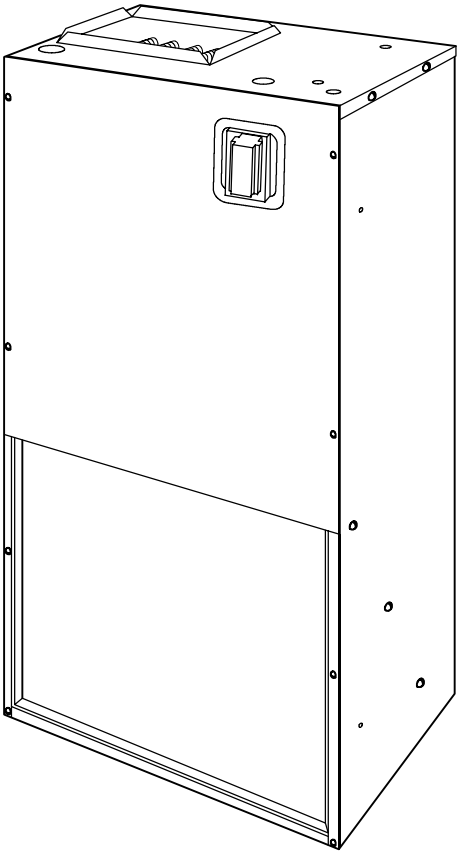
1-1/2 THRU 2-1/2 TONS SPLIT SYSTEM FWM Series

TEMPSTAR®
Heating and Cooling Products



FEATURES

- Designed as an upflow indoor air handler for split-system heat pumps and air conditioners.
- Available with factory-or field-installed electric heaters or. field-installed cooling control*.
- Electric heat and cooling control packages have a solid state fan control and time delay relay, plus Disconnect.
- 22-in. wide cabinet size in all models allows unit to fit between standard stud spacings for flush mounting, or it may be installed free standing or wall hung.
- Filter supplied and no return air duct is required if return air is supplied to the front of the cabinet through either a louvered closet door or an optional accessory decorative grille panel.
- Cabinet exterior is made of durable embossed sheet metal.
- Cabinet is fully insulated to meet applications in conditioned space, additional insulation is required for unconditioned space.
- Multispeed direct-drive PSC blower motors. Motors are suspended at 3 points on rubber grommets for quieter operation.
- All refrigerant lines, electrical power, and thermostat wiring enter from the top of the cabinet.
- Sweat-type refrigerant connections on both liquid and suction lines make for swift, low-cost installation.
- Drain pan is constructed of high-impact, sound-deadening, corrosion-proof polymer. Primary and secondary drain connections exit from the bottom or either side of the cabinet.
- All service access to the unit is conveniently located in the front.

Accessory Heater

- UL listed for sale in U.S.A. and Canada
- Designed for 208/230 Volt, Single phase models
- 5, 7.5 and 11 nominal KW models available.
- Auto-reset high temperature limits

* Requires field-installed cooling control without electric heat

LIMITED PARTS 5 YEAR WARRANTY

MANUFACTURER CERTIFIED TO ARI AS COMPLYING WITH UNITARY AIR-CONDITIONING EQUIPMENT CERTIFICATION SECTIONS OF ARI STANDARD 210

c UL® US LISTED

Rated in accordance with ARI Standard 210. Certification applies only when used with proper components as listed with ARI.

International Comfort Products Corporation (USA)
651 Heil-Quaker Ave.
Lewisburg, Tennessee 37091

RESIDENTIAL AND COMMERCIAL SYSTEMS • SPLIT SYSTEMS • PACKAGED AIR CONDITIONERS • COMBINATION GAS / ELECTRIC UNITS • HEAT PUMPS • AIR HANDLERS • MANUFACTURED HOME AIR CONDITIONERS • GAS, OIL AND ELECTRIC FURNACES

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SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

