



# REZNOR®

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## RTU

Packaged Air to Air Heat Pump

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# RTU

## Packaged Air to Air Heat Pump

Reznor's RTU range is composed of air to air heat pumps in packaged rooftop configurations, with various heat recovery options and gas fired heating coils available to maximize efficiency.

The high efficiency RTU is available in cooling only and reverse cycle modes to provide both heating and cooling.

### Model Range

RTU units come in different models with cooling and heat pump capacities from 18 to 361 kW.

### Features & Benefits

- > Acoustic jackets combined with insulated compressor compartments
- > Low noise variable speed condenser fans providing energy efficient operation and head pressure control
- > Low noise levels achieved through high performance fans and use of anti-vibration blocks for the compressor and refrigeration circuit assembly

- > Plug and play Carel controls, compatible with a range of BMS protocols including Modbus, BACnet and LonWorks
- > Design optimized for a reduced refrigerant charge of R410A
- > High energy efficiency at both full and part load to reduce operating costs
- > Centrifugal fans or optional EC plug fans for supply and extracted airflow
- > Active heat recovery option available to provide enhanced cooling and heat pump performance
- > Optional gas fired heating sections to increase seasonal efficiency.

## Controls

The Reznor RTU utilises Carel controls to provide automatic operation of cooling, ventilation, heating and heat recovery operation.

Additional control options include :

- > Remote control operation
- > Temperature and/or humidity sensors (up to 6 per unit)
- > Energy analyzer
- > Variable speed EC fans
- > Damper actuators
- > Electronic expansion valves
- > Digital-scroll or Inverter driven compressors
- > CO<sub>2</sub> or VOC sensors and control

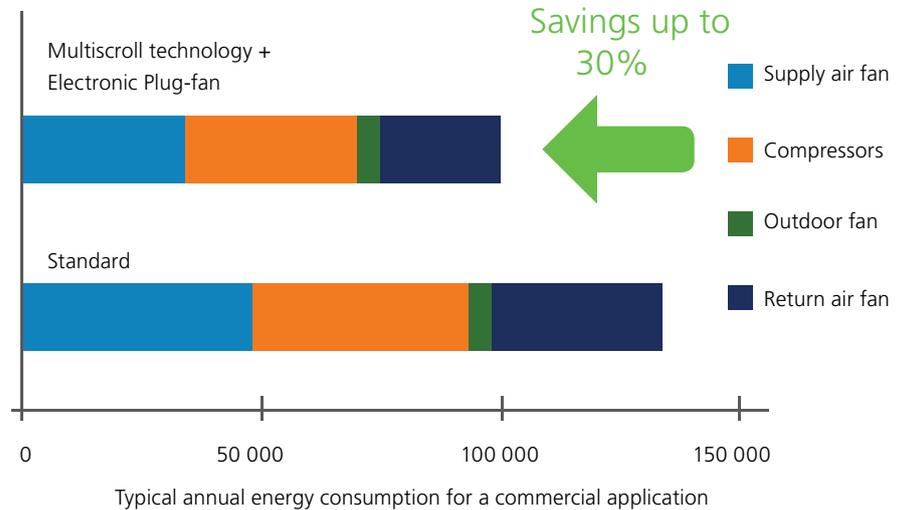
## Energy Efficiency - Multiscroll Technology

Multiscroll technology combined with electronic expansion valves (EEV) and EC plug fans increase the system's energy efficiency and provide a resilient and reliable solution.

Thanks to the RTU's ability to produce its output in smaller increments, spaces with a variable occupancy rate and changing conditions during the day, such as shopping centres, can benefit from energy savings up to 30%.

The seasonal efficiency of multiscroll units in tandem from four scroll AC compressors is similar to the equipment with inverter compressors. For units with less than four compressors, high ESEER is achieved thanks to Digital Scroll technology with refrigerant flow control.

## Annual energy consumption kWh



## Comfort - Air Quality and Low Level Noise

The RTU range of units come equipped as standard with high efficiency G4 class air filters. Fresh air & ventilation options provide a high level of indoor air quality and help ensure a clean and comfortable air conditioned space.

Optional pre-filters and F6 to F9 filters can be provided.

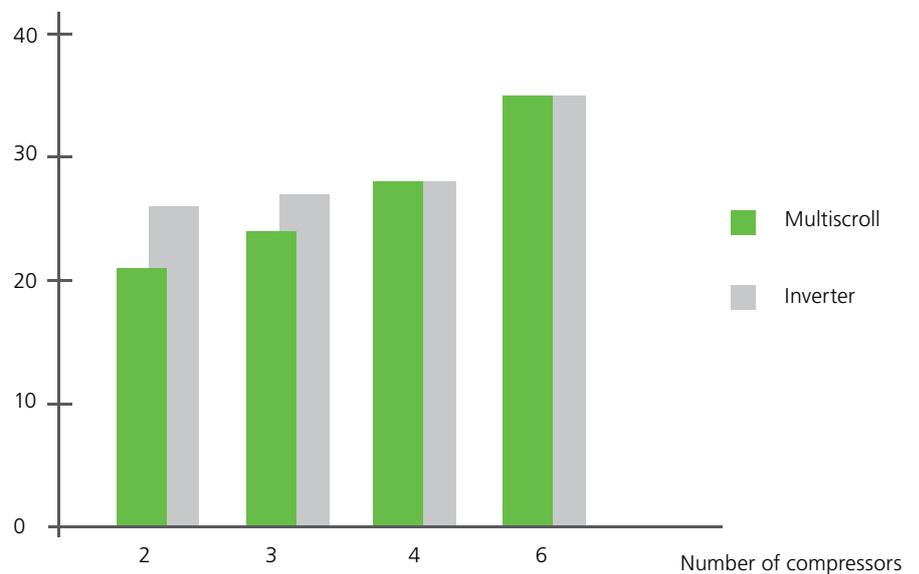
The RTU rooftop can be equipped with Axitop diffusers for the outdoor fans, improving operational efficiency and lowering noise levels.

