

Rooftop Package Type Air Handling Units

VRT Heat Pump Roof Top

VRTC Cooling Only Roof Top

VRTG Heat Pump + Natural Gas Heating Roof Top

VRTCG Cooling Only + Natural Gas Heating Roof Top

VRTW Water-Cooled Condensing Heat Pump Roof Top



General Specifications

In today's air-conditioning technology, rooftop package type air handling units are preferred since they can meet cooling and fresh air needs as a single device. Being multifaceted and efficient is the most important reason why they are preferred in outdoors use.

Rooftop package type air handling solutions are package solutions that have the best cost-performance balance for buildings that will have monospace comfort air handling unit applications.

They are economical air-conditioning units used for comfort conditioning in mesoscale and large scale dimensions. Furthermore, rooftop package type air handling units in today's technology can offer different run modes with heating only, heat pump (heating-cooling), natural gas heating and pumping, cooling and natural gas heating, electrical heater reinforced heat pump, and heating water coil reinforced heat pump versions.

In today's conditions where saving is prominent, rooftop package type units provide high-efficiency, low-cost running opportunities.

They are preferred as optimum units for plug and play logic application-oriented uses with their technology and compact designs.

Today, rooftop package type air handling units are used in supermarkets, business and shopping centers, complex buildings (hotels, residences, malls, etc.), airports, movie theatres, show centers, congress centers, social facilities, hotel meeting rooms, stores, educational institutions, gyms, joysticks centers, warehouses and storages as well as in factories for industrial purposes.



Rooftop Package Type Air Handling Units

Technical Specifications

- High efficiency (with high efficiency R410a refrigerant and scroll compressor combination),
- Wide operating capacity range,
- Plug and play application convenience,
- Blow and exhaust fans suitable flow diversions in the field,
- Ability to operate clean and efficiently with rechargeable refrigerant suitable for operating in factories,
- Different run modes with cooling only, heat pump (heating-cooling), natural gas heating and pumping, cooling and natural gas heating, electrical heater reinforced heat pump, and heating water coil reinforced heat pump versions,
- Application convenience with their compact structures,
- Ability to operate between -15°C and $+20^{\circ}\text{C}$ outdoor temperature in heating function, and ability to operate between 0°C and 52°C outdoor temperature in cooling function,
- Ability to operate in high energy efficiency with heat recovery option,
- Ability to do free cooling by using fresh air with the economiser use option,
- Ability to optionally operate in stages in variable capacities; ability to operate in partial charges,
- Energy management oriented, programmable automation system with a simple using structure,
- Environmentally-conscious refrigerant and structural materials,
- Ability to provide high indoor air quality with an up to 100% fresh air intake capacity,
- Design construction with easy service, and easy access to all components,
- Ability to integrate with building management systems,
- Ability to apply onto many different architectures with rooftop application modules,
- Vee belt driven radial fan enables proper adjustment of air volume and static pressure.



