



# SELF CONTAINED

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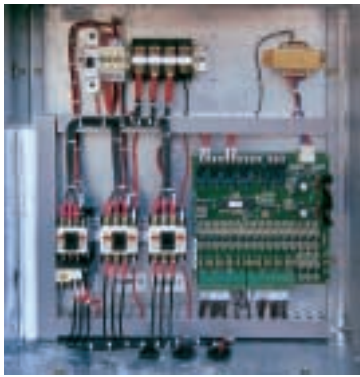
## Water-Cooled Air Conditioners

*Self Contained  
Water-Cooled  
22-55 tons  
WCVS Model 50 Hz*





# SELF CONTAINED - Features and Benefits



### Micro Processor Controller

- LED indicated diagnostics
- Higher controller reliability.
- Less complex - easier servicing, installation and trouble shooting.

### Back To Wall (WCVS 330-400)

Allows units to be placed directly against the wall.

- Reduces equipment room space requirements.
- Greater flexibility in positioning the unit.
- More usable (rental/leasing) space.

### Dual Refrigerant Circuits (WCVS 470-800)

- Optimized part load efficiencies.
- Service ability without total system shutdown.

### Broad Filter Selection (One inch internal Washable Filters Standard)

- 1 or 2 inch external filter rack (option) with side loading filter for ducted return (WCVS 330-800).
- Broad filter selection for application flexibility and improved indoor air quality.

### System Performance Matrix

Model	Capacity (MBH)		Nominal CFM	Condenser GPM
	Total	Sensible		
WCVS 330	273	187	7,760	63.3
WCVS 400	317	219	9,240	74.2
WCVS 470	393	278	10,750	90.5
WCVS 530	423	291	12,120	98.7
WCVS 600	527	379	13,800	119.9
WCVS 660	581	402	15,130	131.0
WCVS 730	637	469	16,880	146.5
WCVS 800	669	482	18,080	155.3

Notes: System ratings are ARI condition. Full load rating are at 90°F entering condenser water temper, and 80/67 FDBW/FWB entering air temperature on the air handler coil.

### Fully Tested

- Completely factory assembled and run tested.
- Refrigerant circuits factory leak tested at 250 psig and coil proof tested at 300 psig.
- Charge for optimum performance.

### Scroll Compressors

Built in scroll compressors (WCVS 400, 530, 730, 800).

- 64% fewer moving parts for increased reliability.
- Less rotating mass and friction for greater efficiency.
- Enclosed compression chamber for increased efficiencies, compared to semi hermetics.
- Passes liquid without damaging the compressor. Extends lifespan (primary compressor failure is caused by liquid slugging).
- No crankcase heaters required lowers net power consumption.
- Quiet.

### Shell & Tube Condenser

- Easily mechanically cleaned (tube in tube can only be chemically cleaned, not as efficient and effective as mechanical cleaning).

### Manifolded Condenser Water Piping (WCVS 470-800) WCVS 330-400 Have Single Condenser

- Reduced installation and material (piping) cost.
- Connection can be either side allowing flexibility and installation convenience.

### Trane's Wavy 3B Slit Fin

- High efficiency.
- High moisture carry over tolerance.



### Sight Glass

- A vapor and refrigerant indicator allows easier servicing and trouble shooting (wet/dry indicator).

### Hi-Static Motors And Drives (Option)

- Eliminates need for field modification.
- Assures proper airflow.
- Increased application flexibility.

### Insulated And Mastic Coated, V-Shaped Drain Pan

- Efficient water management, helps reduce bacteria build up, better air quality.

### Colored & Numbered Wiring

- Easier troubleshooting.
- Meet most electrical color code.

### High Efficiency Evaporator Coil

- Improves latent load capacity for close humidity control, especially important for tropical climates.

### Flexible Condensate Drain Piping (WCVS 330-800)

- Allows connection to be interchange from left to right with minimum hassle at no cost add.