## Gas fired heating

Optional gas fired sections are available for both cooling only and heat pump RTU units. They can serve as a standalone heat source, or as an additional heat source to the heat pump in order to increase seasonal efficiency in colder seasons.

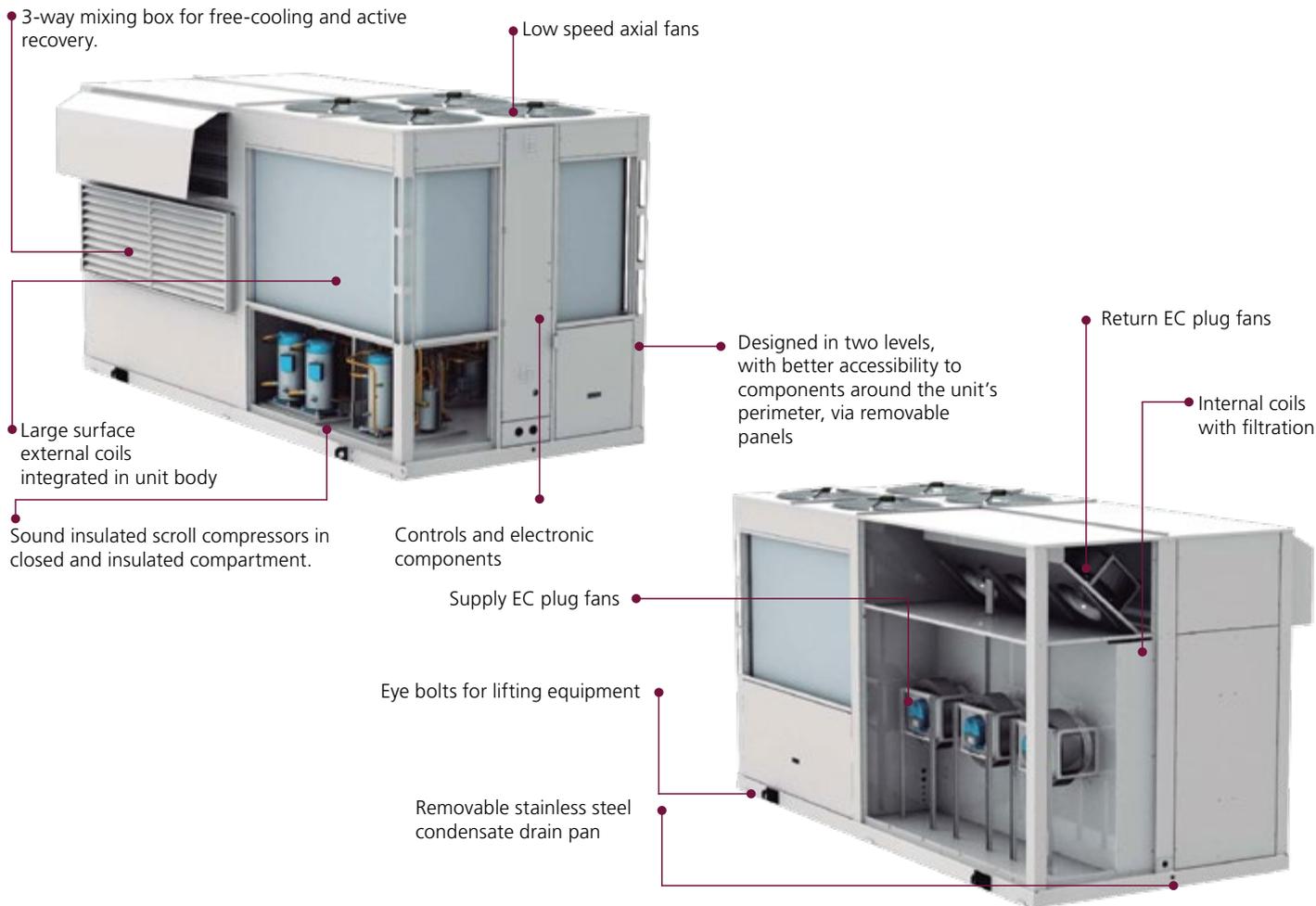
Reznor offers a range of standard efficiency gas fired heating sections, as well as high efficiency low NOx sections that have modulating burner control and thermal efficiencies up to 105%

