



► KaDeck
Fan Coils

KaDeck

Versatile air conditioning for offices and commercial buildings.

► **Technical Catalogue**

KAMPMANN

Contents

01 ▶ Product Information 6

- ▶ Overview 7
- ▶ Product Data 8
- ▶ Selection Guide: Overview of Models 9
- ▶ KaDeck at a Glance 10

02 ▶ Technical Data 12

- ▶ Advice on Measuring Conditions 13
- ▶ KaDeck, Under-ceiling Unit 14
- ▶ KaDeck, Suspended Ceiling Unit 16

03 ▶ Design Information 18


- ▶ Information on Planning and Design 19
- ▶ Unit Layouts in the Space 20
- ▶ Temperature Stratification in Heating Mode 21
- ▶ External Fresh Air Supply 22
- ▶ Wet and Dry Cooling Models 23

04 ▶ Control 24

- ▶ KaControl and Electromechanical Control 24
- ▶ Cabling 26
- ▶ Wiring Diagram 28

05 ▶ Ordering Information 30

- ▶ KaDeck 30
- ▶ Accessories 31

A photograph of an office interior. The ceiling is composed of white, square, textured acoustic tiles. A large, rectangular, recessed fluorescent light fixture is installed in the ceiling, emitting a bright, even light. Below the ceiling, a large window with a white frame looks out onto a construction site with a crane and other buildings. In the foreground, a desk with a computer monitor and a potted plant is visible. The overall scene is bright and modern.

KaDeck:
Flexible air
conditioning
for offices and
commercial buildings.



The KaDeck represents a visually discreet room cooling and heating unit. The supply of fresh air is optional.

01 ▶ Product Information



KaDeck – versatile air conditioning for existing and new-build offices

Cooling loads are produced in offices with a high volume of glazing, which cannot be dissipated without an air conditioning system. KaDeck offers versatile air conditioning for these specific applications installed in the ceiling for cooling (or heating).

The available installation locations are playing an increasingly important role in existing as well as in new buildings. Kampmann KaDeck units stand out from the crowd on account of their impressive versatility. Four models enable the units to be installed in the centre of the room, on the walls and unobtrusively within the suspended ceiling or discreetly below the ceiling. The dimensions are designed to ensure that the units can be fitted within a standard ceiling grid. The unit height of 160 mm generally means that minimal space is needed for installation.

Variable comfort solution

Apart from its versatility, aesthetic appearance and impressive performance, the units' low noise levels and prevention of draughts are other key features.

These properties are a matter of course with Kampmann and have been incorporated for many years in the company's Katherm products. Kampmann's own in-house Research and Development Centre was able to incorporate and evolve the company's decade-long experience into this concept.

Hygiene and maintenance

It is crucial with air conditioning that the system works just as well after years of operation as it did on „its first day“. Thanks to the internal construction of the unit and its VDI 6022-compliant maintenance concept, hygienically perfect air conditioning can be guaranteed year after year. Simply unhinging the access panel reveals all components without the need for further dismantling. What is more, the valve and flexible connection are located within the unit and remain accessible at all times. There is therefore no need for additional maintenance access panels on site. However the saving of investment costs is not the only benefit.

Over time separate maintenance access panels can often become damaged and dirty by constant opening and closing. The KaDeck's access panel is designed for frequent opening and closing. The hinges and locks are designed and manufactured to the „industry standard“, yet remain invisible and thus do not spoil the appearance of the panel.



Product Data



Product Features

- ▶ for installation in suspended ceilings or under the ceiling
- ▶ positioning in the centre of the room or on the wall
- ▶ optimised designs for dry or wet cooling
- ▶ no need for additional maintenance access panels
- ▶ optimised discharge to combat draughts,
- ▶ complies with VDI 6022 hygiene regulations



Features

- ▶ four models
- ▶ suspended ceiling models fit ceiling grid dimensions
- ▶ 0-100% adjustable EC fans
- ▶ optional fresh air connection
- ▶ stainless steel corrugated hose and valves
- ▶ available as an accessory
- ▶ air inlet can be visually adapted
- ▶ dry cooling or wet cooling models available

Heating Cooling Ventilation

- ▶ LPHW
- ▶ CHW
- ▶ with primary air spigots

Installation

- ▶ ceiling installation

Heat exchanger KaControl Dewpoint

- ▶ monitoring sensor ▶ optional

- ▶ 2-pipe
- ▶ optional

Condensation pump

- ▶ quiet-operating condensation pump with alarm contact for wet cooling

Condensate connection

- ▶ 6 mm condensation hose

Ceiling panel

- ▶ frame and panel RAL 9016
- ▶ air intake grille RAL 9006

Performance data

Cooling output ¹⁾

- ▶ 275 – 1718 W

Cooling output ²⁾

- ▶ 579 – 3114 W

Heat output ³⁾

- ▶ 950 – 7185 W

Operating limits

- ▶ max. operating pressure: 10 bar
- ▶ min. entering water temperature 6 °C
- ▶ min. water outlet temperature 10 °C (with dry cooling above the dewpoint)
- ▶ relative air humidity: max. 60 % at 27 °C ambient temperature
- ▶ max. entering water temperature: 80 °C
- ▶ min. entering air temperature: 15 °C
- ▶ max. entering air temperature: 40 °C

Applications

Buildings of all kinds that need to be cooled or heated with a visually discreet design of unit.



Hotels /
Motels



Offices and
Conference
Rooms

¹⁾ at CPW 16 /18 °C, tL1 = 27 °C

²⁾ at CPW 7/12 °C, 27 °C room, 48% relative humidity

³⁾ at LPHW 75/65 °C, 20 °C room

Selection guide: overview of models

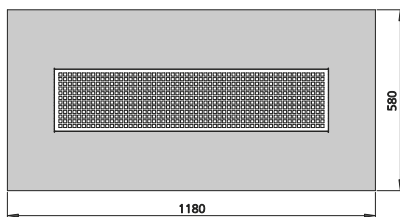
Model	Type of installation	Air outlet	Cooling output	Heat output ³⁾	More information
			Q _k [W]	Q _h [W]	
dry cooling	under-ceiling	1-sided	314 – 999 ¹⁾	1308 – 4176	► Page 14–15
		2-sided	607 – 1718 ¹⁾	2533 – 7185	
	suspended ceiling	1-sided	275 – 896 ¹⁾	1146 – 3744	► Page 16–17
		2-sided	540 – 1558 ¹⁾	2253 – 6514	
wet cooling	under-ceiling	1-sided	588 – 1609 ²⁾	961 – 2936	► Page 14–15
		2-sided	979 – 3114 ²⁾	1530 – 5339	
	suspended ceiling	1-sided	579 – 1570 ²⁾	950 – 2876	► Page 16–17
		2-sided	968 – 3050 ²⁾	1519 – 5247	

¹⁾ 16/18 °C, tL1 = 27 °C

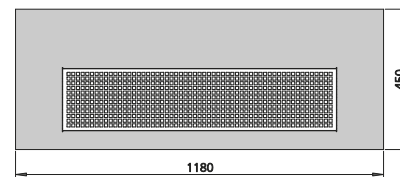
²⁾ 7/12 °C, 27 °C room, 48% relative humidity

