

Tropical Series

Outdoor Units Cooling Only 220V / 3 / 50-60



8/10/12/14/16HP
(with single fan)



18/20/22HP
(with dual fans)



24/26/28/30HP
(with dual fans)

Outdoor Units
Cooling Only
220V / 3 / 50-60



Tropical Series

Optimized design for small to large buildings

META Technology

Zen Air Technology

Doctor M Technology

Triple Configurations

High Efficiency G-Shape Heat Exchanger

ESP up to 60Pa

Precise Oil Control Technology

Multi Silent Modes

Duty Cycling

Backup Operation

Refrigerant Cooling PCB

Dust-clean Function

Automatic Refrigerant Detecting/Charging

Outdoor Units Cooling Only 220V / 3 / 50-60

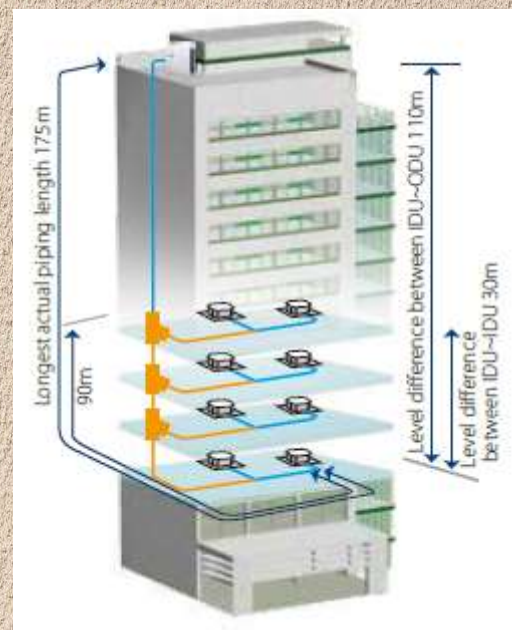


Tropical Series

Long Piping Capability

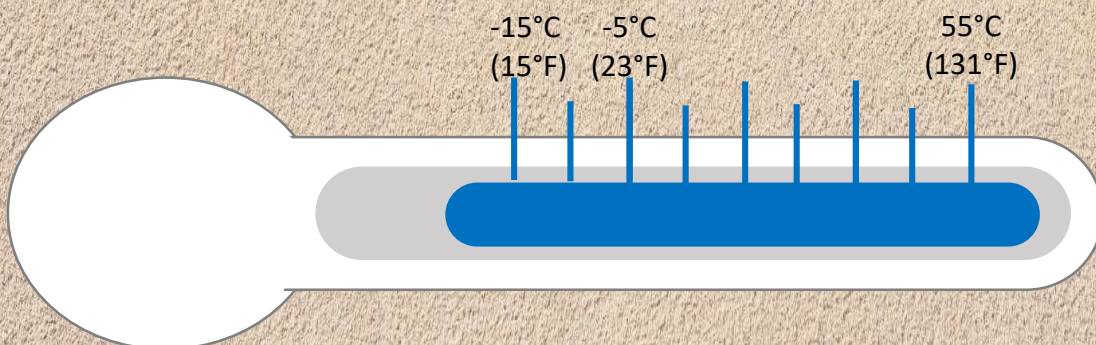
Piping Length	Capability	
	m	Ft
Total piping length	1,000	3,280
Longest piping length - actual / equivalent	175/200	574/656
Longest piping length after first branch	40/90(*)	(131.2/295.2)
Largest level difference between IDUs and ODU-ODU up/down	90/110	(295.2/360.8)
Largest level difference between IDUs	30	98.4

*The longest length after first branch is 40m(131.2ft.) as standard but can be extended to up to 90m(295.2ft.) under certain conditions. Please contact your local dealer for further information.



Wide Operating Temperature Range

The **Tropical Series** VRF can operate stably in a wide ambient temperature range: from -15°C(5°F)* to 55°C(131°F) in cooling mode.