Technical Specifications

MODEL CODE	VRT-VRTG-VRTC- -VRTCG ROOF TOP HEAT PUMP	VRT-VRTG- VRTC-VRTCG 25	VRT-VRTG- VRTC-VRTCG 35	VRT-VRTG- VRTC-VRTCG 45	VRT-VRTG- VRTC-VRTCG 55	VRT-VRTG- VRTC-VRTCG 65	VRT-VRTG- VRTC-VRTCG 75	VRT-VRTG- VRTC-VRTCG 85	VRT-VRTG- VRTC-VRTCG 105	VRT-VRTG- VRTC-VRTCG 120	VRT-VRTG- VRTC-VRTCG 150	VRT-VRTG- VRTC-VRTCG 170	VRT-VRTG- VRTC-VRTCG 230
AIR FLOW (EVAPORATOR)	m ³ /h	5500	6500	8500	9500	12000	14000	15500	18500	20000	24000	30000	36000
EXTERNAL PRESSURE LOSS	Pa	400	400	400	400	400	400	500	500	500	500	500	600
COOLING MODE													
TOTAL COOLING CAPACITY NOMINAL	kW	27.4	35.3	44.4	54.8	66.2	75.4	89	105.2	120.8	151.2	177.2	230.4
POWER PULLED	kW	9.1	12.8	15.6	18.6	23.8	26.9	32.6	37.5	42.4	55.7	64.0	85.1
EER	-	3.02	2.76	2.85	2.95	2.78	2.81	2.73	2.81	2.85	2.71	2.77	2.71
HEATING MODE													
TOTAL HEATING CAPACITY NOMINAL	kW	26.5	34.2	43.1	53.8	65.5	74.8	87.8	103.6	118.7	149.8	175	228.1
POWER PULLED	kW	8.3	11.3	13.9	16.5	21.8	24.6	30.1	33.6	39.0	51.4	59.6	79.5
COP	-	3.18	3.02	3.11	3.27	3.00	3.04	2.92	3.08	3.05	2.92	2.94	2.87
COOLING SYSTEM													
SYSTEM NUMBER	Qty.	1	2	2	2	2	2	2	2	2	2	2	2
COMPRESSOR TYPE	-	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
COMPRESSOR NUMBER	Qty.	1	2	2	2	2	2	2	4	4	4	4	4
NATURAL GAS HEATING MODE (VRTG, VRTCG)													
TOTAL HEATING CAPACITY-L	kW	18	18	30	30	61	61	76	76	76	152	152	152
TOTAL HEATING CAPACITY-M	kW	30	30	51	51	100	100	100	100	100	200	200	200
TOTAL HEATING CAPACITY-H	kW	51	51	61	61	122	122	122	122	122	244	244	244
OPTIONAL ADDITIONAL HEATER													
HEATING WATER COIL	kW	60	70	95	105	130	155	170	200	220	260	320	400
ELECTRIC HEATERS	kW	42	49	66.5	73.5	91	108.5	119	140	154	182	224	280
INDOOR FAN (EVAPORATOR)													
FAN TYPE	Vee belt driven	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial
FAN NUMBER	Qty.	1	1	1	1	2	2	2	2	2	2	2	2
FAN MOTOR POWER	kW	2.2	3	3	4	3	3	3	4	5.5	5.5	7.5	11
OUTDOOR FAN (CONDENSER)													
CONDENSER FAN TYPE		Axial	Axial	Axial	Axial	Axial	Axial	Axial	Axial	Axial	Axial	Axial	Axial
FAN NUMBER	Qty.	2	2	2	2	2	2	2	4	4	4	4	4
FAN MOTOR POWER	kW	0.49	0.49	1.09	1.09	1.25	1.25	1.97	1.09	1.09	1.75	1.97	2.63
FAN FLOW RATE	m ³ /h	10500	10000	15000	17000	21000	22000	28000	34000	36000	46000	50000	64000
OUTDOOR SOUND POWER LEVEL													
STANDARD UNIT OUTDOOR SOUND	DB (A)	85	85	86	85	87	87	88	92	89	90	90	92

