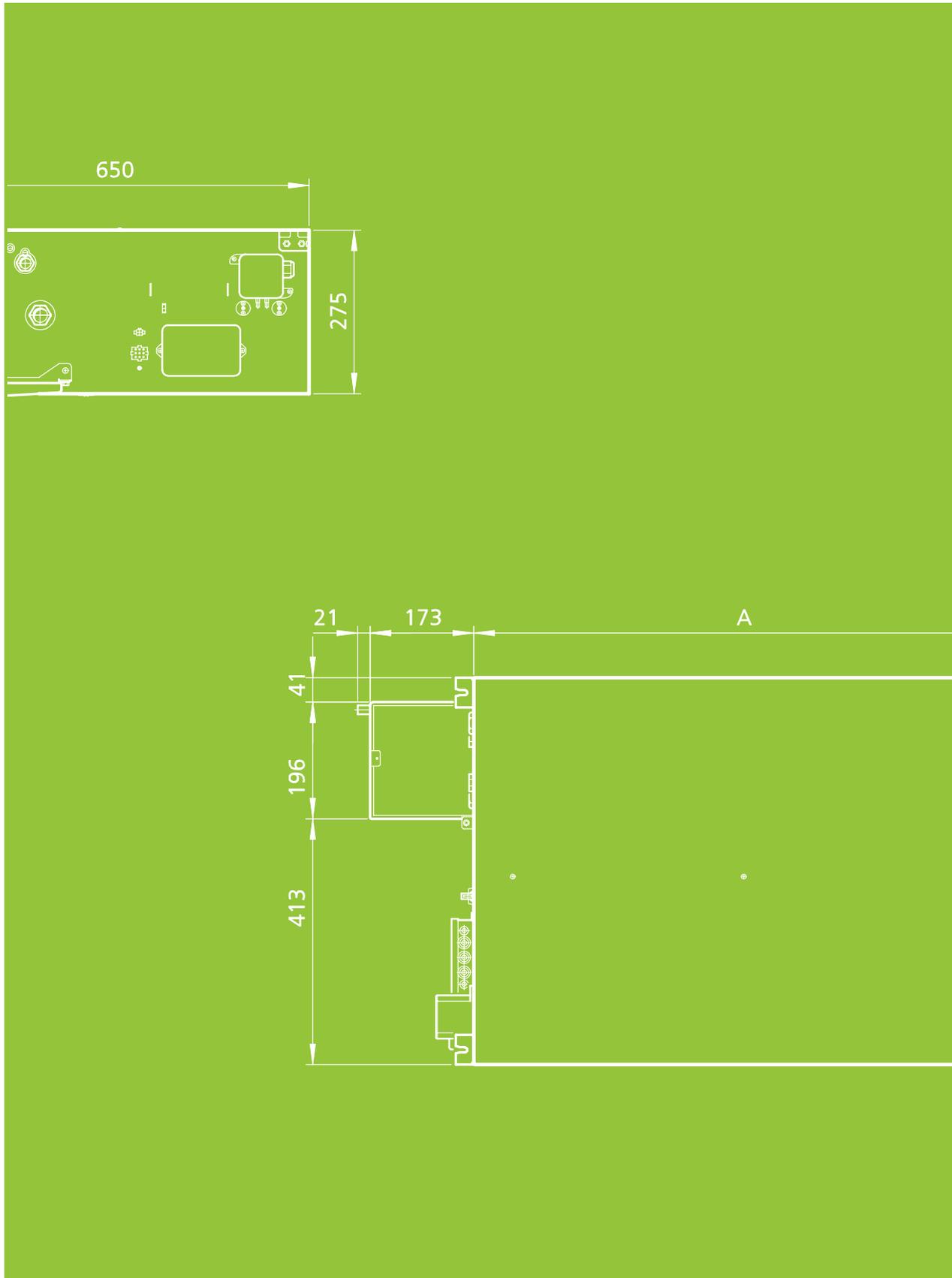
8 Connection unit for circular pipe

- ▶ optionally factory-fitted
- ▶ excellent flexibility due to variable number of spigots

9 High-output heat exchanger

- ▶ proven combination of copper/aluminium
- ▶ optimised for maximum output

02 ▶ Technical data



Advice on measuring conditions

The cooling and heat outputs have been calculated in line with DIN EN 1397:2015 "Water-air fan convectors, test methods for establishing the performance".

The specific requirements for cooling and heating mode are taken into account in DIN EN 1397. They are also based on Eurovent Certification.

Normative reference

The standard refers to:

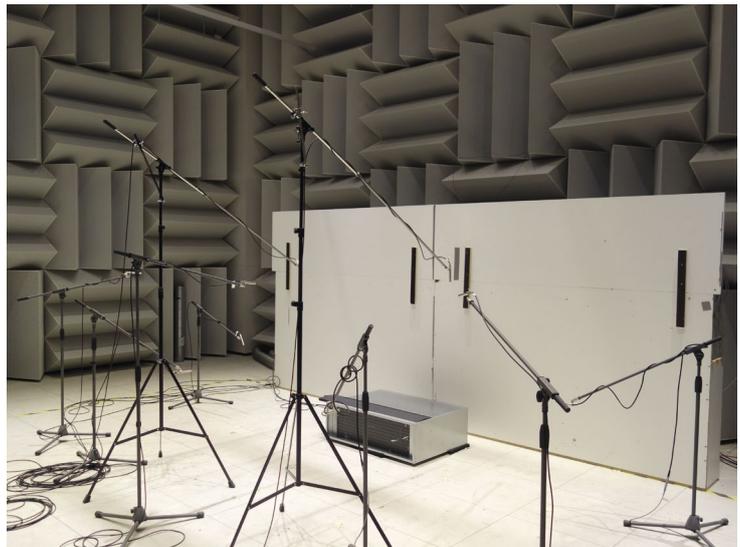
- ▶ EN 16583; Determining the sound power levels of noise sources
- ▶ EN 45001; General criteria for the operation of test laboratories
- ▶ ISO 5801; Industrial fans; Performance testing using standardised airways
- ▶ ISO 5221; Air distribution and air diffusion; Rules to methods of measuring air flow rate in an air handling duct

The entering air temperature of the fan convector is selected as the reference / air temperature, which should not be confused with the ambient temperature.

Acoustics

Fan coils are very often used in acoustically sensitive areas. The units have therefore been optimised in terms of sound emissions.

The acoustic data were recorded in accordance with the provisions of DIN EN 16583 by DIN EN ISO 3744 and DIN EN ISO 3741 in the Kampmann GmbH laboratories.

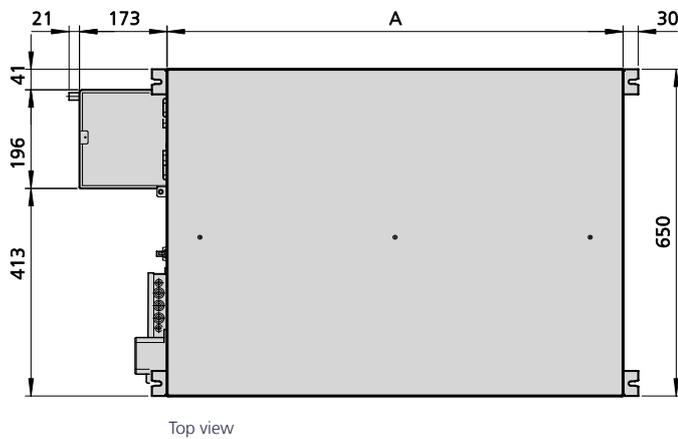
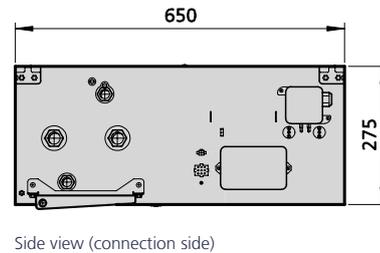
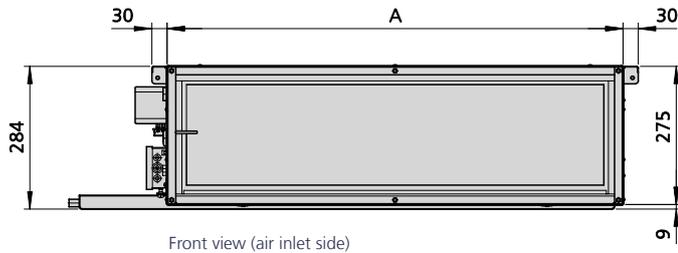


Acoustic laboratory

Venkon XL

Models 1 – 4, basic unit, 2-pipe (example)

Technical drawings, connection side on left in the direction of airflow (dimensions in mm)



Model	Unit width
	A
	[mm]
1	500
2	900
3	1300
4	1700

Specifications

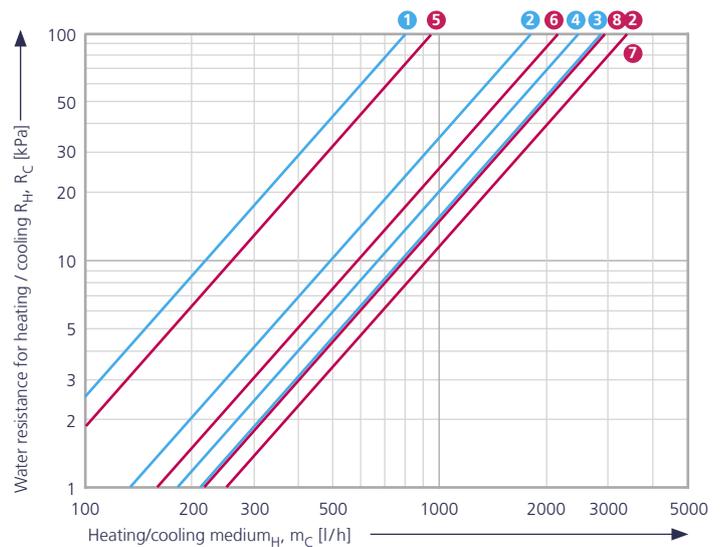
Weight

Model	Basic unit	Basic unit with connection unit for circular pipe
	[kg]	[kg]
1	33	40
2	51	64
3	71	86
4	88	104

Water content of heat exchanger

Model	Internal volume 2-pipe	Internal volume 4-pipe cooling	Internal volume 4-pipe heating
	[l]	[l]	[l]
1	1.4	1.4	0.2
2	2.8	2.8	0.4
3	4.2	4.2	0.6
4	5.7	5.7	0.9

Pressure drop diagram



- 1 Model 1 cooling
- 5 Model 1 heating
- 2 Model 2 cooling
- 6 Model 2 heating
- 3 Model 3 cooling
- 7 Model 3 heating
- 4 Model 4 cooling
- 8 Model 4 heating

Model: 2-pipe, basic unit, ISO Coarse filter



Model	Control voltage	Air volume ¹⁾	Cooling 2-pipe ²⁾				Heating 2-pipe ²⁾			Electrical power consumption	Current consumption	Sound power level ⁴⁾		Sound pressure level ⁵⁾		
			Cooling output	Outlet air temperature	Medium flow	Condensation volume	Heat output	Outlet air temperature	Medium flow			Suction-side	Pressure-side	Suction-side	Pressure-side	
	[V]	V [m³/h]	Q _{kg} [kW]	Q _{ks} [kW]	t _{L2} [°C]	m [kg/h]	[l/h]	Q _h [kW]	t _{L2} [°C]	m [kg/h]	P _{el} [W]	I [A]	L _{PA} [dB(A)]	L _{PA} [dB(A)]	L _{WA} [dB(A)]	L _{WA} [dB(A)]
1	10	680	3,4	2,9	13,9	580	0,76	11,9	72,8	933	85	0,72	62	63	54	55
	8	510	2,6	2,2	13,3	454	0,60	9,1	74,0	714	46	0,41	57	58	49	50
	6	365	2,0	1,7	12,6	343	0,46	6,7	75,4	524	22	0,20	53	53	45	45
	4	110	0,7	0,6	9,9	125	0,18	2,2	80,6	174	9	0,10	43	43	35	35
	2	Data output is impossible at this stage with 30 Pa external pressure.														
2	10	1465	7,9	6,2	13,8	1916	2,50	25,7	72,7	2004	167	1,36	65	67	57	59
	8	1185	6,7	5,2	13,5	1548	2,20	21,0	73,3	1638	98	0,81	64	65	56	57
	6	765	4,7	3,5	12,7	1094	1,69	13,9	74,6	1084	47	0,41	56	57	48	49
	4	395	2,8	2,0	11,3	471	1,14	7,4	76,7	580	16	0,14	46	44	38	36
	2	Data output is impossible at this stage with 30 Pa external pressure.														
3	10	2200	11,2	9,4	13,7	1916	2,56	38,8	73,1	3029	281	2,22	67	68	59	60
	8	1700	9,0	7,5	13,2	1548	2,19	30,4	73,8	2374	166	1,37	65	66	57	58
	6	1120	6,4	5,2	12,5	1094	1,70	20,4	74,9	1595	83	0,73	58	58	50	50
	4	405	2,7	2,1	10,6	471	0,92	7,7	77,7	602	87	0,56	48	46	40	38
	2	Data output is impossible at this stage with 30 Pa external pressure.														
4	10	2975	16,9	12,9	13,5	2899	5,77	52,9	73,6	4132	353	2,77	68	70	60	62
	8	2380	13,9	10,6	13,1	2386	4,79	42,7	74,1	3335	203	1,66	67	68	59	60
	6	1595	9,8	7,5	12,4	1688	3,44	29,2	75,1	2280	97	0,87	59	60	51	52
	4	845	5,6	4,3	11,3	969	2,02	15,9	76,6	1238	33	0,30	49	47	41	39
	2	Data output is impossible at this stage with 30 Pa external pressure.														