UNIT SPECIFICATIONS - BLOWER COILS

UNIT SIZE	UNITS W/O ELECTRIC HEATERS OR CONTROLS			UNITS WITH ELECTRIC HEATERS								
	FWM1800A	FWM2400A	FWM3000A	FWM18XXA			FWM24XXA			FWM30XXA		
				05	07	11**	05	07	11	05	07	11
OPER WT (Lb)	68	70	73	75	76		77	79		80	82	
REFRIGERANT	R-22											
Refrigerant Control	Orifice Pin											
Pin Size	.049	.060	.066	.049			.060			.066		
COIL	Slab Type, Aluminum Fins											
Rows - Fins/In.	2 - 14	3 - 14		2 - 14			3 - 14					
Height x Width (In.)	18 x 17.8		22 x 17.8	18 x 17.8						22 x 17.8		
Face Area (Sq Ft)	2.23		2.72	2.23						2.73		
BLOWER & MOTOR												
Air Discharge	Upflow											
Blower Type	Direct Drive											
Wheel Diameter (In.)	10											
Wheel Width (In.)	6											
Motor HP (PSC)	1/12	1/5	1/3	1/12			1/5			1/3		
Rpm (2 Speed)	810/750	980/780	1110/950	810/750			980/780			1110/950		
Motor Speeds & Type	2 & PSC											
Filter Size (Inches) Cleanable	16 x 20 x 1											
AIRFLOW												
Nominal CFM	650	870	1080	650			870			1080		
CONNECTIONS (Sweat)												
Suction	5/8	3/4		5/8			3/4					
Liquid	3/8			3/8								
Condensate (FPT) (In.)	3/4			3/4								
CLEARANCES												
Front-Servicing (In.)	21 (Servicing Only)											
Cabinet & Supply-Air Duct (Plenum included)	0											

* Check outdoor unit for required piston size.

** 18 Size with 11-kw heater not approved for use with heat pumps.

UNIT SPECIFICATIONS - Electrical Data

UNIT SIZE	V/PH	OPER VOLTS *		FAN FLA	BRANCH CIRCUIT				
		Max	Min		Min Wire Size (AWG) **	MCA	Max Ft Wire	Max Fuse or Ckt Bkr Amps	Control Transformer 24v (VA)
WITHOUT ELECTRIC HEATERS OR CONTROL									
18	208/230 / 1	253	187	0.7	14	-	-	15	-
24				1.5					
30				2.0					
WITH FACTORY INSTALLED ELECTRIC HEATERS OR CONTROLS									
1805	208/230 / 1	253	187	0.7	10/10	23.5/25.9	112/112	25/30	40
1807					8/8	34.8/38.4	118/118	35/40	
1811					6/6	50.6/55.9	125/125	60/60	
2405	208/230 / 1	253	187	1.5	10/10	24.5/26.9	112/112	25/30	40
2407					8/8	35.8/39.4	117/117	40/40	
2411					6/6	51.6/56.9	122/122	60/60	
3005	208/230 / 1	253	187	2.0	10/10	25.2/27.5	112/112	30/30	40
3007					8/8	36.4/40.0	117/117	40/40	
3011					6/6	52.3/57.5	125/125	60/60	

* Permissible limits of the voltage range at which the unit will operate satisfactorily.

** Use copper wire only. 75°C wire must be used in this application. When using non-metallic (NM) sheathed cable, wire size required should be based on that of 60°C conductors, instead of wire sizes shown in table above per NEC 1996 Article 336-30.