³⁾ 75/65 °C, 20 °C room

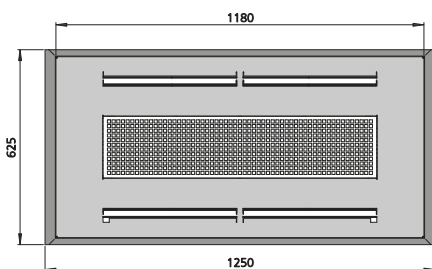
Discharge options



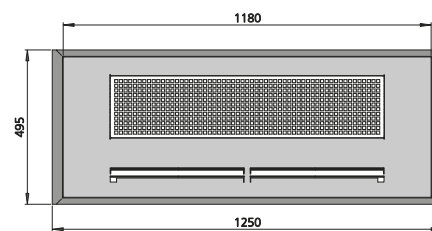
under-ceiling, 2-sided discharge



under-ceiling, 1-sided discharge

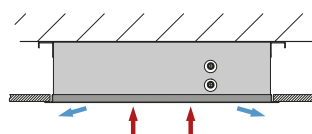


suspended ceiling, 2-sided discharge

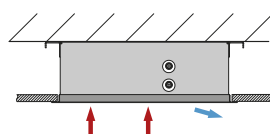


suspended ceiling, 1-sided discharge

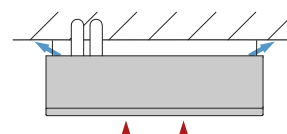
Installation options



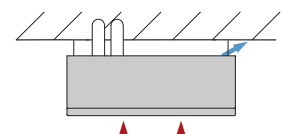
suspended ceiling, 2-sided discharge



suspended ceiling, 1-sided discharge

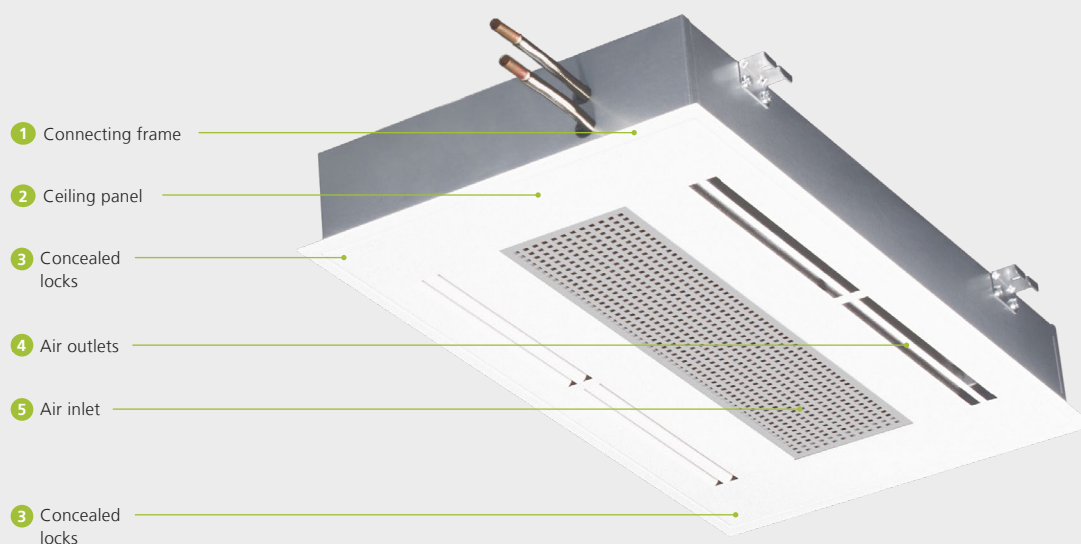


under-ceiling, 2-sided discharge

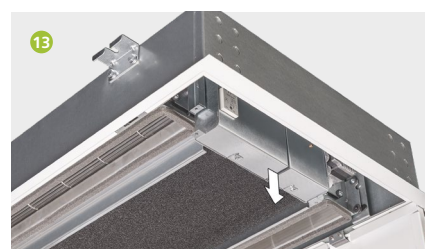
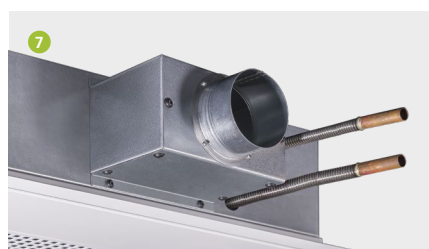
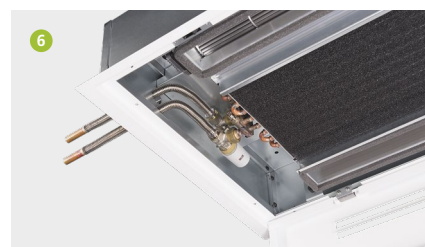
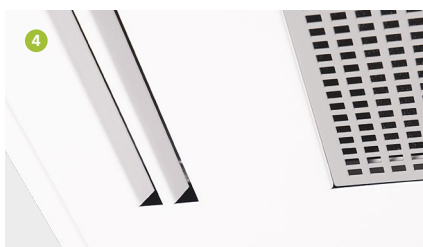


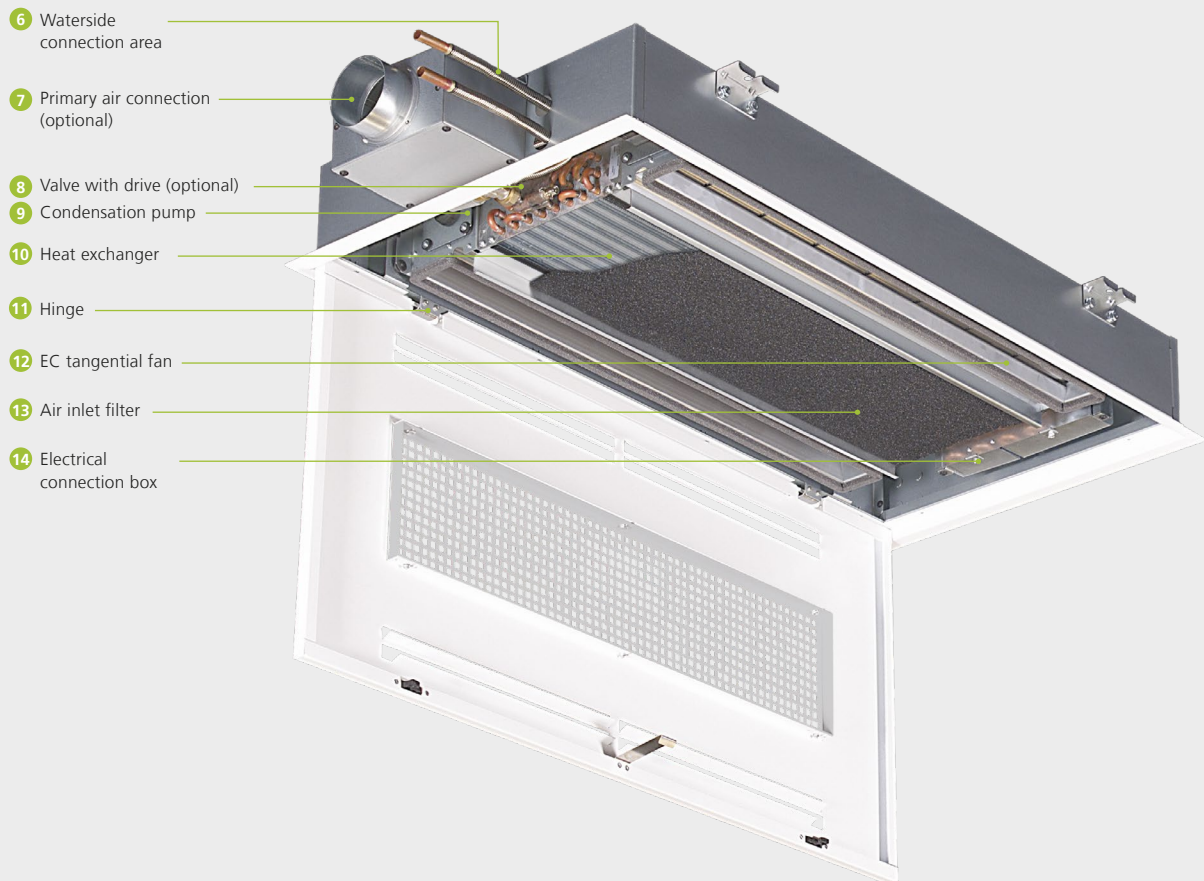
under-ceiling, 1-sided discharge

KaDeck at a glance



Features





- 1 Connecting frame:**
- › Suspended ceiling models have a connecting frame on all sides. It connects the suspended ceiling to the KaDeck

- 2 Ceiling panel:**
- › RAL 9016 powder-coated
 - › Other colours available on request

- 3 Concealed locks:**
- › Industry standard for a virtually unlimited service life

- 4 Air outlets:**
- › Depending on the models, the air outlets are fitted to optimise the Coanda effect and minimise draughts

- 5 Air inlet:**
- › Large air intake grille with large free cross-section
 - › RAL 9006 to conceal minor deposits of dust

- 6 Waterside connection:**
- › The water-side (and electrical) connections are arranged so that no additional maintenance access panels are needed

- 7 Primary air connection (dry cooling):**
- › All models have possible outside air supply from above
 - › The suspended ceiling model provides the option of side connections in addition to the optional primary air spigot

- 8 Valves with drive:**
- › optional

- 9 Condensation pump:**
- › Quiet-operating condensation pump with alarm contact for wet cooling

- 10 Heat exchanger:**
- › Whether dry or wet cooling, optimised for maximum output in a 2-pipe system

