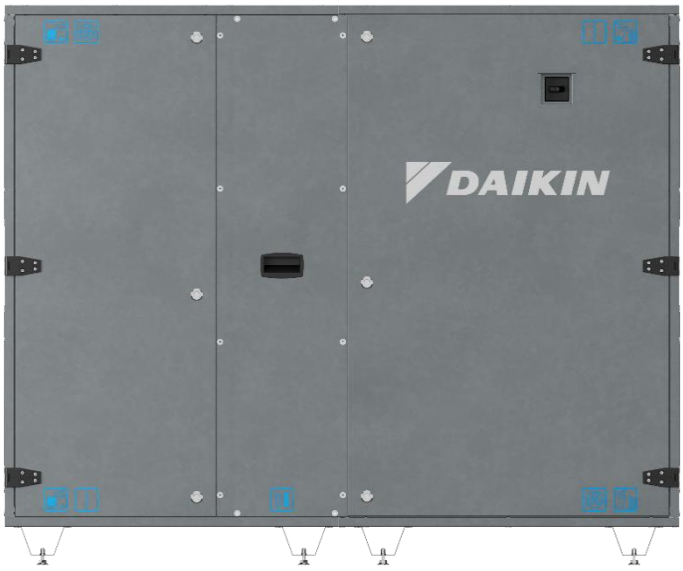
Air Handling Unit
Technical Data

Compact R



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1. Features

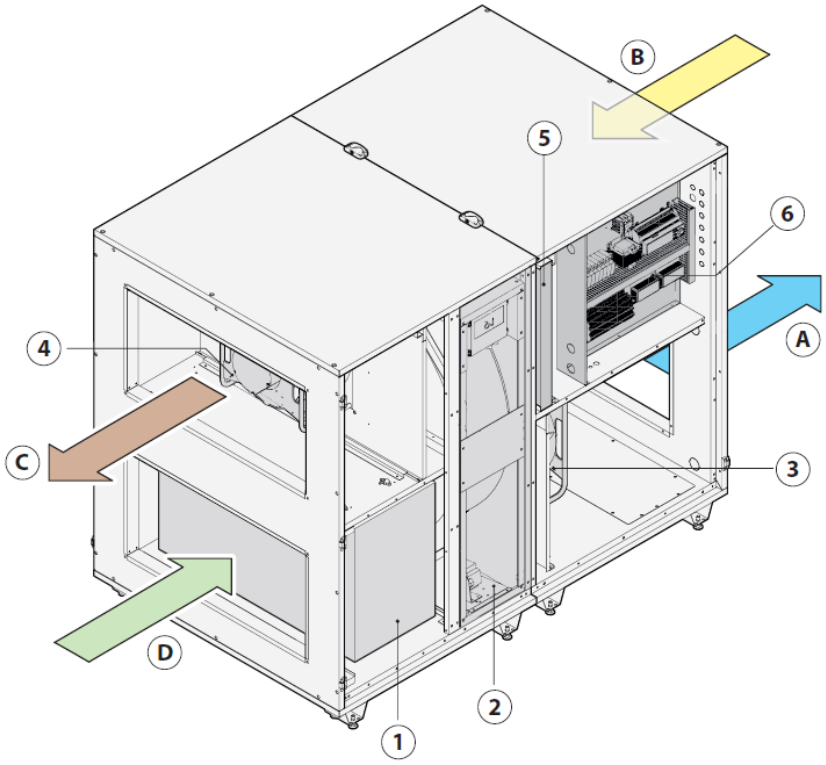
Heat recovery unit with side connections and heat wheel in condensation and sorption versions. Its main features are listed below:

- Available in 6 sizes with an air flow from 200 m^3/h up to 4.200 m^3/h, ErP 2018 compliant
- Additional size 7 up to 6.000 m^3/h soon available
- More than 500 Pa of external static pressure, depending on model size and conditions
- Monoblock design for a unit width up to 890 mm, the largest units available in two sections
- Reduced energy consumption thanks to EC fan technology and IE5 motor efficiency
- Rotary heat wheel in condensation or sorption 3Å version
- Up to double filtration stages on supply side, up to ePM_1 50% (F7) + ePM_1 80% (F9)
- 50 mm double skin panels in Magnelis, mineral wool insulated
- Left or right-hand version
- Indoor and outdoor installation
- CAV and VAV control solutions
- Eurovent Certified
- Plug and play: Unit preconfigured and tested in the factory
- CO2 level management thanks to the optional CO2 sensor
- Modbus and BACnet compatible (accessory)
- DX, water and electric coil available as optional components
- Ideal solution for light commercial applications as retail shops, small and large offices, hotels, gyms, cinemas, theatres, schools, colleges, universities, etc

2. Unit Description and configurations

Compact R is available in two configurations for the connection side: right and left (looking in the direction of the supply air flow, standing in front of the installed unit).

RIGHT VERSION



Components:

1. Supply filter
2. Heat wheel
3. Supply EC fan
4. Return EC fan
5. Return Filter
6. Control panel

Airflow direction

A. Supply air
B. Return air
C. Exhaust air
D. Fresh air

3. Standard material name – base module

	Product		Components	Size		Connection side	Model revision	Controls	Coil	Heat wheel
Digit	1	2	3	4	5	6	7	8	9	10
	A	R	B	0	3	R	A	M	N	S
Character	A = Ahu	R = Compact R	B = Base module	01= Size 01 ... 04= Size 04 ... 07 = Size 07		R = Right L = Left	A = First release B = Second release	M = Pro control	N = No Coil	C = Condensation S = Sorption

Standard unit is provided with:

- Heat wheel available in condensation and sorption versions
- EC Fan with IE5 motor efficiency class
- ePM_1 60% (F7) bag filter on supply air
- ePM_{10} 55% (M5) panel filter on return air
- Double skin panel (inner Magnelis, outer Magnelis)
- Mineral wool 50mm insulation
- Control: Pro version with Microtech 4 controller

The touchscreen room thermostat and user interface are not included with the main unit.

Nomenclature:

Size	Condensation - Right	Condensation – Left	Sorption – Right	Sorption – Left
Size 01	ARB01RAM	ARB01LAM	ARB01RAMNS	ARB01LAMNS
Size 02	ARB02RAM	ARB02LAM	ARB02RAMNS	ARB02LAMNS
Size 03	ARB03RAM	ARB03LAM	ARB03RAMNS	ARB03LAMNS
Size 04	ARB04RAM	ARB04LAM	ARB04RAMNS	ARB04LAMNS
Size 05	ARB05RAM	ARB05LAM	ARB05RAMNS	ARB05LAMNS
Size 06	ARB06RAM	ARB06LAM	ARB06RAMNS	ARB06LAMNS

4. Specifications

4.1. Technical Data

4.1.1. Nominal Data

Material Name [1]		ARB01*	ARB02*	ARB03*
Size		01	02	03
Airflow	m3/h	600	1100	1600
HW dry efficiency [2]	%	79,7	78,8	75,6
HW humidity efficiency	Condensation	44,9	43,9	40,1
	Sorption	76	74,3	68,1
ESP	Pa	100	100	100
Current	A	0,83	1,61	2,48
Power input	kW	0,19	0,37	0,57
SFPv	kW/(m3/s)	0,81	0,95	1,06
Electrical supply	Phase (ph)	1		
	Frequency (Hz)	50		
	Voltage (V)	220-240		
	Max internal fuse (A)	16		
Main unit Dimensions	Width (mm) [3]	650	790	790
	Heigth (mm) [4]	960	1050	1150
	Length (mm)	1615	1635	1720
Duct dimensions	Length (mm)	400	500	500
	Heigth (mm)	200	200	300
Unit sound power level	dB(A)	52	57	58
Unit sound pressure level [5]	dB(A)	45	50	51
Net Weight Unit	kg	140	160	225
Gross Weight Unit	kg	150	170	235

Material Name [1]		ARB04*	ARB05*	ARB06*
Size		04	05	06
Airflow	m3/h	2100	2900	3750
HW dry efficiency [2]	%	75,7	74,8	74,5
HW humidity efficiency	Condensation	40,1	39	38,7
	Sorption	68,2	66,5	66
ESP	Pa	100	100	100
Current	A	3,35	4,43	5,87
Power input	kW	0,77	1,02	1,35
SFPv	kW/(m3/s)	1,12	1,08	1,12
Electrical supply	Phase (ph)	1		
	Frequency (Hz)	50		
	Voltage (V)	220-240		
	Max internal fuse (A)	16		
Main unit Dimensions	Width (mm) [3]	890	990	1100
	Heigth (mm) [4]	1250	1400	1450
	Length (mm)	1735	1750	1750
Duct dimensions	Length (mm)	600	700	800
	Heigth (mm)	300	400	400
Unit sound power level	dB(A)	57	60	63
Unit sound pressure level [5]	dB(A)	50	53	56
Net Weight Unit	kg	265	310	340
Gross Weight Unit	kg	280	325	355

1. For ARB01*, we refer to all the versions of Compact R size 01 (left or right)
2. Outdoor conditions: -5°C / 80% Exhaust conditions: 20°C / 50%
3. Sizes 05 and 06 are provided in two sections (860mm + 890mm).
4. Width without hinges (15mm)
5. Height of the unit, taking into account the feet, mounted on site, (100mm)
6. Sound pressure at 1m with in (directivity factor Q = 4) in a non-reverberant field. Allowances on declared values: +/- 3dB.

4.1.2. Sectioning

All the sizes are provided in a single section. To ensure easy and quick transportation and installation, sizes wider than 900mm can be divided into two sections on site, allowing them to pass through standard doors. In the IOM, all the required instructions for disassembling and assembling the unit are provided.

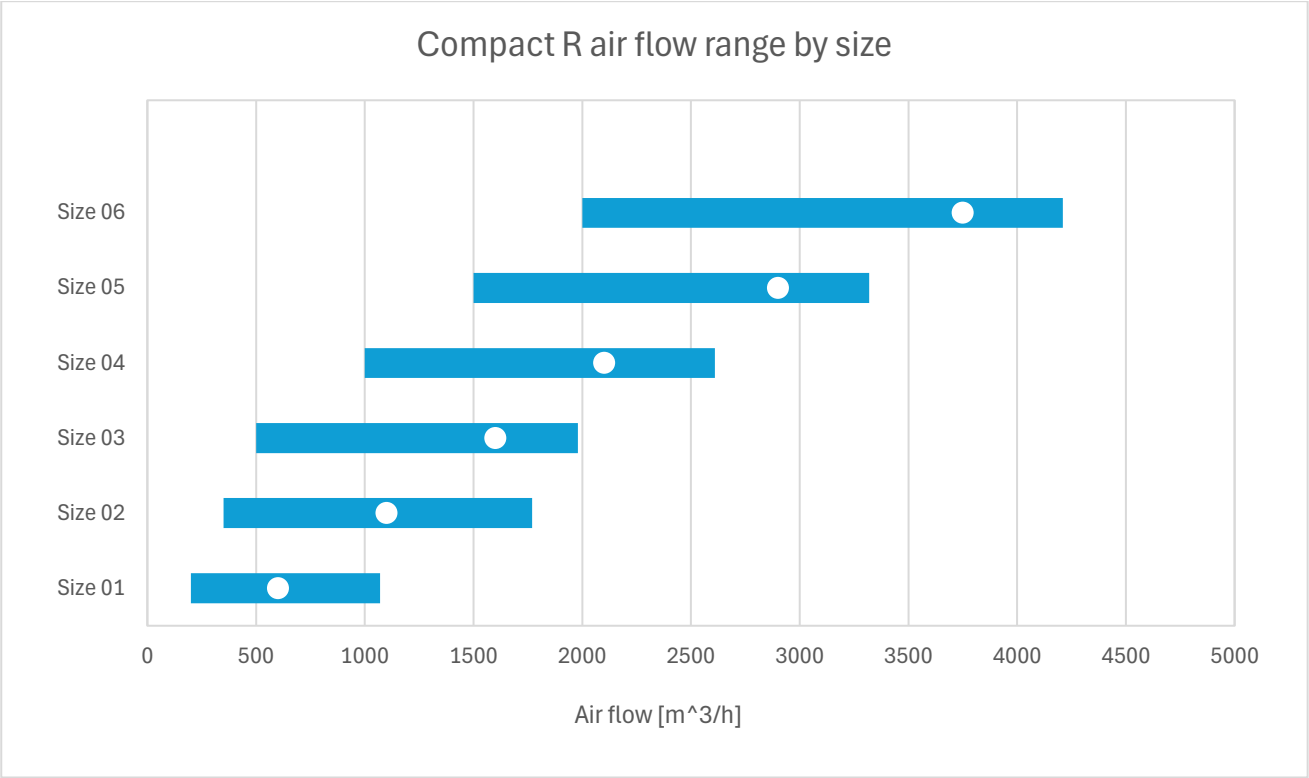
The following table summarises the number of sections for each size.

