

GemCool

EHH SERIES

**DRAW THROUGH
FAN COILS
400 - 5000 CFM**



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GEMCOOL PROFILE

In the ever evolving world of HVAC, GemCool offers tremendous customizability to offer the consumer maximum amount of options. Whether it is our Fan Coil units or our Air Handling Units, all requirements can be fulfilled by our technical personnel. Our computer selection program gives detailed technical information for the Air Handling Unit to allow easy selection and installation of equipment. The same technical selection software can also be used for selecting coil for fan coil units. With the increasing shift to district cooling, a major concern is the capability of the fan coil units to handle high water temperature rise. GemCool alleviates these concerns with the selection program which enables the engineer to select the appropriate units according to design conditions.

All GemCool equipment are manufactured according to strictest international standards to ensure highest quality and performance. The Air Handling Units are assembled in a facility conforming to ISO 9001 standards. Our Air Handling Unit coils are made as per ARI standards and our fans are AMCA certified. The motors conform to the highest international electrical standards available. All our equipment are well insulated to prevent cold bridging.

INTRODUCTION

GEMCOOL Ceiling Concealed Fan Coil Air Conditioners are designed specifically to meet the many and varied requirements demanded of horizontal ceiling concealed units. They offer effective zone cooling control and are especially suitable for use in Apartments, Hotels, Shopping Centers, Office Buildings and Hospitals.

Twelve sizes with capacity ranging from 400 to 5,000 CFM are available allowing GEMCOOL fan coil air conditioners to precisely match the room load requirement of a homogenous zone, assuring maximum performance and operating efficiency with lowest installation cost.

FEATURES

WHISPER QUIET OPERATION

A Large-Diameter fan and low RPM motor mean that minimal noise will be transmitted to the conditioned space. In addition, three fan speeds allow the user to select the appropriate user condition.

HIGH WATER TEMPERATURE RISE

GEMCOOL's specially designed coils permit water temperature rises higher than 10 F. This reduces the water flow rate and perfectly suits district cooling systems.

12 SIZES OFFER WIDE CAPACITY

RANGE from 400 to 5,000 CFM. The many unit sizes allow GEMCOOL ducted fan coil air conditioners to precisely match the room load requirements assuring maximum performance and operating efficiency.

FASTER, EASIER MAINTENANCE

GEMCOOL's unique design allows easy and fast access to unit components. The motor-blower assembly can be easily removed for service.

SIMPLE INSTALLATION

The complete factory assembled, piped and wired units allow for easy and swift installation. All plenums are shipped in place with either bottom or rear return air, as specified. In addition, the coil connection hand is also available as per requirement.

HIGH STATIC PRESSURE

EHH Series units are suitable to work up to 175 Pa (0.7" water gauge) static pressure.

OPTIONAL FEATURES

- 6 row coils
- Different coil configurations
- Stainless steel construction
- Corrosion coating on coil
- Decorative Unit
- Thermostat and Valve Package available separately
- Electric Heater

GUIDE SPECIFICATIONS

CONSTRUCTION

Structure is composed of pre-painted heavy gauge GI sheet (conforming to ASTM 653A) with excellent mechanical characteristics. The outer surface is prepainted to **RAL 9010** at 50-70 micron. The complete unit is insulated using polyethylene foam insulation bonded the inner surface. Such an arrangement permits high strength, low thermal transfer, high noise absorption and low flammability. The different panels are joined together by means of self tapping screws to prevent air leakage and to make one complete structure. They can be easily removed to perform various maintenance tasks. Stainless Steel outer and inner skin is available as another option for hygienic units.

Hanging brackets are attached to the unit outer body to facilitate secure and prompt hanging.