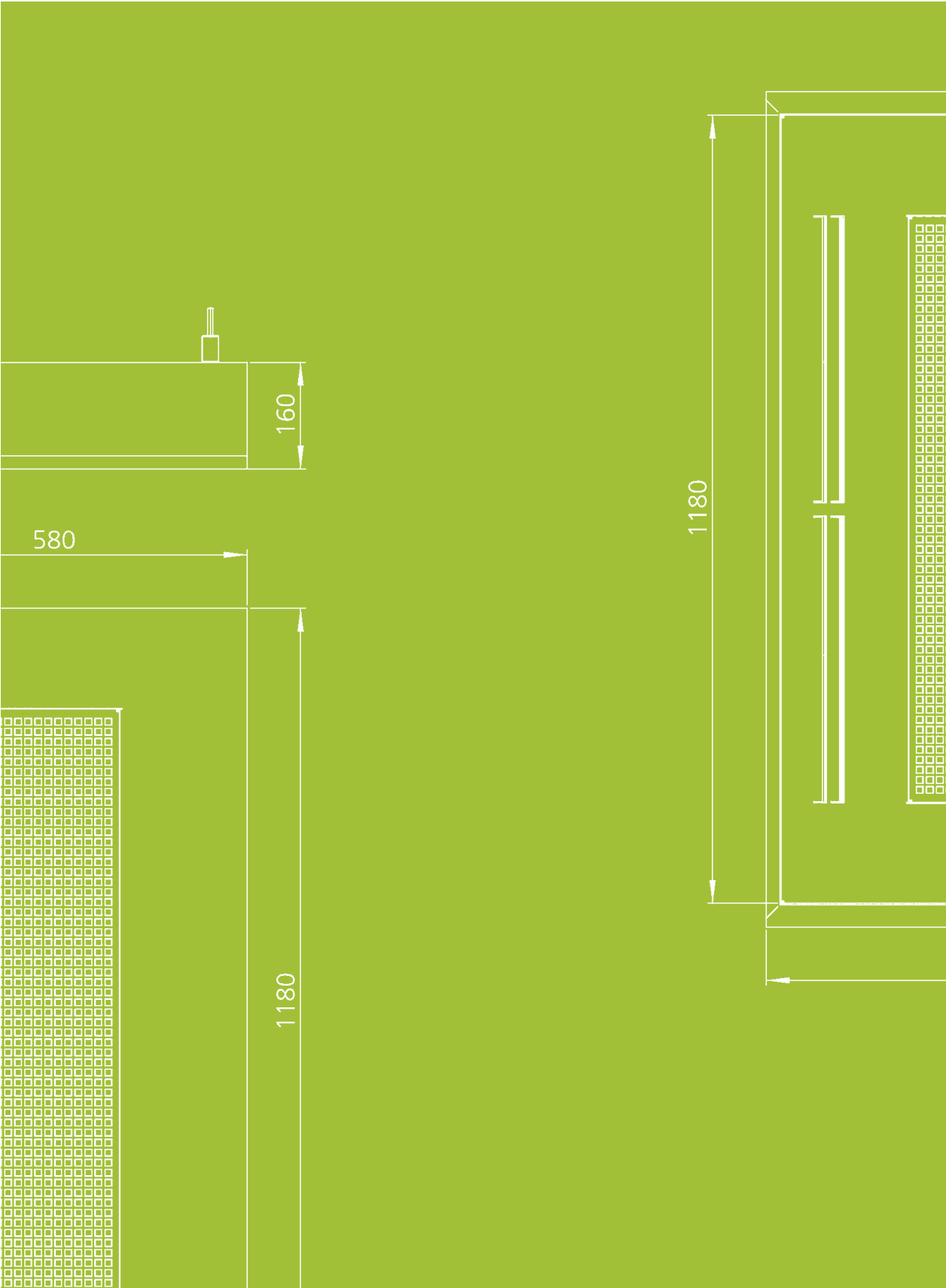
- 11 Hinges**
- › Extremely robust design
 - › Invisible from outside
 - › Enable simple and frequent service without the risk of possible damage
 - › If necessary, the ceiling panel can be easily fully dismantled

- 12 EC tangential fan:**
- › With continuous EC energy-saving technology
 - › Motor monitoring with internal fault processing
 - › Optimised flow for minimum noise levels

- 13 Air inlet filter:**
- › Optionaler Luftfilter zur Reinigung der Raumluft und zum Schutz des Wärmetauschers

- 14 Electrical connection box:**
- › Can be lowered for connection or maintenance purposes
 - › Optimum accessibility
 - › A dewpoint monitor sensor can optionally be installed

02 ▶ Technical Data



Advice on Measuring Conditions

The cooling and heating outputs were determined in accordance with DIN EN 1397: 1998 „Water-Air Fan Convectors, Test Procedures Air Fan Convectors, Test Procedures to Determine Output“

The specific requirements for heating and cooling mode are taken into account in DIN EN 1397. They are also based on the Eurovent Certification, awarded following measurements in accredited test laboratories.

Normative reference

The standard refers to:

- ▶ EN 23741; 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 coil is selected as the reference/air temperature, which should not be confused with the ambient temperature.

In practice, KaDecks are generally positioned under the unfinished ceiling and within a suspended ceiling.

Due to the ensuring temperature stratification, the air intake temperature differs from the room air temperature (measured at a height of 1.5 m). In cooling mode the room temperature is considerably below the air intake temperature, depending on the distance from the air intake. If an air intake temperature of 27 °C is assumed for the output measurement, the room temperature to be set will be significantly below it.

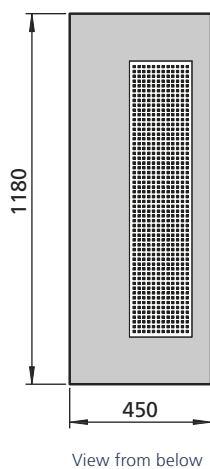
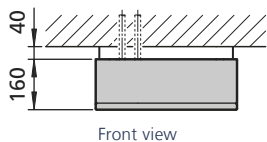


Chamber test rig for air outlet measurements; Kampmann R&D Centre

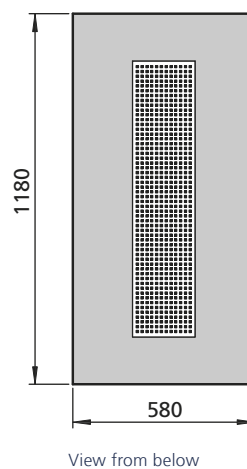
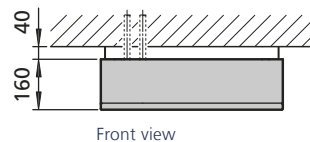
KaDeck

Under-ceiling unit, one- and two-sided discharge

One-sided discharge (Dimensions in mm)



Two-sided discharge (Dimensions in mm)



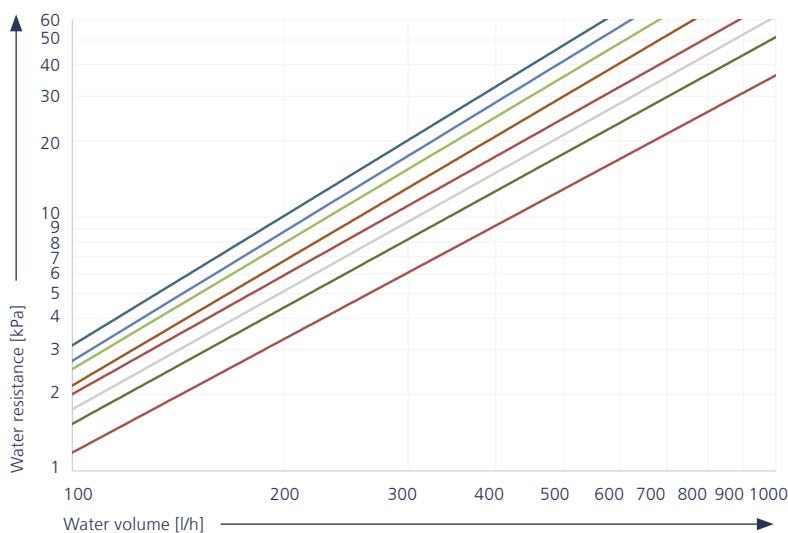
Specifications

Connections, female thread:
Eurokonus, one-sided

Weights

Unit design	Unit [kg]
one-sided discharge	32
two-sided discharge	42

Water resistance diagram (without valve kit)



One-sided discharge

dry cooling
● Heating
● Cooling

wet cooling
● Heating
● Cooling

Zweiseitig ausblasend

dry cooling
● Heating
● Cooling

wet cooling
● Heating
● Cooling

Take advantage of our online calculation programmes to simply calculate heat outputs and flows with a few clicks!

- kampmann.co.uk/kadeck/calculation
- kampmann.eu/kadeck/calculation

One-sided discharge



Speed range	Control voltage	Air volume	Cooling mode				Heating mode				Power consumption	Speed	Sound pressure level ⁵⁾	Sound power level
			Cooling output	Outlet air temperature	Water volume	pressure loss	Heat output ³⁾	Water volume ³⁾	Pressure loss ³⁾	Heat output ⁴⁾				
	[V]	V[m³/h]	Q _k [W]	t _{L2} [°C]	V[l/h]	dP[kPa]	Q _k [W]	V[l/h]	dP[kPa]	Q _k [W]	P[W]	n [min ⁻¹]	L _{WA} [dB(A)]	L _{PA} [dB(A)]
Model for dry cooling ¹⁾														
Maximum	10	337	999	17.6	430	29	4176	321	14	4707	20	1100	37	45
Medium ⁶⁾	8	278	837	17.3	360	21	3495	268	10	3938	17	925	33	41
	6	221	672	17.1	289	14	2807	197	7	3162	9	750	29	37
	4	163	498	16.8	214	9	2077	145	4	2338	5	575	25	33
Minimum	2	106	314	16.5	135	4	1308	94	2	1471	4	400	20	28
Model for wet cooling ²⁾														
Maximum	10	196	1609	12.4	277	8	2936	247	5	3314	20	1100	35	43
Medium ⁶⁾	8	157	1392	11.9	239	7	2493	209	4	2813	17	925	33	41
	6	119	1157	11.2	199	5	2024	170	3	2281	9	750	27	35
	4	81	891	10.5	153	3	1515	128	2	1707	5	575	23	31
Minimum	2	42	588	9.4	101	1	961	82	1	1082	4	400	<20	<28

