HBAX SERIES

BELT DRIVE HORIZONTAL
DIRECT EXPANSION BLOWER COIL UNITS

Nominal Sizes 2 thru 20 Ton

MAGIC AIRE HBAX SERIES FAN COILS ARE ETLC LISTED IN ACCORDANCE WITH UL 1995 AND ARE ASSEMBLED TO ORDER FOR COMPETITIVE DELIVERY.

UNITED ELECTRIC COMPANY, L.P.

501 Galveston St. • Wichita Falls, Texas 76301 • 940-397-2100 • Fax 940-397-2166

Contractor shall furnish and install high quality air handling units as indicated on plans. Sizes and capacities shall be shown in the Unit Schedule included on the drawings. All units shall be the products of *Magic Aire* with the ETL safety listing.

Cabinets shall be fabricated of LFQ (min) steel. External parts are to be made with polyurethane based powder coated A60 galvanealed, while internal parts are to be built from G90 galvanized steel. Units shall pass 500 hour salt spray test as described in ASTM B-117. Large access panels shall be provided to permit full access to internal components. The structural integrity of the cabinets shall remain unaffected by the removal of any or all access panels.

Insulation shall be 1 inch dual density, blanket-type made from borosilicate glass fibers bonded with a thermosetting resin. Insulation shall include antimicrobial coating. Insulation shall be one and-one-half pound density providing effective acoustical and thermal control, fire safety, and resistance to air erosion.

Coils shall be of the staggered tube type constructed with seamless copper tubes and headers, and deep corrugated aluminum fins with straight edges. Manufacturer shall supply full depth collars, drawn in the fin stock to provide accurate control of fin spacing and completely cover the copper tubes to lengthen coil life. The tubes are to be mechanically expanded into the fins for a permanent primary to secondary surface bond, assuring maximum heat transfer efficiency. The coils are to be tested at 500 PSI for operation at 400 PSI gauge. The coils provided shall be suitable for the application and comply with the required performance as described in the Unit Schedule.

Drainpans shall be sloped in two planes for positive drainage and shall be fabricated of heavy gauge Type 304 stainless steel.

Fan Wheels shall be double width, double inlet, forward curved, centrifugal type. They shall be statically and dynamically balanced for smooth, quiet operation. The housing shall be constructed of heavy gauge steel with die-formed inlet cones. The bearings shall be self aligning, sealed cartridge, permanently lubricated ball bearings that are rubber mounted and shall provide dependable fan operation for an average life of 200,000 hours. The fan shaft shall be solid cold rolled steel designed such that its operating speed is below its first critical speed.

Motors and Drives shall be belt drive, standard duty, 1725 RPM, open, drip-proof construction. Single phase motors shall be provided with resilient mount and automatic reset thermal protection. Drive shall be of the V-belt type. Variable pitch motor sheaves are to be furnished for ease and accuracy in balancing the system and adjusting the required air volume. The motors are to be bolted to an adjustable platform to facilitate belt tension and alignment. The blower sheave shall be cast iron single groove with split tapered bushing that is keyed to the blower shaft.

Filters are to be 2" disposable type. They shall be center loading with an 85% arrestance efficiency. The filters shall be included in the units as an integral part of the cabinet with easy access provided by the manufacturer.

Mixing Boxes shall include low leak damper assemblies constructed of welded steel channel frames with 18 gauge galvanized steel blades, die formed stiffeners and full blade stop. Stainless steel side seals and vinyl blade seals to reduce leakage shall be standard. All hardware shall be zinc plated with brass pivot points and bronze oilite bearings. Shafts shall be corrosion resistant steel. Mixing box shall be fully insulated with manufacturers standard insulation.

HBAX Series
STANDARD FEATURES

- Controls (i.e. contactor, starter, or transformer/fan relay) not included in standard product. Only ODP, single and three phase motors on 2-5 Ton units are factory-wired to J-box. All other motors require field wiring to J-box located on side of unit cabinet.

- 24 HBAX through 60 HBAX have 3/8" NC thread inserts (7/8" in from corners) in each corner of top panel for easy suspension. 90 HBAX through 240 HBAX have 7/8" knockouts in each corner of top and bottom panels for suspension rods to pass through. 7/8" knockouts are 3-1/2" in from corners – both on center line.

- Suction, liquid, optional hot water or steam coil, electrical and drain stubouts are standard right hand, looking at filters.

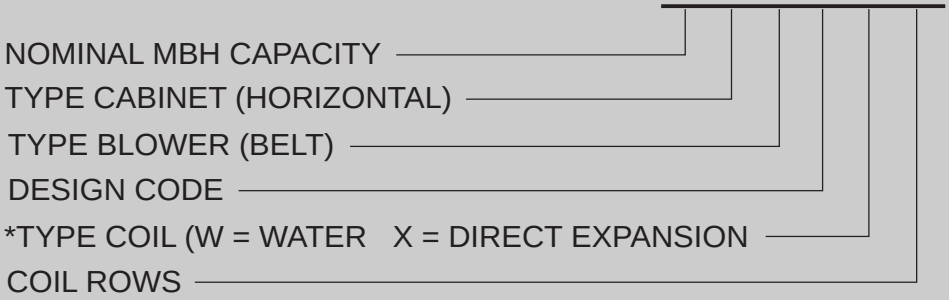
- All units stocked with thermal expansion valve mounted – with side port distributors.

- Stocked Optional Accessories:
  - 1 Row Hot Water Heating Coil (24-60 only)
  - 2 Row Hot Water Heating Coil
  - MB Series Mixing Boxes
  - Actuator Kits for Mixing Boxes (Field Install and Wire)
  - Discharge Grille Plenum
  - Return Air Grille
  - Spring Vibration Isolators (Unit Hanger Kit)
  - Heat pump conversion kit available for field mounting. (Contact factory for compatibility with specific heat pump models.)

- Non-Stock Options:
  - 6 Row Direct Expansion Coil
  - Steam Coils (See Steam Brochure for capacities)
  - Bottom Access (24-60 only)
  - Special Insulation
  - Electric Heat
  - Double Wall Constuction

