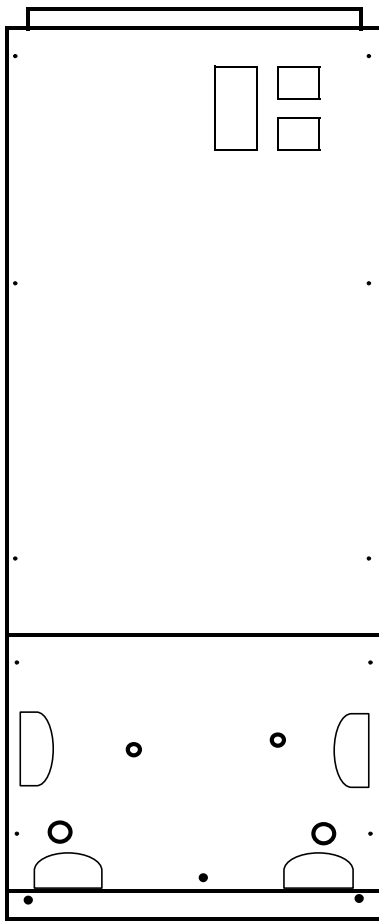




BC Series
Multi-position Air Handler
Engineering and Specification Guide
(Electric and Water Heat)



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Product improvement is a continuous process at Advanced Distributor Products. Therefore, product specifications are subject to change without notice and without obligation on our part. Please contact your ADP representative or distributor to verify details.



CERTIFICATION APPLIES ONLY WHEN THE COMPLETE SYSTEM IS LISTED WITH ARI



Air Handler Features

All Models

- Suitable for use with R-22 and R410a
- Rifled Copper Tubing.
- Patented lance fin design.
- Ratings in conformity with ARI Standard 210.
- ETL Listed.
- Available voltages, 120 or 208/240-60-1 electric heat models only available in 208/240-60-1.
- High efficiency 3-speed motors.
- 40 VA control voltage transformer.
- Dynamically balanced blowers for quiet vibration free operation.
- Refrigerant connections are 3/8" ODF liquid and 3/4" ODF (12 - 36) or 7/8" ODF (31, 37 - 60) suction.
- Dual 3/4" FPT condensate drains.
- Drain pans are molded of corrosion proof engineering polymer.
- Florator, non-bleed A/C or HP expansion valve available factory installed. Expansion valves also available as a kit for field installation (all screw-on connections).
- Cabinet constructed of pre-painted heavy gauge galvanized steel to prevent corrosion. Lined with high quality 1" mat faced insulation.
- Available from factory as upflow or upflow/horizontal. Field installed horizontal drain pan kit is also available.
- Circuit breaker optional factory installed or as kit, 5 - 10 Kw. Standard on 12.5 Kw and higher.
- All field installed kits come with thorough, easy to follow instructions.
- All air handlers are top handling (basiloid) packaged with bar coding and full description on label.
- Electrical connections can be made on top or right side.
- Fan time delay available as kit or factory installed.
- Easy to follow wiring diagrams on all air handlers.
- Easily converted to counterflow with kit.
- All coils are individually pressure tested at 450 PSI, then pressurized and sealed.

BC 12 - 30, 36 (Slant Coil)

- 40 different models available to properly match heat pumps and air conditioners for maximum efficiency.
- Choice of left or right drain and refrigerant connections during installation. This option makes it possible to have the return air enter the left or right side in addition to the bottom.
- Filter rack with filter - built into every air handler.
- Electric heat available factory installed or in kit form for field installation. Plug in connections simplify installation of kits.
- Water heating coils available factory installed in 2 or 3 row (with or without pump). Also available as a kit to add to no heat models.

BC 31, 37 - 60 (A-Coil)

- 48 different models available to properly match heat pumps and air conditioners for maximum efficiency.
- Choice of left or right drain connections during installation.
- Filter rack with filter - built into every air handler.
- Electric heat available factory installed or in kit form for field installation. Plug in connections simplify installation of kits.
- Water heating coils available factory installed in 3 or 4 row (with or without pump). Also available as a kit to add to no heat models.

Air Handler Features (cont.)

Additional features for all water heat models

- Easy to replace water coil. Remove one screw and slide out.
- Heating blower time delay standard on all models.
- On models without a pump there is ample room inside cabinet for mounting aquastat if desired. This provides a clean looking installation.
- Separate set of contacts for interfacing with external componets.
(i. e. burner relay, pump relay or zone valve.)
- Easy to follow wiring diagrams for connecting to popular zoning controls.
- Low water pressure drop through heating coil for excellent heating performance.
- Easy to adjust blower speeds for fine tuning customer comfort.
- Blower door safety switch.
- Large water connections out the top.
7/8" ODF 1 1/2 - 3 ton and 1 1/8" ODF 3 1/2 - 5 ton models.

Physical Data

		Air Handler Size											
		12	18	24	25	30	31	36	37	42	48	49	60
(¹) Available Voltages		120 or 208/240 - 60/1											
Maximum Elec. Heat available (KW)		5	10	12.5	12.5	17.5	17.5	20	20	22.5	25	25	25
Transformer Size and Type		40VA, Class 2											
Blower Data	Wheel (dia.x width)	9 X 6	9 X 6	9 X 6	10 X 8	10 X 8	10 X 8	10 X 8	10 X 8	10 X 8	10 X 8	10 X 10	10 X 10
	Motor H. P.	1/5	1/4	1/4	1/3	1/3	1/3	1/3	1/3	1/2	1/2	3/4	3/4
	F. L. A. @ 120v	2.0	2.0	3.7	4.2	4.2	5.6	5.6	5.6	5.6	8.5	9.0	9.0
	F. L. A. @ 240v	1.1	1.1	1.9	2.2	2.2	2.6	2.6	2.6	3.0	4.0	4.3	4.3
	Speed	3	3	3	3	3	3	3	3	3	3	3	3
	Nominal CFM	400	600	800	800	1000	1000	1200	1200	1400	1600	1600	2000
Air Filter Size		12 X 20	12 X 20	12 X 20	16 X 20	16 X 20	18 X 25	16 X 20	18 X 25	18 X 25	18 X 25	20 X 25	20 X 25
Refrigerant Conn. (IDS) Suction		3/4"	3/4"	3/4"	3/4"	3/4"	7/8"	3/4"	7/8"	7/8"	7/8"	7/8"	7/8"
Refrigerant Conn. (IDS) Liquid		3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"
Optional Installed Circulating Pump (Water heat only)	Conn. size (In.)	7/8"											
	Voltage	120 or 240 volt											
	Amps	0.52 @ 120v, 0.40 @ 240v											
	Speeds	1											
Florator Piston Size		.047	.053	.059	.059	.067	.067	.073	.073	.080	.084	.084	.093
Weights Approx. Lbs. (base unit w/out heat)		120	120	120	130	140	150	140	150	210	230	230	240