VRF Systems

Specification Sheet

Modular Outdoor Unit - Cooling Only

Tropical Series

Outdoor Unit Cooling Only 220/3/50-60

Tropical Series

CTVS-EMO-C-077-C-CE-DC-1

CTVS-EMO-C-096-C-CE-DC-1

CTVS-EMO-C-120-C-CE-DC-1

PERFORMANCE

Nominal Cooling Capacity (1)	Btu/h	76,500	95,600	114,400
	Kw	22.4	28.0	33.5
	HP	8	10	12
	EER	4.27	3.94	3.76
Connected indoor unit Total Capacity		50-130%	50-130%	50-130%
Maximum indoor unit quantity		13	16	20

ELECTRICAL DATA

Power Supply	V/Ph/Hz	220/3/50-60	220/3/50-60	220/3/50-60
Power Input (10 Pa) Cooling	Kw	5.25	7.10	8.90
Min. Voltage	Volts	198	198	198
Max. Voltage	Volts	242	242	242
MCA	Amp	31.9	38.7	42.5
TOCA	Amp	48.8	48.8	49.4
MFA	Amp	40	50	50
RLA Compressor	Amp	26.5	33.1	38.7
OFA Outdoor Fan Motor	Kw	0.56	0.56	0.56
Outdoor Fan Motor FLA	Amp	3.8	3.8	4.4

GENERAL DATA

Dimmension	Net (mm)	960×1615×765	960×1615×765	960×1615×765
	Net (inch)	37-13/16×63-9/16×30-1/8	37-13/16×63-9/16×30-1/8	37-13/16×63-9/16×30-1/8
	Packed (mm)	1025×1790×830	1025×1790×830	1025×1790×830
	Packed (inch)	40-3/8×70-1/2×32-11/16	40-3/8×70-1/2×32-11/16	40-3/8×70-1/2×32-11/16
Weight Net	KG	193	193	193
	Lbs	425	425	425
Weight Gross	KG	209	209	209
	Lbs	461	461	461
Refrigerant type		R410A	R410A	R410A
Refrigerant Charge	Kg	8.0	8.0	8.0
	Lbs	17.6	17.6	17.6
Fan airflow rate	m3/h	10,400	10,400	10,800
	CFM	6,121	6,121	6,357
Compressor Oil Type		FV-50s	FV-50s	FV-50s
Sound pressure level (3)		57	58	60
Refrigerant Pipe Connections (2) (inch)	Gas	1"	1-1/8"	1-1/8"
	Liquid	1/2"	1/2"	1/2"
Ambient Temperature Cooling	°C	-5°C to 55°C	-5°C to 55°C	-5°C to 55°C
	°F	23°F to 131°F	23°F to 131°F	23°F to 131°F

Notes:

(1). Indoor air temperature 27°C DB, 19°C WB; outdoor air temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.

(2). Diameters given are those of the unit's accessories.

(3). Sound pressure level is measured at a position 1m in front of the unit and 1.3m above the floor in a semi-anechoic chamber.



VRF Systems

Specification Sheet

Modular Outdoor Unit - Cooling Only

Tropical Series

Outdoor Unit Cooling Only 220/3/50-60

Tropical Series

CTVS-EMO-C-137-C-CE-DC-1

CTVS-EMO-C-154-C-CE-DC-1

CTVS-EMO-C-171-C-CE-DC-1

PERFORMANCE

Nominal Cooling Capacity (1)	Btu/h	136,600	153,700	170,800
	Kw	40.0	45.0	50.0
	HP	14	16	18
	EER	3.88	3.75	3.65
Connected indoor unit Total Capacity		50-130%	50-130%	50-130%
Maximum indoor unit quantity		23	26	29

ELECTRICAL DATA

Power Supply	V/Ph/Hz	220/3/50-60	220/3/50-60	220/3/50-60
Power Input (10 Pa) Cooling	Kw	10.30	12.00	13.70
Min. Voltage	Volts	198	198	198
Max. Voltage	Volts	242	242	242
MCA	Amp	47.0	47.5	70.1
TOCA	Amp	54.8	54.8	98.0
MFA	Amp	63	63	80
RLA Compressor	Amp	43.9	44.2	29.5 + 28.7
OFA Outdoor Fan Motor	Kw	0.75	0.75	0.56 x 2
Outdoor Fan Motor FLA	Amp	5.8	5.8	8.0