Q_{kg} [W] = cooling output, total; Q_{ks} [W] = cooling output, sensitive; Q_h [W] = heat output; t_{L1} = air inlet temperature, t_{L2} = air outlet temperature

Make use of our online calculation programs to calculate your heat outputs and flow rates with a couple of clicks!

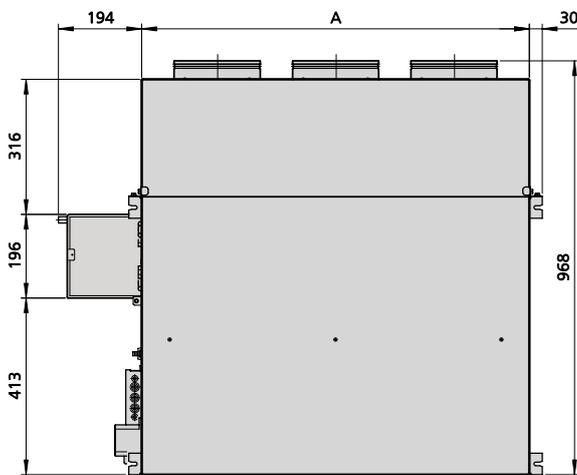
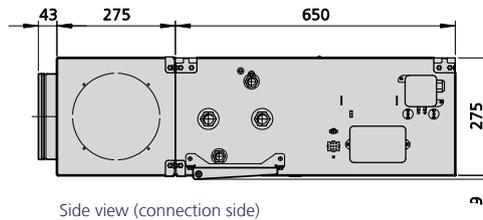
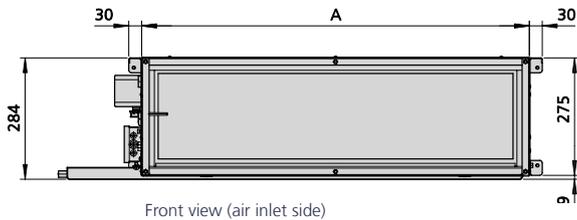
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1) at 30 Pa external pressure, ISO Coarse filter
 2) total, with CHW 7/12°C, t_{L1} = 27°C, 48% rel. h.
 3) at LPHW 82/71°C, t_{L1} = 20°C
 4) without connection unit for circular pipe, taking into consideration the correction for duct openings as per DIN EN 16583
 5) The sound level was calculated based on an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081).

Venkon XL

Models 1 – 4, basic unit with connection unit for circular pipe, 4-pipe (example)

Technical drawings, connection side on left in the direction of airflow (dimensions in mm)



Model	Unit width
	A [mm]
1	500
2	900
3	1300
4	1700

Specifications

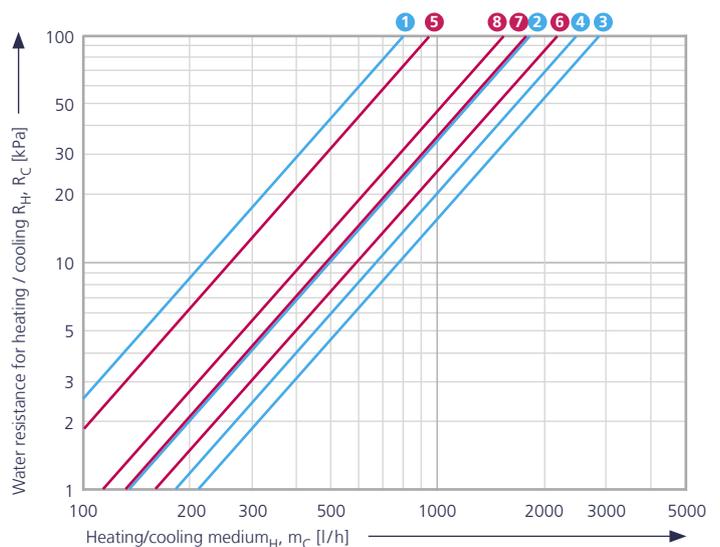
Weight

Model	Basic unit	Basic unit with connection unit for circular pipe
	[kg]	[kg]
1	33	40
2	51	64
3	71	86
4	88	104

Water content of heat exchanger

Model	Internal volume 2-pipe	Internal volume 4-pipe cooling	Internal volume 4-pipe heating
	[l]	[l]	[l]
1	1.4	1.4	0.2
2	2.8	2.8	0.4
3	4.2	4.2	0.6
4	5.7	5.7	0.9

Pressure drop diagram



- 1 Model 1 cooling
- 2 Model 2 cooling
- 3 Model 3 cooling
- 4 Model 4 cooling
- 5 Model 1 heating
- 6 Model 2 heating
- 7 Model 3 heating
- 8 Model 4 heating

Model: 4-pipe, basic unit with connection unit for circular pipe, ISO Coarse filter



Model	Control voltage	Air volume ¹⁾	Cooling, 4-pipe ²⁾				Heating 4-pipe ²⁾			Electrical power consumption	Current consumption	Sound power level ⁴⁾		Sound pressure level ⁵⁾		
			Cooling output	Outlet air temperature	Medium flow	Condensation volume	Heat output	Outlet air temperature	Medium flow			Suction-side	Pressure-side	Suction-side	Pressure-side	
	[V]	V [m³/h]	Q _{kg} [kW]	Q _{ks} [kW]	t _{L2} [°C]	m [kg/h]	[l/h]	Q _h [kW]	t _{L2} [°C]	m [kg/h]	P _{el} [W]	I [A]	L _{PA} [dB(A)]	L _{PA} [dB(A)]	L _{WA} [dB(A)]	L _{WA} [dB(A)]
1	10	680	3,4	2,9	13,9	580	0,76	5,4	44,0	424	85	0,72	62	58	54	50
	8	510	2,6	2,2	13,3	454	0,60	4,5	46,6	351	46	0,41	57	53	49	45
	6	365	2,0	1,7	12,6	343	0,46	3,6	49,9	283	22	0,20	53	47	45	39
	4	110	0,7	0,6	9,9	125	0,18	1,7	65,7	131	9	0,10	43	39	35	31
	2	Data output is impossible at this stage with 30 Pa external pressure.														
2	10	1465	7,9	6,2	13,8	1916	2,50	11,3	43,3	885	167	1,36	65	61	57	53
	8	1185	6,7	5,2	13,5	1548	2,20	9,8	44,8	762	98	0,81	64	59	56	51
	6	765	4,7	3,5	12,7	1094	1,69	7,2	48,3	561	47	0,41	56	52	48	44
	4	395	2,8	2,0	11,3	471	1,14	4,5	54,4	352	16	0,14	46	44	38	36
	2	Data output is impossible at this stage with 30 Pa external pressure.														
3	10	2200	11,2	9,4	13,7	1916	2,56	18,5	45,3	1444	281	2,22	67	63	59	55
	8	1700	9,0	7,5	13,2	1548	2,19	15,2	47,0	1190	166	1,37	65	60	57	52
	6	1120	6,4	5,2	12,5	1094	1,70	11,1	49,9	868	83	0,73	58	53	50	45
	4	405	2,7	2,1	10,6	471	0,92	5,1	58,4	401	87	0,56	48	45	40	37
	2	Data output is impossible at this stage with 30 Pa external pressure.														
4	10	2975	16,9	12,9	13,5	2899	5,77	24,8	45,1	1937	353	2,77	68	64	60	56
	8	2380	13,9	10,6	13,1	2386	4,79	20,9	46,5	1633	203	1,66	67	62	59	54
	6	1595	9,8	7,5	12,4	1688	3,44	15,4	49,1	1204	97	0,87	59	55	51	47
	4	845	5,6	4,3	11,3	969	2,02	9,5	53,8	739	33	0,30	49	47	41	39
	2	Data output is impossible at this stage with 30 Pa external pressure.														

Q_{kg} [W] = cooling output, total; Q_{ks} [W] = cooling output, sensitive; Q_h [W] = heat output; t_{L1} = air inlet temperature, t_{L2} = air outlet temperature

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¹⁾ at 30 Pa external pressure, ISO Coarse filter

²⁾ total, with CHW 7/12°C, t_{L1} = 27°C, 48% rel. h.

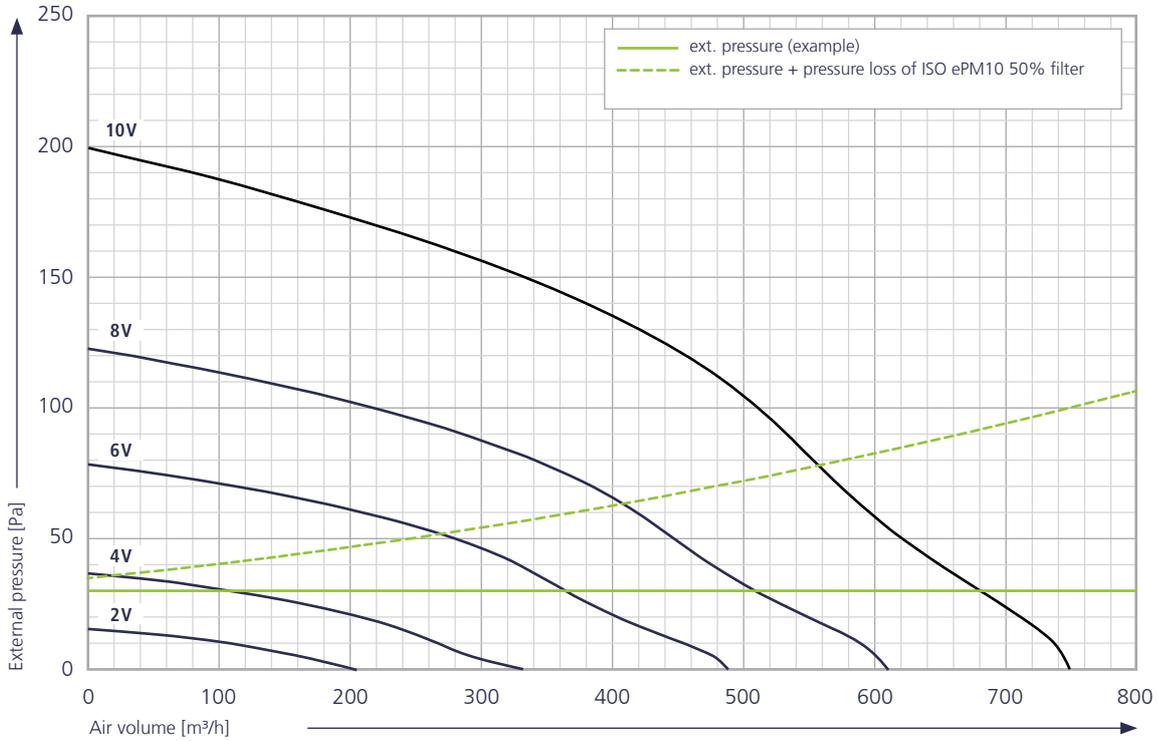
³⁾ at LPHW 82/71°C, t_{L1} = 20°C

⁴⁾ including connection unit for circular pipe, taking into consideration the correction for duct openings as per DIN EN 16583

