SELF CONTAINED

Water-Cooled Air Conditioners

Self Contained
Water-Cooled
22-100 tons
WCVS Model 50 Hz

Features and Benefits

Intelligent Control	
7 Segment LED Indicated Microprocessor Diagnostics	Quicker, Accurate Troubleshooting
Higher Controller Reliability with built in control & safety logic.	Longer, trouble free lifespan.
Less Complex, fewer electromechanical parts.	Increases Reliability
Built PID based temperature control with zone sensor, and adjustable zone setpoint.	Accurate control. Eliminates field sourcing, purchasing & Installation downtime.
Fully tested: coils, system leak tests and run tests.	Guarantees units leave the factory fully charged, tested, and in operational order.
Remote signalling of general faults.	Added ease in troubleshooting & diagnostics remotely for each unit.

Full Protection
Compressor overheat, overcurrent and phase loss protection shall be provided.
High and low pressure safety switches to protect the system against operations outside recommended pressure limits.
Reverse rotation protection on compressors though safeties the trip the system on high temperature.
Compressor time delays and on-off sequencing logic that is built into the microprocessor algorythm for maximum protection.
Micro Processor controlled sequencing to prevent frequent start stops.
Non hydroscopic PE Insulation, with fiberglass free supply air & limited cleanability to ensure clean safe air always.

System Performance Matrix

Model	Total Capacity MBH	Sensible Capacity MBH	Evaporator cfm	Condenser GPM
WCVS 330	262 273 281	170 187 202	6210 7760 9310	66 68 70
WCVS 400	304 317 327	199 219 237	7390 9240 11090	76 79 82
WCVS 470	377 393 405	253 278 300	8600 10750 12900	94 98 101
WCVS 530	406 423 436	265 291 314	9700 12120 14540	102 106 109
WCVS 600	506 527 543	345 379 409	11040 13800 16560	126 132 136
WCVS 660	558 581 601	366 402 434	12100 15130 18160	139 145 150
WCVS 730	612 637 656	427 469 507	13500 16880 20260	153 159 164
WCVS 800	642 669 689	439 482 521	14460 18080 21700	161 167 172
WCVS 900	848 883 909	567 623 673	19800 24750 29700	212 221 227
WCVS 12H	1131 1178 1213	756 831 897	26400 33000 39600	283 295 303

Note : The cooling capacity based in 80/67 FDB/FWB entering air temperature on air handler coil and 90 F entering condenser water temperature.

General Data

		WCVS 330	WCVS 400	WCVS 470	WCVS 530	WCVS 600	WCVS 660	WCVS 730	WCVS 800	WCVS 900	WCVS 12H
Performances											
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	35-66-100	25-50-75-100
Total Compressor Power Input (kW)		18.3	22.3	25.5	29.2	32.1	33.9	41.2	45.2	57.0	77.0
Main Power Supply		400/3/50									
Compressor											
Number		2	2	3	3	4	4	4	4	3	4
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Model		2x13T	2x15T	1x10T+2x13T	1x10T+2x15T	2x10T+2x13T	2x13T+2x13T	2x13T+2x15T	2x15T+2x15T	3x25T	4x25T
Unit MCA Amps (4)	(A)	48	59	65	73	83	90	103	110	141	191
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)	3(49.3/270)	4(49.3/270)
Condenser Data											
Condenser Type		Shell & Tube Condenser								Tube in-Tube	
Water Connection Side	in	2	2	2	2	2.5	2.5	2.5	2.5	4	4
Max. Flow Rate	gpm/Lpm	73/276	89/335	102/386	116/438	132/500	144/546	161/609	172/648	265/1003	338/1279
Min Flow Rate	gpm/Lpm	33/145	40/150	46/174	53/198	58/219	66/252	72/273	79/300	165/625	178/674
Max. Water Side Pressure	psig/Kpa	00/2068	300/2068	300/2068	300/2068	300/2068	300/2068	300/2068	300/2068	300/2068	300/2068
Evaporator Coil											
Configuration	Row/FPI	3/12	3/12	3/12	3/12	4/12	4/12	4/12	4/12	4/12	4/12
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	50/4.65	64/5.94
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	0.5/12.7	0.5/12.7
No. Of Circuits		1	1	2	2	2	2	2	2	2	2
Refrigerant Flow Control		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	1 1/4	1 1/4
Evaporator Fan/Motor											
Drive Type		Belt									
FLA/LRA (each) (2)		8.4/41.7	11/82	11/82	11/82	15/104	15/104	22/153	22/153	28.1/192	39.7/265
No. of Motors	Std. HP/kW	5/3.7	7.5/5.5	7.5/5.5	7.5/5.5	10/7.5	10/7.5	15/11	15/11	20/15	30/22
	Hi Static/kW	7.5/5.5	10/7.5	15/11	15/11	15/11	20/15	20/15	20/15	20/15	25/18.5
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	19.7/500	22/560
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	2	2
Indoor Fan Type		Centrifugal FC									
Air Qty. - Max.	cfm	8900	10600	13800	13800	16700	16700	21800	21800	39600	67281
- Min.	cfm	5900	7000	9100	9100	11000	11000	14400	14400	26400	44854
Fan Motor Type		TEFC									
Std. Fan Speec (Std. Factory Set)		850	900	900	900	760	760	760	760	760	583
Filters											
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	(10)25x20,(2)16x25	(10)16x25
Std. 1" Washable (models 900,12H-2" Washable)		(5)16x25	(2)16x25/(1)15x25			(12)15x25	(12)15x25	(2)16x20,(6)15x25	(2)16x20,(6)15x25	(5)20x20,(2)16x25	(10)25x25
Dimensions (uncrated)											
Height	(mm)	1980	1980	1980	1980	1980	1980	1980	1980	2260	2519
Width	(mm)	1861	1861	2141	2141	2646	2646	2646	2646	3232	3577
Depth	(mm)	1107	1107	1107	1107	1321	1321	1321	1321	1345	1500
App. operating Weight	(kg)	927	980	1226	1199	1585	1594	1722	1730	1779	2046

