

**KPR I20**  
SERIES



■ **Application**

KPR I20 series involves modifications of KPR terminals for constant/variable air volume (VAV/CAV) operation mode.

**KPR I20** terminal units are meant for precise airflow control in zones of ventilation systems with demanding acoustic requirements based on Demand Control Ventilation principle. Acoustically-insulated VAV terminal units with round-to-rectangular collars are suitable for supply or extract air and are available in wide range of sizes.

**KPR SR20** terminal units include integrated sound attenuator to provide “whispering” noise characteristics.

**KPR SR20 E** terminal units with re-heater are used to maintain different cooling/heating loads in different zones within the building. For instance, each zone differs in its location and purpose thus making heat/cooling loads different comparing to all others zones in the building. Given that reheat purpose could be defined as equalizer of cooling loads within the premise. At the cooling mode operation reheat is used to maintain temperature set point after a period of unoccupied mode operation as well as to maintain different cooling loads in different zones. If the room temperature decreases below the cooling setpoint the reheat coil is energized to warm the air entering the room and maintain the room set point. Normally in the heating mode the heater element is modulating from maximum output to its minimum output ( off ). As the room temperature approaches set point the reheat element output is decreased.

■ **Design**

**KPR I20 terminals'** essentials are a 20 mm-insulated sheet metal box, round inlet damper, flow-measuring device and controls, rectangular outlet.

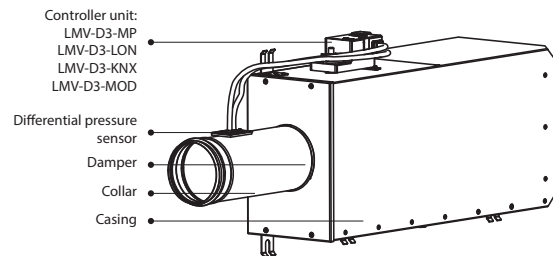
The control unit itself consists of 3 devices in one case:

- Differential pressure sensor used for pressure/airflow indicating;
- VAV controller used for allowing VAV/CAV operating mode;
- Damper Actuator controlled with analog signal 0/2-10 V.

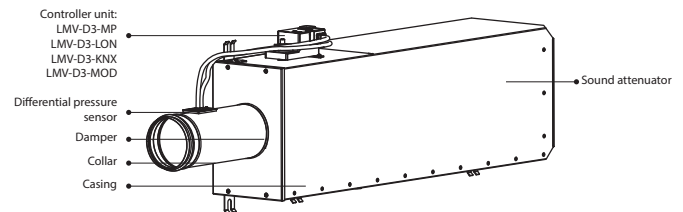
**KPR SR20 terminals** basic components are a 20 mm-insulated sheet metal box with integrated sound attenuator, round inlet damper, flow-measuring device and controls, rectangular outlet. Two modifications – for supply and exhaust air applications.

**KPR CP20 E terminals** consist of 20 mm-insulated sheet metal box with integrated sound attenuator, PTC heater, round inlet damper, flow-measuring device and controls, rectangular outlet. The unit is served by a central air handler and modulates the amount of primary air to the space between a minimum set point and the design airflow. VAV/CAV terminals employ measurement and control of volume flow rates based on a Pitot measurement principle jointly with PID VAV controller. Pitot tube communicates the differential pressure to the controller that in turn evaluates the damper position. This results in high control accuracy even in case of unfavorable flow conditions. The differential pressure sensor is resistant to dust and pollution.

Factory-set and ready-to-commission unit consists of the mechanical parts and the electronic control components. Optional factory calibrated controls could be provided to meet all control strategies. Unit can be ordered both with integrated 230/24 or 120/24 transformers Circular spigot with lip seal for circular connecting ducts ensures tight connection to the ducting. Rectangular discharge with slip and drive cleat duct connection allow flexibility while mounting. Position of the damper blade indicated externally at shaft extension. In addition, units possess an integrated NFC module ensuring non-contact communication and adjustment of application data such as V<sub>min</sub> and V<sub>max</sub> etc. via Android application. Casing and damper leakage are complied with: Closed blade air leakage to EN 1751, class 4; Casing air leakage to EN 1751, class C.



- **VAV controller unit** - contains integrated drive, PID controller and differential pressure transducer;
- **Damper blade** – is sealed to comply with EN 1751. Damper rotates in a self-lubricating, long life, low friction thermoplastic bearing;
- **Differential pressure sensor** – enables measuring the differential pressure even at low velocities between 1 to 10 m/s;
- **Casing** – acoustically insulated with 20 mm thick mineral wool is sealed with double lip seal on inlet. Rectangular discharge with slip and drive cleat duct connection. Continuous welded primary inlet duct to minimize leakage. Round inlet transforms into rectangular outlet to provide outlet speed reduction.