Product Description

MODEL NUMBER IDENTIFICATION 24 H B A X 3



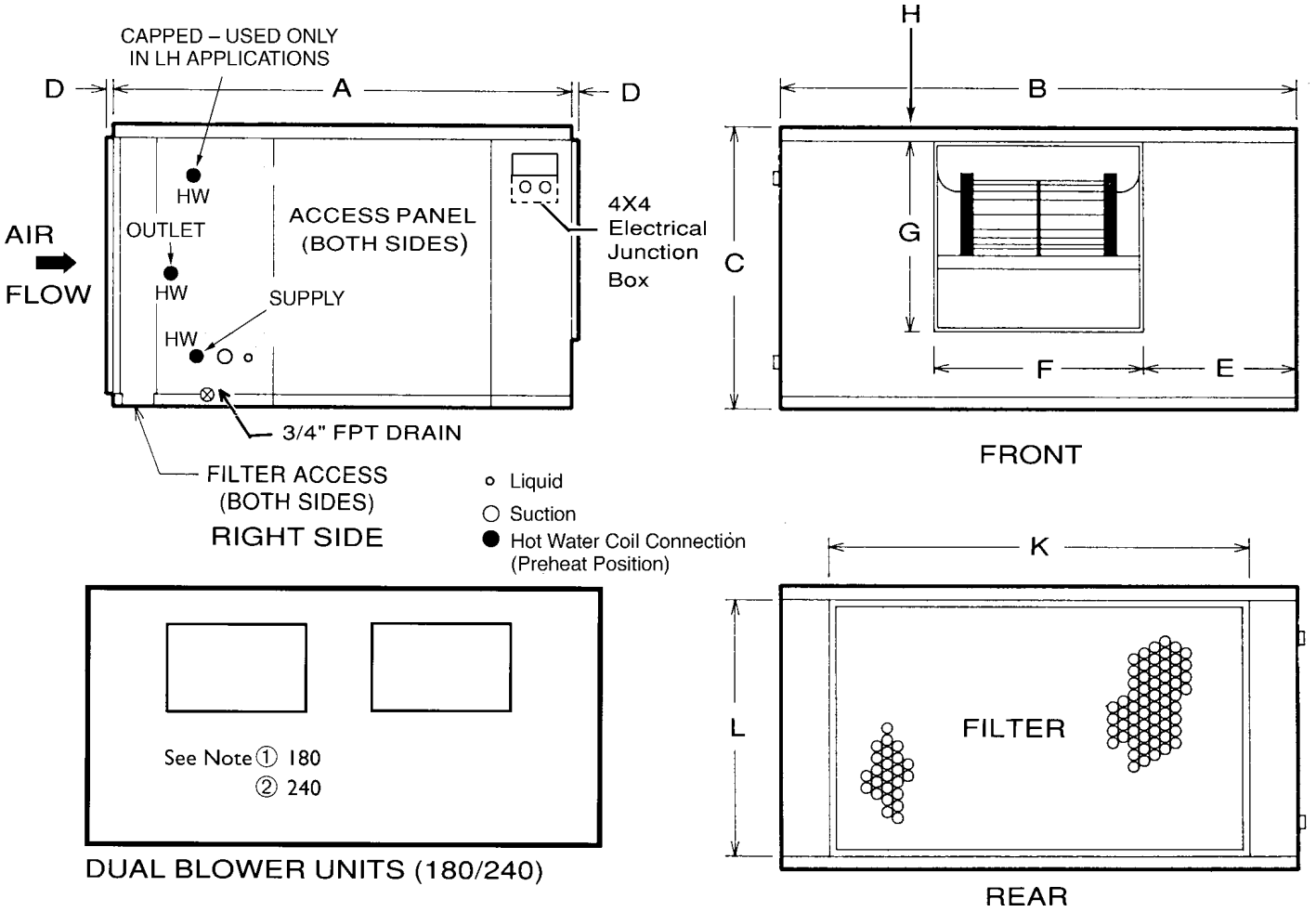
Specifications

MODEL	NOM. TONS	COIL FACE AREA	3 ROW DX			WATER COIL			FILTER
			LIQ LINE	SUCT. LINE	SHIP WT	1 ROW	2 ROW	SHIP WT**	
24 HBA	2	2.05	3/8" OD SWT	3/4" OD SWT	146	1/2" OD SWT	5/8" OD SWT	13	16 X 25
36 HBA	3	3.05	3/8" OD SWT	3/4" OD SWT	178	7/8" OD SWT	7/8" OD SWT	18	1-16 X 32
48 HBA	4	4.03	1/2" OD SWT	7/8" OD SWT	203	7/8" OD SWT	7/8" OD SWT	25	2-16 X 20
60 HBA	5	5.00	1/2" OD SWT	1 1/8" OD SWT	246	7/8" OD SWT	1 1/8" OD SWT	30	2-20 X 20
90 HBA	7.5	7.16	5/8" OD SWT *1/2" OD SWT (2)	1 1/8" OD SWT *7/8" OD SWT (2)	425	N/A	1 1/8" OD SWT	41	2-16 X 25 1-20 X 25
120 HBA	10	10.22	5/8" OD SWT *1/2" OD SWT (2)	1 3/8" OD SWT *7/8" OD SWT (2)	485	N/A	1 1/8" OD SWT	53	3-16 X 32
180 HBA	15	13.75	7/8" OD SWT *5/8" OD SWT (2)	1 3/8" OD SWT *1 1/8" OD SWT(2)	707	N/A	1 3/8" OD SWT	86	2-20 X 25 4-20 X 20
240 HBA	20	16.60	2-5/8" OD SWT	2-1 3/8" OD SWT	780	N/A	2-1 1/8" OD SWT	106	2-16 X 20 2-16 X 25 2-20 X 20 2-20 X 25

*For Unit with Dual ExpansionValve **Coil only.

Specifications subject to change without notice due to continuing effort to improve our product.

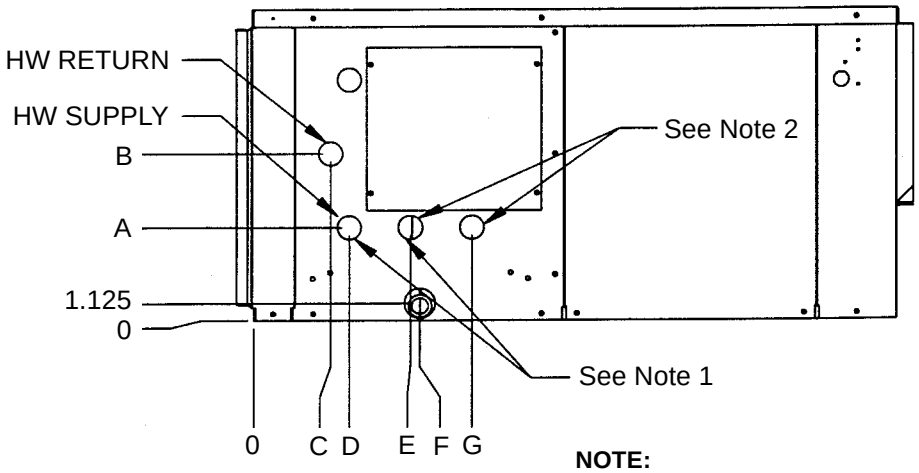
BELT DRIVE HORIZONTAL DIRECT EXPANSION BLOWER COIL UNITS



UNIT CABINET DIMENSIONS										
MODEL	UNIT						BLOWER OPENING OUTLET		RETURN DUCT CONN.	
	A	B	C	D	E	H	F	G	K	L
24 HBA	37.00	27.00	18.00	1	9.13	1.00	8.75	10.88	18.00	16.00
36 HBA	37.00	36.50	18.00	1	12.09	1.00	12.31	10.88	27.50	16.00
48 HBA	42.00	38.00	22.00	1	14.25	1.00	9.50	14.00	29.00	20.00
60 HBA	42.00	45.00	22.00	1	16.00	1.00	13.00	14.00	36.00	20.00
90 HBA	52.50	54.00	27.00	1	20.38	1.00	13.25	16.75	45.00	25.00
120 HBA	52.50	57.00	34.00	1	21.88	8.50	13.25	16.75	48.00	32.00
180 HBA	57.50	67.13	42.00	1	①	7.00	(2)16.07	(2)15.88	57.75	40.25
240 HBA	57.50	72.00	47.00	1	②	11.88	(2)16.07	(2)15.88	66.00	45.00