FLA Full Load Amps

MCA Minimum Circuit Amps

PERFORMANCE DATA

UNIT SIZE	EVAPORATOR AIR CFM AND BF	COIL REFRIGERANT TEMPERATURE														
		35			40			45			50			55		
		Evaporator Air - Entering Wet-Bulb Temp (°F)														
		72	67	62	72	67	62	72	67	62	72	67	62	72	67	62
18	400	27	23	19	25	20	16	22	17	13	19	14	10	15	10	8
	0.08	13	14	15	12	13	13	10	11	12	9	10	10	8	8	8
	500	30	25	21	28	22	18	24	19	15	21	15	12	16	11	10
	0.10	14	16	17	13	14	16	12	13	14	10	11	12	9	10	10
	600	33	27	22	30	24	19	26	21	16	23	17	13	18	12	11
	0.13	15	17	19	14	16	18	13	14	16	11	13	13	10	11	11
	650	34	28	23	31	25	20	27	21	17	23	17	14	18	13	12
	0.14	16	18	20	14	17	18	13	15	16	12	13	14	10	11	12
24	600	38	32	26	35	29	22	31	24	18	26	19	14	21	13	12
	0.05	18	20	21	16	18	19	15	16	17	13	14	14	11	11	12
	700	41	34	28	38	30	24	33	26	20	28	20	16	22	15	13
	0.06	19	21	23	18	19	21	16	18	19	14	15	16	12	13	13
	875	46	38	31	41	34	27	37	29	22	31	23	19	25	17	16
	0.08	21	24	27	20	22	24	18	20	22	16	18	19	14	15	16
30	750	46	38	31	41	33	26	36	28	21	30	22	17	24	16	14
	0.04	21	23	25	19	21	22	17	19	20	15	16	17	12	13	14
	900	50	42	34	46	37	29	40	31	23	33	25	19	26	18	16
	0.06	23	26	28	21	23	25	19	21	22	17	18	19	14	15	16
	1075	54	45	37	49	40	32	43	34	26	37	27	22	29	19	18
	0.07	25	28	31	23	26	28	21	23	25	18	21	22	16	17	18

* Saturated suction leaving evaporator coil.

Sensible Heat Capacity (1000 Btuh)

Gross Cooling Capacity (1000 Btuh)

BF

NOTES:

1. Net capacities shown include a deduction for evaporator fan motor heat.
2. Contact manufacturer for cooling capacities at conditions other than shown in table.
3. Formulas:

Leaving db entering db -- $\frac{\text{sensible heat cap}}{1.09 \times \text{CFM}}$

Leaving wb wb corresponding to enthalpy of air leaving coil (h_{lwb})

$$h_{lwb} \quad h_{ewb} \quad \frac{\text{total capacity (Btuh)}}{4.5 \times \text{CFM}}$$

where h_{ewb} enthalpy of air entering coil.

4. Direct interpolation is permissible. Do not extrapolate.
5. SHC is based on 80°F db temperature of air entering coil. Below 80°F subtract (corr factor x CFM) from SHC. Above 80°F db, add (corr factor x CFM) to SHC.

SHC CORRECTION FACTOR

BYPASS FACTOR	ENTERING AIR DRY-BULB TEMPERATURE (°F)					
	79	78	77	76	75	Under 75
	81	82	83	84	84	Over 85
	Correction Factor					
0.10	0.98	1.96	2.94	3.92	4.91	Use formula shown below
0.20	0.87	1.74	2.62	3.49	4.36	
0.30	0.76	1.53	2.29	3.05	3.82	

Interpolation is permissible.

Correction Factor 1.09 x (1 - BF) x (db - 80)

