

Cooline[®]

AIR CONDITIONERS

from  **Zamil**



Concealed Chilled Water Vertical Fan Coil Units

VWL Series
VWL03 thru VWL10
300 CFM thru 1000 CFM



Higher quality of indoor living

Our product line ...



Company Business

Zamil Air Conditioners was founded in 1974 as one of the first air conditioning business to be established in Saudi Arabia and today is a leading international manufacturer of air conditioning systems and is No. 1 in the Middle East.

Zamil Air conditioners manufactures both consumer and central air conditioners and has sales operations in over 55 countries in the Middle East, Europe, Africa and Asia.

The company's operations are structured into four Strategic Business Units (SBUs) supporting five in-house product and service brands as well as a number of international brands under the OEM sales.

The five in-house brands are Classic, Cooline, CoolCare, Clima Tech and Geoclima.

The four SBUs are:

1. Consumer Business Unit supporting Classic, Cooline, GE and OEM brands for consumers.
2. Unitary & Applied Business Unit supporting Classic, Cooline, GE and OEM brands for commercial and industrial customers.
3. Zamil CoolCare providing engineering & project management services, HVAC maintenance, retrofit services and parts.
4. Geoclima srl is an independent business supporting other SBUs for their requirement of Chillers & Double skin AHU's.

The first three SBUs - Consumer Products, Unitary & Applied Products and CoolCare Service direct their business operations from the corporate headquarters at Dammam, Saudi Arabia.

Geoclima has its engineering & production departments located at Monfalcone, Italy and has a design center in Austria.

All the four SBUs, while operating independently, supplement each other's activities in a way that makes synergy work at its best and achieve the corporate goals of maximizing customer satisfaction.

Factories and Productions

Zamil Air Conditioners has two manufacturing plants in Dammam, Saudi Arabia and has one speciality production facility in Italy operated by Geoclima.

The company can produce up to 550,000 Room Air Conditioners, 300,000 Mini-Split systems and 50,000 Central Air Conditioning systems per year.

Quality & Product Certificates

The Quality systems and policies at Zamil Air Conditioners comply with the required ISO 9001:2000 certification.

Zamil Air Conditioners is the first company in Saudi Arabia to receive the SASO (Saudi Arabia's Standard Organization) Certificate for Room Air Conditioners. ZAC's products are also certified with:

1. CE (Council of European Community)
2. UL (Underwriters Laboratory)
3. Eurovent
4. DEMKO
5. ETL

Other awards include the prestigious Engineering Excellence Award of General Electric and the inaugural Prince Mohammed bin Fahd Al Saud Award for Factory Safety.

Our Products

In addition to the consumer products such as the Room Air Conditioners (RAC) and the Mini Splits, Zamil Air Conditioners manufacturers a host of residential, commercial and industrial air conditioners. This broad range extends from the Concealed Units up to 5 tons, the Ducted Splits up to 30 tons, the Packaged Units up to 90 tons, the Single and Double Skin Air Handling Units up to 70,630 CFM and the Water Chillers up to 660 tons cooling capacity.

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*CONTINUING RESEARCH RESULTS IN STEADY IMPROVEMENTS.
THEREFORE, THESE SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.*

MODEL DECODING

1, 2 & 3 BASIC (SERIES)	4 & 5 SIZE (x 100 CFM)	6 ELECTRICAL SUPPLY (V-Ph-Hz)	7 COIL	8 HEATER	9 ACCESSORIES	10 FIN	11 COIL CONNECTION	12 FILTER	13 OPTION
VWL COOLINE CONCEALED CHILLED WATER FAN COIL UNIT, VERTICAL SERIES	03	B : 220/240-1-50	A : 3 ROW CHILLED WATER J : 3 ROW CHILLED WATER + 1 ROW HEAT	N : NO HEATER	N : STANDARD B : 3D VALVE PACKAGE (COOL ONLY) K : 4D VALVE PACKAGE (HEAT & COOL)	A : ALUMINUM FIN B : COATED ALUMINUM FIN C : COPPER FIN	R : RH SIDE, STANDARD (FACING AIR DISCHARGE) L : LH SIDE, OPTIONAL (FACING AIR DISCHARGE)	N : NONE A : ALUMINUM (1" THICK)	N : STANDARD UNIT
	04			E : 3 kW					
	06			F : 4 kW					
	08			N : NO HEATER					
	10			G : 5 kW H : 6 kW J : 7 kW					

UNIT FEATURES

COMPACT DIMENSIONS

Ideal to fit into tight spaces.

QUIET, PULSE FREE AIR DELIVERY

Centrifugal fans that are statically and dynamically balanced, handle up to 0.25" w.g. external static pressure allowing you to keep the unit away from your comfort zone.

STANDARD SPECIFICATIONS

GENERAL

These ducted indoor fan coil units are designed for remote out of the way installation. The unit can be placed on the floor or hung to a wall to provide additional floor space. The slim line design makes this unit ideal for ducted application in public buildings, office space, hospitals, hotels and mechanical rooms.

UNIT CONSTRUCTION

Basic unit is fabricated of heavy gauge galvanized steel to ensure lasting durability and dependable performance with minimum maintenance. The panels are insulated to provide positive protection against sweating.

Access to the blower motor assembly is provided through the removable front access panel from where the complete condensate pan and blower assembly can be removed for servicing.

The standard arrangement provides a 1" top discharge duct collar or an optional front discharge and a permanent cleanable 1" thick aluminum filter in the bottom return air space.

MOTORS

All motors are resilient mounted, three speed, tap wound, with built in thermal overload protection which are factory wired to the speed selector switch. Motor bearing are of the sleeve type with oil tubes provided & oversize oil reservoirs to assure long bearing life without unnecessary frequent oiling.

FANS

The centrifugal, forward curved, double width fan wheels are statically & dynamically balanced to assure smooth & quiet operation. Blower housing are rugged galvanized steel to provide added rigidity.

COILS

Coils have 3/8" OD copper tubes mechanically bonded to the aluminum fins. As an option, **corrugated copper or coated aluminum fins** may be provided. The standard chilled water coil is 3 Rows for all models. For heating application, the coils

are split as 3 row chilled water + 1 row hot water. All coils are leak tested at 350 psig minimum pressure and are suitable for working pressure up to 250 psig. Coil connections are 5/8" OD male sweat. Coil conform to ARI 410.

DRAIN PAN

These units have a combination of drain and fan deck assembly fabricated of heavy gauge galvanized steels & insulated with fire retardant closed cell foam. All units are provided with an auxiliary drain pan with 7/8" OD copper connection.

