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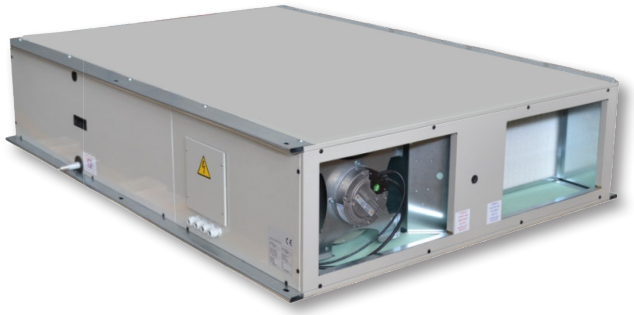

CENTRALISED HEAT RECOVERY UNITS

APPLICATION

Centralised heat recovery units designed to ensure a correct ventilation in apartment blocks or non-residential buildings which can be used as an independent ventilation system or in combination with traditional heating/cooling systems. Suitable for a working environment free of aggressive, corrosive and/or explosive agents.

CONSTRUCTION

- Self-supporting structure made from externally coated steel panels (RAL 9002) and internally galvanised, with 25mm thick mineral wool acoustic and thermal insulation, A2S1d0 fire rated.
- EC external rotor motors mounted on sealed for life ball bearings for energy saving, provided with thermal protection.
- Backward curved centrifugal impeller dynamically balanced and directly coupled with the motor; made from fiberglass reinforced plastic for sizes 500 and 1000 and from aluminum for the bigger ones.
- The units are provided with ePM10 50% (M5) filter on extraction side and ePM1 50% (F7) filter on intake side, easily removable.
- High efficient counterflow plate heat exchanger (>75%) made from aluminum.
- Motorised by-pass device for free cooling.
- Aluminum condensation drainage tray.
- Multifunction electronic control on board.
- Operating temperatures between -20°C and +45°C and H.R. not higher than 95%.

FEATURES & BENEFITS

- Units are available in 6 sizes from 300m³/h to 4.300m³/h, in horizontal or vertical version.
- Easy installation thanks to the ceiling bracket (horizontal version) or to the mounting feet (vertical version).
- Equipped with pressure switches to control the filters status.
- Easy removable filters for maintenance, from bottom or lateral side.
- The unit is supplied with a multi-function LCD display, providing manual/automatic speed control, monitoring of the filters status, weekly program, free cooling, alarm management, defrost management, water coil antifreeze sensor enable and proportional valve control, pre/post electric heater proportional control.
- BMS connection through Modbus protocol and RS485.
- Tested to the latest standards, meaning accurate, up to date information on electrical safety, performance and noise level that can be relied upon.
- Designed and manufactured in accordance with Machinery Directive (MD), Low Voltage Directive (LVD), Electromagnetic Compatibility Directive (EMC) and Regulation 1253/2014 (Erp Directive).

ACCESSORIES

- Rainproof cowl.
- Multiport plenum.
- Adjusting damper.
- Damper on/off actuator.
- Flexible connector.
- Round connection.
- Differential pressure sensor.
- Ductable CO_2 sensor.
- Electric heater for pre/post heating.
- External direct expansion heating/cooling module.
- External water heating/cooling module.
- 3-way modulating valve.

MULTIFUNCTIONAL LCD DISPLAY CONTROLLER
(supplied)