- **VAV controller unit** - contains integrated drive, PID controller and differential pressure transducer;
- **Damper blade** – is sealed to comply with EN 1751. Damper rotates in a self-lubricating, long life, low friction thermoplastic bearing;
- **Differential pressure sensor** – enables measuring the differential pressure even at low velocities between 1 to 10 m/s;
- **Casing** – acoustically insulated with 20 mm thick mineral wool is sealed with double lip seal on inlet. Rectangular discharge with slip and drive cleat duct connection. Continuous welded primary inlet duct to minimize leakage. Round inlet transforms into rectangular outlet to provide outlet speed reduction;
- **Sound attenuator** – provides further reduction of air-borne and case-generating noise. Length of the attenuator is 40 inches (app. 1 m);
- **Control box** – include internal controls to ensure safe operation of the heater as well as a transformer to enable direct connection to the network;
- **Heater regulating knob** – is meant for switching the heater on/off;
- **PTC heater** – installed in the cabinet on the discharge. Its technical properties and material structure does not allow the heater to heat up to the temperature that exceeds the design parameters (+35 C at max. airflow).

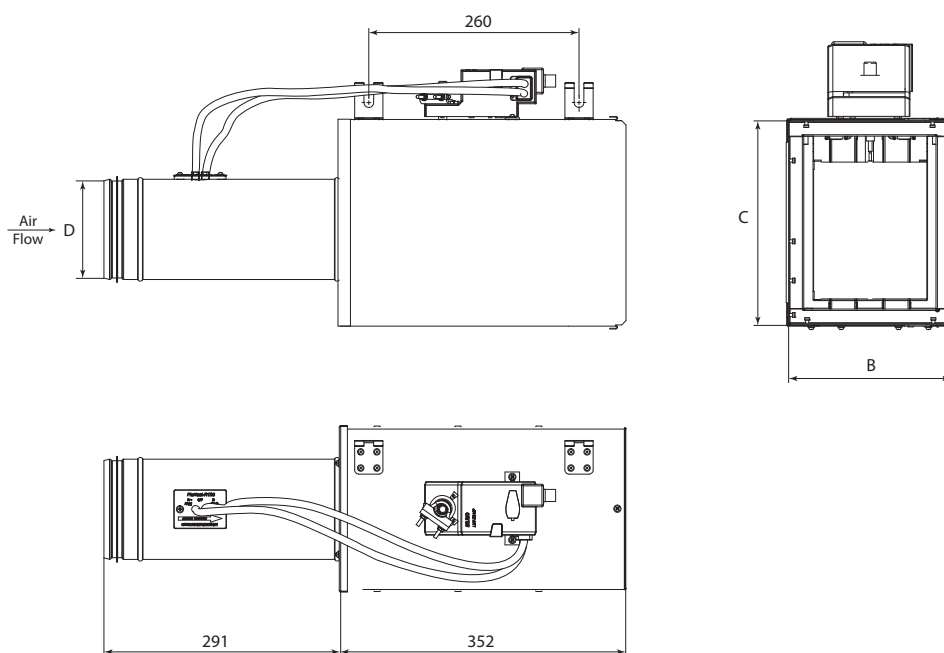
## TERMINAL UNITS

■ Special features of the control device provide integration into BMS systems via variety of interfaces:

Control function	Controller	Differential pressure transducer	Actuator	Communication protocol	Feedback value
VAV/CAV	LMV-D3-MP	Dynamic, integral	Integral	MPbus	Actual volume, Damper position, dP measurement
VAV/CAV	LMV-D3-LON	Dynamic, integral	Integral	LONWorks	Actual volume, Damper position, dP measurement
VAV/CAV	LMV-D3-KNX	Dynamic, integral	Integral	KNX	Actual volume, Damper position, dP measurement
VAV/CAV	LMV-D3-MOD	Dynamic, integral	Integral	MODbus	Actual volume, Damper position, dP measurement
VAV/CAV	LMV-D3-BAC	Dynamic, integral	Integral	BAC net (additionally requires UK24BAC)	Actual volume, Damper position, dP measurement

■ Overall dimensions of KPR terminal units

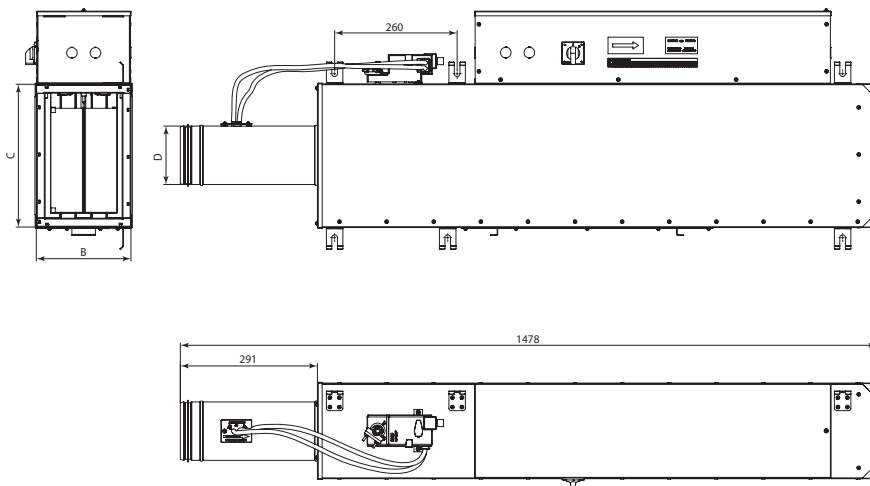
Designation	Ø D, mm	Ø D, in	C, mm	C, in	B, mm	B, in
VAV/CAV terminal unit KPR 04 I20	99	3-7/8	305	12	203	8
VAV/CAV terminal unit KPR 05 I20	124	4-7/8	305	12	203	8
VAV/CAV terminal unit KPR 06 I20	149	5-7/8	305	12	203	8
VAV/CAV terminal unit KPR 08 I20	200	7-7/8	305	12	254	10
VAV/CAV terminal unit KPR 10 I20	251	9-7/8	356	14	318	12-1/2
VAV/CAV terminal unit KPR 12 I20	302	11-7/8	406	16	381	15
VAV/CAV terminal unit KPR 14 I20	353	13-7/8	508	20	445	17-1/2
VAV/CAV terminal unit KPR 16 I20	403	15-7/8	610	24	457	18



