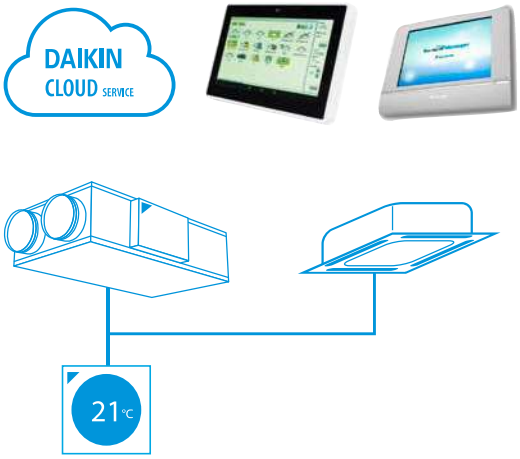
Ventilation & Biddle air curtains

5 reasons why Daikin's ventilation range is unique in the market

1 Market leading controls & connectivity

- Interlock of ventilation and air conditioning system
  - Control ERV/HRV and air conditioning from the same controller
  - Aligns the operation mode between the systems to save energy
- Easy integration in the total solution
  - Online control and monitoring via the Daikin Cloud Service
  - Full portfolio integration in the intelligent Touch Manager, Daikin's cost-effective mini BMS
- User-friendly controller with premium design
  - Intuitive touch button control



Madoka

DESIGN AWARD 2018

reddot award 2018 winner

2 Unique installation benefits

- Integrates seamlessly in the Daikin total solution, ensuring a single point of contact
- Total fresh air solution with Daikin supplying both the VAM/Modular L Smart and the electrical heater
- Daikin AHU and condensing unit connect Plug & Play thanks to same pipe diameters, factory mounted controls, expansion valves, etc.

3 High energy efficiency

- Energy recovery of up to 92%, reducing running costs
- Free nighttime cooling using fresh outside air
- Inverter driven centrifugal fans
- ErP compliant

Up to 92% energy recovery

4 Best comfort

- Wide range of units to control fresh air and humidity
- Wide range of optional filters to suit the application available up to ePM_1 80% (F9)
- Special paper heat exchanger recovers heat and moisture from extract air to warm up and humidify fresh air to comfortable levels (VAM, VKM)

EUROVENT CERTIFIED PERFORMANCE www.eurovent-certification.com

5 Top reliability

- Most extensive testing before new units leave the factory
- Widest support network and after sales service
- All spare parts available in Europe

ErP COMPLIANT

Did you know?

CO_2 levels and ventilation rates all have significant, independent impacts on cognitive function:

COGNITIVE FUNCTION SCORES ...

+ 61% IN GREEN BUILDING CONDITIONS

+ 101% IN ENHANCED GREEN BUILDING CONDITIONS

Widest range of DX integrated ventilation on the market

Daikin offers a variety of solutions from small energy recovery ventilation to large-scale air handling units for the provision of fresh air ventilation to homes, or commercial premises.

Ventilation solutions

Daikin offers state-of-the-art ventilation solutions that can easily be integrated into any project:

› **Unique portfolio** within DX manufacturers
› High-quality solutions complying with the **highest Daikin quality standards**
› **Seamless integration** of all products to provide the best indoor climate
› All Daikin products connected to a single controller for **complete control** of the HVAC system.

Energy Recovery Ventilation

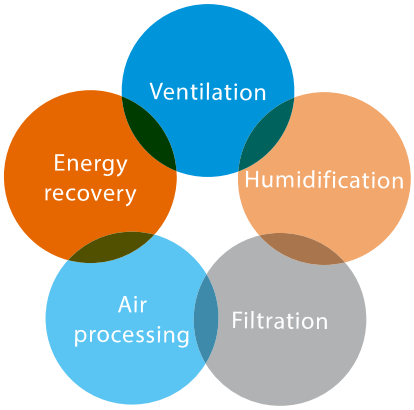
Our energy recovery units **recover sensible energy** (Modular L Pro / Modular L Smart) or **total (sensible + latent) energy** (VAM/VKM), substantially reducing the load on the air conditioning system up to 40%.

Ventilation with DX connection - Control over fresh air temperature

Daikin offers a range of inverter condensing units to be used in combination with Daikin AHUs for ultimate control over the fresh air. There are 4 control possibilities when **combining AHU and Daikin outdoor units** hence offering all the required flexibility for any installation. Indoor units can be combined to the same outdoor unit to reduce the installation costs. For **false-ceiling installations** where space is a constraint, the VKM can fit perfectly to deliver fresh air at a comfortable temperature and it has an optional humidification element.

Five components of indoor air quality

- **Ventilation:** Ensures the provision of fresh air
- **Energy recovery:** Delivers energy savings by transferring heat and moisture between airflows
- **Air processing:** Delivers the right supply temperature to decrease the indoor unit load
- **Humidification:** Ensures relative indoor humidity levels are respected
- **Filtration:** Separates pollen, dust and pollution odours that are harmful to individuals' health



Fresh air portfolio

150 | 500 | 1,000 | 2,000 | 2,500 | 3,000 | 3,500 | 15,000 | 25,000 | 140,000 [m³/h]

Decentralised systems

D-AHU MODULAR L (SMART)

- High efficiency counterflow heat exchanger
- Free-cooling operation
- EC centrifugal fan
- Wide range of options
- Smart version connects Plug & Play to Sky Air / VRV systems

- Compact size
- High energy efficient paper recovering sensible and latent heat
- EC fan motors
- Filter clogging alarm based on pressure

VAM-FC9 / VAM-J

- With DX coil for post-treated fresh air
- Increased comfort
- Humidifier option

VKM-GB(M)

Centralised systems

- High efficiency aluminium plate heat exchanger
- Pre-configured sizes
- Plug & Play pre-configured controls
- With DX or water coil option

D-AHU MODULAR P

- Rotary heat exchanger (sorption and sensible technology)
- Pre-configured sizes
- Plug & Play pre-configured controls
- With DX or water coil option

D-AHU MODULAR R

- Fully customizable
- Plug & play
- 4 types of control
- With DX or water coil option

D-AHU Professional

Modular L Smart

Premium efficiency heat recovery unit

Highlights

- Connects Plug&Play into the Sky Air and VRV control network
- Easy installation and commissioning
- Internal pre-filter stage (up to ePM_1 50% (F7) + ePM_1 80% (F9)) making the unit reach highest indoor air quality requirements.
- Wide air flow coverage from 150m³/h to 3,450m³/h
- Exceeding ErP 2018 requirements
- Best choice when compactness is needed (only 280 mm height up to 550 m³/h)
- 50 mm double skin panel (120 kg/m³) for a maximum sound and thermal insulation

EC centrifugal fan

- Maximum ESP available 600 Pa (depending on model sizes and airflow)
- Inverter driven with IE4 premium efficiency motor
- High-efficient blade profiling
- Reduced energy consumption
- Optimized SFP (Specific Fan Power) for an efficient unit operation

Heat exchanger

- Premium quality counter flow plate heat exchanger
- Up to 93% of the thermal energy recovered
- High grade aluminum allowing optimum corrosion protection

Right drain connection (ALB-RBS)

Left drain connection (ALB-LBS)

For integration with Applied systems, please refer to the Modular L, in the AHU chapter

Technical details

D-AHU Modular L Smart		ALB-RBS/LBS	02	03	04	05	06	07
Airflow		m³/h	300	600	1200	1500	2300	3000
Heat exchanger thermal efficiency[1]		%	90	91	90	90	92	91
External static pressure	Nom.	Pa	100	100	100	100	100	100
Temperature after heat exchanger[1]	Nom.	°C	19,4	19,5	19,4	19,2	19,8	19,5
Max ESP @ nom. airflow		Pa	400	450	260	270	250	210
Current	Nom.	A	0,52	1,17	1,91	2,48	3,76	5,39
Power input	Nom.	kW	0,12	0,27	0,44	0,57	0,87	1,24
SFPv[2]		kW/m³/s	1,24	1,49	1,28	1,32	1,32	1,46
ERP compliant			ErP 2018 Compliant					
Electrical supply	Phase	ph	1	1	1	1	1	1
	Frequency	Hz	50/60	50/60	50/60	50/60	50/60	50/60
	Voltage	V	220/240 Vac	220/240 Vac	220/240 Vac	220/240 Vac	220/240 Vac	220/240 Vac
Main unit dimensions	Width	mm	920	1100	1600	1600	2000	2000
	Height	mm	280	350	415	415	500	500
	Length	mm	1660	1800	2000	2000	2000	2000
Rectangular duct flange	Width	mm	250	400	500	500	700	700
	Height	mm	150	200	300	300	400	400
Unit Sound Power Level (Lwa)		dB	48	54	57	53	60	57
Unit Sound Pressure Level[3]		dBA	34	39	41	37	44	41
Weight unit		kg	125	180	270	280	355	360

1. Winter design condition: Outdoor: -5°C, 90% Indoor: 22°C,50%
2. SFPv is a parameter that quantifies the fan efficiency (the lower it is the better will be). This reduces if airflow decreases.
3. According to EN3744. Surrounding, Directivity (Q) = 2, @ 1,5m distance