PLEASE CONTACT AERAULIQA DIRECLTY FOR A SPECIFIC FAN SELECTION

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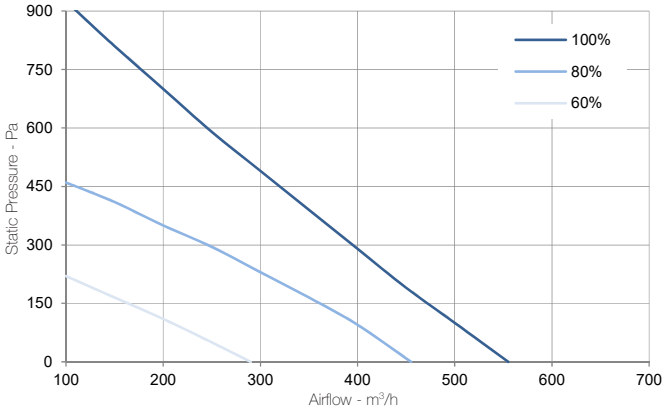
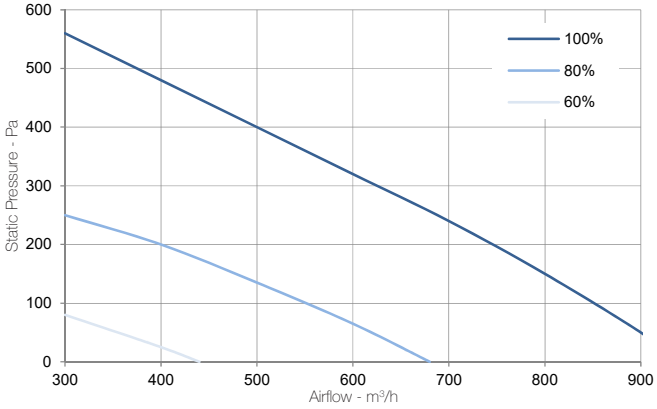
Performance*

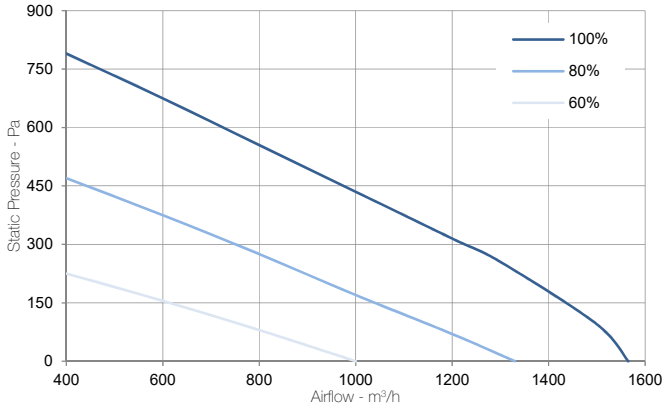
QRCE 500



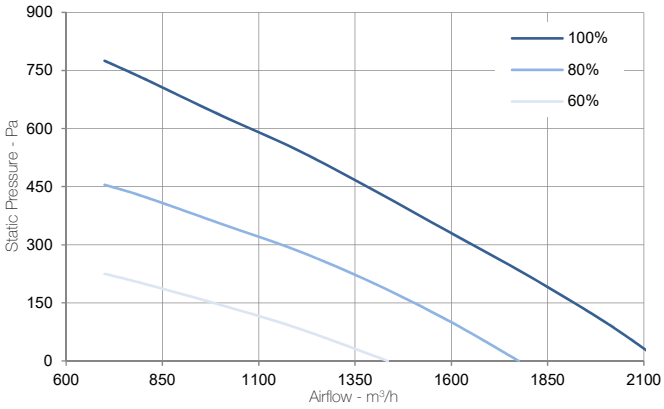
QRCE 1000



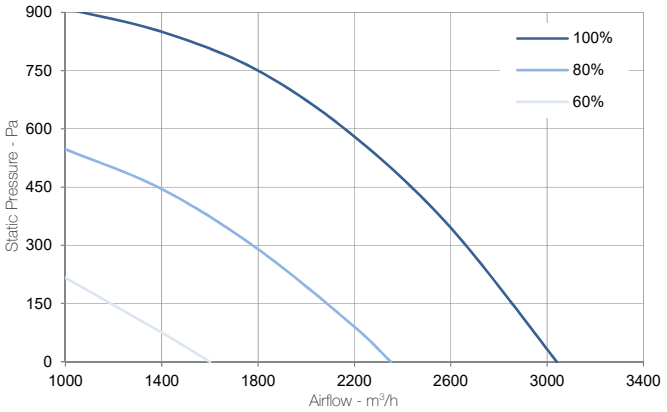
QRCE 1500



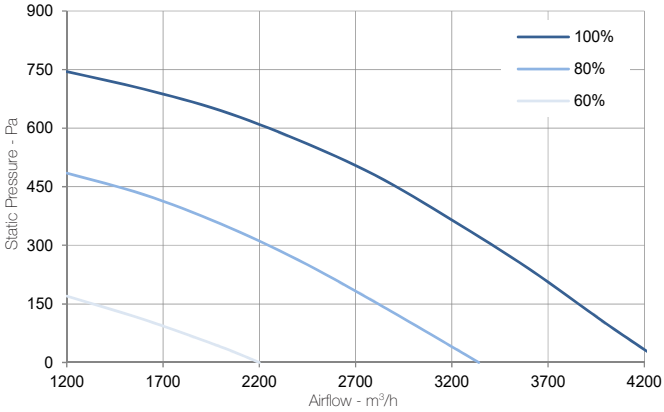
QRCE 2000



QRCE 3000



QRCE 4000



* The indicated performance refer to the unit with cleaned and duly maintained filters.