GENERAL DATA

Dimmension	Net (mm)	960×1615×765	960×1615×765	1250×1615×765
	Net (inch)	37-13/16×63-9/16×30-1/8	37-13/16×63-9/16×30-1/8	49-1/4×63-9/16×30-1/8
	Packed (mm)	1025×1790×830	1025×1790×830	1305×1790×820
	Packed (inch)	40-3/8×70-1/2×32-11/16	40-3/8×70-1/2×32-11/16	51-3/8×70-1/2×32-1/4
Weight Net	KG	200	200	296
	Lbs	441	441	653
Weight Gross	KG	216	216	313
	Lbs	476	476	690
Refrigerant type		R410A	R410A	R410A
Refrigerant Charge	Kg	11	11	13
	Lbs	24.3	24.3	28.7
Fan airflow rate	m3/h	11,600	11,600	12,000
	CFM	6,828	6,828	7,063
Compressor Oil Type		FV-50s	FV-50s	FV-50s
Sound pressure level (3)		60	61	62
Refrigerant Pipe Connections (2) (inch)	Gas	1-1/4"	1-1/4"	1-1/4"
	Liquid	5/8"	5/8"	5/8"
Ambient Temperature Cooling	°C	-5°C to 55°C	-5°C to 55°C	-5°C to 55°C
	°F	23°F to 131°F	23°F to 131°F	23°F to 131°F

Notes:

(1). Indoor air temperature 27°C DB, 19°C WB; outdoor air temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.

(2). Diameters given are those of the unit's accessories.

(3). Sound pressure level is measured at a position 1m in front of the unit and 1.3m above the floor in a semi-anechoic chamber.



Tropical Series

Outdoor Unit
Cooling Only
220/3/50-60

VRF Systems

Specification Sheet

Modular Outdoor Unit - Cooling Only

Tropical Series

		CTVS-EMO-C-191-C-CE-DC-1	CTVS-EMO-C-210-C-CE-DC-1	CTVS-EMO-C-230-C-CE-DC-1
PERFORMANCE				
Nominal Cooling Capacity (1)	Btu/h	191,300	210,000	228,800
	Kw	56.0	61.5	67.0
	HP	20	22	24
	EER	3.39	3.13	3.33
Connected indoor unit Total Capacity		50-130%	50-130%	50-130%
Maximum indoor unit quantity		33	36	39
ELECTRICAL DATA				
Power Supply	V/Ph/Hz	220/3/50-60	220/3/50-60	220/3/50-60
Power Input (10 Pa) Cooling	Kw	16.50	19.65	20.10
Min. Voltage	Volts	198	198	198
Max. Voltage	Volts	242	242	242
MCA	Amp	74.7	85.0	83.1
TOCA	Amp	98.5	98.5	107.0
MFA	Amp	80	100	100
RLA Compressor	Amp	34.5 + 31.8	38.6 + 38.4	37.3 + 36.2
OFA Outdoor Fan Motor	Kw	0.56 x 2	0.56 x 2	0.56 x 2
Outdoor Fan Motor FLA	Amp	8.5	8.5	9.2
GENERAL DATA				
Dimmension	Net (mm)	1250×1615×765	1250×1615×765	1585×1615×765
	Net (inch)	49-1/4×63-9/16×30-1/8	49-1/4×63-9/16×30-1/8	62-3/8×63-9/16×30-1/8
	Packed (mm)	1305×1790×820	1305×1790×820	1650×1810×840
	Packed (inch)	51-3/8×70-1/2×32-1/4	51-3/8×70-1/2×32-1/4	64-15/160×71-1/4×33-1/16
Weight Net	KG	296	296	352
	Lbs	653	653	776
Weight Gross	KG	313	313	376
	Lbs	690	690	829
Refrigerant type		R410A	R410A	R410A
Refrigerant Charge	Kg	13	13	19
	Lbs	28.7	28.7	41.9
Fan airflow rate	m3/h	12,200	12,200	19,600
	CFM	7,181	7,181	11,536
Compressor Oil Type		FV-50s	FV-50s	FV-50s
Sound pressure level (3)		63	63	64
Refrigerant Pipe Connections (2) (inch)	Gas	1-1/4"	1-1/4"	1-1/4"
	Liquid	5/8"	5/8"	3/4"
Ambient Temperature Cooling	°C	-5°C to 55°C	-5°C to 55°C	-5°C to 55°C
	°F	23°F to 131°F	23°F to 131°F	23°F to 131°F

Notes:

(1). Indoor air temperature 27°C DB, 19°C WB; outdoor air temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.