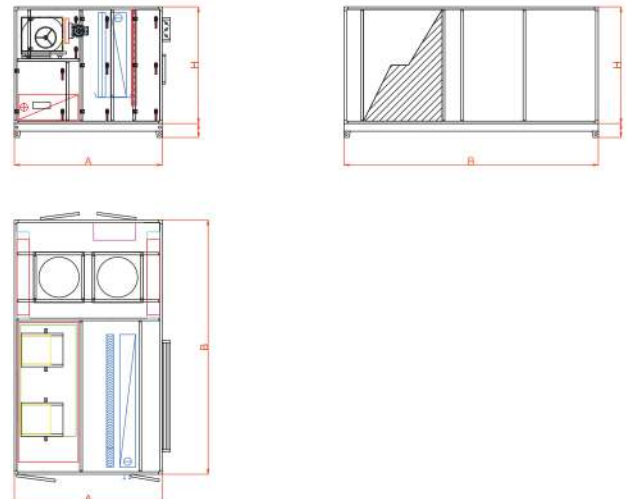
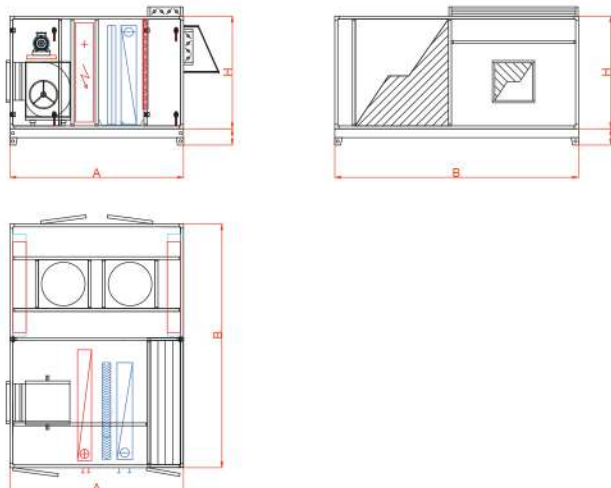
Rooftop Package Type Air Handling Units

Technical Specifications

MODEL CODE	VRT-VRTG-VRTC-VRTCG ROOF TOP HEAT PUMP	VRT-VRTG-VRTC-VRTCG 25	VRT-VRTG-VRTC-VRTCG 35	VRT-VRTG-VRTC-VRTCG 45	VRT-VRTG-VRTC-VRTCG 55	VRT-VRTG-VRTC-VRTCG 65	VRT-VRTG-VRTC-VRTCG 75	VRT-VRTG-VRTC-VRTCG 85	VRT-VRTG-VRTC-VRTCG 105	VRT-VRTG-VRTC-VRTCG 120	VRT-VRTG-VRTC-VRTCG 150	VRT-VRTG-VRTC-VRTCG 170	VRT-VRTG-VRTC-VRTCG 230
OPERATING TEMPERATURE RANGE													
COOLING MIN-MAX	C.KT	0 / + 52 °C											
HEATING MIN-MAX	C.KT	-15 / + 20 °C											
POWER SUPPLY													
POWER SUPPLY	phase/frequency/voltage	3 PHASE / 50 HZ / 380 V											
REFRIGERANT													
REFRIGERANT TYPE		R 410 A											
OPTIONAL EXHAUST FAN													
FAN TYPE 1	vee belt driven	RADIAL	RADIAL	RADIAL	RADIAL	RADIAL	RADIAL	RADIAL	RADIAL	RADIAL	RADIAL	RADIAL	RADIAL
FAN TYPE 2	with directly coupled motor	PLUG	PLUG	PLUG	PLUG	PLUG	PLUG	PLUG	PLUG	PLUG	PLUG	PLUG	PLUG
FAN MOTOR POWER	kW	1,1	1,1	1,5	1,5	1,5	2,2	5,5	5,5	5,5	5,5	7,5	7,5
PLATE MOUNTED TYPE HEAT RECOVERY MODULE													
SUMMER, 50% FRESH AIR MIXTURE	kW	3,74	4,63	5,90	6,53	8,25	9,57	-	-	-	-	-	-
WINTER, 50% FRESH AIR MIXTURE	kW	6,02	7,45	9,51	10,52	13,30	15,41	-	-	-	-	-	-
ROTARY TYPE HEAT RECOVERY MODULE													
SUMMER, 50% FRESH AIR MIXTURE	kW	7,56	9,06	11,93	13,73	16,56	18,67	21,22	24,32	26,78	32,23	77,83	92,27
WINTER, 50% FRESH AIR MIXTURE	kW	12,08	14,47	19,07	21,96	26,46	29,08	33,89	38,81	42,75	51,46	124,15	147,14
UNIT SIZES (VRT-VRTC)													
LENGTH [B]	mm	2020	2350	2800	2800	3550	3650	3800	4100	4200	4550	4700	5000
WIDTH [A]	mm	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350
HEIGHT [H]	mm	1580	1580	1580	1745	1745	1745	1910	1910	1910	2075	2240	2405
WEIGHT [STANDARD UNIT]	kg	414	445	530	550	770	840	970	1490	1610	1840	2100	2300
UNIT SIZES (VRTG-VRTCG)													
LENGTH	mm	2800	2800	3030	3030	3500	3500	4040	4560	4560	5100	5800	6000
WIDTH	mm	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350
HEIGHT	mm	1910	1910	2075	2075	2075	2075	2075	2075	2080	2210	2405	2570
WEIGHT [STANDARD UNIT]	kg	549	580	710	730	1130	1130	1200	1708	1828	2275	2535	2735