## TERMINAL UNITS

### Overall dimensions of KPR CP terminal units

Designation	Ø D	C	B
VAV/CAV terminal unit KPR 04 CP20	99 mm (3 7/8")	305 mm (12")	203 mm (8")
VAV/CAV terminal unit KPR 05 CP20	124 mm (4 7/8")	305 mm (12")	203 mm (8")
VAV/CAV terminal unit KPR 06 CP20	149 mm (5 7/8")	305 mm (12")	203 mm (8")
VAV/CAV terminal unit KPR 08 CP20	200 mm (7 7/8")	305 mm (12")	254 mm (10")
VAV/CAV terminal unit KPR 10 CP20	251 mm (9 7/8")	356 mm (14")	318 mm (12 1/2")
VAV/CAV terminal unit KPR 12 CP20	302 mm (11 7/8")	406 mm (16")	381 mm (15")
VAV/CAV terminal unit KPR 14 CP20	353 mm (13 7/8")	508 mm (20")	445 mm (17 1/2")
VAV/CAV terminal unit KPR 16 CP20	403 mm (15 7/8")	610 mm (24")	457 mm (18")



### Heater design information

Electric heater elements are integral to the air terminal. Electric reheat coils are factory mounted on the discharge of the air terminal. Heater casings are constructed of galvanized steel. Element is constructed of material with variable resistivity (positive temperature coefficient). Safety control involves air pressure switch de-energizing magnetic contactors primary automatic reset high temperature limit, backup manual reset high temperature limit. Integral transformer allows easy connection directly to the network 120 V or 230 V current. Heater is shipped factory mounted and wired.

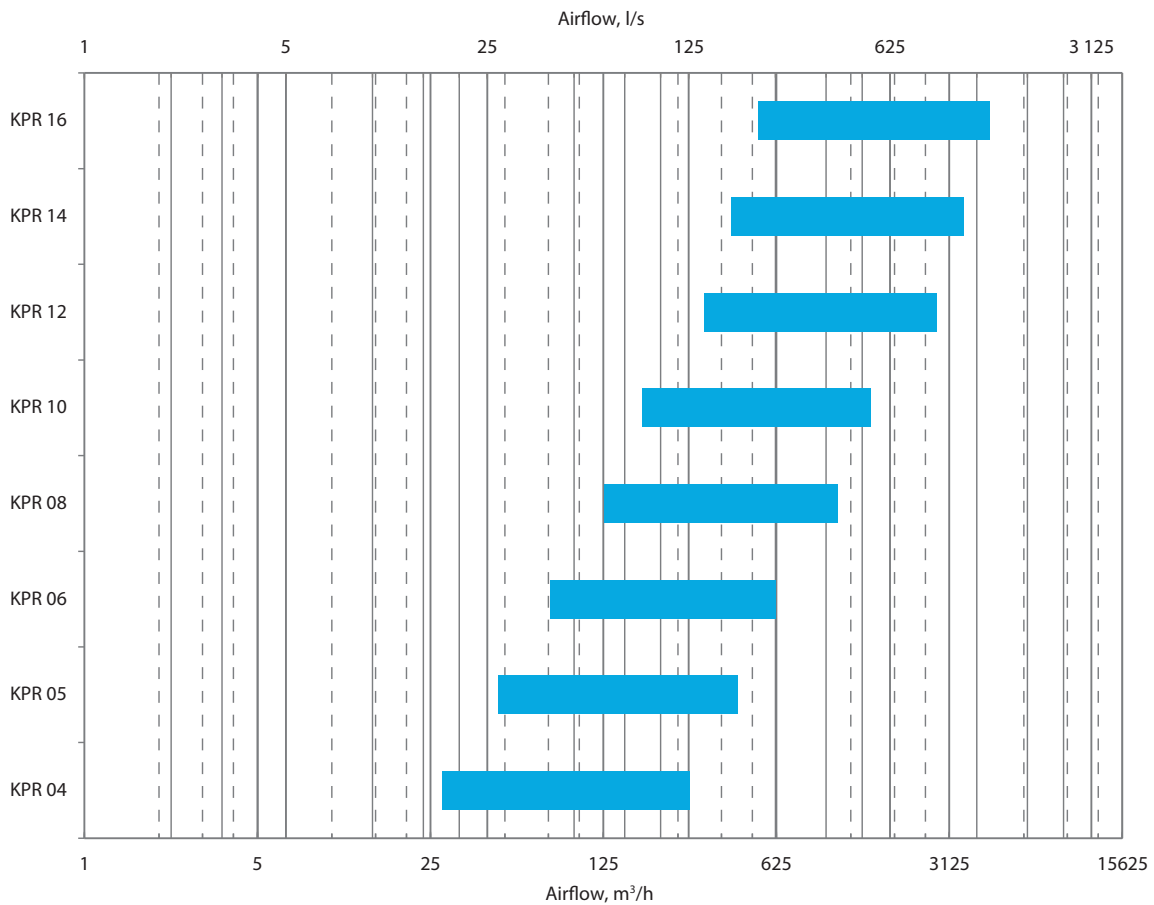
Heating capacities:

Size of air terminal	Heating capacity, kWt
04	0.25
05	0,3
06	0,5
08	0,9
10	1,3
12	1,8
14	2.5
16	3.3

■ Volume flow ranges and effective pressure

Nominal size	Airflow		$\Delta P_{ef}$	$\Delta$ Airflow
	l/s	m <sup>3</sup> /h	Pa	%
04	8	28	2	17
	35	126	40	9
	63	227	125	6
	78	280	198	3
05	13	47	2	17
	30	180	30	9
	80	295	80	5
	121	435	175	3
06	21	76	2	17
	108	389	55	8
	145	522	90	5
	172	620	125	3
08	35	126	2	17
	194	700	60	9
	280	1010	125	2
	307	1105	150	3
10	50	180	2	17
	251	904	45	9
	359	1293	90	6
	419	1508	125	2
12	89	320	2	17
	562	2023	80	8
	703	2530	125	2
	770	2772	150	3
14	114	411	2	17
	676	2434	70	7
	904	3255	125	2
	990	3564	150	4
16	147	530	2	17
	656	2360	40	8
	984	3543	90	5
	1271	4576	150	3

## Quick selection diagram



## Discharge sound power level depending on airflow and static pressure Legend:

**Ps** – differential static pressure of the VAV terminal unit. Reference for damper position (nearly closed/nearly open/open/fully open etc.)

**L<sub>wa</sub>** – A-weighted sound power level at discharge

**L<sub>swa</sub>** – A-weighted sound power level of the unit with integrated sound attenuator at discharge (KPR CP20)

	Qv, m³/h	Ps, Pa	L <sup>s</sup> <sub>wa</sub> dB(A)	L <sub>wa</sub> dB(A)	Non-weighted sound power level, dB/Oct							
					63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
KPR 04 I20	126	100	43	47	58	60	48	40	36	30	23	21
		250	50	54	60	61	56	51	48	40	32	30
		500	52	56	61	63	58	53	50	42	34	31
		750	52	56	62	63	58	53	50	42	34	32
		1000	53	57	63	65	60	53	52	44	36	33
	227	100	44	48	60	61	50	40	35	31	27	26
		250	51	55	61	62	57	53	48	41	35	29
		500	53	57	62	64	59	55	50	43	37	31
		750	53	57	62	64	59	55	50	43	37	32
		1000	54	58	63	66	61	55	52	45	39	33
	280	100	45	49	61	62	52	43	38	33	28	25
		250	50	56	62	63	58	54	49	43	37	30
		500	52	58	63	65	60	56	51	45	39	34
		750	52	58	64	65	60	56	51	45	39	35
		1000	53	59	65	67	62	56	53	47	41	37

**TERMINAL UNITS**

	Qv, m <sup>3</sup> /h	Ps, Pa	L <sup>2</sup> <sub>wa</sub> dB(A)	L <sub>wa</sub> dB(A)	Non-weighted sound power level, dB/Oct							
					63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
KPR 05 I20	180	100	44	48	59	61	49	41	37	31	24	22
		250	51	55	61	62	57	52	49	41	33	31
		500	53	57	62	64	59	54	51	43	35	32
		750	53	57	63	64	59	54	51	43	35	33
		1000	54	58	64	66	61	54	53	45	37	34
	295	100	45	49	61	62	51	41	36	32	28	27
		250	52	56	62	63	58	54	49	42	36	30
		500	54	58	63	65	60	56	51	44	38	32
		750	54	58	63	65	60	56	51	44	38	33
		1000	55	59	64	67	62	56	53	46	40	34
	435	100	46	50	62	63	53	44	39	34	29	26
		250	51	57	63	64	59	55	50	44	38	31
		500	53	59	64	66	61	57	52	46	40	35
		750	53	59	65	66	61	57	52	46	40	36
		1000	54	60	66	68	63	57	54	48	42	38
KPR 06 I20	389	100	47	51	60	63	53	46	41	35	29	23
		250	52	56	61	64	59	54	50	45	38	28
		500	54	58	62	66	61	56	52	47	40	30
		750	54	58	62	66	61	56	52	47	40	30
		1000	56	60	64	68	63	56	54	49	42	35
	522	100	50	54	62	65	57	52	46	39	35	30
		250	55	59	63	65	62	58	51	47	44	36
		500	57	61	64	67	64	60	53	49	46	38
		750	57	61	65	67	64	60	53	49	46	39
		1000	59	63	66	69	66	62	55	51	48	40
	620	100	54	58	63	66	61	56	50	43	41	33
		250	54	60	64	66	63	59	52	48	48	38
		500	56	62	65	68	65	61	54	50	50	39
		750	56	62	66	68	65	61	54	50	50	40
		1000	59	65	67	70	68	63	56	52	52	45
KPR 08 I20	700	100	50	54	63	65	58	49	44	39	34	26
		250	58	62	65	69	65	59	54	50	46	30
		500	57	61	64	69	65	57	54	50	49	33
		750	59	63	65	70	66	58	56	52	51	40
		1000	60	64	68	71	67	59	58	54	53	44
	1010	100	56	60	67	70	64	55	52	44	40	30
		250	62	66	69	74	70	62	59	54	49	36
		500	61	65	68	74	69	60	57	54	53	40
		750	63	67	70	75	70	61	59	56	55	46
		1000	64	68	72	76	71	62	61	58	57	49
	1105	100	58	62	69	72	66	57	55	46	41	28
		250	61	67	71	75	71	64	61	55	51	36
		500	62	68	72	76	72	63	59	56	54	43
		750	63	69	73	77	73	64	61	58	56	46
		1000	64	70	74	78	74	65	63	60	58	50