Electrical heater for Modular L Smart

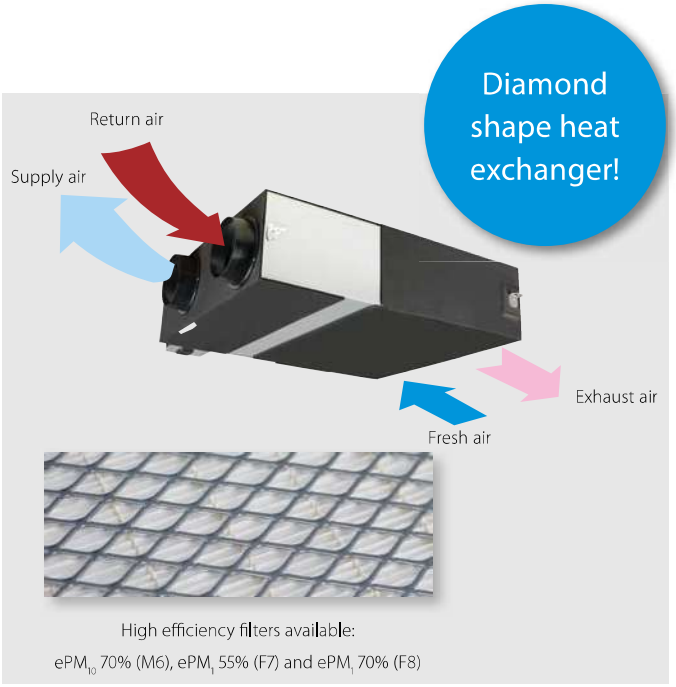
› Total solution for fresh air with Daikin supply of both Modular L Smart and electrical heaters
› Increase comfort in low outdoor temperature thanks to the heated outdoor air
› Integrated electrical heater concept (no additional accessories required)
› Standard dual flow and temperature sensor
› Heater only consumes what is required to pre-heat to the desired minimum fresh air temperature; thus saving energy

Electrical heater for Modular L Smart (ALD)	02HEFB	03HEFB	05HEFB	07HEFB
Capacity kW	1,5	3	7,5	15
Connectable Modular L Smart size	02	03	04, 05	06, 07
Supply voltage	230V,1ph		400V,3ph	
Output current (maximum) (A)	6,6	13,1	10,9	21,7
Temperature sensor	15k ohms at -20 °C 10k ohms at +10 °C	16k ohms at -20 °C 10k ohms at +10 °C	17k ohms at -20 °C 10k ohms at +10 °C	18k ohms at -20 °C 10k ohms at +10 °C
Temperature control range	- 20 °C to 10 °C			
Control fuse	Mini Circuit Breaker 6 A			
LED indicators	"Yellow = Airflow fault Red = Heat ON"			
Mounting holes	Depends on duct size			
Maximum ambient adjacent to terminal box	30°C (during operation)			
Auto high temperature cutout	75°C Pre-set			
Manual reset high temperature cutout	120°C Pre-set			
Width (mm)	470	620	720	920
Depth (mm)	370	370	370	370
Height (mm)	193	243	343	443

Energy recovery ventilation

Ventilation with heat recovery as standard

- Thinnest High Efficiency Enthalpy Heat Exchanger in the market (J-series)
- Energy saving ventilation using indoor heating, cooling and moisture recovery
- Free cooling possible when outdoor temperature is below indoor temperature (eg. during nighttime)
- Prevent energy losses from over-ventilation while improving indoor air quality with optional CO_2 sensor
- Possibility to change ESP via wired remote control allows optimisation of the supply air volume (J - series)
- Can be used as stand alone or integrated in the Sky Air or VRV system
- Wide range of units: air flow rate from 150 up to 2,000 m^3/h
- Shorter installation time thanks to easy adjustment of nominal air flow rate, so less need for dampers compared with traditional installation
- No drain piping needed
- Can operate in over- and under pressure
- Total solution for fresh air with Daikin supply of both VAM / VKM and electrical heaters



ErP COMPLIANT

Ventilation				VAM/VAM	150FC9	250FC9	350J	500J	650J	800J	1000J	1500J	2000J
Power input - 50Hz	Heat exchange mode	Nom.	Ultra high/High/Low	kW	0.132/0.111/0.058	0.161/0.079/0.064	0.097 /0.070 / 0.039	0.164 /0.113 / 0.054	0.247 /0.173 / 0.081	0.303 /0.212 / 0.103	0.416 /0.307 / 0.137	0.548 /0.384 / 0.191	0.833 /0.614 / 0.273
	Bypass mode	Nom.	Ultra high/High/Low	kW	0.132/0.111/0.058	0.161/0.079/0.064	0.085 /0.061 / 0.031	0.148 /0.100 / 0.045	0.195 /0.131 / 0.059	0.289 /0.194 / 0.086	0.417 /0.300 / 0.119	0.525 /0.350 / 0.156	0.835 /0.600 / 0.239
Temperature exchange efficiency - 50Hz	Ultra high/High/Low			%	77.0 (1) /72.0 (2)/ 78.3 (1) /72.3 (2)/ 82.8 (1) /73.2 (2)	74.9 (1) / 69.5 (2)/ 76.0 (1) / 70.0 (2)/ 80.1 (1) / 72.0 (2)	85.1 /86.7 / 90.1	80.0 /82.5 / 87.6	84.3 /86.4 / 90.5	82.5 /84.2 / 87.7	79.6 /81.8 / 86.1	83.2 /84.8 / 88.1	79.6 /81.8 / 86.1
Enthalpy exchange efficiency - 50Hz	Cooling	Ultra high/High/Low		%	60.3 (1)/61.9 (1)/ 67.3 (1)	60.3 (1)/61.2 (1)/ 64.5 (1)	65.2 /67.9/ 74.6	59.2 /61.8 / 69.5	59.2 /63.8 / 73.1	67.7 /70.7 / 76.8	62.6 /66.4 / 74.0	68.9 /71.8 / 77.5	62.6 /66.4 / 74.0
	Heating	Ultra high/High/Low		%	66.6 (1)/67.9 (1)/ 72.4 (1)	66.6 (1)/67.4 (1)/ 70.7 (1)	75.5 /77.6 / 82.0	69.0 /72.2 / 78.7	73.1 /76.3 / 82.7	72.8 /75.3 / 80.2	68.6 /71.7 / 77.9	73.8 /76.1 / 80.8	68.6 /71.7 / 77.9
Operation mode					Heat exchange mode, bypass mode, fresh-up mode								
Heat exchange system					Air to air cross flow total heat (sensible + latent heat) exchange								
Heat exchange element					Specially processed non-flammable paper								
Dimensions	Unit	HeightxWidthxDepth		mm	285x776x525		301x1,113x886		368x1,354x920	368x1,354x1,172		731x1,354x1,172	
Weight	Unit			kg	24.0		46.5		61.5	79.0		157	
Casing	Material				Galvanised steel plate								
Fan	Air flow rate - 50Hz	Heat exchange mode	Ultra high/High/Low	m^3/h	150 /140 /105	250 /230 /155	350 (1)/ 300 (1)/ 200 (1)	500 (1)/ 425 (1)/ 275 (1)	650 (1)/ 550 (1)/ 350 (1)	800 (1)/ 680 (1)/ 440 (1)	1,000 (1)/ 850 (1)/ 550 (1)	1,500 (1)/ 1,275 (1)/ 825 (1)	2,000 (1)/ 1,700 (1)/ 1,100 (1)
		Bypass mode	Ultra high/High/Low	m^3/h	150 /140 /105	250 /230 /155	350 (1)/ 300 (1)/ 200 (1)	500 (1)/ 425 (1)/ 275 (1)	650 (1)/ 550 (1)/ 350 (1)	800 (1)/ 680 (1)/ 440 (1)	1,000 (1)/ 850 (1)/ 550 (1)	1,500 (1)/ 1,275 (1)/ 825 (1)	2,000 (1)/ 1,700 (1)/ 1,100 (1)
	External static pressure - 50Hz	Ultra high/High/Low		Pa	90 /87/40	70 /63/25	90 (1)/70.0 /50.0 (1)						
Air filter	Type				Multidirectional fibrous fleeces		Multidirectional fibrous fleeces (G3)						
Sound pressure level - 50Hz	Heat exchange mode	Ultra high/High/Low		dBA	27.0 /26.0 /20.5	28.0 /26.0 /21.0	34.5 (1)/ 32.0 (1)/ 29.0 (1)	37.5 (1)/ 35.0 (1)/ 30.5 (1)	39.0 (1)/ 36.0 (1)/ 31.0 (1)	39.0 (1)/ 36.0 (1)/ 30.5 (1)	42.0 (1)/ 38.5 (1)/ 32.5 (1)	42.0 (1)/ 39.0 (1)/ 33.5 (1)	45.0 (1)/ 41.5 (1)/ 36.0 (1)
	Bypass mode	Ultra high/High/Low		dBA	27.0 /26.5 /20.5	28.0 /27.0 /21.0	34.5 (1)/ 32.0 (1)/ 28.0 (1)	38.0 (1)/ 35.0 (1)/ 29.5 (1)	38.0 (1)/ 34.5 (1)/ 30.5 (1)	40.0 (1)/ 36.5 (1)/ 30.5 (1)	42.5 (1)/ 40.0 (1)/ 32.5 (1)	42.0 (1)/ 39.0 (1)/ 32.5 (1)	45.0 (1)/ 41.0 (1)/ 35.0 (1)
Operation range	Around unit			°CDB	-		0°C~40°CDB, 80% RH or less						
Connection duct diameter				mm	100	150	200		250			2x250	
Power supply	Phase/Frequency/Voltage			Hz/V	1~ ; 50/60 ; 220-240/220								
Current	Maximum fuse amps (MFA)			A	15.0		16.0						
Specific energy consumption (SEC)	Cold climate			kWh/(m^2.a)	-56.0 (5)	-60.5 (5)	-						
	Average climate			kWh/(m^2.a)	-22.1 (5)	-27.0 (5)	-						
	Warm climate			kWh/(m^2.a)	-0.100 (5)	-5.30 (5)	-						
SEC class					D / See note 5	B / See note 5	-						
Maximum flow rate at 100 Pa ESP	Flow rate			m^3/h	130	207	-						
	Electric power input			W	129	160	-						
Sound power level (Lwa)				dB	40	43	51	54	58		61	62	65
Annual electricity consumption				kWh/a	18.9 (5)	13.6 (5)	-						
Annual heating saved	Cold climate			kWh/a	41.0 (5)	40.6 (5)	-						
	Average climate			kWh/a	80.2 (5)	79.4 (5)	-						
	Warm climate			kWh/a	18.5 (5)	18.4 (5)	-						