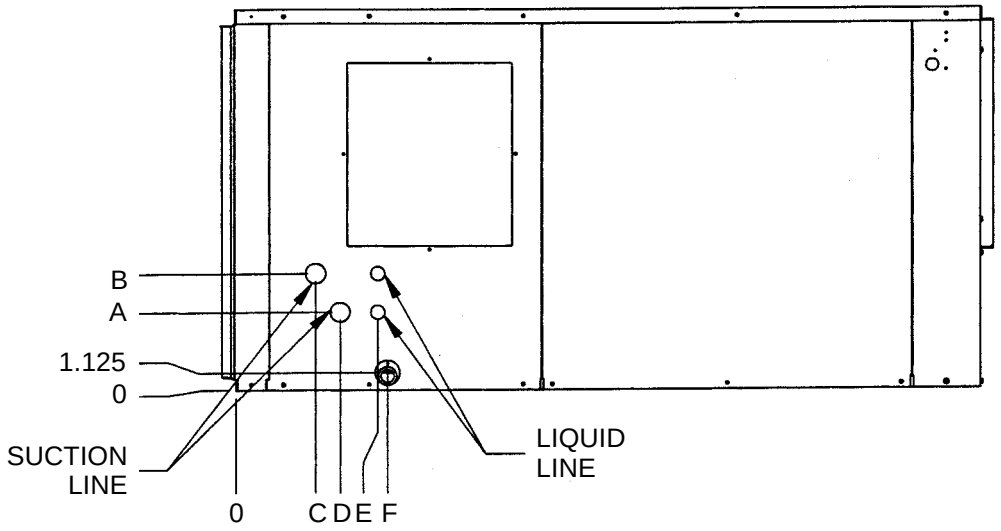
① Blower opening 7" down from top of unit. Looking at discharge 14-3/8 left side, 11-3/8 center and 8-3/8 right side.
② Blower opening 11-7/8 down from top of unit. Looking at discharge 14-3/16 left side, 11-3/8 center and 13-5/16 right side.
③ When a hot water coil is installed in a HBAX unit, a freeze stat must be field installed to prevent the hot water coil from freezing.

STUBOUT DIMENSIONS



NOTE:
1. These stubout locations are used for the cooling coil if there is not a preheat coil.
2. These stubout locations are used for the cooling coil if there is a preheat coil.

UNIT SIZE	A	B	C	D	E	F	G
24/36 HBAX-3	5.400	9.750	4.400	5.500	9.000	9.500	12.500
48/60 HBAX-3	5.400	11.750	4.400	5.500	9.000	9.500	12.500
90 HBAX-3	5.500	14.300	4.400	5.500	9.300	10.625	13.000
120 HBAX-3	4.750	17.500	4.400	5.500	9.300	10.625	13.000
180 HBAX-3	6.800	21.500	5.400	6.500	10.200	11.700	14.000



UNIT SIZE	A	B	C	D	E	F
90 HBAX-3 DUAL	5.500	8.250	5.600	7.375	10.000	10.625
120 HBAX-3 DUAL	5.000	7.000	5.600	7.375	10.000	10.625
180 HBAX-3 DUAL	6.800	9.500	6.500	8.250	10.900	11.700
240 HBAX-3 DUAL	10.000	13.500	6.625	8.375	11.600	11.700

MagicAire®

FAN PERFORMANCE

MODEL	INTER S.P.	CFM	.25" ESP RPM	.25" ESP BHP	.50" ESP RPM	.50" ESP BHP	.75" ESP RPM	.75" ESP BHP	1.00" ESP RPM	1.00" ESP BHP	1.25" ESP RPM	1.25" ESP BHP	1.50" ESP RPM	1.50" ESP BHP
24 HBAX	.20	600	792	.10	991	.15	1154	.22	1321	.29	1441	.35	1616	.43
	.26	700	852	.14	1010	.20	1177	.26	1324	.32	1460	.39	1600	.45
	.33	800	896	.18	1057	.24	1208	.31	1343	.36	1467	.44	1595	.50
	.40	900	957	.23	1111	.30	1246	.36	1368	.43	1494	.53	1613	.59
	.46	1000	1020	.29	1163	.37	1295	.43	1409	.49	1522	.58	1626	.67
36 HBAX	.23	900	829	.18	1011	.24	1205	.38	1360	.46	1514	.58	1632	.67
	.30	1050	896	.23	1059	.30	1220	.40	1371	.58	1520	.67	1677	.77
	.37	1200	952	.30	1114	.39	1256	.47	1400	.62	1529	.75	1724	.91
	.44	1350	1024	.37	1159	.46	1393	.56	1418	.68	1547	.78	1708	1.00
	.53	1500	1080	.48	1231	.59	1349	.69	1465	.79	1572	.90	1682	1.04
48 HBAX	.31	1200	682	.25	797	.34	905	.43	1014	.52	1099	.61	1177	.69
	.40	1400	752	.35	849	.43	946	.53	1048	.67	1129	.75	1213	.84
	.49	1600	808	.46	908	.57	997	.67	1077	.78	1156	.88	1247	.99
	.58	1800	878	.60	968	.71	1051	.83	1125	.93	1201	1.07	1267	1.18
	.70	2000	948	.76	1036	.94	1106	1.04	1186	1.14	1256	1.30	1318	1.44
60 HBAX	.26	1500	677	.29	769	.38	878	.47	982	.58	1075	.70	1199	.88
	.33	1750	703	.37	810	.48	908	.59	1006	.72	1093	.83	1177	.95
	.41	2000	755	.50	850	.61	949	.74	1035	.88	1120	1.00	1202	1.14
	.50	2250	820	.66	908	.78	995	.92	1076	1.06	1157	1.22	1230	1.35
	.60	2500	878	.87	961	.99	1049	1.14	1124	1.30	1196	1.46	1268	1.61
90 HBAX	.25	2250	546	.39	648	.53	730	.65	811	.78	890	.95	954	1.06
	.32	2625	595	.55	684	.68	771	.85	839	1.00	908	1.14	973	1.31
	.40	3000	648	.76	728	.92	803	1.08	871	1.26	942	1.45	999	1.60
	.48	3375	697	1.02	773	1.21	846	1.41	914	1.61	979	1.78	1037	1.99
	.59	3750	761	1.36	824	1.57	893	1.77	958	2.01	1016	2.20	1069	2.41
120 HBAX	.26	3000	610	.68	690	.82	764	.98	840	1.14	915	1.36	984	1.51
	.33	3500	677	1.01	747	1.18	818	1.35	882	1.56	946	1.75	1015	1.97
	.41	4000	740	1.43	805	1.63	873	1.85	931	2.05	992	2.30	1053	2.53
	.51	4500	809	1.97	868	2.19	930	2.49	989	2.75	1043	3.00	1095	3.27
	.60	5000	877	2.63	932	2.87	994	3.17	1046	3.45	1101	3.82	1153	4.11
180 HBAX	,41	5000	546	1.00	637	1.22	717	1.46	791	1.74	868	2.03	937	2.36
	.48	5500	575	1.18	656	1.46	732	1.75	806	2.05	879	2.36	945	2.68
	.56	6000	606	1.43	684	1.74	755	2.06	824	2.37	892	2.67	952	2.98
	.64	6500	636	1.72	705	2.03	776	2.36	842	2.68	904	2.98	968	3.44
	.73	7000	688	2.08	738	2.39	800	2.70	865	3.03	926	3.46	985	3.89
240 HBAX	.38	7000	564	1.60	640	1.96	712	2.27	776	2.58	839	2.90	903	3.29
	.42	7500	587	1.89	660	2.21	728	2.52	790	2.83	850	3.25	910	3.68
	.48	8000	614	2.19	686	2.54	749	2.89	809	3.27	867	3.68	926	4.21
	.54	8500	642	2.54	702	2.90	769	3.36	827	3.86	884	4.36	941	4.86
	.60	9000	672	2.92	733	3.39	791	3.87	846	4.36	902	4.84	959	5.44