Two-sided discharge



Speed range	Control voltage	Air volume	Cooling mode				Heating mode				Power consumption	Speed	Sound pressure level ⁵⁾	Sound power level
			Cooling output	Outlet air temperature	Water volume	pressure loss	Heat output ³⁾	Water volume ³⁾	Pressure loss ³⁾	Heat output ⁴⁾				
	[V]	V[m³/h]	Q _k [W]	t _{L2} [°C]	V[l/h]	dP[kPa]	Q _k [W]	V[l/h]	dP[kPa]	Q _k [W]	P[W]	n [min ⁻¹]	L _{WA} [dB(A)]	L _{PA} [dB(A)]
Model for dry cooling ¹⁾														
Maximum	10	635	1718	18.6	738	75	7185	616	44	8107	30	1100	40	48
Medium ⁶⁾	8	525	1465	18.3	630	57	6124	525	33	6908	27	925	36	44
	6	418	1203	17.9	517	40	5028	431	24	5670	14	750	32	40
	4	308	921	17.5	396	25	3850	330	15	4338	7	575	28	36
Minimum	2	199	607	17.0	261	12	2533	217	7	2852	5	400	23	31
Model for wet cooling ²⁾														
Maximum	10	369	3114	11.2	535	55	5339	458	30	6017	30	1100	38	46
Medium ⁶⁾	8	297	2650	10.6	456	41	4465	383	27	5031	27	925	35	43
	6	225	2153	10.0	370	29	3554	305	14	4001	14	750	30	38
	4	152	1598	9.3	275	17	2578	221	7	2901	7	575	26	34
Minimum	2	79	979	8.4	168	7	1530	131	5	1720	5	400	21	29

¹⁾ at CPW 16/18 °C, t_{L1} = 27 °C

²⁾ at CPW 7/12 °C, t_{L1} = 27 °C, 48% relative humidity

³⁾ at LPHW 75/65 °C, t_{L1} = 20 °C

⁴⁾ at LPHW 82/71 °C, t_{L1} = 20 °C

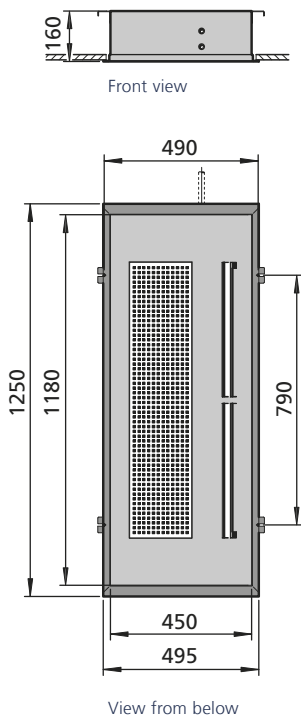
⁵⁾ The sound pressure levels were calculated with assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081).

⁶⁾ Recommended speed range of fans for optimum energy efficiency and comfort

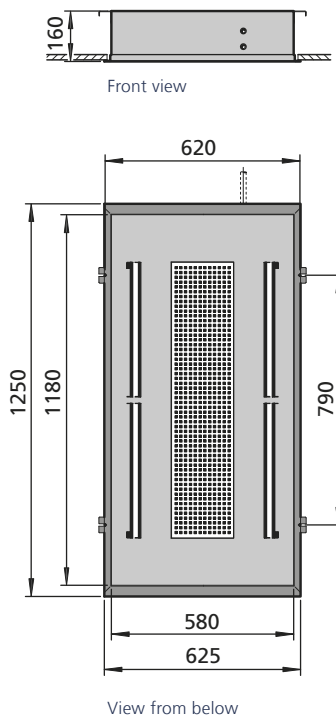
KaDeck

Suspended ceiling unit, one- and two-sided discharge

One-sided discharge (Dimensions in mm)



Two-sided discharge (Dimensions in mm)



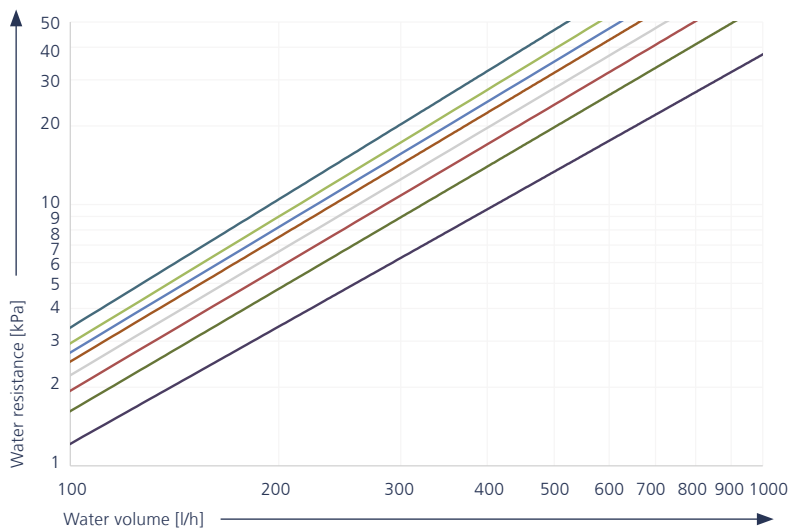
Specifications

Connections, female thread:
Eurokonus, one-sided

Weights

Unit design	Unit [kg]
one-sided discharge	32
two-sided discharge	42

Water resistance diagram (without valve kit)



One-sided discharge

dry cooling
● Heating
● Cooling

wet cooling
● Heating
● Cooling

Zweiseitig ausblasend

dry cooling
● Heating
● Cooling

wet cooling
● Heating
● Cooling

Take advantage of our online calculation programmes to simply calculate heat outputs and flows with a few clicks!

► kampmann.co.uk/kadeck/calculation
► kampmann.eu/kadeck/calculation

One-sided discharge



Speed range	Control voltage	Air volume	Cooling mode				Heating mode				Power consumption	Speed	Sound pressure level ⁵⁾	Sound power level
			Cooling output	Outlet air temperature	Water volume	pressure loss	Heat output ³⁾	Water volume ³⁾	Pressure loss ³⁾	Heat output ⁴⁾				
	[V]	V[m³/h]	Q _k [W]	t _{L2} [°C]	V[l/h]	dP[kPa]	Q _h [W]	V[l/h]	dP[kPa]	Q _h [W]	P[W]	n [min ⁻¹]	L _{WA} [dB(A)]	L _{PA} [dB(A)]
Model for dry cooling ¹⁾														
Maximum	10	299	896	17.4	385	24	3744	321	14	4219	20	1100	37	45
Medium ⁶⁾	8	247	748	17.2	322	17	3125	268	10	3519	17	925	33	41
	6	197	599	17.0	258	12	2501	215	7	2816	9	750	29	37
	4	145	441	16.7	190	7	1841	158	4	2071	5	575	25	33
Minimum	2	94	275	16.4	118	3	1146	98	2	1289	4	400	20	28
Model for wet cooling ²⁾														
Maximum	10	196	1570	12.7	270	8	2876	247	5	3247	20	1100	35	43
Medium ⁶⁾	8	157	1360	12.2	234	6	2442	209	4	2756	17	925	33	41
	6	119	1133	11.5	195	5	1986	170	3	2239	9	750	27	35
	4	81	874	10.7	150	3	1492	128	2	1681	5	575	23	31
Minimum	2	42	579	9.6	100	1	950	82	1	1070	4	400	<20	<28

Two-sided discharge



Speed range	Control voltage	Air volume	Cooling mode				Heating mode				Power consumption	Speed	Sound pressure level ⁵⁾	Sound power level
			Cooling output	Outlet air temperature	Water volume	pressure loss	Heat output ³⁾	Water volume ³⁾	Pressure loss ³⁾	Heat output ⁴⁾				
	[V]	V[m³/h]	Q _k [W]	t _{L2} [°C]	V[l/h]	dP[kPa]	Q _h [W]	V[l/h]	dP[kPa]	Q _h [W]	P[W]	n [min ⁻¹]	L _{WA} [dB(A)]	L _{PA} [dB(A)]
Model for dry cooling ¹⁾														
Maximum	10	565	1558	18.4	670	63	6514	559	37	7349	30	1100	40	48
Medium ⁶⁾	8	467	1325	18.1	569	48	5537	475	28	6245	27	925	36	44
	6	371	1092	17.7	469	34	4562	391	20	5143	14	750	32	40
	4	274	825	17.3	355	21	3447	296	12	3883	7	575	28	36
Minimum	2	177	540	16.9	232	10	2253	193	6	2536	5	400	23	31
Model for wet cooling ²⁾														
Maximum	10	369	3050	11.4	524	53	5247	450	31	5915	30	1100	38	46
Medium ⁶⁾	8	297	2598	10.9	447	40	4391	377	23	4949	27	925	35	43
	6	225	2116	10.3	364	28	3503	300	15	3945	14	750	30	38
	4	152	1575	9.5	271	16	2550	219	9	2869	7	575	26	34
Minimum	2	79	968	8.5	166	7	1519	130	3	1708	5	400	21	29

¹⁾ at CPW 16/18 °C, t_{L1} = 27 °C

²⁾ at CPW 7/12 °C, t_{L1} = 27 °C, 48% relative humidity

³⁾ at LPHW 75/65 °C, t_{L1} = 20 °C

⁴⁾ at LPHW 82/71 °C, t_{L1} = 20 °C

⁵⁾ The sound pressure levels were calculated with 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).

⁶⁾ Recommended speed range of fans for optimum energy efficiency and comfort

03 ▶ Design Information



Informationen zur Planung und Auslegung

The installation position and discharge direction, as well as the choice of dry or wet cooling, depend on a range of different factors.

Cooling output

The required cooling load is calculated in line with VDI 2078 (VDI cooling load rules).

Select the dry or wet model of KaDeck, depending on the existing cold water supply (CPW) and the desired or required cooling output. The dry model can be selected with high system temperatures above the dewpoint (e.g. CPW 16 / 18 °C).

The components of the KaDeck for dry cooling are designed for as high a cooling output as possible at high system temperatures. A condensation tray and pump are not included. A dewpoint monitor is optionally available for the dry cooling model.