(1)Measured according to JIS B 8628 | (2)Measured at reference flow rate according to EN13141-7 | (5) At reference flow rate in accordance with commission regulation (EU) No 1254/2014

NEW GSIEKA

Electrical heater for VAM

- Total solution for fresh air with Daikin supply of both VAM and electrical heaters
- Increased comfort in low outdoor temperature thanks to the heated outdoor air
- Integrated electrical heater concept (no additional accessories required)
- Standard dual flow and temperature sensor
- Flexible setting with adjustable setpoint
- Increased safety with 2 cut-outs: manual & automatic

GSIEKA		10009	15018	20024	25030	35530[1]
Capacity	kW	0.9	1.8	2.4	3.0	3.0
Duct diameter	mm	100	150	200	250	355
Connectable VAM		VAM150FC9	VAM250FC9	VAM350,500J	VAM650J, VAM800J, VAM1000J	VAM1500J, VAM2000J

			GSIEKA10009	GSIEKA15018	GSIEKA20024	GSIEKA25030	GSIEKA35530
Dimensions	Height	mm	171	221	271	321	426
	Depth	mm	100	150	200	250	355
	Width	mm	370	370	370	370	373
Minimum air velocity / airflow		m/s	1.5				
		m^3/h	45	100	170	265	535
Power supply			1~230 VAC/50Hz				
Nominal current		A	4.1	8.2	10.9	13.1	13.1
Heating power		kW	0.9	1.8	2.4	3.0	3.0
Connection duct diameter		mm	100	150	200	250	355
Operation range	Min.	°C	-40°C				
	Max.	°C	40°C				
	Rel. Humidity	%	90%				
Temperature sensor			10 kΩ at +25°C / TJ-K10K				
Temperature sensor range			- 30°C to 105°C				
Temperature set point range			- 10°C to 50°C				
LED indicators	LED 1	flashing every 5 seconds	heater is starting up				
		flashing every second	air flow detected, heating allowed				
		OFF	no power supply or no flow				
		ON	problem with duct temperature sensor, set point potentiometer or PTC airflow sensor				
	LED 2	OFF	heater is not operation				
		ON	heater is operating				
Ambient temperature adjacent to controller			0°C to +50°C				
Auto high temperature cut-out			50°C				
Manual reset high temperature cut-out			100°C				

Energy recovery ventilation, humidification and air processing

Post heating or cooling of fresh air for lower load on the air conditioning system

- Energy saving ventilation using indoor heating, cooling and moisture recovery
- Creates a high quality indoor environment by pre conditioning of incoming fresh air
- Humidification of the fresh air results in comfortable indoor humidity level, even during heating
- Free cooling possible when outdoor temperature is below indoor temperature (eg. during nighttime)
- Low energy consumption thanks to DC fan motor
- Prevent energy losses from over-ventilation while improving indoor air quality with optional CO_2 sensor
- Shorter installation time thanks to easy adjustment of nominal air flow rate, so less need for dampers compared with traditional installation
- Specially developed heat exchange element with High Efficiency Paper (HEP)
- Can operate in over- and under pressure

VKM80-100GB(M)

Ventilation			VKM-GB/VKM-GBM		50GB	80GB	100GB	50GBM	80GBM	100GBM
Power input - 50Hz	Heat exchange mode	Nom.	Ultra high/ High/Low	kW	0.270/0.230/ 0.170	0.330/0.280/ 0.192	0.410/0.365/ 0.230	0.270/0.230/ 0.170	0.330/0.280/ 0.192	0.410/0.365/ 0.230
	Bypass mode	Nom.	Ultra high/ High/Low	kW	0.270/0.230/ 0.140	0.330/0.280/ 0.192	0.410/0.365/ 0.230	0.270/0.230/ 0.170	0.330/0.280/ 0.192	0.410/0.365/ 0.230
Fresh air conditioning load	Cooling			kW	4.71 / 1.91 / 3.5	7.46 / 2.96 / 5.6	9.12 / 3.52 / 7.0	4.71 / 1.91 / 3.5	7.46 / 2.96 / 5.6	9.12 / 3.52 / 7.0
	Heating			kW	5.58 / 2.38 / 3.5	8.79 / 3.79 / 5.6	10.69 / 4.39 / 7.0	5.58 / 2.38 / 3.5	8.79 / 3.79 / 5.6	10.69 / 4.39 / 7.0
Temperature exchange efficiency - 50Hz	Ultra high/High/Low			%	76/76/77.5	78/78/79	74/74/76.5	76/76/77.5	78/78/79	74/74/76.5
Enthalpy exchange efficiency - 50Hz	Cooling	Ultra high/High/Low		%	64/64/67	66/66/68	62/62/66	64/64/67	66/66/68	62/62/66
	Heating	Ultra high/High/Low		%	67/67/69	71/71/73	65/65/69	67/67/69	71/71/73	65/65/69
Operation mode					Heat exchange mode / Bypass mode / Fresh-up mode					
Heat exchange system					Air to air cross flow total heat (sensible + latent heat) exchange					
Heat exchange element					Specially processed non-flammable paper					
Humidifier	System				-			Natural evaporating type		
Dimensions	Unit	HeightxWidthxDepth		mm	387x1,764x832	387x1,764x1,214		387x1,764x832	387x1,764x1,214	
Weight	Unit			kg	94	110	112	100	119	123
Casing	Material				Galvanised steel plate					
Fan-Air flow rate - 50Hz	Heat exchange mode	Ultra high/High/Low		m^3/h	500/500/440	750/750/640	950/950/820	500/500/440	750/750/640	950/950/820
	Bypass mode	Ultra high/High/Low		m^3/h	500/500/440	750/750/640	950/950/820	500/500/440	750/750/640	950/950/820
Fan-External static pressure - 50Hz	Ultra high/High/Low			Pa	210/170/140	210/160/110	150/100/70	200/150/120	205/155/105	110/70/60
Air filter	Type				Multidirectional fibrous fleeces					
Sound pressure level - 50Hz	Heat exchange mode	Ultra high/High/Low		dBA	39/37/35	41.5/39/37	41/39/36.5	38/36/34	40/37.5/35.5	40/38/35.5
	Bypass mode	Ultra high/High/Low		dBA	40/38/35.5	41.5/39/37	41/39/36.5	39/36/34.5	41/38/36	41/39/35.5
Operation range	Around unit			°CDB	0°C~40°CDB, 80% RH or less					
	Supply air			°CDB	-15°C~40°CDB, 80% RH or less					
	Return air			°CDB	0°C~40°CDB, 80% RH or less					
	On coil temperature	Cooling/Max./Heating/Min.		°CDB	-15/43			-15/43		
Refrigerant	Control				Electronic expansion valve					
	Type				R-410A					
	GWP				2,087.5					
Connection duct diameter				mm	200	250		200	250	
Piping connections	Liquid	OD		mm	6.35					
	Gas	OD		mm	12.7					
	Water supply			mm	-			6.4		
	Drain				PT3/4 external thread					
Power supply	Phase/Frequency/Voltage			Hz/V	1~/50/220-240					
Current	Maximum fuse amps (MFA)			A	15					

Daikin's
air handling units solutions

You will find your match

Why choose Daikin air handling units with a DX connection?

Simplifying business

The unique total solution approach by Daikin helps businesses to propose better cross-pillar solutions, to increase their success ratio by providing unmatchable product combinations to the end-user and to simplify the life of installers by supplying high-quality products coming from the same manufacturer. Contrary to other manufacturers, Daikin does not use OEM products in its AHU with DX offer. Many competitors are either offering OEM DX outdoor units or OEM AHU which create additional problems when warranties or faults arise. **Having a single interface for your business makes Daikin the right choice.**

One-stop shop

Daikin is the only global manufacturer in the market **capable of offering a true Plug & Play solution** where Daikin AHUs manufactured by Daikin Applied Europe and certified by Eurovent, offer off-the-shelf compatibility with Daikin's unique VRV outdoor unit range for the best performance in the market. This unique integration of cross-pillar products under the same umbrella, gives the customer both peace-of-mind and added value when promoting a total solution approach.