Material Name	Size	Number of sections
ARB01*	01	1
ARB02*	02	1
ARB03*	03	1
ARB04*	04	1
ARB05*	05	2
ARB06*	06	2

The following table summarises the dimensions of main units and sections for each size.

Section and size	Height (mm)	Length (mm)	Length (mm)	Length (mm)	Width (mm)	Duct dimension (mm)		Net Weight (kg)	Gross Weight (kg)
Main unit, size 01	960	1615	-	-	650	400	200	140	150
Main unit, size 02	1050	1635	-	-	790	500	250	160	170
Main unit, size 03	1150	1720	-	-	790	500	300	225	235
Main unit, size 04	1250	1735	-	-	890	600	300	265	280
Section 1, Size 05	1400	-	860		990	700	400		
Section 2, Size 05	1400	-		890	990	700	400		
Main Unit, Size 05	1400	1750			990	700	400	310	325
Section 1, Size 06	1450	-	860		1100	800	400		
Section 2, Size 06	1450	-		890	1100	800	400		
Main Unit, Size 06	1450	1750			1100	800	400	340	355

4.1.3. Nominal Air Flow



For any performances out of the nominal condition here above mentioned kindly refer to the online selection software available online at tools.daikinapplied.eu

4.2. Electrical Data

Material Name	Size	Phase (ph)	Frequency (Hz)	Voltage (V)	FLA (A)	FLI (W)
ARB01*	01	1	50/60	220 - 240	4,3	0,6
ARB02*	02				5,2	1,1
ARB03*	03				5,0	1,7
ARB04*	04				7,8	1,7
ARB05*	05				14,4	3,4
ARB06*	06				14,4	3,4

4.3. Declaration EU. REG. 1253/2014

Material Name			ARB01*B*	ARB02*B*	ARB03*B*
Size			01	02	03
Manufacturer's name			Daikin Applied Europe		
Typology (NRVU, UVU / BVU) *			NRVU BVU		
Type of drive			Inverter (included on the electronic fan)		
Type of HRS			Other		
Thermal efficiency of the HR		*%*	79.7	78.8	75.6
Nominal NVRU Flow rate	Supply	*m3/s*	0.17	0.31	0.44
	Return	*m3/s*	0.17	0.31	0.44
Effective Electric Power input		*kW*	0.19	0.37	0.57
SFP internal	*W/(m3/s)*		260	321	464
Face velocity at design air flow rate	Supply	*m/s*	1.14	1.38	1.77
	Return	*m/s*	1.14	1.38	1.77
Internal Pressure Drop of Ventilation Components	Supply	*Pa*	85	102	152
	Return	*Pa*	61	76	118
Nominal External Pressure Drop	Supply	*Pa*	100		
	Return	*Pa*	100		
Static efficiency of fans	Supply	*%*	62.3	65.8	70.7
	Return	*%*	62.3	65.8	70.7
Maximum external Leakage	+ 400	*%*	3.37	2.22	1.66
	- 400	*%*	1.68	1.11	0.83
Maximum internal Leakage		*%*	1.5	1.5	1.5
		%	1.27	1.18	1.13
Summer Outdoor Conditions	Temp.	*°C*	34		
	RH	*%*	50		
Winter Outdoor Conditions	Temp.	*°C*	-5		
	RH	*%*	80		
Filter Energy Classification			-		
Filter Service Warning **			Displayed on controller		
Sound Power Level		*dBA*	53	57	58
Pre-/Dis- assembly instructions			https://www.daikinapplied.eu/ahu-instructions-for-pre-disassembly/		

Material Name			ARB04*B*	ARB05*B*	ARB06*B*
Size			04	05	06
Manufacturer's name			Daikin Applied Europe		
Typology (NRVU, UVU / BVU) *			NRVU BVU		
Type of drive			Inverter (included on the electronic fan)		
Type of HRS			Other		
Thermal efficiency of the HR		*%*	75.7	74.8	74.5
Nominal NVRU Flow rate	Supply	*m3/s*	0.58	0.81	1.04
	Return	*m3/s*	0.58	0.81	1.04
Effective Electric Power input		*kW*	0.77	1.02	1.35
SFP internal	*W/(m3/s)*		498	483	524
Face velocity at design air flow rate	Supply	*m/s*	1.78	1.85	2.01
	Return	*m/s*	1.78	1.85	2.01
Internal Pressure Drop of Ventilation Components	Supply	*Pa*	168	172	190
	Return	*Pa*	119	131	138
Nominal External Pressure Drop	Supply	*Pa*	100		
	Return	*Pa*	100		
Static efficiency of fans	Supply	*%*	61.0	64.4	66.6
	Return	*%*	61.0	64.7	66.1
Maximum external Leakage	+ 400	*%*	1.44	1.2	1.01
	- 400	*%*	0.72	0.6	0.5
Maximum internal Leakage		*%*	1.5	1.5	1.5
		%	1.11	1.09	1.08
Summer Outdoor Conditions	Temp.	*°C*	34		
	RH	*%*	50		
Winter Outdoor Conditions	Temp.	*°C*	-5		
	RH	*%*	80		
Filter Energy Classification			-		
Filter Service Warning **			Displayed on controller		
Sound Power Level		*dBA*	57	60	63
Pre-/Dis- assembly instructions			https://www.daikinapplied.eu/ahu-instructions-for-pre-disassembly/		

* In accordance with Commission Regulation (EU) No 1253/2014 of July 2014

** Clean/replace Filter(s) when maximum pressure drop is reached or when warning is displayed on HMI controller

4.4. Bearing structure

The units feature double-skin panels that consist of two folded steel sheets. Panel thickness is 50 mm for all unit sides. The standard version is provided with Magnelis steel for outer and inner skin. The units are constructed with removable or hinged doors allowing full maintenance access.

4.5. Insulation

The insulation material used is mineral wool with a density of 120 kg/m3 (EN 1602).
Thermal conductivity is 0.036 W/m*K and mineral wool is A1 class for fire classification (EN13501-1).

4.6. Heat Recovery

The units feature a rotary heat wheel available in condensation or sorption 3Å version.
Rotary heat exchangers transfer energy through a rotating storage mass, which is alternately heated by one air stream and cooled by the other. They can transfer both temperature and humidity between air streams. The storage mass consists of aluminium foil. A smooth and a corrugated foil are wound on top of each other to form a wheel of sinusoidal channels. Warm air and cold air flow through these alternately and thus transfer the heat between the two air streams.
In the sorption 3Å version, the aluminium foil used for the storage mass is completely coated with molecular sieve 3 Å. This makes RHE exchangers high-performance models. The sorption coating guarantees maximum humidity efficiency throughout the year. In summer operation, the supply air is dried. The cooling requirement to be covered by a cooling unit is considerably reduced. This saves both investment costs and energy costs for cooling. In winter operation, humidity transfer improves the indoor climate. RHE is Eurovent certified and protected by minimum ePM_{10} 75% (M5) & ePM_1 50% (F7) grade pleated filters on extract and supply air sides.
The RHE rotation is controlled by a latest-generation electronic drive paired to a stepless motor; together, they provide precise speed control and increased energy efficiency. In contrast to geared motors, which lose torque at low and high speed, the stepper motor provides even torque throughout the entire speed range. The linear stepper motor torque curve means that rotor speed can be accurately controlled throughout a much wider range. This enables energy-efficient heat recovery and more precise temperature control. The RHE drive is equipped with an advanced software that monitors the rotation of the rotor, which means that no physical/optical rotor guard is required. The drive uses the feedback signal from the motor to ensure that the motor gets exactly the level of current required to achieve the desired speed and torque.

4.7. Fans

The units have IP54 EC fan/motor assemblies conform with Reg. EU No. 327/2011. EC fans are of IE5 efficiency class. Fans provide low specific fan power (SFP) and a stepless speed control.
According to their energy balance, performances, flow and noise characteristics the rotor shall be made by plastic (reinforced if necessary). The airflow rate shall be measured on the fan arrangement in real time.
Fans can provide a constant air volume regardless filter clogging or duct/system pressure drops (within the fans operation limits).
They are also able to provide a fixed pressure value regardless the supplied air volume or the pressure drops' changes in the system, while keeping the airflow information coming from the fans.

In terms of power supply, the unit must operate on 220/240 V AC, 50/60 Hz single-phase main supply for sizes 01 to 06. The main general carachteristics are reported in the following table:

Rotor surface	Painted
Electronics housing material	Die-cast aluminium
Impeller material	PP plastic
Support material plate	Galvanized
Support bracket material	Steel, painted black
Inlet nozzle material	ABS plastic
Number of blades	5
Degree of protection	IP55
Insulation class	F
Motor bearing	Ball bearing
Conformity with standards	EN 61800-5-1; UKCA; CE
Approval	CSA C22.2 No. 100; UL 1004-7

Ask the factory for Compact R size-specific features.

4.8. Filters

Filters are panel type (compact) or soft pockets.
All the filters - regardless of their type – are mounted in opportune rails equipped with a mechanical frame that maintains the filters under high pressure and ensures a high sealing along the full perimeter. In particular, soft pocket filters are inserted into a hi-seal frame that, thanks to a lever system, keep the filters frame tightly compressed into position so that a certified bypass leakage class (EN1886) of F9 is secured.
The available filter grades are (acc. to ISO 16890):

- ISO Coarse 55% (G4), ePM_{10} 55% (M5), ePM_1 50% (F7) for panel type
- ePM_1 60% (F7), ePM_1 85% (F9) for soft pocket type

On the supply (ODA) side, a panel and a soft-pocket filter can be combined to meet any requirement.
On the return (ETA) side, the panel filter can only be installed.
The units come standard with ePM_{10} 55% (M5) and ePM_1 60% (F7) filters on the extract and supply air sides, respectively. In accordance with ISO 16798-3, the unit can reach SUP (supply air categories) 1 level from ODA (outdoor air categories) 3 level.
The recommended minimum efficiencies, by ODA and SUP category, are summarised in the following table.

	Supply air class			
Outdoor Air Quality	SUP 1 (High)	SUP 2 (Medium)	SUP 3 (Moderate)	SUP 4 (Low)
ODA 1 (Pure Air)	ePM_1 70%	ePM_1 50%	$ePM_{2.5}$ 50%	ePM_{10} 50%
ODA 2 (Dust)	ePM_1 80%	ePM_1 70%	$ePM_{2.5}$ 70%	ePM_{10} 80%
ODA 3 (Very high concentration of dust)	ePM_1 90%	ePM_1 80%	$ePM_{2.5}$ 80%	ePM_{10} 90%

The recommended filter combinations depending on ODA and SUP categories are summarised in the following table.

	Supply air class			
Outdoor Air Quality	SUP 1 (High)	SUP 2 (Medium)	SUP 3 (Moderate)	SUP 4 (Low)
ODA 1 (Pure Air)	F9 (ePM_1 85%)	F7 ($ePM_1$50%)	F7 ($ePM_1$50%)	F7 (ePM_1 50%)
ODA 2 (Dust)	F9 (ePM_1 85%)	F9 (ePM_1 85%)	F9 (ePM_1 85%)	F7 (ePM_1 50%)
ODA 3 (Very high concentration of dust)	F7 (ePM_1 50%) + F9 (ePM_1 85%	F9 (ePM_1 85%)	F9 (ePM_1 85%)	F9 (ePM_1 85%)

For easy reference, the EN779:2012 has been replaced by the ISO 16890. The new naming is included in the following table.