The wet cooling model should be used with high cooling requirements and has to be used at system temperatures below the dewpoint. A condensation tray and pump are included.

Ceiling type

The decision about whether to install the unit under the ceiling or within the suspended ceiling is determined by the architecture of the building. Select the under-ceiling model in rooms with no suspended ceiling. These units are suspended 4 cm under the unfinished ceiling. Select the suspended ceiling model should the space not have a suspended ceiling. Additional maintenance access panels are not needed on site. The unit can be installed within two grids of a suspended ceiling.

Air discharge direction

The choice is generally between 1-sided and 2-sided air discharge. The selection should be made to ensure that draughts are avoided. The throw data on the following pages can help with this. The appropriate unit can be selected taking into account where people live and work. If the distance from the wall to the air outlet is less than 3.0 metres, it can produce draughts at higher fan stages. The air should preferably always flow in a longitudinal direction towards the room. If desks are positioned in the middle of a room, a 2-sided discharge should be positioned above the desk. If desks are positioned along the window, a 1-sided discharge unit should be selected and installed on the façade. The supply to the units also has to be considered. If, for example, the unit is supplied from the corridor area, a 1-sided discharge unit is beneficial. The unit is then positioned on the corridor side, but care nevertheless needs to be paid to the avoidance of draughts.

Choice of the installation site:

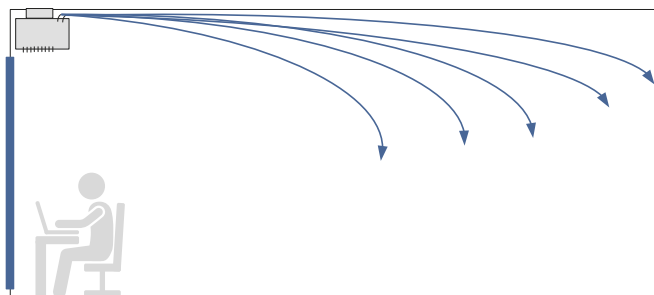
- ▶ Position of the cooling unit to fit the architecture and environment (e.g. ceiling lights)

Avoid:

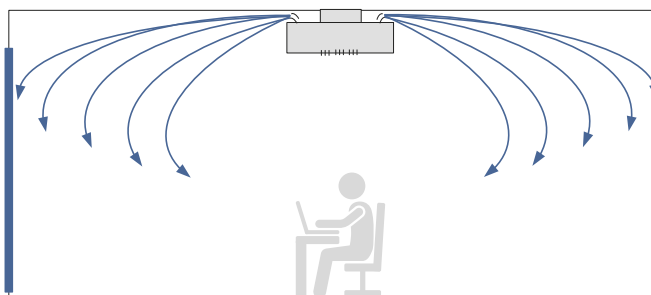
- ▶ impaired free air circulation by lamps, furniture or shelving etc.
- ▶ obstacles to air distribution and air intake
- ▶ electronic appliances below the KaDeck

Unit arrangements in the room

Under-ceiling unit

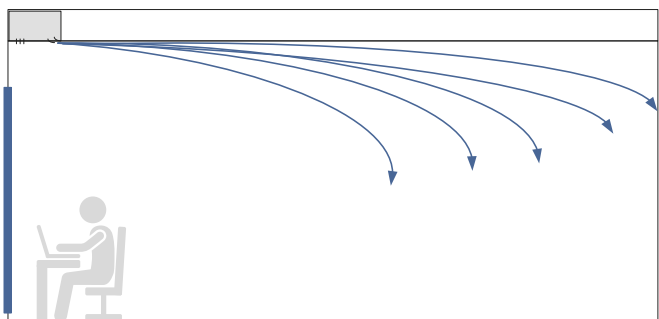


Wall-sided arrangement

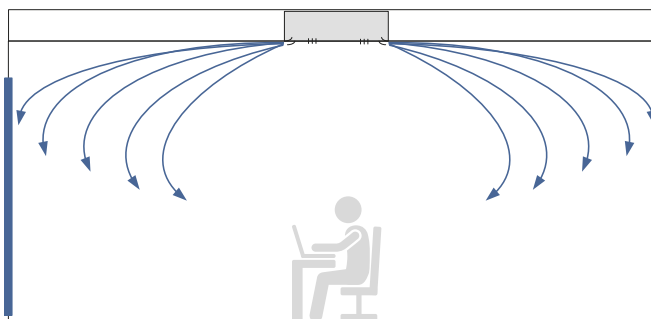


Room-centre arrangement

Suspended unit



Wall-sided arrangement



Room-centre arrangement

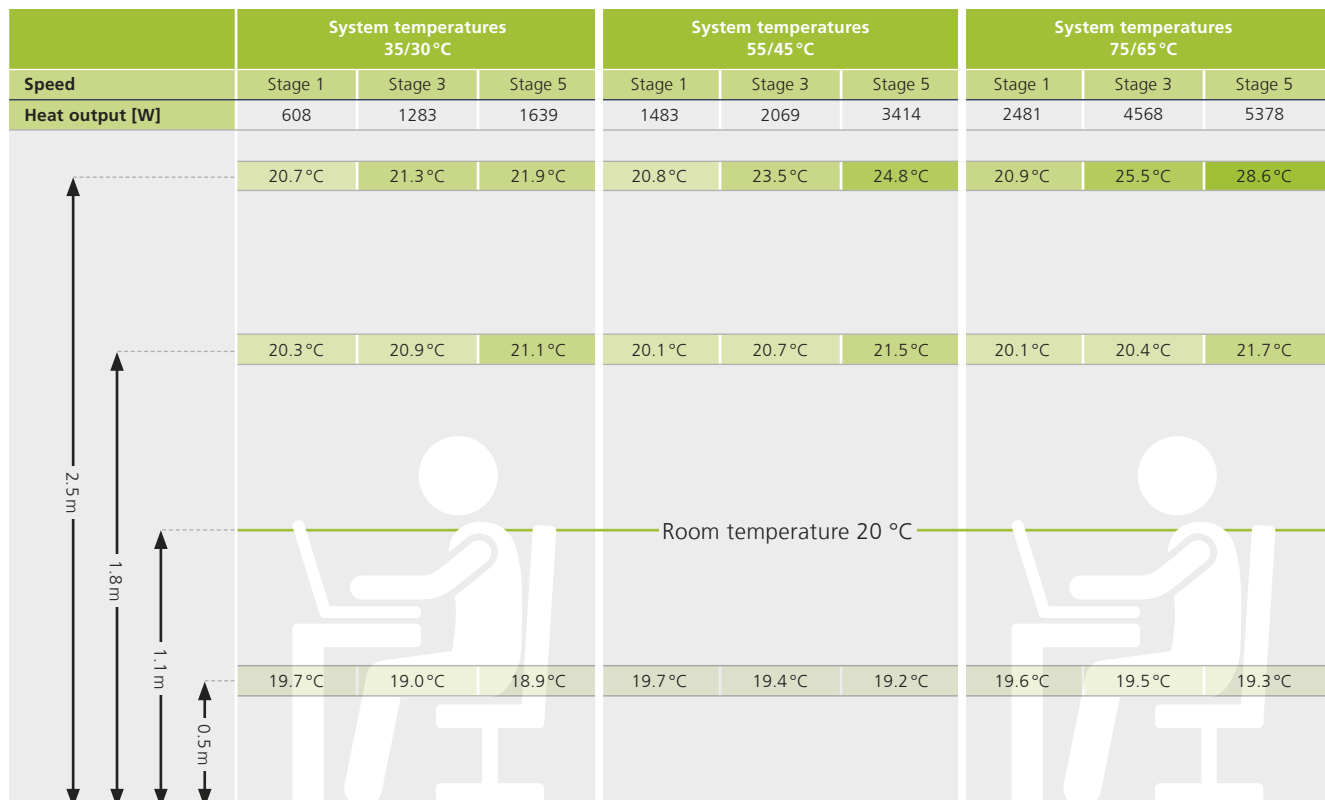
Temperature stratification in heating mode

Heating mode

The KaDeck is primarily developed for cooling mode. The special air discharge geometry, which prevents draughts in cooling mode, results in temperature stratification in heating mode. The stratification increases the higher the system temperatures and thus also the discharge temperatures. For this reason, the KaDeck should be used as a low temperature heating system. Do not allow the maximum height of the air outlet to exceed 3 metres.

Temperature stratification

The figure below shows the temperature stratification formed at a setpoint temperature of 20 °C at a height of 1.1 metres and a KaDeck discharge height of 3.0 metres. Different temperature layers are formed above ground level below the unit depending on the fan speed and system temperatures. This needs to be taken into consideration at the planning stage.