Complete range of possibilities

Thanks to the **most complete offer in the market**, Daikin has the solution for all types of commercial applications requiring fresh air. Daikin provides ventilation solutions based on AHU from 2,500 m^3/h up to 140,000 m^3/h either with natural heat recovery or more advanced ventilation solutions where a VRV outdoor unit can be connected to the Daikin AHU for ultimate climate control. The harmonized control, between the VRV outdoor unit and the AHU, offer outstanding reliable operation of the system when connected to an iTM.

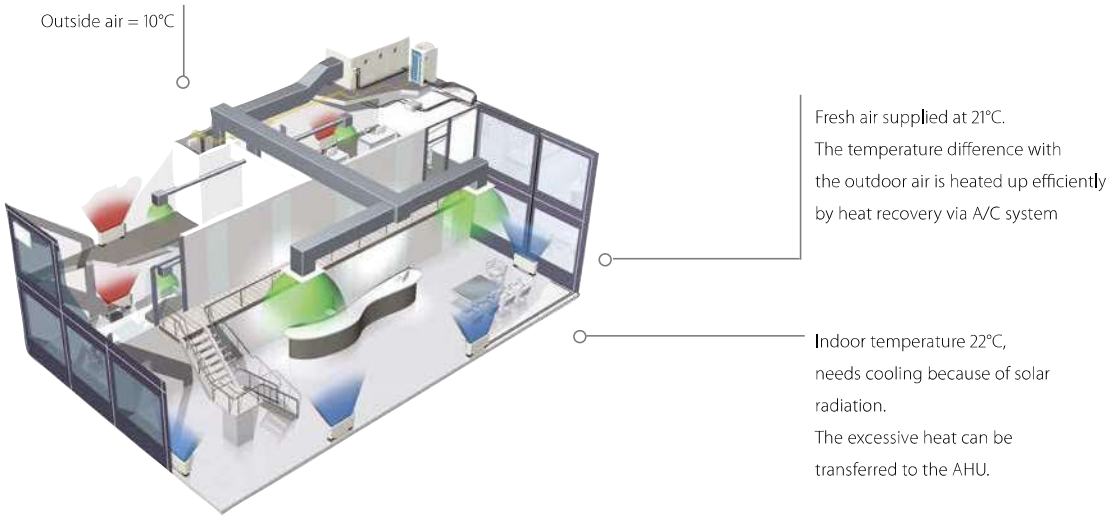
Advantages

- Unique manufacturer offering a complete range
- Plug & Play solution
- Direct iTM compatibility

Why use VRV and ERQ condensing units for connection to air handling units?

High Efficiency

Daikin heat pumps are renowned for their high energy efficiency. Integrating the AHU with a heat recovery system is even more effective since an office system can frequently be in cooling mode while the outdoor air is too cold to be brought inside in an unconditioned state. In this case heat from the offices is merely transferred to heat up the cold fresh air.



Fast response to changing loads resulting in high comfort levels

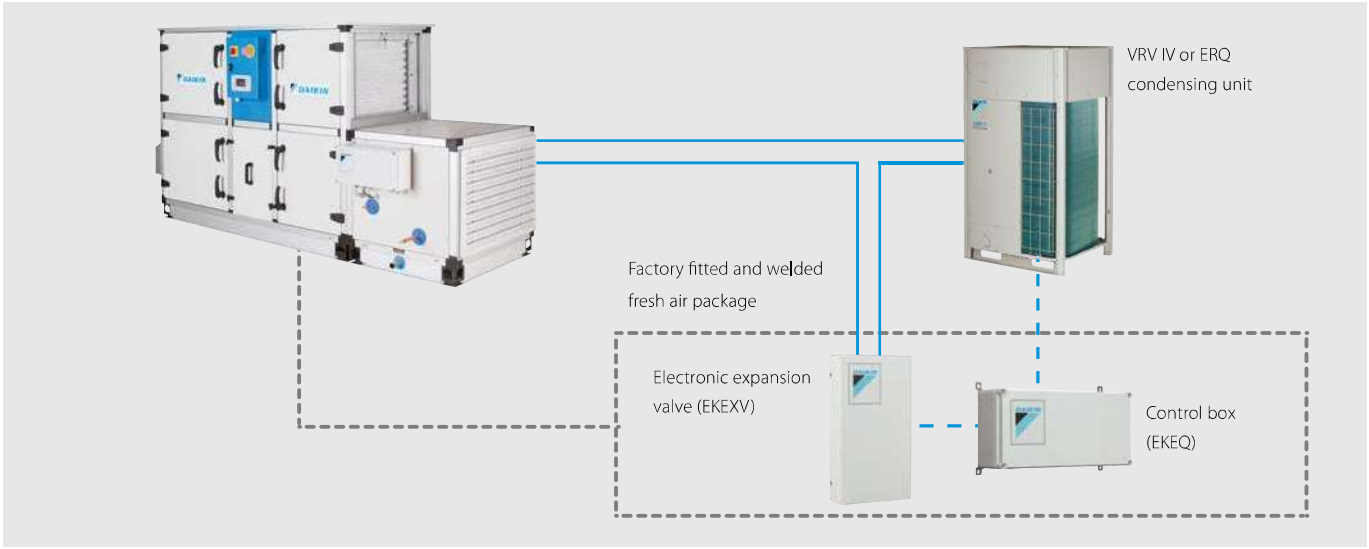
Daikin ERQ and VRV units respond rapidly to fluctuations in supply air temperature, resulting in a steady indoor temperature and resultant high comfort levels for the end user. The ultimate is the VRV range which improves comfort even more by offering continuous heating, also during defrost.

Easy Design and Installation

The system is easy to design and install since no additional water systems such as boilers, tanks and gas connections etc. are required. This also reduces both the total system investment and running cost.

Daikin Fresh air package

› Plug & Play connection between VRV/ERQ and the entire D-AHU modular range.
› Factory fitted and welded DX coil control and expansion valve kits.

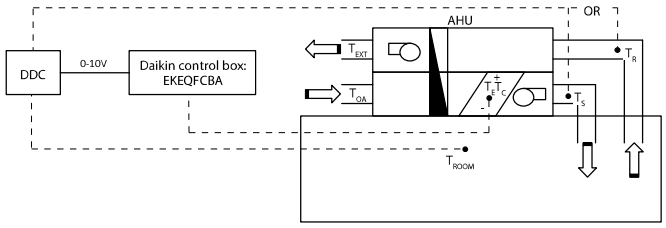


In order to maximise installation flexibility, 4 types of control systems are offered

W control: Off the shelf control of air temperature (discharge temperature, suction temperature, room temperature) via any DDC controller, easy to setup
X control: Precise control of air temperature (discharge temperature, suction temperature, room temperature) requiring a preprogrammed DDC controller (for special applications)
Z control: Control of air temperature (suction temperature, room temperature) via Daikin control (no DDC controller needed)
Y control: Control of refrigerant (Te/Tc) temperature via Daikin control (no DDC controller needed)

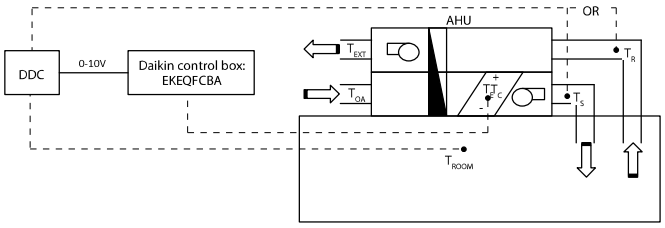
1. W control (T_S/T_R/T_{ROOM} control):

Air temperature control via DDC controller
Room temperature is controlled as a function of the air handling unit suction or discharge air (customer selection). The DDC controller is translating the temperature difference between set point and air suction temperature (or air discharge temperature or room temperature) into a proportional 0-10V signal which is transferred to the Daikin control box (EKEQFCBA). This voltage modulates the capacity requirements of the outdoor unit.



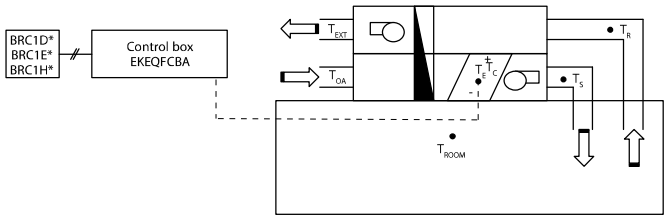
2. X control (T_S/T_R/T_{ROOM} control):

Precise air temperature control via DDC controller
Room temperature is controlled as a function of the air handling unit suction or discharge air (customer selection). The DDC controller is translating the temperature difference between set point and air suction temperature (or air discharge temperature or room temperature) into a reference voltage (0-10V) which is transferred to the Daikin control box (EKEQFCBA). This reference voltage will be used as the main input value for the compressor frequency control.