FAN PERFORMANCE

MODEL	INTER S.P.	CFM	.25" ESP RPM	.25" ESP BHP	.50" ESP RPM	.50" ESP BHP	.75" ESP RPM	.75" ESP BHP	1.00" ESP RPM	1.00" ESP BHP	1.25" ESP RPM	1.25" ESP BHP	1.50" ESP RPM	1.50" ESP BHP
24 HBAX w/24 HBH-2	.24	600	832	.12	1019	.18	1186	.23	1346	.30	1500	.38	1642	.47
	.29	700	894	.15	1057	.21	1211	.27	1350	.32	1500	.40	1643	.49
	.38	800	949	.20	1110	.27	1249	.32	1383	.39	1502	.45	1634	.55
	.45	900	1024	.26	1164	.31	1300	.39	1418	.45	1529	.54	1643	.60
	.54	1000	1089	.31	1215	.38	1348	.45	1461	.54	1570	.60	1677	.69
36 HBAX w/36 HBH-2	.29	900	881	.19	1105	.29	1304	.39	1424	.49	1558	.57	1674	.66
	.37	1050	939	.24	1118	.34	1350	.47	1499	.60	1615	.69	1728	.82
	.47	1200	1014	.32	1173	.41	1308	.49	1516	.67	1662	.84	1778	.96
	.56	1350	1091	.40	1232	.50	1363	.61	1489	.71	1636	.89	1824	1.10
	.67	1500	1172	.53	1301	.62	1410	.72	1535	.85	1653	.97	1765	1.12
48 HBAX w/48 HBH-2	.37	1200	709	.26	828	.34	940	.44	1032	.53	1119	.62	1194	.72
	.47	1400	784	.37	888	.46	975	.56	1063	.66	1163	.77	1241	.87
	.59	1600	854	.50	951	.61	1035	.72	1114	.81	1191	.93	1267	1.03
	.71	1800	919	.66	1014	.79	1100	.91	1174	1.04	1241	1.14	1311	1.25
	.84	2000	1003	.85	1082	.98	1165	1.11	1236	1.28	1298	1.38	1365	1.51
60 HBAX w/60 HBH-2	.32	1500	677	.30	792	.39	899	.49	996	.62	1093	.73	1193	.88
	.43	1750	737	.41	842	.53	938	.64	1027	.75	1114	.89	1202	1.01
	.52	2000	790	.56	890	.66	979	.79	1064	.92	1144	1.05	1223	1.18
	.63	2250	851	.71	947	.85	1029	.98	1109	1.12	1189	1.29	1256	1.41
	.76	2500	923	.95	1002	1.08	1077	1.23	1155	1.37	1226	1.53	1298	1.71
90 HBAX w/90 HBH-2	.32	2250	564	.42	660	.54	744	.70	822	.79	898	.96	964	1.08
	.40	2625	621	.59	705	.75	784	.92	858	1.09	931	1.24	989	1.38
	.51	3000	678	.87	753	1.03	824	1.19	895	1.36	959	1.53	1019	1.71
	.61	3375	730	1.13	802	1.34	871	1.52	933	1.70	996	1.92	1058	2.13
	.73	3750	792	1.49	858	1.69	919	1.90	989	2.13	1042	2.35	1094	2.53
120 HBAX w/120 HBH-2	.31	3000	626	.70	711	.84	788	1.03	862	1.21	932	1.35	1001	1.58
	.40	3500	693	1.01	771	1.24	845	1.42	904	1.61	970	1.83	1032	2.02
	.50	4000	771	1.50	832	1.70	894	1.92	959	2.13	1015	2.35	1074	2.61
	.61	4500	835	2.02	903	2.30	957	2.50	1018	2.79	1070	3.06	1122	3.28
	.73	5000	913	2.84	972	3.12	1023	3.33	1079	3.64	1131	3.89	1182	4.22
180 HBAX w/180 HBH-2	.50	5000	561	1.07	666	1.31	744	1.56	818	1.84	896	2.14	960	2.47
	.58	5500	609	1.29	688	1.57	762	1.87	835	2.18	907	2.49	970	2.80
	.68	6000	645	1.57	719	1.89	788	2.21	857	2.51	922	2.82	985	3.17
	.78	6500	679	1.90	747	2.23	813	2.53	878	2.85	941	3.24	1002	3.69
	.89	7000	715	2.27	779	2.59	842	2.90	904	3.31	964	3.74	1021	4.19
240 HBAX w/240 HBH-2	.47	7000	589	1.71	666	2.06	735	2.38	798	2.68	862	3.00	924	3.44
	.53	7500	616	2.04	691	2.37	754	2.69	815	3.00	876	3.44	936	3.85
	.59	8000	644	2.36	712	2.70	772	3.03	833	3.45	893	3.87	951	4.39
	.68	8500	677	2.69	742	3.11	800	3.52	858	3.87	917	4.54	976	5.16
	.76	9000	711	3.22	768	3.71	825	4.19	881	4.68	938	5.21	993	5.85

NOTICE: When a hot water coil is installed in a HBAX unit, a freeze stat must be field installed to prevent the hot water coil from freezing.

Available Motors (60 Hz)

HORSE POWER	VOLTAGE/PHASE
1/4, 1/3	115/1 Split Phase
1/4, 1/3, 1/2, 3/4, 1, 1 1/2, 2	115/208-230/1
1/4, 1/3, 1/2, 3/4	115/1 2 SPD
1/4, 1/3, 1/2, 3/4	230/1 2 SPD
1/4, 1/3, 1/2, 3/4, 1, 1 1/2	277/1
1/3, 1/2, 3/4, 1, 1 1/2, 2, 3, 5, 7 1/2, 10	208-230/460/3

- Select appropriate motor horsepower from pages 7-8.
- When ordering, specify HP – voltage/phase – CFM@ESP.
- Consult List Price Pages for motor installation and options.
- For motors not listed, contact factory.

Only ODP, single and three phase motors on 2-5 Ton units are factory-wired to J-box. All others require field wiring to J-box on side of unit cabinet.

Full-Load Currents in Amperes, Single Phase Alternating-Current Motors*

The following values of full-load currents are for motors running at usual speeds and motors with normal torque characteristics. Motors built for especially low speeds or high torques may have higher full-load currents, and multi-speed motors will have full-load current varying with speed, in which case, the nameplate current rating shall be used.

The voltages listed are rated motor voltages. The currents listed shall be permitted for system voltage ranges of 110 to 120 and 220 to 240 volts.

HORSEPOWER	115 volts	200 volts	208 volts	230 volts
1/4	5.8	3.3	3.2	2.9
1/3	7.2	4.1	4.0	3.6
1/2	9.8	5.6	5.4	4.9
3/4	13.8	7.9	7.6	6.9
1	16	9.2	8.8	8
1.5	20	11.5	11	10
2	24	13.8	13.2	12

*Values from NEC Handbook 1999 Edition, actual motor nameplate amps may vary.

