FW4A (50/60 Hz)
Chilled Water
Fan Coil
1200 Thru 2000 CFM

Carrier®
Turn to the Experts℠

Product Data

Carrier's FW4A Chilled Water multipoise fan coils are designed to cover a wide range of air handling requirements. They are compact and ready to fit where needed — in the basement, crawlspace, attic, utility room, or closet.

Features/Benefits

- 5 sizes from 3 up to 6 ton cooling capacity.
- High static up to 0.7 inch water (175 Pa) for all sizes.
- External drain pan for connection valves.
- A-coil design for sizes 16 : 20, and sloped-coil for sizes 12&14.
- Efficient lanced sine-wave aluminum fins.
- High-impact thermal plastic condensate pan.
- Primary and secondary drain connection with brass inserts.
- Multipoise design for maximum versatility.
- Field installation heater packages.
- Solid state interlock control board with built-in fuse.
- 1-inch thickness cabinet insulation with 32 kg/m^3 density.
- Sweat type connection.
- Multiple electric entries.
- Inspection plate to facilitate cleaning the coil.
- 3-speed motors for all sizes, in field selection.
- Polyester powder painted steel cabinet to withstand harsh Middle Eastern climatic conditions.
- Replaceable 5-amp. Blade-type auto fuse protects against transformer secondary short.
- 40 VA. 208/230 V transformer.
- Permanent filter with aluminum frame 1 inch, flame retardant polyester fibers.
- 208/230 V 1phase 60 Hz and 220 V 1 phase 50 Hz models are available.

FW4A chilled water fan coil is designed for medium and high static pressure, up to 0.7 inches water (175 Pa) with cooling capacity from 10.8 k watt (36.9 kbtuh) to 21.5 k watt (73.4 kbtuh).

FW4A series is available in five sizes with an airflow from 570 l/s (1200 CFM) to 920 l/s (2000 CFM). FW4A series can be installed vertical or horizontal. Coils are made of efficient lanced sine-wave aluminum fins mechanically bonded to copper tubes for superior heat transfer. 1-inch thick cabinet insulation with density 32 kg/m^3 minimize energy losses and increase unit efficiency. FW4A series comes with polyester powder painted zinc coated galvanized steel casing. Super quite multi 3 speed motor for field selection & electric heaters are available option at field installation.

Table of Contents

	Page
Model Numbers and Nomenclature……	2
Physical Data……..	3
Performance Data……..	4
Base Unit Dimensions……	6
Fan Performance & Sound power……	7
Application Data……	8
Typical Wiring Schematic……	9
Guide Specification……	10

Model Number Nomenclature

FW4A S N F 12 OOO BBBA

- BBBA — Factory installed options
- OOO — Electric Heater (kw) 005: 5 kW, 008: 8kW, …
- 12 — CFM/100 @ 0.2 external static pressure & high speed
- F — F - Full single piece cabinet; B - Modular cabinet
- N — Voltage N= 208/230v,1-60 Hz& S =220-240,1-50 Hz
- S — SAMCO
- FW4A — Series Name

Quality Assurance

SAMCO

TÜV CERT DIN ISO 9001 : 2000

0410019950420

Approvals :
ISO 9001 : 2000
EN ISO 9001 : 2000
ANSI/ASQC Q9001 : 2000

Physical Data

Model FW4A	Size				
	FW4A12	**FW4A14**	**FBWA16**	**FW4A18**	**FW4A20**
CFM*	1210	1394	1622	1788	1967
Cooling Capacity (kw)*	10.8	12.5	14.2	16.7	21.5
Colling Capacity (kbtuh)	36.9	42.7	48.5	57	73.4
SHR	0.75	0.75	0.76	0.74	0.71
Elec.Heater (Option) watts**	5 (Recommended)			8 (Recommended)	
Power Supply	220-240 1-50Hz or 220-240 1-60Hz				
Motor HP(Nominal)	1/3	1/3	1/2	3/4	3/4
Input Watts @ Med Speed & 25 Pa ESP	400	540	620	900	1000
Number of Motors					
Coil Material	Copper Tube / Aluminum Fins With Lanced Sine Wave				
Coil Face Area, m^2	0.28	0.32	0.41	0.51	0.69
Coil Connection Type	Sweat Type				
Coil Connection Size	5/8		7/8		
Number of Rows	3				
Fin Denisty/ Inch	15				
Drain Connections Size (inch)	3/4				
Blower type	Double inlet forward curve				
Blower Diameter / Width, mm	10.63/7.12	10.62/9.5		11.87/9.62	
Filter Type	Permanent type, Al frame 1 inch, Flame retardant polyester fibers				