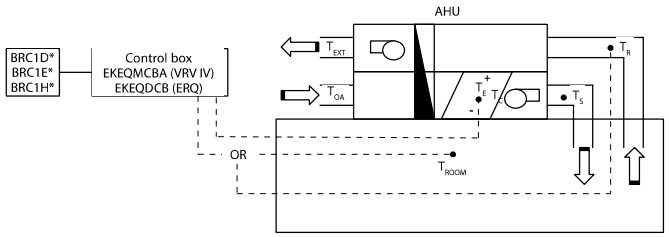
3. Y control (T_E/T_C control):

By fixed evaporating /condensing temperature
A fixed target evaporating or condensing temperature can be set by the customer. In this case, room temperature is only indirectly controlled. A Daikin wired remote control (BRC1* - optional) have to be connected for initial set-up but not required for operation.



4. Z control (T_S/T_{ROOM} control):

Control your AHU just like a VRV indoor unit with up to 100% fresh air
Allows the possibility to control the AHU just like a VRV indoor unit. Meaning temperature control will be focused on return air temperature from the room into the AHU. Requires BRC1* for operation. The only control that allows the combination of other indoor units to the AHU at the same time.



T_S = Supply air temperature
T_{EXT} = Extraction air temperature
T_R = Return air temperature
T_E = Evaporating temperature
T_{OA} = Outdoor air temperature
T_C = Condensing temperature
T_{ROOM} = Room air temperature

	Option kit	Features
Possibility W	EKEQFCBA	Off-the-shelf DDC controller that requires no pre-configuration
Possibility X		Pre-configured DDC controller required
Possibility Y		Using fixed evaporating temperature, no set point can be set using remote control
Possibility Z	EKEQDCB EKFQMCBA*	Using Daikin infrared remote control BRC1* Temperature control using air suction temperature or room temperature (via remote sensor)

* EKEQMCB (for 'multi' application)

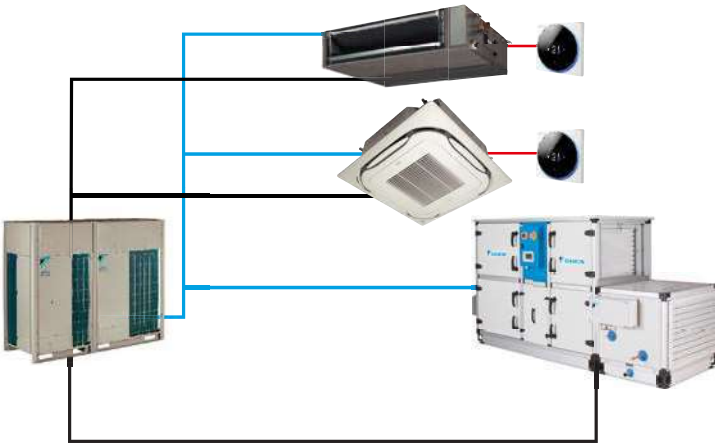
VRV - for larger capacities (from 8 to 54HP)

An advanced solution for both pair and multi application

› Inverter controlled units
› Heat recovery, heat pump
› R-410A
› Control of room temperature via Daikin control
› Large range of expansion valve kits available
› BRC1H519W/S/K is used to set the set point temperature (connected to the EKEQMCBA).
› Connectable to all VRV heat recovery and heat pump systems

W, X, Y control for VRV IV heat pump

Z control for all VRV outdoor units



Refrigerant piping
F1-F2
P1-P2

ERQ - for smaller capacities (from 100 to 250 class)

ERQ-AW1

A basic fresh air solution for pair application

› Inverter controlled units
› Heat pump
› R-410A
› Wide range of expansion valve kits available
› Perfect for the Daikin Modular air handling unit

The "Daikin Fresh Air Package" provides a complete Plug & Play Solution including AHU, ERQ or VRV Condensing Unit and all unit control (EKEQ, EKEX, DDC controller) factory mounted and configured. The easiest solution with only one point of contact.

Ventilation			**ERQ**	**100AV1**	**125AV1**	**140AV1**
Capacity range			HP	4	5	6
Cooling capacity	Nom.		kW	11.2	14.0	15.5
Heating capacity	Nom.		kW	12.5	16.0	18.0
Power input	Cooling	Nom.	kW	2.81	3.51	4.53
	Heating	Nom.	kW	2.74	3.86	4.57
EER				3.99		3.42
COP				4.56	4.15	3.94
Dimensions	Unit	HeightxWidthxDepth	mm	1,345x900x320		
Weight	Unit		kg	120		
Casing	Material			Painted galvanized steel plate		
Fan-Air flow rate	Cooling	Nom.	m^3/min	106		
	Heating	Nom.	m^3/min	102	105	
Sound power level	Cooling	Nom.	dBA	66	67	69
Sound pressure level	Cooling	Nom.	dBA	50	51	53
	Heating	Nom.	dBA	52	53	55
Operation range	Cooling	Min./Max.	°CDB	-5/46		
	Heating	Min./Max.	°CWB	-20/15.5		
	On coil temperature	Heating/Min./Cooling/Max.	°CDB	10/35		
Refrigerant	Type			R-410A		
	Charge		kg	4.0		
			TCO_2eq	8.4		
	GWP			2,087.5		
	Control			Expansion valve (electronic type)		
Piping connections	Liquid	OD	mm	9.52		
	Gas	OD	mm	15.9		19.1
	Drain	OD	mm	26x3		
Power supply	Phase/Frequency/Voltage		Hz/V	1N~/50/220-240		
Current	Maximum fuse amps (MFA)		A	32.0		

Ventilation			**ERQ**	**125AW1**	**200AW1**	**250AW1**
Capacity range			HP	5	8	10
Cooling capacity	Nom.		kW	14.0	22.4	28.0
Heating capacity	Nom.		kW	16.0	25.0	31.5
Power input	Cooling	Nom.	kW	3.52	5.22	7.42
	Heating	Nom.	kW	4.00	5.56	7.70
EER				3.98	4.29	3.77
COP				4.00	4.50	4.09
Dimensions	Unit	HeightxWidthxDepth	mm	1,680x635x765	1,680x930x765	
Weight	Unit		kg	159	187	240
Casing	Material			Painted galvanized steel plate		
Fan-Air flow rate	Cooling	Nom.	m^3/min	95	171	185
	Heating	Nom.	m^3/min	95	171	185
Sound power level	Nom.		dBA	72	78	
Sound pressure level	Nom.		dBA	54	57	58
Operation range	Cooling	Min./Max.	°CDB	-5/43		
	Heating	Min./Max.	°CWB	-20/15		
	On coil temperature	Heating/Min./Cooling/Max.	°CDB	10/35		
Refrigerant	Type			R-410A		
	Charge		kg	6.2	7.7	8.4
			TCO_2eq	12.9	16.1	17.5
	GWP			2,087.5		
	Control			Electronic expansion valve		
Piping connections	Liquid	OD	mm	9.52		
	Gas	OD	mm	15.9	19.1	22.2
Power supply	Phase/Frequency/Voltage		Hz/V	3N~/50/400		
Current	Maximum fuse amps (MFA)		A	16	25	

Integration of ERQ and VRV in third party air handling units

a wide range of expansion valve kits and control boxes

Combination table

		Control box			Expansion valve kit										Mixed connection with VRV indoor units
		EKEQDCB	EKEQFCBA	EKEQMCBA	EKEXV50	EKEXV63	EKEXV80	EKEXV100	EKEXV125	EKEXV140	EKEXV200	EKEXV250	EKEXV400	EKEXV500	
		Z control	W,X,Y control	Z control	-	-	-	-	-	-	-	-	-	-	
1-phase	ERQ100	P	P	-	-	P	P	P	P	-	-	-	-	-	Not possible
1-phase	ERQ125	P	P	-	-	P	P	P	P	P	-	-	-	-	
1-phase	ERQ140	P	P	-	-	-	P	P	P	P	-	-	-	-	
3-phase	ERQ125	P	P	-	-	P	P	P	P	P	-	-	-	-	
3-phase	ERQ200	P	P	-	-	-	-	P	P	P	P	P	-	-	
3-phase	ERQ250	P	P	-	-	-	-	-	P	P	P	P	-	-	
VRV III		-	-	n1	n1	n1	n1	n1	n1	n1	n1	n1	n1	n1	Mandatory
VRV IV H/P / VRV IV W-series VRV IV S-series		-	P (1 -> 3)	n2	n2	n2	n2	n2	n2	n2	n2	n2	n2	n2	Possible (not mandatory)
VRV IV H/R VRV IV i-series		-	n1	-	n1	n1	n1	n1	n1	n1	n1	n1	n1	n1	Mandatory

- P (pair application): combination depends on the capacity of the air handling unit
- n1 (multi application) - Combination of AHUs and VRV DX indoors (mandatory). To determine the exact quantity please refer to the engineering data book.
- n2 (multi application) - Combination of AHUs and VRV DX indoors (not mandatory). To determine the exact quantity please refer to the engineering data book.
- Control box EKEQFA can be connected to some types of VRV IV outdoor units (with a maximum of 3 boxes per unit). Do not combine EKEQFA control boxes with VRV DX indoor units, RA indoor units or hydroboxes