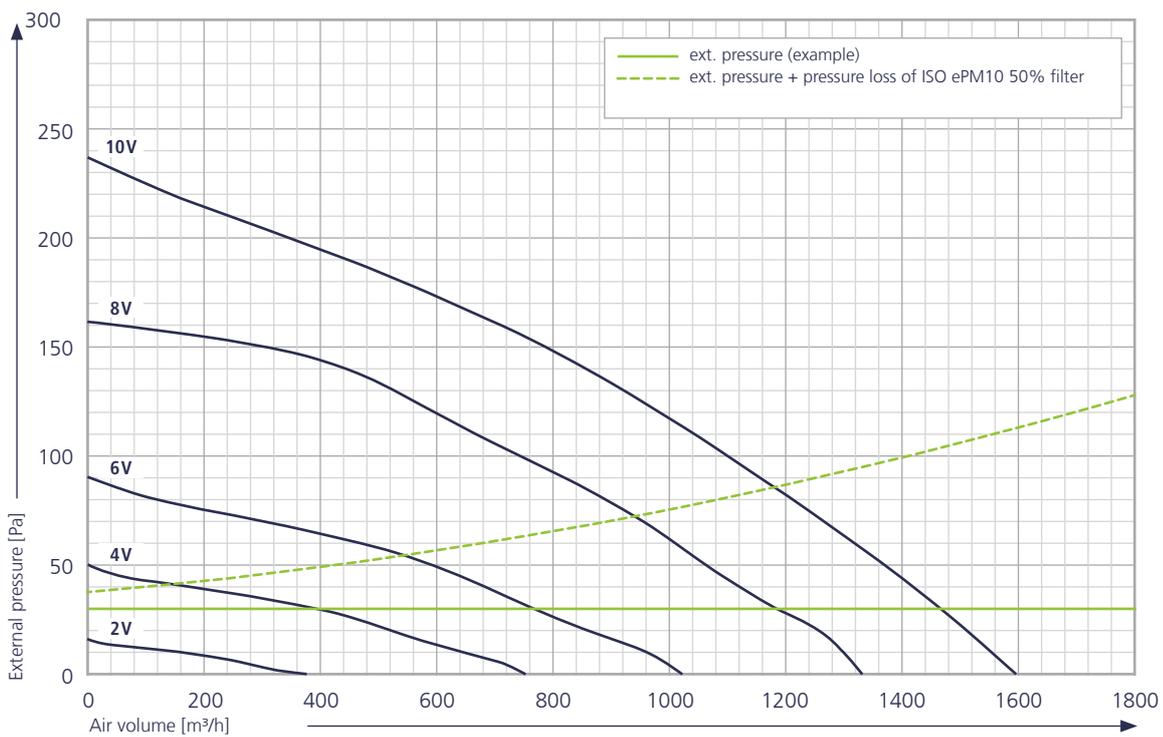
⁵⁾ The sound level was calculated based on an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081).

Air flow diagrams for Venkon XL*

Model 1

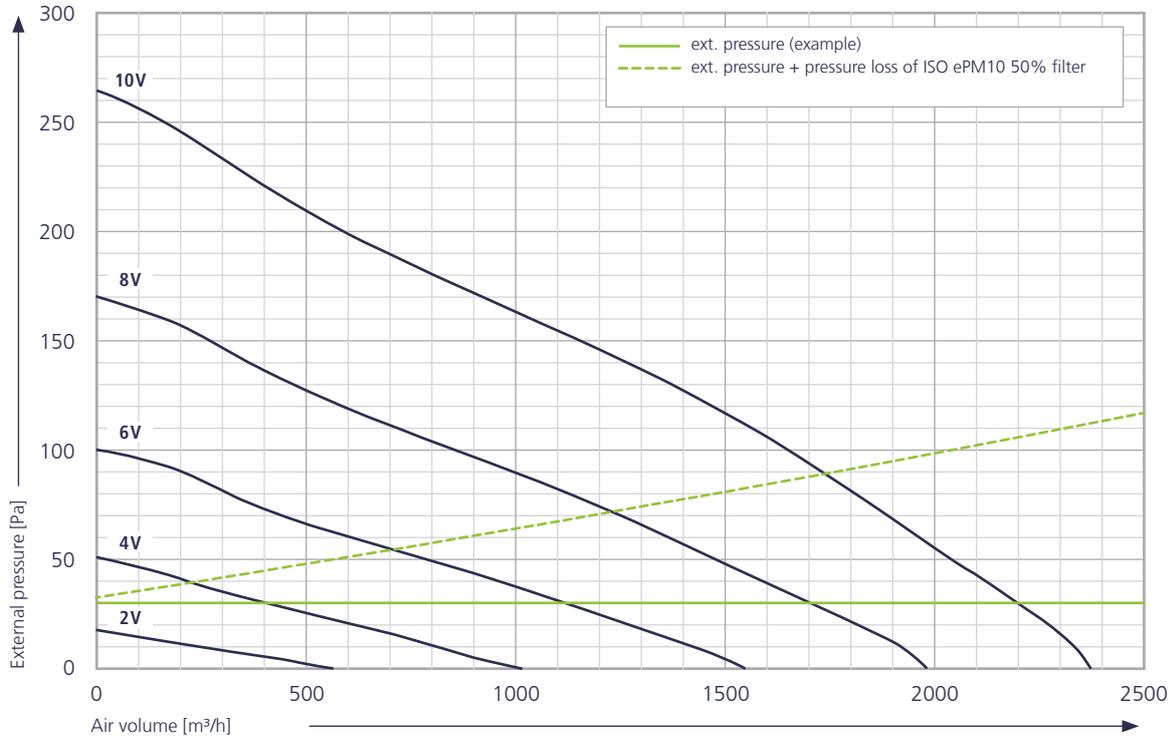


Model 2

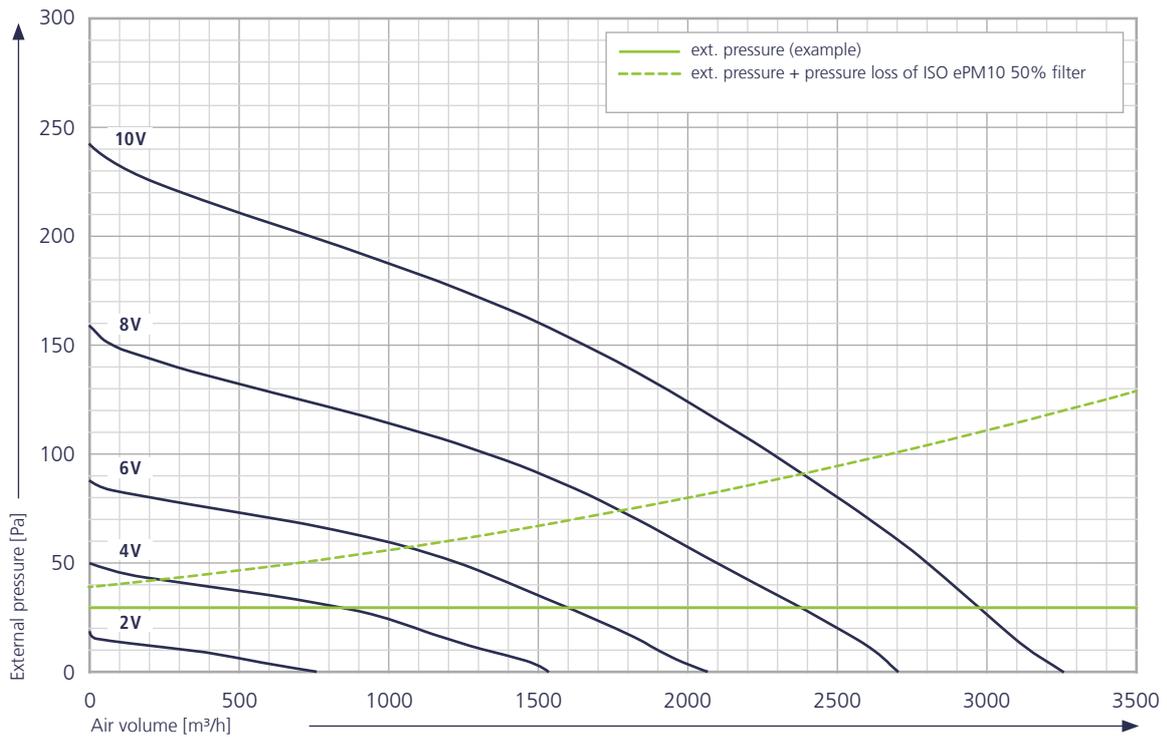


* The stated characteristic lints also apply to the basic unit with integral ISO Coarse filter

Model 3

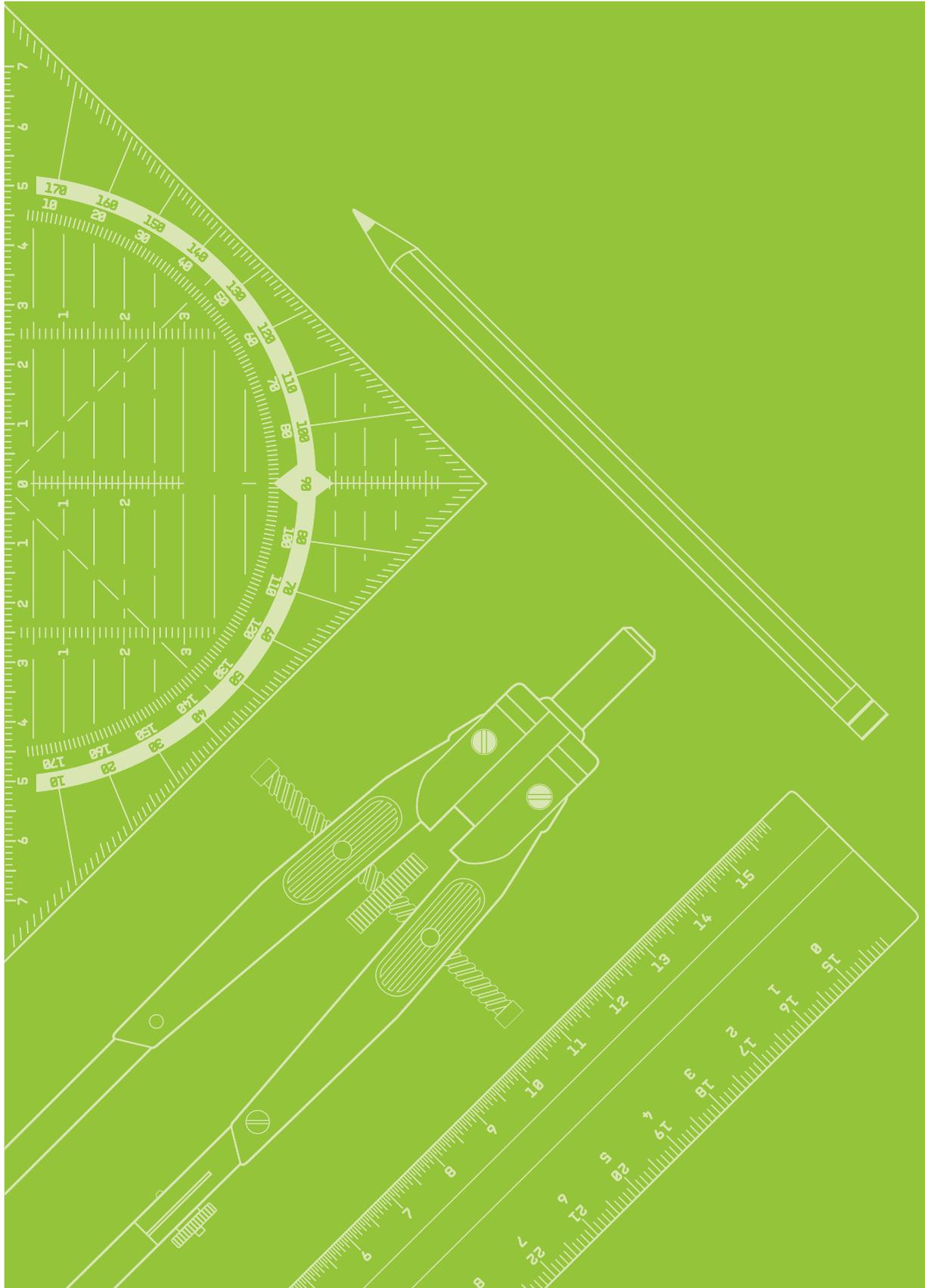


Model 4



* The stated characteristic lints also apply to the basic unit with integral ISO Coarse filter

03 ▶ Design information



Information on planning and design

Venkon XL units are suitable for use in all kinds of buildings in which there is a cooling load owing to internal loads and the effects of sunlight and/or a heating load in winter.

Cooling load

The cooling load required is calculated in line with VDI 2078 (VDI regulations governing cooling loads).

The usual cold water temperature spread is approximately 5 K. Take into account the effective unit outputs in line with the technical conditions of installation and use. Check the suitability of all components (circulation pump etc.) for use with cold water is, noting the minimum temperatures.

Heating load

The required heating load is calculated in accordance with DIN EN 12831.