* At 26.7/19 c approach, 6.7 c water inlet/ 12.7c water outlet, High Speed @ 50 Pa ESP.

** In field installation option.

Performance Data - (50/60 HZ)

Rating: 50 Pa External Static Pressure	FW4A12			FW4A14			FW4A16		
Fan Speed	**High**	**Medium**	**Low**	**High**	**Medium**	**Low**	**High**	**Medium**	**Low**
Capacity (KW)	10.8	9.8	8.8	12.5	11.4	10.4	14.2	13.7	12.9
Capacity (Btu/Hr)	36,850	33,438	30,026	42,650	38,897	35,485	48,450	46,744	44,015
CFM	1210	1058	925	1394	1232	1046	1622	1535	1422
L/sec Air	568	497	434	654	578	491	761	721	668
SHR	0.769	0.760	0.754	0.767	0.760	0.742	0.774	0.766	0.765
Air DB Ent	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7
Air WB Ent	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4
Air DB Lvng. C	14.6	14.1	13.6	14.6	14.1	13.6	14.7	14.6	14.3
Air WB Lvng. C	14.0	13.7	13.3	14.0	13.7	13.2	14.1	14.0	13.3
N Circuits	5	5	5	6	6	6	6	6	6
Face Tubes	24	24	24	28	28	28	36	36	36
Water In C	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Water Lvng. C	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7
Gal/Min.	6.82	6.18	5.55	7.88	7.18	6.56	8.96	8.64	8.13
L/sec Water	0.430	0.390	0.350	0.497	0.453	0.414	0.565	0.545	0.513
DP PSI	3.94	3.32	2.75	3.61	3.07	2.62	5.07	4.77	4.29
DP K Pa	27.2	22.9	19.0	24.9	21.2	18.1	35.0	32.9	29.6

100 Pa. External Static Pressure									
Fan Speed	**High**	**Medium**	**Low**	**High**	**Medium**	**Low**	**High**	**Medium**	**Low**
Capacity (KW)	9.7	8.8	8	11.4	10.2	9.6	12.9	12.5	11.7
Capacity (Btu/Hr)	33,096	30,026	27,296	38,897	34,802	32,755	44,015	42,650	39,920
CFM	1030	916	808	1210	1050	930	1400	1330	1226
L/sec Air	484	430	379	568	493	437	657	624	576
SHR	0.756	0.750	0.746	0.753	0.750	0.732	0.760	0.753	0.751
Air DB Ent	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7
Air WB Ent	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4
Air DB Lvng. C	14.0	13.6	13.2	14.1	13.6	13.2	14.2	14.1	13.8
Air WB Lvng. C	13.6	13.3	12.9	13.6	13.2	12.9	13.7	13.6	13.4
Water In C	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Water Lvng. C	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7
Gal/Min.	6.09	5.58	5.02	7.16	6.44	6.05	8.13	7.85	7.35
L/sec Water	0.384	0.352	0.317	0.452	0.406	0.382	0.513	0.495	0.464
DP PSI	3.25	2.78	2.32	3.06	2.54	2.28	4.28	4.03	3.59
DP K Pa	22.4	19.2	16.0	21.1	17.5	15.7	29.5	27.8	24.8