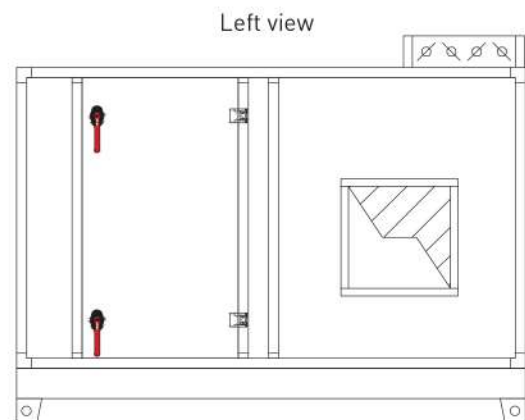
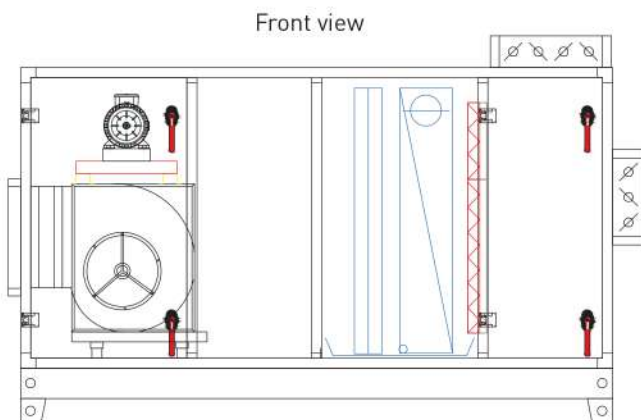
VRT-VRTC