Filter name (EN 779)	Filter name (ISO 16890)	ePM_1	$ePM_{2,5}$	ePM_{10}
G4 (panel)	ISO Coarse 60%	N/A	N/A	N/A
M5 (panel)	ePM_{10} 55%	13%	24%	59%
F7 (panel)	ePM_1 50%	54%	67%	89%
F7 (soft pocket)	ePM_1 60%	62%	69%	87%
F9 (soft pocket)	ePM_1 85%	85%	90%	97%

The units, in fact, can accommodate on supply air stream up to two filters at the same time: ePM_1 50% + ePM_1 80% (F7+F9).
In order to avoid the fast clogging of the fine filter from gross particles, units can also provide a ISO Coarse 55% (class G4) pre – filter on supply side.
According to the hygienic requirements of the VDI 6022, filter frames are designed in such a way so they can be easily extracted and cleaned.
The filter replacement is carried out from the front side opening the removable or hinged door.
The filters replacement trigger is activated through pressure differential transducers, following the provision of EU 1253/2014. Replacement filters are available as a standard accessory.

4.9. Control system

Unit control system is provided on the basis of a programmable direct digital controller (DDC). Its software allows user configuration setting based on original manufacturer logics.
The unit controls are factory mounted and fully operational at site.
A web server (HMI) via LAN connection is also provided as a standard feature.
The unit offers the possibility to be integrated into BACnet/IP or Modbus-RS485 based BMS through dedicated activation licenses. The unit is connectable to a Cloud monitoring system (optional).
The unit is able to operate either in CAV or VAV systems. For the constant air volume (CAV) logic the unit provides a constant airflow regardless of system pressure drops. For the variable air volume (VAV) logic the unit guarantees a constant static pressure in a specific point of the system, through a dedicated accessory (AUE00PTUA pressure transducer), while the airflow measurement remains available for reading.
The unit is able to control the indoor air quality by controlling and monitoring the CO2 level (CO2 sensor is optional). In fact, when the threshold value is overcome, the control forces the fan to increase the extracted and supplied air volume in order to decrease the CO2 level faster.
When signals are received, the units vary its fan speed proportionally until the desired set points are met.
An optional humidity sensor is available for the control of the humidity condition when a cooling coil is present. If temperature control is also needed, a post heating coil has to be present too.
The RHE rotation speed, instead, is determined by an algorithm that varies output based on temperature evaluations. It also provides free cooling operation based on dry bulb temperatures and enthalpies (optional) through additional humidity probes (accessories).
By default, units fit four temperature probes to measure: Supply air temperature, Return Air temperature, Fresh air and Exhaust Air Temperature.

Compact R Pro Control	
Control platform	Programmable controller
Remote controller	Room controller: AUC00RTSA/AUC00RTPA
	Commissioning tool: ALC00895A
Co2 control	Yes, ALP00COA (mandatory accessory)
RH% control	Yes, ALP00HUA (mandatory accessory)
BMS Connectivity	BACnet/IP: AUC00BACA (accessory)
	Modbus – RS485: AUC00MODA (accessory)
Ethernet connection	WEB – Human Machine Interface (web server)
Cloud connection	Daikin on Site

To manage accessories, one or more expansion modules, with a maximum of two, which are defined as expansion modules “A” and “B”, must be installed on site based on the selected additional components.
The extension module is equipped with a DIP switch to communicate with the controller.
Both expansion modules have the same material name and must be configured on-site. The configuration can be easily performed through the DIP switch.

The table below shows which accessories are connected to each expansion module.

	Components	Expansion module “A”	Expansion module “B”
1.	Water Coil (incompatible with item 2)	X	
2.	DX Coil (incompatible with item 1)	X	
3.	Water heating/post heating coil (incompatible with item 4)	X	
4.	Electrical heating/post heating (incompatible with item 3)	X	
5.	Pressure transducer for supply air additional filter stage	X	
6.	CO_2 probe	X	
7.	Humidity return probe	X	
8.	Water pre-heating coil (incompatible with item 9)		X
9.	Electrical pre-heating coil (incompatible with item 8)		X
10.	Economy mode		X

The following table provides some examples for a complete and clear explanation.

	Accessories	Expansion module “A”	Expansion module “B”
1.	No accessories		
2.	Pre-heating coil		X
3.	Water coil	X	
4.	DX coil + CO_2 probe	X	
5.	Dx Coil + pre-heating coil	X	X

Astra selection software automatically adds them when needed.

Further details can be found within the dedicated wiring diagram.

5. Accessories

5.1. Accessories list

Filters	G4	M5	F7 (panel)	F7 (bag)	F9
Size 01	ARF01G4A	ARF01M5A	ARF01F7A	ARF01F7B	ARF01F9B
Size 02	ARF02G4A	ARF02M5A	ARF02F7A	ARF02F7B	ARF02F9B
Size 03	ARF03G4A	ARF03M5A	ARF03F7A	ARF03F7B	ARF03F9B
Size 04	ARF04G4A	ARF04M5A	ARF04F7A	ARF04F7B	ARF04F9B
Size 05	ARF05G4A	ARF05M5A	ARF05F7A	ARF05F7B	ARF05F9B
Size 06	ARF06G4A	ARF06M5A	ARF06F7A	ARF06F7B	ARF06F9B

Coil	DX Coil	Water coil	Water heating coil	Electric heater
Size 01	Not available	ARD01UWSAR ARD01UWSAL	ALD03HWUA	ARD01HEUA
Size 02	Not available	ARD02UWSAR ARD02UWSAL	ARD02HWUA	ARD02HEUA
Size 03	ARD03UDSAR ARD03UDSAL	ARD03UWSAR ARD03UWSAL	ALD05HWUA	ARD03HEUA
Size 04	ARD04UDSAR ARD04UDSAL	ARD04UWSAR ARD04UWSAL	ARD04HWUA	ARD04HEUA
Size 05	ARD05UDSAR ARD05UDSAL	ARD05UWSAR ARD05UWSAL	ALD07HWUA	ARD05HEUA
Size 06	ARD06UDSAR ARD06UDSAL	ARD06UWSAR ARD06UWSAL	ARD06HWUA	ARD06HEUA

Mechanical Accessories	Sound attenuators	External Damper	Flexible joints	Duct transition	Droplet Eliminator
Size 01	ALS0390A	ALA03EDA	ALA03FXB	ALA03RCA	ARA01DEA
Size 02	ARS0290A	ARA02EDA	ARA02FXB	ARA02RCA	ARA02DEA
Size 03	ALS0590A	ALA05EDA	ALA05FXB	ALA05RCA	ARA03DEA
Size 04	ARS0490A	ARA04EDA	ARA04FXB	ARA04RCA	ARA04DEA
Size 05	ALS0790A	ALA07EDA	ALA07FXB	ALA07RCA	ARA05DEA
Size 06	ARS0690A	ARA06EDA	ARA06FXB	ARA06RCA	ARA06DEA

Valves	2way valve	3way valve
Size 01	ATV03CW2A	ATV03CW3A
Size 02	ATV04CW2A	ATV04CW3A
Size 03	ATV04CW2A	ATV04CW3A
Size 04	ATV05CW2A	ATV05CW3A
Size 05	ATV05CW2A	ATV05CW3A
Size 06	ATV07CW2A	ATV06CW3A

Control	All size
BACnet license	AUC00BACA
Modbus license	AUC00MODA
Room Thermostat Standard	AUC00RTSA
Room Thermostat Premium	AUC00RTPA
Commissioning Module	ALC00895A
Expansion Module	ALC00955A

Electrical Accessories	All size
Modulating actuator for valve	ATE00AMVA
Modulating actuator for damper	ATE00AMDA
Spring return modulating actuator for damper	AUE00ASDA
Frost switch	ALE00FSUA
Pressure transducer	AUE00PTUA

Probes	All size
CO_2	ALP00COA
Humidity	ALP00HUA
Temperature	ALP00TEA

Accessories for outdoor installation	Roof	Rain Hood	Rain Hood with duct elbows
Size 01	ARA01EKA	ARA01RSA	ARA01RDA
Size 02	ARA02EKA	ARA02RSA	ARA02RDA
Size 03	ARA03EKA	ARA03RSA	ARA03RDA
Size 04	ARA04EKA	ARA04RSA	ARA04RDA
Size 05	ARA05EKA	ARA05RSA	ARA05RDA
Size 06	ARA06EKA	ARA06RSA	ARA06RDA

5.2. Useful information

- Electric heater (ARD0*HEUA) has to be equipped with an additional temperature probe (ALP00TEA) fitted in the duct and wired to the dedicated terminals.
- Heating water coil (ALD0*HWUA/ARD0*HWUA) has to be equipped with an additional temperature probe (ALP00TEA) fitted in the duct and wired to the dedicated terminals.
- Main water or DX coil (ARD0*UWSA*/ARD0*UDSA*) has to be equipped with an additional temperature probe (ALP00TEA) fitted in the duct and wired to the dedicated terminals.
- In addition to all the water coils, either a 2- or 3-way regulating valves (ATV**CW2A, ATV**CW3A) can be ordered along with modulating actuators for water valve (mandatory option ATE00AMVA), supplied loose for site fitting.
- On Astra Web selection software for Compact R, the temperature probe is automatically added (if needed) when a coil is selected.
- On Astra Web selection software for Compact R, the modulating actuator is automatically added when a water valve is selected.
- The accessory compatibility might be limited on the basis of the control features and/or for the position of the accessories. Kindly refer to your sales representative for any doubts. Main incompatibilities are summarised below:
    - DX coil and main water Coil
    - Electric pre heating and water pre heating
    - Electric post heating and water post heating
- For outdoor installation, the roof is required (ARA0*EKA)
- Modbus and BACnet connectivity is managed through a software license.
- Touchscreen room thermostat (AUC00RTSA/AUC00RTPA) is not supplied with the main unit (ARB0*) and needs to be purchased separately
- The unit gets delivered with its nominal air flow rate set up at the factory. For the purpose of either airflow volumes or static pressure value changes from the ones set at the factory, and to adjust its operation to the project-specific parameters, kindly select the optional commissioning module ALC00895A or refer to the Daikin Service Dept. Alternatively, you can also commission the units using the web server HMI access (default feature).

5.3. Filters

The unit is provided as standard with an ePM1 60% (F7) filter on the supply side and an ePM10 55% (M5) filter on the return.

On the supply side, up to two filtration stages are available:

- A panel pre filter (ISO Coarse 55 – G4, ePM10 55% - M5, ePM1 50% - F7)
- A bag filter (ePM1 60% - F7, ePM1 80% - F9)

A pressure transducer (AUE00PTUA) can be installed to monitor the pressure drop on the second filter. Otherwise, it’s possible to monitor the pressure drop of both filters with the pressure transducer already

installed in the main unit. In this case, it is required to change the position of the silicon tube used to monitor the pressure drop. For more information, please refer to the dedicated IOM.

On the return side, a single filtration stage is available:

- A panel filter (ePM10 55% - M5, ePM1 50% - F7)

The table below summarises the material names and the pressure drop for each filter when clean, at nominal airflow for all sizes.