## Seasonal efficiency comparison



# REZNOR®

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### air quality

- ✓ G4 filters
- F-class filters
- double F-class filters
- dirty filter indication
- CO<sub>2</sub> sensor duct/ambient
- VOC sensor duct/ambient
- smoke detector
- room temperature sensor



### ventilation

- ✓ condensing pressure control
- supply/return EC plug fan
- external axial EC fans
- Axitop diffuser



### anti-corrosion

- Alu fins with polyurethane coating
- copper-copper battery
- Alucoat fins - CrMg alloy
- Blygold coating



### energy

- electronic expansion valve
- active energy recovery
- enhanced active recovery
- active energy recovery + digital scroll
- dynamic recovery
- static energy recovery with rotary heat exchanger
- total/partial heat recovery
- thermal/enthalpic/thermal-enthalpic free cooling



### installation

- ✓ internal condensate tray stainless steel
- ✓ external condensate tray
- external condensate tray with electric heater
- auxiliary hot water coil and 3-way valve
- auxiliary gas fired coil
- auxiliary 2-phase electric heater
- antivibration mounts



### control

- ✓ Carel
- ✓ PGD terminal
- RS485 card for Modbus
- master-slave management
- Plant Visor / Watch PRO
- energy meter
- BACnet / LonWorks communication

✓ included as standard

● optionally available

### Active Energy Recovery [AER]

Active Energy Recovery is a system of extraction air heat recovery to comply with the requirements of the regulations for energy efficiency in buildings and heating facilities. With Active Recovery, an additional cooling circuit is integrated in the unit.

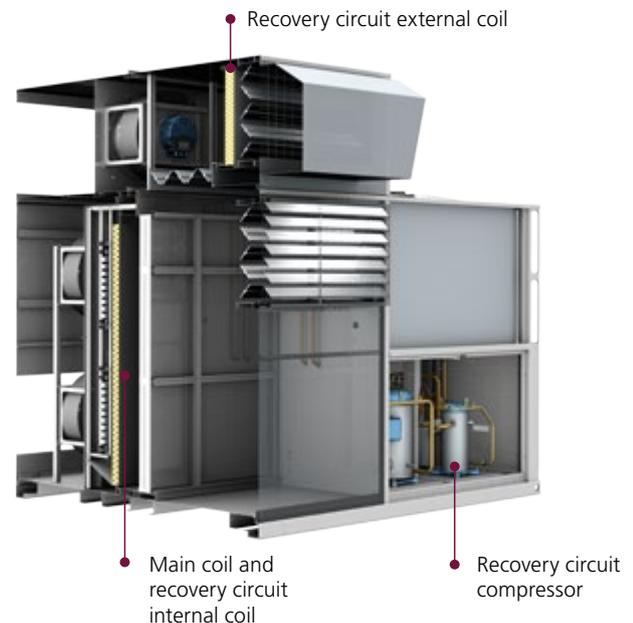
This additional circuit allows an increase in nominal capacity, without having to increase the size of the unit itself.

Furthermore as this additional circuit exchanges heat between the fresh air and extraction air in favourable conditions of temperature and humidity, a high cooling performance is obtained.

Therefore, the nominal performance of the unit and seasonal performances under partial load are improved.

Active Recovery is available in the standard version, in the enhanced version (with higher power recovery compressor) and in the version with Digital Scroll compressor(s).

### up to 50% efficiency boost



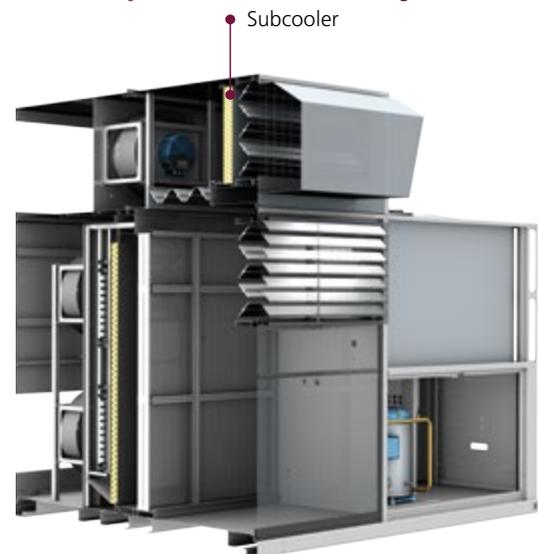
### Dynamic Energy Recovery [DER]

Dynamic Energy Recovery (or "Passive Energy Recovery") is another system of energy recovery from extraction air to comply with regulations for energy efficiency in buildings and heating facilities. This is done through an additional exchange coil (subcooler), placed in serie with the air condenser unit. This reduces the condensing pressure of the unit to operate with an average air temperature the most advantageous, and therefore achieves a significant improvement of unit efficiency by reducing the power consumption of compressors.

Furthermore, the advantage of this system over other types of recovery systems lies in avoiding higher power inputs of supply and return fans, as the high pressure drop of plate or rotary heat exchangers would need to be compensated.

Dynamic Energy Recovery is available for rooftops with return fans or extraction fan, and so it is a very convenient energy recovery system for both commercial and industrial applications.