FAN MOTOR ASSEMBLY

Units are equipped with double inlet, double width, forward curved **centrifugal** fans. All fans are made from hot dip galvanized steel to prolong longevity. Fans are statically and dynamically **balanced** to prevent vibration. The fan housing shall be of galvanized steel. The inlet cones are aerodynamically formed to avoid turbulence and are easily removable. Selection of fans are done to meet the specified air flow and static pressure at low outlet velocities and optimum motor safety factor. All air flows and corresponding static pressures and fan RPMs given by selection program are checked and verified by physical tests. All units come with variable speed controller to easily change the airflow and ESP to match project requirements. Fans can be supplied in different positional orientations according to the project requirements. Fan flange is directly attached to the body to facilitate quick duct attachment. All units are provided with a factory installed terminal box with the motor wired to the box.

The single phase **three speed** induction motors comply with low voltage IEC standards. All motors are permanent split capacitor type with sleeve bearings. Transmission is effected via keyed shafts. Motors are mounted on rigid bases to offer rigidity, isolate vibrations and prevent movement. All motors come with an auto reset overload protector. Motor shafts are pre-treated to protect against corrosion.

COILS

In order to offer true unit selection, coils are available with three different cooling medium - water, refrigerant and glycol. Standard water cooling coils are available from three to six rows. All units are supplied standard with **4 row** coils.

Circuiting is done by computer selection to keep the cooling media pressure as optimum as possible.

Coils are fabricated of 3/8" OD copper tubes. Fins are made of aluminum and are pressure bonded to the tubes through mechanical expansion. Fins are selected to provide maximum contact area while minimizing air pressure drop. Coils are encased in galvanized steel. Headers are made of seamless copper brazed to the tubes. All headers are male BSP threaded to allow fast and secure connections. Air vents are provided on each header for water coils. Both headers are on the same side as the access for the fan and filter. Coil headers are secured to the unit body by means of a special quick release plate.

All coils are pressure tested at a minimum pressure of 350 PSI. All coils are rated in accordance to ARI 410. All coils are selected at a face velocity below 2.5m/s (500 fpm). All coils are factory tested for leaks before installation and dispatch.

The drain pan is of painted GI construction with polyethylene insulation and drain pipe. Drain pan can be changed to right or left hand connection on site. The whole coil and drain pan assembly slides on guides allowing easy access to the coil.

FILTER SECTION

Filter is an aluminum mesh type with metallic frame. It can be easily withdrawn from the side or bottom. Filter thickness is 1/2".



- (1) Adjustable motor speed control.
- (2) Fully insulated threaded heavy gauge copper headers.
- (3) Threaded drain pan outlet.
- (4) Dual fans for maximal air flow with low noise.
- (5) Heavy gauge pre-painted corrosion resistant steel.
- (6) Fan flange for easy attachment to duct.
- (7) Sturdy holders for easy and secure hanging of unit.
- (8) Access panels for easy access to components.