150 Pa. External Static Pressure									
Fan Speed	**High**	**Medium**	**Low**	**High**	**Medium**	**Low**	**High**	**Medium**	**Low**
Capacity (KW)	8.1	6.8	–	8.9	7.5	–	11.3	9.7	–
Capacity (Btu/Hr)	27,637	23,202	–	30,367	25,590	–	38,556	33,096	–
CFM	800	640	–	850	680	–	1150	920	–
L/sec Air	376	300	–	399	319	–	540	432	–
SHR	0.740	0.727	–	0.730	0.717	–	0.744	0.728	–
Air DB Ent	26.7	26.7	–	26.7	26.7	–	26.7	26.7	–
Air WB Ent	19.4	19.4	–	19.4	19.4	–	19.4	19.4	–
Air DB Lvng. C	13.2	12.4	–	12.9	12.2	–	13.6	12.8	–
Air WB Lvng. C	12.9	12.3	–	12.6	12.1	–	13.2	12.6	–
Water In C	6.7	6.7	–	6.7	6.7	–	6.7	6.7	–
Water Lvng. C	12.7	12.7	–	12.7	12.7	–	12.7	12.7	–
Gal/Min.	5.07	4.28	–	5.60	4.71	–	7.12	6.07	–
L/sec Water	0.320	0.270	–	0.353	0.297	–	0.449	0.383	–
DP PSI	2.36	1.75	–	1.99	1.48	–	3.39	2.58	–
DP K Pa	16.3	12.1	–	13.7	10.2	–	23.4	17.8	–

*** Should not Exceed 175 Pa External Static Pressure**

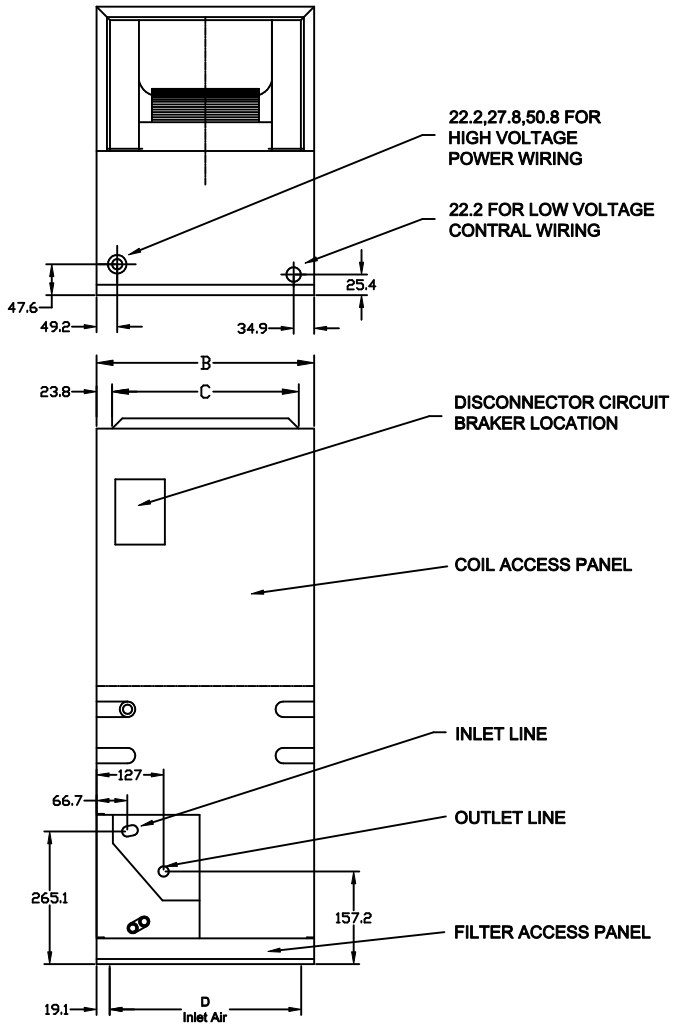
Performance Data - (50/60 HZ) – Cont.