DRIP LIP

The purpose of drip lip is to capture any condensate from valve packages and direct it to drain pan. It is fabricated of a single metal formed to fit on the side of drain pan. They may be installed in the field and should always be pitched towards drain pan to assure proper drainage. This will be supplied loose for field installation along with valve package.

OPTIONS

ELECTRICAL HEATERS

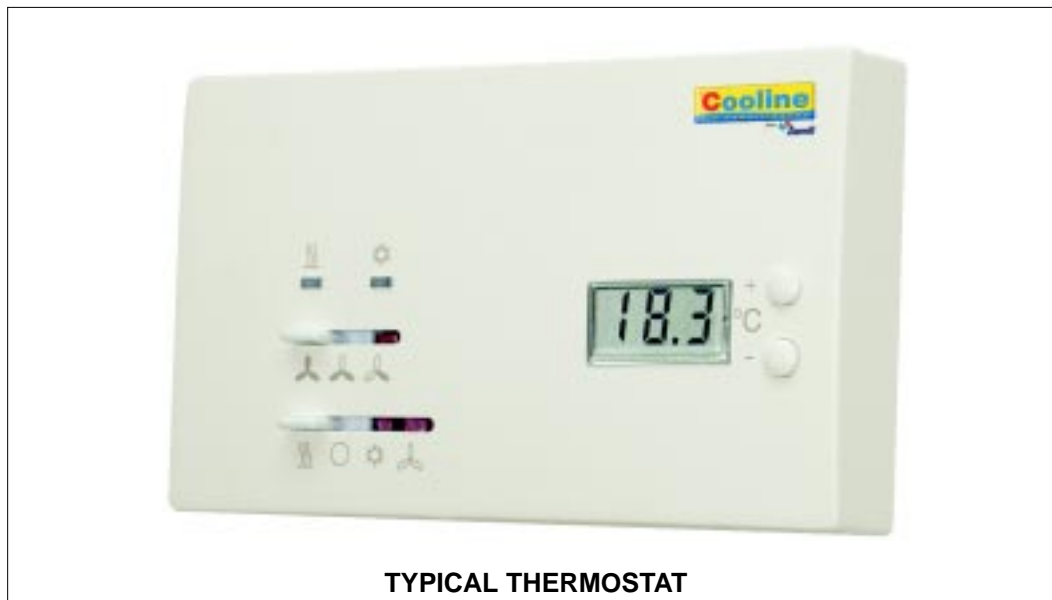
The heating element is made of tubular finned sheath coil of the highest grade resistance wire precisely centered in a 1/2" dia. Copper plated steel sheath and insulated from the sheath by magnesium oxide powder. Through the application of mechanical force, the powder is packed to a rock like density, insuring rapid heat dissipation from the resistance coil to the sheath section at each end of the element is unheated to remove source of heat from the terminals. The surface area exposed to the air is increased by the application of 1-1/4" OD fins. The fin is made of steel wound around the element in a continuous spiral which makes five turns per linear inch of element. The sheath and fin are permanently bonded together by copper brazing.

VALVE PACKAGES

Valve packages, as a set are available as an option (3D for two-pipe system and 4D for four-pipe system). These valves are supplied loose for field installation.

THERMOSTAT

An attractive wall mounted 3-speed electronic thermostat with all required functions and features for safe and smooth operation, which can be used, for cooling and heating. This thermostat can be supplied loose through separate Kit number.



TYPICAL THERMOSTAT

PHYSICAL DATA

MODEL NUMBER		VWL03	VWL04	VWL06	VWL08	VWL10
EVAPORATOR BLOWER	Type	Centrifugal				
	Blower size	146 x 203	146 x 203	146 x 203	146 x 203	146 x 203
	Quantity	1	2	2	4	4
BLOWER MOTOR	FLA/Watts	0.45/75	0.7/145	0.91/175	1.3/230	1.55/340
	Quantity	1	1	1	2	2
EVAPORATOR COIL	Type	Corrugated fin & tube				
	Rows, std. chilled water	3	3	3	3	3
	Rows, split (chilled + hot water)	3+1	3+1	3+1	3+1	3+1
	Tube dia - FPI	3/8 - 12	3/8 - 12	3/8 - 12	3/8 - 14	3/8 - 14
	Face area, Sq. ft. (Sq. m.)	1 (0.09)	1.5 (0.14)	2.1 (0.20)	3 (0.29)	3.4 (0.32)
	Water in/out size (inch), Chilled water	5/8	5/8	5/8	5/8	5/8
	Water in/out size (inch), Hot water	5/8	5/8	5/8	5/8	5/8
	Condensate drain connection (inch)	7/8	7/8	7/8	7/8	7/8
RETURN AIR FILTER (1" THICK)	Size (inch)	7-3/4 x 21-3/4	7-3/4 x 31-3/4	7-3/4 x 41-3/4	7-3/4 x 57-3/4	7-3/4 x 65-3/4
	Quantity	1	1	1	1	1
SHIPPING WEIGHT	kg. (approx.)	23	33	37	64	77

HOT WATER CAPACITIES

MODEL NUMBER	EWT - 150°F (65°C)		EWT - 180°F (82°C)	
	GPM (LPS)	CAPACITIES MBH (kW)	GPM (LPS)	CAPACITIES MBH (kW)
VWL03	0.74 (0.05)	7.4 (2.16)	1.14 (0.07)	11.43 (3.35)
VWL04	1.2 (0.075)	11.4 (3.33)	1.8 (0.11)	17.6 (5.15)
VWL06	1.6 (0.10)	16.05 (4.7)	2.53 (0.16)	25.26 (7.4)
VWL08	2.4 (0.15)	23.4 (6.85)	3.7 (0.233)	36.8 (10.77)
VWL10	2.65 (0.17)	26.53 (7.76)	4.24 (0.27)	42.36 (12.4)

NOTE: Capacities @ 70°F (21°C) Entering Air Temperature & 20°F (11°C) Water Temperature Drop.