(2). Diameters given are those of the unit's accessories.

(3). Sound pressure level is measured at a position 1m in front of the unit and 1.3m above the floor in a semi-anechoic chamber.



Tropical Series

Outdoor Unit
Cooling Only
220/3/50-60

VRF Systems

Specification Sheet

Modular Outdoor Unit - Cooling Only

Tropical Series

CTVS-EMO-C-250-C-CE-DC-1

CTVS-EMO-C-270-C-CE-DC-1

CTVS-EMO-C-300-C-CE-DC-1

PERFORMANCE

Nominal Cooling Capacity (1)	Btu/h	249,300	268,100	290,300
	Kw	73.0	78.5	85.0
	HP	26	28	30
	EER	3.29	3.25	3.09
Connected indoor unit Total Capacity		50-130%	50-130%	50-130%
Maximum indoor unit quantity		43	46	50

ELECTRICAL DATA

Power Supply	V/Ph/Hz	220/3/50-60	220/3/50-60	220/3/50-60
Power Input (10 Pa) Cooling	Kw	22.20	24.18	27.51
Min. Voltage	Volts	198	198	198
Max. Voltage	Volts	242	242	242
MCA	Amp	85.7	87.0	92.5
TOCA	Amp	107.0	108.0	108.0
MFA	Amp	100	100	100
RLA Compressor	Amp	38.8 + 37.4	41.5 + 40.8	43.7 + 43.2
OFA Outdoor Fan Motor	Kw	0.56 x 2	0.56 x 2	0.56 x 2
Outdoor Fan Motor FLA	Amp	9.2	10.0	10.0

GENERAL DATA

Dimmension	Net (mm)	1585×1615×765	1585×1615×765	1585×1615×765
	Net (inch)	62-3/8×63-9/16×30-1/8	62-3/8×63-9/16×30-1/8	62-3/8×63-9/16×30-1/8
	Packed (mm)	1650×1810×840	1650×1810×840	1650×1810×840
	Packed (inch)	64-15/160×71-1/4×33-1/16	64-15/160×71-1/4×33-1/16	64-15/160×71-1/4×33-1/16
Weight Net	KG	352	352	352
	Lbs	776	776	776
Weight Gross	KG	376	376	376
	Lbs	829	829	829
Refrigerant type		R410A	R410A	R410A
Refrigerant Charge	Kg	19	19	19
	Lbs	41.9	41.9	41.9
Fan airflow rate	m3/h	19,600	20,600	20,600
	CFM	11,536	12,125	12,125
Compressor Oil Type		FV-50s	FV-50s	FV-50s
Sound pressure level (3)		64	64	64
Refrigerant Pipe Connections (2) (inch)	Gas	1-3/8"	1-3/8"	1-3/8"
	Liquid	3/4"	3/4"	3/4"
Ambient Temperature Cooling	°C	-5°C to 55°C	-5°C to 55°C	-5°C to 55°C
	°F	23°F to 131°F	23°F to 131°F	23°F to 131°F

Notes:

(1). Indoor air temperature 27°C DB, 19°C WB; outdoor air temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.

(2). Diameters given are those of the unit's accessories.

(3). Sound pressure level is measured at a position 1m in front of the unit and 1.3m above the floor in a semi-anechoic chamber.