(¹) Electric heat models are only available in 208/240 - 60/1

Model Nomenclature

B C R M A1 2 24 - S 05 2

B = ADP

BLOWER MOTOR TYPE

- C** = Constant speed blower
- V** = Variable speed blower
(Not currently available)

REFRIG & DRAIN CONNECTIONS

- R** = Right Hand
- O** = No Coil

AIRFLOW CONFIGURATION

- V** = Vertical Only
- M** = Multi-position

SLAB NUMBER

A1 thru Z9

00 = NO COOLING COIL, HEATING ONLY

METERING DEVICE

- 0** = No Cooling Coil
- 2** = Flurator
- 3** = Bleed TXV Valve (R-22)
- 4** = Non Bleed A/C TXV Valve (R-22)
- 5** = Non Bleed HP-A/C TXV Valve (R-22)
- 6** = Non Bleed A/C TXV Valve (R-410a)
- 9** = Non Bleed HP-A/C TXV Valve (R-410a)

UNIT SIZE (NOMINAL MBTUH)

12, 18, 24, 25, 30, 36 | 31, 37, 42, 48, 49, 60

Slant coil

'A' coil

LINE VOLTAGE CONNECTIONS/CIRCUIT PROTECTION

	Amount of Heat										
	Water	0	5	7.5	10	12.5	15	17.5	20	22.5	25
S = Stripped Wire	#	#	#								
T = Terminal Block			O	#	#						
B = Circuit Breaker			O	O	O	#	#	#	#	#	#

= Standard

O = Optional

VOLTAGE

- 1** = 240/208v, 1 ph. 60 hz
- 2** = 240/208v, 1 ph. 60 hz w/Time Delay
- 3** = 120v, 1 ph. 60 hz
- 4** = 120v, 1 ph. 60 hz w/Time Delay
- 5** = 220v, 1 ph. 50 hz
- 6** = 220v, 1 ph. 50 hz w/Time Delay

HEAT

- 00** = 0 Kw ELEC.
- 05** = 5 Kw ELEC.
- 07** = 7.5 Kw ELEC.
- 10** = 10 Kw ELEC.
- 12** = 12.5 Kw ELEC.
- 15** = 15 Kw ELEC.
- 17** = 17.5 Kw ELEC.
- 20** = 20 Kw ELEC.
- 22** = 22.5 Kw ELEC.
- 25** = 25 Kw ELEC.

Note: Maximum 10 Kw per electrical supply circuit

SIZE Kw Available

- 12** 5
- 18** 5, 7.5, 10
- 24 & 25** 5, 7.5, 10, 12.5
- 30 & 31** 5, 7.5, 10, 12.5, 15, 17.5
- 36 & 37** 5, 7.5, 10, 12.5, 15, 17.5, 20
- 42** 7.5, 10, 12.5, 15, 17.5, 20, 22.5
- 48 & 49** 7.5, 10, 12.5, 15, 17.5, 20, 22.5, 25
- 60** 10, 12.5, 15, 17.5, 20, 22.5, 25

2P = 2 Row hot water coil (w/pump and valve assembly)
Available on 12, 18, 24, 25, 30 & 36 Models

3P = 3 Row hot water coil (w/pump and valve assembly)
Available on all Models

4P = 4 Row hot water coil (w/pump and valve assembly)
Available on 31, 37, 42, 48, 49 & 60 Models

2N = 2 Row hot water coil (no pump)
Available on 12, 18, 24, 25, 30 & 36 Models

3N = 3 Row hot water coil (no pump)
Available on all Models

4N = 4 Row hot water coil (no pump)
Available on 31, 37, 42, 48, 49 & 60 Models

Air Handler Blower Performance (CFM vs. ESP inches H₂O)

All data is given while air handler is operating with a wet DX coil and air filter installed.

Speeds marked in **bold with an asterisk*** are the factory speed settings for both heating and cooling.

Cooling speeds should not be reduced below factory setting.

Different speeds can be set for heating mode. See installation instructions for changing speeds and minimum settings on electric heat.

Size	Speed	Electric Heat Models					Water Coil	Water Heat Models											
		.10	.20	.30	.40	.50		.10	.20	.30	.40	.50							
12	* Low	471	444	417	408	398	2 row	443	417	392	384	374	3 row	424	400	375	367	358	
	Med	727	686	643	629	614	2 row	683	645	604	591	577	3 row	654	618	579	566	553	
	High	770	759	749	725	700	2 row	723	713	599	577	553	3 row	693	683	574	553	530	
	18	Low	471	444	417	408	398	2 row	443	417	392	384	374	3 row	424	400	375	367	358
		* Med	727	686	643	629	614	2 row	683	645	604	591	577	3 row	654	618	579	566	553
		High	770	759	749	725	700	2 row	723	713	599	577	553	3 row	693	683	574	553	530
24		Low	664	641	623	605	574	2 row	666	628	589	576	561	3 row	638	602	564	551	538
		* Med	906	855	802	783	764	2 row	852	803	753	736	718	3 row	816	769	721	705	688
		High	940	927	914	884	854	2 row	883	871	859	831	803	3 row	846	834	823	796	769
	25	* Low	944	890	836	817	798	2 row	887	837	786	768	750	3 row	850	801	752	735	718
		Med	1207	1139	1068	1044	1020	2 row	1135	1071	1004	981	958	3 row	1087	1026	962	940	918
		High	1224	1208	1191	1152	1113	2 row	1150	1135	1119	1082	1046	3 row	1102	1087	1072	1037	1002
30		Low	944	890	836	817	798	2 row	887	837	786	768	750	3 row	850	801	752	735	718
		* Med	1207	1139	1068	1044	1020	2 row	1135	1071	1004	981	958	3 row	1087	1026	962	940	918
		High	1224	1208	1191	1152	1113	2 row	1150	1135	1119	1082	1046	3 row	1102	1087	1072	1037	1002
	31	* Low	1226	1156	1086	1061	1036	3 row	1152	1087	1021	997	974	4 row	1103	1040	977	955	932
		Med	1465	1382	1245	1217	1188	3 row	1351	1274	1194	1167	1139	4 row	1294	1220	1144	1118	1091
		High	1467	1447	1427	1381	1334	3 row	1361	1342	1305	1263	1219	4 row	1304	1286	1250	1210	1168
36		Low	1226	1156	1086	1061	1036	2 row	1140	1076	969	947	925	3 row	1092	1030	928	907	886
		* Med	1465	1382	1245	1217	1188	2 row	1377	1299	1170	1144	1117	3 row	1319	1244	1121	1096	1070
		High	1467	1447	1427	1381	1334	2 row	1378	1359	1340	1297	1254	3 row	1320	1302	1284	1243	1201
	37	Low	1190	1122	1052	1028	1003	3 row	1119	1055	989	966	943	4 row	1072	1011	947	926	903
		* Med	1437	1355	1270	1241	1212	3 row	1351	1274	1194	1167	1139	4 row	1294	1220	1144	1118	1091
		High	1449	1429	1389	1344	1298	3 row	1361	1342	1305	1263	1219	4 row	1304	1286	1250	1210	1168
42		Low	1410	1329	1248	1219	1189	3 row	1343	1267	1187	1161	1134	4 row	1287	1214	1137	1112	1086
		* Med	1726	1628	1526	1491	1456	3 row	1622	1530	1434	1402	1369	4 row	1554	1466	1374	1343	1312
		High	1733	1709	1685	1630	1574	3 row	1628	1605	1584	1531	1479	4 row	1560	1538	1517	1467	1417
	48	Low	1728	1677	1629	1582	1535	3 row	1485	1400	1313	1283	1253	4 row	1422	1341	1258	1229	1200
		* Med	1821	1796	1772	1714	1656	3 row	1793	1691	1586	1549	1513	4 row	1718	1620	1519	1484	1449
		High	1870	1844	1819	1760	1700	3 row	1757	1733	1709	1653	1597	4 row	1683	1660	1637	1584	1530
49		* Low	1745	1645	1545	1509	1473	3 row	1640	1546	1452	1418	1384	4 row	1570	1481	1381	1358	1326
		Med	2107	2078	2048	1981	1913	3 row	1980	1952	1925	1862	1798	4 row	1896	1870	1844	1783	1722
		High	2163	2133	2103	2034	1964	3 row	2032	2004	1976	1911	1846	4 row	1947	1920	1893	1831	1768
	60	Low	1745	1645	1545	1509	1473	3 row	1640	1546	1452	1418	1384	4 row	1570	1481	1381	1358	1326
		* Med	2107	2078	2048	1981	1913	3 row	1980	1952	1925	1862	1798	4 row	1896	1870	1844	1783	1722
		High	2163	2133	2103	2034	1964	3 row	2032	2004	1976	1911	1846	4 row	1947	1920	1893	1831	1768