Performance and Compliance with ErP Directive, Regulation 1253/2014

QRCE Model			500	1000	1500	2000	3000	4000
Airflow rate	Nom	m^3/h	380	720	1130	1710	2460	3300
External static pressure(1)	Nom	Pa	340	230	360	270	430	340
Overall power input	Nom	W	340	340	920	930	1890	1920
	Max		340	340	920	930	2000	2000
Overall input current	Nom	A	2,8	2,9	6,0	6,0	3,3	3,4
	Max		2,8	2,9	6,0	6,0	3,4	3,5
Power supply		V-Ph-Hz	230-1-50				400-3+N-50	
Fan speed control		-	0÷10 V					
External leakage		%	max 3,5% @ -400 Pa (EN 13141-7)					
Internal leakage		%	max 5,5% @ +250 Pa (EN 13141-7)					
Yearly filter energy consumption(2)		kWh	420	670	1200	1700	2085	2787
Recovery efficiency(3)		%	88,8	88,1	86,5	86,3	85,8	85,9
Recovery capacity(3)		W	3030	5690	8740	13230	19090	25600
Supply temperature(3)		°C	17,0	16,8	16,3	16,3	16,2	16,2

(1) fresh air/supply air circuit;
(2) based on 6000 operating hours per year at nominal airflow rate, at fan efficiency (4) and on 150 Pa max air filter pressure drop before replacing (both M5 and F7 filter);
(3) at wet conditions: outside air temperature –7°C 80% RH, room air temperature 20°C 55% RH.

Conformity to EU 1253/2014

QRCE Model		500	1000	1500	2000	3000	4000
Recovery efficiency(4)	%	81,2	80,1	77,6	77,2	76,6	76,8
Efficiency bonus	$W/m^3/s$	246	213	138	126	108	114
Filter correction factor	-	0	0	0	0	0	0
SFP int limit	$W/m^3/s$	1330	1283	1191	1154	1106	1076
Total internal air pressure drop(4)	Pa	572	651	560	556	636	625
Overall fan static efficiency(5)	%	44,3	53,7	47,1	50,3	59,0	59,2
SFP int	$W/m^3/s$	1291	1212	1189	1105	1078	1056

(4) at dry conditions: outside air temperature 5°C, room air temperature 25°C;
(5) including motor & speed controller efficiency.

Noise levels*

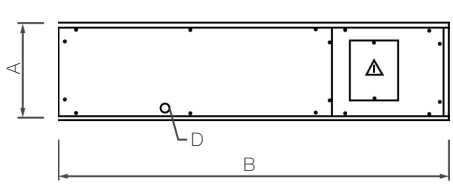
QRCE Model	Octave band (Hz)	500	1000	1500	2000	3000	4000
SWL [dB] sound power values in octave bands	63	62	61	60	66	69	68
	125	59	58	59	64	66	69
	250	65	64	65	74	74	72
	500	65	64	65	73	76	73
	1K	63	62	63	69	72	69
	2K	63	62	63	68	67	66
	4K	62	61	63	68	67	66
	8K	53	53	55	67	67	65
Total SWL [dB]	-	72	71	72	79	80	79
Total SWL [dB(A)]	-	69	68	70	76	77	76
SPL SUPPLY [dB(A)] - sound pressure level	-	47	47	48	54	55	54
SPL RETURN [dB(A)] - sound pressure level	-	39	39	40	46	47	46
SPL OUTSIDE [dB(A)] - sound pressure level	-	30	30	31	37	38	37

L_pdB(A) at 5m for comparative purposes only in ducted unit configuration
* referring to nominal working conditions.