Material Name	Main Unit Size	Description	ΔP Clean (Pa)	ΔP Mean (Pa)
ARF01G4A	01	ISO Coarse 55% (G4)	23	48
ARF02G4A	02		30	55
ARF03G4A	03		38	63
ARF04G4A	04		39	64
ARF05G4A	05		41	66
ARF06G4A	06		45	70
ARF01M5A	01	ePM10 55% (M5)	32	82
ARF02M5A	02		41	91
ARF03M5A	03		53	103
ARF04M5A	04		54	104
ARF05M5A	05		57	107
ARF06M5A	06		62	112
ARF01F7A	01	ePM1 50% (F7)	35	85
ARF02F7A	02		46	96
ARF03F7A	03		58	108
ARF04F7A	04		60	110
ARF05F7A	05		64	114
ARF06F7A	06		69	119
ARF01F7B	01	ePM1 60% (F7 bag)	35	85
ARF02F7B	02		43	93
ARF03F7B	03		60	110
ARF04F7B	04		77	127
ARF05F7B	05		71	121
ARF06F7B	06		87	137

Material Name	Main Unit Size	Description	ΔP Clean (Pa)	ΔP Mean (Pa)
ARF01F9B	01	ePM1 80% (F9)	72	122
ARF02F9B	02		89	139
ARF03F9B	03		128	178
ARF04F9B	04		161	211
ARF05F9B	05		146	196
ARF06F9B	06		129	179

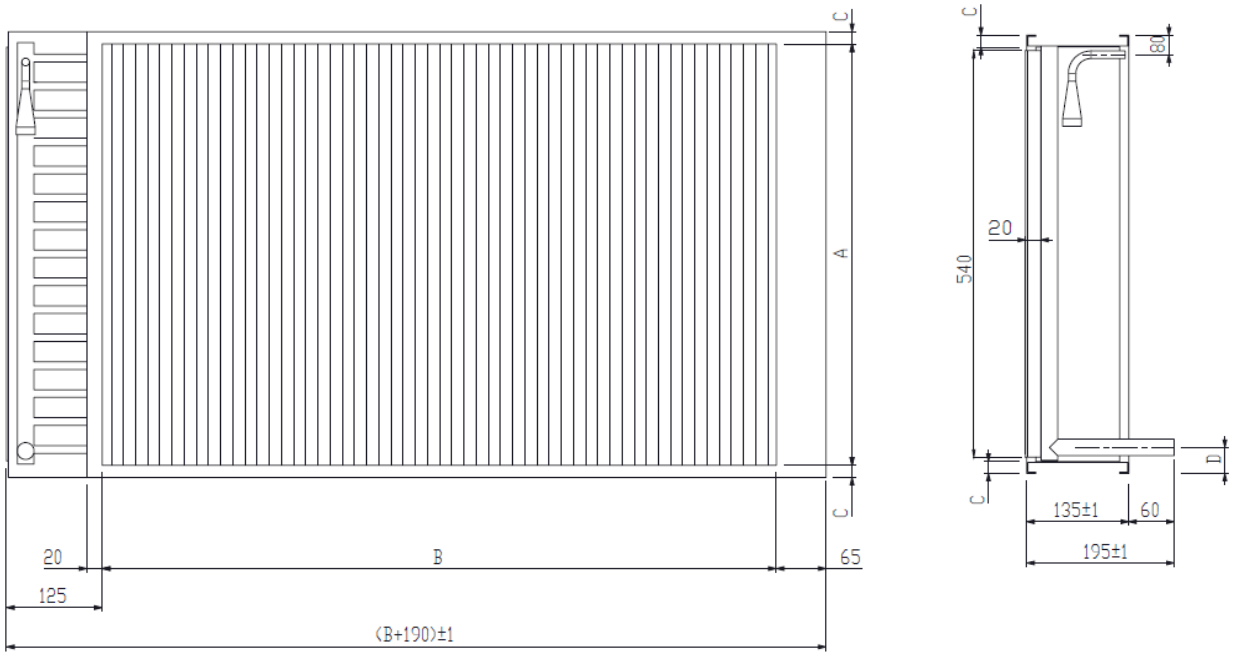
5.4. Coils

Compact R pro version can be equipped with different types of coils, all provided as accessory, to guarantee the thermal comfort.
An electric heater or water heating coil is available as an accessory as a preheating coil.
To manage the thermal load in both winter and summer seasons, a DX or water-based coil is available as the main coil option. Both have to be installed inside the unit along with their drip tray. Please refer to the installation manual for further information.
DX and water coils are provided in left and right versions based on the unit version chosen. It is not possible to install a right (left) coil version if a left (right) unit has been selected and vice versa.
A water coil and an electric heater, both installed in the ductwork, are available as post heating options.
Compact R can be equipped with up to three coils (pre, main, and post), and all of them work in a modulating way at the same time.
Astra Web selection software automatically adds a temperature probe (ALP00TEA) whenever needed.
The coils mounted externally of the main unit are:

- Pre and post electric heater
- Pre and post heating water coil

5.4.1. DX coil

A cooling and heating DX coil is available as accessory to guarantee the thermal treatment.
DX coil can work with R410 and R32 refrigerant. On Astra web selection software, user can select the type of refrigerant.
The Daikin Electronic Valve Kit (EKEXVA*) model which has to be site installed, is specified in the technical report. It has to be ordered separately along with the control box and site fitted.
DX coil is available from size 03, this means that for size 01 and 02 it is not possible to have DX coil.
The DX coil must be installed inside the unit along with its drip collection tray. Please follow the dedicated IOM for further information on the installation procedure.
DX coil is provided in left and right version based on unit version chosen. It is not possible to install a right (left) coil version if a left (right) unit has been selected.
External damper with spring return actuator are available as option and they can be required in case R32 refrigerant is used to be compliant with the IEC60335-2-40 ed. 7 standard.



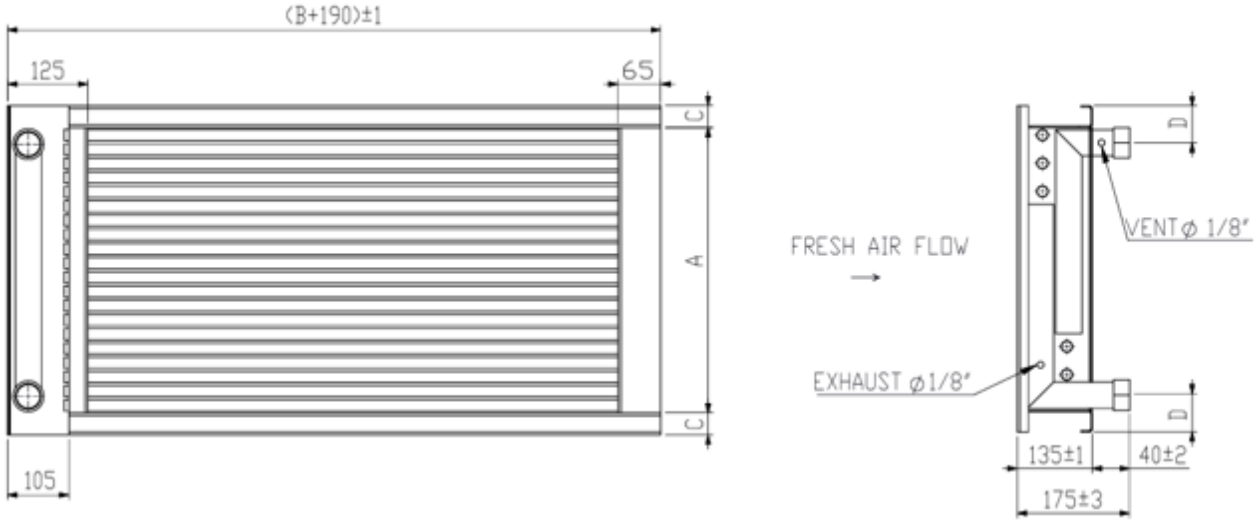
In the following tables, main technical info of the DX coil for Compact R are summarized.

Material Name	ARD03UDSAR	ARD04UDSAR	ARD05UDSAR	ARD06UDSAR
	ARD03UDSAL	ARD04UDSAL	ARD05UDSAL	ARD06UDSAL
Unit reference	ARB03R/L*	ARB04R/L*	ARB05R/L*	ARB06R/L*
Size	03	04	05	06
Type of coil	P22	P22	P22	P22
Rows	3	3	2	2
Finning space (mm)	2.5	2.5	2.5	2.5
Fluid Volume (dm^3)	2.01	2.6	2.38	2.78
Compatible EXV class [1]	63 80 100 125	80 100 125 140	80 100 125	100 125 140
Min power (kW) [2]	6.3	7.9	7.9	10.0
Max power (kW) [2]	15.4	21.0	15.4	21.0
A (mm)	425	475	550	575
B (mm)	500	600	700	810
C (mm)	16	16	16	16
Weight (kg)	10	12	12	14
Manifolds (mm)	16	22	22	22
Distributors (mm)	12	12	12	12

1. Electronic expansion valve (EXV) not supplied
2. Saturated evaporating temperature: 6°C. Air temperature: 27°C DB / 19°C WB

5.4.2. Water Coil

A cooling and heating water coil is available as accessory to guarantee the thermal treatment.
The water coil has to be installed inside the unit along with its drip collection tray. Water coil is provided in left and right version based on unit version chosen. It is not possible to install a right (left) coil version if a left (right) unit has been selected. Please follow the dedicated IOM for further information on the installation procedure.



In the following tables, the main technical information of the water coil for Compact R is summarised.

Material Name	ARD01UWSAR	ARD02UWSAR	ARD03UWSAR
	ARD01UWSAL	ARD02UWSAL	ARD03UWSAL
Unit reference	ARB01R/L*	ARB02R/L*	ARB03R/L*
Size	01	02	03
Type of coil	P3012	P3012	P3012
Rows	4	4	4
Finning space (mm)	2.5	2.5	2.5
Fluid Volume (dm^3)	2.9	4.2	4.9
Connection	¾"	¾"	¾"
A (mm)	300	360	420
B (mm)	360	500	500
C (mm)	26	23	18
Weight [1] (kg)	8	11	12
2-way water valve	ATV03CW2A	ATV04CW2A	ATV04CW2A
3-way water valve	ATV03CW3A	ATV04CW3A	ATV04CW3A

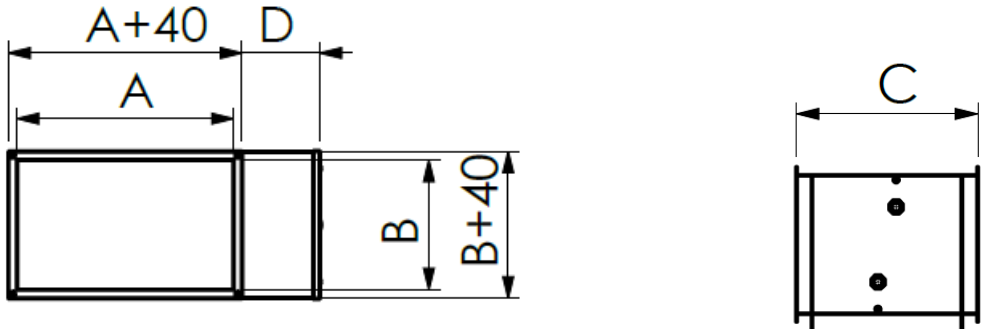
Material Name	ARD04UWSAR	ARD05UWSAR	ARD06UWSAR
	ARD04UWSAL	ARD05UWSAL	ARD06UWSAL
Unit reference	ARB04R/L*	ARB05R/L*	ARB06R/L*
Size	04	05	06
Type of coil	P3012	P3012	P3012
Rows	4	4	4
Finning space (mm)	2.5	2.5	2.5
Fluid Volume (dm^3)	5.8	8.2	9.6
Connection	¾”	1” ¼	1” ¼
A (mm)	450	450	570
B ()	600	700	810
C (mm)	28	21	18
Weight [1] (kg)	14	19	21
2-way water valve	ATV05CW2A	ATV05CW2A	ATV07CW2A
3-way water valve	ATV05CW3A	ATV05CW3A	ATV06CW3A

1. Empty weight

In addition, either a 2- or 3-way valves (ATV**CW2A, ATV**CW3A) has to be ordered along with modulating actuators (ATE00AMVA). Astra Web selection software will automatically add the actuator whenever the valve option is selected.