LEGEND: EWT - Entering Water Temperature; MBH - 1000 BTUH; GPM - Gallons Per Minute; LPS - Liters Per Second

CHILLED WATER COOLING CAPACITIES (ENGLISH UNITS)

ENTERING AIR TEMP. = 76°F DB/63°F WB (@ HIGH SPEED)

WTR (°F)	UNIT SIZE	40°F EWT			45°F EWT			50°F EWT		
		TC	SC	GPM	TC	SC	GPM	TC	SC	GPM
8	03	8.3	6.0	2.08	6.3	5.1	1.6	4.6	4.5	1.31
	04	12.7	9.1	3.2	9.7	7.7	2.45	6.9	6.7	2.0
	06	18.5	13.2	4.61	13.8	11.0	3.44	9.0	8.9	2.26
	08	26.2	18.5	6.5	19.6	15.4	4.9	13.0	12.5	3.3
	10	30.3	21.3	7.6	22.4	17.5	5.61	14.8	14.2	3.71
10	03	7.7	5.6	1.53	6.0	5.0	1.45	4.5	4.4	1.25
	04	11.7	8.5	2.35	9.1	7.3	2.05	6.3	6.2	1.6
	06	16.8	12.1	3.36	12.1	9.8	2.42	7.8	7.8	1.7
	08	23.9	17.0	4.8	17.2	13.8	3.45	10.0	10.0	2.0
	10	27.4	19.5	5.47	19.8	15.8	4.0	11.4	11.4	2.3
12	03	7.5	5.4	1.4	6.0	4.9	1.55	4.4	4.4	1.2
	04	11.4	9.3	2.2	8.2	6.7	1.6	6.1	6.1	1.4
	06	15.1	11.1	2.52	9.8	8.2	1.64	6.4	6.4	1.5
	08	21.6	15.6	3.6	14.7	12.0	2.45	9.6	9.6	1.9
	10	24.7	17.8	4.12	16.9	13.8	2.81	10.4	10.4	2.02

ENTERING AIR TEMP. = 80°F DB/67°F WB (@ HIGH SPEED)

WTR (°F)	UNIT SIZE	40°F EWT			45°F EWT			50°F EWT		
		TC	SC	GPM	TC	SC	GPM	TC	SC	GPM
8	03	13.4	8.3	3.35	11.3	7.4	2.83	9.23	6.67	2.31
	04	20.81	12.75	5.35	17.4	11.32	4.5	14.15	10.11	3.6
	06	30.6	18.65	7.65	25.45	16.4	6.36	20.53	14.6	5.1
	08	42.6	25.76	9.5	36.7	23.3	9.2	29.3	20.4	7.3
	10	48.2	29.2	10.3	42.05	26.6	10.26	33.9	23.4	8.46
10	03	12.7	7.86	2.54	10.62	7.0	2.1	8.6	6.26	1.71
	04	19.52	12.0	4.0	16.3	10.64	3.3	13.0	9.5	2.65
	06	28.4	17.42	5.67	23.53	15.33	4.71	18.8	13.6	3.76
	08	40.82	24.81	8.2	33.5	21.6	6.7	26.85	19.0	5.4
	10	47.0	28.4	9.4	38.66	24.71	7.73	30.71	21.62	6.14
12	03	12.0	7.5	2.0	9.96	6.62	1.66	7.87	5.84	1.31
	04	18.36	11.4	3.1	15.22	10.05	2.6	12.0	8.8	2.0
	06	26.54	16.41	4.42	21.86	14.4	3.64	17.2	12.6	2.9
	08	37.85	23.17	6.3	31.3	20.21	5.2	24.53	17.63	4.1
	10	43.51	26.54	7.27	36.65	23.0	5.94	28.0	20.0	4.67

ENTERING AIR TEMP. = 84°F DB/71°F WB (@ HIGH SPEED)

WTR (°F)	UNIT SIZE	40°F EWT			45°F EWT			50°F EWT		
		TC	SC	GPM	TC	SC	GPM	TC	SC	GPM
8	03	18.7	10.22	4.67	16.5	9.3	4.12	14.33	8.51	3.6
	04	29.0	15.76	7.0	26.0	14.5	6.8	22.4	13.14	5.8
	06	41.3	22.36	8.71	38.4	21.35	8.1	32.9	19.2	8.22
	08	55.9	30.3	9.5	49.9	27.7	9.2	43.5	25.3	8.5
	10	64.2	37.12	10.14	58.0	32.4	9.8	50.9	29.8	9.31
10	03	17.8	9.76	3.56	15.7	8.9	3.14	13.6	8.13	2.72
	04	27.7	15.12	5.7	24.3	13.66	5.0	20.95	12.42	4.3
	06	40.8	22.2	8.17	35.6	19.9	7.12	30.51	18.0	6.1
	08	55.0	29.8	9.0	49.3	27.42	8.8	43.1	25.0	8.2
	10	63.0	34.5	9.8	56.5	30.6	9.6	49.32	28.6	9.2
12	03	17.05	9.37	2.84	15.0	8.51	2.5	12.91	7.8	2.15
	04	26.31	14.41	4.5	23.0	13.0	3.9	19.7	11.8	3.3
	06	38.4	21.0	6.4	33.45	18.84	5.6	28.61	17.0	4.77
	08	54.1	29.4	8.4	48.0	26.75	8.0	40.8	23.9	6.8
	10	62.2	33.91	9.4	55.4	30.75	9.23	47.0	27.44	7.84

NOTE:

- Capacities are based on 3 row coil & 14FPI.
- For any other conditions, please use selection software for fan coil units. Apart from capacities, this software provides;
 - Sensible heat ratio
 - Leaving air temperature (DB/WB) - °F
 - Leaving water temperature - °F
 - Leaving water velocities (FPM)
 - Water pressure drop (feet of water)

LEGEND:

- TC - Total Capacity (MBH)
- SC - Sensible Heat Capacity (MBH)
- WTR - Water Temperature Rise (°F)
- EWT - Entering Water Temperature (°F)
- GPM - Water flow (Gallons Per Minute)

CHILLED WATER COOLING CAPACITIES (METRIC UNITS)

ENTERING AIR TEMP. = 25°C DB/17°C WB (@ HIGH SPEED)

WTR (°C)	UNIT SIZE	4°C EWT			7°C EWT			10°C EWT		
		TC	SC	LPS	TC	SC	LPS	TC	SC	LPS
5	03	2.44	1.76	0.13	1.9	1.5	0.10	1.35	1.3	0.08
	04	3.72	2.67	0.20	2.84	2.25	0.15	2.03	1.96	0.13
	06	5.4	3.86	0.29	4.03	3.22	0.22	2.64	2.6	0.14
	08	7.67	5.42	0.41	5.74	4.51	0.31	3.81	3.66	0.21
	10	8.87	6.24	0.48	6.57	5.13	0.35	4.34	4.15	0.23
6	03	2.25	1.64	0.10	1.8	1.4	0.09	1.3	1.25	0.08
	04	3.42	2.47	0.15	2.66	2.14	0.13	1.85	1.83	0.10
	06	4.92	3.54	0.21	3.54	2.88	0.15	2.27	2.27	0.11
	08	7.01	4.98	0.30	5.04	4.04	0.22	2.93	2.93	0.13
	10	8.01	5.71	0.34	5.8	4.63	0.25	3.34	3.34	0.14
7	03	2.18	1.59	0.09	1.7	1.35	0.10	1.25	1.25	0.07
	04	3.35	2.72	0.14	2.41	1.97	0.10	1.8	1.79	0.09
	06	4.42	3.24	0.16	2.88	2.4	0.10	1.9	1.9	0.10
	08	6.33	4.57	0.23	4.3	3.51	0.15	2.8	2.8	0.12
	10	7.23	5.21	0.26	4.95	4.03	0.18	3.05	3.05	0.13