Tropical Series

Outdoor Unit
Cooling Only
220/3/50-60

VRF Systems

Specification Sheet

Modular Outdoor Unit - Cooling Only

Tropical Series

		CTVS-EMO-C-250-C-CE-DC-1	CTVS-EMO-C-270-C-CE-DC-1	CTVS-EMO-C-300-C-CE-DC-1
PERFORMANCE				
Nominal Cooling Capacity (1)	Btu/h	249,300	268,100	290,300
	Kw	73.0	78.5	85.0
	HP	26	28	30
	EER	3.29	3.25	3.09
Connected indoor unit Total Capacity		50-130%	50-130%	50-130%
Maximum indoor unit quantity		43	46	50
ELECTRICAL DATA				
Power Supply	V/Ph/Hz	220/3/50-60	220/3/50-60	220/3/50-60
Power Input (10 Pa) Cooling	Kw	22.20	24.18	27.51
Min. Voltage	Volts	198	198	198
Max. Voltage	Volts	242	242	242
MCA	Amp	85.7	87.0	92.5
TOCA	Amp	107.0	108.0	108.0
MFA	Amp	100	100	100
RLA Compressor	Amp	38.8 + 37.4	41.5 + 40.8	43.7 + 43.2
OFA Outdoor Fan Motor	Kw	0.56 x 2	0.56 x 2	0.56 x 2
Outdoor Fan Motor FLA	Amp	9.2	10.0	10.0
GENERAL DATA				
Dimmension	Net (mm)	1585×1615×765	1585×1615×765	1585×1615×765
	Net (inch)	62-3/8×63-9/16×30-1/8	62-3/8×63-9/16×30-1/8	62-3/8×63-9/16×30-1/8
	Packed (mm)	1650×1810×840	1650×1810×840	1650×1810×840
	Packed (inch)	64-15/160×71-1/4×33-1/16	64-15/160×71-1/4×33-1/16	64-15/160×71-1/4×33-1/16
Weight Net	KG	352	352	352
	Lbs	776	776	776
Weight Gross	KG	376	376	376
	Lbs	829	829	829
Refrigerant type		R410A	R410A	R410A
Refrigerant Charge	Kg	19	19	19
	Lbs	41.9	41.9	41.9
Fan airflow rate	m3/h	19,600	20,600	20,600
	CFM	11,536	12,125	12,125
Compressor Oil Type		FV-50s	FV-50s	FV-50s
Sound pressure level (3)		64	64	64
Refrigerant Pipe Connections (2) (inch)	Gas	1-3/8"	1-3/8"	1-3/8"
	Liquid	3/4"	3/4"	3/4"
Ambient Temperature Cooling	°C	-5°C to 55°C	-5°C to 55°C	-5°C to 55°C
	°F	23°F to 131°F	23°F to 131°F	23°F to 131°F

Notes:

(1). Indoor air temperature 27°C DB, 19°C WB; outdoor air temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.

(2). Diameters given are those of the unit's accessories.

(3). Sound pressure level is measured at a position 1m in front of the unit and 1.3m above the floor in a semi-anechoic chamber.

Cooling Only

220 3/50-60

Tropical Series



ODU Combination

TANDEM (Two Units)