5.4.3. Water pre and post heating coil

A heating coil is available as accessory as pre, heating only and post heating. The coil is mounted outside the main module and it must be ducted.



The following table summarises the main technical data for the heating water coil.

Description	Heating Water Coil (ALD0*HWUA - ARD0*HWUA)
Geometry	P22 (from size 01 to size 03) and P32 (from size 04 to size 06)
Rows	2
Finning space (mm)	2.5mm

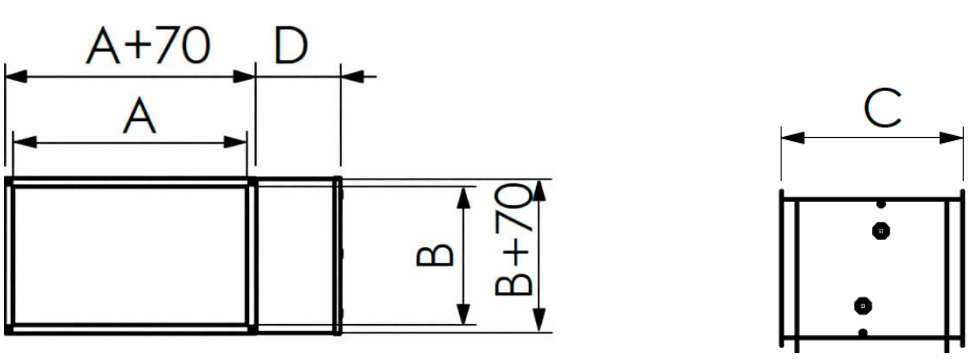
Material Name	Size	Fluid Volume (dm^3)	Connection	A (mm)	B (mm)	C (mm)	D (mm)	Weight [1] (kg)
ALD03HWUA	01	0,47	¾”	400	200	190	86	5
ARD02HWUA	02	0,73	¾”	500	250	190	86	7
ALD05HWUA	03	0,88	¾”	500	300	190	86	7
ARD04HWUA	04	1,04	¾”	600	300	190	86	8
ALD07HWUA	05	2,22	1”	700	400	190	86	11
ARD06HWUA	06	2,52	1”	800	400	190	86	13

1. Empty weight

In the Astra Web selection software for Compact R, the additional temperature probe (ALP00TEA) is automatically added when heating water coil is selected.

5.4.4. Electrical pre and post heating coil

A electric heater is available as accessory as pre-heating, heating only and post-heating. The coil is mounted outside the main module and it must be ducted.



Following table summarizes main technical data for the electric heater water coil.

Size	Material Name	Max Power Output (kW)	Electric Data	A	B	C	D	Weight (kg)
01	ARD01HEUA	4	230/1/50	400	200	500	165	18
02	ARD02HEUA	6	400/3/50	500	250	370	165	18
03	ARD03HEUA	7	400/3/50	500	300	370	165	20
04	ARD04HEUA	11	400/3/50	600	300	370	165	22
05	ARD05HEUA	15	400/3/50	700	400	370	165	25
06	ARD06HEUA	20	400/3/50	800	400	370	165	29

In the Astra Web selection software for Compact R, the additional temperature probe (ALP00TEA) is automatically added when electric heater is selected.

5.5. Valves and actuators

The regulating valves are needed when a water coil is selected. For each size, four types of valves are available, cooling or heating, two or three ways. Main info for the valves is summarized in the table below:

Material Name	Size	Cooling/Heating	2 or 3 ways	DN (mm)	PN (bar)	KVs (m^3/h)
ATV03CW2A	01	Cooling / Heating	2	15	40	2,5
ATV03CW3A	01	Cooling / Heating	3	15	40	2,5
ATV04CW2A	02	Cooling / Heating	2	15	40	4
ATV04CW3A	02	Cooling / Heating	3	15	40	4
ATV04CW2A	03	Cooling / Heating	2	15	40	4
ATV04CW3A	03	Cooling / Heating	3	15	40	4
ATV05CW2A	04	Cooling / Heating	2	20	40	6,3
ATV05CW3A	04	Cooling / Heating	3	20	40	6,3
ATV05CW2A	05	Cooling / Heating	2	20	40	6,3
ATV05CW3A	05	Cooling / Heating	3	20	40	6,3
ATV07CW2A	06	Cooling / Heating	2	25	40	10
ATV06CW3A	06	Cooling / Heating	3	20	40	10

The modulating actuator (ATE00AMVA) is automatically added in Astra when a valve is selected.

Torque	5 Nm
Control Type	2-10 V
Voltage AC/DC	AC/DC 24V
Degree of protection	IP54

5.6. Droplet eliminator

A droplet eliminator can be added when a cooling water or DX coil is used to avoid the risk of water droplets being carried over to the supply duct. A warning in the selection software appears whenever the project conditions require it. Please refer to the dedicated IOM for coils for further information. The table below summarises the main information about the droplet eliminator.

Material Name	Size	Lenght (mm)	Depth (mm)	Height (mm)
ARA01DEA	01	445	100	352
ARA02DEA	02	585		406
ARA03DEA	03	585		456
ARA04DEA	04	685		506
ARA05DEA	05	785		582
ARA06DEA	06	895		606

5.7. Dampers and actuators

External dampers for AHU isolation are available. They are classified as class 4 according to EN 1751 and can be installed on all four airflow connections simultaneously.

On the Astra web selection software, dampers can only be selected in pairs, for exhaust and outdoor or for fresh and return air flow, and the user can choose the type of actuator.

The table below summarises the material names for external dampers.

Size	01	02	03	04	05	06
Material Name	ALA03EDA	ARA02EDA	ALA05EDA	ARA04EDA	ALA07EDA	ARA06EDA

Please note the items in the table refer to one damper only (i.e., 1 ARA0*EDA → 1 external damper).
It is possible to select:

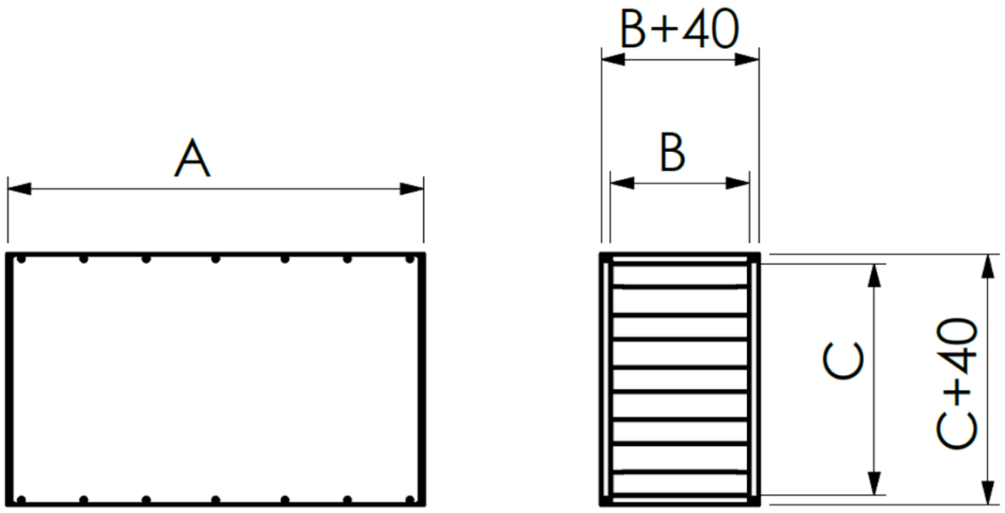
- Modulating actuator (ATE00AMDA)
- Spring return modulating actuator (AUE00ASDA)

External dampers with spring return actuators on the supply and return sides can be required in case R32 refrigerant is used to be compliant with the IEC60335-2-40 ed. 7 standard.

	ATE00AMDA	AUE00ASDA
Torque	2 Nm	2,5 Nm
Control Type	DC 2-10 V	DC 2-10 V
Voltage AC/DC	AC/DC 24V	AC/DC 24V
Degree of protection	IP20	IP42

5.8. Sound attenuator

Silencers for all four duct connections are available as accessories for each size. They are 900 mm long and rectangular, eliminating the need for duct transitions.



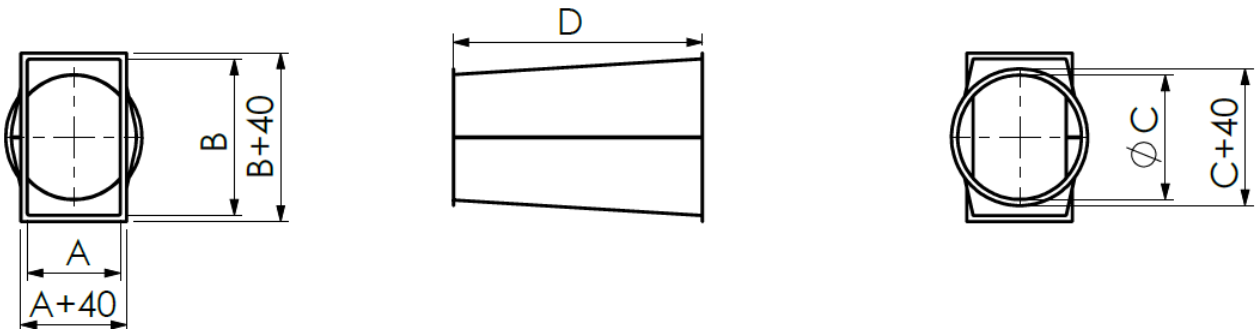
In the next tables, the main technical data are shown:

Material Name	Size	A (mm)	B (mm)	C (mm)	Weight [kg]
ALS0390A	01	900	200	400	28
ARS0290A	02	900	250	500	32
ALS0590A	03	900	300	500	33
ARS0490A	04	900	300	600	37
ALS0790A	05	900	400	700	47
ARS0690A	06	900	400	800	59

1. The pressure drop refers to nominal airflow. Please refer to the dedicated IOM for more details.

5.9 Duct transition

Duct transitions are useful when the installation requires circular connections. Compact L Duct connections are rectangular and through this accessory it is possible switch from rectangular to circular connections.



In the following table main info for transitions (dimensions, material name) are summarized.

Material Name	Size	A (mm)	B (mm)	C (mm)	D (mm)
ALA03RCA	01	200	400	250	450
ARA02RCA	02	250	500	315	450
ALA05RCA	03	300	500	400	450
ARA04RCA	04	300	600	400	450
ALA07RCA	05	400	700	500	450
ARA06RCA	06	400	800	500	450

5.10. Flexible joints

Flexible joints allow to absorb vibrations and prevent their transmission to the ductwork structure. They are strongly recommended to avoid any kind of problems due to vibrations.

Material Name	Size	A (mm)	B (mm)	C (mm)
ALA03FXB	01	200	400	150
ARA02FXB	02	250	500	150
ALA05FXB	03	300	500	150
ARA04FXB	04	300	600	150
ALA07FXB	05	400	700	150
ARA06FXB	06	400	800	150

5.11. Electrical accessories

5.11.1. Frost Switch

The frost switch (ALE00FSUA) protects the water coils from freezing. Whenever air temperature downstream the heating coil falls below 5°C, the unit stops to operate. A manual rearm is required for the unit to start operating again. The antifreeze logic works also when the AHU is in standby mode and the frost switch auto-resets if conditions allow a safe functioning of the AHU again. It can be mounted only after pre heating water coil (in the fresh duct) or in supply duct, just after the main module. Please refer to the dedicated IOM for more details.