Electrical Data (240v. 60 cycle 1 ph)

Air Handler Size	Elec. Heating Cap.		Blower Amps			(2) (3) Total Amps Per Circuit						(4) Total Unit Amps			Circuit Breaker Amps Per Stage		
	Kw	BTUH				208v			240v								
	(1) 240v	(1) 240v	120v	208v	240v	1	2	3	1	2	3	120v	208v	240v	1	2	3
12 Water Heat	0	0	2.0	1.2	1.1	-	-	-	-	-	-	2.5	1.6	1.5	15	-	-
12 No Heat	0	0	2.0	1.2	1.1	-	-	-	-	-	-	2.0	1.2	1.1	15	-	-
12 Elec. Heat	5	17,065	-	1.2	1.1	19.3	-	-	21.9	-	-	-	19.3	21.9	30	-	-
18 Water Heat	0	0	2.0	1.2	1.1	-	-	-	-	-	-	2.5	1.6	1.5	15	-	-
18 No Heat	0	0	2.0	1.2	1.1	-	-	-	-	-	-	2.0	1.2	1.1	15	-	-
18 Elec. Heat	5	17,065	-	1.2	1.1	19.3	-	-	21.9	-	-	-	19.3	21.9	30	-	-
18 Elec. Heat	7.5	25,598	-	1.2	1.1	28.3	-	-	32.4	-	-	-	28.3	32.4	45	-	-
18 Elec. Heat	10	34,130	-	1.2	1.1	37.3	-	-	42.8	-	-	-	37.3	42.8	60	-	-
24 Water Heat	0	0	3.7	2.0	1.9	-	-	-	-	-	-	4.2	2.4	2.3	15	-	-
24 No Heat	0	0	3.7	2.0	1.9	-	-	-	-	-	-	3.7	2.0	1.9	15	-	-
24 Elec. Heat	5	17,065	-	2.0	1.9	20.1	-	-	22.7	-	-	-	20.1	22.7	30	-	-
24 Elec. Heat	7.5	25,598	-	2.0	1.9	29.1	-	-	33.2	-	-	-	29.1	33.2	45	-	-
24 Elec. Heat	10	34,130	-	2.0	1.9	38.1	-	-	43.6	-	-	-	38.1	43.6	60	-	-
24 Elec. Heat	12.5	42,663	-	2.0	1.9	29.1	18.1	-	33.2	20.8	-	-	47.1	54.0	45	30	-
25 Water Heat	0	0	4.2	2.4	2.2	-	-	-	-	-	-	4.7	2.8	2.6	15	-	-
25 No Heat	0	0	4.2	2.4	2.2	-	-	-	-	-	-	4.2	2.4	2.2	15	-	-
25 Elec. Heat	5	17,065	-	2.4	2.2	20.5	-	-	23.0	-	-	-	20.5	23.0	30	-	-
25 Elec. Heat	7.5	25,598	-	2.4	2.2	29.5	-	-	33.5	-	-	-	29.5	33.5	45	-	-
25 Elec. Heat	10	34,130	-	2.4	2.2	38.5	-	-	43.9	-	-	-	38.5	43.9	60	-	-
25 Elec. Heat	12.5	42,663	-	2.4	2.2	29.5	18.1	-	33.5	20.8	-	-	47.5	54.3	45	30	-
30 Water Heat	0	0	4.2	2.4	2.2	-	-	-	-	-	-	4.7	2.8	2.6	15	-	-
30 No Heat	0	0	4.2	2.4	2.2	-	-	-	-	-	-	4.2	2.4	2.2	15	-	-
30 Elec. Heat	5	17,065	-	2.4	2.2	20.5	-	-	23.0	-	-	-	20.5	23.0	30	-	-
30 Elec. Heat	7.5	25,598	-	2.4	2.2	29.5	-	-	33.5	-	-	-	29.5	33.5	45	-	-
30 Elec. Heat	10	34,130	-	2.4	2.2	38.5	-	-	43.9	-	-	-	38.5	43.9	60	-	-
30 Elec. Heat	12.5	42,663	-	2.4	2.2	29.5	18.1	-	33.5	20.8	-	-	47.5	54.3	45	30	-
30 Elec. Heat	15	51,195	-	2.4	2.2	38.5	18.1	-	43.9	20.8	-	-	56.6	64.7	60	30	-
30 Elec. Heat	17.5	59,728	-	2.4	2.2	38.5	27.1	-	43.9	31.3	-	-	65.6	75.1	60	45	-
31 Water Heat	0	0	5.6	2.8	2.6	-	-	-	-	-	-	6.1	3.2	3.0	15	-	-
31 No Heat	0	0	5.6	2.8	2.6	-	-	-	-	-	-	5.6	2.8	2.6	15	-	-
31 Elec. Heat	7.5	25,598	-	2.8	2.6	29.9	-	-	33.9	-	-	-	29.9	33.9	45	-	-
31 Elec. Heat	10	34,130	-	2.8	2.6	38.9	-	-	44.3	-	-	-	38.9	44.3	60	-	-
31 Elec. Heat	12.5	42,663	-	2.8	2.6	29.9	18.1	-	33.9	20.8	-	-	47.9	54.7	45	30	-
31 Elec. Heat	15	51,195	-	2.8	2.6	38.9	18.1	-	44.3	20.8	-	-	57.0	65.1	60	30	-
31 Elec. Heat	17.5	59,728	-	2.8	2.6	38.9	27.1	-	44.3	31.3	-	-	66.0	75.6	60	45	-
36 Water Heat	0	0	5.6	2.8	2.6	-	-	-	-	-	-	6.1	3.2	3.0	15	-	-
36 No Heat	0	0	5.6	2.8	2.6	-	-	-	-	-	-	5.6	2.8	2.6	15	-	-
36 Elec. Heat	5	17,065	-	2.8	2.6	20.9	-	-	23.4	-	-	-	20.9	23.4	30	-	-
36 Elec. Heat	7.5	25,598	-	2.8	2.6	29.9	-	-	33.9	-	-	-	29.9	33.9	45	-	-
36 Elec. Heat	10	34,130	-	2.8	2.6	38.9	-	-	44.3	-	-	-	38.9	44.3	60	-	-
36 Elec. Heat	12.5	42,663	-	2.8	2.6	29.9	18.1	-	33.9	20.8	-	-	47.9	54.7	45	30	-
36 Elec. Heat	15	51,195	-	2.8	2.6	38.9	18.1	-	44.3	20.8	-	-	57.0	65.1	60	30	-
36 Elec. Heat	17.5	59,728	-	2.8	2.6	38.9	27.1	-	44.3	31.3	-	-	66.0	75.6	60	45	-
36 Elec. Heat	20	68,260	-	2.8	2.6	38.9	36.1	-	44.3	41.7	-	-	75.0	86.0	60	60	-