Choice of the installation site

Take into account the following requirements when choosing your installation location:

- ▶ no obstacles to air distribution and air inlet
- ▶ option to inspect the entire unit
- ▶ positioning of the PowerKon NT in coordination with the architecture and building services planning

Connection unit for circular pipe

The Venkon XL can be fitted with a connection unit for circular pipe DN 200 on the discharge side for targeted air routing to ventilation end components. The number of spigots is variable. Providing conditions on site do not specify a number of spigots, we recommend using the number specified depending on the air volume ranges as per the "Recommended number of spigots" table on page 23.

Acoustics

When designing a system, note that disruptive noise may occur at higher fan speeds. The respective sound power levels of a Venkon XL are listed in the tables (see "Technical data"). The sound pressure level was calculated with an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081).

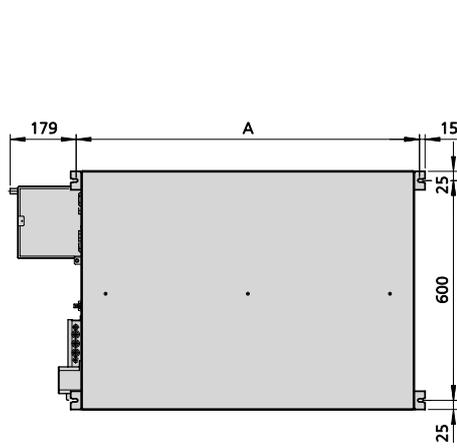
As the sound level is not only due to the Venkon XL but is also influenced by the number of units and also very significantly by the acoustic characteristics of the room, the actual figure may vary in practice.

External pressure

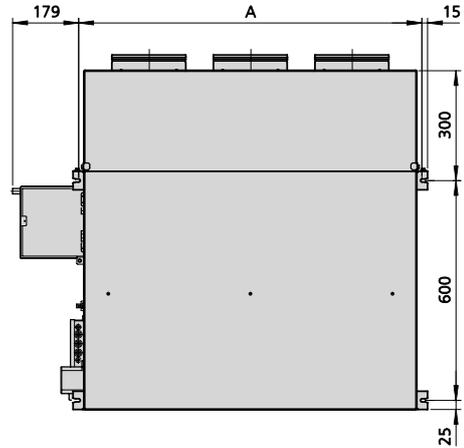
The air, cooling and heat outputs in the tables (see "Technical data") apply or the control voltage with an external pressure of 30 Pa when using an ISO Coarse filter.

The effective air volume can be read off in the air volume diagrams when using an ISO ePM10 50% filter and higher external pressure. Alternatively all data can be found on the website.

Suspension points



Top view of basic unit

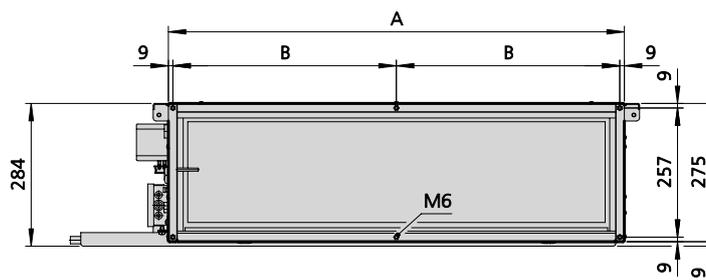


Top view Basic unit with connection unit for circular pipe

Dimensions

Model	Distance A suspension [mm]
1	530
2	930
3	1330
4	1730

Frame connection



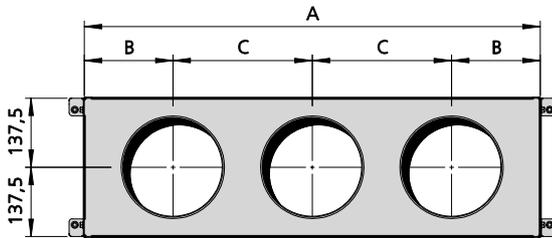
Front view (air inlet side)

Dimensions

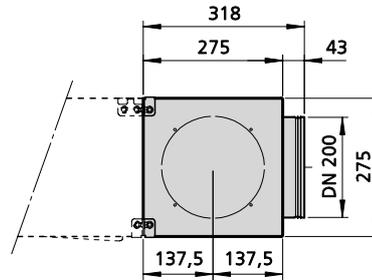
Model	Unit width A [mm]	Mounting points B [mm]
1	500	482
2	900	441
3	1300	427
4	1700	561

Connection unit for circular pipe

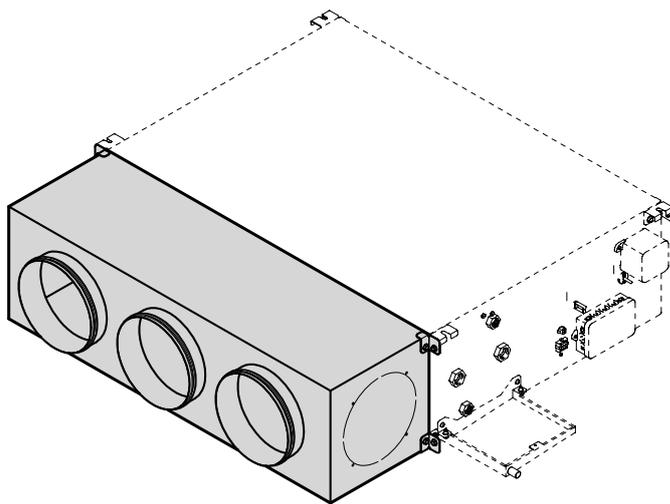
Example of model 2



Front view



Side view



isometric view

Dimensions

Model	Unit width A	Edge distance B	Interim distance C
	[mm]	[mm]	[mm]
1	500	135	230
2	900	175	275
3	1300	200	300
4	1700	200	325

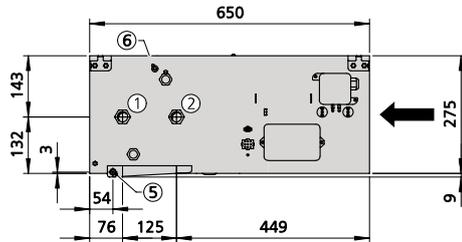
Recommended number of connectors

Model	Air volume	Spigots
	[m³/h]	[Quantity]
1	–	2
2	< 1350	3
	> 1350	4 or 5
3	< 1800	4
	1800 - 2250	5
	> 2250	6
4	< 2250	5
	2250 - 2700	6
	> 2700	7

Water connection dimensions for 2-pipe

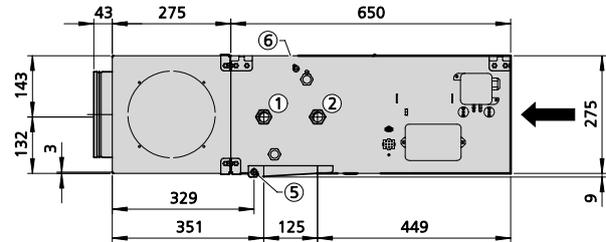
Venkon XL, connection on left

(all dimensions in mm)



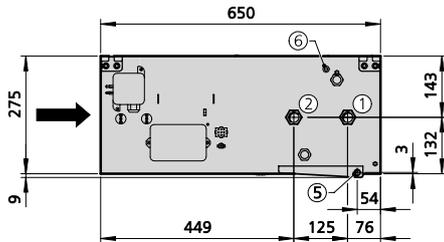
Side view, connection side

Venkon XL with connection unit for circular pipe



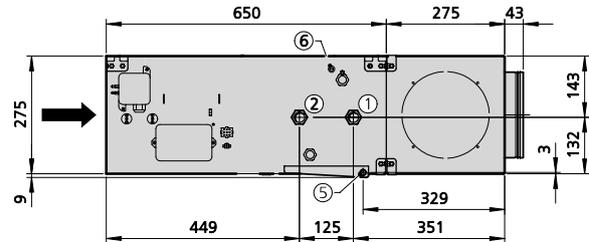
Side view, connection side

Venkon XL, connection on right



Side view, connection side

Venkon XL with connection unit for circular pipe, connection on right



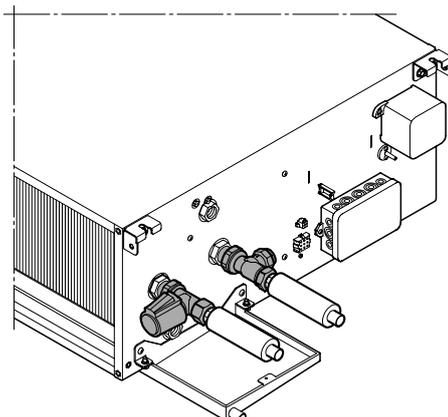
Side view, connection side

Connections

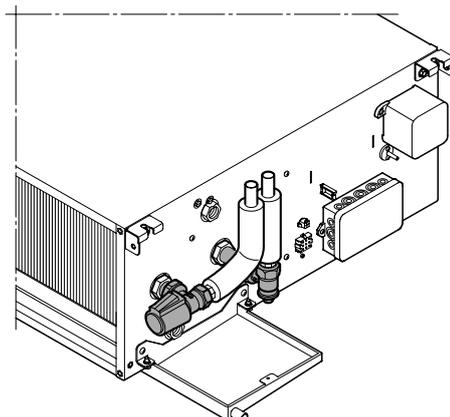
- ① Flow 3/4"
- ② Return 3/4"
- ⑤ Condensation drain Ø 15 mm
- ⑥ Air vent
- ➔ Air direction/air inlet

Water connection accessories, valve selection

Valve Open/Closed and return shut-off valve, straight



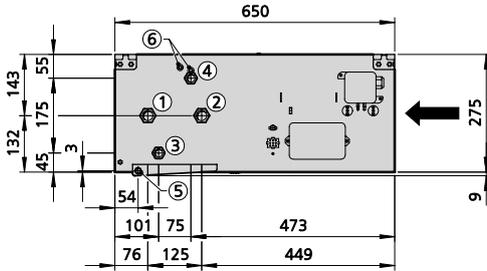
Valve Open/Closed and return shut-off valve, angled (for higher bass flows)



Water connection dimensions for 4-pipe

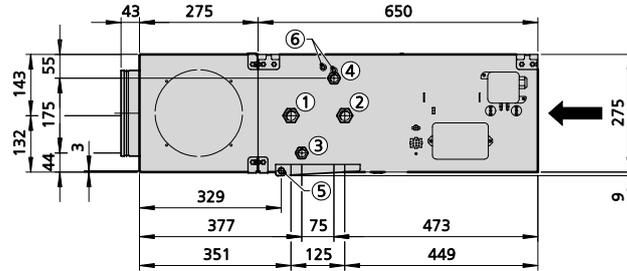
Venkon XL, connection on left

(all dimensions in mm)



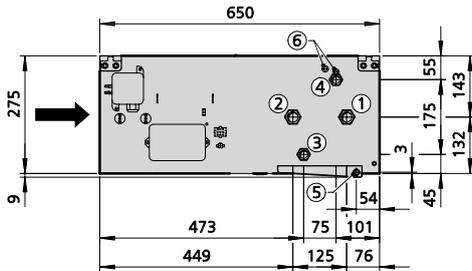
Side view, connection side

Venkon XL with connection unit for circular pipe, connection on left



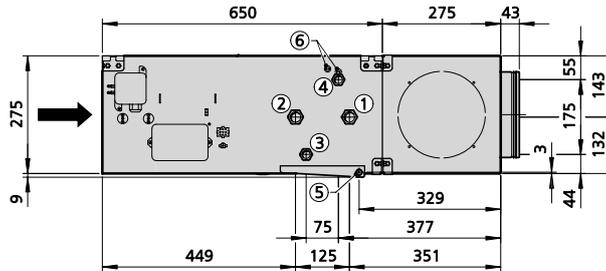
Side view, connection side

Venkon XL, connection on right



Side view, connection side

Venkon XL with connection unit for circular pipe, connection on right



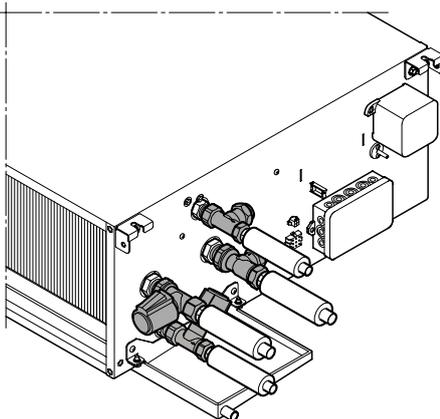
Side view, connection side

Connections

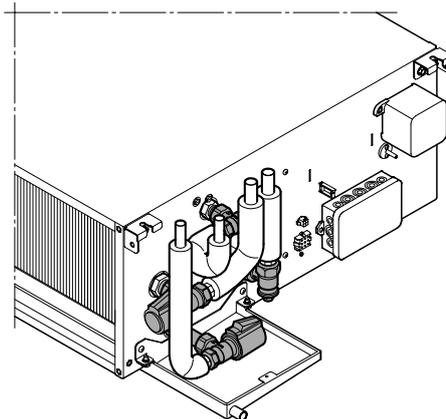
- ① Cooling flow 3/4"
 - ② Cooling return 3/4"
 - ③ Heating flow 1/2"
 - ④ Heating return 1/2"
 - ⑤ Condensation drain Ø 15 mm
 - ⑥ Air vent
- ➔ Air direction/air inlet

Water connection accessories, valve selection

Valve Open/Closed and return shut-off valve, straight



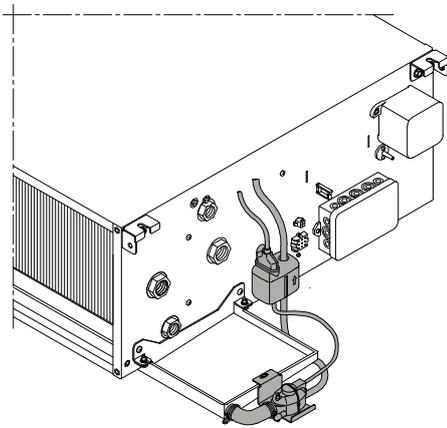
Valve Open/Closed and return shut-off valve, angled (for higher bass flows)



Condensation drain

Condensation is produced if Venkon XL units are operated at a system temperature below the dew point. The condensation from the heat exchanger drips into the condensate tray underneath. You will need a condensation pump (optional accessories) should a natural gradient be impossible on site. This is used to pump the condensation into higher collection or discharge equipment.