**TERMINAL UNITS**

	Qv, m³/h	Ps, Pa	L <sup>s</sup> <sub>wa</sub> dB(A)	L <sub>wa</sub> dB(A)	Non-weighted sound power level, dB/Oct							
					63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
KPR 10 I20	904	100	51	55	60	63	60	51	47	39	37	29
		250	58	62	63	68	66	59	55	50	47	33
		500	60	64	64	69	67	62	58	53	50	36
		750	60	64	65	69	67	62	58	53	50	37
		1000	63	67	67	71	69	64	60	56	54	41
	1293	100	54	58	61	66	63	54	50	42	40	28
		250	60	64	64	70	69	61	57	52	49	33
		500	62	66	67	71	69	64	59	55	52	41
		750	62	66	68	71	69	64	59	55	52	43
		1000	64	68	69	73	71	66	62	58	54	46
	1508	100	56	60	63	69	64	56	53	42	41	30
		250	60	66	66	72	69	63	59	56	53	36
		500	61	67	68	73	70	65	60	56	53	38
		750	61	67	69	73	70	65	60	56	53	39
		1000	63	69	70	75	72	67	62	58	55	42
KPR 12 I20	2023	100	52	56	57	58	56	53	51	47	41	33
		250	56	60	61	63	60	55	54	52	49	37
		500	55	59	62	64	59	53	54	51	50	42
		750	56	60	62	65	60	54	55	52	51	42
		1000	58	62	63	67	62	56	57	54	53	46
	2530	100	56	60	60	62	60	59	55	51	46	32
		250	61	65	61	66	65	61	59	57	54	43
		500	61	65	63	67	65	60	59	57	55	46
		750	62	66	64	68	66	61	60	58	56	48
		1000	64	68	66	70	68	63	62	60	58	44
	2772	100	57	61	61	63	61	60	56	52	47	40
		250	60	66	63	68	67	63	60	59	56	44
		500	61	67	64	69	68	63	61	60	58	49
		750	62	68	65	70	69	64	62	61	59	52
		1000	64	70	67	72	71	66	64	63	61	54
KPR 14 I20	2434	100	43	47	47	50	44	44	43	38	33	36
		250	56	60	58	61	56	55	56	53	49	49
		500	63	67	63	66	62	61	62	60	57	55
		750	65	69	65	68	64	63	64	62	59	57
		1000	68	72	68	71	67	66	67	65	62	60
	3255	100	45	49	49	52	46	46	45	41	37	30
		250	58	62	58	61	57	56	57	55	52	45
		500	64	68	63	66	62	61	63	62	59	52
		750	66	70	65	68	64	63	65	64	61	54
		1000	69	73	68	71	67	66	68	67	64	57
	3564	100	49	53	51	54	49	50	49	45	42	35
		250	58	64	60	63	58	58	59	58	55	48
		500	63	69	64	67	63	62	64	64	61	54
		750	65	71	66	69	65	64	66	66	63	56
		1000	68	74	69	72	68	67	69	69	66	59

**TERMINAL UNITS**

	Qv, m <sup>3</sup> /h	Ps, Pa	L <sup>s</sup> <sub>wa</sub> dB(A)	L <sub>wa</sub> dB(A)	Non-weighted sound power level, dB/Oct							
					63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
KPR 16 I20	2360	100	44	48	51	54	49	46	42	37	32	35
		250	56	60	62	65	60	57	54	52	48	47
		500	62	66	67	70	65	62	60	59	56	53
		750	64	68	68	71	66	63	62	61	58	55
		1000	66	70	70	73	68	65	64	63	60	57
	3543	100	52	56	58	61	56	54	51	45	41	34
		250	61	65	66	69	64	62	59	57	53	46
		500	65	69	70	73	68	65	63	63	59	52
		750	67	71	71	74	69	66	65	65	61	54
		1000	69	73	73	76	71	68	67	67	63	56
	4576	100	57	61	62	65	59	59	56	50	45	38
		250	62	68	69	72	67	65	62	60	56	49
		500	65	71	72	75	70	67	65	65	61	54
		750	67	73	73	76	71	68	67	67	63	56
		1000	69	75	75	78	73	70	69	69	65	58

**■ Radiated sound power level**

Legend:

L<sup>c</sup><sub>wa</sub> – a-weighted radiated sound power level, dB(A)

Ps – differential static pressure of the VAV terminal unit. Reference for damper position (nearly closed/nearly open/open/fully open etc.)