Full-Load Currents in Amperes, Three Phase Alternating-Current Motors*

The following values of full-load currents are typical for motors running at speeds usual for belted motors and motors with normal torque characteristics. Motors built for low speeds (1200 RPM or less) or high torques may require more running current, and multi-speed motors will have full-load current varying with speed. In these cases, the nameplate current rating shall be used.

The voltages listed are rated motor voltages. The currents listed shall be permitted for system voltage ranges of 110 to 120, 220 to 240, 440 to 480, and 550 to 600 volts.

HORSEPOWER	200 volts	208 volts	230 volts	460 volts	575 volts
1/2	2.5	2.4	2.2	1.1	0.9
3/4	3.7	3.5	3.2	1.6	1.3
1	4.8	4.6	4.2	2.1	1.7
1.5	6.9	6.6	6	3	2.4
2	7.8	7.5	6.8	3.4	2.7
3	11	10.6	9.6	4.8	3.9
5	17.5	16.7	15.2	7.6	6.1
7.5	25.3	24.2	22	11	9
10	32.2	30.8	28	14	11

*Values from NEC Handbook 1999 Edition, actual motor nameplate amps may vary.

DIRECT EXPANSION COOLING CAPACITIES

24-HBAX-3

			85 degF DB/71 deg F WB				80 degF DB/67 deg F WB				75 degF DB/63 deg F WB			
Suct Temp	PD PSI	CFM	TTL MBH	SENS MBH	LVG AIR		TTL MBH	SENS MBH	LVG AIR		TTL MBH	SENS MBH	LVG AIR	
					DB	WB			DB	WB			DB	WB
40	7.05	600	35.2	21.0	52.6	52.6	30.2	19.5	50.0	50.0	23.0	16.6	49.5	49.2
		800	40.0	25.0	56.1	55.7	34.0	23.0	53.5	53.0	28.6	20.8	50.9	50.3
		1000	44.0	28.4	58.7	57.8	37.6	26.2	55.8	54.9	32.6	24.4	52.5	51.5
45	4.89	600	31.6	19.5	54.9	54.9	23.8	16.6	54.4	54.1	17.0	13.9	53.6	53.2
		800	35.0	23.0	58.5	58.0	29.4	21.0	55.8	55.2	20.0	17.0	55.4	54.5
		1000	38.5	26.2	60.8	59.7	31.6	23.6	58.1	57.1	24.0	20.6	56.0	54.8
50	3.30	600	24.2	16.7	59.3	59.1	17.1	13.9	58.6	58.1	12.4	11.7	57.0	56.1
		800	30.2	21.0	60.7	60.0	20.0	17.1	60.3	59.3	14.8	14.4	58.4	56.8
		1000	32.0	23.8	63.0	61.9	24.0	20.6	60.9	59.6	16.5	16.2	60.0	57.5

36 HBAX-3

			85 degF DB/71 deg F WB				80 degF DB/67 deg F WB				75 degF DB/63 deg F WB			
Suct Temp	PD PSI	CFM	TTL MBH	SENS MBH	LVG AIR		TTL MBH	SENS MBH	LVG AIR		TTL MBH	SENS MBH	LVG AIR	
					DB	WB			DB	WB			DB	WB
40	8.72	900	51.5	31.0	53.2	53.2	44.0	28.8	50.5	50.5	34.0	24.6	49.8	49.6
		1200	58.5	36.8	56.7	56.3	49.5	33.8	54.0	53.5	41.5	30.8	51.3	50.8
		1500	63.5	41.5	59.3	58.4	54.5	38.5	56.3	55.4	47.0	35.8	52.9	52.0
45	6.14	900	46.0	28.8	55.4	55.4	35.0	24.8	54.6	54.4	25.4	20.6	53.7	53.2
		1200	51.0	33.8	58.9	58.4	43.0	31.0	56.1	55.5	29.8	25.4	55.4	54.5
		1500	56.0	38.5	61.1	60.1	48.5	36.2	57.7	56.7	35.4	30.4	56.2	55.0
50	4.15	900	36.0	24.8	59.5	59.3	25.6	20.8	58.6	58.1	18.7	17.6	56.9	56.0
		1200	44.0	31.2	61.0	60.3	29.8	25.6	60.3	59.3	22.2	21.6	58.4	56.8
		1500	50.0	36.4	62.6	61.5	35.6	30.6	61.1	59.7	24.8	24.4	59.9	57.5

48-HBAX-3

			85 degF DB/71 deg F WB				80 degF DB/67 deg F WB				75 degF DB/63 deg F WB			
Suct Temp	PD PSI	CFM	TTL MBH	SENS MBH	LVG AIR		TTL MBH	SENS MBH	LVG AIR		TTL MBH	SENS MBH	LVG AIR	
					DB	WB			DB	WB			DB	WB
40	11.51	1200	66.0	40.5	53.8	53.8	56.0	37.2	51.4	51.3	48.0	34.2	48.7	48.5
		1600	75.0	48.0	57.3	56.9	64.0	44.0	54.4	53.9	53.5	40.0	51.8	51.2
		2000	81.0	54.0	59.9	59.0	70.0	50.0	56.8	55.8	58.5	46.0	53.8	52.8
45	8.36	1200	58.5	37.2	56.3	56.3	47.5	33.4	54.2	54.0	37.4	29.2	52.5	52.2
		1600	66.0	44.5	59.3	58.7	55.0	40.0	56.7	56.0	45.0	36.6	53.9	53.2
		2000	72.0	50.5	61.5	60.5	60.5	46.0	58.6	57.5	50.0	42.5	55.4	54.5
50	5.53	1200	49.0	33.6	59.1	58.9	37.5	29.4	57.4	57.1	26.0	24.2	56.4	55.7
		1600	56.0	40.5	61.5	60.8	46.0	36.8	58.8	58.0	30.8	29.6	57.9	56.5
		2000	61.5	46.5	63.4	62.2	48.5	41.5	60.8	59.5	37.2	35.8	58.5	56.8

60-HBAX-3

			85 degF DB/71 deg F WB				80 degF DB/67 deg F WB				75 degF DB/63 deg F WB			
Suct Temp	PD PSI	CFM	TTL MBH	SENS MBH	LVG AIR		TTL MBH	SENS MBH	LVG AIR		TTL MBH	SENS MBH	LVG AIR	
					DB	WB			DB	WB			DB	WB
40	5.59	1500	90.0	53.5	52.1	52.1	77.0	49.5	49.5	49.5	59.0	42.0	49.1	48.9
		2000	104.0	64.0	55.5	55.1	87.0	58.0	53.1	52.6	73.0	53.0	50.5	49.9
		2500	115.0	72.0	58.1	57.2	97.0	66.0	55.4	54.5	79.0	59.5	52.9	51.9
45	3.82	1500	81.0	49.5	54.4	54.4	60.5	42.0	54.0	53.8	43.0	34.8	53.5	53.1
		2000	89.0	58.0	58.1	57.6	75.0	53.0	55.4	54.8	50.5	42.5	55.3	54.4
		2500	99.0	66.0	60.4	59.4	81.0	60.0	57.8	56.7	62.0	52.0	55.7	54.6
50	2.58	1500	62.0	42.0	59.0	58.8	43.0	34.8	58.5	58.0	31.2	29.4	56.9	56.0
		2000	77.0	53.5	60.3	59.7	50.5	42.5	60.2	59.2	37.2	36.2	58.3	56.8
		2500	82.0	60.0	62.8	61.6	62.0	52.0	60.7	59.4	41.5	40.5	59.9	57.5