Notes:

(1) Gross Cooling Capacity based on 80/67 deg F(27/19C) on coil conditions & norminal airflows.

(2) RLA/LRA, FLA, MCA Rated at 400V

(3) 1 inch washable (270-800), 2 inch Wachable (900-1200)

(4) RLA rated at ARI 360 conditions

Intelligent Design	
Small Footprints	Reduces Valuable installed space
Scroll Compressors: Introduced by Trane in the early	Improved reliability with moving parts and ability to pass liquid without damage. Quieter, low starting torque.
High Efficiency Evaporator Coils	High Carryover tolerance and higher coil efficiencies.
Multiple Refrigent Circuits (WCVS 470-800, 900, 12H) Optimized Part load efficiencies.	Redundancy. Delivers higher efficiencies at part load.

Simplified Installation & Serving	
Service Flexibility	For 2 circuit systems, this means servicing capability without total refrigent system shutdown.
Built in 1 Washable Filters	Filters come installed in Al frames, allowing, cost effective and quick filter replacements.
Built in controls“ Starters, thermostats	Minimum electrical wiring and costs required.
Fully R22 Charged. Colored & Numbered Wiring.	Almost a plug and play product. Further enhances installation & troubleshooting for peace of mind.
Cleanable High efficiency shell & tube condensers (excludes models 900,12H)	Quick, easy and lower frequency tube maintainence.
Optional, fully Cleanable Double Skin CFC Free Panels	For clean air as well as hygienic maintainence.

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 external panels shall be cleaned and coated with baked polyester powder paint. The compressor base frame shall be welded 2.3mm galvanized steel. All panels in contact with the air stream shall be insulated with cleanable non hydroscopic PE insulation

All panels shall be removable with dedicated tools for safety and easy access for servicing and maintenance. The compressor section shall be acoustically insulated with 1 inch acoustic foam, sheets. 1 inch PU foam double skin panels shall be optional for IAQ sensitive applications.

Micro Processor Control

The unit shall have a factory installed and tested micro processor controller that enables diagnostics and inbuilt control for compressor sequencing and temperature monitoring and control. Temperature control shall be electronic multi stage PID control. Lockout safeties are to be provided for each circuit to prevent unsafe compressor operations (manual reset.). Remote alarm and diagnostics shall be a standard built in feature for remote monitoring.

Starter

Unit mounted DOL starters shall be standard factory fitted, for compressor and fan startup. Models 900 & 12H shall have standard built-in on-off switches.

Compressors

Unit shall have multiple-compressors with independent or manifolded hermetically sealed circuits.
Compressors shall be scrolls of the suction gas cooled type.
Protective devices for high and low pressure cut-outs on each circuit.
Overload for scroll compressors shall be standard.
Models 900 and 12H shall have built in phase reversal protection.
All compressors shall be isolated with rubber-in shear isolators.

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 the factory.

Condenser

Condensers shall be mechanically cleanable shell and tube. 2 Models 900 and 12H shall have independently circuited tube condensers for added reliability.

Cooling Coil

The evaporator coil shall be one-half inch or three-eight inch OD seamless copper tubes mechanically expanded into aluminum fins.
Coils shall have at least two independent circuits for good part load capability (exceptions being 270, 330, 400)
Larger units of models 900 and 12H, exceeding 800 MBH shall have 3 or more circuits to ensure best part load capability and servicing. Coils shall be proof tested and leak at 300 psig.
Thermal expansion device shall be of direct expansion type with external equalizers (capillary tubes shall not be acceptable).
Drain pipe outlet shall be left or right convertible (300-12H). The drain pan shall be of sloping design fabricated of galvanized steel insulated to prevent any condensation and corrosion coated to prevent any corrosion. Suction lines shall be fully insulated.

Fans

Supply fans shall be of double width double inlet forward curved centrifugal fans statically and dynamically balanced. The fans shall be factory run tested. The supply fan motor shall be totally enclosed fan cooled, with thermal protection.

Notes
1. Applicable for PE insulated units only. Double skin PU insulated units shall have a sandwiched 0.4 mm galvanized sheet on the outer & inner layers.
2. Applicable for Models 270-800.

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

Amair Limited
35 Mu 8, Poochaosamingprai Road
Samrong Tai, Samutprakarn 10130

http://www.tranethailand.com

A business of American Standard Companies

Literature Order Number:	UNT-SLB002
Date:	Nov 2006
Supersedes:	Dec 2003
Stocking Location:	Bangkok, Thailand