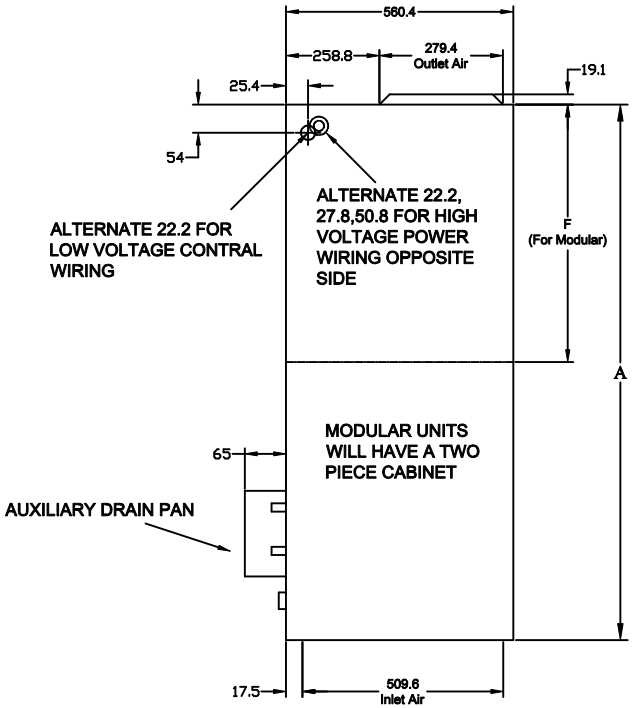
FW4A18			FW4A20					Other Ent. Air Aprox. Adjust DB/WB	
High	Medium	Low	High	Medium	Low	Fan Speed		24/18	22/17
16.7	15.8	14.1	21.5	19.2	17.5	Capacity (KW)	Rating: 50 Pa External Static Pressure	-14%	-28%
56,980	53,910	48,109	73,358	65,510	59,710	Capacity (Btu/Hr)		-14%	-28%
1788	1625	1372	1967	1672	1421	CFM		same	same
839	763	644	923	785	667	L/sec Air		same	same
0.754	0.764	0.730	0.716	0.703	0.685	SHR		same	same
26.7	26.7	26.7	26.7	26.7	26.7	Air DB Ent		24	22
19.4	19.4	19.4	19.4	19.4	19.4	Air WB Ent		18.0	17.0
14.1	13.8	13.2	12.7	12.2	11.8	Air DB Lvng. C		-0.7	-1.2
13.6	13.4	12.9	12.5	12.1	11.7	Air WB Lvng. C		-0.7	-1.2
8	8	8	10	10	10	N Circuits		same	same
48	48	48	60	60	60	Face Tubes		same	same
6.7	6.7	6.7	6.7	6.7	6.7	Water In C		same	same
12.7	12.7	12.7	12.7	12.7	12.7	Water Lvng. C		-0.8	-1.3
10.52	9.95	8.89	13.55	12.11	11.03	Gal/Min.		same	same
0.664	0.628	0.561	0.855	0.764	0.696	L/sec Water		same	same
4.06	3.70	3.03	4.93	4.04	3.43	DP PSI		same	same
28.0	25.5	20.9	34.0	27.9	23.7	DP K Pa		same	same

High	Medium	Low	High	Medium	Low	Fan Speed		24/18	22/17
15.5	14.7	13.2	19.8	17.7	16.1	Capacity (KW)	100 Pa. External Static Pressure	-14%	-28%
52,886	50,156	45,038	67,558	60,392	54,933	Capacity (Btu/Hr)		-14%	-28%
1600	1462	1243	1760	1496	1272	CFM		same	same
751	686	583	826	702	597	L/sec Air		same	same
0.748	0.734	0.723	0.707	0.694	0.683	SHR		same	same
26.7	26.7	26.7	26.7	26.7	26.7	Air DB Ent		24	22
19.4	19.4	19.4	19.4	19.4	19.4	Air WB Ent		18.0	17.0
13.8	13.4	12.8	12.4	11.8	11.4	Air DB Lvng. C		-0.7	-1.2
13.4	13.1	12.6	12.2	11.7	11.3	Air WB Lvng. C		-0.7	-1.2
6.7	6.7	6.7	6.7	6.7	6.7	Water In C		same	same
12.7	12.7	12.7	12.7	12.7	12.7	Water Lvng. C		-0.8	-1.3
9.78	9.26	8.29	12.46	11.16	10.11	Gal/Min.		same	same
0.617	0.584	0.523	0.786	0.704	0.638	L/sec Water		same	same
3.57	3.25	2.68	4.26	3.51	2.96	DP PSI		same	same
24.6	22.4	18.5	29.4	24.2	20.4	DP K Pa		same	same