DETAILS



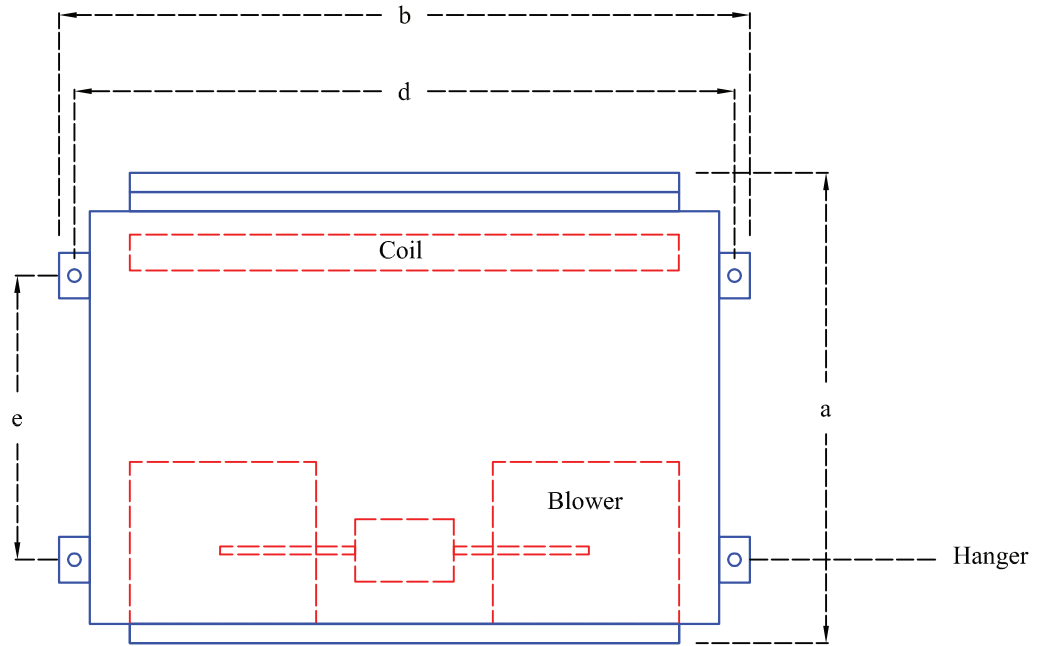
TECHNICAL DATA

Unit Size		EHH 12	EHH 18	EHH 24	EHH 30	EHH 36	EHH 48	EHH 60	
PERFORMANCE									
Nominal Air Volume	High Speed	CMH	733	1,119	1,564	1,775	2,295	2,910	3,570
		CFM	431	658	920	1,044	1,350	1,712	2,100
	Medium Speed	CMH	595	901	1,063	1,455	1,909	2,589	3,145
		CFM	350	530	625	856	1,123	1,523	1,850
	Low Speed	CMH	408	595	884	1,321	1,681	2,191	2,763
		CFM	240	350	520	777	989	1,289	1,625
Rating Static Pressure		Pa	50	50	75	75	75	75	125
Nominal Total Cooling Capacity		Btu/hr	12,000	18,000	24,000	30,000	36,000	48,000	60,000
		kW	3.52	5.28	7.03	8.79	10.55	14.07	17.58
MOTOR									
Type		3-speed Permanent Split Capacitor Motor							
Motor Power Output	Watts	50	80	150	200	275	400	600	
Motor Power Input	Watts	141	165	273	370	554	693	1019	
Qty		1	1	1	1	1	1	1	
Electrical Supply		220V/1φ/50Hz & 220V/1φ/60Hz							
Motor Current (220V/1φ/50Hz)	Amps	0.64	0.75	1.24	1.68	2.52	3.15	4.63	
Poles		4							
FAN									
Type		Forward Curved Steel Impeller Centrifugal Fan							
Qty		2	2	2	2	2	2	2	
COIL									
Type		Seamless Copper Tube / Corrugated Aluminum Fin							
Number of Rows / FPI		3 or 4 or 6 Rows / 12 or 14 FPI							
Tube		9.52mm O.D.							
Face Area	ft ²	0.81	1.22	1.62	2.03	2.44	3.44	4.26	
Chilled Water Connection		3/4" BSP Male Socket							
Refrigerant Piping (Liquid)		1/4"	3/8"	3/8"	1/2"	1/2"	1/2"	1/2"	
Refrigerant Piping (Gas)		1/2"	5/8"	5/8"	3/4"	3/4"	3/4"	3/4"	
FRAME									
Casing		Prepainted Steel							
Insulation		Polyethylene Foam - 5mm							
DRAIN PAN									
Material		Prepainted Steel							
Connection		3/4" O.D. Steel Pipe							
DIMENSION									
Depth	mm	600	600	650	650	627	650	655	
Width	mm	960	960	970	1115	1235	1305	1575	
Height	mm	260	260	320	315	315	345	350	
Estimated Weight	kg	33	44	50	50	56	65	68	

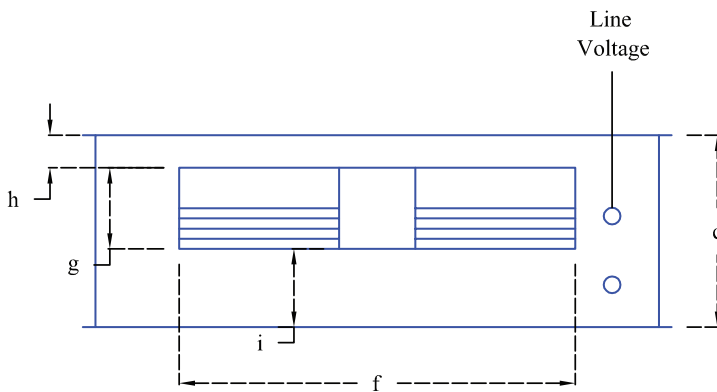
TECHNICAL DATA (contd.)