5.11.2. Pressure transducer

A pressure transducer (AUE00PTUA) can be added from the option list in Astra web selection software for following functionalities:

- Pressure drop monitoring of additional supply filter (please refer to the dedicated IOM for more details.
- Variable air volume control in master and slave configuration

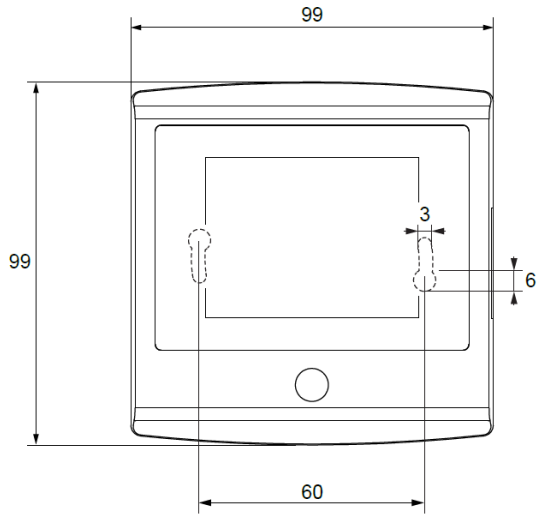
5.12. Control accessories

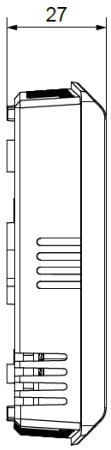
5.12.1 Touchscreen Room Thermostat

The room transmitter AUC00RTSA (optional) is equipped with temperature measurement and a 2.8" multicolour touchscreen display. It can be used to view measurement information, adjust setpoints, and perform basic functions such as unit on/off and summer/winter changeover. As an alternative, a premium version, AUC00RTPA, is also available, and allows additional measurements:

- Room Relative Humidity measurement
- Room CO2 concentration measurement

These transmitters are easy to install, configure, and communicate with the Compact R controller via the Modbus RTU protocol.





The following table summarises the main information on the Room Thermostat.

Technical data	Power supply [V]	24 Vac (22…26 V) / 24 Vdc (22...39 V)
	Average power consumption	< 1 VA
Temperature measurement	Range [°C]	0 – 50
	Accuracy [°C] (at 20 - 25 °C)	(2σ) ±0.3 °C
	Time constant [s]	120
CO_2 measurement	Range [ppm]	0 – 2000
	Accuracy [ppm] (at 15 - 35 °C / 0 - 80 %rH)	(2σ) ±40 ppm +2 % Max (3σ) ±50 ppm +2 %
Humidity measurement	Range [%]	0 – 100
	Accuracy [%] (at 20 - 25 °C / 30 - 75 %rH)	(2σ) ±2 %rH Max (3σ) ±3 %rH
Operating conditions	Ambient temperature [°C]	0 - 50
	Ambient humidity [%] (non-condensing)	20 - 60
Storage conditions	Temperature [°C]	10 - 35
	Humidity [%] (non-condensing)	20 – 60
Housing	Protection class	IP30
	Materials	ABS plastic
Mounting	On the wall surface or on a flush-mounting box (60 mm hole spacing).	
Colour	White models RAL9016	
Dimensions	Width [mm]	99
	Height [mm]	99
	Depth [mm]	27

5.12.1. Modbus and BACnet license

Modbus and BACnet connectivity are managed through software license. They can be selected on the Astra web selection software from the option list.

- Modbus license: AUC00MODA
- BACnet license: AUC00BACA

When a license is ordered, the customer receives an activation card with a code and contacts DAE to report it. A confirmation code will be provided to the customer by DAE and should be entered during commissioning.

5.13. Accessories for outdoor installation

5.13.1. Roof

The roof is available as an accessory, making the unit suitable for outdoor installation. It is made of Magnelis as the main unit's external paneling.

Size	01	02	03	04	05	06
Material Name	ARA01EKA	ARA02EKA	ARA03EKA	ARA04EKA	ARA05EKA	ARA06EKA

5.13.2. Rain Hood

Size	01	02	03	04	05	06
Material Name	ARA01RSA	ARA02RSA	ARA03RSA	ARA04RSA	ARA05RSA	ARA06RSA

6. Performance

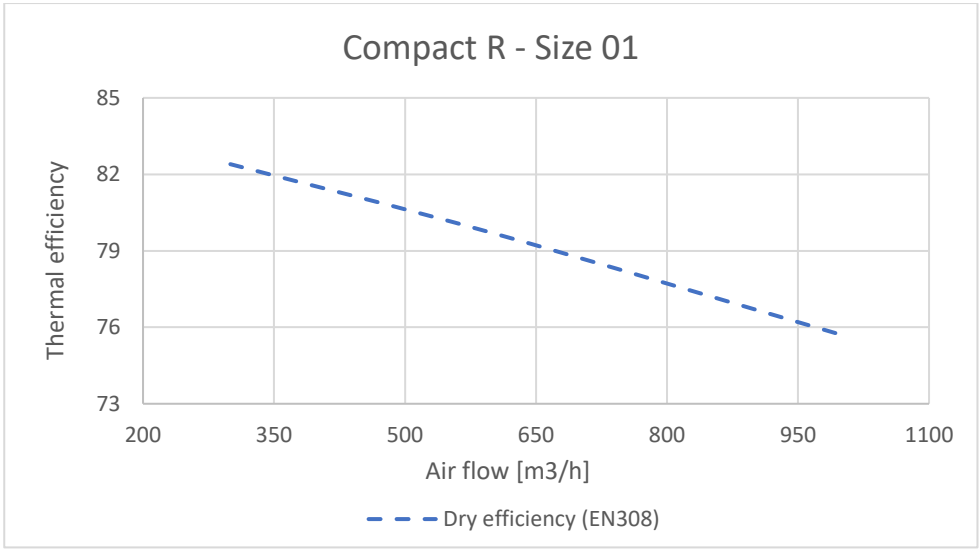
This section summarises the main technical data for each size: the temperature and humidity efficiency of the heat exchanger, and sound emission at different operating points. More details about the measurements performed are provided in the following paragraphs.

6.1. Thermal and humidity efficiency

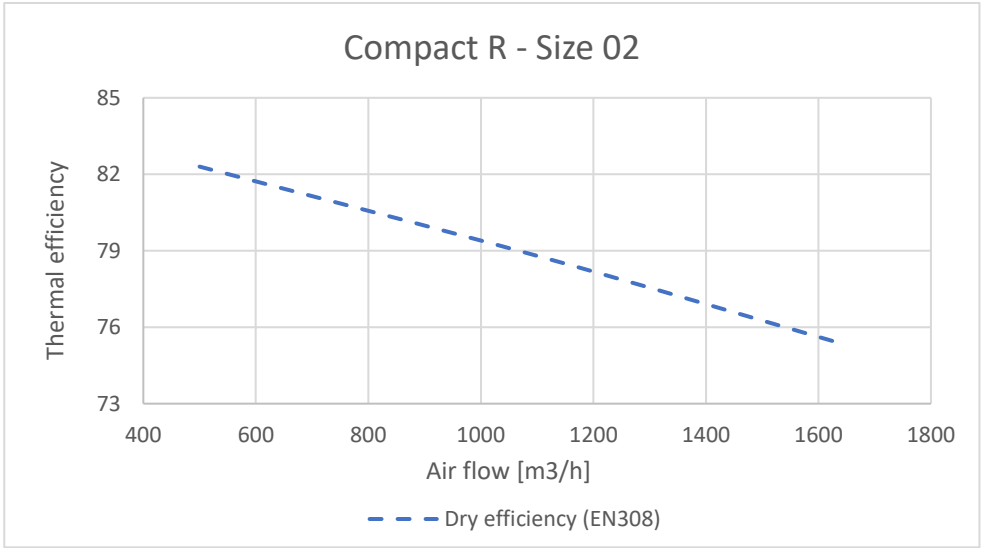
The charts indicate the temperature efficiency of the heat exchanger at the follwing conditions:

- Dry efficiency with air ratio 1:1 and according to EN308
- Humidity efficiency: -5°C/ RH 80% Outdoor and +20°C/50% Indoor