## WCVS General Data 22-55 Ton

		WCVS 330	WCVS 400	WCVS 470	WCVS 530	WCVS 600	WCVS 660	WCVS 730	WCVS 800
<b>Performances (1)</b>									
Unit Capacity Step (%)		50-50	50-50	27-63-100	24-62-100	21-50-70-100	25-50-75-100	23-50-73-100	25-50-75-100
Main Power Supply		400/3/50							
Utilization Range		400V+, -10%							
<b>Compressor</b>									
Number		2	2	3	3	4	4	4	4
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Model		2x13T	2x15T	1x10T+2x13T	1x10T+2x15T	2x10T+2x13T	2x13T+2x13T	2x13T+2x15T	2x15T+2x15T
Speeds Number		Single Speed, 2900RPM@50Hz							
Unit MCA Amps (4)	(A)	46	56	62	74	80	86	101	107
RLA / LRA (2)	(A)	2(16.8/135)	2(20/175)	(13.6/130)+2(16.8/135)	(13.6/130)+2(20/175)	2(13.6/130)+2(16.8/135)	2x2(16.8/135)	2(16.8/135)+2(20/175)	2x2(20/175)
<b>Condenser Data</b>									
Shell & Tube Condenser with Internally & Externally Enhanced Copper Tubes									
No. Used		1	1	2	2	2	2	2	2
Water Connection Size		2	2	2	2	2.5	2.5	2.5	2.5
Max. Water Side Pressure	psig/Kpa	300/2068	300/2068	300/2068	300/2068	300/2068	300/2068	300/2068	300/2068
<b>Evaporator Coil</b>									
Row/FPI		3/12	3/12	3/12	3/12	4/12	4/12	4/12	4/12
Configuration		Verticle Fan Discharge							
Face Area	Sq. ft/m2	16.7/1.55	19.2/1.78	26.2/2.44	26.2/2.44	34.8/3.24	34.8/3.24	38/3.53	38/3.53
Tube Material		Copper	Copper	Copper	Copper	Copper	Copper	Copper	Copper
Tube Type		Internally Enhanced				Smooth			
Tube Size (OD)	in/mm	3/8/9.5	3/8/9.5	3/8/9.5	3/8/9.5	0.5/12.7	0.5/12.7	0.5/12.7	0.5/12.7
No. Of Circuits		1	1	2	2	2	2	2	2
Refrigerant Flow Control		TXV	TXV	TXV	TXV	TXV	TXV	TXV	TXV
Drain Connection Size	in	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
<b>Evaporator Fan/Motor</b>									
Drive Type		Belt	Belt	Belt	Belt	Belt	Belt	Belt	Belt
FLA/LRA (each) (2)		8.4/41.7	11/82	11/82	11/82	15/104	15/104	22/153	22/153
No. of Motors	Std. HP	1-5	1-7.5	1-7.5	1-7.5	1-10	1-10	1-15	1-15
	Hi Static	1-7.5/1-10	1-10/1-15	1-10/1-15	1-10/1-15	1-15/1-20	1-15/1-20	1-20	1-20
Diameter of Fan	in/mm	15.7/400	15.7/400	15.4/390	15.4/390	17.7/450	17.7/450	17.7/450	17.7/450
Width of Fan	in/mm	12.6/320	12.6/320	15.4/390	15.4/390	14.2/360	14.2/360	14.2/360	14.2/360
No. of Fans		1	1	2	2	2	2	2	2
Indoor Fan Type		Centrifugal FC							
Fan Pulley Pitch Diameter	in	7	10	11	11	13	13	13	13
Air Qty.-Max.	cfm	8900	10600	13800	13800	16700	16700	21800	21800
-Min.	cfm	5900	7000	9100	9100	11000	11000	14400	14400
Fan Motor Type		TEFC 400V+,-10%/3Ph/50Hz							
Std. Fan Speec (Std. Factory Set)		828	870	923	923	725	725	780	780
Max. Allowable Fan RPM		1100	1100	1200	1200	1000	1000	1000	1000
Motor Pulley Pitch Diameter (std.)	in	4	6	7	7	6.5	6.5	7	7
<b>Filters</b>									
Size (3)	(Qty) in	(2)16x20	(2)15x20/(4)16x20	(11)15x25	(11)15x25	(4)15x20	(4)15x20	(2)15x20/(6)16x25	(2)15x20/(6)16x25
std. 1-Washable		(5)16x25	(2)16x25/(1)15x25			(12)15x25	(12)15x25	(2)16x20/(6)15x25	(2)16x20/(6)15x25
<b>Refrigerant Charge</b>									
fully R22 charge									
Circuit 1	(kg)	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8
Circuit 2	(kg)	-	-	7.3	7.3	16.8	16.8	16.8	16.8
<b>Dimensions (uncrated)</b>									
Height	(mm)	1980	1980	1980	1980	1980	1980	1980	1980
Width	(mm)	1861	1861	2141	2141	2646	2646	2646	2646
Depth	(mm)	1107	1107	1107	1107	1321	1321	1321	1321
Uncrated	(mm)	1980x1861x1107	1980x1861x1107	1980x2141x1107	1980x2141x1107	1980x2646x1321	1980x2646x1321	1980x2646x1321	1980x2646x1321
App. operating Weight	(kg)	927	980	1226	1199	1585	1594	1722	1695