Capacity table

Cooling

EKEXV Class	Allowed heat exchanger capacity (kW)			Allowed heat exchanger volume (dm³)	
	Minimum	Standard	Maximum	Minimum	Maximum
50	5.0	5.6	6.2	1.33	1.65
63	6.3	7.1	7.8	1.66	2.08
80	7.9	9.0	9.9	2.09	2.64
100	10.0	11.2	12.3	2.65	3.30
125	12.4	14.0	15.4	3.31	4.12
140	15.5	16.0	17.6	4.13	4.62
200	17.7	22.4	24.6	4.63	6.60
250	24.7	28.0	30.8	6.61	8.25
400	35.4	45.0	49.5	9.26	13.2
500	49.6	56.0	61.6	13.2	16.5

Saturated evaporating temperature: 6°C
Air temperature: 27°C DB / 19°C WB

Heating

EKEXV Class	Allowed heat exchanger capacity (kW)			Allowed heat exchanger volume (dm³)	
	Minimum	Standard	Maximum	Minimum	Maximum
50	5.6	6.3	7.0	1.33	1.65
63	7.1	8.0	8.8	1.66	2.08
80	8.9	10.0	11.1	2.09	2.64
100	11.2	12.5	13.8	2.65	3.30
125	13.9	16.0	17.3	3.31	4.12
140	17.4	18.0	19.8	4.13	4.62
200	19.9	25.0	27.7	4.63	6.60
250	27.8	31.5	34.7	6.61	8.25
400	39.8	50.0	55.0	9.26	13.2
500	55.1	63.0	69.3	13.2	16.5

Saturated condensing temperature: 46°C
Air temperature: 20°C DB

EKEXV - Expansion valve kit for air handling applications

Ventilation			EKEXV	50	63	80	100	125	140	200	250	400	500
Dimensions	Unit		mm	401x215x78									
Weight	Unit		kg	2.9									
Sound pressure level	Nom.		dBA	45									
Operation range	On coil temperature	Heating Min.	°CDB	10 (1)									
		Cooling Max.	°CDB	35 (2)									
Refrigerant	Type / GWP			R-410A / 2.087,5									
Piping connections	Liquid	OD	mm	6.35	9.52							12.7	15.9

(1) The temperature of the air entering the coil in heating mode can be reduced to -5°CDB. Contact your local dealer for more information. (2) 45% Relative humidity.

EKEQ - Control box for air handling applications

Ventilation		EKEQ	FCBA	DCB	MCBA
Application			See note	Pair	Multi
Outdoor unit			ERQ / VRV	ERQ	VRV
Dimensions	Unit	mm	132x400x200		
Weight	Unit	kg	3.9	3.6	
Power supply	Phase/Frequency/Voltage	Hz/V	1~/50/230		

The combination of EKEQFCBA and ERQ is in pair application. The EKEQFCBA can be connected to some type of VRV IV outdoor units with a maximum of 3 control boxes. The combination with DX indoor units, hydroboxes, RA outdoor units, ... is not allowed. Refer to the combination table drawing of the outdoor unit for details.

Pair application selection

› **the outdoor unit is connected to ONE COIL (with single circuit or maximum 3 interlaced circuits) using up to 3 control boxes**
› **indoor unit combination is not allowed**
› **only works with X, W, Y control**

Step 1: Required AHU capacity

An AHU with double flow, heat recovery and 100% fresh air is to be installed in Europe where the outdoor sizing temperature is 35 ºCDB and the target supply air temperature for fresh air is 25 ºCDB. Load calculations point to a required capacity of 45kW.
By checking on the EKEXV capacity table, for cooling operation, 40kW falls within the 400 class valve. Since 40kW is not the nominal capacity, a class adjustment has to be done. 40/45=0,89 and 0,89x400=356. So the capacity class of the expansion valve kit is 356.

Step 2: Outdoor unit selection

For this AHU, a VRV IV heat pump model with continuous heating is going to be used (RYYQ-T series). For a capacity of 40kW at 35 ºCDB, an outdoor of 14HP (RYYQ14T) is selected. The capacity class of the 14 HP outdoor unit is 350.

Total connection ratio of the system is 356/350=102% hence it falls within the range 90-110%.

Step 3: Control box selection

In this particular case, the control will work with precise air temperature control. Only W or X control allow this. Since the consultant wants to use an "off-the-shelf" DDC module, the EKEQFCBA box with W control allows easy set-up due to pre-set factory values.

Multi application selection

› **the outdoor unit can be connected to MULTIPLE COILS (and their control boxes)**
› **indoor units are also connectable but not mandatory**
› **only works with Z control**

Step 1: Required AHU capacity

An AHU with double flow, heat recovery and 100% fresh air is to be installed in Europe where the outdoor sizing temperature is 35 ºCDB and the target supply air temperature for fresh air is 25 ºCDB. On top of this, for this building, 5 round-flow cassette units FXFQ50A will also be connected to this OU.
Load calculations point to a required capacity of 20kW for the AHU and 22,5 kW for the indoor untis.
By checking on the EKEXV capacity table, for cooling operation, 20kW falls within the 200 class valve. Since 22,4 kW is the nominal capacity, a class adjustment has to be done. 20/22,4=0,89 and 0,89x200=178. So the capacity class of the expansion valve kit is 178. Total capacity class of the indoor unit system is 178+250=428

Step 2: Outdoor unit selection

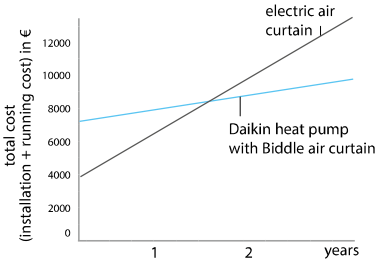
For this system where a AHU is connected with indoor units, it is mandatory to use a heat recovery unit. By consulting the engineering databook for REYQ-T, the total required capacity of 42,5 kW requires a 16HP model REYQ16T. Which will deliver 45kW at the design temperature of 35 ºCDB. This unit has a capacity class of 400. Total connection ratio of the system is 428/400=107% hence it falls within the range 50-110%.

Step 3: Control box selection

In this particular case, the only available control is Z control and the combination of AHU and VRV DX indoor units requires EKEQMCBA control box.

Biddle air curtain for ERQ

- Connectable to ERQ heat pump
- ERQ is among the first DX systems suitable for connection to air curtains
- Free-hanging model (F): easy wall mounted installation
- Cassette model (C): mounted into a false ceiling leaving only the decoration panel visible
- Recessed model (R): neatly concealed in the ceiling
- A payback period of less then 1.5 years compared to installing an electric air curtain
- Easy and quick to install at reduced costs since no additional water systems, boilers and gas connections are required
- PATENTED TECHNOLOGY: Maximum energy efficiency stemming from almost zero down flow turbulence, optimised air flow and the application of advanced discharge rectifier technology
- Around 85% air separation efficiency, greatly reducing both heat loss and required indoor unit heating capacity



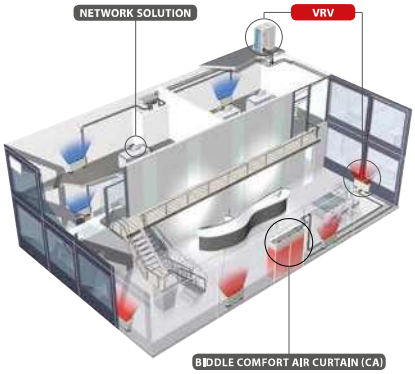
				Small			Medium			
				CYQS150DK80 *BN/*SN	CYQS200DK100 *BN/*SN	CYQS250DK140 *BN/*SN	CYQM100DK80 *BN/*SN	CYQM150DK80 *BN/*SN	CYQM200DK100 *BN/*SN	CYQM250DK140 *BN/*SN
Heating capacity	Speed 3		kW	9.0	11.6	16.2	9.2	11.0	13.4	19.9
Power input	Fan only	Nom.	kW	0.35	0.46	0.58	0.37	0.56	0.75	0.94
	Heating	Nom.	kW	0.35	0.46	0.58	0.37	0.56	0.75	0.94
Delta T	Speed 3		K	15		16	17	14	13	15
Casing	Colour			BN: RAL9010 / SN: RAL9006						
Dimensions	Unit	Height F/C/R	mm	270/270/270						
		Width F/C/R	mm	1,500/1,500/1,548	2,000/2,000/2,048	2,500/2,500/2,548	1,000/1,000/1,048	1,500/1,500/1,548	2,000/2,000/2,048	2,500/2,500/2,548
		Depth F/C/R	mm	590/821/561						
Required ceiling void >			mm	420						
Door height	Max.		m	2.3 (1) / 2.15 (2) / 2.0 (3)	2.3 (1) / 2.15 (2) / 2.0 (3)	2.3 (1) / 2.15 (2) / 2.0 (3)	2.5 (1) / 2.4 (2) / 2.3 (3)	2.5 (1) / 2.4 (2) / 2.3 (3)	2.5 (1) / 2.4 (2) / 2.3 (3)	2.5 (1) / 2.4 (2) / 2.3 (3)
Door width	Max.		m	1.5	2.0	2.5	1.0	1.5	2.0	2.5
Weight	Unit		kg	66	83	107	57	73	94	108
Fan-Air flow rate	Heating	Speed 3	m^3/h	1,746	2,328	2,910	1,605	2,408	3,210	4,013
Sound pressure level	Heating	Speed 3	dBA	49	50	51	50	51	53	54
Refrigerant	Type / GWP			R-410A / 2,087.5						
Piping connections	Liquid/OD/Gas/OD		mm	9.52/16.0		9.52/19.0	9.52/16.0			9.52/19.0
Required accessories (should be ordered separately)				Daikin wired remote control (BRC1H51(9)W/S/K / BRC1E53A/B/C / BRC1D52)						
Power supply	Voltage		V	230						