High	Medium	Low	High	Medium	Low	Fan Speed		24/18	22/17
14.5	12.2	–	17.9	15.2	–	Capacity (KW)	150 Pa. External Static Pressure	-14%	-28%
14	41,626	–	61,075	51,862	–	Capacity (Btu/Hr)		-14%	-28%
1400	1120	–	1540	1232	–	CFM		same	same
657	526	–	723	578	–	L/sec Air		same	same
0.730	0.718	–	0.703	0.690	–	SHR		same	same
26.7	26.7	–	26.7	26.7	–	Air DB Ent		24	22
19.4	19.4	–	19.4	19.4	–	Air WB Ent		18.0	17.0
13.3	12.5	–	12.0	11.4	–	Air DB Lvng. C		-0.7	-1.2
13.0	12.4	–	11.8	11.3	–	Air WB Lvng. C		-0.7	-1.2
6.7	6.7	–	6.7	6.7	–	Water In C		same	same
12.7	12.7	–	12.7	12.7	–	Water Lvng. C		-0.8	-1.3
8.89	7.66	–	11.29	9.62	–	Gal/Min.		same	same
0.561	0.483	–	0.712	0.607	–	L/sec Water		same	same
3.03	2.33	–	3.58	2.71	–	DP PSI		same	same
20.9	16.1	–	24.7	18.7	–	DP K Pa		same	same

Base Unit Dimensions





FW4A SIZE	A mm	B mm	C mm	D mm	F mm
FW4A12	1260.5	447.5	400.1	398.5	406.5
FW4A14	1357.3	536.5	489	487	495.3
FW4A16	1357.3	536.5	489	495.3	495.3
FW4A18	1357.3	536.5	489	495.3	495.3
FW4A20	1498	627	582	585	635

Performance Data

Fan Performance – (50/60 HZ) – ENGLISH

Static Pressure (In.water)		0	0.2	0.3	0.4	0.5	0.6	Noise
Model	Speed	Air Flow (CFM)						dBA
FW4A12	H	1421	1210	1120	1031	916	801	74
	M	1227	1059	987	916	779	641	70
	L	1065	924	866	807	–	–	66
FW4A14	H	1612	1393	1301	1210	1030	850	73
	M	1444	1231	1141	1050	865	679	69
	L	1189	1046	988	931	–	–	65
FW4A16	H	1885	1621	1510	1399	1275	1150	77
	M	1779	1534	1431	1329	1125	920	73
	L	1653	1423	1325	1227	–	–	69
FW4A18	H	2021	1787	1693	1600	1500	1399	74
	M	1828	1623	1542	1461	1291	1120	70
	L	1536	1372	1307	1242	–	–	66
FW4A20	H	2245	1977	1868	1759	1650	1540	76
	M	1889	1672	1584	1495	1363	1231	72
	L	1606	1421	1346	1272	–	–	68

H – At High Fan Speed.
M – At Medium Fan Speed.
L – At Low Fan Speed.

Fan Performance – (50/60 HZ) – SI

Static Pressure (Pa)		0	50	75	100	125	150	Noise
Model	Speed	Air Flow (l/s)						dBA
FW4A12	H	667	568	526	484	430	376	74
	M	576	497	464	430	365.5	301	70
	L	500	434	407	379	–	–	66
FW4A14	H	757	654	611	568	483.5	399	73
	M	678	578	536	493	406	319	69
	L	558	491	464	437	–	–	65
FW4A16	H	885	761	709	657	598.5	540	77
	M	835	720	672	624	528	432	73
	L	776	668	622	576	–	–	69
FW4A18	H	949	839	795	751	704	657	74
	M	858	762	724	686	606	526	70
	L	721	644	614	583	–	–	66
FW4A20	H	1054	928	877	826	774.5	723	76
	M	887	785	744	702	640	578	72
	L	754	667	632	597	–	–	68

H – At High Fan Speed.
M – At Medium Fan Speed.
L – At Low Fan Speed.

