TRANE

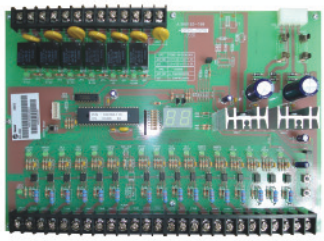
SELF-CONTAINED

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 Al 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) 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 maintenance. [900, 12H models have independent tube condensers]
Interchargeable water connection sides	Allows for piping flexibility.
High Static Options	Allows for a wide airflow application range.

System Performance Matrix

	Total Capacity		Sensible Capacity		Nominal Airflow		Condenser	
Model	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 85/95 deg °F [29.5-35 °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 panels[1] 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 tube[2]. 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-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 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 intel 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.

		WCVS270	WCVS330	WCVS400	WCVS470	WCVS530	WCVS600	WCVS660	WCVS730	WCVS800	WCVS900	WCVS12H
Performances												
Unit Capacity Step (%)		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
Total Compressor Power Input	(kW)	13.2	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										
Utilization Range		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)			DUPLEX-Shell & Tube Condenser (35RT)		Manifolded Shell & Tube Condenser (50RT)				MANIFOLDED-Tube in Tube Cds.	
Water Connection Size	in,BSPT(Int Thd)	2.5"BSPT			2.5	2.5	2.5	2.5	2.5	2.5	4	4
Max. Flow Rate	gpm,Lpm	60/228	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	26/98	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	300/2,068	300/2,068	300/2,068	300/2,068	300/2,068	300/2,068	300/2,068	300/2,068	300/2,068	300/2,068	300/2,068
Evaporator Coil Data												
Configuration	Rows/FPI	3/12	3/12	3/12	3/12	3/12	4/12	4/12	4/12	4/12	4/12	4/12
Tube Material		Copper	Copper	Copper	Copper	Copper	Copper	Copper	Copper	Copper	Copper	Copper
Tube Type		Smooth Bore										
No. of Circuits (Coil)		1	1	1	2	2	2	2	2	2	3	4
Refrigerant Flow Control		TXV										
Drain Connection Size	in,BSPT	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	1-1/4
Evaporator Fan/Motor Data												
Drive Type		Belt										
FLA/LRA (each)(2)		Refer to Electrical Data Table										
Qty of Motors	std. HP/kW	5/3.7	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 HP/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	15.4/390	15.7/400	15.7/400	15.4/390	15.4/390	17.7/450	17.7/450	17.7/450	17.7/450	19.7/500	22/560
Qty of Fans		1	1	1	2	2	2	2	2	2	2	2
Indoor Fan Type		Centrifugal FC										
Air flow- Max	cfm	7,600	9,500	11,300	14,600	14,600	18,300	18,300	21,900	21,900	28,000	38,000
- Min	cfm	4,800	6,200	7,400	9,600	9,600	12,000	12,000	14,400	14,400	21,000	28,000
Fan Motor Type		TEFC 400V+,-10% 3Ph/50Hz										
Std. Fan Speed (Std. Factory Set)		900	850	900	900	900	760	760	760	760	786	698
@ ESP including filters in/(Nominal CFM)		1.1"[6,190]	1.1"[7,760]	1"[9,240]	1"[10,750]	0.9"[12,120]	1.4"[13,800]	1.5"[15,130]	1.3"[16,880]	1.1"[18,080]	1.2"[24,750]	1.2"[33,000]
Max. Allowable Fan RPM		1,100	1,100	1,100	1,200	1,200	1,000	1,000	1,000	1,000	1,000	1,000
Fitters		2" WASHABLE										
Size	(Qty) in	(2)15x20x2	(4)20x20x2	(4)20x25x2	(6)15x25x2	(6)15x2.5x2	(9)20x25x2	(9)20x25x2	(3)25x25x2	(3)25x25x2	(10)25x20x2	(5)16x25x2
		(1)15x25x2	(2)20x25x2	(2)25x25x2	(3)25x25x2	(3)25x25x2	(3)20x20x2	(3)20x20x2	(4)20x25x2	(4)20x25x2	(2)16x25x2	(5)22x25x2
		(2)20x20x2							(1)20x20x2	(1)20x20x2	(5)20x20x2	(10)25x25x2
		(1)20x25x2							(3)25x26x2	(3)25x26x2	(1)16x20x2	
									(1)20x26x2	(1)20x26x2		
Refrigerant Charge												
Circuit 1	(kg)	14.6	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	27.0	27.0
Circuit 2	(kg)	-	-	-	7.3	7.3	16.8	16.8	16.8	16.8	27.0	27.0
Circuit 3	(kg)										27.0	27.0
Circuit 4	(kg)											27.0
Dimention (uncrated)												
Height	(mm)	1,453	1,923	1,898	2,065	2,065	2,065	2,065	2,065	2,065	2,260	2,519
Width	(mm)	1,989	1,989	1,989	2,263	2,263	2,769	2,769	2,769	2,769	3,232	3,577
Depth	(mm)	874	1,061	1,061	1,061	1,061	1,275	1,275	1,275	1,275	1,345	1,500
App. operating weight	(mm)	567	927	980	1,226	1,199	1,588	1,594	1,722	1,730	1,779	2,046

Note:

1. Gross Cooling Capacity based on 85/95 deg °F [29.5/35 °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.

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