ENTERING AIR TEMP. = 27°C DB/19.5°C WB (@ HIGH SPEED)

WTR (°C)	UNIT SIZE	4°C EWT			7°C EWT			10°C EWT		
		TC	SC	LPS	TC	SC	LPS	TC	SC	LPS
5	03	3.92	2.43	0.21	3.31	2.17	0.18	2.70	1.95	0.15
	04	6.09	3.73	0.34	5.10	3.31	0.28	4.14	2.96	0.23
	06	8.96	5.46	0.48	7.45	4.80	0.40	6.01	4.28	0.32
	08	12.47	7.54	0.60	10.75	6.82	0.58	8.58	5.97	0.46
	10	14.11	8.55	0.65	12.31	7.79	0.65	9.93	6.85	0.53
6	03	3.72	2.30	0.16	3.11	2.05	0.13	2.52	1.83	0.11
	04	5.72	3.51	0.25	4.77	3.12	0.21	3.81	2.78	0.17
	06	8.32	5.10	0.36	6.89	4.49	0.30	5.51	3.98	0.24
	08	11.95	7.27	0.52	9.81	6.33	0.42	7.86	5.56	0.34
	10	13.76	8.32	0.59	11.32	7.24	0.49	8.99	6.33	0.39
7	03	3.51	2.20	0.13	2.92	1.94	0.10	2.30	1.71	0.08
	04	5.38	3.34	0.20	4.46	2.94	0.16	3.51	2.58	0.13
	06	7.77	4.81	0.28	6.40	4.22	0.23	5.04	3.69	0.18
	08	11.08	6.78	0.40	9.17	5.92	0.33	7.18	5.16	0.26
	10	12.74	7.77	0.46	10.73	6.75	0.37	8.20	5.86	0.29

ENTERING AIR TEMP. = 29°C DB/21.5°C WB (@ HIGH SPEED)

WTR (°C)	UNIT SIZE	4°C EWT			7°C EWT			10°C EWT		
		TC	SC	LPS	TC	SC	LPS	TC	SC	LPS
5	03	5.48	2.99	0.29	4.83	2.72	0.26	4.20	2.49	0.23
	04	8.49	4.61	0.44	7.61	4.25	0.43	6.56	3.85	0.37
	06	12.09	6.55	0.55	11.24	6.25	0.51	9.63	5.62	0.52
	08	16.37	8.87	0.60	14.61	8.11	0.58	12.74	7.41	0.54
	10	18.80	10.90	0.64	16.90	9.15	0.62	14.90	8.71	0.60
6	03	5.21	2.86	0.22	4.60	2.61	0.20	3.98	2.38	0.17
	04	8.11	4.43	0.36	7.12	4.0	0.32	6.13	3.64	0.27
	06	11.95	6.50	0.51	10.42	5.83	0.45	8.93	5.27	0.38
	08	16.11	8.73	0.57	14.44	8.03	0.55	12.62	7.32	0.52
	10	18.45	10.10	0.62	16.54	8.96	0.60	14.44	8.37	0.60
7	03	4.99	2.74	0.18	4.39	2.49	0.16	3.78	2.28	0.14
	04	7.70	4.22	0.28	6.73	3.81	0.25	5.77	3.46	0.21
	06	11.24	6.15	0.40	9.80	5.52	0.35	8.38	4.98	0.30
	08	15.84	8.61	0.53	14.06	7.83	0.50	11.95	7.0	0.43
	10	18.21	9.93	0.59	16.22	9.0	0.58	13.76	8.04	0.50

NOTE:

- Capacities are based on 3 row coil & 14FPI.
- For any other conditions, please use selection software for fan coil units. Apart from capacities, this software provides;
 - Sensible heat ratio
 - Leaving air temperature (DB/WB) - °C
 - Leaving water temperature - °C
 - Leaving water velocities (m/s)
 - Water pressure drop (kp)

LEGEND:

- TC - Total Capacity (kW)
- SC - Sensible Heat Capacity (kW)
- WTR - Water Temperature Rise (°C)
- EWT - Entering Water Temperature (°C)
- LPS - Water flow (Liters Per Second)

FAN PERFORMANCE DATA ENGLISH UNITS

MODEL NUMBER	BLOWER MOTOR SPEED	CFM @ EXTERNAL STATIC PRESSURE (Inches of water)					
		0.0	0.05	0.1	0.15	0.2	0.25
VWL03	HIGH	310	285	265	247	221	198
	MEDIUM	290	265	245	212	190	164
	LOW	270	262	232	209	185	161
VWL04	HIGH	460	422	395	360	330	294
	MEDIUM	410	384	356	325	290	252
	LOW	360	326	299	267	233	194
VWL06	HIGH	630	577	532	488	447	405
	MEDIUM	570	527	486	450	405	356
	LOW	530	483	447	405	362	323
VWL08	HIGH	800	746	699	647	593	534
	MEDIUM	740	693	647	588	543	482
	LOW	650	593	553	499	443	375
VWL10	HIGH	900	824	781	724	673	606
	MEDIUM	830	810	770	712	657	588
	LOW	790	741	691	641	586	511

NOTE: 1. Values include losses for dry coil and filters.
2. For additional hot water row, add 0.1" WG to the ESP.