				Large			
				CYQL100DK125 *BN/*SN	CYQL150DK200 *BN/*SN	CYQL200DK250 *BN/*SN	CYQL250DK250 *BN/*SN
Heating capacity	Speed 3		kW	15.6	23.3	29.4	31.1
Power input	Fan only	Nom.	kW	0.75	1.13	1.50	1.88
	Heating	Nom.	kW	0.75	1.13	1.50	1.88
Delta T	Speed 3		K	15		14	12
Casing	Colour			BN: RAL9010 / SN: RAL9006			
Dimensions	Unit	Height F/C/R	mm	370/370/370			
		Width F/C/R	mm	1,000/1,000/1,048	1,500/1,500/1,548	2,000/2,000/2,048	2,500/2,500/2,548
		Depth F/C/R	mm	774/1,105/745			
Required ceiling void >			mm	520			
Door height	Max.		m	3.0 (1) / 2.75 (2) / 2.5 (3)	3.0 (1) / 2.75 (2) / 2.5 (3)	3.0 (1) / 2.75 (2) / 2.5 (3)	3.0 (1) / 2.75 (2) / 2.5 (3)
Door width	Max.		m	1.0	1.5	2.0	2.5
Weight	Unit		kg	76	100	126	157
Fan-Air flow rate	Heating	Speed 3	m^3/h	3,100	4,650	6,200	7,750
Sound pressure level	Heating	Speed 3	dBA	53	54	56	57
Refrigerant	Type / GWP			R-410A / 2,087.5			
Piping connections	Liquid/OD/Gas/OD		mm	9.52/16.0	9.52/19.0	9.52/22.0	
Required accessories (should be ordered separately)				Daikin wired remote control (BRC1H51(9)W/S/K / BRC1E53A/B/C / BRC1D52)			
Power supply	Voltage		V	230			

(1) Favorable conditions: covered shopping mall or revolving door entrance (2) Normal conditions: little direct wind, no opposite open doors, building with ground floor only
(3) Unfavorable conditions: location at a corner or square, multiple floors and/or open stairway

Biddle air curtain for VRV and Conveni-pack

- Connectable to VRV heat recovery, heat pump and Conveni-pack
- VRV is among the first DX systems suitable for connection to air curtains
- Free-hanging model (F): easy wall mounted installation
- Cassette model (C): mounted into a false ceiling leaving only the decoration panel visible
- Recessed model (R): neatly concealed in the ceiling
- A payback period of less then 1.5 years compared to installing an electric air curtain
- Provides virtually free air curtain heating via recovered heat from indoor units in cooling mode (in case of VRV heat recovery)
- Easy and quick to install at reduced costs since no additional water systems, boilers and gas connections are required
- PATENTED TECHNOLOGY: Maximum energy efficiency stemming from almost zero down flow turbulence, optimised air flow and the application of advanced discharge rectifier technology
- Around 85% air separation efficiency, greatly reducing both heat loss and required indoor unit heating capacity



				Small				Medium			
				CYVS100DK80 *BC/*SC	CYVS150DK80 *BC/*SC	CYVS200DK100 *BC/*SC	CYVS250DK140 *BC/*SC	CYVM100DK80 *BC/*SC	CYVM150DK80 *BC/*SC	CYVM200DK100 *BC/*SC	CYVM250DK140 *BC/*SC
Heating capacity	Speed 3		kW	7.40	9.0	11.6	16.2	9.2	11.0	13.4	19.9
Power input	Fan only	Nom.	kW	0.23	0.35	0.46	0.58	0.37	0.56	0.75	0.94
	Heating	Nom.	kW	0.23	0.35	0.46	0.58	0.37	0.56	0.75	0.94
Delta T	Speed 3		K	19	15		16	17	14	13	15
Casing	Colour			BN: RAL9010 / SN: RAL9006							
Dimensions	Unit	Height F/C/R	mm	270/270/270							
		Width F/C/R	mm	1,000/1,000/1,048	1,500/1,500/1,548	2,000/2,000/2,048	2,500/2,500/2,548	1,000/1,000/1,048	1,500/1,500/1,548	2,000/2,000/2,048	2,500/2,500/2,548
		Depth F/C/R	mm	590/821/561							
Required ceiling void >			mm	420							
Door height	Max.		m	2.3 (1) / 2.15 (2) / 2.0 (3)	2.3 (1) / 2.15 (2) / 2.0 (3)	2.3 (1) / 2.15 (2) / 2.0 (3)	2.3 (1) / 2.15 (2) / 2.0 (3)	2.5 (1) / 2.4 (2) / 2.3 (3)	2.5 (1) / 2.4 (2) / 2.3 (3)	2.5 (1) / 2.4 (2) / 2.3 (3)	2.5 (1) / 2.4 (2) / 2.3 (3)
Door width	Max.		m	1.0	1.5	2.0	2.5	1.0	1.5	2.0	2.5
Weight	Unit		kg	56	66	83	107	57	73	94	108
Fan-Air flow rate	Heating	Speed 3	m^3/h	1,164	1,746	2,328	2,910	1,605	2,408	3,210	4,013
Sound pressure level	Heating	Speed 3	dBA	47	49	50	51	50	51	53	54
Refrigerant	Type / GWP			R-410A / 2,087.5							
Piping connections	Liquid/OD/Gas/OD		mm	9.52/16.0			9.52/19.0	9.52/16.0			9.52/19.0
Required accessories (should be ordered separately)				Daikin wired remote control (BRC1H51(9)W/S/K / BRC1E53A/B/C / BRC1D52)							
Power supply	Voltage		V	230							

				Large			
				CYVL100DK125*BC/*SC	CYVL150DK200*BC/*SC	CYVL200DK250*BC/*SC	CYVL250DK250*BC/*SC
Heating capacity	Speed 3		kW	15.6	23.3	29.4	31.1
Power input	Fan only	Nom.	kW	0.75	1.13	1.50	1.88
	Heating	Nom.	kW	0.75	1.13	1.50	1.88
Delta T	Speed 3		K	15		14	12
Casing	Colour			BN: RAL9010 / SN: RAL9006			
Dimensions	Unit	Height F/C/R	mm	370/370/370			
		Width F/C/R	mm	1,000/1,000/1,048	1,500/1,500/1,548	2,000/2,000/2,048	2,500/2,500/2,548
		Depth F/C/R	mm	774/1,105/745			
Required ceiling void >			mm	520			
Door height	Max.		m	3.0 (1) / 2.75 (2) / 2.5 (3)	3.0 (1) / 2.75 (2) / 2.5 (3)	3.0 (1) / 2.75 (2) / 2.5 (3)	3.0 (1) / 2.75 (2) / 2.5 (3)
Door width	Max.		m	1.0	1.5	2.0	2.5
Weight	Unit		kg	76	100	126	157
Fan-Air flow rate	Heating	Speed 3	m^3/h	3,100	4,650	6,200	7,750
Sound pressure level	Heating	Speed 3	dBA	53	54	56	57
Refrigerant	Type / GWP			R-410A / 2,087.5			
Piping connections	Liquid/OD/Gas/OD		mm	9.52/16.0	9.52/19.0	9.52/22.0	
Required accessories (should be ordered separately)				Daikin wired remote control (BRC1H51(9)W/S/K / BRC1E53A/B/C / BRC1D52)			
Power supply	Voltage		V	230			

(1) Favorable conditions: covered shopping mall or revolving door entrance (2) Normal conditions: little direct wind, no opposite open doors, building with ground floor only
(3) Unfavorable conditions: location at a corner or square, multiple floors and/or open stairway