Unit Size		EHH 75	EHH 90	EHH 105	EHH 120	EHH 150	EHH 180	EHH 210	EHH 240	
PERFORMANCE										
Nominal Air Volume	High Speed	CMH	4,197	5,202	6,078	6,919	8,265	10,200	11,900	13,600
		CFM	2,469	3,060	3,575	4,070	4,862	6,000	7,000	8,000
	Medium Speed	CMH	3,392	4,284	5,131	5,647	6,994	-	-	-
		CFM	1,995	2,520	3,018	3,322	4,114	-	-	-
	Low Speed	CMH	2,667	3,264	4,005	4,825	5,947	-	-	-
		CFM	1,569	1,920	2,356	2,838	3,498	-	-	-
Rating Static Pressure		Pa	125	150	175	200	175	350	450	500
Nominal Total Cooling Capacity		Btu/hr	75,000	90,000	105,000	120,000	150,000	180,000	210,000	240,000
		kW	21.98	26.38	30.77	35.17	43.96	52.75	61.55	70.34
MOTOR										
Type		3-speed Permanent Split Capacitor Motor								
Motor Power Output	Watts	600	500	500	600	750	3,000	4,000	5,500	
Motor Power Input	Watts	1,019	946	946	1,019	1,221	3,000	4,000	5,500	
Qty		1	2	2	2	2	1	1	1	
Electrical Supply		220V/1φ/50Hz & 220V/1φ/60Hz					400V/3φ/50Hz & 400V/3φ/60Hz			
Motor Current (220V/1φ/50Hz)	Amps	4.63	4.30(x2)	4.30(x2)	4.63(x2)	5.55(x2)	6.80	8.80	11.80	
Poles		4								
FAN										
Type		Forward Curved Steel Impeller Centrifugal Fan								
Qty		2	2	2	2	2	2	2	2	
COIL										
Type		Seamless Copper Tube / Corrugated Aluminum Fin								
Number of Rows / FPI		3 or 4 or 6 Rows / 12 or 14 FPI								
Tube		9.52mm O.D.								
Face Area	ft ²	5.26	6.10	7.11	8.26	10.27	12.36	14.38	16.43	
Chilled Water Connection	1" Male	1-1/4" Male		1-1/2" Male		1-3/4" Male		2" Male		
Refrigerant Piping (Liquid)	1/2"	5/8"	5/8"	5/8"	3/4"	3/4"	5/8" x 2	5/8" x 2		
Refrigerant Piping (Gas)	3/4"	1-1/8"	1-3/8"	1-3/8"	1-5/8"	1-5/8"	1-3/8" x 2	1-3/8" x 2		
FRAME										
Casing		Prepainted Steel								
Insulation		Polyethylene Foam - 5mm								
DRAIN PAN										
Material		Prepainted Steel								
Connection		3/4" O.D. Steel Pipe				1" O.D. Steel Pipe				
DIMENSION										
Depth	mm	715	720	740	790	840	840	840	840	
Width	mm	1650	1750	1793	1779	2046	2046	2046	2046	
Height	mm	400	400	440	520	540	640	740	840	
Estimated Weight	kg	79	110	135	175	230	265	310	385	