METRIC UNITS

MODEL NUMBER	BLOWER MOTOR SPEED	LITERS PER SECOND @ EXTERNAL STATIC PRESSURE (Pascal)					
		0.0	12.5	25	37.5	50	62.5
VWL03	HIGH	146	134	125	117	104	93
	MEDIUM	137	125	116	100	90	77
	LOW	127	124	109	99	87	76
VWL04	HIGH	217	199	186	170	156	139
	MEDIUM	193	181	168	153	137	119
	LOW	170	154	141	126	110	92
VWL06	HIGH	297	272	251	230	211	191
	MEDIUM	269	249	229	212	191	168
	LOW	250	228	211	191	171	152
VWL08	HIGH	378	352	330	305	280	252
	MEDIUM	349	327	305	277	256	227
	LOW	307	280	261	235	209	177
VWL10	HIGH	425	389	369	342	318	286
	MEDIUM	392	382	363	336	310	277
	LOW	373	350	326	302	277	241

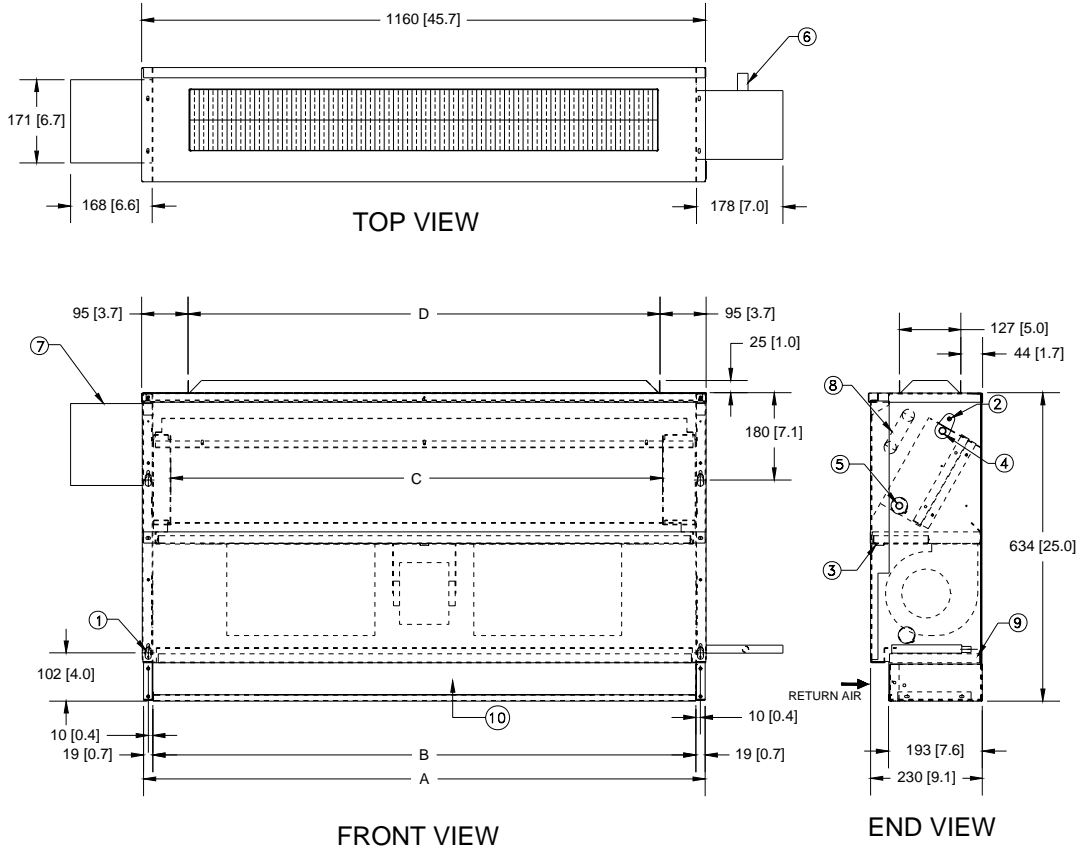
NOTE: 1. Values include losses for dry coil and filters.
2. For additional hot water row, add 25 pascal to the ESP.

ENGLISH UNITS

METRIC UNITS

UNIT DIMENSIONS

MODELS: VWL03 - VWL10

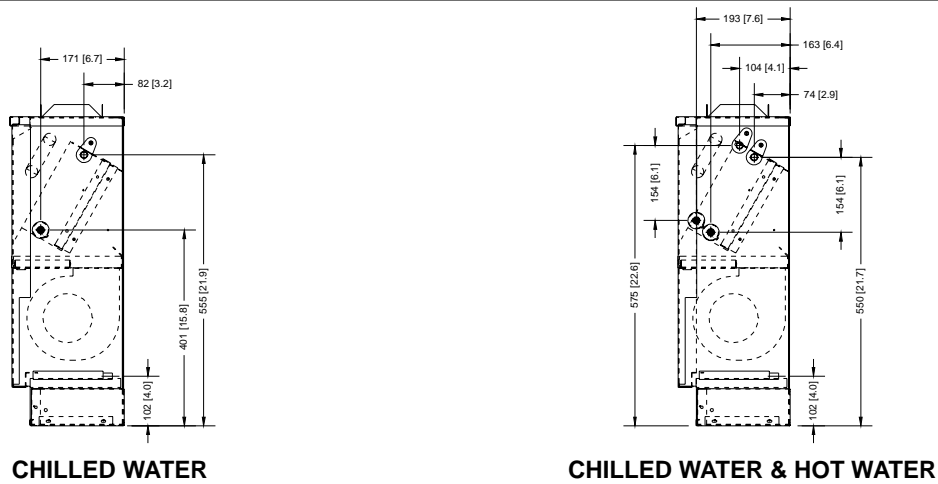


NOTE: All dimensions are in mm (dimensions in brackets are in inches).

MODEL	DIMENSIONS				No. OF MOTORS	No. OF BLOWERS
	A	B	C	D		
VWL03	597 (23.5)	559 (22)	457 (18)	406 (16)	1	1
VWL04	851 (33.5)	813 (32)	711 (28)	660 (26)	1	2
VWL06	1105 (43.5)	1067 (42)	965 (38)	914 (36)	1	2
VWL08	1511 (59.5)	1473 (58)	1372 (54)	1321 (52)	2	4
VWL10	1715 (67.5)	1676 (66)	1575 (62)	1524 (60)	2	4

1. Mounting holes (4 No.)
2. Air vent
3. Drain pan
4. 5/8" OD coil outlet
5. 5/8" OD coil inlet
6. 7/8" OD drain
7. Control box
8. Heater
9. Filter
10. Return air