(1) For 208 volt use .751 correction factor for Kw & BTUH.

(2) 12.5, 15, 17.5 and 20 Kw (2 stage models) require 2 supply circuits.

(3) Circuit #1 includes blower motor amps.

(4) Water heat model amperage includes circulator. If circulator is not factory installed, blower amperage is total amperage.

Kw packages in bold indicates that these heat packages require and include circuit breakers. Optional for others.

Electrical Data (240v. 60 cycle 1 ph cont.)

Air Handler	Elec. Heating Cap.		Blower			(2) (3) Total Amps Per Circuit						(4) Total Unit Amps			Circuit Breaker		
	Kw	BTUH	Amps			208v			240v			120v	208v	240v	Amps Per Stage		
			120v	208v	240v	1	2	3	1	2	3				1	2	3

37 Water Heat	0	0	5.6	2.8	2.6	-	-	-	-	-	-	6.1	3.2	3.0	15	-	-
37 No Heat	0	0	5.6	2.8	2.6	-	-	-	-	-	-	5.6	2.8	2.6	15	-	-
37 Elec. Heat	7.5	25,598	-	2.8	2.6	29.9	-	-	33.9	-	-	-	29.9	33.9	45	-	-
37 Elec. Heat	10	34,130	-	2.8	2.6	38.9	-	-	44.3	-	-	-	38.9	44.3	60	-	-
37 Elec. Heat	12.5	42,663	-	2.8	2.6	29.9	18.1	-	33.9	20.8	-	-	47.9	54.7	45	30	-
37 Elec. Heat	15	51,195	-	2.8	2.6	38.9	18.1	-	44.3	20.8	-	-	57.0	65.1	60	30	-
37 Elec. Heat	17.5	59,728	-	2.8	2.6	38.9	27.1	-	44.3	31.3	-	-	66.0	75.5	60	45	-
37 Elec. Heat	20	68,260	-	2.8	2.6	38.9	36.1	-	44.3	41.7	-	-	75.0	85.9	60	60	-

42 Water Heat	0	0	5.6	3.2	3.0	-	-	-	-	-	-	6.1	3.2	3.0	15	-	-
42 No Heat	0	0	5.6	3.2	3.0	-	-	-	-	-	-	5.6	3.2	3.0	15	-	-
42 Elec. Heat	7.5	25,598	-	3.2	3.0	30.3	-	-	34.3	-	-	-	30.3	34.3	45	-	-
42 Elec. Heat	10	34,130	-	3.2	3.0	39.3	-	-	44.7	-	-	-	39.3	44.7	60	-	-
42 Elec. Heat	12.5	42,663	-	3.2	3.0	30.3	18.1	-	34.3	20.8	-	-	48.3	55.1	45	30	-
42 Elec. Heat	15	51,195	-	3.2	3.0	39.3	18.1	-	44.7	20.8	-	-	57.4	65.5	60	30	-
42 Elec. Heat	17.5	59,728	-	3.2	3.0	39.3	27.1	-	44.7	31.3	-	-	66.4	75.9	60	45	-
42 Elec. Heat	20	68,260	-	3.2	3.0	39.3	36.1	-	44.7	41.7	-	-	75.4	86.3	60	60	-
42 Elec. Heat	22.5	76,793	-	3.2	3.0	39.3	27.1	18.1	44.7	31.3	20.8	-	84.5	96.8	60	45	30

48 Water Heat	0	0	8.5	4.3	4.0	-	-	-	-	-	-	9.0	4.7	4.4	15	-	-
48 No Heat	0	0	8.5	4.3	4.0	-	-	-	-	-	-	8.5	4.3	4.0	15	-	-
48 Elec. Heat	7.5	25,598	-	4.3	4.0	31.4	-	-	35.3	-	-	-	31.4	35.3	45	-	-
48 Elec. Heat	10	34,130	-	4.3	4.0	40.4	-	-	45.7	-	-	-	40.4	45.7	60	-	-
48 Elec. Heat	12.5	42,663	-	4.3	4.0	31.4	18.1	-	35.3	20.8	-	-	49.4	56.1	45	30	-
48 Elec. Heat	15	51,195	-	4.3	4.0	40.4	18.1	-	45.7	20.8	-	-	58.5	66.5	60	30	-
48 Elec. Heat	17.5	59,728	-	4.3	4.0	40.4	27.1	-	45.7	31.3	-	-	67.5	76.9	60	45	-
48 Elec. Heat	20	68,260	-	4.3	4.0	40.4	27.1	-	45.7	41.7	-	-	76.5	87.3	60	60	-
48 Elec. Heat	22.5	76,793	-	4.3	4.0	40.4	27.1	18.1	45.7	31.3	20.8	-	85.6	97.8	60	45	30
48 Elec. Heat	25	85,325	-	4.3	4.0	40.4	36.1	27.1	45.7	41.7	20.8	-	94.6	108.2	60	60	30