### up to 20% efficiency boost



## Free cooling & heat recovery options

[AER] Active Energy Recovery using a separate DX circuit to recover heat, suitable for extract rates between 20 and 100% of airflow.

[AER+] Active Energy Recovery + Digital Scroll: this is Active energy recovery by a compressor group with Digital Scroll technology and EC fan.

[DER] Passive Energy Recovery. A subcooler in the DX circuit increases the unit's output by 15% without any additional compressors.

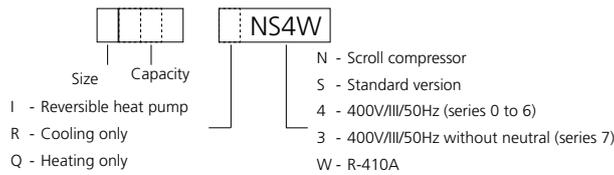
[ERH] Free Cooling using a two or three way mixing box, with dampers and automatic controls to use the outside air for free cooling.

[ACS] Partial condensation energy recovery. Includes a de-superheater that allows using recovered heat for sanitary hot water.

[MSC] Multiscroll refrigerant circuit. Available option for series 2000 and 3000, with refrigerant circuit with two compressors in tandem, increases seasonal energy efficiency

[P] Heat recovery wheel: as the wheel rotates through the exhausted air, it absorbs energy which it transfers to the supply air

Coding:



400V-3 ph-50Hz

Technical Data											
Series / Model	0017	0020	0022	0026	0030	0035	0039	1039	1044	1041	
<b>COOLING ONLY VERSION (R)</b>											
Cooling capacity (kW) (1)	17.8	20.7	23.1	25.8	30.5	34.2	37.5	41.3	46.2	42.5	
Power input (kW) (2)	5.6	6.5	7.1	7.7	9.2	10.9	11.9	12.48	13.3	12.2	
EER	3.6	3.6	3.6	3.7	3.6	3.7	3.6	3.2	3.4	3.4	
<b>HEAT PUMP VERSION (I)</b>											
Cooling capacity (kW) (1)	17.7	20.6	23.0	25.6	30.3	33.9	37.1	40.6	46.0	41.6	
Power input (kW) (2)	5.6	6.5	7.1	7.7	9.2	10.9	11.9	12.88	13.9	13.2	
EER	3.6	3.6	3.6	3.7	3.6	3.7	3.6	3.15	3.3	3.2	
Heating capacity (kW) (3)	18.8	21.6	24.4	27.1	32.2	37.3	41.3	40.4	47.0	42.0	
Power input (kW) (2)	5.2	5.8	6.9	7.1	8.4	10.6	11.7	11.7	13.8	12.9	
COP	4.1	4.2	3.9	4.1	4.1	4.0	4.0	3.5	3.4	3.3	
Air flow (m <sup>3</sup> /h)	Indoor unit	3300	3700	4000	4600	5100	6000	6800	6800	7400	6800
	Outdoor unit	14400	14400	14000	14000	14000	20000	20000	20000	20000	20000
Indoor nom. available press. (Pa)	80	80	100	100	100	100	100	100	100	100	
Number of compressors / circuits	1/1 *	1/1 *	1/1 *	1/1 *	1/1 *	1/1 *	1/1 *	1/1 *	1/1 *	2/1	
Number of control stages	1	1	1	1	1	1	1	1	1	2	
Weight (kg)	489	495	504	521	538	561	587	641	682	660	
Sound pressure level dB(A) (4)	49	50	50	52	55	57	60	57	58	56	

Technical Data											
Series / Model	1045	1050	2050	2060	3070	3080	4090	4095	4100	5120	
<b>COOLING ONLY VERSION (R)</b>											
Cooling capacity (kW) (1)	47.1	51.9	52.6	66.4	74.3	80.8	95.5	95.3	105.8	123.6	
Power input (kW) (2)	13.4	16.1	16.8	18.5	20.8	23.4	27.6	27.4	31.2	35.4	
EER	3.4	3.2	3.1	3.5	3.5	3.4	3.4	3.3	3.3	3.3	
<b>HEAT PUMP VERSION (I)</b>											
Cooling capacity (kW) (1)	45.9	50.8	52.2	60.1	71.3	77.1	91.4	90.4	99.8	118.9	
Power input (kW) (2)	13.4	16.4	16.8	18.5	20.8	23.4	27.6	27.4	31.2	40.2	
EER	3.3	3.1	3.0	3.1	3.2	3.1	3.1	3.1	3.1	2.9	
Heating capacity (kW) (3)	47.6	53.1	54.2	62.1	73.4	79.6	92.4	93.7	103	118.9	
Power input (kW) (2)	14.8	14.8	15.0	17.9	20.6	23.0	27.0	28.9	31	34.5	
COP	3.2	3.2	3.5	3.5	3.6	3.5	3.4	3.2	3.3	3.4	
Air flow (m <sup>3</sup> /h)	Indoor unit	7400	8800	8900	10300	12000	13300	15400	15400	17700	19800
	Outdoor unit	20000	20000	25000	24000	26000	26000	36000	36000	36000	56000
Indoor nom. available press. (Pa)	100	120	120	120	120	120	150	150	150	150	
Number of compressors / circuits	2/1	2/1	2/2 *	2/2 *	2/2 *	2/2 *	2/2 *	4/2	4/2	4/2	
Number of control stages	2	2	2	2	2	2	2	4	4	4	
Weight (kg)	694	732	948	1075	1155	1210	1355	1419	1560	2024	
Sound pressure level dB(A) (4)	57	57	57	57	58	57	58	58	60	61	