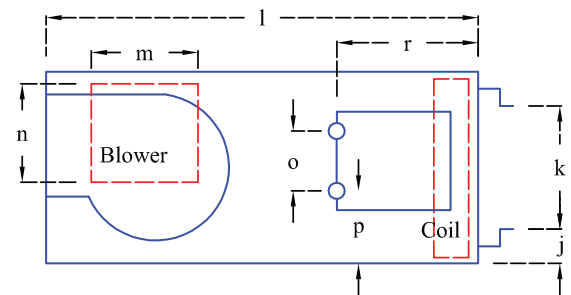
DIMENSIONS



TOP VIEW



FRONT VIEW



SIDE VIEW

Model	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	r
EHH 12	600	960	260	910	380	720	170	22	68	40	170	560	180	235	65	90	170
EHH 18	600	960	260	910	380	720	170	22	68	40	170	560	180	235	65	90	170
EHH 24	650	970	315	920	440	720	170	22	120	50	230	560	180	235	102	85	165
EHH 30	650	1115	315	1065	420	840	170	22	120	50	225	560	180	230	100	100	170
EHH 36	650	1286	315	1235	385	842	170	22	120	45	225	560	180	265	95	95	160
EHH 48	650	1305	345	1260	385	820	240	40	75	40	260	567	210	290	145	90	175
EHH 60	655	1575	350	1520	375	820	240	22	90	50	255	567	210	295	150	90	165
EHH 75	715	1650	400	1600	440	1040	200	22	170	50	305	625	210	295	180	100	160
EHH 90	805	1860	400	1810	550	1000	240	22	140	50	305	715	215	350	200	95	190
EHH 105	820	1890	450	1835	560	1200	295	22	130	45	350	730	210	395	240	100	165
EHH 120	820	1825	545	1770	550	1200	320	22	250	50	445	730	210	395	320	95	170

Notes:

- 1) All dimensions are in mm.
- 2) All dimensions are subject to change without any notification.

COMPUTER SELECTION

To provide our customers with detailed technical information about the unit, GemCool has developed a special selection program. This selection program has all relevant data stored into it allowing the user to do quick selections. It also allows the user to see technical data associated with different aspects of the FCU. After each selection of the unit, a printout is generated containing the technical data, a sketch and other information the user requests. The selection program can be used to select the optimum unit and all the relevant data can be sent to GemCool who can accordingly supply the unit.



FAN COIL UNIT SELECTION

Unit Data

Project Name	Project Reference
Unit Reference: FCU-02 to 05	Unit Model: EHH 60
Unit Speed: Medium	Unit Static: 70 Pa
Number of Rows: 4	Number of fluid passes: 6

Air Data

Air Flow: 3060 m ³ /hr	Face Velocity: 2.13 m/s
Entering Dry Bulb: 24 °C	Entering Wet Bulb: 17 °C
Entering Relative Humidity: 49 %	Entering Enthalpy: 47.74 kJ/kg
Leaving Dry Bulb: 12.96 °C	Leaving Wet Bulb: 11.88 °C
Leaving Relative Humidity: 88 %	Leaving Enthalpy: 33.87 kJ/kg

Fluid Data

Fluid Type: Water	Fluid Flow: 0.56 l/s
Entering Fluid Temp: 5.5 °C	Leaving Fluid Temp: 11.49 °C
Water Velocity: 1.07 m/s	Water Pressure Drop: 55 kPa

Capacity

Sensible Capacity: 11.46 kW	Total Capacity: 14.15 kW
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1

Electrical Data

Motor Type: 3 speed	Voltage: 220V / 1ϕ / 50Hz
Number of fans: 2	Number of motors: 1
Power Input: 900 W	

WIRING DIAGRAM S216-01

Physical Data

Weight: 66 kg	Connection Size: 1 in
Drain Size: 1 in	

Model	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
EHH 60	640	1532	340	1500	436	854	234	24	74	53	243	520	115	217	163	101

Noise Data

Fan Speed	Octave Bands							Overall dB(A)	
	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz		8000 Hz
High	53	59	61	60	57	54	50	44	60
Medium	45	51	52	50	48	43	41	37	57
Low	31	39	41	39	37	35	30	26	47

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Gem

Cool

GEMCOOL CORPORATION

Sharjah Airport Free Zone, Sharjah / Emirates Industrial Zone, Umm Al Quwain

Tel: +9714 223 2420

Fax: +9714 227 8011

Email: info@gemcool.net

Web: <http://www.gemcool.net>

Due to Gemcool's continuous efforts to innovate and improve its products, we reserve the right to modify any data or specification without any notification.

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