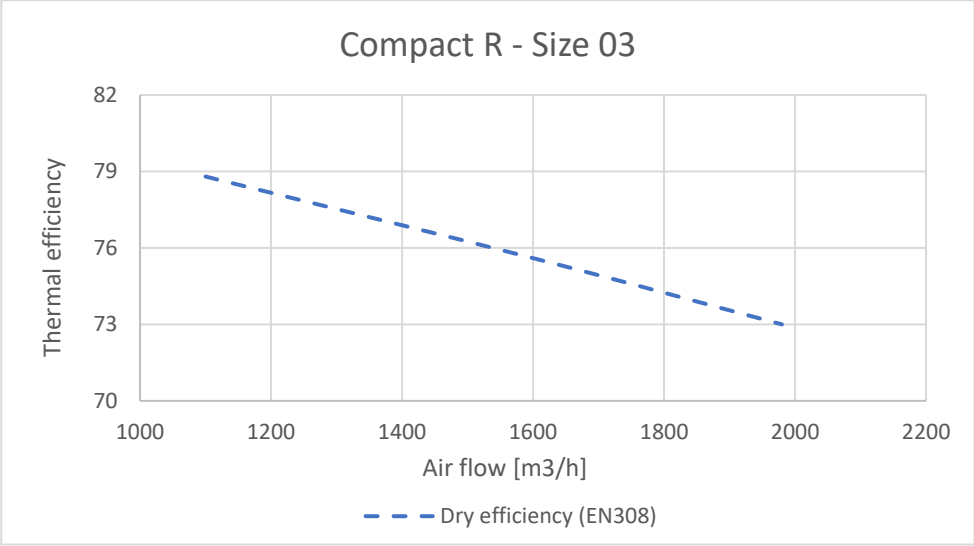
Thermal efficiency: Size 01



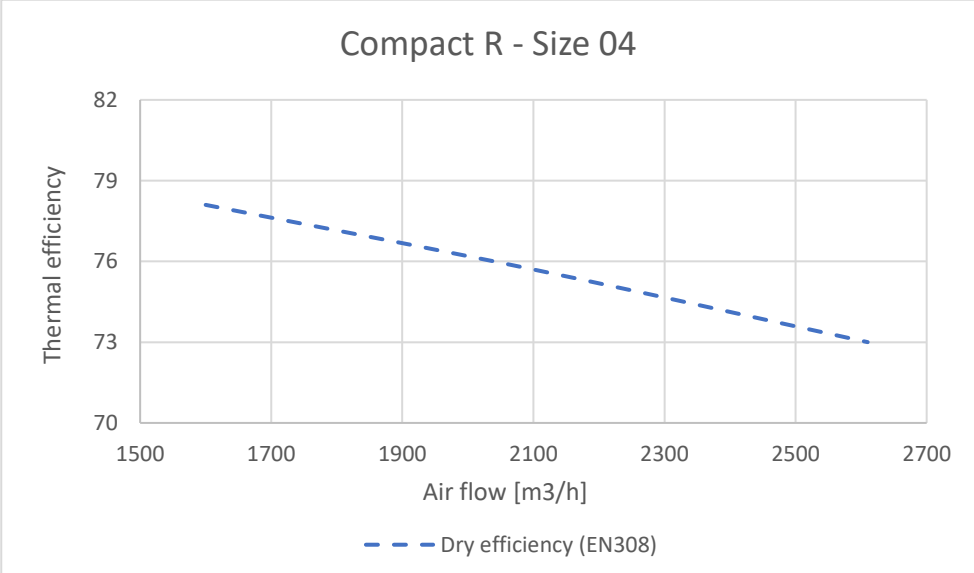
Thermal efficiency: Size 02



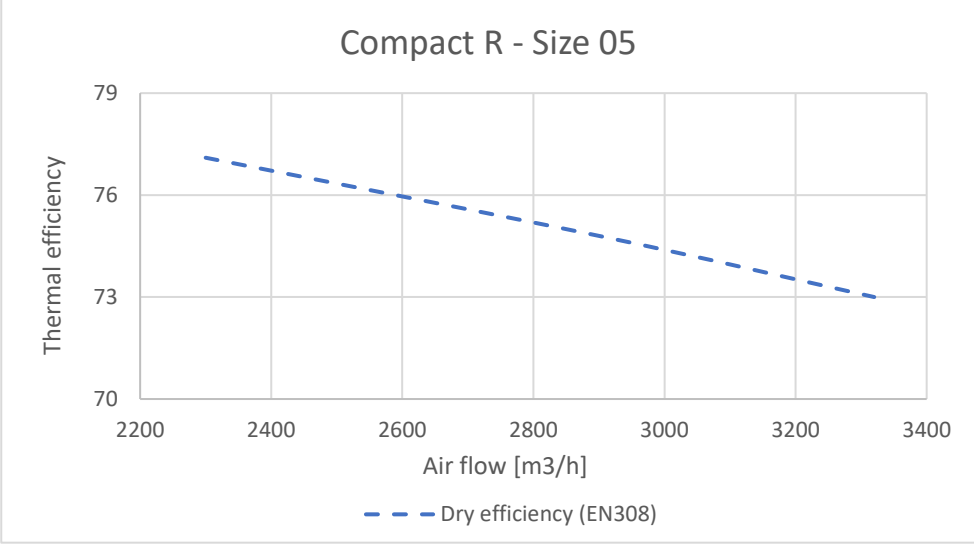
Thermal efficiency: Size 03



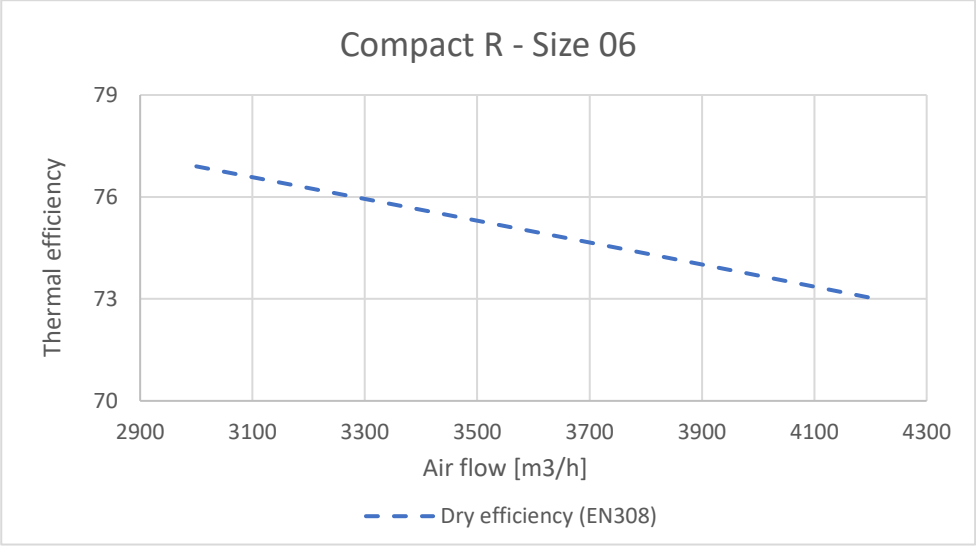
Thermal efficiency: Size 04



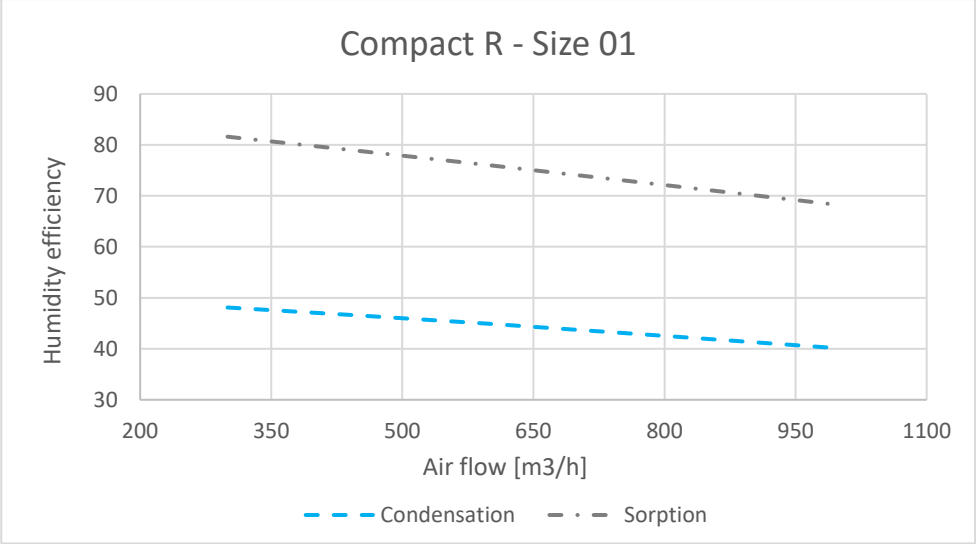
Thermal efficiency: Size 05



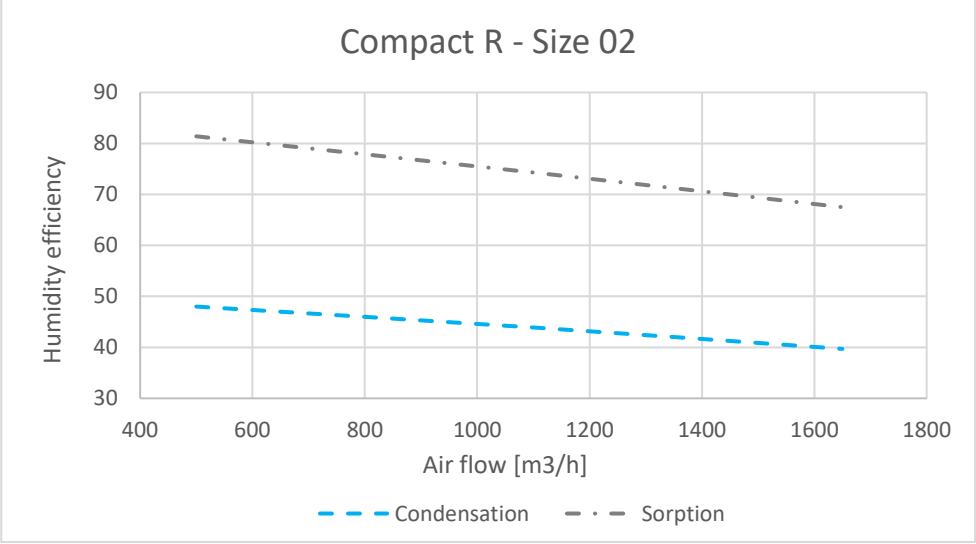
Thermal efficiency: Size 06



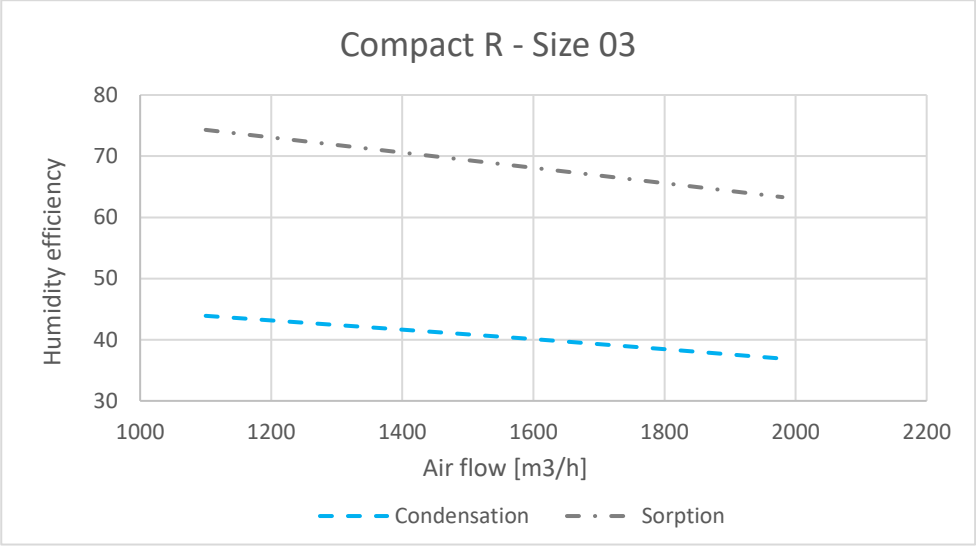
Humidity efficiency: Size 01



Humidity efficiency: Size 02



Humidity efficiency: Size 03



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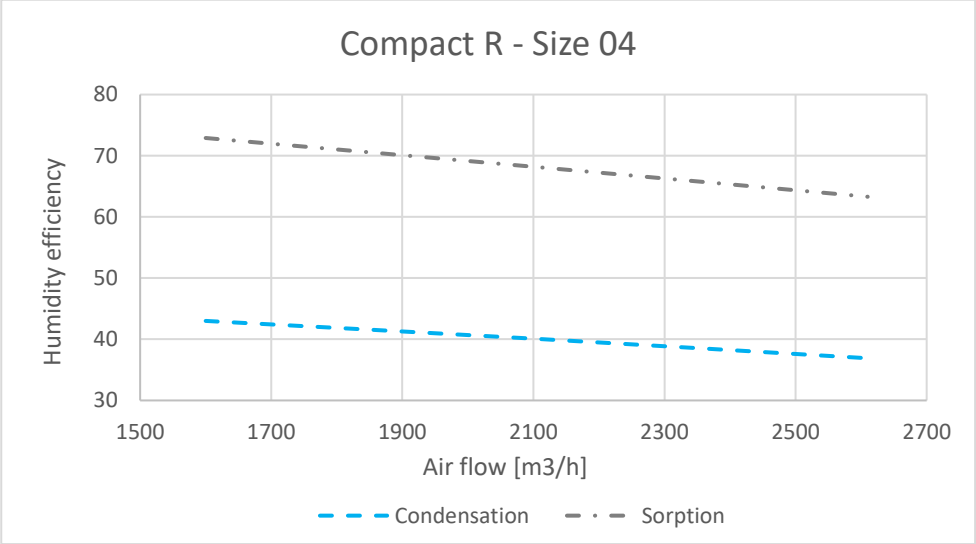

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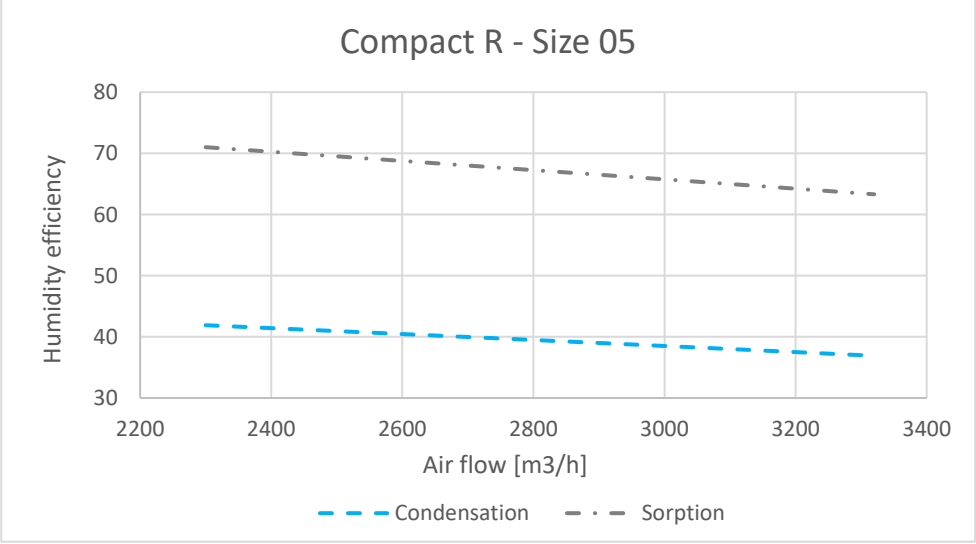