PERFORMANCE DATA MATCHES

		Cooling 95 F				Cool 82 F				Heating Data (Heat Pump Only)							Pin
Outdoor Model	Indoor Model	Btuh	S/T	EER	WATTS	Btuh	EER	Cd	SEER	Btuh 47	COP 47	HSPF	Heat Cd	Btuh 17	COP 17	CFM	TXV
NAC018AKA	FWM18	17,200	.77	9.60	1792	18,500	11.5	0.20	10.30	-	-	-	-	-	-	600	.049
TCA018AKA	FWM18	17,500	.75	10.10	1733	18,600	11.7	0.20	10.50	-	-	-	-	-	-	600	.051
NHP018AKA	FWM18	16,400	.76	9.40	1745	17,600	11.1	0.19	10.00	16,600	3.00	6.80	0.25	11,000	2.00	600	.049
TCH018AKA	FWM18	16,500	.77	9.60	1719	17,800	11.7	0.23	10.30	17,200	3.20	7.40	0.25	11,400	2.20	600	.049
TCH018AKA	FWM18 + TXV	16,500	.77	9.60	1719	17,800	11.7	0.20	10.50	17,200	3.20	7.40	0.25	11,400	2.20	600	TXV
NAC024AKA	FWM24	23,000	.76	9.10	2527	24,000	10.7	0.13	10.00	-	-	-	-	-	-	800	.060
TCA024AKA	FWM24	23,600	.77	9.80	2408	24,600	10.7	0.13	10.00	-	-	-	-	-	-	800	.060
NAC218AKA	FWM24	17,000	.76	10.30	1650	18,000	12.2	0.12	11.40	-	-	-	-	-	-	600	.051
TCA218AKA	FWM24	17,500	.76	11.00	1591	18,400	12.2	0.11	11.50	-	-	-	-	-	-	600	.051
TCA218AKA	FWM24 + TXV	17,500	.76	11.00	1591	18,400	12.2	0.04	12.00	-	-	-	-	-	-	600	TXV
NHP024AKA	FWM24	22,400	.75	9.20	2435	23,000	10.6	0.10	10.00	22,600	3.10	6.80	0.25	12,600	1.94	800	.060
TCH024AKA	FWM24	22,800	.76	9.40	2426	23,400	10.8	0.12	10.10	23,600	3.34	7.40	0.25	14,700	2.22	800	.060
NHP218AKA	FWM24	17,500	.75	10.60	1651	18,500	12.3	0.11	11.60	17,500	3.28	7.40	0.20	10,000	2.10	600	.051
NHP218AKA	FWM24 + TXV	17,500	.75	10.60	1651	18,500	12.3	0.05	12.00	17,500	3.28	7.40	0.20	10,000	2.10	600	TXV
TCH218AKA	FWM24	17,500	.75	10.60	1651	18,500	12.3	0.11	11.60	17,500	3.28	7.60	0.20	10,000	2.10	600	.051
TCH218AKA	FWM24 + TXV	17,500	.75	10.60	1651	18,500	12.3	0.05	12.00	17,500	3.28	7.60	0.20	10,000	2.10	600	TXV
NAC030AKA	FWM30	28,400	.76	9.20	3087	30,000	10.5	0.08	10.00	-	-	-	-	-	-	1000	.066
TCA030AKA	FWM30	29,000	.75	9.40	3085	30,800	10.7	0.11	10.10	-	-	-	-	-	-	1000	.066
NAC224AKA	FWM30	23,000	.76	10.20	2233	24,000	12.1	0.11	11.40	-	-	-	-	-	-	800	.059
TCA224AKA	FWM30	23,500	.76	10.40	2260	24,800	12.2	0.11	11.50	-	-	-	-	-	-	800	.059
TCA224AKA	FWM30 + TXV	23,500	.76	10.40	2260	24,800	12.2	0.04	12.00	-	-	-	-	-	-	800	TXV
NHP030AKA	FWM30	28,400	.75	9.40	3021	30,000	10.5	0.08	10.00	28,000	3.12	6.80	0.25	16,000	2.18	1000	.066
TCH030AKA	FWM30	28,600	.76	9.80	2918	29,400	10.8	0.10	10.20	28,200	3.22	7.40	0.25	17,500	2.22	1000	.066
NHP224AKA	FWM30	22,400	.76	10.20	2196	24,000	12.3	0.13	11.50	23,600	3.25	7.60	0.20	14,600	2.20	800	.059
NHP224AKA	FWM30 + TXV	22,400	.76	10.20	2196	24,000	12.3	0.05	12.00	23,600	3.25	7.60	0.20	14,600	2.20	800	TXV
TCH224AKA	FWM30	22,400	.76	10.20	2196	24,000	12.3	0.13	11.50	23,600	3.25	7.80	0.20	14,600	2.20	800	.059
TCH224AKA	FWM30 + TXV	22,400	.76	10.20	2196	24,000	12.3	0.05	12.00	23,600	3.25	7.80	0.20	14,600	2.20	800	TXV