The condensation to be disposed of from the Venkon XL, directly from the condensation tray or from the condensation pump hose, has to follow a minimum 1% gradient. If necessary, the condensation has to be collected in a pool pump on site if it has to be drained higher than the optional pump allows.

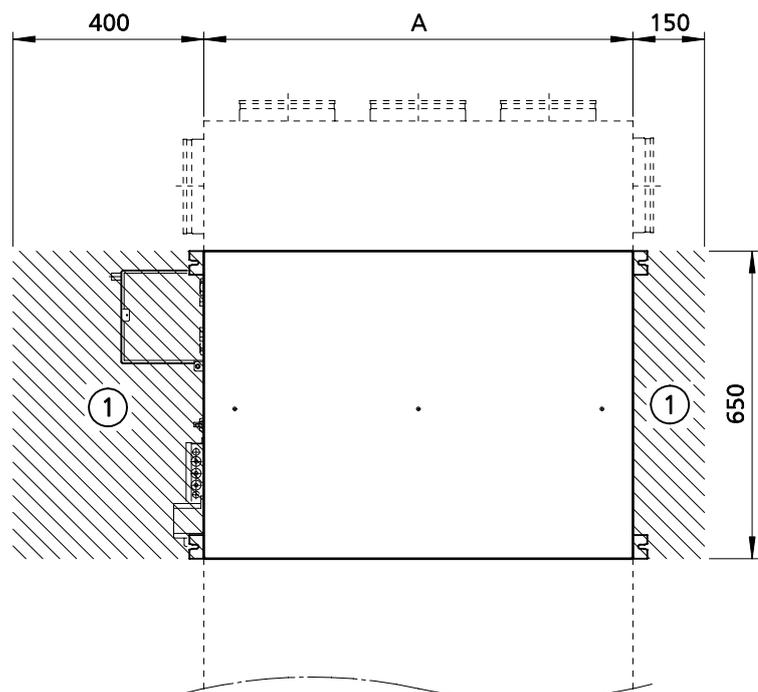


Example of condensation pump arrangement

Inspection hatch

Provide the following service hatches for installation, maintenance and inspection with suspended ceiling units beside the unit (see hatched area) and below the unit.

Model	Unit width [mm]
1	500
2	900
3	1300
4	1700

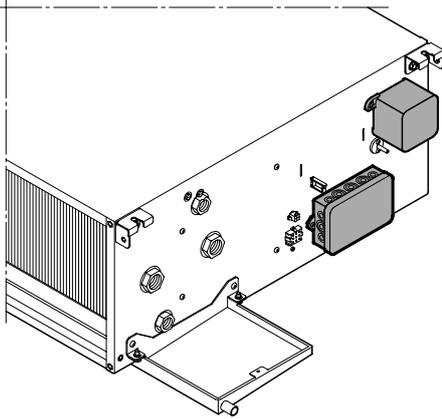


Top view, example of connection on left

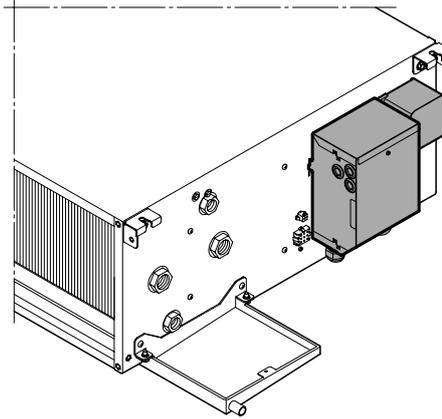
Control options

Example of 4-pipe, connection on left

with electromechanical control and differential pressure switch (00D)



with KaControl and differential pressure switch (C1D)



Important note: The differential pressure switch with the control versions (*00D and *C1D) can only be evaluated by an external controller.

04 ▶ Controls

Control of Venkon XL electromechanical model

Product features

The fans are wired to the terminal with the electromechanical model. The appropriate terminals are available for valve drives on site.

Fans

The speed of EC fans used is continuously variably controlled by a 0-10 V DC signal. The "intelligent" motor electronics detects any possible motor fault and automatically switches the fan off.

Operating units

Three different operating units are available for operation and control.

Room thermostat type 196000030155



Room thermostat for 3-stage speed control for surface wall-mounted installation in an attractive restrained design

Product features:

- ▶ 2- and 4-pipe applications, thermal valve actuators 230 V AC Open/Closed, normally closed
- ▶ ABS plastic housing, functional and robust design, pure white, similar to RAL 9010, for surface-mounting on a flush back box or surface-mounted using a surface-mounted frame (accessory)
- ▶ simple operation using a large dial for temperature setting with mechanical range limitation of the temperature setpoint, operating mode selector switch Standby, Manual fan, Automatic fan, 3-stage switch to pre-select fan speed when operating mode selector switch is in the "Manual fan" position
- ▶ control input for heating/cooling changeover with 2-pipe systems
- ▶ control input can either be set to Comfort/ECO or ON/OFF switchover
- ▶ room frost protection function $< 5\text{ °C} \rightarrow$ heating valve open, fan stage 3
- ▶ optional use of the internal or external room temperature sensor (accessory)
- ▶ parallel operation of 2 units is possible

Clock thermostat type 196000030256



Clock thermostat for speed control for surface wall-mounted installation in an attractive restrained design

Product features:

- ▶ 2- and 4-pipe applications, thermal valve actuators 230 V AC Open/Closed, normally closed
- ▶ ABS plastic housing, robust design, pure white, similar to RAL 9010, for surface-mounting on a flush back box, integration in switch product range with dimensions 50 x 50 mm
- ▶ display with adjustable backlight
- ▶ operation using 4 sensor keys
- ▶ timer with automatic summer/winter changeover
- ▶ control input for heating/cooling changeover with 2-pipe systems
- ▶ control input can either be set to Comfort/ECO or ON/OFF switchover
- ▶ unit frost protection function $< 5\text{ °C} \rightarrow$ valve(s) open
- ▶ optional use of the internal or external room temperature sensor (accessory)
- ▶ parallel operation of 2 units is possible

Climate controller type 196000148941 / type 196000148942 / type 196000148943 / type 196000148944



The climate controller is a control unit with a high-quality glass finish

Product features:

- ▶ 2- and 4-pipe - applications, thermal valve actuators 230 V AC Open/Closed, normally closed
- ▶ 2.5" LCD display
- ▶ high-quality glass surface with capacitive keys
- ▶ LED ring acts as key feedback
- ▶ selection of the value to be displayed (room temperature, setpoint, setpoint offset)
- ▶ automatic LED backlight
- ▶ optional use of the internal or external room temperature sensor (accessory)
- ▶ room temperature control
- ▶ parametrisable room frost protection function
→ RT < 8 °C = heating valve open, fan stage 1
- ▶ parametrisable unit frost protection function
→ RT < 4° C = valve(s) open, fan off
- ▶ standby mode
- ▶ Eco/day changeover
- ▶ manual or automatic mode
- ▶ functional display
- ▶ alarm display
- ▶ timer program with 3 time channels, each with 4 switchover points
- ▶ cleaning mode
- ▶ parametrisable language: German or English
- ▶ Modbus RTU slave interface to wire to higher-level building automation system (only with type 148943 and type 148944)
- ▶ 3 control inputs with type 148941 and type 148942 or 2 control inputs with type 148943 and type 148944 (parametrisable functions e.g. window contact, motion detector, heating/cooling changeover, external room sensor
- ▶ password-protected parameter level
- ▶ surface-mounted installation without back box
- ▶ pure white (type 148941 and type 148943) or black (type 148942 and type 148944)
- ▶ parallel operation of 2 units is possible

Operating using on-site systems

Control via analogue and digital signals is also possible as an alternative to the Kampmann operating units. The following analogue and digital inputs and/or outputs are needed:

- ▶ speed control via a 0-10 V DC signal, the fan starts up safely at 1.5 V DC
- ▶ control input for the detection of a possible condensation alarm → only with electromechanical model with condensation pump
- ▶ analogue or digital signals to control the fan actuator(s) according to the actuator model

Cabling information

The following points need to be taken into account with the cabling and wiring plans stated for the electrical installation.

- ▶ Comply with the details on type of cable and cabling taking into consideration VDE 0100.
- ▶ None *: NYM-J. The requisite number of wires including fuse is stated on the cable. Cross-sections are not indicated as the cable length is involved in the calculation of the cross-section.
- ▶ With *: J-Y(ST)Y 0.8 mm. Lay separately from high-voltage cables.
- ▶ If you are using different cable types they must be at least equivalent to these.
- ▶ The terminals on the unit are suitable for a maximum wire cross-section of 2.5 mm².
- ▶ Only pulse and/or all-current sensitive residual current protective devices (type A or B) are permitted

when using residual current protective devices.

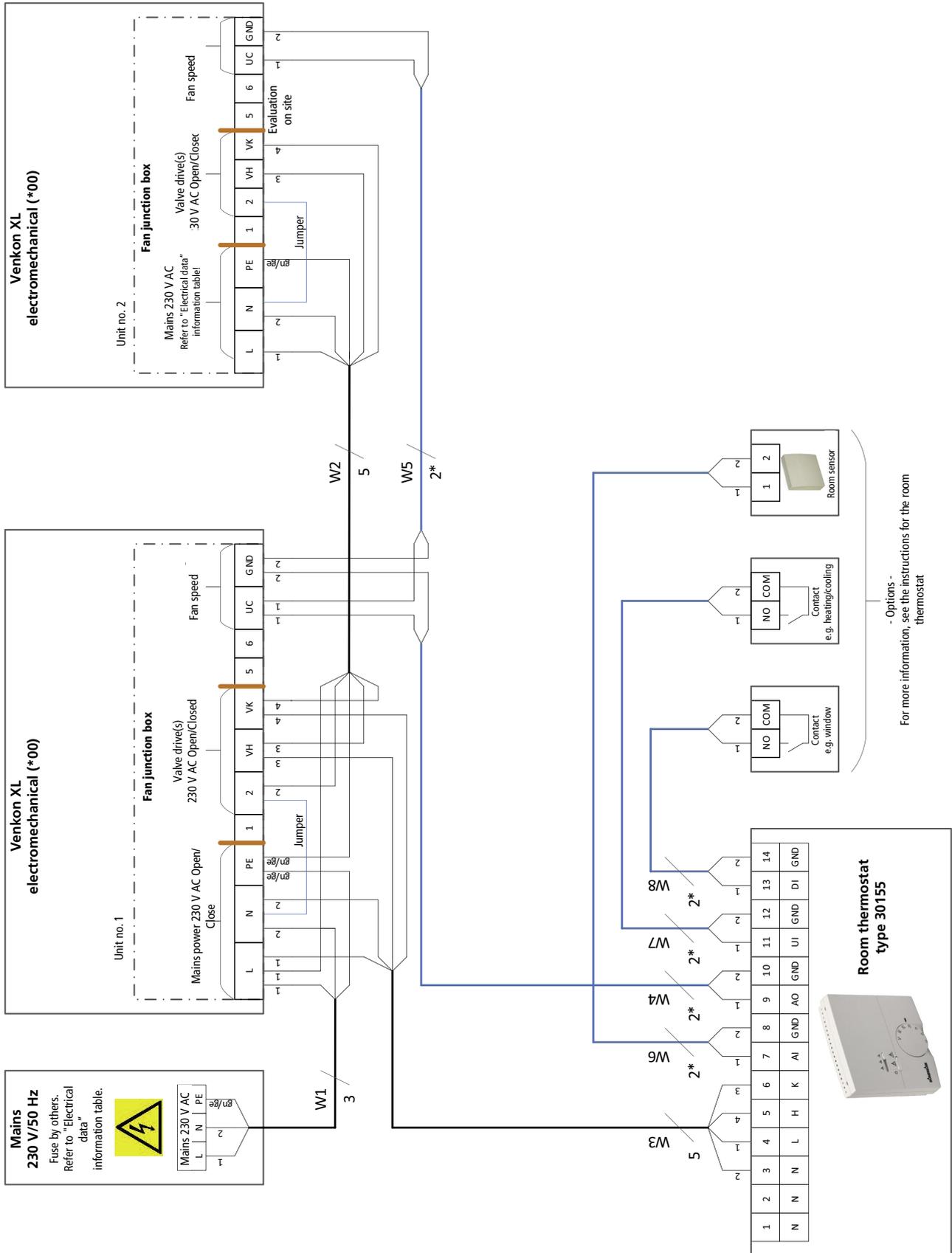
When power is applied to the unit, pulse-like capacitor load currents in the integrated EMC filter can lead to the RCCB being immediately tripped. We recommend residual current protective switches with a threshold of 300 mA.