		Heat Recovery Ventilation - Modular L (Smart)						
		ALB02LBS/RBS	ALB03LBS/RBS	ALB04,05LBS/ RBS	ALB06,07LBS/ RBS	VAM 150FC9	VAM 250FC9	VAM 350J
Individual control systems	**BRC301B61** VAM wired remote control	•	•	•	•	•	•	•
	Madoka **BRC1H519W7** (White) / **BRC1H519S7** (Silver) / **BRC1H519K7** (Black) User-friendly wired remote controller with premium design	•	•	•	•	•	•	•
	BRC1E53A/B/C Wired remote control with full-text interface and back-light	•	•	•	•	•	•	•
	BRC1D52 Standard wired remote control with weekly timer	•	•	•	•	•	•	•
Centralised control systems	**DCC601A51** intelligent Tablet Controller	•	•	•	•	•	•	•
	DCS601C51 intelligent Touch Controller	•	•	•	•	•	•	•
	DCS302C51 Central remote control	•	•	•	•	•	•	•
	DCS301B51 Unified ON/OFF control	•	•	•	•	•	•	•
	DST301B51 Schedule timer	•	•	•	•	•	•	•
Building Management System & Standard protocol interface	**DCM601A51** intelligent Touch Manager	•	•	•	•	•	•	•
	EKMBDXA Modbus interface	•	•	•	•	•	•	•
	DMS502A51 BACnet Interface	•	•	•	•	•	•	•
	DMS504B51 LonWorks Interface	•	•	•	•	•	•	•
Filters	Coarse 55% (G4)	ALF02G4A	ALF03G4A	ALF05G4A	ALF07G4A			
	ePM_{10} 75% (M5)	ALF02M5A	ALF03M5A	ALF05M5A	ALF07M5A			
	ePM_{10} 70% (M6)							EKAFVJ50F6
	ePM_1 50% (F7)	ALF02F7A	ALF03F7A	ALF05F7A	ALF07F7A			
	ePM_1 55% (F7)							EKAFVJ50F7
	ePM_1 70% (F8)							EKAFVJ50F8
	ePM_1 80% (F9)	ALF02F9A	ALF03F9A	ALF05F9A	ALF07F9A			
	High efficiency filter							
	Replacement air filter							
Mechanical accessories	Rail	ALA02RLA	ALA03RLA	ALA05RLA	ALA07RLA			
	Rectangular to round duct transition	ALA02RCA	ALA03RC	ALA05RCA	ALA07RCA			
	Separate plenum							
CO_2 sensor		BRYMA200	BRYMA200	BRYMA200	BRYMA200			BRYMA65
Electrical heater NEW		ALD02HEFB	ALD03HEFB	ALD05HEFB	ALD07HEFB	GSIEKA10009	GSIEKA15018	GSIEKA20024
Silencer (900mm depth)		ALS0290A	ALS0390A	ALS0590A	ALS0790A			
Electrical accessories	Wiring adapter for external monitoring/control (controls 1 entire system)					KRP2A51	KRP2A51	KRP2A51 (2)
	Adapter PCB for humidifier					KRP50-2	KRP50-2	KRP1C4 (5)
	Adapter PCB for third party heater					BRP4A50	BRP4A50	BRP4A50A (4)
	External wired temperature sensor							
	Adapter PCB Mounting plate							

Notes
(1) Do not connect the system to DIII-net devices LONWorks interface, BACnet interface, …; (intelligent Touch Manager, EKMBDXA are allowed)
(2) Installation box KRP1BA101 needed
(3) Adapter PCB mounting plate needed, applicable model can be found in the table above
(4) 3rd party heater and 3rd party humidifier cannot be combined
(5) Installation box KRP50-2A90 needed
(6) Contains 1 plenum and can be used for half side of the unit (up to 4 plenums can be used on 1 unit)
(7) Available only with optional plenum

Energy recovery ventilation - VAM						Energy recovery ventilation VKM			Air handling unit applications		
VAM 500J	VAM 650J	VAM 800J	VAM 1000J	VAM 1500J	VAM 2000J	VKM 50GB (M)	VKM 80GB (M)	VKM 100GB (M)	EKEQ FCBA (1)	EKEQ DCB (1)	EKEQ MCBA (1)
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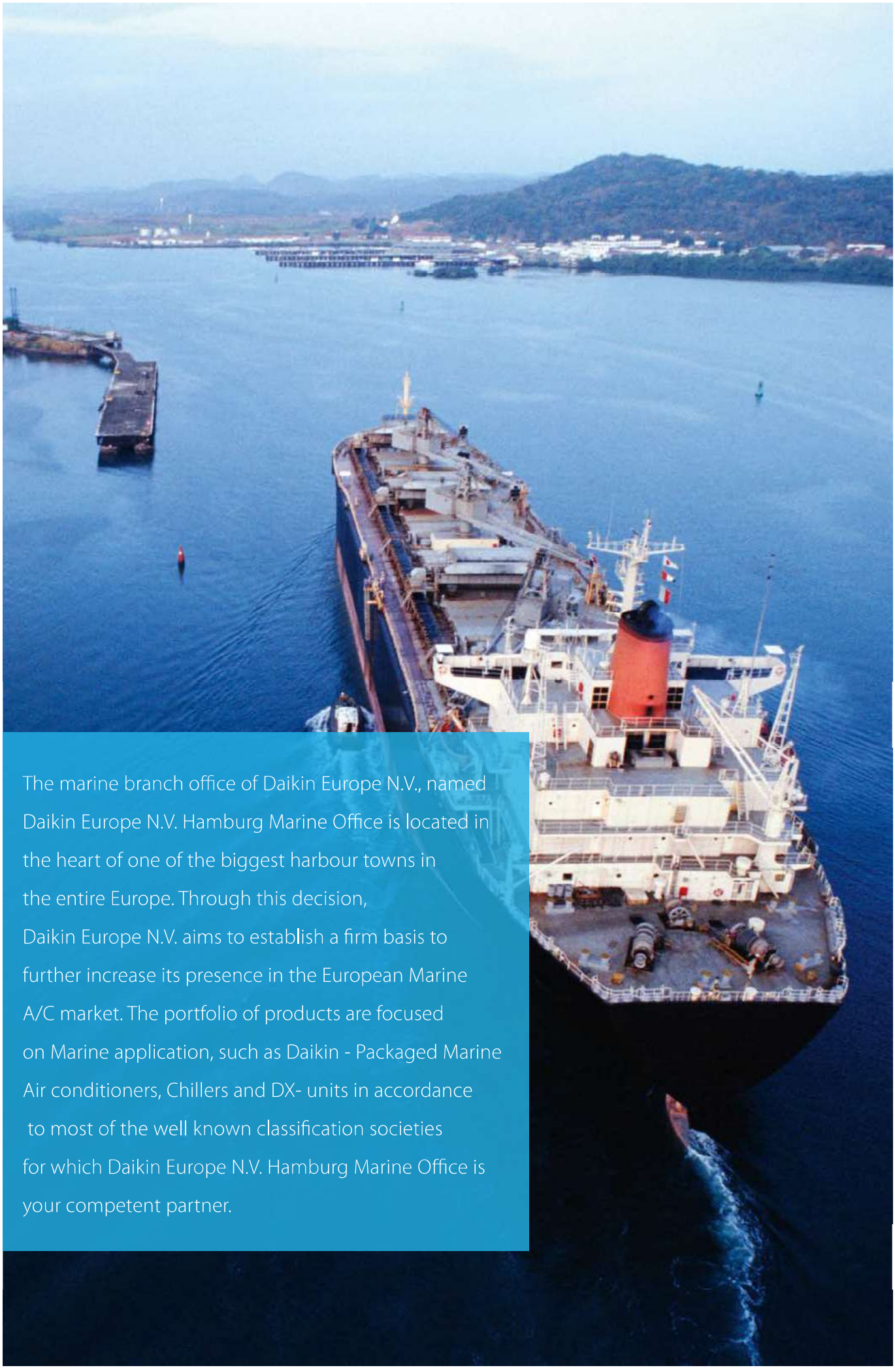
EKAFVJ50F6	EKAFVJ65F6	EKAFVJ100F6	EKAFVJ100F6	EKAFVJ100F6 x2	EKAFVJ100F6 x2						
EKAFVJ50F7	EKAFVJ65F7	EKAFVJ100F7	EKAFVJ100F7	EKAFVJ100F7 x2	EKAFVJ100F7 x2						
EKAFVJ50F8	EKAFVJ65F8	EKAFVJ100F8	EKAFVJ100F8	EKAFVJ100F8 x2	EKAFVJ100F8 x2						
						KAF242H80M	KAF242H100M	KAF242H100M			
						KAF241H80M	KAF241H100M	KAF241H100M			
				EKPLEN200 (6)	EKPLEN200 (6)						
BRYMA65	BRYMA65	BRYMA100	BRYMA100	BRYMA200	BRYMA200	BRYMA65	BRYMA100	BRYMA200			
GSIEKA20024	GSIEKA25030	GSIEKA25030	GSIEKA25030	GSIEKA35530 (7)							
KRP2A51 (2)	KRP2A51 (2)	KRP2A51 (2)	KRP2A51 (2)	KRP2A51 (2)	KRP2A51 (2)	BRP4A50A (4)	BRP4A50A (4)	BRP4A50A (4)			
KRP1C4 (5)	KRP1C4 (3/5)	KRP1C4 (5)	KRP1C4 (5)	KRP1C4 (3/5)	KRP1C4 (3/5)	BRP4A50A (4)	BRP4A50A (4)	BRP4A50A (4)			
BRP4A50A (4)	BRP4A50A (3/4)	BRP4A50A (4)	BRP4A50A (4)	BRP4A50A (3/4)	BRP4A50A (3/4)	BRP4A50A (4)	BRP4A50A (4)	BRP4A50A (4)			
										KRCS01-1	
	EKMP65VAM			EKMPVAM							



The marine branch office of Daikin Europe N.V., named Daikin Europe N.V. Hamburg Marine Office is located in the heart of one of the biggest harbour towns in the entire Europe. Through this decision, Daikin Europe N.V. aims to establish a firm basis to further increase its presence in the European Marine A/C market. The portfolio of products are focused on Marine application, such as Daikin - Packaged Marine Air conditioners, Chillers and DX- units in accordance to most of the well known classification societies for which Daikin Europe N.V. Hamburg Marine Office is your competent partner.