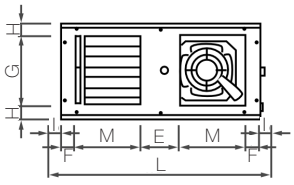
QRCE

Dimension (mm), Weight (kg) and Configurations

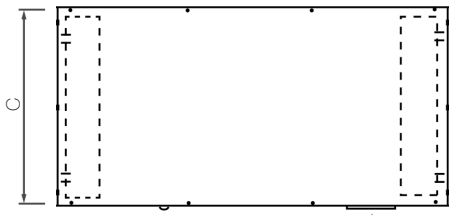
Horizontal version



front view

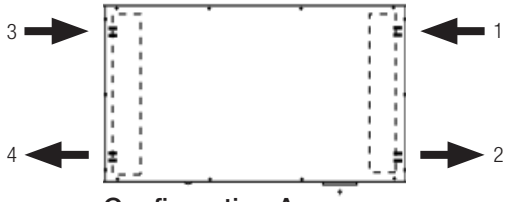


side view

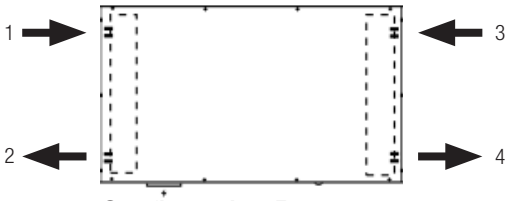


top view

Horizontal configuration (top view)

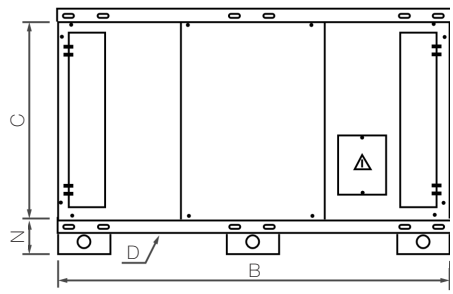


Configuration A

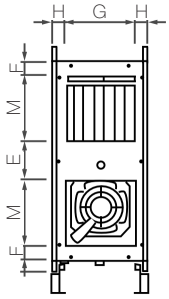


Configuration B

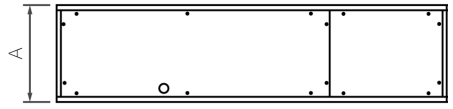
Vertical version



front view

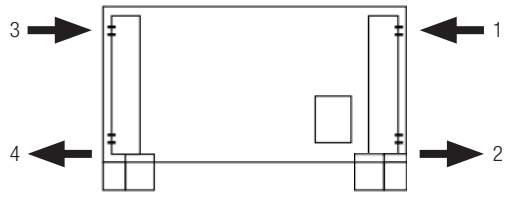


side view

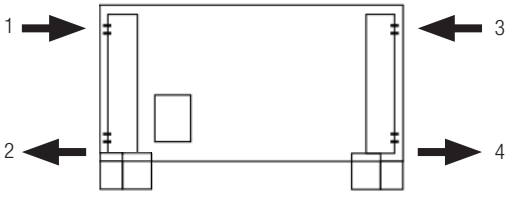


top view

Vertical configuration (front view)



Configuration C



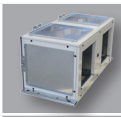
Configuration D

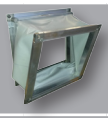
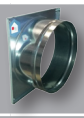
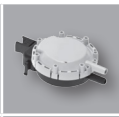
	A	B	C	D	E	F	G	H	I	L	M	N	Weight[1]
QRCE 500	330	1350	680	1/2" M	128	46	225	52,5	40	760	230	120	85
QRCE 1000	370	1470	820	1/2" M	130	46	265	52,5	40	900	300	120	105
QRCE 1500	455	1850	1030	1/2" M	158	46	350	52,5	40	1110	390	120	175
QRCE 2000	455	1850	1460	1/2" M	170	46	350	52,5	40	1540	600	120	230
QRCE 3000	590	2150	1460	1/2" M	170	55	485	52,5	40	1540	590	120	290
QRCE 4000	590	2150	1840	1/2" M	170	55	485	52,5	40	1920	780	120	360

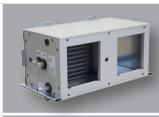
(1) standard unit
When ordering specify the size and the needed configuration.