VRTG-VRTCG



VRTW - Water Cooled Condensing Heat Pump Roof Top

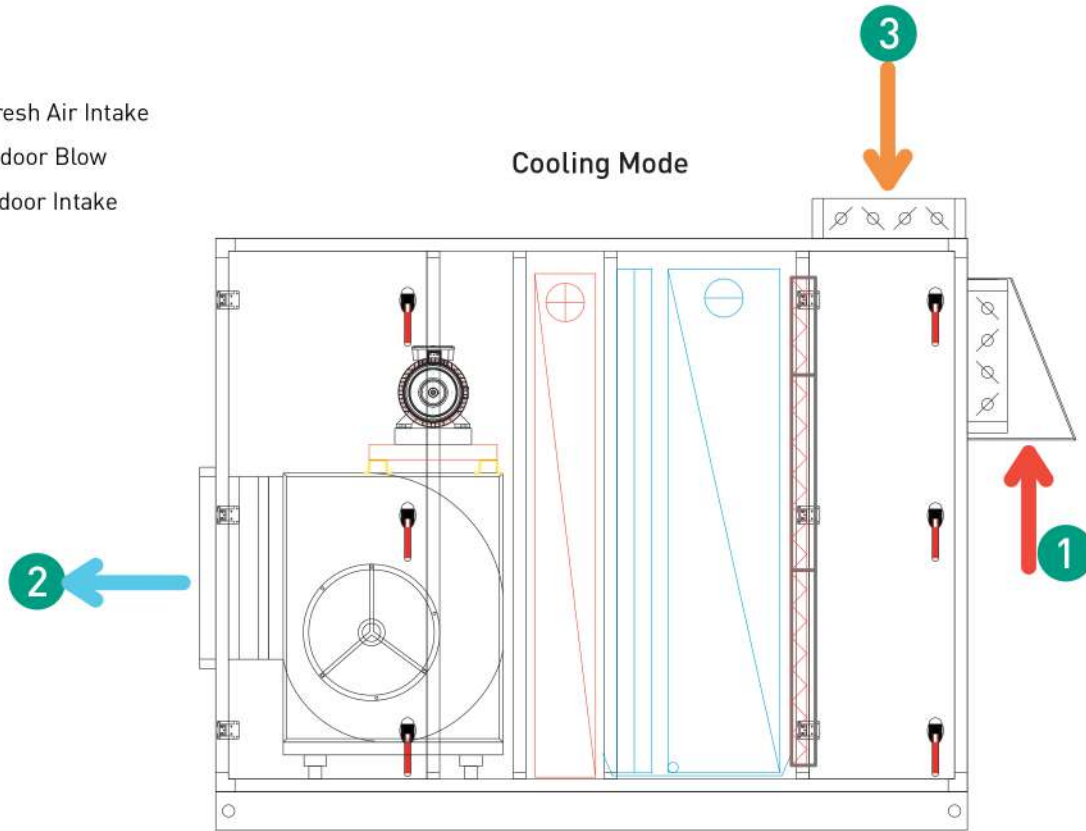
MODEL CODE	VRT	VRTW 25	VRTW 35	VRTW 45	VRTW 55	VRTW 65	VRTW 75	VRTW 85	VRTW 105	VRTW 120	VRTW 150	VRTW 170
AIR FLOW [EVAPORATOR]	m ³ /h	5500	6500	8500	9500	12000	14000	15500	18500	20000	24000	30000
EXTERNAL PRESSURE LOSS	Pa	400	400	400	400	400	400	500	500	500	500	500
COOLING MODE												
TOTAL COOLING CAPACITY NOMINAL	kW	32.4	37.6	47.6	55.6	71.6	81.4	95.6	111.2	130	162.8	191.2
ENERGY CONSUMED	kW	8.5	10.4	13.4	15.0	19.4	22.3	26.1	31.2	36.0	44.9	53.2
EER	-	3.81	3.61	3.54	3.72	3.70	3.65	3.67	3.56	3.61	3.62	3.59
WATER FLOW RATE	kg/min	111.0	131.0	166.0	192.0	247.0	282.0	332.0	384.0	449.0	565.0	664.0
HEATING MODE												
TOTAL HEATING CAPACITY NOMINAL	kW	37.1	43.6	55.2	64	82.4	94	110.4	128	149.6	188	220.8
ENERGY CONSUMED	kW	8.5	10.4	13.4	15.0	19.4	22.3	26.1	31.2	36.0	44.9	53.2
COP	-	4.36	4.18	4.11	4.28	4.26	4.22	4.24	4.10	4.15	4.18	4.15
COOLING SYSTEM												
SYSTEM NUMBER	-	1	2	2	2	2	2	2	2	2	2	2
COMPRESSOR TYPE	-	Scroll	Scroll	ZP90	ZP104	ZP137	ZP154	ZP182	ZP104	ZP122	ZP154	ZP182
COMPRESSOR NUMBER	-	1	2	2	2	2	2	2	4	4	4	4
OPTIONAL ADDITIONAL HEATER												
HEATING WATER COIL	kW	60	70	95	105	130	155	170	200	220	260	320
ELECTRIC HEATERS	kW	42	49	66.5	73.5	91	108.5	119	140	154	182	224
DIMENSIONS												
WIDTH	mm	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350
LENGTH	mm	2020	2185	2350	2515	3175	3390	3390	3555	3555	4380	4545
HEIGHT	mm	1195	1360	1360	1525	1360	1525	1525	1525	1525	1525	1690
INDOOR FAN [EVAPORATOR]												
FAN TYPE	-	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial2	Radial	Radial	Radial
FAN NUMBER	-	1	1	1	1	2	2	2	4	2	2	2
FAN MOTOR POWER	kW	2.2	3	4	4	3	3	3		5.5	5.5	7.5
PLATE MOUNTED TYPE HEAT RECOVERY MODULE												
SUMMER, 50% FRESH AIR	kW	3.74	4.63	5.90	6.53	8.25	9.57	-	-	-	-	-
WINTER, 50% FRESH AIR	kW	6.02	7.45	9.51	10.52	13.30	15.41	-	-	-	-	-
ROTARY TYPE HEAT RECOVERY MODULE												
SUMMER, 50% FRESH AIR	kW	7.56	9.06	11.93	13.73	16.56	18.67	21.22	38.81	26.78	32.23	77.83
WINTER, 50% FRESH AIR	kW	12.08	14.47	19.07	21.96	26.46	29.80	33.89		42.75	51.46	124.15