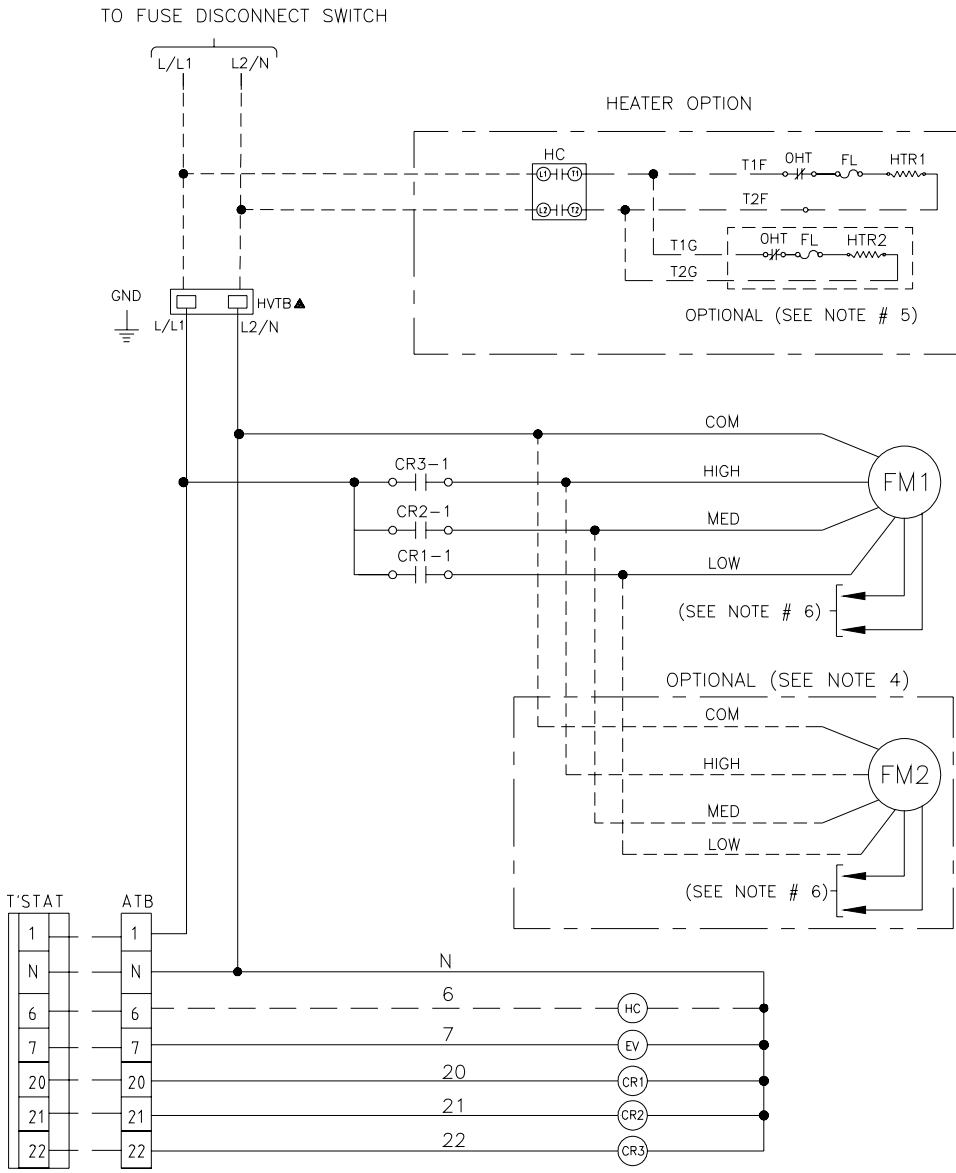
COIL CONNECTION DIMENSIONS



NOTE: All dimensions are in mm (dimensions in brackets are in inches).

TYPICAL SCHEMATIC WIRING DIAGRAM

HEAT/COOL MODELS - ELECTRIC HEATER



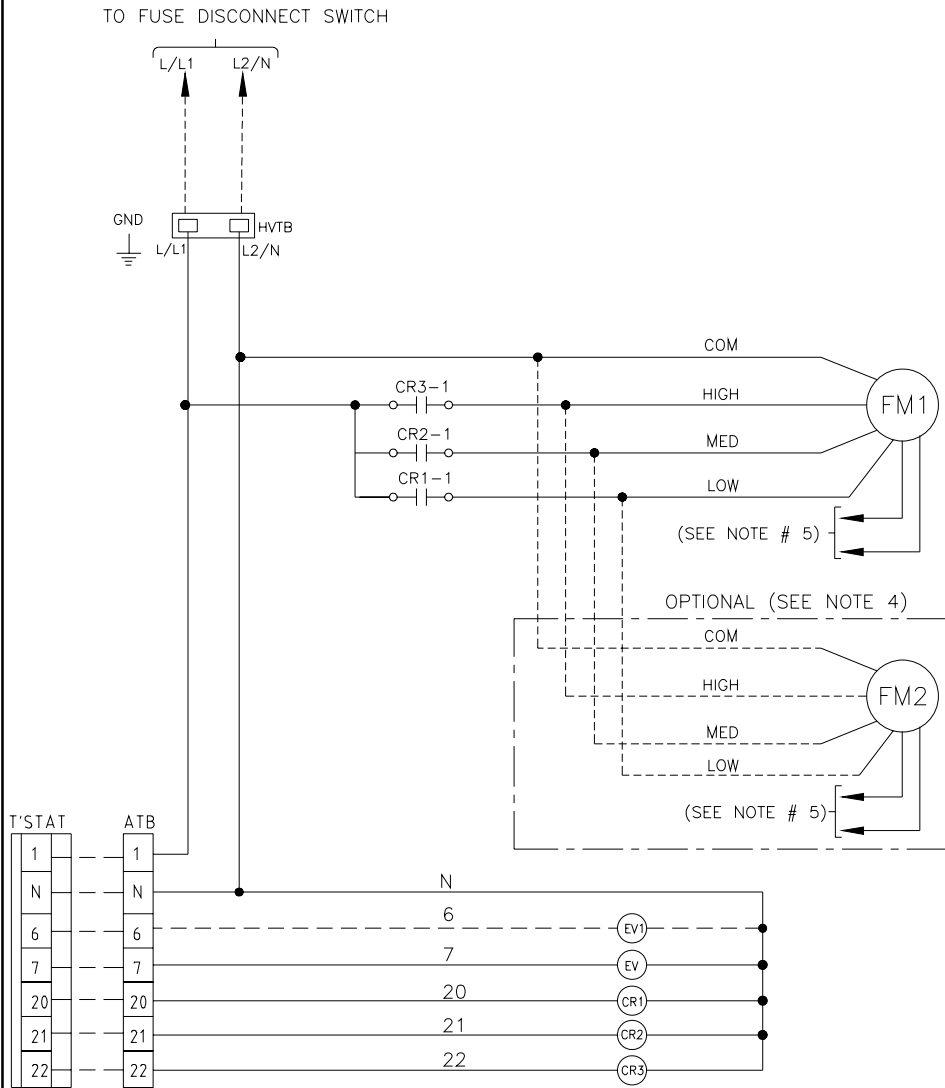
LEGEND	
ATB	AUXILIARY TERMINAL BLOCK
COM	COMMON
CR	CONTROL RELAY
EV	ELECTRIC VALVE (COOLING)
FL	FUSE LINK
FM	FAN MOTOR
GND	LUG GROUND
HC	HEATER CONTACTOR
HTR	HEATER
HVTB	HIGH VOLTAGE TERMINAL BLOCK
L/L1	LINE OR LINE 1
L2/N	LINE 2 OR NEUTRAL
OHT	OVER HEAT THERMOSTAT
---	FIELD WIRING
—	FACTORY WIRING