	Airflow
1	Extract air from inside
2	Supply air to inside
3	Intake air from outside
4	Exhaust air to inside

Accessories

Description	 Rainproof cowl*				 Multiport plenum		Adjusting damper				 Damper on/off actuator	
Page	105				106		106				106	
	Description	Code	Description	Code	Description	Code	Description	Code	Description	Code	Description	Code
QRCE 500	TPR-H 05	001578	TPR-CH 05	001778	PLM 05	001748	SKR1 05	001755	SKR2 05	001761	SSE	001754
QRCE 1000	TPR-H 10	001579	TPR-CH 10	001779	PLM 10	001749	SKR1 10	001756	SKR2 10	001762		
QRCE 1500	TPR-H 15	001580	TPR-CH 15	001780	PLM 15	001750	SKR1 15	001757	SKR2 15	001763		
QRCE 2000	TPR-H 20	001581	TPR-CH 20	001781	PLM 20	001751	SKR1 20	001758	SKR2 20	001764		
QRCE 3000	TPR-H 30	001582	TPR-CH 30	001782	PLM 30	001752	SKR1 30	001759	SKR2 30	001765		
QRCE 4000	TPR-H 40	001583	TPR-CH 40	001783	PLM 40	001753	SKR1 40	001760	SKR2 40	001766		

Description	 Flexible connector				 Round connection				 Differential pressure sensor		 Ductable CO_2 sensor	
Page	106				107				107		107	
	Description	Code	Description	Code	Description	Code	Description	Code	Description	Code	Description	Code
QRCE 500	GAT1 05	001767	GAT2 05	001768	BCC1 05	001590	BCC2 05	001772	DPS	001770	AQS	001771
QRCE 1000	GAT1 10	001797	GAT2 10	001802	BCC1 10	001591	BCC2 10	001773				
QRCE 1500	GAT1 15	001798	GAT2 15	001803	BCC1 15	001592	BCC2 15	001774				
QRCE 2000	GAT1 20	001799	GAT2 20	001804	BCC1 20	001593	BCC2 20	001775				
QRCE 3000	GAT1 30	001800	GAT2 30	001805	BCC1 30	001594	BCC2 30	001776				
QRCE 4000	GAT1 40	001801	GAT2 40	001806	BCC1 40	001595	BCC2 40	001777				

Description	Electric heater for pre/post heating		 External direct expansion heating/cooling module*		 External water heating/cooling module*		3-way modulating valve	
Page	107		108		108		108	
	Description	Code	Description	Code	Description	Code	Description	Code
QRCE 500	SKE 05	001730	CDX-H 05	001742	CCS-H 05	001584	V33 05	001736
QRCE 1000	SKE 10	001731	CDX-H 10	001743	CCS-H 10	001585	V33 10	001737
QRCE 1500	SKE 15	001732	CDX-H 15	001744	CCS-H 15	001586	V33 15	001738
QRCE 2000	SKE 20	001733	CDX-H 20	001745	CCS-H 20	001587	V33 20	001739
QRCE 3000	SKE 30	001734	CDX-H 30	001746	CCS-H 30	001588	V33 30	001740
QRCE 4000	SKE 40	001735	CDX-H 40	001747	CCS-H 40	001589	V33 40	001741

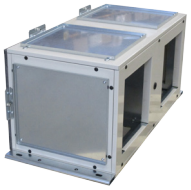
* the above codes refer to the horizontal version.

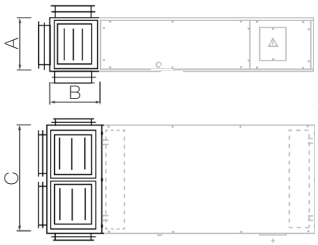
Rainproof cowl

- Made of coated steel.
- TPR-H (horizontal) and TPR-V (vertical) are needed to protect the unit in case of outdoor installation.
- TPR-CH (horizontal) and TPR-CV (vertical) are needed to protect the CCS or CDX module in case of outdoor installation.

QRCE

Multiport plenum



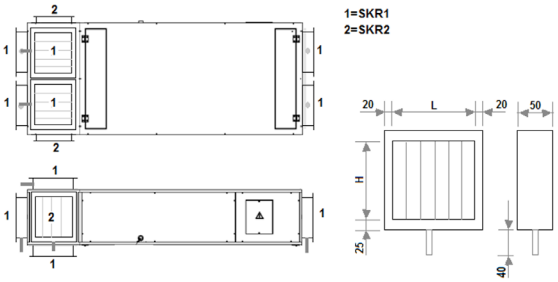


- External multiport module to be directly connected to the unit on both front sides.
- Allows air inlet and outlet in all directions.
- Can be match with SKR1 and SKR2 adjusting dampers.