Technical Data											
Series / Model	5135	5140	5150	5170	6200	6230	7260	7300	7330	7360	
<b>COOLING ONLY VERSION (R)</b>											
Cooling capacity (kW) (1)	144.0	149.8	159.8	182.1	208.9	230.5	270.4	299.8	325.3	350.7	
Power input (kW) (2)	41.7	43.8	45.8	57.5	65.3	72.7	84.7	93.8	106.1	118.2	
EER	3.3	3.3	3.3	3.2	3.1	3.1	3.1	3.1	3.1	3.0	
<b>HEAT PUMP VERSION (I)</b>											
Cooling capacity (kW) (1)	134.0	144.4	155.1	173.4	200.6	218.7	261.2	288.6	313.7	336.6	
Power input (kW) (2)	45.1	48.9	49.5	60.0	65.3	78.5	88.8	99.5	111.5	123.4	
EER	2.9	3.0	3.1	3.1	3.1	2.9	2.9	2.9	2.8	2.7	
Heating capacity (kW) (3)	142.4	149.1	158.7	183.2	210.2	234.1	286.6	308.3	335.1	361.4	
Power input (kW) (2)	40.8	43.7	46.4	53.4	63.7	73.7	79.8	85.9	92.4	99.3	
COP	3.4	3.4	3.4	3.7	3.3	3.2	3.6	3.6	3.6	3.6	
Air flow (m <sup>3</sup> /h)	Indoor unit	22700	23500	24900	28600	31900	36000	40000	45000	48000	51000
	Outdoor unit	56000	56000	56000	76000	76000	76000	118000	118000	118000	118000
Indoor nom. available press. (Pa)	150	150	150	150	150	150	175	175	175	175	
Number of compressors / circuits	4/2	4/2	4/2	4/2	4/2	4/2	6/3	6/3	6/3	6/3	
Number of control stages	4	4	4	4	4	4	6	6	6	6	
Weight (kg)	2093	2223	2140	2285	2579	2646	3660	3765	3915	3955	
Sound pressure level dB(A) (4)	62	62	61	61	64	65	68	69	70	70	

(1) Nominal cooling capacity for indoor air temp 27°C/50% RH and outdoor air temp 35°C according to EN 14511:2013

(2) Power input by the compressor and fans of the outdoor unit in standard mounting equipment.

(3) Nominal heating capacity for indoor air temp 20°C and outdoor air temp 7°C DB/6°C WB according to EN 14511:2013.

(4) Sound pressure level in dB(A) measured in free field at 10 m distance from the source, directivity 2 and 1.5 m from ground.

## Heating and cooling capacities of Active Energy Recovery circuit if applicable

### Capacity @ 20% extracted air

Technical Data										
Series / Model	0017	0020	0022	0026	0030	0035	0039	1039	1044	1041
Cooling capacity (kW) (1)	24.5	28.9	30.2	33.0	41.1	43.2	47.0	50.3	58.0	51.6
Heating capacity (kW) (3)	25.0	29.6	31.0	33.7	42.2	44.0	48.0	52.2	62.4	55.5

Technical Data										
Series / Model	1045	1050	2050	2060	3070	3080	4090	4095	4100	5120
Cooling capacity (kW) (1)	57.1	63.2	65.8	74.3	90.4	95.0	106.5	104.2	126.1	148.1
Heating capacity (kW) (3)	63.2	65.7	68.4	81.1	97.6	103.7	114.9	115.1	134.4	157.4

Technical Data										
Series / Model	5135	5140	5150	5170	6200	6230	7260	7300	7330	7360
Cooling capacity (kW) (1)	168.1	183.4	192.8	215.4	254.4	262.0	308.3	329.1	351.9	374.5
Heating capacity (kW) (3)	184.8	194.9	211.5	242.5	274.3	279.0	328.3	350.5	371.2	389.8

### Capacity @ 40% extracted air

Technical Data										
Series / Model	0017	0020	0022	0026	0030	0035	0039	1039	1044	1041
Cooling capacity (kW) (1)	25.7	30.4	31.7	34.7	43.2	45.4	49.4	52.9	60.9	54.2
Heating capacity (kW) (3)	25.2	29.8	31.1	33.9	42.4	44.2	48.2	52.5	62.7	55.8

Technical Data										
Series / Model	1045	1050	2050	2060	3070	3080	4090	4095	4100	5120
Cooling capacity (kW) (1)	60.0	65.2	69.1	78.1	95.0	99.8	111.9	109.5	132.5	155.6
Heating capacity (kW) (3)	63.5	67.2	68.7	81.5	98.1	104.2	115.5	115.7	135.1	158.2