DIRECT EXPANSION COOLING CAPACITIES

90-HBAX-3

			85 degF DB/71 deg F WB				80 degF DB/67 deg F WB				75 degF DB/63 deg F WB			
Suct Temp	PD PSI	CFM	TTL MBH	SENS MBH	LVG AIR DB	LVG AIR WB	TTL MBH	SENS MBH	LVG AIR DB	LVG AIR WB	TTL MBH	SENS MBH	LVG AIR DB	LVG AIR WB
40	8.96	2250	127.0	76.0	53.5	53.5	107.0	70.0	51.2	51.1	90.0	63.5	48.8	48.6
		3000	144.0	91.0	56.9	56.4	123.0	83.0	54.2	53.6	101.0	75.0	51.8	51.1
		3750	158.0	103.0	59.6	58.6	135.0	95.0	56.6	55.5	112.0	86.0	53.8	52.6
45	6.34	2250	110.0	70.0	56.2	56.1	93.0	64.0	53.6	53.4	66.0	53.0	53.2	52.8
		3000	126.0	84.0	59.1	58.5	104.0	75.0	56.7	55.9	83.0	67.0	54.2	53.4
		3750	139.0	96.0	61.4	60.3	114.0	87.0	58.6	57.4	96.0	79.0	55.5	54.3
50	4.08	2250	96.0	64.0	58.5	58.4	66.0	53.0	58.1	57.7	47.5	44.0	56.8	55.9
		3000	106.0	76.0	61.6	60.8	84.0	68.0	59.1	58.3	56.5	54.0	58.3	56.7
		3750	116.0	87.0	63.4	62.2	96.0	80.0	60.3	59.0	65.0	64.0	59.2	57.2

120-HBAX-3

			85 degF DB/71 deg F WB				80 degF DB/67 deg F WB				75 degF DB/63 deg F WB			
Suct Temp	PD PSI	CFM	TTL MBH	SENS MBH	LVG AIR DB	LVG AIR WB	TTL MBH	SENS MBH	LVG AIR DB	LVG AIR WB	TTL MBH	SENS MBH	LVG AIR DB	LVG AIR WB
40	9.08	3000	175.0	105.0	52.7	52.7	146.0	95.0	50.6	50.6	124.0	87.0	48.1	48.0
		4000	199.0	124.0	56.2	55.9	169.0	114.0	53.6	53.1	140.0	103.0	51.2	50.6
		5000	219.0	142.0	58.8	58.0	186.0	130.0	55.9	55.0	155.0	118.0	53.2	52.2
45	6.45	3000	152.0	95.0	55.6	55.6	129.0	87.0	53.0	52.9	94.0	73.0	52.4	52.1
		4000	175.0	115.0	58.5	58.0	144.0	103.0	56.1	55.5	116.0	92.0	53.6	52.9
		5000	192.0	131.0	60.8	59.8	159.0	119.0	58.0	57.0	125.0	105.0	55.5	54.4
50	4.16	3000	132.0	87.0	58.0	57.9	94.0	73.0	57.4	57.0	65.0	60.5	56.3	55.6
		4000	146.0	104.0	61.0	60.4	118.0	93.0	58.5	57.8	78.0	74.0	57.8	56.5
		5000	161.0	119.0	62.9	61.8	126.0	106.0	60.4	59.2	93.0	89.0	58.5	56.8

180-HBAX-3

			85 degF DB/71 deg F WB				80 degF DB/67 deg F WB				75 degF DB/63 deg F WB			
Suct Temp	PD PSI	CFM	TTL MBH	SENS MBH	LVG AIR DB	LVG AIR WB	TTL MBH	SENS MBH	LVG AIR DB	LVG AIR WB	TTL MBH	SENS MBH	LVG AIR DB	LVG AIR WB
40	13.54	5000	242.0	153.0	56.7	56.4	207.0	141.0	53.9	53.5	172.0	128.0	51.4	50.9
		6000	259.0	169.0	58.9	58.2	223.0	157.0	55.8	55.1	186.0	143.0	53.0	52.2
		7000	274.0	185.0	60.6	59.6	236.0	171.0	57.4	56.3	198.0	156.0	54.4	53.3
45	9.90	5000	214.0	142.0	58.7	58.3	177.0	129.0	56.2	55.7	148.0	117.0	53.4	52.8
		6000	231.0	158.0	60.6	59.8	192.0	144.0	57.8	56.9	153.0	128.0	55.2	54.3
		7000	244.0	173.0	62.1	61.0	203.0	158.0	59.1	57.9	163.0	142.0	56.3	55.1
50	6.65	5000	182.0	130.0	61.0	60.5	142.0	115.0	58.8	58.1	104.0	97.0	57.0	56.0
		6000	196.0	145.0	62.6	61.7	155.0	130.0	60.0	59.0	119.0	113.0	57.6	56.3
		7000	208.0	160.0	63.9	62.6	165.0	143.0	61.1	59.7	132.0	126.0	58.3	56.7

240-HBAX-3

			85 degF DB/71 deg F WB				80 degF DB/67 deg F WB				75 degF DB/63 deg F WB			
Suct Temp	PD PSI	CFM	TTL MBH	SENS MBH	LVG AIR DB	LVG AIR WB	TTL MBH	SENS MBH	LVG AIR DB	LVG AIR WB	TTL MBH	SENS MBH	LVG AIR DB	LVG AIR WB
40	17.09	7000	296.0	196.0	59.1	58.5	255.0	182.0	56.0	55.3	215.0	167.0	53.0	52.3
		8000	309.0	211.0	60.6	59.7	268.0	197.0	57.3	56.4	226.0	180.0	54.2	53.3
		9000	320.0	225.0	61.9	60.8	277.0	209.0	58.5	57.3	236.0	192.0	55.3	54.0
45	12.99	7000	266.0	184.0	60.7	60.0	222.0	168.0	57.8	57.0	179.0	151.0	55.1	54.3
		8000	278.0	199.0	62.0	61.0	233.0	183.0	58.9	57.9	189.0	164.0	56.1	55.0
		9000	289.0	213.0	63.1	61.9	243.0	196.0	59.9	58.6	197.0	176.0	56.9	55.6
50	8.94	7000	228.0	170.0	62.5	61.7	182.0	153.0	59.8	59.0	142.0	134.0	57.3	56.2
		8000	239.0	185.0	63.6	62.5	192.0	166.0	60.8	59.6	154.0	148.0	57.9	56.5
		9000	249.0	199.0	64.6	63.2	201.0	178.0	61.7	60.2	163.0	160.0	58.6	57.0