AIRFLOW DATA

AIR DELIVERY (CFM) AT INDICATED EXTERNAL STATIC PRESSURE AND VOLTAGE

SIZE	BLOWER MOTOR SPEED	EXTERNAL STATIC PRESSURE - IN WC									
		0.1		0.2		0.3		0.4		0.5	
		208v	230v	208v	230v	208v	230v	208v	230v	208v	230v
18	High	610	720	580	665	540	610	475	540	380	415
	Low	480	580	450	545	415	500	375	430	320	340
24	High	895	985	860	955	825	915	785	865	730	805
	Low	650	740	620	710	585	680	550	640	510	600
30	High	1160	1190	1105	1135	1050	1080	990	1020	935	960
	Low	885	1025	870	985	835	940	810	890	770	840

NOTE: Data reflects a dry coil, filter, and 11-kw electric heater installed.

AIR DELIVERY PERFORMANCE CORRECTION

COMPONENT PRESSURE DROP (IN. WC) AT INDICATED AIRFLOW

	AIR DELIVERY (CFM)	400	500	600	700	800	900	1000	1100
Electric Heaters	1-Element 5 kw	0.007	0.010	0.015	0.025	0.035	0.055	0.070	0.080
	2-Element 7.5 & 11 kw	0.010	0.012	0.018	0.028	0.050	0.075	0.100	0.130
Dry-to-Wet Coil	018	-	0.019	0.029	0.036	0.043	-	-	-
	024	-	-	0.030	0.039	0.051	0.062	0.076	-
	030	-	-	-	-	0.058	0.070	0.082	0.091

Subtract the above pressure drop corrections from unit air ow data when that component or condition is used. The remaining external static pressure will be available for the duct system.

ACCESSORIES

OPTIONAL FIELD-INSTALLED ELECTRIC HEAT PACKAGES*

HEATER PART NO WITH TDR	SIZES USED WITH	NOMINAL KW @ 240V	HEATER VOLTS - PHASE (60 Hz)	HEATER CAPACITY (MBtuh)**		APPROX SHIP. WEIGHT (lb)
				208V	230V	
AMWK005AH	All	5	208/230 - 1	14.3	17.2	5
AMWK007AH	All	7.5	208/230 - 1	20.7	25.0	6
AMWK011AH	All	11	208/230 - 1	29.7	36.0	6

* Refer to the appropriate unit/factory-installed heater combinations in the "Electrical Data" tables for the electrical application data for these heat packages.

** Heater capacities shown here are for the largest size fan-coil unit and include blower motor heat.

OTHER ACCESSORIES

KIT NUMBER	DESCRIPTION	USED ON SIZES
AMWK001CK	Cooling Control Package	All
AMWK001WG*	Louvered Wall Panel with Frame	All
AMWK001MK	Wall Mounting (Suspended) Kit	All

* 6 pack

MODEL NUMBER IDENTIFICATION

F	W	M	30	00	A

PRODUCT FAMILY
FWM = Apartment Air Handler

SALES CODE

FIELD INSTALLED HEATERS

CAPACITY BTUH
30 = 30,000

ACCESSORY MODEL GUIDE

A	M	WK	001	CK	A

PRODUCT GROUP
A = Accessories

PRODUCT TYPE
C = Cooling H = Heating X = Special
M = Multi Use (Heating and / or Cooling)