Description	A	B	C	Nominal air pressure drop (Pa)	Weight (kg)
PLM 05	330	340	680	6	21
PLM 10	370	380	820	9	23
PLM 15	455	460	1030	19	26
PLM 20	455	460	1460	14	30
PLM 30	590	580	1460	8	39
PLM 40	590	580	1840	14	44

Dimensions in mm

Adjusting damper



- Frame and aluminum opposing blades controlled by on/off electrical actuator SSE (on request).
- Can be coupled directly on the air inlets of the unit, of the PLM plenum or CCS/CDX modules (select the SKR1 or SKR2 type make in reference to the drawing alongside).

Description	L	H	Weight (kg)
SKR1 05	250	230	1,6
SKR1 10	290	270	2,1
SKR1 15	370	355	2,6
SKR1 20	610	355	3,7
SKR1 30	610	490	4,3
SKR1 40	770	490	6,2

Description	L	H	Weight (kg)
SKR2 05	250	230	1,6
SKR2 10	290	270	2,1
SKR2 15	370	355	2,6
SKR2 20	370	355	2,9
SKR2 30	490	490	4,0
SKR2 40	490	490	4,0

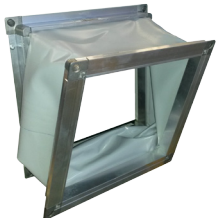
Dimensions in mm

Damper on/off actuator

- 230V-50Hz.
- 2Nm torque.
- Power consumption 1,5W.
- Supplied already mounted on the damper.

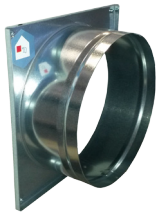
Description	SSE
Code	001754

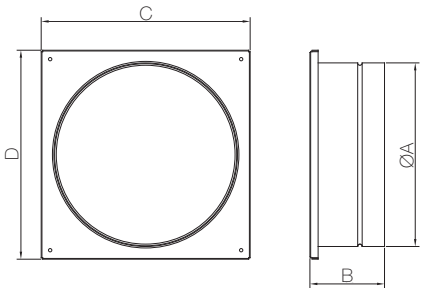
Flexible connector



- Allows the flexible connection between the basic unit or its possible external sections and the air ducts.
- Cuts off the transmission of the vibrations to the ducts.
- Dimensions are the same of the corresponding SKR1/SKR2.

Round connection





- Made from galvanised steel.
- Provided with coupling flange.
- BCC1 model allows the connection between the ventilation unit or the heating/cooling module CCS-H, SKR-1 shutter, GAT1 flexible connector and round ducts.
- BCC2 model allows the connection of the SKR-2 shutter and GAT2 flexible connector to round ducts.

Description	ØA	B	C	D	Nominal air pressure drop (Pa)	Weight (kg)
BCC1/BCC2 05	250	100	280	280	7	1,6
BCC1/BCC2 10	315	100	340	345	7	2
BCC1/BCC2 15	315	100	410	405	16	2,6
BCC1/BCC2 20	400	100	650	430	10	2,9
BCC1/BCC2 30	500	100	650	540	9	4
BCC1/BCC2 40	500	100	810	540	16	4

Dimensions in mm

Differential pressure sensor

- Differential pressure sensor for constant airflow control.
- Already mounted and wired on the basic unit.

Ductable CO_2 sensor

- CO_2 sensor ductable type.
- It allows a continuous modulation of the airflow, based on air quality desired level.

Electric heater for pre/post heating

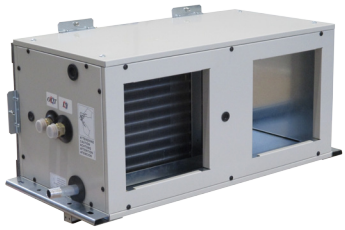
- Mounted on the unit.
- Galvanised steel frame.
- Filament type elements.
- Equipped with both automatic and manual reset thermostats.