49 Water Heat	0	0	9.0	4.6	4.3	-	-	-	-	-	-	9.5	5.0	4.7	15	-	-
49 No Heat	0	0	9.0	4.6	4.3	-	-	-	-	-	-	9.0	4.6	4.3	15	-	-
49 Elec. Heat	10	34,130	-	4.6	4.3	40.7	-	-	46.0	-	-	-	40.7	46.0	60	-	-
49 Elec. Heat	12.5	42,663	-	4.6	4.3	31.7	18.1	-	35.6	20.8	-	-	49.7	56.4	45	30	-
49 Elec. Heat	15	51,195	-	4.6	4.3	40.7	18.1	-	46.0	20.8	-	-	58.8	66.8	60	30	-
49 Elec. Heat	17.5	59,728	-	4.6	4.3	40.7	27.1	-	46.0	31.3	-	-	67.8	77.2	60	45	-
49 Elec. Heat	20	68,260	-	4.6	4.3	40.7	36.1	-	46.0	41.7	-	-	76.6	87.6	60	60	-
49 Elec. Heat	22.5	76,793	-	3.8	3.5	40.7	27.1	18.1	46.0	31.3	20.8	-	85.9	98.1	60	45	30
49 Elec. Heat	25	85,325	-	3.8	3.5	40.7	36.1	18.1	46.0	41.7	20.8	-	94.1	108.5	60	60	30

60 Water Heat	0	0	9.0	4.6	4.3	-	-	-	-	-	-	9.5	5.0	4.7	15	-	-
60 No Heat	0	0	9.0	4.6	4.3	-	-	-	-	-	-	9.0	4.6	4.3	15	-	-
60 Elec. Heat	10	34,130	-	4.6	4.3	40.7	-	-	46.0	-	-	-	40.7	46.0	60	-	-
60 Elec. Heat	12.5	42,663	-	4.6	4.3	31.7	18.1	-	35.6	20.8	-	-	49.7	56.4	45	30	-
60 Elec. Heat	15	51,195	-	4.6	4.3	40.7	18.1	-	46.0	20.8	-	-	58.8	66.8	60	30	-
60 Elec. Heat	17.5	59,728	-	4.6	4.3	40.7	27.1	-	46.0	31.3	-	-	67.8	77.2	60	45	-
60 Elec. Heat	20	68,260	-	4.6	4.3	40.7	36.1	-	46.0	41.7	-	-	76.8	87.6	60	60	-
60 Elec. Heat	22.5	76,793	-	4.6	4.3	40.7	27.1	18.1	46.0	31.3	20.8	-	85.9	98.1	60	45	30
60 Elec. Heat	25	85,325	-	4.6	4.3	40.7	36.1	18.1	46.0	41.7	20.8	-	94.1	108.5	60	60	30

(1) For 208 volt use .751 correction factor for Kw & BTUH.

(2) 12.5, 15, 17.5 and 20 Kw (2 stage models) require 2 supply circuits. 22.5 and 25 (3 stage models) require 3 supply circuits.

(3) Circuit #1 includes blower motor amps.

(4) Water heat model amperage includes circulator. If circulator is not factory installed, blower amperage is total amperage.

Kw packages in bold indicates that these heat packages require and include circuit breakers. Optional for others.

Water Heating Capacity (BTUH)

Unit Size 12, 18 & 24

Water Coil Size	ENT. WATER TEMP.	1 GPM				2 GPM				3 GPM			
		H ₂ O P.D. in FT.	CFM			H ₂ O P.D. in FT.	CFM			H ₂ O P.D. in FT.	CFM		
			400	600	800		400	600	800		400	600	800
2 ROW	120°F	0.2	9,004	10,979	11,914	0.6	11,639	13,997	15,683	1.4	12,536	15,396	17,522
	140°F	0.2	13,209	15,600	16,942	0.6	16,452	19,823	22,240	1.3	17,683	21,757	24,793
	160°F	0.2	17,628	20,302	22,065	0.6	21,316	25,727	28,834	1.3	22,872	28,184	32,151
	180°F	0.2	32,738	25,065	27,260	0.6	26,217	31,687	35,621	1.3	28,091	34,659	39,573
3 ROW	120°F	0.3	11,286	13,771	14,944	0.9	14,528	17,826	20,160	1.9	15,582	19,636	22,659
	140°F	0.2	16,401	19,506	21,177	0.9	20,495	25,194	28,524	1.9	21,942	27,701	32,004
	160°F	0.2	21,792	25,320	27,500	0.9	26,511	32,641	36,991	1.8	28,343	35,833	41,442
	180°F	0.2	26,908	31,193	33,891	0.9	32,564	40,145	45,532	1.8	34,771	44,014	50,947

Unit Size 25, 30 & 36

Water Coil Size	ENT. WATER TEMP.	2 GPM				3 GPM				4 GPM			
		H ₂ O P.D. in FT.	CFM			H ₂ O P.D. in FT.	CFM			H ₂ O P.D. in FT.	CFM		
			800	1000	1200		800	1000	1200		800	1000	1200
2 ROW	120°F	0.5	17,277	18,048	19,124	1.0	19,588	20,523	21,997	1.7	20,990	22,035	23,750
	140°F	0.5	24,529	25,619	27,164	1.0	27,747	29,072	31,155	1.7	29,682	31,163	33,616
	160°F	0.5	31,899	33,313	35,341	1.0	36,013	37,734	40,464	1.6	38,472	40,396	43,602
	180°F	0.4	39,359	41,098	43,622	0.9	44,360	46,482	49,872	1.6	47,332	49,705	53,678
3 ROW	120°F	0.7	21,309	22,783	24,179	1.4	24,501	26,156	28,137	2.4	25,648	28,187	30,578
	140°F	0.6	30,149	32,261	34,255	1.3	33,970	36,982	39,809	2.3	36,180	39,801	43,208
	160°F	0.6	39,095	41,866	44,472	1.3	43,988	47,928	51,621	2.2	46,799	51,526	55,970
	180°F	0.6	48,121	51,564	54,794	1.3	54,077	58,963	63,537	2.2	57,481	63,331	68,827

Unit Size 31 & 37

Water Coil Size	ENT. WATER TEMP.	3 GPM				4 GPM				5 GPM			
		H ₂ O P.D. in FT.	CFM			H ₂ O P.D. in FT.	CFM			H ₂ O P.D. in FT.	CFM		
			1000	1100	1200		1000	1100	1200		1000	1100	1200
3 ROW	120°F	0.8	28,726	29,931	31,014	1.4	31,055	32,522	33,856	2	32,602	34,260	35,779
	140°F	0.8	40,610	42,329	43,874	1.3	43,847	45,937	47,838	2	45,986	48,344	50,505
	160°F	0.8	52,624	54,869	56,888	1.3	56,759	59,485	61,965	1.9	59,479	62,550	65,366
	180°F	0.8	64,735	67,541	70,015	1.3	69,759	73,130	76,197	1.9	73,051	76,844	80,323
4 ROW	120°F	1.0	33,478	34,963	36,329	1.7	36,193	38,058	39,751	2.6	37,946	40,069	42,015
	140°F	1.0	47,246	49,386	51,301	1.7	51,024	53,674	56,080	2.6	53,450	56,462	59,224
	160°F	1.0	61,139	63,925	66,420	1.7	65,969	69,416	72,548	2.5	69,055	72,970	76,562
	180°F	1.0	75,121	78,563	81,645	1.6	80,995	82,250	89,117	2.4	84,734	89,561	93,993

All capacities are based on 70°F entering air temperature.