	Qv, m <sup>3</sup> /h	Ps, Pa	L <sup>c</sup> <sub>wa</sub> dB(A)	Non-weighted sound power level, dB/Oct							
				63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
KPR 04 I20	28	100	32	41	44	35	24	23	20	14	10
		250	38	43	49	41	32	29	24	19	15
		500	35	42	47	38	27	26	23	18	13
		750	35	42	47	39	28	26	24	20	14
		1000	38	43	48	41	30	28	28	25	19
	227	100	36	42	47	39	30	27	22	17	12
		250	38	43	49	41	32	29	24	19	15
		500	39	45	50	42	33	30	25	21	16
		750	39	45	50	43	34	30	26	23	18
		1000	41	46	51	45	36	32	30	28	23
	280	100	42	46	52	44	40	33	29	27	22
		250	44	49	54	46	42	35	31	29	24
		500	45	50	55	47	43	36	32	31	26
		750	46	50	55	48	44	36	33	33	28
		1000	48	51	56	50	46	38	37	38	30



## TERMINAL UNITS

	Qv, m <sup>3</sup> /h	Ps, Pa	L <sup>c</sup> <sub>wa</sub> dB(A)	Non-weighted sound power level, dB/Oct							
				63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
KPR 05 I20	180	100	33	42	45	36	25	24	21	15	11
		250	39	44	50	42	33	30	25	20	16
		500	36	43	48	39	28	27	24	19	14
		750	36	43	48	40	29	27	25	21	15
		1000	39	44	49	42	31	29	29	26	20
	295	100	37	43	48	40	31	28	23	18	13
		250	39	44	50	42	33	30	25	20	16
		500	40	46	51	43	34	31	26	22	17
		750	40	46	51	44	35	31	27	24	19
		1000	42	47	52	46	37	33	31	29	24
	435	100	43	47	53	45	41	34	30	28	23
		250	45	50	55	47	43	36	32	30	25
		500	46	51	56	48	44	37	33	32	27
		750	47	51	56	49	45	37	34	34	29
		1000	49	52	57	51	47	39	38	39	31
	KPR 06 I20	389	100	39	49	50	42	36	30	24	19
250			41	50	52	44	38	32	26	21	16
500			42	51	53	45	39	33	27	23	18
750			43	51	53	46	40	33	28	25	19
1000			45	51	54	48	42	35	32	30	23
522		100	45	51	54	47	44	36	33	31	26
		250	47	51	56	49	46	38	35	33	27
		500	48	53	57	50	47	39	36	35	30
		750	49	53	57	51	48	39	37	37	31
		1000	52	53	58	53	50	41	41	42	37
620		100	49	52	56	51	47	42	39	33	32
		250	51	53	58	53	49	44	41	35	33
		500	52	53	59	54	50	45	42	37	35
		750	53	53	59	55	51	45	43	39	37
		1000	55	54	60	57	53	47	47	44	40
KPR 08 I20		700	100	52	59	61	56	48	43	37	33
	250		57	59	62	60	55	50	44	42	39
	500		60	64	70	64	55	52	44	40	36
	750		62	68	72	66	57	54	47	43	38
	1000		66	70	74	70	62	59	54	49	46
	1010	100	43	51	55	45	38	34	26	21	16
		250	49	56	60	53	44	39	32	28	22
		500	55	60	63	58	53	45	40	35	31
		750	57	60	64	61	54	48	41	38	34
		1000	59	61	65	62	57	52	45	42	39
	1105	100	45	53	57	47	41	36	28	22	17
		250	50	58	62	54	46	41	34	29	24
		500	55	59	63	58	53	45	40	35	31
		750	57	60	64	61	54	48	41	38	34
		1000	59	60	65	62	57	52	45	42	40