Application Data

Selection Procedure

Table in this publication are meant for quick selection (+/-10%).

Example Quick Selection

Customer requires fan coil having the following performance:

1. CFM = 1400 +/-5% @ 0.2 inch water external static pressure.
2. Cooling capacity =30 kbtu.
3. Entering air 22c DB,17c WB.
4. Water in 6.7c.

Step 1 :

From fan performance tables at 0.2 inch water external static pressure we find that FW4A 1400 will deliver 1394 CFM @ 0.2 inch water.

Step 2

From FW4A performance tables, at 26.7/19C DB/WB, and on right hand side correction for 22/17c DB/WB.

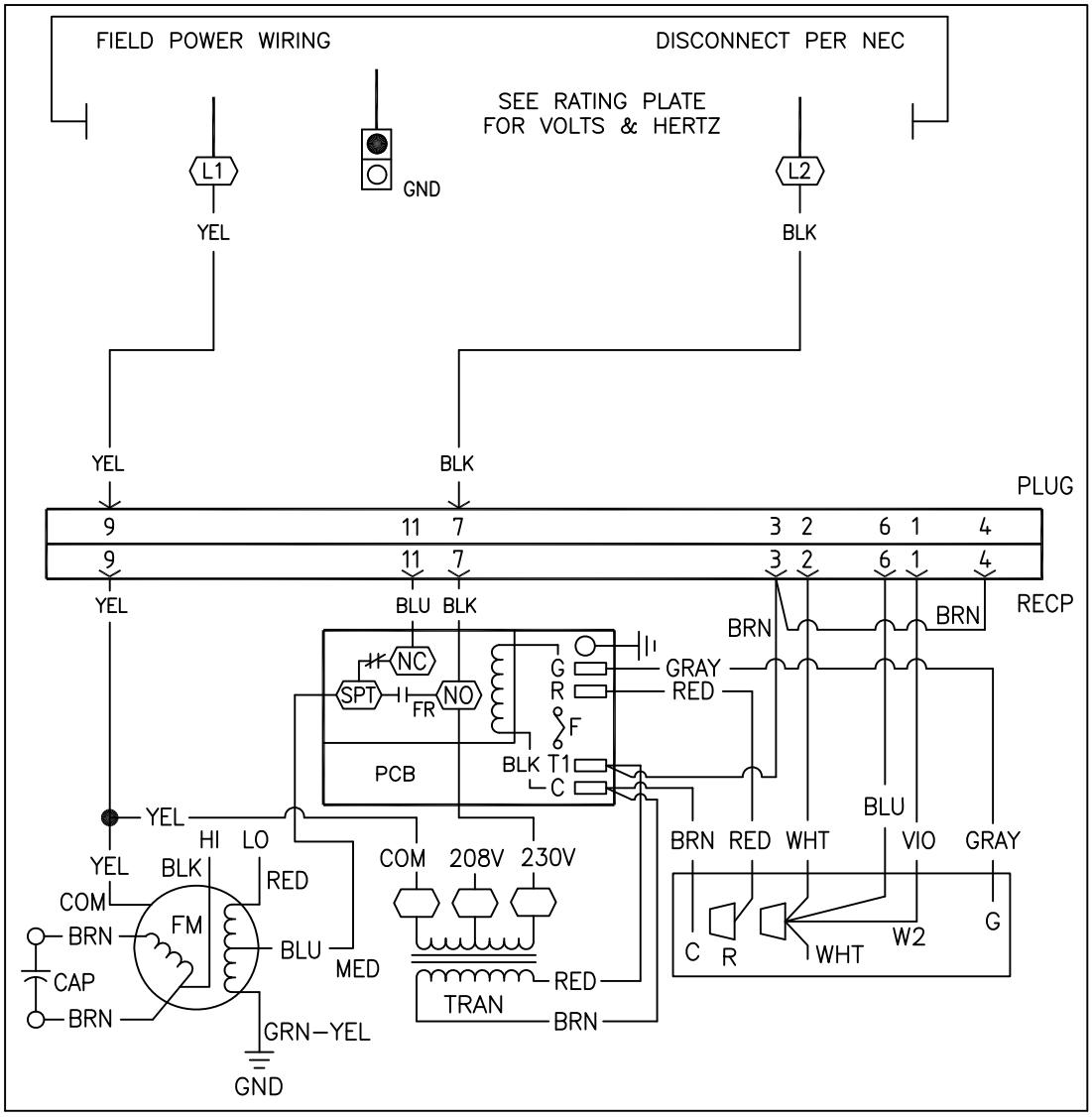
	Performance @ 26.7/19	Correction	Performance @ 22/17
Capacity	42.65	-28%	30.7
CFM	1394	----	1394
SHR	0.76	----	0.76
Air In	26.7	----	22
Air Out	14.6	-1.3	13.3
Water In	6.7	----	6.7
Water out	12.7	-1.1	11.6
Gal/min	7.88	----	7.88
DP PSI	3.61	----	3.61

