



SELF-CONTAINED

Water Cooled Air Conditioners

17-95 Tons

WCVS Series 50 Hz

TRANE
TECHNOLOGIES™





Intelligent Control	
7 Segment LED Indicated Microprocessor Diagnostics	Quicker, Accurate Troubleshooting.
Higher Controller Reliability with built in control & safety logic.	Longer, trouble-free life span.
Less Complex, fewer electromechanical parts.	Increases reliability with built in safeties.
Factory installed temperature control	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.

Full Protection	
Compressor overheat, overcurrent 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 through safeties that trip the system on high temperature.	
Compressor time delays and on-off sequencing logic that is built into the microprocessor algorithm for maximum protection.	
Micro Processor controlled sequencing to balance compressor operating time and extend its life.	
Double walled PU panels and Non hydroscopic PE insulated frames, to ensure clean, quiet and safe air always.	



Intelligent Design	
Small Footprints	Reduces valuable installed space
Scroll Compressors	Improved reliability with less moving parts. Quieter, low starting torque.
High Performance Evaporator Coils	High carryover tolerance and higher coil efficiencies, with Trane Slit Fin technology.
Multiple Refrigerant Circuits (WCVS 470-800, 900, 12H)	Redundancy.
Optimized Part load efficiencies.	Delivers higher efficiencies at part load.

Simplified Installation & Servicing	
Service Flexibility	For 2 circuit system, this means servicing capability without total refrigerant system shutdown.
Built in 1" Washable Filters [2" washable on the 900, 12H]	Filters come installed in AI frames, allowing, cost effective and quick filter replacements.
Built in controls: Starters, thermostats	Minimum electrical wiring and costs required.
Fully R22 Charged. (R407C as optional)	Almost a plug and play product.
Colored & Numbered Wiring.	Further enhances installation & troubleshooting for peace of mind.
Cleanable High efficiency shell & tube condensers (excludes models 900, 12H)	Quick, easy and lower frequency tube maintenance. [900, 12H models have independent tube condensers]
Interchangeable water connection sides	Allows for piping flexibility.
High Static Options	Allows for a wide airflow application range.

System Performance Matrix

Model	Total Capacity		Sensible Capacity		Nominal Airflow		Condenser	
	MBH	kW	MBH	kW	CFM	CMS	USGPM	l/s
WCVS 270	214	63	150	44	6190	2.92	48	3.0
WCVS 330	278	81	189	55	7760	3.66	63	4.0
WCVS 400	323	95	221	65	9240	4.36	74	4.7
WCVS 470	400	117	281	82	10750	5.07	91	5.7
WCVS 530	431	126	294	86	12120	5.72	99	6.2
WCVS 600	537	157	383	112	13800	6.51	120	7.6
WCVS 660	591	173	406	119	15130	7.14	131	8.3
WCVS 730	650	190	474	139	16880	7.97	147	9.3
WCVS 800	682	200	487	143	18080	8.53	156	9.8
WCVS 900	855	250	598	175	24500	11.56	208	13.1
WCVS 12H	1140	334	798	234	33500	15.81	277	17.5

Notes:

- Gross Cooling Capacity based on 90/100 deg°F [32.2/37.7°C], EWT-LWT and 80/67 deg °F [27/19 °C] on coil conditions & Nominal airflows.
- Unit picture on the cover page is for illustration purpose only. The actual control panel location depends on model, please refer to IOM.

Unit Casing

The unit framework shall be 1.9 mm ga. GI steel. Exterior panels¹ shall be fabricated from 0.4 mm galvanized, 25 mm thick double skin steel. All external panels shall be cleaned and coated with baked polyester powder paint. The compressor base frame shall be welded 2.3 mm galvanized steel.

All panels in contact with the air stream shall be insulated with cleanable non hydroscopic PU insulation, encased together within two GI sheets.

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 25 mm PU panels as well.

The unit base shall be covered with a GI sheet.



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 control.

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

Starter

Unit mounted DOL starters shall be standard factory fitted, for compressor and fan startup. All models shall come standard with built - in on - off switches.

Compressors

Units 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.

Model 900 and 12H shall have built in phase reversal protection.

All compressors shall be isolated externally 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 tube². Model 900 and 12H shall have independently circuited tube-in-tube condensers, with one compressor per condenser, for added reliability.

Water connection location shall be field convertible.

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 270, 330, 400 with one circuit).

Larger units of model 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 tested 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.

Fan

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, IP55, with thermal protection.

Notes:

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



Insu (ประเทศไทย)

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Note:

1. Gross Cooling Capacity based on 90/100 deg °F [32/27.7 °C], EWT/LWT and 80/67 deg °F [27/19 °C] on coil conditions & Nominal airflows.
2. RLA/LRA, FLA, MCA Rated at 400V.
3. 2-inch washable filter is standard for all models.
4. RLA rated at ARI 360 Conditions.