Technical Data										
Series / Model	5135	5140	5150	5170	6200	6230	7260	7300	7330	7360
Cooling capacity (kW) (1)	176.6	192.7	202.6	226.3	267.3	275.3	324.0	345.8	369.1	393.5
Heating capacity (kW) (3)	185.7	195.9	212.6	243.7	275.7	280.4	330.0	352.2	382.6	414.1

### Capacity @ 60% extracted air

Technical Data										
Series / Model	0017	0020	0022	0026	0030	0035	0039	1039	1044	1041
Cooling capacity (kW) (1)	28.9	34.1	35.6	38.9	48.5	50.9	55.4	59.3	68.4	60.8
Heating capacity (kW) (3)	29.4	34.8	36.4	39.6	49.6	51.7	56.4	61.6	71.2	64.1

Technical Data										
Series / Model	1045	1050	2050	2060	3070	3080	4090	4095	4100	5120
Cooling capacity (kW) (1)	67.3	75.2	77.6	87.6	106.6	112.0	125.5	122.8	148.7	174.6
Heating capacity (kW) (3)	72.6	78.9	79.7	92.8	111.0	120.4	138.3	142.8	155.0	180.5

Technical Data										
Series / Model	5135	5140	5150	5170	6200	6230	7260	7300	7330	7360
Cooling capacity (kW) (1)	198.2	216.2	227.3	253.9	299.9	308.9	363.4	388.0	409.7	431.4
Heating capacity (kW) (3)	212.3	225.2	240.7	274.3	315.0	318.8	375.6	399.6	420.05	440.5

\* Rooftop units with 1 circuit / 1 compressor & 2 circuits / 2 compressors are optionally available with compressors in tandem

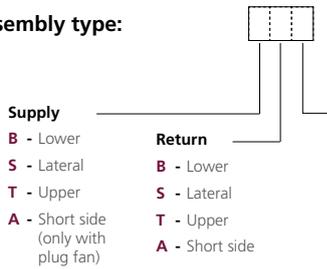
(1) Nominal cooling capacity for indoor air temp 27°C/50% RH and outdoor air temp 35°C according to EN 14511:2013

(2) Power input by the compressor and fans of the outdoor unit in standard mounting equipment.

(3) Nominal heating capacity for indoor air temp 20°C and outdoor air temp 7°C DB/6°C WB according to EN 14511:2013.

(4) Sound pressure level in dB(A) measured in free field at 10 m distance from the source, directivity 2 and 1.5 m from ground.

Assembly type:



Supply

- B - Lower
- S - Lateral
- T - Upper
- A - Short side (only with plug fan)

Return

- B - Lower
- S - Lateral
- T - Upper
- A - Short side

Assembly type

- 0 - Standard
- B - Axial return fan
- D - Passive recovery
- F - Active recovery with return fan
- Z - EC plug fan return
- A - Two way mixing box
- C - Centrifugal return
- E - Axial extraction
- P - Heat wheel exchanger
- T - External air intake