- ▶ The electrical data listed in the following table needs to be considered when configuring the on-site mains supply and fuses.

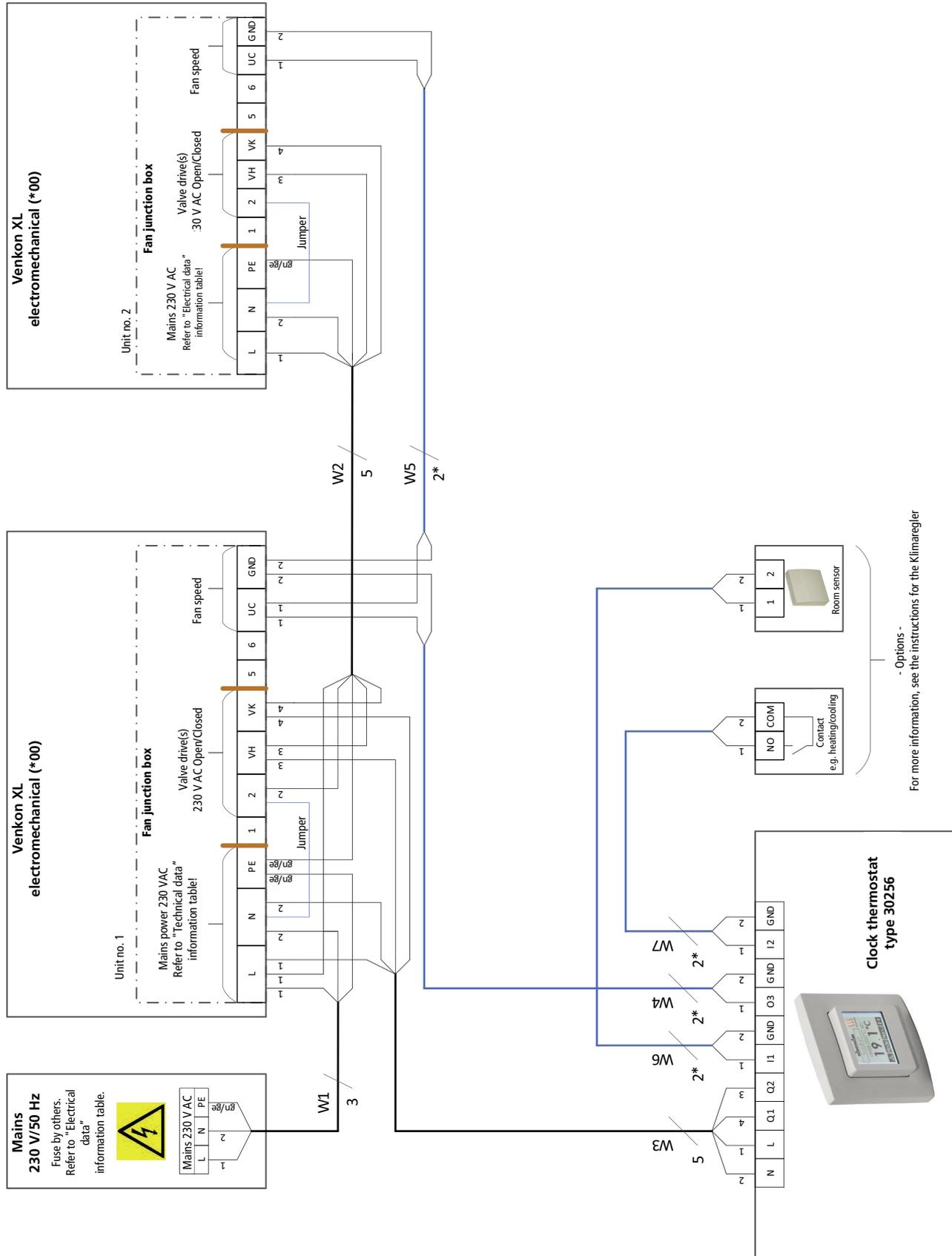
Electrical data for Venkon XL electromechanical model

Model	Fans	Nominal voltage	Mains frequency	Nominal power	Nominal current	Leakage current	Ri analogue input	Enclosure type	Protection class
	[Quantity]	[V AC]	[Hz]	[W]	[A]	[mA]	[kΩ]		
1	1 x Single	230	50	90	0.76	< 3.5	100	IP21	I
2	1 x Tandem	230	50	178	1.45	< 3.5	100	IP21	I
3	1 x Single, 1 x Tandem	230	50	297	2.32	< 3.5	50	IP21	I
4	2 x Tandem	230	50	377	2.93	< 3.5	50	IP21	I

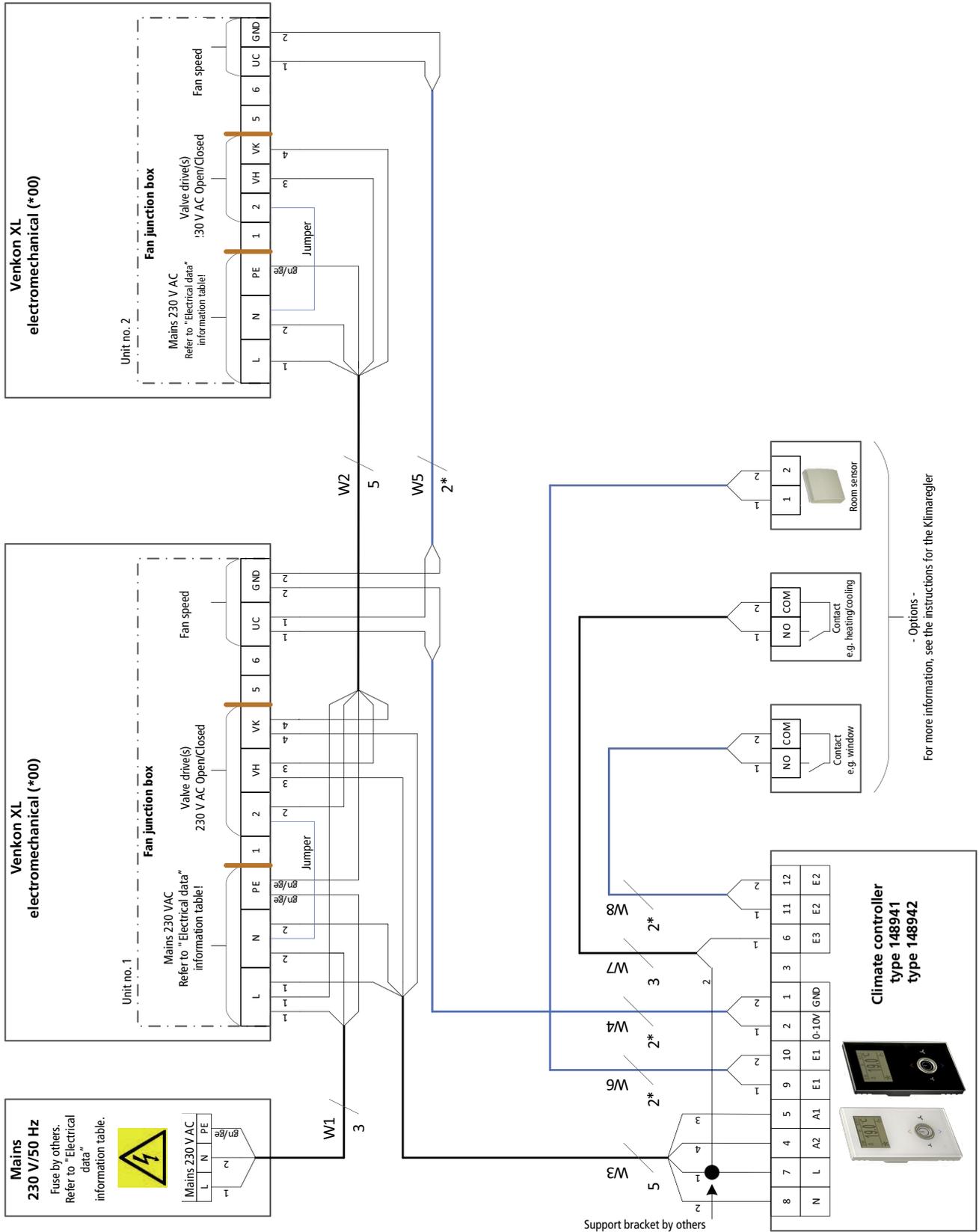
Cabling and wiring of Venkon XL electromechanical (*00), 2- or 4-pipe, valve actuator(s) 230 V AC Open/Closed, room thermostat type 19600030155



Cabling and wiring of Venkon XL electromechanical (*00),
 2- or 4-pipe, valve actuator(s) 230 V AC, Open/Closed,
 clock thermostat type 196000030256



Cabling and wiring of Venkon XL electromechanical (*00), 2- or 4-pipe, valve actuator(s) 230 V AC, Open/Closed, climate controller type 196000148941 / 196000148942



Control of Venkon XL, KaControl model

The all-inclusive solution!

Product features

Units configured for operation with KaControl are fully wired and fitted with all electrical parts ready for connection (with the exception of optional accessories).

The built-in, high-performance, parametrisable KaControl microprocessor control provides all the functions the Venkon XL needs.

The "face" of the KaControl is the KaController operating unit.

A group of up to six units can be formed using a KaController unit without the need for additional addressing.

Optional plug-in interface cards offer the option of connecting to higher-level control systems.

Fans

The speed of the EC fans used in the units are controlled by a 0-10 V DC signal from the KaControl. The "intelligent" motor electronics detects any possible motor fault and automatically switches the fan off. A motor fault on the unit to which the KaController is connected is displayed on the KaController.

Control unit

Various versions of KaController operating unit are available for operation and control.

KaController

type 196003210001



type 196003210002



type 196003210006



The KaController offers maximum operating convenience with a large display, one-touch operation and optionally also with side operating keys for quick access. Based on the principle of "as little as possible, as much as required", even untrained users can intuitively get to grips with the control options. The displays are language-independent using pictograms. The basic functions are inputted in a user-friendly way using the KaController.