**TERMINAL UNITS**

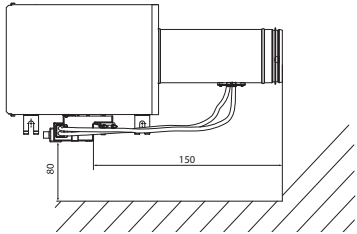
	Qv, m³/h	Ps, Pa	L <sup>c</sup> <sub>wa</sub> dB(A)	Non-weighted sound power level, dB/Oct							
				63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
KPR 10 I20	904	100	47	49	52	51	45	39	31	25	24
		250	51	51	56	56	50	42	36	30	29
		500	54	53	59	59	53	45	39	33	32
		750	60	59	64	65	58	51	46	42	40
		1000	64	60	66	69	62	54	49	48	46
	1293	100	51	50	56	56	49	43	35	29	28
		250	54	56	61	59	51	44	38	32	29
		500	58	59	64	63	55	48	42	36	34
		750	62	65	71	67	59	53	48	45	41
		1000	66	66	72	71	64	57	51	50	46
	1508	100	54	53	58	58	54	45	39	33	32
		250	58	59	64	62	56	49	43	37	35
		500	62	60	67	66	60	55	47	41	39
		750	64	66	73	68	61	56	51	49	45
		1000	68	66	74	73	65	59	54	52	47
	KPR 12 I20	2023	100	51	52	56	52	51	43	38	37
250			54	54	60	55	53	45	42	40	37
500			57	60	63	59	57	48	45	43	39
750			61	61	65	63	61	52	48	48	44
1000			66	62	67	67	66	57	51	50	48
2530		100	52	52	57	53	52	44	40	38	35
		250	55	55	62	56	54	46	43	41	38
		500	59	59	65	60	58	50	46	45	40
		750	61	61	67	63	61	53	49	48	43
		1000	66	63	69	68	66	57	52	51	46
2772		100	53	52	58	54	53	45	41	39	37
		250	57	57	63	59	57	49	45	44	40
		500	61	60	66	62	60	52	49	47	43
		750	64	62	68	66	64	56	52	50	46
		1000	68	63	70	69	68	61	53	52	47
KPR 14 I20		2434	100	52	53	60	53	52	42	36	31
	250		54	55	62	57	54	45	39	34	29
	500		53	55	61	54	53	42	37	32	29
	750		53	56	61	54	53	43	37	32	29
	1000		54	57	62	55	54	44	38	33	30
	3255	100	52	54	60	55	52	43	37	32	30
		250	54	57	62	57	54	45	39	34	31
		500	56	57	63	58	56	46	41	35	32
		750	55	58	63	58	55	46	41	35	33
		1000	56	59	64	59	56	47	41	36	33
	3564	100	55	59	63	57	55	44	41	37	33
		250	57	60	65	59	57	46	43	39	34
		500	58	60	66	60	58	47	44	40	36
		750	58	60	66	60	58	47	44	40	36
		1000	59	61	67	61	59	48	45	41	37

## TERMINAL UNITS

	Qv, m <sup>3</sup> /h	Ps, Pa	L <sup>c</sup> <sub>wa</sub> dB(A)	Non-weighted sound power level, dB/Oct							
				63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
KPR 16 I20	2360	100	48	53	59	52	42	36	32	27	21
		250	51	53	60	56	47	41	37	31	26
		500	54	54	61	58	52	46	42	37	29
		750	58	55	62	60	56	51	46	43	35
		1000	60	58	64	62	58	54	50	48	37
	3543	100	50	53	61	54	45	41	38	34	30
		250	53	54	61	58	50	44	41	36	32
		500	58	57	64	62	56	50	47	43	40
		750	63	59	66	66	61	55	52	49	43
		1000	67	61	69	68	65	61	59	57	50
	4576	100	52	55	62	55	48	43	40	36	32
		250	55	57	63	59	52	46	43	38	35
		500	59	59	65	63	57	51	48	45	40
		750	64	61	68	67	62	57	54	51	46
		1000	70	63	70	70	66	63	62	60	51

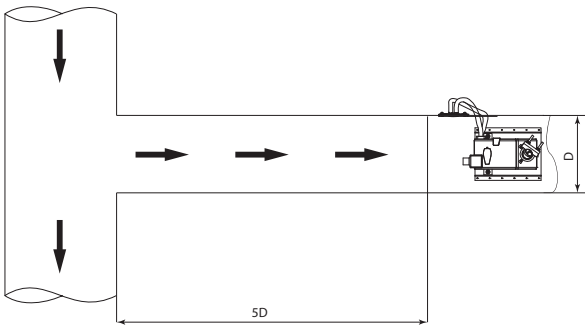
■ **Mounting**

Connect to ducting according to airflow direction sticker. While installing sufficient space should be ensured to enable access to the unit.

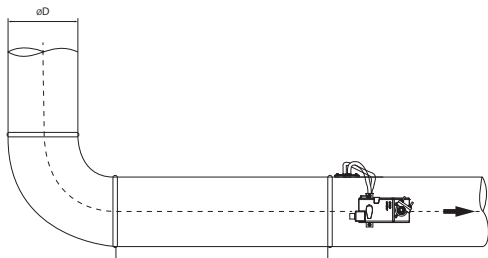


Note that it is mandatory to install the unit at a certain removal from bend, junctions etc. to avoid airflow miscalculating.

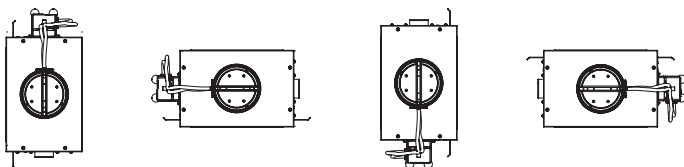
Mounting position of STP terminal units by default is calibrated at factory to be vertical according to VFP sensor position. Other position should be mentioned upon order.



Recommended mounting positions



Front view of VAV/CAV terminal units



■ **STP operation mode commissioning**

If overpressure in a premise is maintained, "+" tube should be drawn from sensor to the premise, and "-" tube to referent area (hallway, ceiling etc.)



If underpressure in a premise is maintained, "-" tube should be drawn from sensor to the premise, and "+" tube to referent area (hallway, ceiling etc.)