### Notes:

- (1) Gross Cooling Capacity based on 80/67 deg F(27/19C) on coil conditions & nominal airflows.
- (2) RLA/LRA, FLA, MCA Rated at 400V
- (3) 1 inch washable
- (4) RLA rated at ARI 360 conditions

# Mechanical Specifications

## Unit Casing

The Unit framework shall be 1.9 mm ga. GI steel. Exterior panels shall be fabricated from 0.9 mm galvanized steel. All panels shall be cleaned and coated with a baked polyester powder paint. The compressor base frame shall be welded 2.3 mm galvanized steel.

All panels in contact with air stream shall be insulated with 1 inch 2 pound density fiber glass insulation covered with aluminium foils to prevent contact of moving air with insulation. All panels shall be removable to ensure proper access for servicing and maintenance.

All compressor section panels polyurethane shall be acoustically insulated with 1 inch polyurethane acoustic foam sheets.

## Compressors

Unit shall have multiple-compressors with independent or manifolded circuits. Compressors shall be of scroll hermetic of the suction gas cooled type.

Protective devices for high and low pressure cut-outs. External overload for scroll compressors shall be provided.

All compressors shall be isolated with rubber-in shear isolators.

Lockout safeties are to be provided for each circuit to prevent unsafe compressor operations (manual reset).

## Water-Cooled Condensers

Shall be of shell and tube type to enable mechanical and/or chemical cleaning.

Tubes shall be of three-quarter inch OD copper. Condensers if more than one, shall be manifolded with connection at both sides of the units (for WCVS 470-800).

Condenser shall have built-in liquid subcooler with spring loaded pressure relief valve (set at 350 psig).

## Cooling Coil

The evaporator coil shall be one-half inch or three-eighth inch OD seamless copper tubes mechanically expanded into aluminium fins.

Coils shall have at least two independent circuits for good part load capability (exceptions being 330, 400).

Coils shall be proof tested at 375 psig and leak tested at 250 psig. Thermal expansion device shall be of direct expansion type with external equalizers (capillary tubes not acceptable).

Drain pipe outlet shall be left or right convertible (330-800). The drain pan shall be of sloping design fabricated of galvanized steel insulated to prevent any condensation and mastic coated to prevent corrosion. Suction lines shall be fully insulated.

## Refrigerant Circuit

Refrigerant circuits shall be independent or manifolded and shall include pressure access ports (high and low pressure), filter driers and sight glasses. The circuits shall be leak tested and factory charged with R-22. The complete system shall be run tested in factory.

## Fans

Supply fans shall be of double width double inlet forward curved centrifugal fans statically and dynamically balanced. The drive components shall include fixed pitch drivers and multiple V-belts. The drives shall be factory run tested and balanced. The supply fan motor shall be totally enclosed fan cooled.

## Starter (Optional)

Unit mounted DOL starters are available as an optional feature.

## Hi-Static Motor (Optional)

Optional factory mounted oversized fan motor for high external static pressure application.



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