Product features of the KaController

- ▶ plastic housing, pure white similar to RAL 9010 (type 196003210001 and 196003210002 or black (type 196003210006) for surface-mounting on a flush back box or surface-mounting using a surface-mounted frame (accessory)
- ▶ high-quality design of room control units, large PCD multifunctional display with energy-saving, automatically switching LED backlight
- ▶ push-turn navigator dial with endless turn/lock function
- ▶ side function keys for quick access (only with type 196003210002)
- ▶ integral temperature sensor
- ▶ individually adjustable basic display
- ▶ display of fault messages
- ▶ built-in weekly switching program
- ▶ password-protected parameter level
- ▶ control input can either be set to Comfort/ECO or ON/OFF switch-over
- ▶ 24 V DC/max 0.5 A switch output parametrisable to unit alarm, heat or cooling demand (only with 2-pipe applications)
- ▶ sequential control of valve (Open/Closed) and fan speed via a (2-pipe) or two data points 0-10 V DC (4-pipe) → only with control without KaController
- ▶ one slot for optional interface cards for connection to a higher-level building automation system → optionally Modbus, KNX, BACnet (accessory) Further information on the interface cards on request.
- ▶ password-protected parameter level
- ▶ parallel operation of a maximum of 6 units is possible, extendible to a maximum of 30 units using additional CANbus cards type 3260301 (accessory) per unit

KaControl

The parametrisable KaControl microprocessor control offers a wealth of functions. The following default functions are factory set for the Venkon XL product:

- ▶ 2- and 4-pipe - applications, thermal valve actuators 24 VDC Open/Closed, normally closed
- ▶ room temperature control with 2-point valve control and demand-led fan control in Automatic mode or optionally fixed stage selection
- ▶ room frost protection function → $RT < 8\text{ °C}$ = heating valve open, fan stage 1
- ▶ unit frost protection function → $RT < 4\text{ °C}$ = valve(s), fan off
- ▶ optional use of the internal or external room temperature sensor (accessory)
- ▶ in the event of an alarm being triggered on a device to which the KaController room control unit is connected, e.g. a motor fault or condensation alarm is detected by the KaControl and indicated on the KaController control unit
- ▶ control input for heating/cooling changeover with 2-pipe systems

Any additional functions required can be parametrised and correspondingly coordinated.

Cabling information

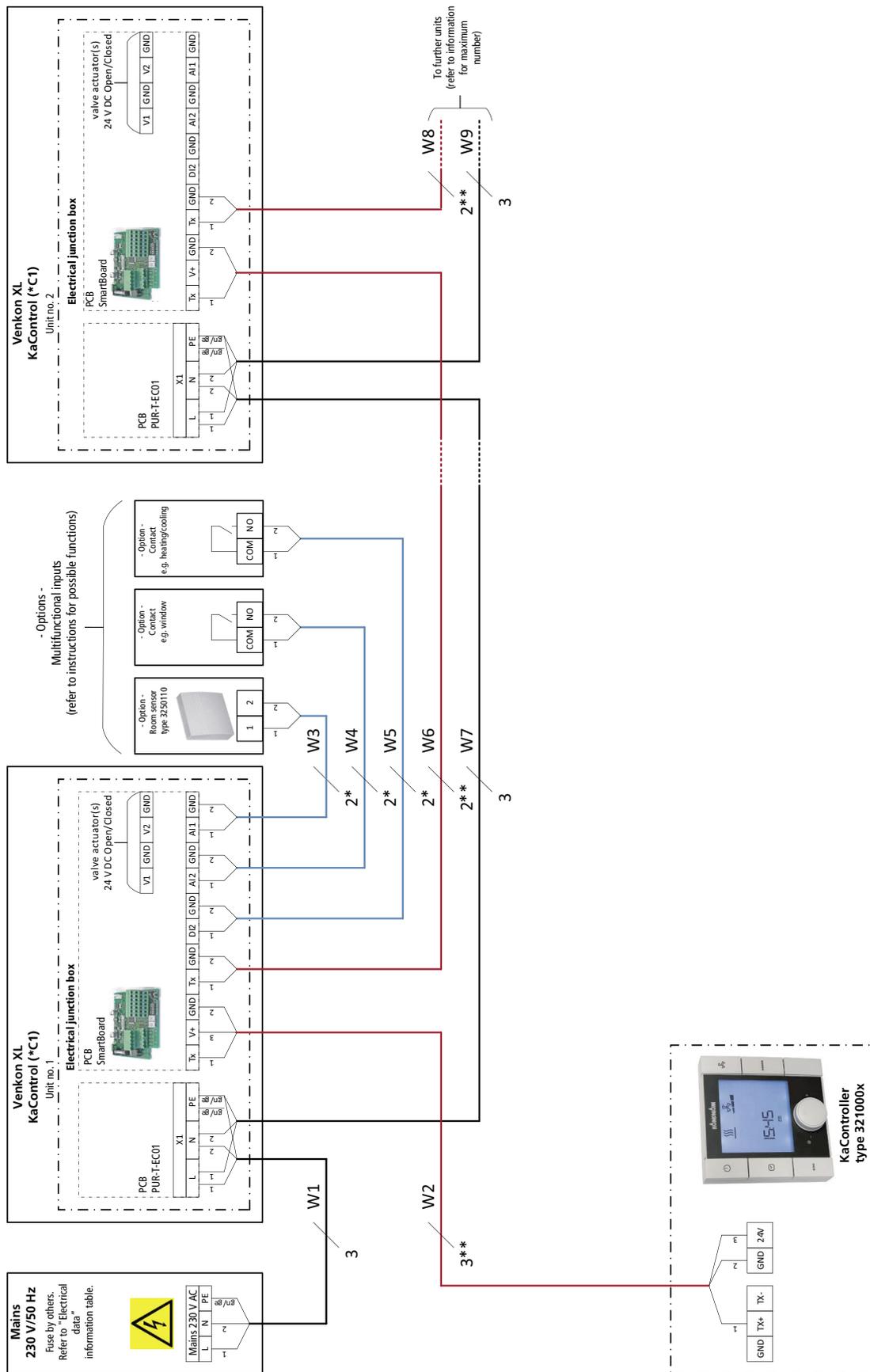
The following points need to be taken into account with the cabling and wiring plans stated for the electrical installation.

- ▶ Comply with the details on type of cable and cabling taking into consideration VDE 0100.
- ▶ None *: NYM-J. The requisite number of wires including fuse is stated on the cable. Cross-sections are not indicated as the cable length is involved in the calculation of the cross-section.
- ▶ With *: J-Y(ST)Y 0.8 mm. Lay separately from high-voltage cables.
- ▶ With **: UNITRONIC BUS LD 0.22 mm². Lay separately from high-voltage cables.
- ▶ If you are using different cable types they must be at least equivalent to these.
- ▶ Length of BUS cable from the KaController to unit 1: max. 30 m.
- ▶ Maximum number of parallel units: 6 no. CANbus cards type 3260301 needed for each unit (see accessories) maximum 30 no.
- ▶ Length of BUS cable from unit 1 to the last unit max. 30 m. The cable length can be increased to 500 m using CANBUS cards type 3260301 (see accessories).
- ▶ The terminals on the unit for the mains power supply are suitable for a maximum wire cross-section of 2.5 mm².
- ▶ Only pulse and/or all-current sensitive residual current protective devices (type A or B) are permitted when using residual current protective devices. When power is applied to the unit, pulse-like capacitor load currents in the integrated EMC filter can lead to the RCCB being immediately tripped. We recommend residual current protective switches with a threshold of 300 mA.
- ▶ The electrical data listed in the following table needs to be considered when configuring the on-site mains supply and fuses.

Electrical data for Venkon XL, KaControl model (*C1)

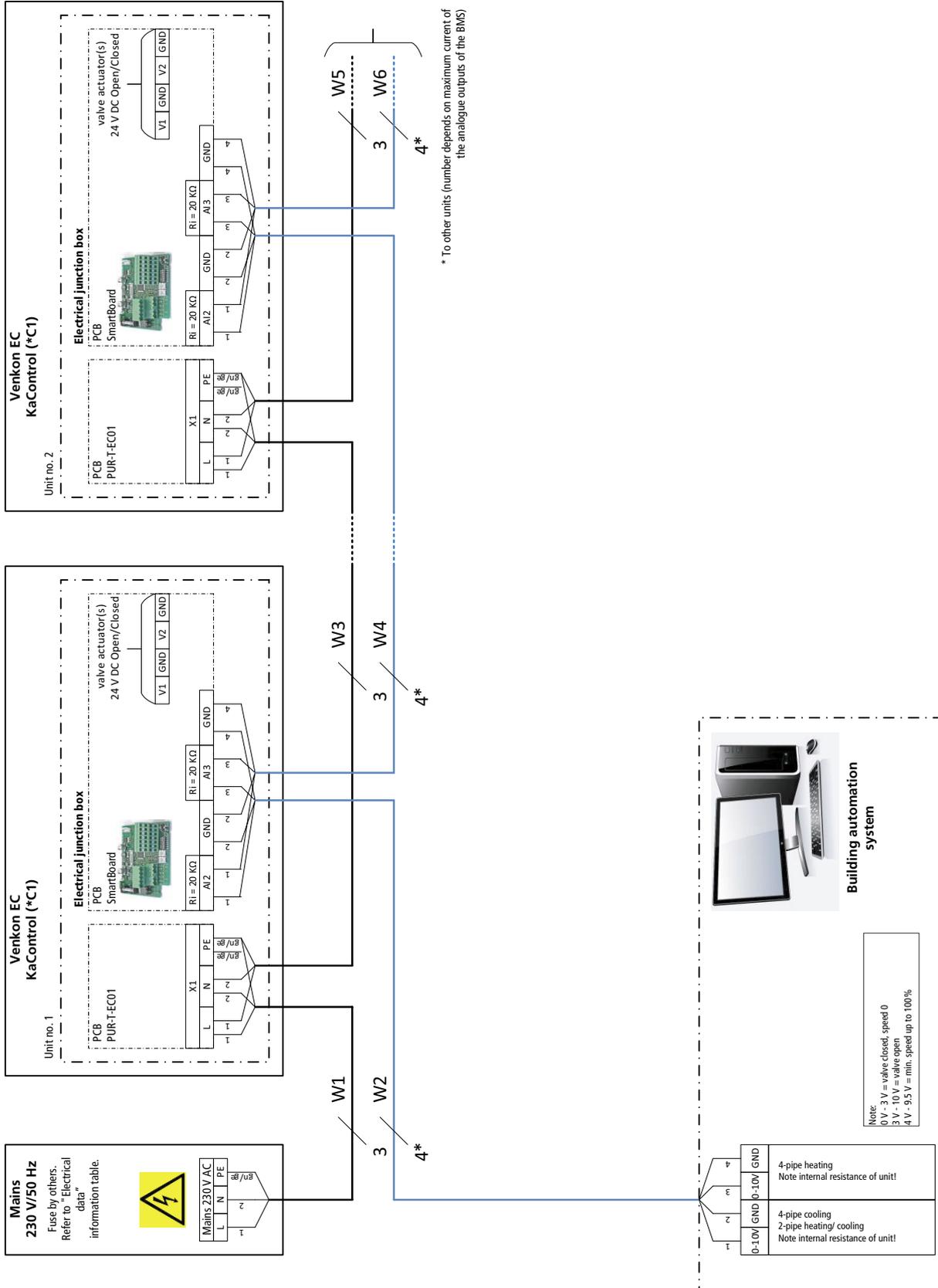
Model	Fans	Nominal voltage	Mains frequency	Nominal power	Nominal current	Leakage current	Ri analogue inputs	Enclosure type	Protection class
	[Quantity]	[V AC]	[Hz]	[W]	[A]	[mA]	[kΩ]		
1	1 x Single	230	50	90	0.76	< 3.5	20	IP21	I
2	1 x Tandem	230	50	178	1.45	< 3.5	20	IP21	I
3	1 x Single, 1 x Tandem	230	50	297	2.32	< 3.5	20	IP21	I
4	2 x Tandem	230	50	377	2.93	< 3.5	20	IP21	I

Venkon XL with KaControl (*C1)
 2- or 4-pipe, valve actuator(s) 24 V DC, Open/Closed,
 optional condensation monitoring,
 KaController activation



Venkon XL with KaControl (*C1)

2- or 4-pipe, valve actuator(s) 24 V DC, Open/Closed, optional condensation monitoring, control via a 0-10 V DC signal



05 ▶ Ordering information

Venkon XL

Model	Air volume ¹⁾ [m³/h]	Cooling output ²⁾ [kW]	Heat output ³⁾ [kW]	Unit design	Sound pressure level discharge-side ⁴⁾ [dB(A)]	Number of spigots	Control options	Art. no.			
1	110 – 680	0,7 – 3,4	1,7 – 11,9	Basic unit	35 – 55	–	Electromechanical	34801103534000			
							electromechanical with differential pressure switch	34801103534000D			
							KaControl	348011035340C1			
							KaControl with differential pressure switch	348011035340C1D			
				Basic unit with connection unit for circular pipe	31 – 50	2	Electromechanical	34801223534000			
							electromechanical with differential pressure switch	34801223534000D			
							KaControl	348012235340C1			
							KaControl with differential pressure switch	348012235340C1D			
2	395 – 1465	2,8 – 7,9	4,5 – 25,7	Basic unit	36 – 59	–	Electromechanical	34802103534000			
							electromechanical with differential pressure switch	34802103534000D			
							KaControl	348021035340C1			
							KaControl with differential pressure switch	348021035340C1D			
							Basic unit with connection unit for circular pipe	36 – 53	3	Electromechanical	34802233534000
										electromechanical with differential pressure switch	34802233534000D
										KaControl	348022335340C1
										KaControl with differential pressure switch	348022335340C1D
				4	Electromechanical	34802243534000					
					electromechanical with differential pressure switch	34802243534000D					
					KaControl	348022435340C1					
					KaControl with differential pressure switch	348022435340C1D					
				5	Electromechanical	34802253534000					
					electromechanical with differential pressure switch	34802253534000D					
					KaControl	348022535340C1					
					KaControl with differential pressure switch	348022535340C1D					

more »



¹⁾ at 30 Pa external pressure, ISO Coarse filter

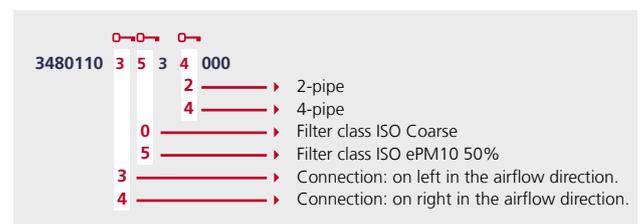
²⁾ total, with CHW 7/12°C, t_{L1} = 27°C, 50% rel. h.