- NOTES**
1. POWER SUPPLY, 220/240V-1PH-50Hz.
 2. USE COPPER CONDUCTOR WIRES ONLY.
 3. USE HEATER AS PER OPTION REQUIRED. IF HEATERS ARE FACTORY INSTALLED, PLEASE READ BROKEN LINES AS CONTINUOUS LINES.
 4. FM2 NOT REQUIRED FOR SINGLE MOTOR AHU. IF FM2 IS FACTORY INSTALLED, PLEASE READ BROKEN LINES AS CONTINUOUS LINES.
 5. HEATER 2 IS NOT REQUIRED FOR SINGLE HEATER CIRCUIT.
 6. FREE END OF FAN MOTOR LEADS TO BE CAPPED WITH CRIMPABLE WIRE NUT.
 7. ▲HVTB NOT REQUIRED FOR HEATER MODELS.
 8. MOTOR THERMALLY PROTECTED..
 9. FUSED DISCONNECT SWITCH OR CIRCUIT BREAKER TO BE PROVIDED BY CONSUMER WITH RATING AS RECOMMENDED BY MANUFACTURER.

FACTORY WIRED MOTOR LEADS							
MODEL	(WHT)	(BLK)	(YEL)	(BLU)	(ORN)	(RED)	APPLICABLE FREQUENCY IN HZ
VWL 03	COM	HIGH		MED		LOW	50
VWL 04	COM	HIGH		MED		LOW	50
VWL 06	COM	HIGH		MED		LOW	50
VWL 08	COM	HIGH		MED		LOW	50
VWL 10	COM	HIGH		MED		LOW	50

TYPICAL SCHEMATIC WIRING DIAGRAM

HEAT/COOL MODELS - HOT WATER



LEGEND	
ATB	AUXILIARY TERMINAL BLOCK
COM	COMMON
CR	CONTROL RELAY
EV	ELECTRIC VALVE (COOLING)
EV1	ELECTRIC VALVE (HEATING)
FM	FAN MOTOR
GND	LUG GROUND
HVTB	HIGH VOLTAGE TERMINAL BLOCK
L/L1	LINE OR LINE 1
L2/N	LINE 2 OR NEUTRAL
---	FIELD WIRING
—	FACTORY WIRING

NOTES

1. POWER SUPPLY, 220/240V-1PH-50Hz.
2. USE COPPER CONDUCTOR WIRES ONLY.
3. IF EV1 IS FACTORY INSTALLED, PLEASE READ BROKEN LINES AS CONTINUOUS LINES.
4. FM2 NOT REQUIRED FOR SINGLE MOTOR AHU. IF FM2 IS FACTORY INSTALLED, PLEASE READ BROKEN LINES AS CONTINUOUS LINES.
5. FREE END OF FAN MOTOR LEADS TO BE CAPPED WITH CRIMPABLE WIRE NUT.
6. MOTOR THERMALLY PROTECTED..
7. FUSED DISCONNECT SWITCH OR CIRCUIT BREAKER TO BE PROVIDED BY CONSUMER WITH RATING AS RECOMMENDED BY MANUFACTURER.

FACTORY WIRED MOTOR LEADS

MODEL	(WHT)	(BLK)	(YEL)	(BLU)	(ORN)	(RED)	APPLICABLE FREQUENCY IN HZ
VWL 03	COM	HIGH	MED	LOW			50
VWL 04	COM	HIGH	MED	LOW			50
VWL 06	COM	HIGH	MED	LOW			50
VWL 08	COM	HIGH	MED	LOW			50
VWL 10	COM	HIGH	MED	LOW			50

INSTALLATION

The complete shipment should be inspected for damage. Any damage, visible or concealed, should be reported immediately to the delivery man or driver and noted on the shipping invoice.

Place unit in position and make sure that unit is level. This is important to assure proper drainage and operation. Slots provided in the mounting brackets should be used for installing the units. Please ensure to leave sufficient space/clearance for return air while installing the unit.

ELECTRICAL

Please ensure power supply (V-Ph-Hz) to the unit is as per unit nameplate requirements.

Caution: Operation of the unit on improper power supply will result in damage to the unit.

Warning: Before installation or servicing, always TURN OFF all power to the unit. There may be more than one disconnect switch. Ensure all of them are turned off.

GROUND & POWER WIRES

Connect power wires as per wiring diagram. Connect ground wire to the ground lug inside the control box.

MAINTENANCE

COIL

Coil may be cleaned by removing and brushing between fins with a stiff wire brush. Brushing should be followed by cleaning with vacuum cleaner. The coil may also be cleaned by using a high pressure air, if compressed air source is available. It should be pointed out that if air filters are used and periodically cleaned, the coils will not be clogged up prematurely.

DRAIN PIPE

Drain pipe should be checked before summer operation of unit. If it is clogged, steps should be taken to clear the debris so that condensate will flow out easily. A standard pipe cleaner for 1/2" ID pipe may be used. Periodic checks of the drain pipe should be taken during summer operation, as there is a possibility of it becoming clogged with dirt.

FILTER CLEANING

Remove access panel, slide filter out of filter rack, and clean as follows:

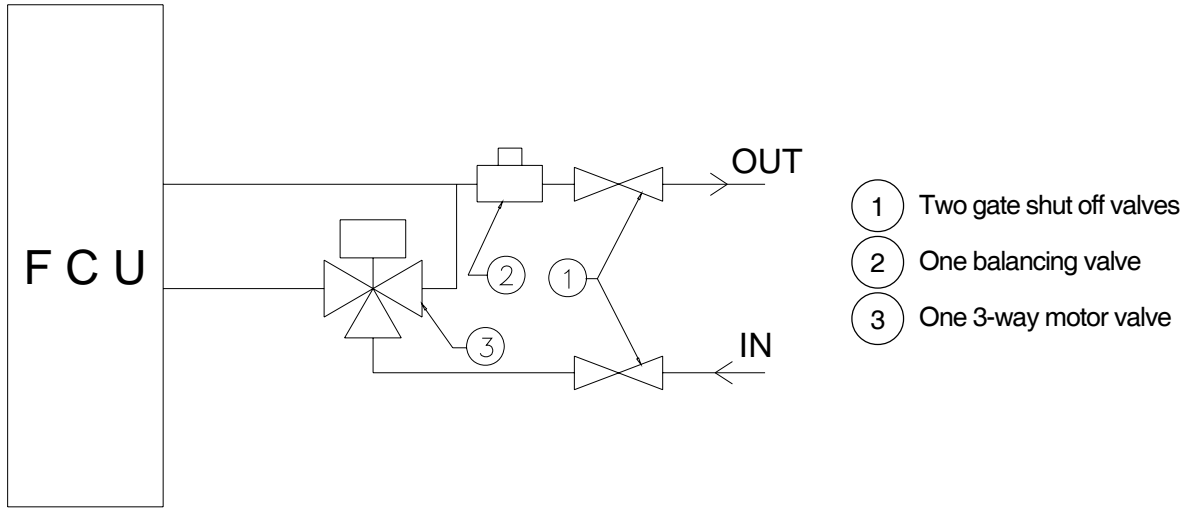
Tap filter on solid surface to dislodge heavy particles. Wash under stream of hot water. If filter has been put to exceptional service, a mild solution of Sal-Soda, Tri-Sodium Phosphate or any other commercial solvent can be used. Set filter on end with slots in frame down, which allows it to drain. Filters should dry thoroughly before reuse.

REPLACEMENT PARTS

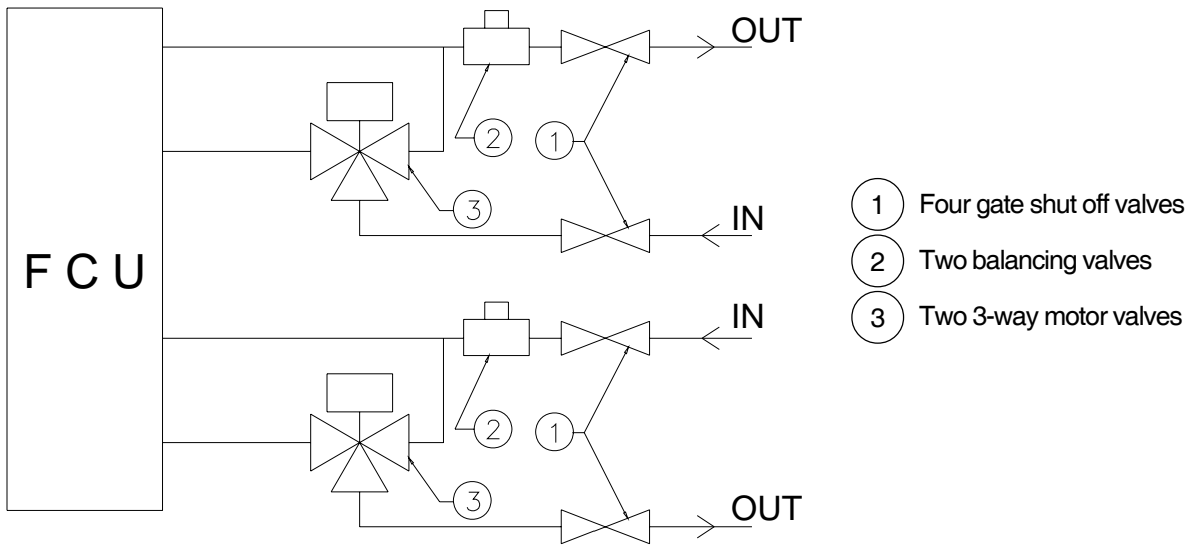
When writing for replacement parts, refer to model number and serial number on the nameplate of the unit.

VALVE PACKAGES

VALVE PACKAGE 3-D (COOL ONLY)



VALVE PACKAGE 4-D (COOL & HEAT)



RECOMMENDED SPARE PARTS

ITEM	PERCENTAGE OF SPARE PARTS			
	ONE YEAR SUPPLY		TWO YEAR SUPPLY	
	100 UNITS	1000 UNITS	100 UNITS	1000 UNITS
EVAPORATOR BLOWER MOTOR	2	1	4	2
BLOWER WHEEL	2	1	4	2
THERMOSTAT	2	1	4	2
FILTER	4	2	6	4

NOTE : When ordering spare parts, please quote the complete model number on the unit nameplate.

PARTS LIST

DESCRIPTION	MODEL NUMBER				
	VWL03	VWL04	VWL06	VWL08	VWL10
BLOWER WHEEL	800-707- 58	800-707-57 & 58	800-707-57 & 58	800-707-57 & 58	800-707-57 & 58
BLOWER MOTOR	800-827-17	800-827-08	800-827-11	800-827-08	800-827-11
RETURN AIR FILTER	800-248-20	800-248-22	800-248-23	800-248-25	800-248-26
VALVE PACKAGE (3D), COOL ONLY	700-361-62	700-361-62	700-361-62	700-361-62	700-361-62
THERMOSTAT	800-646-20	800-646-20	800-646-20	800-646-20	800-646-20

NOTE: For 4D type valve package, order 2 x 3D valve packages.



from  **Zamil**

In 1989, Zamil Air Conditioners (ZAC), one of the sector business of Zamil Industrial and the Number 1 Middle East manufacturer of air conditioning systems, introduced its international brand – Cooline, to the growing world market. Today, Cooline supplies air conditioners to more than 55 countries worldwide with major markets in GCC, Middle East, North Africa, Europe and Asia. In addition to the Head Office in Saudi Arabia, five regional offices handles Cooline's overall operations including more than 25 international distributors.

All ZAC Products are available under the Cooline brand. Cooline Products include an array of central air conditioners for residential, commercial and industrial use, including concealed units up to 5 tons, ducted splits up to 30 tons, packaged units up to 80 tons, single and double skin air handling units up to 70,630 CFM and water chillers up to 550 tons cooling capacity. New products include High Efficiency Ratio (EER) units which comply with the more demanding international codes and heat pump units with increased overall Coefficient of Performance (COP).

Cooline is the first brand from the Middle East to receive Eurovent for its air movement systems - a capacity/performance certification that has been made mandatory in Europe and is fast becoming a requirement in all regions. With the addition of the state-of-the-art testing facility, Ikhtabar, a 3rd party air conditioners testing facility built by Intertek Testing Services (ITS) and certified by Electrical Testing Labs (ETL) and accredited by the Saudi Accreditation Committee (SASO) for compliances with the international testing standards, Cooline is the only brand in the Middle East capable of guaranteeing product performance in compliance with local and international standards. It's no surprise that in 2003, Cooline received the Best GCC Brand of the Decade Award.

For more information, please visit our website www.cooline.com



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