Rooftop Package Type Air Handling Units

VRT – VRTC ROOF TOP Operating Principles

- 1 Fresh Air Intake
- 2 Indoor Blow
- 3 Indoor Intake



- 1 Fresh Air Intake
- 2 Indoor Blow
- 3 Indoor Intake

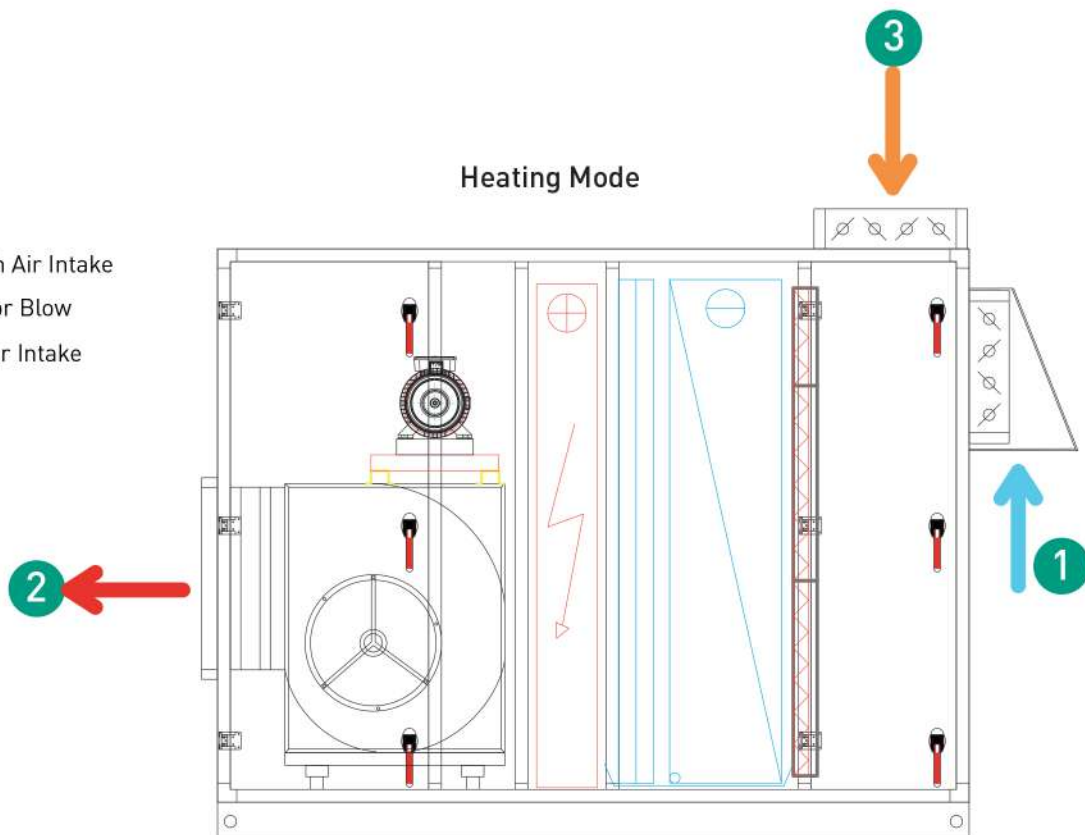
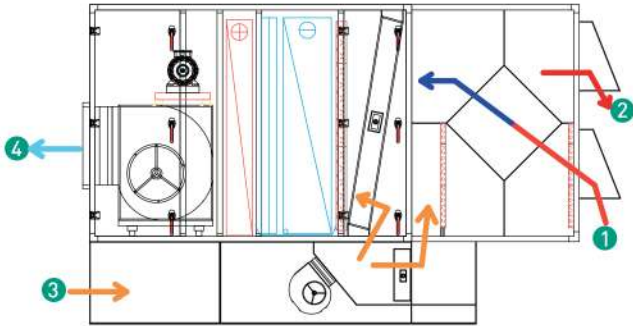