Supply air

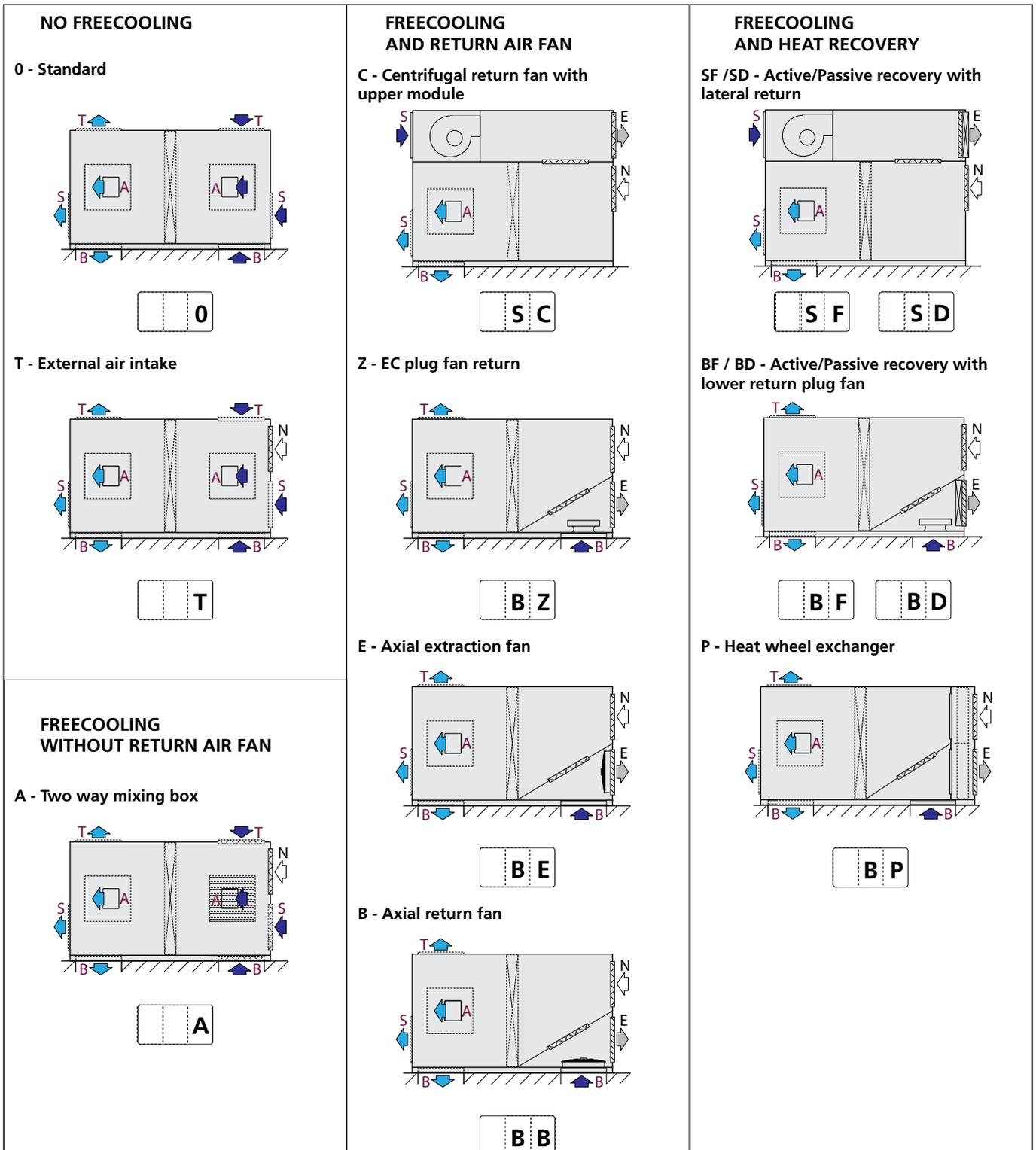
Return air

Fresh air

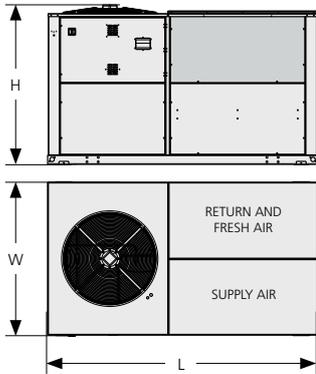
Extracted air

Adjustable dampers

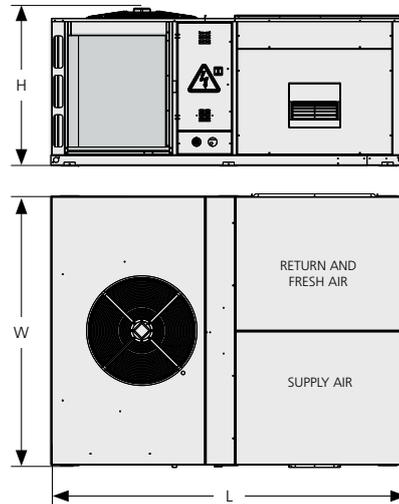
Pressure relief damper



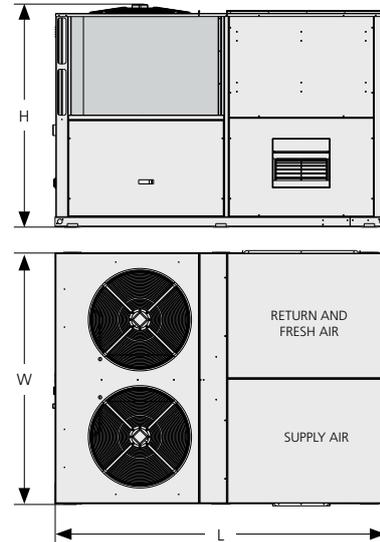
### Dimensions: series 0



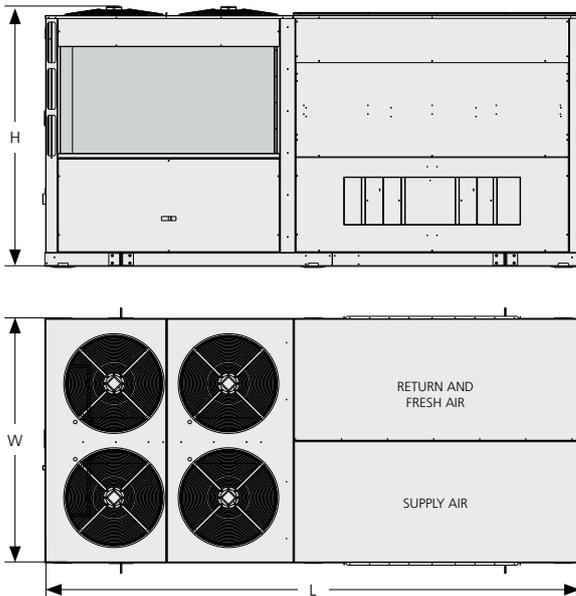
### series 1



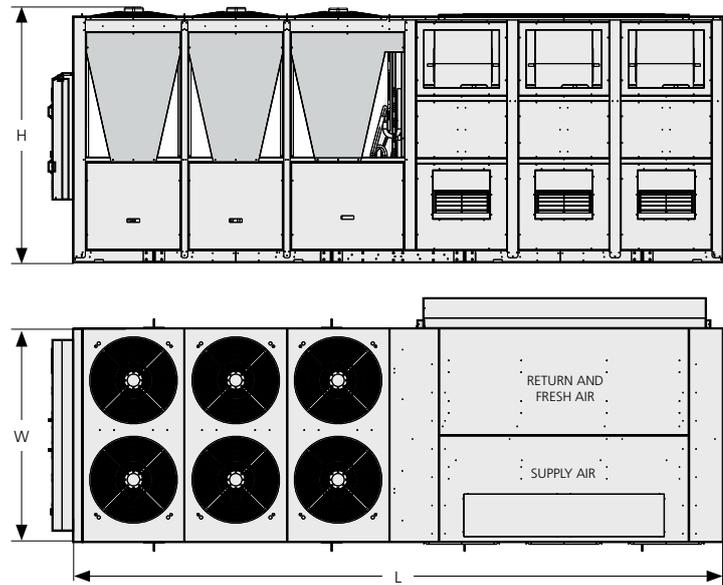
### series 2-4



### series 5-6



### series 7



### Dimensions (mm)

Model	Series 0	Series 1	Series 2	Series 3	Series 4	Series 5	Series 6	Series 7
L	2400	2755	2755	2755	3055	4575	4575	6360
W	1370	2100	2100	2100	2100	2100	2100	2107
H	1432	1230	1608	1861	1862	2232	2497	2497

### Dimensions (mm) with upper module

Model	Series 0	Series 1	Series 2	Series 3	Series 4	Series 5	Series 6	Series 7
L	2400	2755	2755	2755	3055	4575	4575	6360
W	1370	2100	2100	2100	2100	2100	2100	2107
H	2052	1832	2232	2488	2488	2497	2497	2497

# RTU selection

Please photocopy page and send through any enquiries to [reznorsales@nortek.com](mailto:reznorsales@nortek.com)

Customer name ..... Date.....

Project reference .....

Application Type:		Version		Mounting Position			
Cooling Only	<input type="checkbox"/>	HP: Heating and cooling	<input type="checkbox"/>	Standard	<input type="checkbox"/>	Floor	<input type="checkbox"/>
Cooling and Gas Fired	<input type="checkbox"/>	Dual: HP and Gas Fired	<input type="checkbox"/>	Free cooling	<input type="checkbox"/>	Roof	<input type="checkbox"/>
				Recovery	<input type="checkbox"/>		

## Airflow information

Supply airflow ..... m<sup>3</sup>/s or m<sup>3</sup>/h  
 Fresh airflow / air rate ..... m<sup>3</sup>/s or m<sup>3</sup>/h  
 Recirculation airflow / air rate ..... m<sup>3</sup>/s or m<sup>3</sup>/h  
 External static pressure on return duct ..... Pa  
 External static pressure on supply duct ..... Pa

## Cooling mode design conditions

Unit total cooling capacity ..... kW  
 Unit sensible cooling capacity ..... kW  
 Indoor air dry bulb ..... °C  
 Indoor air wet bulb / relative humidity ..... °C ..... %  
 Outdoor air dry bulb ..... °C