For entering air temperatures other than 70°F use the following capacity correction factors.

(72°F x .982), (68°F x 1.02), (66°F x 1.04)

Glycol correction factors: (10% X .98), (20% X .95), (30% X .92), (40% X .88)

Water Heating Capacity (BTUH) (cont.)

Unit Size 42 & 48

Water Coil Size	ENT. WATER TEMP.	3 GPM				4 GPM				5 GPM			
		H ₂ O P.D. in FT.	CFM			H ₂ O P.D. in FT.	CFM			H ₂ O P.D. in FT.	CFM		
			1400	1500	1600		1400	1500	1600		1400	1500	1600
3 ROW	120°F	0.8	32,883	33,695	34,441	1.4	36,190	37,221	38,173	2.0	38,464	39,660	40,722
	140°F	0.8	46,541	47,701	48,766	1.3	51,167	52,686	53,996	2.0	54,329	56,032	57,617
	160°F	0.8	60,372	61,888	63,279	1.3	66,310	68,229	70,004	1.9	70,350	72,572	74,640
	180°F	0.9	74,330	76,209	77,933	1.3	81,575	83,951	86,149	1.9	86,486	89,234	91,792
4 ROW	120°F	1.0	38,636	39,631	40,540	1.7	42,707	44,006	45,204	2.6	45,457	46,988	48,409
	140°F	1.0	54,582	55,996	57,288	1.7	60,284	62,131	63,834	2.6	64,115	66,290	68,310
	160°F	1.0	70,692	72,535	74,216	1.7	78,023	80,428	82,647	2.5	82,925	85,756	88,386
	180°F	1.0	86,924	89,200	91,276	1.6	95,879	98,851	101,592	2.4	101,845	105,340	108,588

Unit Size 49

Water Coil Size	ENT. WATER TEMP.	3 GPM		4 GPM		5 GPM	
		H ₂ O P.D. in FT.	CFM	H ₂ O P.D. in FT.	CFM	H ₂ O P.D. in FT.	CFM
			1600		1600		1600
3 ROW	120°F	0.9	35,898	1.5	39,807	2.2	42,517
	140°F	0.9	50,787	1.4	56,267	2.2	60,046
	160°F	0.8	65,859	1.4	72,907	2.1	77,746
	180°F	0.8	81,064	1.4	89,678	2.1	95,569
4 ROW	120°F	1.1	41,978	1.9	46,837	2.9	50,156
	140°F	1.1	59,276	1.9	66,098	2.8	70,734
	160°F	1.1	76,276	1.8	85,532	2.8	91,479
	180°F	1.1	94,339	1.8	105,091	2.7	112,342

Unit Size 60

Water Coil Size	ENT. WATER TEMP.	3 GPM				4 GPM				5 GPM			
		H ₂ O P.D. in FT.	CFM			H ₂ O P.D. in FT.	CFM			H ₂ O P.D. in FT.	CFM		
			1800	1900	2000		1800	1900	2000		1800	1900	2000
3 ROW	120°F	1.2	37,308	37,936	38,521	2.1	41,636	42,459	43,229	3.2	44,672	45,650	46,570
	140°F	1.2	52,797	53,693	54,526	2.1	58,874	60,047	61,145	3.2	63,115	64,508	65,818
	160°F	1.2	68,481	69,650	70,737	2.0	76,308	77,839	79,273	3.1	81,747	83,564	85,273
	180°F	1.2	84,309	85,756	87,101	2.0	93,886	95,781	97,555	3.1	100,517	102,764	104,879
4 ROW	120°F	1.1	43,662	44,406	45,095	1.9	49,104	50,118	51,065	2.9	52,882	54,114	55,271
	140°F	1.1	61,666	62,721	63,698	1.9	69,318	70,759	72,104	2.8	74,605	76,356	77,999
	160°F	1.1	79,853	81,224	82,492	1.8	89,723	91,598	93,347	2.8	96,514	98,793	100,931
	180°F	1.1	98,172	99,863	101,427	1.8	110,265	112,579	114,739	2.7	118,557	121,369	124,009

All capacities are based on 70°F entering air temperature.

For entering air temperatures other than 70°F use the following capacity correction factors.

(72°F x .982), (68°F x 1.02), (66°F x 1.04)

Glycol correction factors: (10% X .98), (20% X .95), (30% X .92), (40% X .88)

Hydronic System Design

Includes: Heating coil selection, line sizing and selected pump other than supplied by ADP

Sample Application

3 ton Cooling Load
 180 degree Water Temp
 40% Glycol Mixture
 60,000 BTUH Heat Required

- (1) From the 3 ton heating capacity tables select a coil that supplies at least 60,000 btuh at 12000 CFM, 180° water temperature
 The 3 row coil supplies 68,827 BTUH @ 4 GPM, 2.2' pressure drop
 Correct capacity for 40% glycol (correction factors found below capacity chart)
- | | |
|---|-----------------|
| | 68,827 |
| Corrected coil heating capacity (BTUH) | X 0.88 |
| | = 60,568 |

- (2) Determine total equivalent line length

Note: Use the following line sizes as a guide for initial selection

1 - 3 GPM, 3/4"	4 - 5 GPM, 1"	6 - 8 GPM, 1 1/4"
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Line size	1"								
Total number of fittings	Quantity			Equiv. ft. of pipe (Table 3)					
90° SR elbows	20	X	2.7'	=	54'				54'
90° LR elbows	0	X	0	=	0				+ 0
45° elbows	0	X	0	=	0				+ 0
gate valves	2	X	1.9'	=	3.8'				+ 3.8'
Total supply and return line length									+ 186'
Total equivalent line length									= 244'

- (3) Determine total pump head required

Total equivalent line length	244'	X	0.015	=	3.66				3.66
Total pressure drop through coil (found on capacity chart)									+ 2.2
Line length correction factor for 40% glycol @ 180°F (Table 2)									X 1.12
Total pump head required									6.58

- (4) Now select a pump that supplies 4 GPM with at least 6.58' head capability.