Outdoor Unit Combinations		COOLING CAPACITY			Qty Units Tandem (HP each)		
		BTU/h	Kw	HP			
Single Outdoor Units	CTVS-EMO-C-077-C-CE-DC-1	77,000	25.2	8			
	CTVS-EMO-C-096-C-CE-DC-1	96,000	28	10			
	CTVS-EMO-C-114-C-CE-DC-1	120,000	33.5	12			
	CTVS-EMO-C-137-C-CE-DC-1	137,000	40	14			
	CTVS-EMO-C-154-C-CE-DC-1	154,000	45	16			
	CTVS-EMO-C-171-C-CE-DC-1	171,000	50	18			
	CTVS-EMO-C-191-C-CE-DC-1	191,000	56	20			
	CTVS-EMO-C-210-C-CE-DC-1	210,000	61.5	22			
	CTVS-EMO-C-230-C-CE-DC-1	230,000	67	24			
	CTVS-EMO-C-250-C-CE-DC-1	250,000	73	26			
	CTVS-EMO-C-270-C-CE-DC-1	270,000	78.5	28			
	CTVS-EMO-C-300-C-CEDC-1	300,000	85	30			
Tandem Two Outdoor units	CTVS-EMO-C-308-C-CEDC-1	308,000	90	32	16	16	
	CTVS-EMO-C-324-C-CEDC-1	330,000	95	34	22	12	
	CTVS-EMO-C-345-C-CEDC-1	345,000	101	36	20	16	
	CTVS-EMO-C-364-C-CEDC-1	364,000	106.5	38	22	16	
	CTVS-EMO-C-384-C-CEDC-1	384,000	112	40	24	16	
	CTVS-EMO-C-404-C-CEDC-1	404,000	118	42	26	16	
	CTVS-EMO-C-424-C-CEDC-1	424,000	123.5	44	28	16	
	CTVS-EMO-C-454-C-CEDC-1	454,000	130	46	30	16	
	CTVS-EMO-C-460-C-CEDC-1	460,000	134.5	48	26	22	
	CTVS-EMO-C-480-C-CEDC-1	480,000	140	50	28	22	
	CTVS-EMO-C-510-C-CEDC-1	510,000	146.5	52	30	22	
	CTVS-EMO-C-520-C-CEDC-1	520,000	151.5	54	28	26	
	CTVS-EMO-C-540-C-CEDC-1	540,000	157	56	28	28	
	CTVS-EMO-C-570-C-CEDC-1	570,000	163.5	58	30	28	
	CTVS-EMO-C-600-C-CEDC-1	600,000	170	60	30	30	

Cooling Only 220 3/50-60

Tropical Series



ODU Combination TANDEM (Three Units)



Outdoor Unit Combinations		COOLING CAPACITY			Qty Units Tandem (HP each)		
		BTU/h	Kw	HP			
Single Outdoor Units	CTVS-EMO-C-077-C-CE-DC-1	77,000	25.2	8			
	CTVS-EMO-C-096-C-CE-DC-1	96,000	28	10			
	CTVS-EMO-C-114-C-CE-DC-1	120,000	33.5	12			
	CTVS-EMO-C-137-C-CE-DC-1	137,000	40	14			
	CTVS-EMO-C-154-C-CE-DC-1	154,000	45	16			
	CTVS-EMO-C-171-C-CE-DC-1	171,000	50	18			
	CTVS-EMO-C-191-C-CE-DC-1	191,000	56	20			
	CTVS-EMO-C-210-C-CE-DC-1	210,000	61.5	22			
	CTVS-EMO-C-230-C-CE-DC-1	230,000	67	24			
	CTVS-EMO-C-250-C-CE-DC-1	250,000	73	26			
	CTVS-EMO-C-270-C-CE-DC-1	270,000	78.5	28			
	CTVS-EMO-C-300-C-CEDC-1	300,000	85	30			
Tadem Three Outdoor Units	CTVS-EMO-C-608-C-CEDC-1	608,000	175	62	30	16	16
	CTVS-EMO-C-614-C-CEDC-1	614,000	179.5	64	26	22	16
	CTVS-EMO-C-634-C-CEDC-1	634,000	185	66	28	22	16
	CTVS-EMO-C-664-C-CEDC-1	664,000	191.5	68	30	22	16
	CTVS-EMO-C-674-C-CEDC-1	674,000	196.5	70	28	26	16
	CTVS-EMO-C-694-C-CEDC-1	694,000	202	72	28	28	16
	CTVS-EMO-C-724-C-CEDC-1	724,000	208.5	74	30	28	16
	CTVS-EMO-C-754-C-CEDC-1	754,000	215	76	30	30	16
	CTVS-EMO-C-750-C-CEDC-1	750,000	218.5	78	28	28	22
	CTVS-EMO-C-780-C-CEDC-1	780,000	225	80	30	28	22
	CTVS-EMO-C-810-C-CEDC-1	810,000	231.5	82	30	30	22
	CTVS-EMO-C-815-C-CEDC-1	810,000	235.5	84	28	28	28
	CTVS-EMO-C-840-C-CEDC-1	840,000	242	86	30	28	28
	CTVS-EMO-C-870-C-CEDC-1	870,000	248.5	88	30	30	28
	CTVS-EMO-C-900-C-CEDC-1	900,000	255	90	30	30	30