HOT WATER HEATING CAPACITIES

1 ROW COILS

24-HBH-1						36-HBH-1						48-HBH-1						60-HBH-1					
GPM	PD FT.	CFM	TTL MBH	LAT F	LWT F	GPM	PD FT.	CFM	TTL MBH	LAT F	LWT F	GPM	PD FT.	CFM	TTL MBH	LAT F	LWT F	GPM	PD FT.	CFM	TTL MBH	LAT F	LWT F
		600	20.6	91.9	158.8			900	30.0	90.9	149.2			1200	40.0	91.0	139.0			1500	47.5	89.4	131.4
2.0	4.40	800	23.2	86.9	156.2	2.0	5.30	1200	33.6	85.9	145.6	2.0	1.20	1600	44.5	85.7	134.6	2.0	1.30	2000	52.5	84.3	126.6
		1000	25.4	83.5	154.1			1500	36.4	82.5	142.8			2000	47.5	82.1	131.3			2500	56.0	80.8	122.9
		600	21.8	93.7	165.1			900	32.2	93.2	158.0			1200	47.0	96.2	156.0			1500	57.0	95.2	150.9
3.0	9.90	800	24.8	88.7	163.1	3.0	11.60	1200	36.4	88.1	155.1	4.0	4.50	1600	53.0	90.7	152.9	4.0	5.00	2000	64.0	89.7	147.2
		1000	27.2	85.1	161.4			1500	39.5	84.6	152.8			2000	58.0	86.8	150.4			2500	70.0	85.9	144.2
		600	22.4	94.7	168.4			900	33.4	94.4	162.8			1200	49.5	98.3	163.0			1500	61.0	97.5	159.2
4.0	17.60	800	25.6	89.6	166.8	4.0	20.40	1200	38.0	89.3	160.5	6.0	9.80	1600	56.5	92.7	160.7	6.0	10.80	2000	69.0	92.0	156.4
		1000	28.2	86.1	165.5			1500	41.5	85.7	158.6			2000	62.0	88.8	158.7			2500	76.0	88.2	154.1

2 ROW COILS

24-HBH-2						36-HBH-2						48-HBH-2						60-HBH-2					
GPM	PD FT.	CFM	TTL MBH	LAT F	LWT F	GPM	PD FT.	CFM	TTL MBH	LAT F	LWT F	GPM	PD FT.	CFM	TTL MBH	LAT F	LWT F	GPM	PD FT.	CFM	TTL MBH	LAT F	LWT F
		600	32.2	109.7	147.0			900	49.0	110.3	146.6			1200	66.0	111.4	145.9			1500	86.0	112.9	150.7
2.0	1.30	800	36.4	102.1	142.8	3.0	1.10	1200	55.0	102.6	142.4	4.0	0.80	1600	75.0	103.5	141.6	6.0	0.70	2000	97.0	105.0	146.8
		1000	39.5	96.6	139.6			1500	60.0	97.1	139.0			2000	82.0	97.9	138.2			2500	106.0	99.4	143.7
		600	36.2	116.0	161.4			900	55.0	116.8	161.1			1200	75.0	118.4	160.6			1500	96.0	119.4	163.5
4.0	5.20	800	41.5	108.4	158.6	6.0	4.10	1200	63.5	109.1	158.3	8.0	3.00	1600	87.0	110.6	157.6	12.0	2.70	2000	111.0	111.6	160.9
		1000	46.0	102.8	156.3			1500	70.0	103.5	155.9			2000	97.0	104.9	155.2			2500	124.0	105.9	158.8
		600	37.5	118.4	167.0			900	57.5	119.3	166.9			1200	79.0	121.2	166.4			1500	100.0	121.9	168.6
6.0	11.70	800	44.0	110.9	165.0	9.0	9.00	1200	67.0	111.7	164.7	12.0	6.70	1600	92.0	113.5	164.2	18.0	6.00	2000	117.0	114.2	166.6
		1000	49.0	105.4	163.2			1500	75.0	106.2	162.9			2000	103.0	107.8	162.3			2500	131.0	108.6	165.1

90-HBH-2						120-HBH-2						180-HBH-2						240-HBH-2					
GPM	PD FT.	CFM	TTL MBH	LAT F	LWT F	GPM	PD FT.	CFM	TTL MBH	LAT F	LWT F	GPM	PD FT.	CFM	TTL MBH	LAT F	LWT F	GPM	PD FT.	CFM	TTL MBH	LAT F	LWT F
		2250	132.0	114.3	150.0			3000	173.0	113.3	147.9			5000	267.0	109.4	141.0			7000	328.0	103.3	127.9
9.0	1.20	3000	150.0	106.3	145.9	11.0	1.50	4000	196.0	105.3	143.6	14.0	2.00	6000	288.0	104.4	138.0	12.8	0.90	8000	343.0	99.7	125.4
		3750	164.0	100.6	142.7			5000	214.0	99.6	140.2			7000	306.0	100.4	135.4			9000	357.0	96.7	123.2
		2250	147.0	120.5	163.2			3000	194.0	119.8	161.9			5000	306.0	116.6	157.6			7000	384.0	110.7	145.0
18.0	4.60	3000	171.0	112.8	160.5	22.0	5.60	4000	225.5	112.0	159.1	28.0	7.60	6000	335.0	111.7	155.5	22.4	2.60	8000	408.0	107.1	142.8
		3750	190.0	107.0	158.3			5000	250.0	106.3	156.7			7000	361.0	107.6	153.7			9000	429.0	104.0	141.0
		2250	153.0	122.9	168.4			3000	202.0	122.3	167.4			5000	321.0	119.4	164.3			7000	425.0	116.1	158.3
27.0	10.20	3000	179.0	115.3	166.4	33.0	12.40	4000	236.0	114.6	165.3	42.0	16.70	6000	354.0	114.5	162.7	40.0	7.80	8000	455.0	112.5	156.8
		3750	201.0	109.6	164.7			5000	265.0	108.9	163.6			7000	383.0	110.5	161.3			9000	481.0	109.4	155.4

CAPACITIES BASED ON 60⁰ HEAT AND 180⁰ E.W.T.
Units not recommended for heating applications when the leaving air exceeds 130⁰.

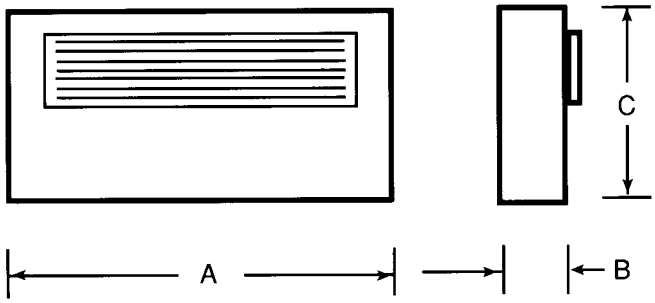
HOT WATER HEATING CORRECTION FACTORS									
ENTERING AIR TEMP (F)	ENTERING WATER TEMP (F)								
	100	110	120	130	140	150	160	170	180
50	.419	.500	.579	.665	.742	.838	.917	1.000	1.090
55	.376	.460	.544	.629	.708	.791	.873	.963	1.048
60	.335	.419	.500	.579	.665	.742	.838	.917	1.000
65	.290	.376	.460	.544	.629	.708	.791	.873	.963
70	.251	.335	.419	.500	.579	.665	.742	.838	.917
75	.205	.290	.376	.460	.544	.629	.708	.791	.873
80	.167	.251	.335	.419	.500	.579	.665	.742	.838

When correction factors are used for various entering air and entering water temperatures, multiply the correction factor times the above listed capacity. The correction factors may be used with all Magic Aire published 180⁰ E.W.T. heating capacities.

OPTIONAL ACCESSORIES

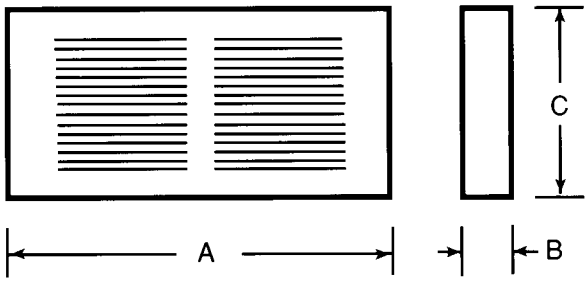
Discharge Grille Plenum

Adjustable four way deflection.