³⁾ at LPHW 82/71°C, t_{L1} = 20°C

⁴⁾ The sound level was calculated based on an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081).

Model	Air volume ¹⁾ [m³/h]	Cooling output ²⁾ [kW]	Heat output ³⁾ [kW]	Unit design	Sound pressure lev- el discharge-side ⁴⁾ [dB(A)]	Number of spigots	Control options	Art. no.
3	405 – 2200	2,7 – 11,2	5,1 – 38,8	Basic unit	38 – 60	–	Electromechanical	3480310 3534000
							electromechanical with differential pressure switch	3480310 3534000D
							KaControl	3480310 35340C1
							KaControl with differential pressure switch	3480310 35340C1D
				Basic unit with connection unit for circular pipe	37 – 55	4	Electromechanical	3480324 3534000
							electromechanical with differential pressure switch	3480324 3534000D
							KaControl	3480324 35340C1
							KaControl with differential pressure switch	3480324 35340C1D
						5	Electromechanical	3480325 3534000
							electromechanical with differential pressure switch	3480325 3534000D
							KaControl	3480325 35340C1
							KaControl with differential pressure switch	3480325 35340C1D
6	Electromechanical	3480326 3534000						
	electromechanical with differential pressure switch	3480326 3534000D						
	KaControl	3480326 35340C1						
	KaControl with differential pressure switch	3480326 35340C1D						
4	845 – 2975	5,6 – 16,9	9,5 – 52,9	Basic unit	39 – 62	–	Electromechanical	3480410 3534000
							electromechanical with differential pressure switch	3480410 3534000D
							KaControl	3480410 35340C1
							KaControl with differential pressure switch	3480410 35340C1D
				Basic unit with connection unit for circular pipe	5	Electromechanical	3480425 3534000	
						electromechanical with differential pressure switch	3480425 3534000D	
						KaControl	3480425 35340C1	
						KaControl with differential pressure switch	3480425 35340C1D	
					6	Electromechanical	3480426 3534000	
						electromechanical with differential pressure switch	3480426 3534000D	
						KaControl	3480426 35340C1	
						KaControl with differential pressure switch	3480426 35340C1D	
7	Electromechanical	3480427 3534000						
	electromechanical with differential pressure switch	3480427 3534000D						
	KaControl	3480427 35340C1						
	KaControl with differential pressure switch	3480427 35340C1D						

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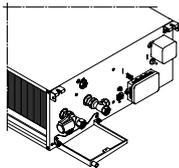
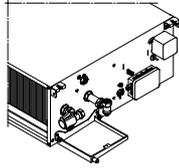
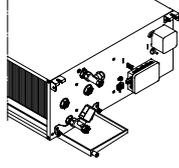
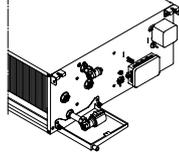
¹⁾ with 30 Pa external pressure

²⁾ total, with CHW 7/12°C, t_{L1} = 27°C, 50% rel. h.

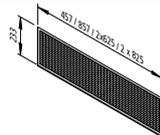
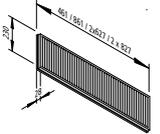
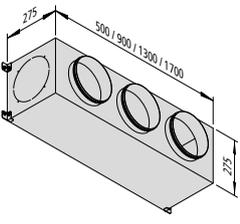
³⁾ at LPHW 82/71°C, t_{L1} = 20°C

⁴⁾ The sound level was calculated based on an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081).

Accessories

Figure	Article	Properties	Suitable for	Art. no.	
Accessories for recirculating air basic unit, water-side, supplied separately					
	Valve kit DN 20	with actuator Open/ Closed 230 VAC	straight, with pre-adjustable 2-way valve, with return shut-off valve, KVS value 2.3	2-pipe / 4-pipe cooling, electromechanical control	196000348231
		with actuator Open/ Closed 24 VAC/DC		2-pipe / 4-pipe cooling, electromechanical control and KaControl	196000348241
	Valve kit DN 20	with actuator Open/ Closed 230 VAC	angled, with pre-adjustable 2-way valve, with return shut-off valve, KVS value 3.0	2-pipe / 4-pipe cooling, electromechanical control	196000348232
		with actuator Open/ Closed 24 VAC/DC		2-pipe / 4-pipe cooling, electromechanical control and KaControl	196000348242
	Valve kit DN 15	with actuator Open/ Closed 230 VAC	straight, with pre-adjustable 2-way valve, with return shut-off valve, KVS value 1.7	4-pipe heating, electromechanical control	196000348431
		with actuator Open/ Closed 24 VAC/DC		4-pipe heating, electromechanical control and KaControl	196000348441
	Valve kit DN 15	with actuator Open/ Closed 230 VAC	angled, with pre-adjustable 2-way valve, with return shut-off valve, KVS value 3.0	4-pipe heating, electromechanical control	196000348432
		with actuator Open/ Closed 24 VAC/DC		4-pipe heating, electromechanical control and KaControl	196000348442
	Adjustment kit for higher-flow rate valves	for pre-settable valves and valve kits with higher flow	all valve kits	194000346916	

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Figure	Article	Properties	Suitable for	Art. no.
Filter and condensation pump				
	ISO Coarse spare filter	dry layer filter, filter grade ISO Coarse	model 1	34801600000
			model 2	34802600000
			model 3	34803600000
			model 4	34804600000
	Spare filter ISO ePM10>50%	cassette filter used as a spare filter, class ePM10>50% (formerly M5)	model 1	34801600500
			model 2	34802600500
			model 3	34803600500
			model 4	34804600500
	Differential pressure sensor	differential pressure sensor for filter monitoring with cassette filters, signal to external systems as soon as filters need to be maintained	all models, including ePM1>50% (M5) filter	34800900007
	Condensation pump	condensation pump for pumping condensation produced at the valves and in the unit with "wet" cooling, supplied separately	all Venkon XL	34800900008
Sheet steel accessories – recirculating air, provided separately				
	Connection unit for circular pipe	with 2 spigots DN 200	model 1	34801520000
		with 3 spigots DN 200	model 2	34802530000
		with 4 spigots DN 200		34802540000
		with 5 spigots DN 200		34802550000
		with 4 spigots DN 200	model 3	34803540000
		with 5 spigots DN 200		34803550000
		with 6 spigots DN 200		34803560000
		with 5 spigots DN 200	model 4	34804550000
		with 6 spigots DN 200		34804560000
		with 7 spigots DN 200		34804570000

Control accessories for Venkon XL electromechanical

Figure	Article	Properties	Suitable for	Art. no.
Accessories for electromechanical control				
	Room thermostat	for heating and/or cooling in 2-pipe and 4-pipe applications, 3-stage switch, fan speed, operating mode selector switch Off/Manual/Automatic, room temperature setpoint between 5 and 30 °C, integrated temperature sensor and connection option for external room sensors, pure white similar to RAL 9010, protection class IP30, voltage supply 230 V, 50 Hz, dimensions W x H x D: 110 x 111 x 26 mm	Venkon XL electromechanical all models, 2- and 4-pipe	196000030155
	Surface-mounted frame	for surface mounting of the room thermostat type 196000030155 if no back box is possible	room thermostat type 196000030155	196000030159
	Clock thermostat	for heating and/or cooling in 2-pipe and 4-pipe applications, display with adjustable backlight, 4 sensor keys for operation, integrated temperature sensor and connection option for external room sensors, pure white similar to RAL 9010, protection class IP30, voltage supply 230 V, 50 Hz, dimensions W x H x D: 81 x 85 x 18 mm (including frame)	Venkon XL electromechanical all models, 2- and 4-pipe	196000030256
	Remote sensor	sensor type NTC47K, surface-mounted/wall-mounted, pure white similar to RAL 9010, protection class IP30, dimensions W x H x D: 78 x 13.9 x 78.5 mm	room thermostat type 196000030155 and clock thermostat type 196000030256	196000148921

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Figure	Article	Properties	Suitable for	Art. no.
Accessories for electromechanical control				
	climate controller, without Modbus	suitable for heating and/or cooling in 2-pipe and 4-pipe applications, parallel operation of a maximum of 2 units is possible, 2.5" LCD display with high-quality glass finish, with capacitive keys, LED ring as key feedback, 3-stage automatic switching, built-in timer programme, room temperature control with setpoint adjustment, built-in temperature sensors and connection option for external rooms sensors, pure white protection class IP30 voltage supply 230 V, 50 Hz, dimensions W x H x D: 78 x 140 x 15 mm when fitted on flush back box	Venkon XL electromechanical all models, 2- and 4-pipe	196000148941
	climate controller, without Modbus	suitable for heating and/or cooling in 2-pipe and 4-pipe applications, parallel operation of a maximum of 2 units is possible, 2.5" LCD display with high-quality glass finish, with capacitive keys, LED ring as key feedback, 3-stage automatic switching, built-in timer programme, room temperature control with setpoint adjustment, built-in temperature sensors and connection option for external rooms sensors, black, protection class IP30 voltage supply 230 V, 50 Hz, dimensions W x H x D: 78 x 140 x 15 mm when fitted on flush back box	Venkon XL electromechanical all models, 2- and 4-pipe	196000148942
	climate controller, with Modbus	as type 196000148941, but with Modbus interface	Venkon XL electromechanical all models, 2- and 4-pipe	196000148943
	climate controller, with Modbus	as type 196000148942, but with Modbus interface	Venkon XL electromechanical all models, 2- and 4-pipe	196000148944
	Room temperature sensor	for wall mounting, IP30 surface-mounted, pure white RAL 9010, alternative to the temperature sensor in the climate controller	climate controller type 19600148941, 19600148942, 19600148943 and 19600148944	196003250110

Control accessories for Venkon XL with KaControl

Figure	Article	Properties	Suitable for	Art. no.
KaControl accessories				
	KaController operating unit with one-touch operation	operating unit, wall-mounted, in high-grade design, plastic housing, pure white similar to RAL 9010, large LCD multifunctional display, integrated room temperature sensor, communication interface to Kampmann T-LAN bus system, automatically switching LED backlight, press / turn dial with click stop function, individually adjustable basic display, integrated day, night and week program, password-protected parameter level for C1 control option	Venkon XL with KaControl, all models, 2- and 4-pipe	196003210001
	KaController operating unit with side function keys	as KaController room control unit type 19600320001, but with for quick access to fan setting, operating modes, Eco mode, time and timer program	Venkon XL with KaControl, all models, 2- and 4-pipe	196003210002
	KaController operating unit with one-touch operation	as KaController room control unit type 196003210001, but in black	Venkon XL with KaControl, all models, 2- and 4-pipe	196003210006
	Surface-mounted frame for KaController	for surface mounting of KaController room control units	KaController control unit type 196003210001, 196003210002, 196003210006	197901081889
	KaControl room temperature sensor	for wall mounting, IP30 surface-mounted, white RAL 9010, alternative to the temperature sensor in the KaController	Venkon XL with KaControl, all models, 2- and 4-pipe	196003250110
	Pipe clip-on sensor	only in conjunction with 3-way valves, for decentralised heating / cooling changeover via the temperature of the medium in a 2-pipe system (changeover), for fan activation via the temperature of the medium, one sensor needed with 2-pipe systems, two sensors needed with 4-pipe systems	Venkon XL with KaControl, all models, 2- and 4-pipe	196003250115
	Serial CANbus card	to extend the number of units from 7 to 30 units in a control circuit, to extend the length of the BUS line from the first unit to the last unit from 30 m up to 500 m in a single control circuit	Venkon XL with KaControl, all models, 2- and 4-pipe	196003260301



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