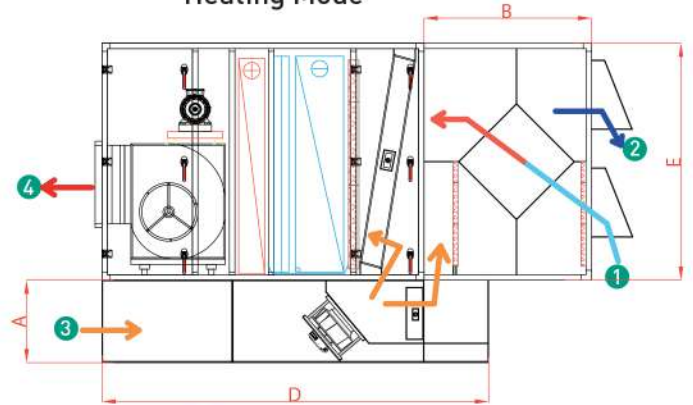
Plate Mounted Type Heat Recovery ROOF TOP

Cooling Mode



- ① Fresh Air Intake
- ② Exhaust Throw
- ③ Indoor Intake
- ④ Indoor Blow

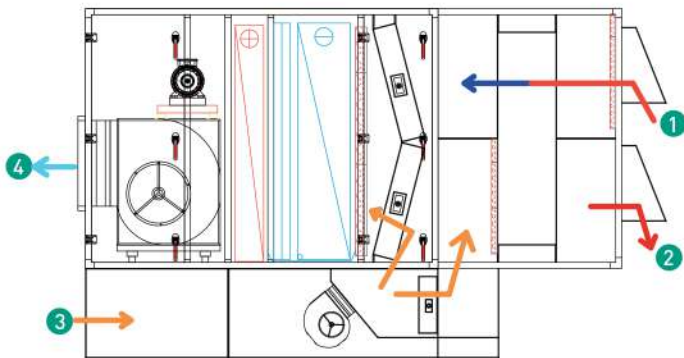
Heating Mode



- ① Fresh Air Intake
- ② Exhaust Throw
- ③ Indoor Intake
- ④ Indoor Blow

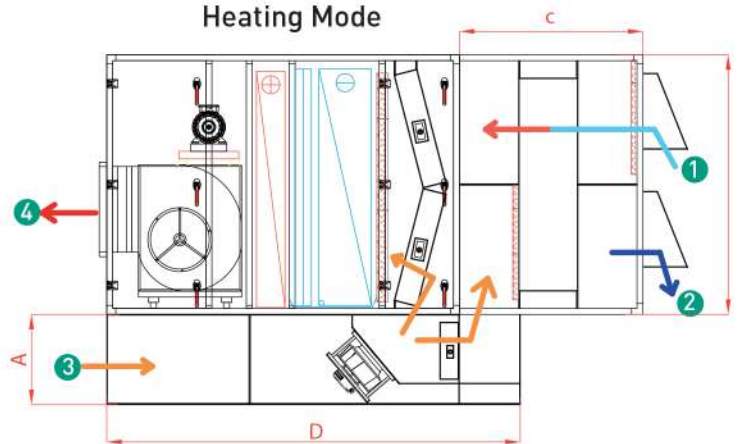
Rotary Type Heat Recovery ROOF TOP

Cooling Mode



- ① Fresh Air Intake
- ② Exhaust Throw
- ③ Indoor Intake
- ④ Indoor Blow

Heating Mode



- ① Fresh Air Intake
- ② Exhaust Throw
- ③ Indoor Intake
- ④ Indoor Blow

Heat-Recovery Roof Top Table of Dimensions

	VRT25	VRT35	VRT45	VRT55	VRT65	VRT75	VRT85	VRT105	VRT120	VRT150	VRT170	VRT230