MODEL	A	B	C	WT.
24 BHGP	27.0	6.0	18.0	17
36 BHGP	36.5	6.0	18.0	20
48 BHGP	38.0	6.0	22.0	25
60 BHGP	45.0	6.0	22.0	27
90 BHGP	54.0	6.0	27.0	41
120 BHGP	57.0	6.0	34.0	58
180 BHGP	67.1	6.0	42.0	70
240 BHGP	72.0	6.0	47.0	70

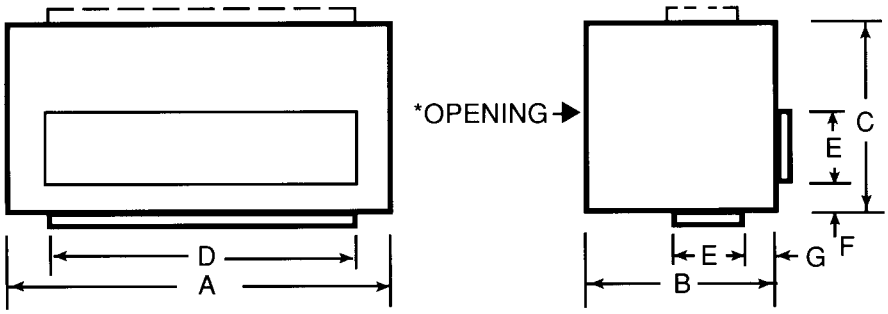
Return Air Grille



MODEL	A	B	C	WT.
24 BHRG	18.0	2.0	16.0	6
36 BHRG	27.5	2.0	16.0	7
48 BHRG	29.0	2.0	20.0	8
60 BHRG	36.0	2.0	20.0	9
90 BHRG	45.0	2.0	25.0	14
120 BHRG	48.0	2.0	32.0	19
180 BHRG	57.8	2.0	40.3	23
240 BHRG	66.0	2.0	45.0	24

Mixing Box

With low leak dampers. May be attached to air unit for top/rear or bottom/rear duct connection.



MODEL	A	B	C	D	E	F	G	WT.
24 MB	18.0	16.0	16.00	16.0	8.0	6.0	3.5	43
36 MB	27.5	16.0	16.00	25.5	8.0	6.0	3.5	60
48 MB	29.0	16.0	20.00	27.0	8.0	8.0	3.5	65
60 MB	36.0	16.0	20.00	34.0	8.0	8.0	3.5	75
90 MB	45.0	18.0	25.00	43.0	10.0	8.0	3.5	115
120 MB	48.0	20.0	32.00	46.0	12.0	10.0	3.5	131
180 MB	57.8	22.0	40.25	56.0	14.0	12.0	3.5	186
240 MB	66.0	22.0	45.00	64.0	14.0	15.0	3.5	201

Discharge Plenum Static Loss

MODEL/SIZE	CFM	DEFLECTION (DEG)	THROW (FEET)	STATIC PRESSURE (I.W.G.)
24-BHGP	800	0 45	50 37	0.034 0.054
36-BHGP	1200	0 45	69 52	0.054 0.087
48-BHGP	1600	0 45	79 59	0.053 0.085
60-BHGP	2000	0 45	89 66	0.053 0.085
90-BHGP	3000	0 45	124 93	0.090 0.114
120-BHGP	4000	0 45	103 77	0.097 0.155
180-BHGP	6000	0 45	124 93	0.090 0.144
240-BHGP	8000	0 45	92 69	0.062 0.098

Mixing Box Static Pressure Drop

MODEL	CFM RANGE	S/P
24-MB	600 CFM 800 CFM 1000 CFM	.04 .07 .08
36-MB	900 CFM 1200 CFM 1500 CFM	.05 .08 .12
48-MB	1200 CFM 1600 CFM 2000 CFM	.06 .10 .15
60-MB	1500 CFM 2000 CFM 2500 CFM	.04 .07 .11
90-MB	2250 CFM 3000 CFM 3750 CFM	.04 .06 .10
120-MB	3000 CFM 4000 CFM 5000 CFM	.01 .03 .04
180-MB	5000 CFM 6000 CFM 7000 CFM	.03 .05 .06
240-MB	7000 CFM 8000 CFM 9000 CFM	.06 .08 .10

Water Volume in Gallons for Hydronic Coils (8.34# /gallon)

MODEL/UNIT HORIZONTAL C/W		MODEL/UNIT HORIZONTAL C/W		HOT WATER COIL HORIZONTAL	
24 HBAW-4	0.55 GAL	**24 HBAW-6**	0.83 GAL	**24 HBH-2**	0.31 GAL
36 HBAW-4	0.84 GAL	**36 HBAW-6**	1.26 GAL	**36 HBH-2**	0.65 GAL
48 HBAW-4	1.11 GAL	**48 HBAW-6**	1.66 GAL	**48 HBH-2**	0.69 GAL
60 HBAW-4	1.38 GAL	**60 HBAW-6**	2.07 GAL	**60 HBH-2**	0.86 GAL
90 HBAW-4	2.92 GAL	**90 HBAW-6**	4.39 GAL	**90 HBH-2**	1.32 GAL
120 HBAW-4	3.75 GAL	**120 HBAW-6**	5.63 GAL	**120 HBH-2**	1.72 GAL
180 HBAW-4	5.25 GAL	**180 HBAW-6**	7.87 GAL	**180 HBH-2**	2.62 GAL
240 HBAW-4	6.94 GAL	**240 HBAW-6**	10.40 GAL	**240 HBH-2**	3.47 GAL

Magic Aire®

ENGINEERING SPECIFICATIONS

• Cabinets shall be fabricated of LFQ (min) steel. External parts are to be made with a polyurethane based powder coated A60 galvanealed, while internal parts are to be built from G90 galvanized steel. Units shall pass 500 hour salt spray test as described in ASTM B-117.

• Coils are to be tested at 500 PSI for operation at 400 PSI guage. All water coils have air vents.

• Fan wheel bearings shall be self aligning, sealed cartridge, permanently lubricated ball bearings that provide dependable fan operation for an average life of 200,000 hours (belt drive only)

• Variable pitch motor sheaves.

United Electric Company designs and builds its *Magic Aire* products to comply and perform to one or more of the following standards:

AIR FLOW	General	AMCA 210 ASHRAE 51
	Belt Drive Equipment	ARI 430
	Direct Drive Equipment	ARI 440
COIL CAPACITY	Hydronic	ARI 410
	Direct Expansion	ARI 210
IN DUCT SOUND RATINGS	Air Moving Equipment	ASHRAE 68 AMCA 330
SAFETY AGENCY LISTINGS	Coils	UL 207
	UL Report #	SA 3438
	Equipment	CAN/CSA C22.2 #236 ANSI/UL-1995
	ETL Report #	491893
MATERIAL SPECIFICATIONS	Sheet Metal	ASTM A525 ASTM A527
	Copper Tubing	ASTM B68 ASTM B75 ASTM B88 ASTM B251
	Aluminum	ASTM B209
MAJOR COMPONENTS	Motors	UL/CSA NEMA
	Wire	UL/CSA
	Electrical	UL/CSA
	Filters	UL ASHRAE 52
	Fiberglass	UL 181 UL 723 (25/50) ASTM E-84
	Paint	ASTM B117

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