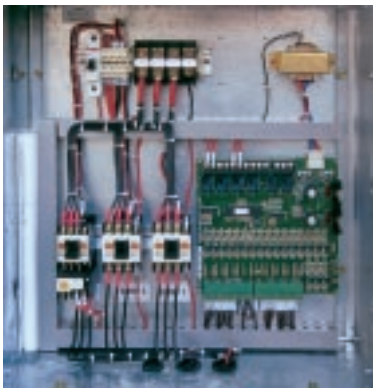
SELF CONTAINED

Water-Cooled Air Conditioners

Self Contained
Water-Cooled
20-55 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 270-400)
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.

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.

System Performance Matrix

Model	Capacity (MBH)		Nominal	Condenser
	Total	Sensible	CFM	GPM
WCVS 270	219.6	157.0	6,190	51.9
WCVS 330	271.4	193.7	7,760	67.8
WCVS 400	329.7	238.4	9,240	79.3
WCVS 470	378.4	268.8	10,750	94.6
WCVS 530	432.5	307.1	12,120	104.2
WCVS 600	485.7	343.4	13,800	121.4
WCVS 660	539.7	381.5	15,130	129.5
WCVS 730	593.2	430.9	16,880	148.3
WCVS 800	644.8	470.3	18,080	155.8

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.

General Specifications

Model Number		WCVS 270	WCVS 330	WCVS 400	WCVS 470	WCVS 530	WCVS 600	WCVS 660	WCVS 730	WCVS 800
Starting Method		DOL								
Capacity Steps %		50/100	52/100	60/100	46/71/100	46/71/100	36/61/75/100	36/61/75/100	31/62/80/100	31/62/80/100
Evaporator Rated Air Flow	Cfm	6190	7760	9240	10750	12120	13800	15130	16880	18080
	Cmh	10516	13183	15697	18263	20590	23444	25703	28676	30715
Unit MCA Amps (1)		56	71	65	94	90	119	132	132	123
Compressor Type		Recip.	Recip.	Scroll	Recip.	Recip./Scroll	Recip.	Recip.	Recip./Scroll	Scroll
No. Refrig. Circuits		2	1*	1*	2*	2*	2*	2*	2*	2*
No. Compressors/ total comp. kW**		2/20.4	2/25.8	2/28.5	3/36	3/38.7	4/46.2	4/51.6	4/54.3	4/57
RLA/LRA (each) (2)(4)		2(21.1/104)	2(27.6/135)	2(23.8/153)	21.1/104+2(27.6/135)	21.1/104+2(23.8/153)	2(21.1/104)+2(27.6/135)	2(27.6/135)+2(27.6/135)	2(27.6/135)+2(23.8/153)	2(23.8/153)+2(23.8/153)
Condenser Type		Shell and Tube								
No. Used		2	1	1	2	2	2	2	2	2
Water Connection Size	in	1.25	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5
Maximum Flow Rate	gpm/Lpm	60/228	73/276	89/335	102/386	116/438	132/500	144/546	161/609	172/648
Minimum Flow Rate	gpm/Lpm	26/98	33/145	40/150	46/174	53/198	58/219	66/252	72/273	79/300
Max. Water Side Pressure	psig/KPa	300/2068	300/2068	300/2068	300/2068	300/2068	300/2068	300/2068	300/2068	300/2068
Evaporator Coil	Rows/FPI	3/12	3/12	3/12	3/12	3/12	4/12	4/12	4/12	4/12
Face Area	Sq.ft./m^2	13.4/1.25	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								
Tube Size (OD)	in	3/8	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2
Refrigerant Flow Control	TXV									
Drain Connection Size	in	3/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Evaporator Fan/Motor										
Fixed Drive Type		Belt								
FLA/LRA (each) Std. mtr.(2)		8.4/41.7	8.4/41.7	11/82	11/82	15/104	15/104	15/104	22/153	22/153
No. of Motors	Std. HP	1-5	1-5	1-7.5	1-7.5	1-7.5	1-10	1-10	1-15	1-15
	Hi Static	1-7.5	1-7.5/1-10	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	15.4/390	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	15.4/390	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	1	2	2	2	2	2	2
Indoor Fan Type		Centrifugal FC								
Air qty.-Max.		7300	8900	10600	13800	13800	16700	16700	21800	21800
(cfm) -Min		4800	5900	7000	9100	9100	11000	11000	14400	14400
Fan Motor Type		TEFC 380-415V/3Ph/50Hz								
Std. Fan Speed (Std. Factory Set)		870	828	870	923	923	725	725	780	780
@ ESP Including Filters (inch. wg.)		1	1	1	1.2	1.2	1.2	1.2	1.2	1.2
Max. Allowable RPM		1100	1100	1100	1200	1200	1000	1000	1000	1000
Fan Pulley Pitch Diameter	in	10	7	10	11	11	13	13	13	13
Motor Pulley Pitch Diameter	in	6	4	6	7	7	6.5	6.5	7	7
High Pressure		Cut In/Cut Out - 200/300 psig								
Low Pressure		Cut In/Cut Out - 60/35 psig								
Filters (No. used) WxL		(2)15x20								
Size (3)	(Qty) in	(1)15x25	(2)16x20	(2)15x20/(4)16x20	(11)15x25	(11)15x25	(4)15x20	(4)15x20	(2)15x20,(6)16x25	(2)15x20,(6)16x25
		(4)16x20	(5)16x25	(2)16x25/(1)15x25			(12)15x25	(2)15x25	(2)16x20,(6)15x25	(2)16x20,(6)15x25
Refrigerant	Circuit 1 (kg)	7.3	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8
Operating Charge R22	Circuit 2 (kg)	7.3	-	-	7.3	7.3	16.8	16.8	16.8	16.8
Dimensions (HxWxD)	in	54x73x36	78x73x43.6	78x73x43.6	78x84x43.6	78x84x43.6	78x104x52	78x104x52	78x104x52	78x104x52
Uncrated	mm	1365x1856x922	1980x1861x1107	1980x1861x1107	1980x2141x1107	1980x2141x1107	1980x2646x1321	1980x2646x1321	1980x2646x1321	1980x2646x1321
App. Operating Weight	lbs/kg	1210/549	1984/900	2160/980	2623/1190	2623/1190	3385/1540	3385/1540	3730/1695	3730/1695

*Indicates two (2) manifolded compressors for each circuit (470, 530, have 2 circuits with only one manifolded)
(1) MCA values at 380 volts: includes compressors, controls and standard fan motor
(2) Values at 380 Volts
(3) 1 inch washable
(4) RLA@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 and/or hermetic reciprocating 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. Crankcase heaters are to be provided (not required for scroll) on reciprocating compressors.

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-eight 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 drivers 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.

Trane Thailand
7th Floor, Ploenchit Center Building
2 Sukhumvit Road, Klongtoey
Bangkok 10110

http://www.trane.com

An American Standard Company

Literature Order Number:	UNT-SLB002-0101
Supersedes:	PKG-DS-4T 0797
Stocking Location:	Bangkok, Thailand