Note that tables yield performance within 5:10% of most requirements.

Selection Software

For specific conditions user can use selection software available from carrier dealers or refer to carrier sales engineers for technical support.

Typical Wiring Schematic



Guide Specification

FW4A HIGH STATIC CHILLED WATER FAN COIL
NORMAL COOLING CAPACITY 3 TO 6 TON, 10.8:12.5 kw
ELECTRIC HEATER OPTION (FIELD INSTALATION)
1200:2000 CFM
Carrier MODEL NUMBERS FW4A
GENERAL

SYSTEM DESCRIPTION

The fan coil unit is designed for outdoor (or under ceiling) installation, electrically controlled cooling and heating (option). Unit shall be designed for vertical and horizontal installation. Standard unit shall include permanent filter with aluminum frame. Unit shall be designed for medium and high external static pressure up to 0.7 inch water.

QUALITY ASSURANCE

- Unit shall be rated in accordance with ARI standard # 410/91.
- Installation and adhesive shall meet NFPA90A requirements for flame spread and smoke generation.
- Unit casing shall be capable of withstanding 500 hour salt spray exposure per ASTMB117 (scribed specimen).
- Unit shall be manufactured in facility registered to ISO9001:2000/BS5750, part2.

PRODUCTS

A. The unit shall be factory assembled single piece cooling unit, with optional electric heat (field installation). Unit cabinet shall be constructed of galvanized steel bonderized and powder painted enamel finish. The unit shall be insulated with fiberglass insulation that is 1 inch thickness & 32 kg/m^3 density.

B. Unit cabinet panels shall be single skin. Cabinet panels shall be easily removable for service.

C. Unit shall have a permanent type filter with 1 inch aluminum frame. Filter shall be flame retardant polyester fibers. Filters shall be accessible through an access panel.

D. Units shall have high impact thermal plastic sloped condensate pan. Unit shall have primary and secondary drain connection with brass inserts. Unit shall have additional external drain pan for the coil connection condensate water.

E. The unit fan wheel shall be directly connected to the motor. The fan wheel shall be made from steel with a corrosion resistance finish, it shall be a dynamically balanced and double inlet forward curved blades. Unit fan wheel chamber shall be made from galvanized steel.

F. Unit coil shall have aluminum fins mechanically bonded to seamless smooth copper tubes with all joints brazed. Unit coil shall be accessible through an access panel for cleaning. The coil connection shall be sweat type.

G. The unit fan motor shall have permanently lubricated sleeve bearing. The motor shall have overload protection and B class insulation. Unit shall have multiple electric entries for more flexibility.

I. Unit control board shall be 24 VAC and UL listed.

NOTES

Turn to the Experts℠

Manufacturer reserves the right to discontinue, or change at any time, specifications or designs without notice and without incurring obligations