External fresh air supply

Primary air spigots for the fresh air supply

KaDeck units can be equipped with a primary air connection. This enables preconditioned fresh air to be supplied to the air conditioning unit and, in turn, to the room. The conditioned fresh air needs to be cleaned and supplied at a minimum of 14 °C and a maximum of 25 °C in cooling mode. The sound level is approx. 30 dB(A) at maximum primary air supply, even when the fans are switched off. Only when the sound pressure level specified in the technical data is above 30 dB(A), do the sound levels caused by the fans apply. With all models the

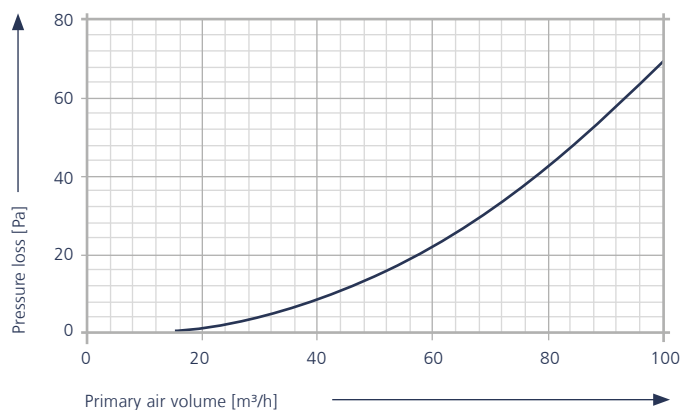
connection can be made from above via a 80 mm flange. The punched hole on the top of the unit is simply removed for this purpose. With suspended ceiling models, connection is also possible from the side. The primary air connection accessory should be used for this purpose. An 80 mm pipe connection is needed for this on site.

Maximum air volume per unit

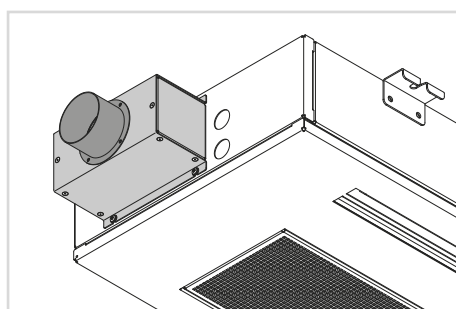
KaDeck 1-sided air discharge 50 m³/h

KaDeck 2-sided air discharge 80 m³/h

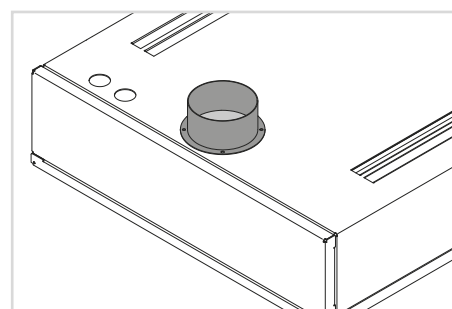
Pressure losses at primary air connection



Fitting position of primary air connection

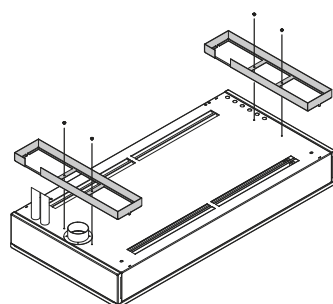


Primary air connection (suspended ceiling model)



Primary air connection (top panel)

Connection panel



The connection panels for under-ceiling units can be ordered separately. This conceals the 40 mm gap between the unfinished ceiling and KaDeck and the water connections and primary air connection.



A side wall needs to be created at the side of the unit with wet cooling or alternatively a connecting panel can be used. No recirculating air can be allowed to flow past the side of the unit.

Wet and dry cooling models

Distinction

A distinction is made between two fundamentally different models with the KaDeck: dry cooling and wet cooling,

Never connect dry cooling models to a chilled water system on site operating at lower than the dewpoint!

KaDeck dry cooling models configured for KaControl can be fitted with a factory-fitted dewpoint monitor sensor.

This monitors the heat exchanger for any condensation produced. If the temperature falls below the dewpoint on the heat exchanger, then the dewpoint monitor sensor closes the cooling valve. The dewpoint monitor sensor is not a control as such, but rather a safety mechanism. Even when using a dewpoint monitor sensor, the chilled water network should generally be operated at above the dewpoint!

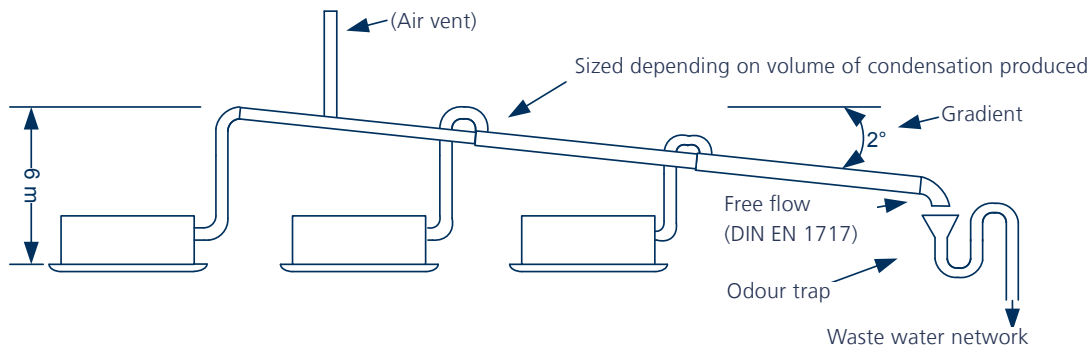
The following table provides an overview of the equipment on the KaDeck units depending on the model.

KaDeck	Dry cooling	Wet cooling
Heat exchanger optimised for dry cooling mode	yes	no
Heat exchanger optimised for wet cooling mode	no	yes
Dewpoint monitor sensor, factory-fitted	optional with KaControl configuration	no
Condensation tray	no	yes
Condensation pump	no	yes
Interior of housing vapour-tightly insulated against salt water	no	yes

Condensation drain

KaDeck wet cooling models are equipped with a built-in condensation pump with float switch to drain away condensation. The condensation coming from the condensation pump hose needs to drain away from the KaDeck at a 2% gradient.

If it is necessary to drain away the condensation higher than the built-in pump allows, then the condensation has to be collected in a collection pump on site.



04 ▶ Control

KaControl – The all-inclusive solution

KaDeck units with KaControl are supplied completely wired and ready-to-connect with all electrical components factory-fitted.

Each KaDeck is fitted with an electrical fuse. A high-performance parameterisable microprocessor provides all the requisite functions. This way, every KaDeck has its own „intelligence“ and can be operated in groups via Kampmann networks.

Connection to building automation systems

KaDeck units with KaControl can be fitted with plug-in communication interfaces for single room control or also for linking to building management systems: BACnet, CANbus, LON, KNX und Modbus. Alternatively direct control is also possible via an active 0 – 10 V signal from a building management system on site.

Motor protection

Possible malfunction of the motor, for example by overloading, is analysed by the electronics in the EC motor. This then switches the fan off.

KaControl

The parameterisable KaControl offers a variety of different functions:

- ▶ Optional: five fan stages; manually adjustable valve ▶
- ▶ control for 2-pipe applications (heating/cooling) for thermoelectric valve actuators 24 V DC OPEN / SHUT
- ▶ Optional: integrated frost protection function via clip-on pipe sensor
- ▶ Integrated timer program for programming day and week switching functions in the KaController unit
- ▶ Motor monitoring with fault signal processing

Electrical rating of KaDeck

Unit design	Power supply	Power consumption	Current consumption
	U [V]	P [W]	I [mA]
KaDeck for installation below the unfinished ceiling			
one-sided	230	17	80
two-sided	230	28	130
KaDeck for installation in a suspended ceiling			
one-sided	230	17	80
two-sided	230	28	130

KaController operating unit



The “face” of the KaControl building automation system is its operating unit, the KaController.

Product features

- ▶ high-quality designed wall-mounted room operating units
- ▶ available with or without function buttons on the side
- ▶ plastic housing, colour similar to RAL 9010
- ▶ communication interface to Kampmann T-LAN bus system
- ▶ push-turn navigator dial with endless turn/lock function
- ▶ built-in weekly switching program
- ▶ password-protected parameter level
- ▶ large display with automatic backlight
- ▶ integral room temperature sensor