Note: If desired, recalculation can be done with another line size to vary pump requirement.

Table 1 Piping Pressure Loss, ft/1 ft. (type K copper)																		
Nominal Pipe Size	GPM																	
	1	1.25	1.5	1.75	2	2.25	2.5	2.75	3	3.25	3.5	3.75	4	4.5	5	6	7	8
1/2"	.030	.048	.065	.083	.100	.125	.150	.175	.200	-	-	-	-	-	-	-	-	-
3/4"	.005	.009	.012	.016	.019	.024	.029	.034	.039	.045	.050	.056	.062	.077	.092	.130	-	-
1"	-	-	-	-	.005	.006	.007	.008	.009	.011	.012	.014	.015	.019	.023	.033	.042	.053
1 1/4"	-	-	-	-	-	-	-	-	-	-	-	-	.005	.007	.008	.011	.015	.018

Table 2 Pressure Drop Correction			
% Glycol	140°F	160°F	180°F
10	1.04	1.04	1.02
20	1.08	1.07	1.04
30	1.13	1.11	1.08
40	1.19	1.16	1.12
50	1.24	1.21	1.17

Table 3 Equivalent ft. of pipe				
Pipe Size	90° SR el	90° LR el	45° el	gate valve
1/2"	1.5	0.8	1	1
3/4"	2	1	1.4	1.4
1"	2.7	1.3	1.9	1.9
1 1/4"	3.6	1.8	2.5	2.5

Maximum Line Lengths for Heating Coils Using ADP Pump

All line lengths are total for supply and return

Air Handler Size	Nominal Pipe Size (ID)	Maximum Supply Pipe Length (ft.) type K copper																			
		GPM																			
		1	1.3	1.5	1.8	2	2.3	2.5	2.8	3	3.3	3.5	3.8	4	4.3	4.5	4.8	5	6	7	8
18 & 24 2 Row	1/2"	256	149	100	71	53	35	23	15	8	-	-	-	-	-	-	-	-	-	-	
	3/4"	-	-	-	464	361	263	198	152	118	-	-	-	-	-	-	-	-	-	-	
18 & 24 3 Row	1/2"	256	148	98	70	51	33	20	12	5	-	-	-	-	-	-	-	-	-	-	
	3/4"	-	-	-	454	351	251	186	140	105	-	-	-	-	-	-	-	-	-	-	
30 & 36 2 Row	1/2"	-	-	-	-	55	37	25	16	10	-	-	-	-	-	-	-	-	-	-	
	3/4"	-	-	-	-	372	273	208	162	128	99	76	58	43	-	-	-	-	-	-	
	1"	-	-	-	-	-	-	-	-	-	504	401	321	257	-	-	-	-	-	-	
30 & 36 3 Row	1/2"	-	-	-	-	53	35	23	14	8	-	-	-	-	-	-	-	-	-	-	
	3/4"	-	-	-	-	361	263	188	152	118	89	66	48	33	-	-	-	-	-	-	
	1"	-	-	-	-	-	-	-	-	-	461	359	280	217	-	-	-	-	-	-	
31, 37, 42 & 48 3 Row	3/4"	-	-	-	-	-	-	-	-	134	104	81	63	48	35	25	16	9	-	-	
	1"	-	-	-	-	-	-	-	-	-	526	422	341	277	221	177	141	111	-	-	
	1 1/4"	-	-	-	-	-	-	-	-	-	-	-	-	-	576	467	378	-	-	-	
31, 37, 42 & 48 4 Row	3/4"	-	-	-	-	-	-	-	-	126	97	75	57	43	30	19	11	4	-	-	
	1"	-	-	-	-	-	-	-	-	-	497	397	319	257	200	156	120	90	-	-	
	1 1/4"	-	-	-	-	-	-	-	-	-	-	-	-	-	514	405	315	-	-	-	
49 & 60 3 Row	3/4"	-	-	-	-	-	-	-	-	121	92	69	51	37	23	12	3	-	-	-	
	1"	-	-	-	-	-	-	-	-	-	473	372	293	230	172	127	90	59	-	-	
	1 1/4"	-	-	-	-	-	-	-	-	-	-	-	-	-	430	318	228	-	-	-	
49 & 60 4 Row	3/4"	-	-	-	-	-	-	-	-	123	94	72	54	40	27	16	8	-	-	-	
	1"	-	-	-	-	-	-	-	-	-	485	382	306	244	187	143	106	77	-	-	
	1 1/4"	-	-	-	-	-	-	-	-	-	-	-	-	-	476	367	278	-	-	-	

Notes:

- Line lengths are based on water only. To adjust maximum line lengths for glycol, divide length by the factors shown in Table 2.
- IMPORTANT:** Glycol should never be used in a potable water system.
- All lengths are based on closed loop systems.
- Line lengths within the shaded areas should not be used when a water heater is the source of heat. When using a boiler for these line lengths, excessive line temperature loss will occur and must be accounted for.
- Supply and return lines must be properly insulated to reduce temperature loss and to prevent freezing when passing through an unconditioned space.
- All lengths include (12) 90° short radius elbows. To adjust for extra or fewer fittings, use the factors in Table 1.
- Always use full flow ball or gate valves to minimize pressure drop.

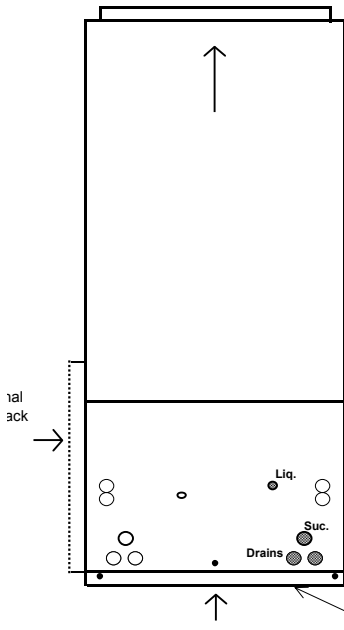
Pipe size	90° SR el	90° LR el	45° el	gate valve
1/2"	1.5	0.8	1	1
3/4"	2	1	1.4	1.4
1"	2.7	1.3	1.9	1.9
1 1/4"	3.6	1.8	2.5	2.5

% Glycol	140° F	160° F	180° F
10	1.04	1.04	1.02
20	1.08	1.07	1.04
30	1.13	1.11	1.08
40	1.19	1.16	1.12
50	1.24	1.21	1.17

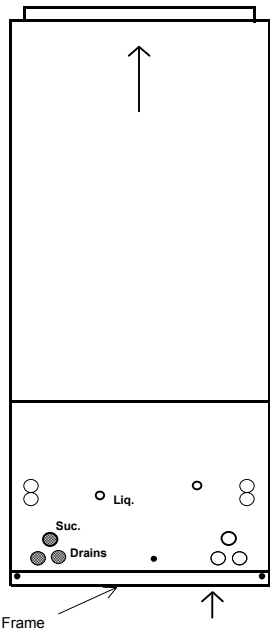
Size 12 - 30, 36 Installation Configurations