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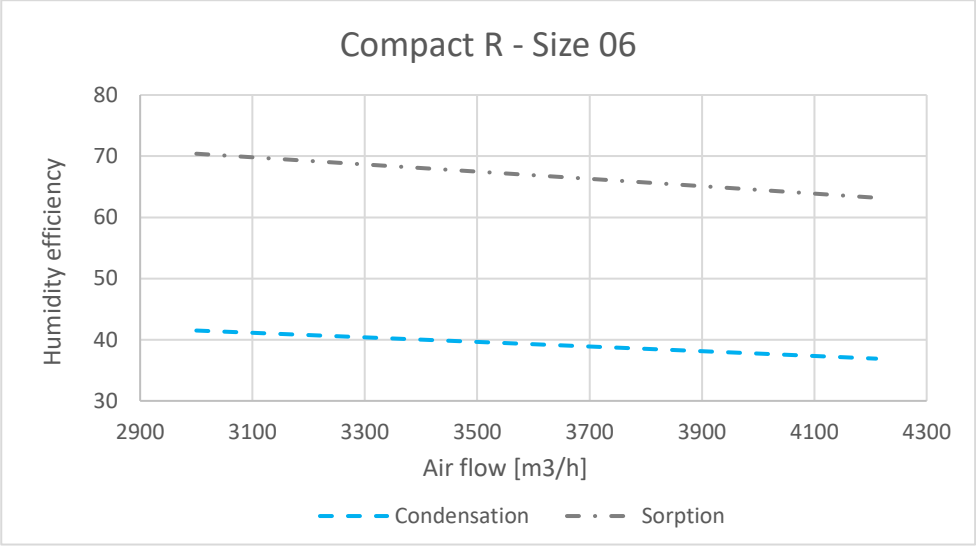

6.2. Sound emission

Surrounding power level: The airborne is the sound power emitted by the unit. The surrounding power level is the logarithmic sum of the two airborne values (supply and return).
Surrounding pressure level: It is calculated in accordance with EN3744. The evaluation is done at 1 meter from the source and with a directivity factor equal to 4, in non-reverberant field.
Sound Level Size 01

Air flow: 500 m³/h, ESP: 200 Pa

Point A	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	44	45	37	30	28	27	16	8	35
	Supply outlet	49	52	51	51	43	46	41	36	52
	Return inlet	45	45	38	31	29	28	17	9	36
	Return outlet	50	53	52	52	43	47	41	37	53
	Surrounding power	44	44	39	39	32	27	20	10	39
Surrounding pressure (dBA)										32

Air flow: 600 m³/h, ESP: 200 Pa

Point B	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	64	65	56	50	47	46	33	25	55
	Supply outlet	69	72	70	71	61	65	58	53	72
	Return inlet	64	64	56	50	47	46	33	24	55
	Return outlet	69	72	70	71	61	64	58	53	71
	Surrounding power	64	64	57	59	51	45	36	27	58
Surrounding pressure (dBA)										51

Air flow: 700 m³/h, ESP: 200 Pa

Point C	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	65	66	58	50	47	47	35	27	55
	Supply outlet	70	73	71	71	62	66	59	56	72
	Return inlet	65	66	57	50	47	47	35	27	55
	Return outlet	70	73	71	70	61	66	59	55	72
	Surrounding power	65	65	58	58	51	46	38	29	58
Surrounding pressure (dBA)										51

Air flow: 800 m³/h, ESP: 200 Pa

Point D	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	67	67	59	50	48	48	37	30	56
	Supply outlet	72	75	73	71	62	67	61	58	73
	Return inlet	67	67	59	50	47	48	37	30	56
	Return outlet	72	75	72	71	62	67	61	58	73
	Surrounding power	66	66	60	59	51	48	40	32	59
Surrounding pressure (dBA)										52

Allowances on declared data: +/- 3 dB(A)

Sound Level Size 02

Air flow: 900 m³/h, ESP: 200 Pa

Point A	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	65	67	58	48	47	46	33	24	55
	Supply outlet	70	74	72	69	61	64	58	52	71
	Return inlet	65	67	58	48	47	46	33	24	55
	Return outlet	70	74	72	69	61	64	58	52	71
	Surrounding power	73	66	55	52	42	42	36	26	54
Surrounding pressure (dBA)										47

Air flow: 1100 m³/h, ESP: 200 Pa

Point B	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	68	69	60	51	49	48	36	28	58
	Supply outlet	73	77	74	71	63	67	61	56	73
	Return inlet	68	69	60	51	49	48	36	28	57
	Return outlet	73	77	74	71	63	67	61	56	73
	Surrounding power	76	68	57	54	44	45	39	30	57
Surrounding pressure (dBA)										50

Air flow: 1300 m³/h, ESP: 200 Pa

Point C	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	70	70	62	53	52	50	39	32	59
	Supply outlet	75	78	75	73	66	69	64	61	75
	Return inlet	70	70	62	53	52	50	39	32	59
	Return outlet	75	78	75	73	66	69	63	60	75
	Surrounding power	79	70	59	56	46	47	42	34	59
Surrounding pressure (dBA)										52

Air flow: 1500 m³/h, ESP: 200 Pa

Point D	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	73	71	63	55	54	53	42	36	61
	Supply outlet	78	79	77	75	68	72	66	64	78
	Return inlet	73	71	63	54	54	53	42	36	61
	Return outlet	78	79	77	75	68	72	66	64	78
	Surrounding power	81	70	60	58	49	50	45	38	61
Surrounding pressure (dBA)										54

Allowances on declared data: +/- 3 dB(A)

Sound Level Size 03

Air flow: 1200 m³/h, ESP: 200 Pa

Point A	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	70	69	65	47	46	46	37	24	59
	Supply outlet	75	77	79	68	60	65	61	52	73
	Return inlet	70	69	65	47	46	46	37	24	59
	Return outlet	75	77	79	68	60	64	61	52	73
	Surrounding power	79	69	62	50	41	42	39	26	58
Surrounding pressure (dBA)										51

Air flow: 1400 m³/h, ESP: 200 Pa

Point B	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	72	68	66	47	47	47	38	26	59
	Supply outlet	77	76	79	68	62	66	62	54	74
	Return inlet	72	68	65	47	47	47	38	26	59
	Return outlet	77	76	79	68	61	66	62	54	74
	Surrounding power	81	68	62	51	42	43	41	28	58
Surrounding pressure (dBA)										51

Air flow: 1600 m³/h, ESP: 200 Pa

Point C	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	74	69	65	48	48	48	39	28	59
	Supply outlet	79	77	79	69	63	67	64	56	74
	Return inlet	74	69	65	48	48	48	39	28	59
	Return outlet	79	77	79	69	63	67	64	56	74
	Surrounding power	82	68	62	51	43	45	42	30	59
Surrounding pressure (dBA)										52

Air flow: 1800 m³/h, ESP: 200 Pa

Point D	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	75	70	65	49	50	49	41	30	60
	Supply outlet	80	78	79	70	64	68	65	58	75
	Return inlet	75	70	65	49	50	49	40	30	60
	Return outlet	80	78	78	70	64	68	65	58	75
	Surrounding power	84	69	62	52	44	46	43	32	60
Surrounding pressure (dBA)										53

Allowances on declared data: +/- 3 dB(A)

Sound Level Size 04

Air flow: 1900 m³/h, ESP: 200 Pa

Point A	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	65	69	65	49	48	47	40	28	59
	Supply outlet	67	72	77	68	65	70	65	56	75
	Return inlet	65	68	64	49	48	47	39	27	58
	Return outlet	67	72	75	67	64	69	64	56	74
	Surrounding power	70	63	59	50	45	47	43	30	55
Surrounding pressure (dBA)										48

Air flow: 2100 m³/h, ESP: 200 Pa

Point B	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	65	68	66	50	49	48	41	30	59
	Supply outlet	67	72	77	69	66	71	66	58	76
	Return inlet	65	67	64	49	49	48	41	29	58
	Return outlet	67	71	75	68	65	71	66	58	75
	Surrounding power	71	63	59	51	46	49	44	32	56
Surrounding pressure (dBA)										49

Air flow: 2300 m³/h, ESP: 200 Pa

Point C	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	66	68	66	50	50	49	43	32	60
	Supply outlet	68	72	76	70	67	72	67	60	76
	Return inlet	66	68	64	49	50	49	42	31	59
	Return outlet	68	72	75	69	67	72	67	60	76
	Surrounding power	71	64	59	52	47	50	45	34	56
Surrounding pressure (dBA)										49

Air flow: 2500 m³/h, ESP: 200 Pa

Point D	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	66	69	66	51	51	50	44	34	60
	Supply outlet	69	73	76	71	68	74	69	62	78
	Return inlet	66	68	65	51	51	50	44	34	60
	Return outlet	69	73	75	70	68	73	68	62	77
	Surrounding power	63	65	63	58	57	54	47	36	61
Surrounding pressure (dBA)										54

Allowances on declared data: +/- 3 dB(A)

Sound Level Size 05

Air flow: 2700 m³/h, ESP: 200 Pa

Point A	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	66	68	69	53	52	50	38	30	62
	Supply outlet	66	73	81	71	69	74	65	57	78
	Return inlet	66	68	68	53	52	50	38	29	61
	Return outlet	66	73	80	71	69	74	64	57	78
	Surrounding power	61	65	68	59	58	54	43	31	63
Surrounding pressure (dBA)										56

Air flow: 2900 m³/h, ESP: 200 Pa

Point B	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	66	66	69	54	53	51	39	31	62
	Supply outlet	66	71	81	72	70	75	66	58	79
	Return inlet	65	66	68	53	53	51	39	31	61
	Return outlet	65	71	80	71	70	75	65	58	79
	Surrounding power	60	62	68	59	59	56	44	32	64
Surrounding pressure (dBA)										57

Air flow: 3100 m³/h, ESP: 200 Pa

Point C	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	65	65	69	54	54	52	40	32	62
	Supply outlet	65	70	81	72	71	76	67	59	80
	Return inlet	65	64	69	54	54	52	40	32	62
	Return outlet	65	69	80	72	71	76	66	59	79
	Surrounding power	60	61	68	60	60	57	45	33	64
Surrounding pressure (dBA)										57

Air flow: 3300 m³/h, ESP: 200 Pa

Point D	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	65	64	69	55	55	53	41	33	62
	Supply outlet	66	69	80	73	71	77	68	61	80
	Return inlet	65	64	68	54	54	53	41	33	62
	Return outlet	65	68	80	72	71	77	68	60	80
	Surrounding power	60	60	67	60	60	57	46	34	64
Surrounding pressure (dBA)										57

Allowances on declared data: +/- 3 dB(A)

Sound Level Size 06

Air flow: 3500 m³/h, ESP: 200 Pa

Point A	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	64	63	68	54	54	52	41	33	61
	Supply outlet	64	67	79	72	71	77	68	60	80
	Return inlet	63	62	67	53	54	52	41	33	61
	Return outlet	64	67	78	71	71	76	67	59	79
	Surrounding power	67	59	62	54	51	54	46	33	59
Surrounding pressure (dBA)										52

Air flow: 3750 m³/h, ESP: 200 Pa

Point B	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	64	63	68	54	55	53	43	35	62
	Supply outlet	65	68	79	73	71	78	69	62	81
	Return inlet	64	62	68	54	54	53	43	34	62
	Return outlet	64	67	78	72	71	77	69	61	80
	Surrounding power	68	59	62	55	52	55	47	35	60
Surrounding pressure (dBA)										53

Air flow: 4000 m³/h, ESP: 200 Pa

Point C	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	65	63	69	55	56	54	44	36	63
	Supply outlet	66	68	79	73	72	79	70	63	82
	Return inlet	64	63	69	54	55	54	44	36	63
	Return outlet	65	67	79	73	72	78	70	63	81
	Surrounding power	69	59	62	56	52	56	48	37	60
Surrounding pressure (dBA)										53

Air flow: 4200 m³/h, ESP: 200 Pa

Point D	Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	Avg (dBA)
Sound power (dB)	Supply inlet	65	63	71	55	56	55	45	38	64
	Supply outlet	67	68	80	74	73	79	71	64	82
	Return inlet	65	63	70	55	56	55	45	37	63
	Return outlet	66	68	80	73	72	79	71	64	82
	Surrounding power	61	60	67	61	62	60	50	38	66
Surrounding pressure (dBA)										59

Allowances on declared data: +/- 3 dB(A)