Electromechanical control



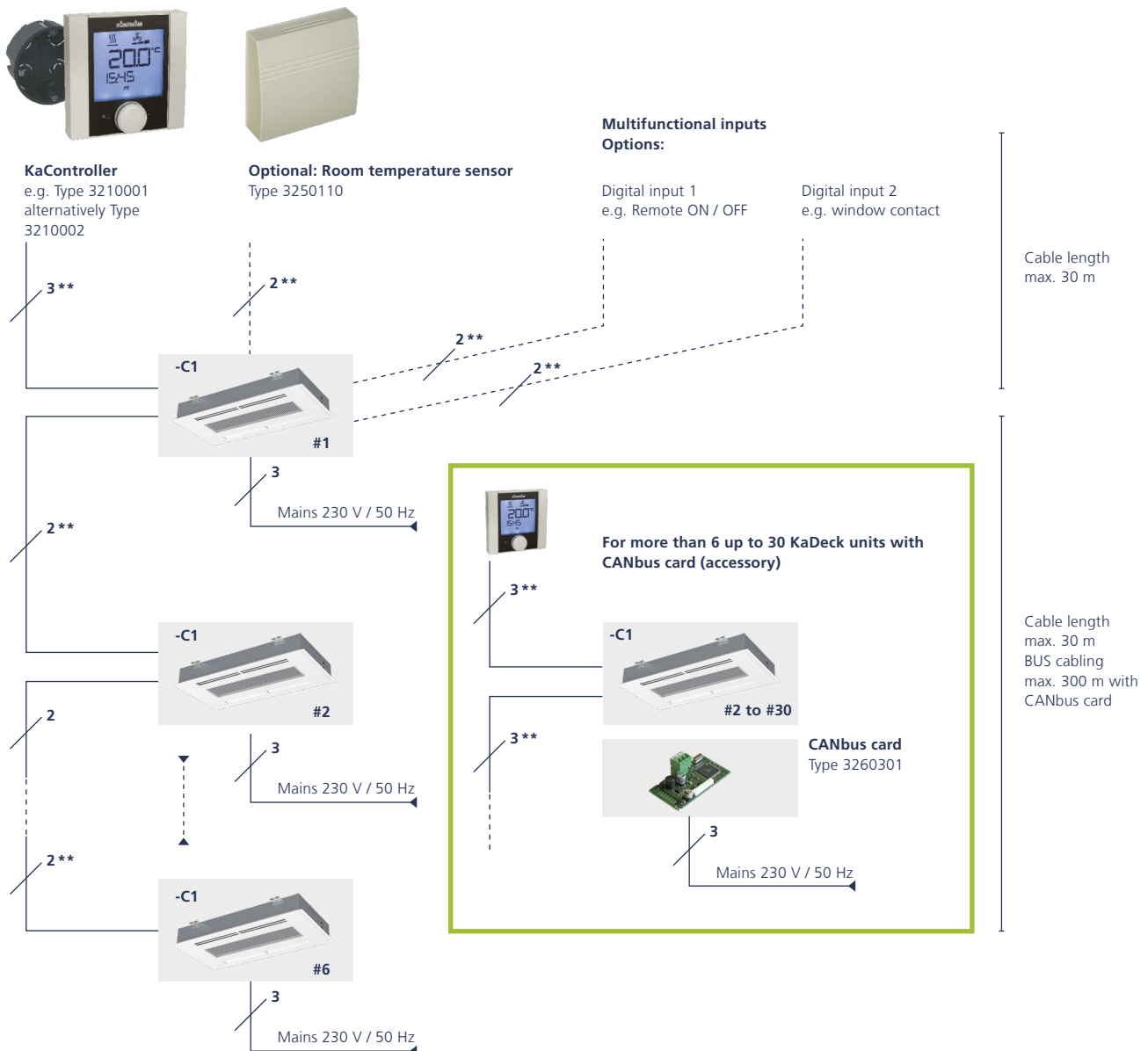
Universal controller for all common switch-frame combinations

Product features

- ▶ Product features combination of flush-mounted room and clock thermostat: can be integrated into even 50 x 50 grid on switch rails. Integration into switching programs is possible with 55 x 55 mm grid dimensions via an intermediate frame provided on site.
- ▶ white cover panel and frame (similar to RAL 9010)
- ▶ large illuminated display with four variably assigned sensor keys
- ▶ integral temperature sensor
- ▶ built-in weekly switching program
- ▶ 24 V AC/DC operating voltage
- ▶ 24 V AC/DC output signal for valves and 0 – 10 V output signal for fan control

Cabling

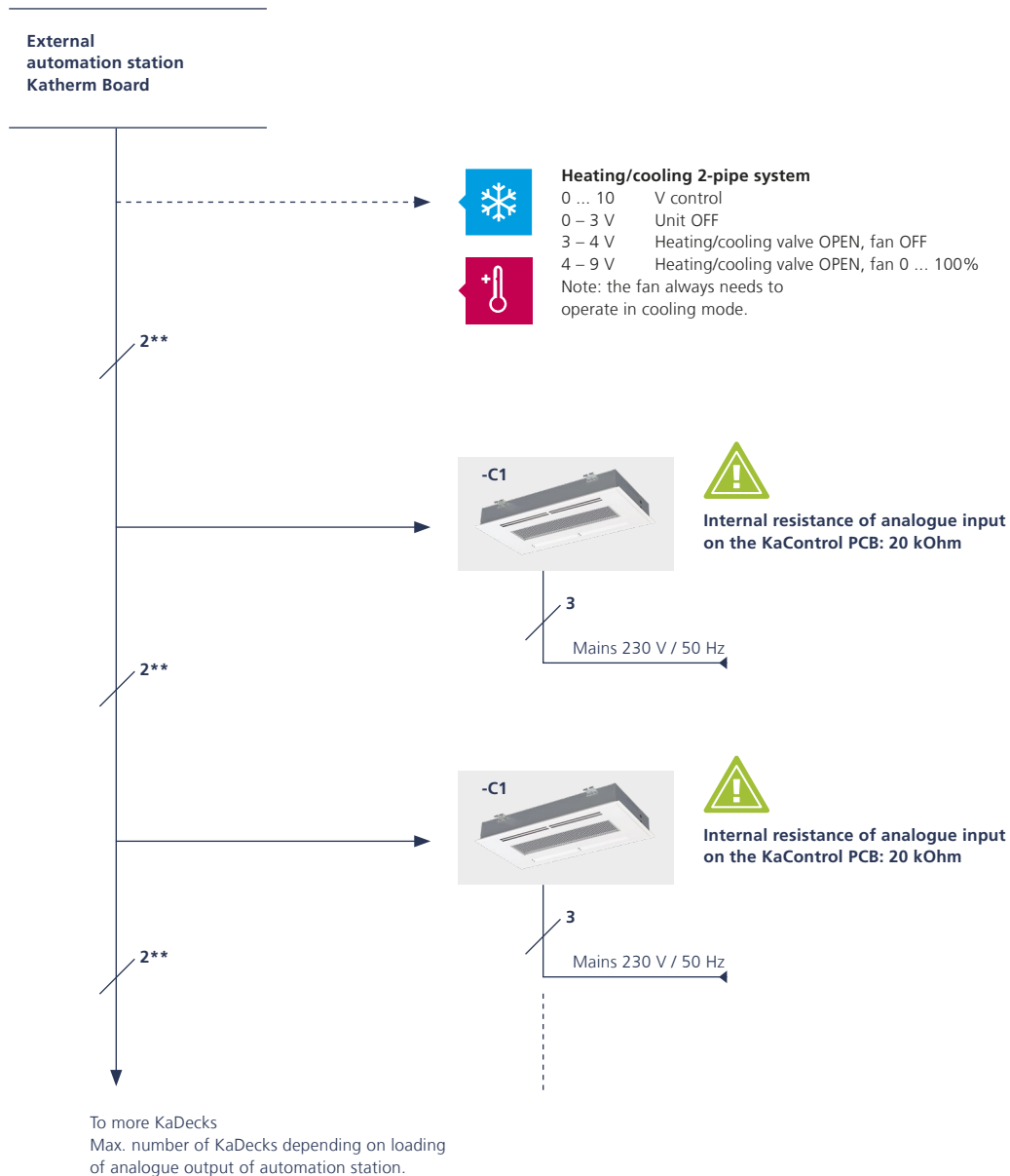
Single-circuit control – System configuration



** Only use CAT5 (AWG 23 or similar) cable connections.

Caution: Lay all bus connections in a linear pattern – star-shaped cabling is not permitted!

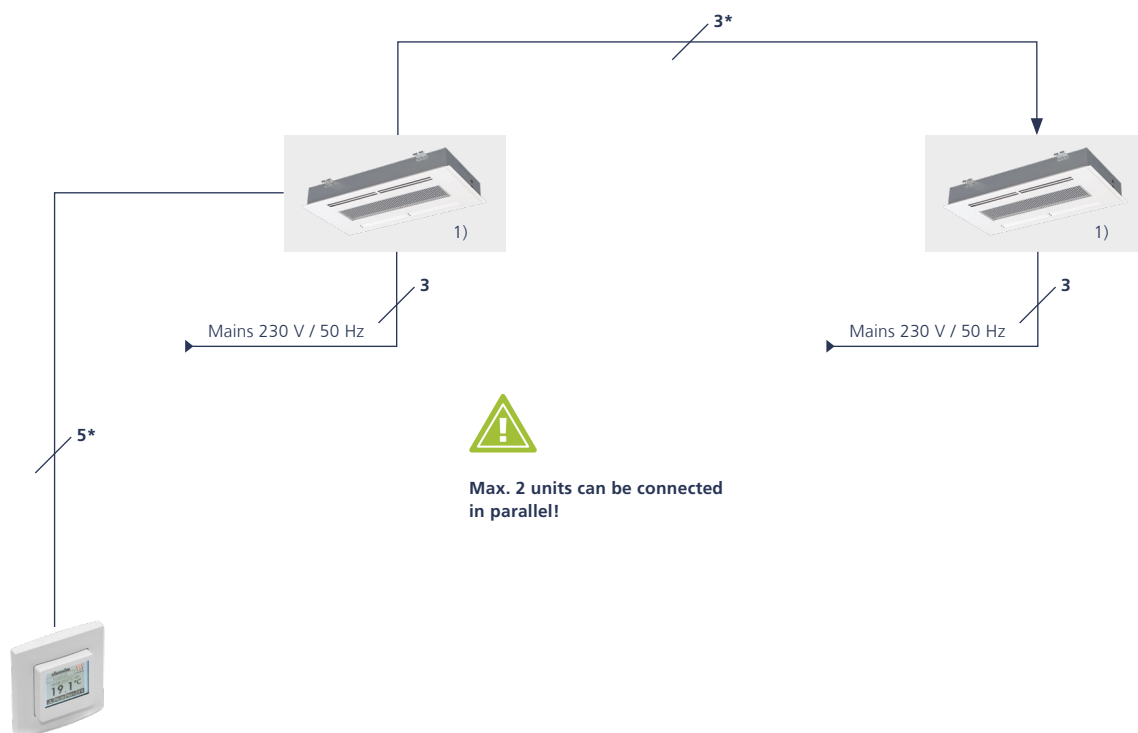
Control of units with KaControl via building management system