## Heating mode design conditions

Heating capacity ..... kW  
 Auxiliary heat type (if applicable) Electric heat  Gas heat  LPHW   
 Gas type (if applicable) Natural gas G20  Natural gas G25  Propane G31   
 Indoor air dry bulb ..... °C  
 Outdoor air dry bulb ..... °C  
 Outdoor air wet bulb / relative humidity ..... °C ..... %

## Options

Air filter class .....

Unit control	Built in digital controller	<input type="checkbox"/>	Built in digital controller with BACnet	<input type="checkbox"/>	Remote relay interface control	<input type="checkbox"/>
External communication protocol	Lon	<input type="checkbox"/>	BACnet	<input type="checkbox"/>	Modbus	<input type="checkbox"/>
Air quality CO <sub>2</sub>	With	<input type="checkbox"/>	Without	<input type="checkbox"/>		
AXITOP - Acoustic attenuation system	With	<input type="checkbox"/>	Without	<input type="checkbox"/>		
Electronic expansion valve	With	<input type="checkbox"/>	Without	<input type="checkbox"/>		
Smoke detector	With	<input type="checkbox"/>	Without	<input type="checkbox"/>		
Dirty filter switch	With	<input type="checkbox"/>	Without	<input type="checkbox"/>		
Coil coatings	Polyurethane coating int	<input type="checkbox"/>	Polyurethane coating ext	<input type="checkbox"/>		
Heaters for drain pan	With	<input type="checkbox"/>	Without	<input type="checkbox"/>		
Unit anti vibration mounts	With	<input type="checkbox"/>	Without	<input type="checkbox"/>		

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# Notes

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**Company Standards and Services:**

All products manufactured by Nortek Global HVAC facilities in Europe are tested and approved to CE standards. All European Nortek Global HVAC production facilities are assessed to EN ISO 9001 Quality Assurance. Nortek Global HVAC offer a service to our customers; including budget schemes, on site technical support and a comprehensive after-sales package. Nortek Global HVAC reserves the right to change specifications without prior notice. Errors and omissions excepted.



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