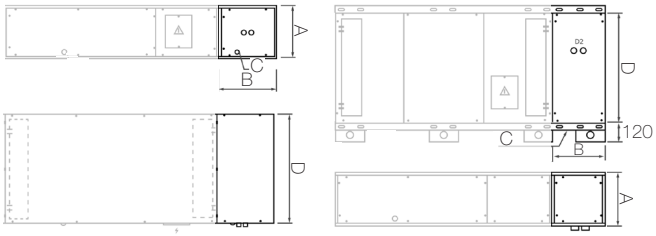
Description	Capacity (kW)	ΔT(1) (°C)	Air pressure drop(1) (Pa)	Power supply (V-ph-Hz)
SKE 05	1,5	9,8	5	230-1-50
SKE 10	2,5	9,2	6	
SKE 15	4	9	10	
SKE 20	5	7,7	10	
SKE 30	7,5	7,9	11	400-3-50
SKE 40	10,5	8,1	12	

(1) at nominal airflow rate.

QRCE

External direct expansion heating/cooling module



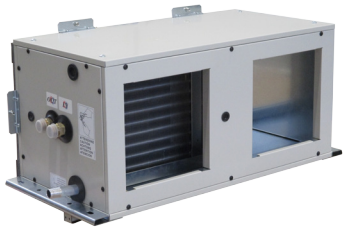


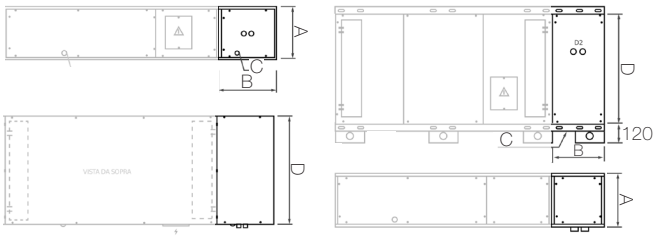
- External module directly connected to the unit on air supply/return side.
- 3-row direct expansion module suitable for R410A.
- Complete with aluminum dray tray.

Description	A	B	C	D	Cooling capacity(1) (kW)		Heating capacity(2) (kW)	Air pressure drop(1) (Pa)	ODS connect.	Weight (kg)
					tot	sens				
CDX-H 05	330	350	1/2"M	680	2,51	1,41	3,33	51	8/8	28
CDX-H 10	370	400	1/2"M	820	4,36	2,44	5,71	53	12/16	31
CDX-H 15	455	400	1/2"M	1030	7,13	3,99	9,22	54	12/16	35
CDX-H 20	455	400	1/2"M	1460	10,94	6,13	13,90	50	12/16	42
CDX-H 30	590	502	1/2"M	1460	16,11	9,02	20,36	50	16/22	52
CDX-H 40	590	502	1/2"M	1840	21,22	11,88	26,50	55	22/28	58

(1) air inlet condition 28,0°C 60% RH; evaporating temperature 8°C.
(2) air inlet condition 13°C; condensing temperature 45°C.
Dimensions in mm

External water heating/cooling module





- External module directly connected to the unit on air supply/return side.
- 3-row water module for heating/cooling
- Complete with aluminum dray tray.

Description	Cooling capacity(1) (kW)		Heating capacity(2) (kW)	Water flow rate(1) (l/h)	Water pressure drop(1) (kPa)	Air pressure drop(1) (Pa)	Weight (kg)
	tot	sens					
CCS-H 05	2,46	1,35	3,30	432	12	51	28
CCS-H 10	4,47	2,41	5,86	756	18	53	31
CCS-H 15	6,83	3,76	9,34	1188	9	54	35
CCS-H 20	10,62	5,84	14,03	1836	13	50	42
CCS-H 30	16,14	8,72	20,83	2772	19	50	52
CCS-H 40	20,68	11,37	27,50	3564	15	55	58

(1) air inlet condition 28,0°C 60% RH; in/out water temperature 7°/12°C;
(2) air inlet condition 13°C; in/out water temperature 45°/40°C.
A, B, C, D: see dimensions in "External direct expansion heating/cooling module" table.

3-way modulating valve

- 3-way water valve to adjust the water flow of the CCS-H module.
- With modulating electric actuator.
- Fittings and connecting pipes not included.

Description	Nominal pressure (-)	Lift (mm)	Water connection (GAS)	Kvs (m³/h)	Water temp. (°C)	Power supply (V-Hz)	Control signal (V)
V33 05	PN16 (ISO7286/ EN1333)	2,5	3/4" F	2,5	+2÷95 (glic. max 40%)	24cc - 50/60	0÷10
V33 10							
V33 15			3/4" F	4			
V33 20							
V33 30		5,5	1" F	10			
V33 40							


Smoke
Extraction