SERIES

PRODUCT IDENTIFIER NUMBER

PRODUCT IDENTIFIER

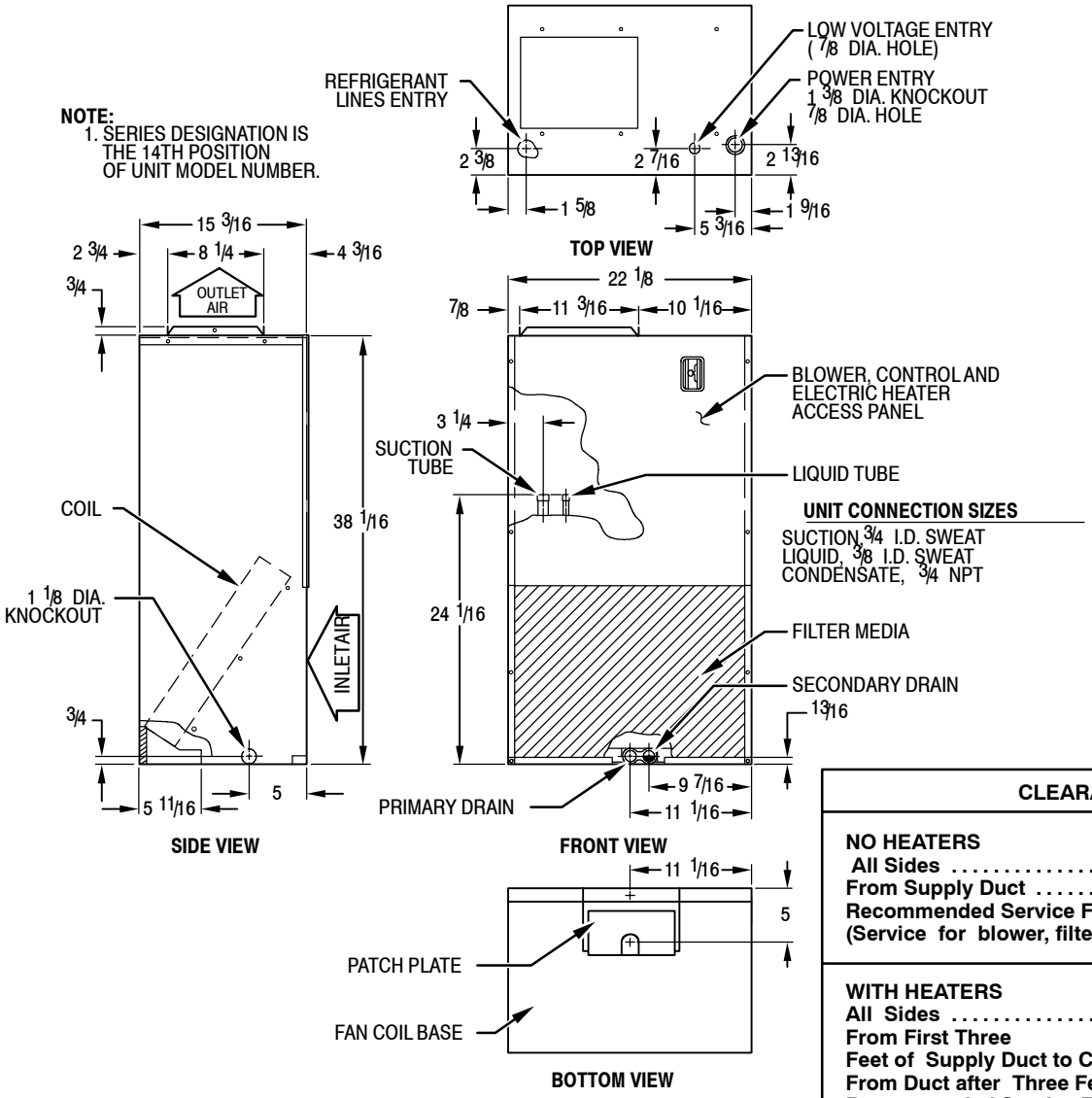
SALES CODE

ACCESSORY PRODUCT IDENTIFIER ASSIGNMENT

AH - Auxiliary Heater
CK - Cooling Control Kit
WG - Louvered Wall Grille

DIMENSIONS

NOTE:
1. SERIES DESIGNATION IS THE 14TH POSITION OF UNIT MODEL NUMBER.



UNIT CONNECTION SIZES

SUCTION, 3/4 I.D. SWEAT
LIQUID, 3/8 I.D. SWEAT
CONDENSATE, 3/4 NPT

CLEARANCES

NO HEATERS

All Sides	0”
From Supply Duct	0”
Recommended Service From Front (Service for blower, filter if installed)	21”

WITH HEATERS

All Sides	0”
From First Three Feet of Supply Duct to Combustibles	1”
From Duct after Three Feet	0”
Recommended Service From Front (Service for blower, filter, heaters if installed)	21”