## Accessories

### Room thermostat:

- On/off or 0-10 V control
- Integrated (NTC) or external Pt1000 sensor
- Detection sensor can be connected
- Three preset operating modes: Standby, Occupied, Forced ventilation
- Change over function
- Supply: 18-30 V AC 50-60 Hz
- Protection: IP20
- 0-50 C setting range



Regin RC-C3

### Room controller:

- 3 universal outputs
- On/off or 0-10 V control
- Communication RS485 (ModBus, BACnet, EXOLine)
- Supply: 18-30 V AC 50-60 Hz
- Five preset operating modes: Off/Unoccupied/Standby, Occupied, Forced ventilation
- Integrated (NTC) or external Pt1000 sensor
- Protection: IP20
- CO2 sensor can be connected
- Forced ventilation button
- 0-50 C setting range



Regin RC-C3 DOC

### Pressure controller:

- Selectable measuring range 0...100, 0...300, 0...500, 0...1000 Pa
- Pressure signal output 0...10 V and 4...20 mA
- Controls output 0...10 V PID algorithm
- Long-service ceramic measurement element
- Protection: IP54
- Maximum overload 20 kPa



Regin DMD-C

### VOC sensor:

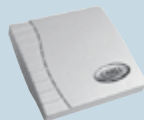
- Self-calibrated
- Signal output 0...10 V and 4...20 mA
- Protection: IP30



Carel DPWQ 30600

### CO2 sensor:

- Self-calibrated
- Signal output 0...10 V
- Measurement range: 0 ppm to 2000ppm CO2.
- Protection: IP30
- Expected lifetime is at least 36 months.



Carel DPWQ 40200

### Humidity sensor:

- Signal output 0...10 V
- Measurement range: 10 to 90 % rH
- Protection: IP30.



Carel DPWC 11200

### Fan optimiser:

- 1 to 8 VAV terminals per unit
- 0-10 V frequency converter output. Min. fan speed can be set
- Display with overall / individual actual volumes, damper positions, frequency converter setpoint, etc
- Provides communication and adjustment for every single connected VAV drive
- Supply voltage AC 24 V, 50/60 Hz / DC 24 V
- Supply: 18-30 V AC 50-60 Hz
- Communication MPbus (RJ12)
- Protection: IP10 (IP20 when commissioned)



COU24-A-MP

### Gateway MP to BACnet MS/TP:

- 1 to 8 VAV terminals per unit
- Provides communication and adjustment for every single connected VAV drive
- Supply voltage AC 24 V, 50/60 Hz / DC 24 V
- Communication MPbus (RJ12) to BACnet (RS485)
- Parameterization via BACnet client



UK24BAC

### Gateway MP to KNX:

- 1 to 8 VAV terminals per unit
- Provides communication and adjustment for every single connected VAV drive
- Supply voltage AC 24 V, 50/60 Hz / DC 24 V
- Communication MPbus (RJ12) to KNX (twisted pair)
- Parameterization via ETS 2 or higher



UK24EIB

### Gateway MP to LON:

- 1 to 8 VAV terminals per unit
- Provides communication and adjustment for every single connected VAV drive
- Supply voltage AC 24 V, 50/60 Hz / DC 24 V
- Communication MPbus (RJ12) to KNX (3 Pin Weidmüller plug)
- Parameterization via LNS engineering Tool



UK24LON

### Gateway MP to MODbus:

- 1 to 8 VAV terminals per unit
- Provides communication and adjustment for every single connected VAV drive
- Supply voltage AC 24 V, 50/60 Hz / DC 24 V
- Communication MPbus (RJ12) to KNX (RS485)
- Parameterization via DIP switches



UK24MOD

ACCESSORIES

Adjustment tool:

- USB 2.0 interface
- ZK6 GEN cable optional



ZTH EU

Connecting cable:

- Used to communicate with the actuators via ZTH EU or ZIP-USB-MP



ZK1 GEN

Connecting cable:

- Used to communicate with VRP-M, UK24LON/UK24EIB via ZTH EU or ZIP-USB-MP



ZK4 GEN

Connecting cable:

- Used to communicate with COU24A-MP, UK24MOD/UK24BAC via ZTH EU or ZIP-USB-MP



ZK6 GEN

Humidity sensor:

- Signal output 0...10 V
- Measurement range: 10 to 90 % rH
- Protection: IP30.



Carel DPWC 11200

Adjustment tool:

- Tool used to program actuators, controllers and BUS masters via PC using PC tool



ZIP-USB-MP

KPR - XXX - XXX - XXX - XXX - XXX - XXX - XXX - XXX

**KPR** – variable air volume terminal

**Size:** 04, 05, 06, 08, 10, 12, 14, 16

**Type of insulation:**

- \_ – as default w/o insulation;
- I – insulated externally
- SR – acoustic design (integral attenuator)

**Thickness of insulation:**

- \_ – as default w/o insulation;
- 20 – 20 mm
- 50 – 50 mm

**Design:**

- \_ – universal or supply design (as default);
- EA – exhaust air design

**Reheat:**

- \_ – w/o reheat (as default);
- E – electric coil;
- W – water coil

**Mode of operation:**

- \_ – VAV/CAV (as default);
- STP-100 – static pressure control 0-100 Pa;
- STP-300 – static pressure control 0-300 Pa;
- STP-600 – static pressure control 0-600 Pa;

**Communication (BMS):**

- MP – Mpbus
- MOD – ModBus
- BAC – BACnet
- LON – LONworks
- KNX – KNX

**Transformer:**

- \_ – as default w/o transformer;
- 230/24 – 230/24 V transformer
- 120/24 – 120/24 V transformer