** Only use CAT5 (AWG 23 or similar) cable connections.

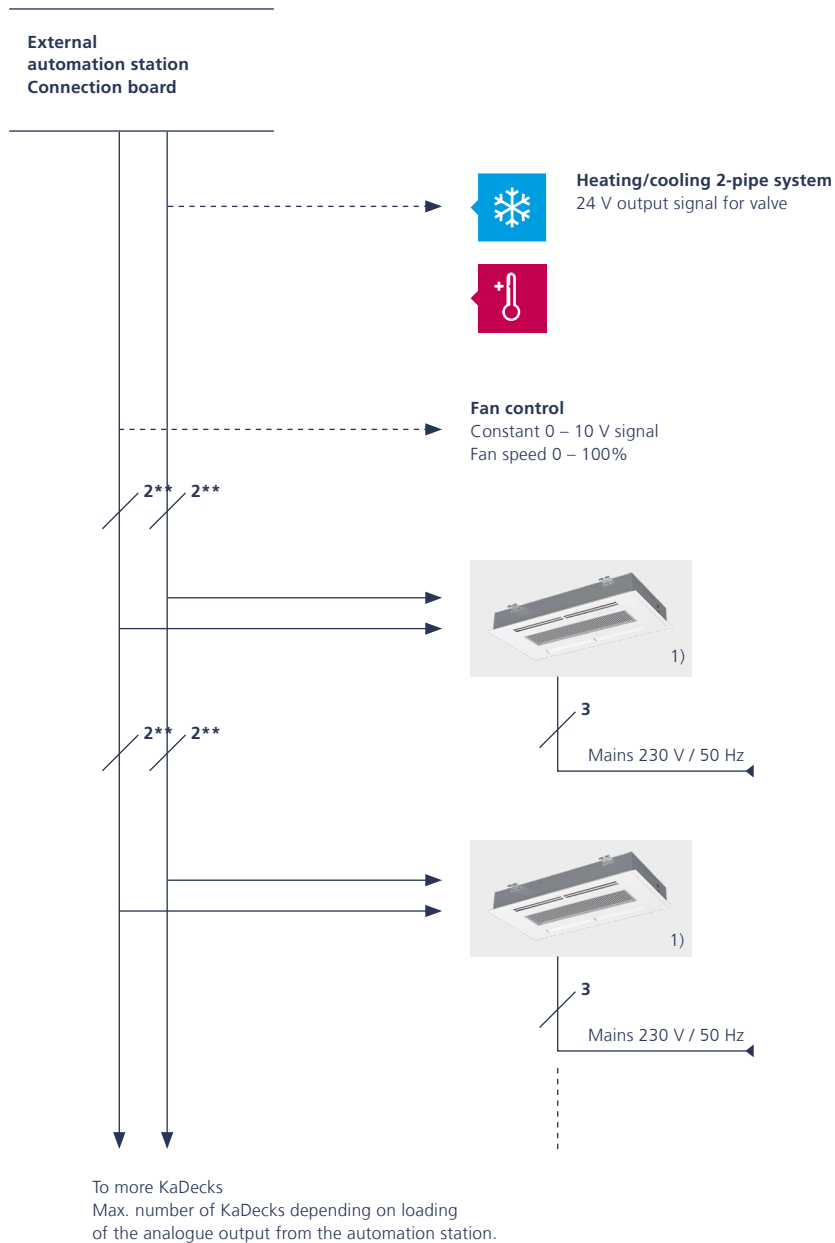
Wiring diagram

Electromechanical control



¹⁾ Units without built-in control

Control of units without control via a building management system



¹⁾ Units without built-in control

** Only use CAT5 (AWG 23 or similar) cable connections.

05 ▶ Ordering Information

KaDeck

Model	Air outlet	Cooling output	Heat output ³⁾	Air volume	Sound pressure level ⁴⁾	Control option	Art. No.
		[W]	[W]	[m³/h]	[dB(A)]		
KaDeck for installation below the unfinished ceiling							
Dry cooling	one-sided	314 – 999 ¹⁾	1308 – 4176	106 – 337	20 – 37	without built-in control	326026211211
						KaControl without dewpoint monitor sensor	326026211211C1
						KaControl with dewpoint monitor sensor	326026221211C1
	two-sided	607 – 1718 ¹⁾	2533 – 7185	199 – 635	23 – 40	without built-in control	326026212211
						KaControl without dewpoint monitor sensor	326026212211C1
						KaControl with dewpoint monitor sensor	32602622211C1
Wet cooling	one-sided	588 – 1609 ²⁾	961 – 2936	42 – 196	<20 – 35	without built-in control	326026261211
						KaControl without dewpoint monitor sensor	326026261211C1
	two-sided	979 – 3114 ²⁾	1530 – 5339	79 – 369	21 – 38	without built-in control	326026262211
						KaControl with dewpoint monitor sensor	326026262211C1
KaDeck for installation in a suspended ceiling							
Dry cooling	one-sided	275 – 896 ¹⁾	1146 – 3744	94 – 299	20 – 37	without built-in control	326026211111
						KaControl without dewpoint monitor sensor	326026211111C1
						KaControl with dewpoint monitor sensor	326026221111C1
	two-sided	540 – 1558 ¹⁾	2253 – 6514	177 – 565	23 – 40	without built-in control	326026212111
						KaControl without dewpoint monitor sensor	326026212111C1
						KaControl with dewpoint monitor sensor	326026222111C1
Wet cooling	one-sided	579 – 1570 ²⁾	950 – 2876	42 – 196	<20 – 35	without built-in control	326026261111
						KaControl without dewpoint monitor sensor	326026261111C1
	two-sided	968 – 3050 ²⁾	1519 – 5247	79 – 369	21 – 38	without built-in control	326026262111
						KaControl with dewpoint monitor sensor	326026262111C1

¹⁾ at CPW 16/18 °C, tL1 = 27 °C

²⁾ at CHW 7/12 °C and tL1 = 27 °C, 48 % relative humidity

³⁾ at LPHW 75/65 °C, tL1 = 20 °C

⁴⁾ The sound pressure levels were calculated with 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

Article		Properties	Suitable for	Art. No.
Valves/Return shut-off valves				
Valve body		angled, ½" connection	all KaDecks	194000100970
		angled, ½" connection, pre-settable		194000346910
Adjustment key		for pre-settable valve body		194000346915
Return shut-off valve,		angled, ½" connection		194000145953
Valve actuators				
Thermoelectric actuator		24 V AC/DC	all KaDecks	194000146906
Other accessories				
Fresh air connection fitting		for the connection of primary air	suspended ceiling units	326007010103
Air inlet filter		for installation in the air intake area	dry cooling	326007010002
			wet cooling	326007010003
Valve kit, adjustable		Adjustable 2-way valve, actuator, return shut-off valve and flexible connection Stainless steel flexible pipes for supply and return	all KaDecks	326007110001
Figure	Article	Properties	Suitable for	Art. No.
KaControl Accessories				
	KaController room control unit with one-key operation	Room control unit, wall-mounted, in high-quality design, plastic housing, colour similar to RAL 9010, large LCD multifunctional display, integral room temperature sensor, communication interface to the Kampmann T-LAN bus system, automatic switching LED background lighting, push/dial navigator with continuous dial/lock function, individually adjustable basic display, built-in day-, night and week switching programme, password-protected parametrisation level, for control configuration C1	all models	196003210001
	KaController room control unit with side operating keys	for quick access to fan setting, operating modes, eco-mode, time and timer program, otherwise as art. no. 196003210001	all models	196003210002
				more »

Accessories

Article		Properties	Suitable for	Art. No.
	Universal clock-room temperature controller	Combination of room and clock thermostat, flush-mounted. Cover and frame in pure white (similar to RAL 9010). Large graphic display, illuminated display; operating panel with four variably assigned sensor keys. Integral room temperature sensor and integral weekly programme, with optionally four operating programs. - 24 V AC/DC operating voltage - 24 V AC/DC output signal for valves and 0 – 10 V output signal for fan control	all models	196000030456
KaControl Accessories				
	Dewpoint monitor sensor to monitor the formation of condensation	Standard rail installation, only in conjunction with dewpoint monitor sensor and KaControl	included in all KaDecks with KaControl and dewpoint monitor sensor	---
	Dewpoint monitor sensor	only in conjunction with a dewpoint monitor sensor, Cable length 10 m	included in all KaDecks with KaControl and dewpoint monitor sensor	---
	KaControl room temperature sensor	wall-mounted, IP30 surface-mounted, colour white RAL 9010. Alternative to the temperature sensor in the KaController	all models	196003250110
	Pipe clip-on sensor	for detecting the temperature of the medium, including strap, cable length 3 m, for frost protection of the unit,	all models	196003250115
	Serial CANBus card	to extend the number of units to up to 30 in a single-circuit control system	all models	196003260301
	Serial Modbus card	for combination with SEL control panel and for connection to Modbus networks	all models	196003260101

Kampmanngroup.com/kadeck

Kampmann GmbH & Co. KG
Friedrich-Ebert-Str. 128 - 130
49811 Lingen (Ems)
Germany

T +49 591 7108-660
F +49 591 7108-173
E export@kampmann.de
W Kampmanngroup.com