Performances													
Unit Capacity Step (%)		WCVS270	WCVS330	WCVS400	WCVS470	WCVS530	WCVS600	WCVS660	WCVS730	WCVS800	WCVS900	WCVS12H	
Total Compressor Power Input (kW)		50-50	50-50	50-50	27-63-100	25-62-100	21-50-70-100	25-50-75-100	23-50-73-100	25-50-75-100	35-66-100	25-50-75-100	
Main Power Supply Utilization Range		13.2	18.3	22.3	25.5	29.2	32.1	33.9	41.2	45.2	57.0	77.0	
Sound Power Level (at 1kHz) (dBA)		400V±10%											
Sound Power Level (at 1kHz) (dBA)		70	68	73	72	72	72	71	73	76	76	76	
Compressor Data													
Qty		2	2	2	3	3	4	4	4	4	3	4	
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	
Model		2x10T	2x13T	2x15T	(1x10T)+(2x13T)	(1x10T)+(2x15T)	(2x10T)+(2x13T)	2x(2x13T)	(2x13T)+(2x15T)	2x(15T+15T)	3x25T	4x25T	
Speeds Number		Single Speed 2900RPM @50Hz											
Unit MCA Amps(2)(4)	(A)	Refer to Electrical Data Table											
RLA / LRA (2)(4)	(A)	Refer to Electrical Data Table											
Condenser Data													
Condenser Type		SIMPLEX-Shell & Tube Condenser (25RT)			DUPLIX-Shell & Tube Condenser (35RT)			Manifolded Shell & Tube Condenser (50RT)			MANIFOLDED-Tube in Tube Cds.		
Water Connection Size		2.5"BSPT			2.5			2.5			2.5		
Max. Flow Rate		60/228			89/335			132/500			161/609		
Min Flow Rate		26/98			33/145			46/174			66/252		
Max. Water Side Pressure		300/2,068			300/2,068			300/2,068			300/2,068		
Evaporator Coil Data													
Configuration		3/12			3/12			4/12			4/12		
Tube Material		Copper			Copper			Copper			Copper		
Tube Type		Copper			Copper			Copper			Copper		
No. of Circuits (Coil)		1			1			2			2		
Refrigerant Flow Control		1-1/4			1-1/4			TXV			3		
Drain Connection Size		1-1/4			1-1/4			1-1/4			1-1/4		
Evaporator Fan/Motor Data													
Drive Type		Belt											
FLA/LRA (each)(2)		Refer to Electrical Data Table											
Qty of Motors		5/3.7		5/3.7		7.5/5.5		7.5/5.5		10/7.5		15/11	
Hi Static HP/kW		7.5/5.5		10/7.5		15/11		20/15		20/15		25/18.5	
Diameter of Fan		15.4/390		15.7/400		15.4/390		17.7/450		17.7/450		19.7/500	
Qty of Fans		1		1		2		2		2		2	
Indoor Fan Type		←		←		←		←		←		→	
Air flow- Max		7,600		9,500		11,300		14,600		18,300		21,900	
- Min		4,800		6,200		7,400		9,600		12,000		14,400	
Fan Motor Type		TEFC 400V+,-10% 3Ph/50Hz											
Std. Fan Speed (Std. Factory Set)		900		850		900		900		760		760	
@ ESP including filters in/(Nominal CFM)		1.1"[6,190]		1.1"[7,760]		1.1"[9,240]		1.4"[13,800]		1.5"[15,130]		1.1"[18,080]	
Max. Allowable Fan RPM		1,100		1,100		1,100		1,200		1,000		1,000	
Fitters													
Size		2" WASHABLE											
		(2)15x20x2		(4)20x25x2		(6)15x25x2		(9)20x25x2		(3)25x25x2		(10)25x20x2	
		(1)15x25x2		(2)20x25x2		(3)25x25x2		(3)20x20x2		(4)20x25x2		(5)22x25x2	
		(2)20x20x2								(1)20x20x2		(5)20x20x2	
		(1)20x25x2								(3)25x26x2		(1)16x20x2	
										(1)20x26x2		(1)20x26x2	
Refrigerant Charge													
Circuit 1		(kg)		14.6		16.8		16.8		16.8		16.8	
Circuit 2		(kg)		-		-		7.3		16.8		27.0	
Circuit 3		(kg)								27.0		27.0	
Circuit 4		(kg)								27.0		27.0	
Dimention (uncrated)													
Height		(mm)		1,453		1,923		2,065		2,065		2,260	
Width		(mm)		1,989		1,989		2,263		2,769		3,322	
Depth		(mm)		874		1,061		1,061		1,275		1,345	
App. operating weight		(mm)		567		927		980		1,588		1,779	