A	1100	1100	1100	1100	1300	1300	1400	1400	1400	1400	1400	1500
B	1500	1500	1500	1500	1600	1600	1600	1600	1800	1800	1800	1800
C	1300	1300	1300	1300	1300	1400	1400	1400	1400	1400	1400	1400
D	3100	3100	3100	3100	3100	3100	3100	3100	3100	3100	3100	3100
E	1470	1470	1470	1610	1610	1610	1740	1740	1860	1990	2090	2300

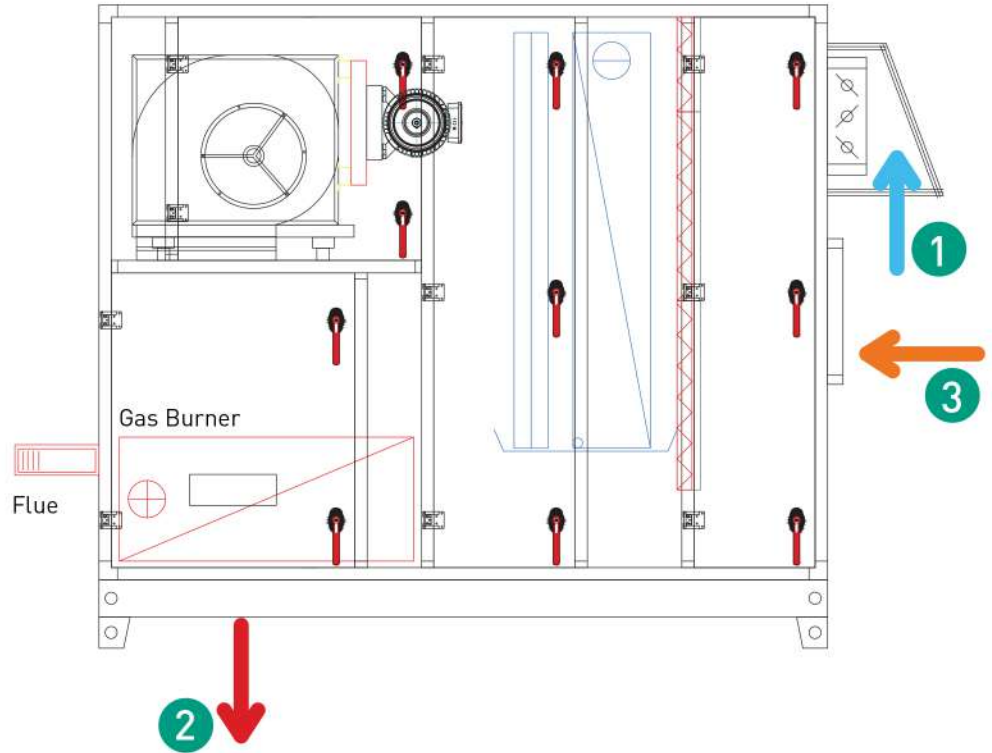
* All dimensions are in mm.

Rooftop Package Type Air Handling Units

VRTG – VRTCG ROOF TOP Operating Principles

Gas Burner ROOF TOP

- 1 Fresh Air Intake
- 2 Indoor Blow
- 3 Indoor Intake



VRTW ROOF TOP Operating Principles

Water Cooled ROOF TOP

- 1 Fresh Air Intake
- 2 Indoor Blow
- 3 Indoor Intake
- 4 Water Inlet
- 5 Water Return
- 6 Plate Mounted Heat Exchanger
- 7 Compressor