Shading Indicates Proper Line Connections

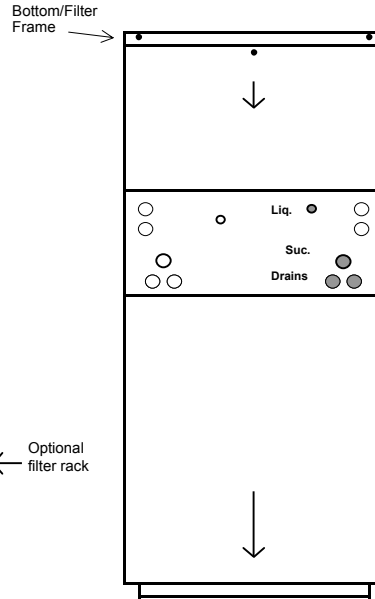
Upflow
As shipped from factory
(return in bottom or left side)



Upflow
Field Converted
(return in bottom or right side)

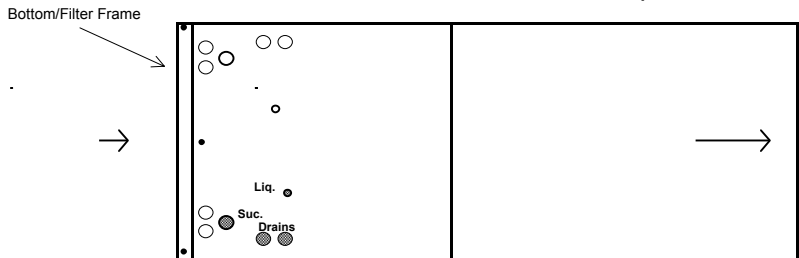


***Counterflow**
Field Converted with Kit
(return in top)



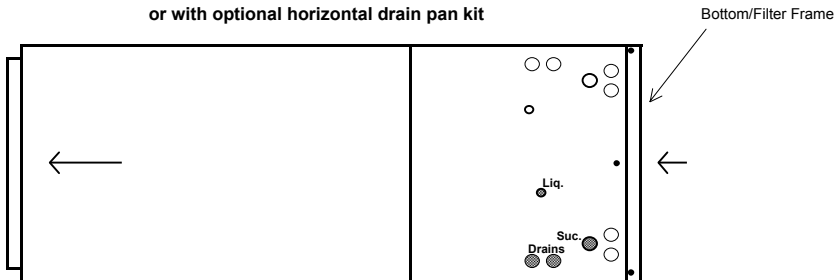
Horizontal Right

Factory ready if ordered as multi-position
or field converted with horizontal drain pan kit



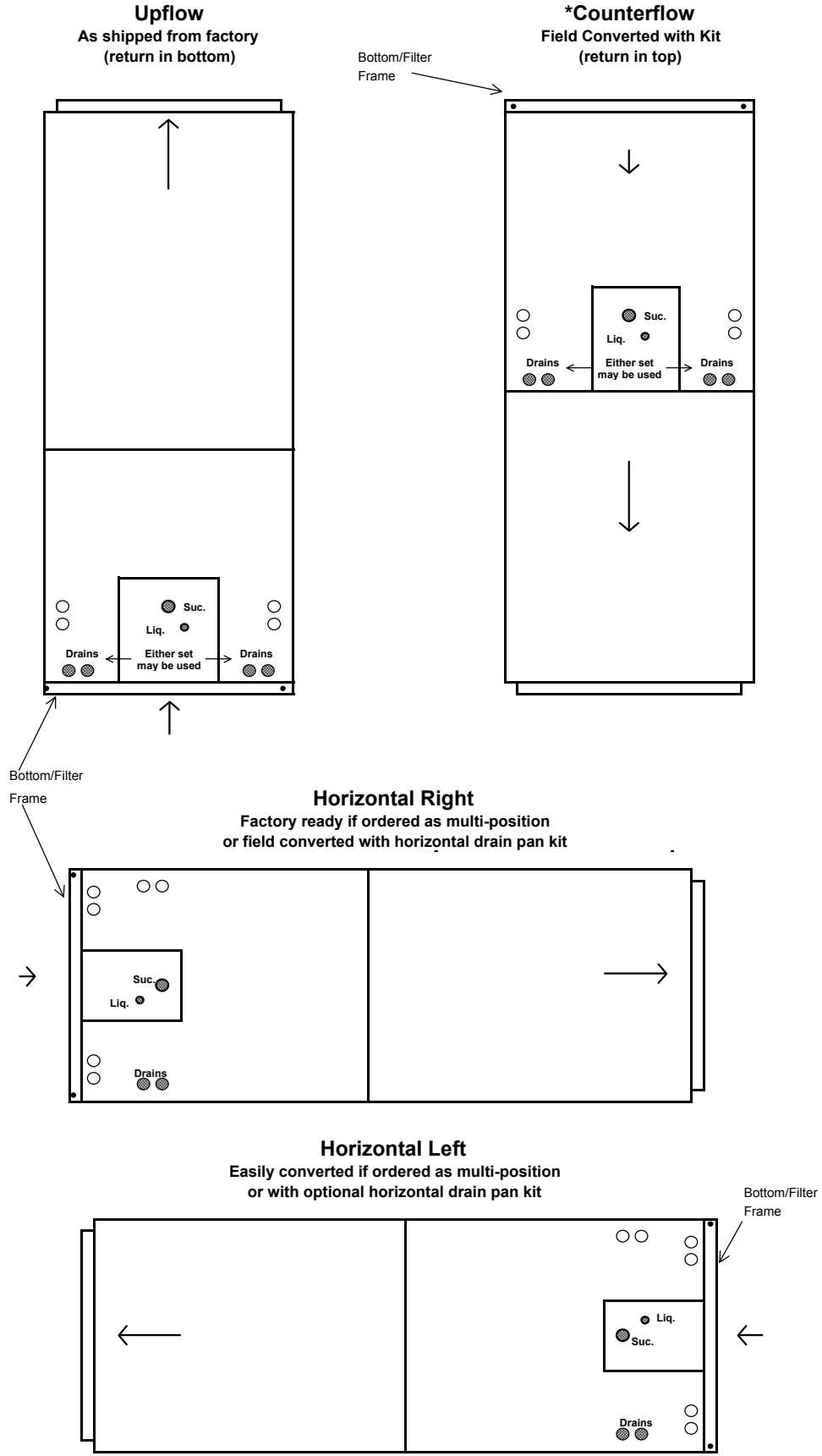
Horizontal Left

Easily converted if ordered as multi-position
or with optional horizontal drain pan kit



* See price sheet for restrictions on counterflow kits

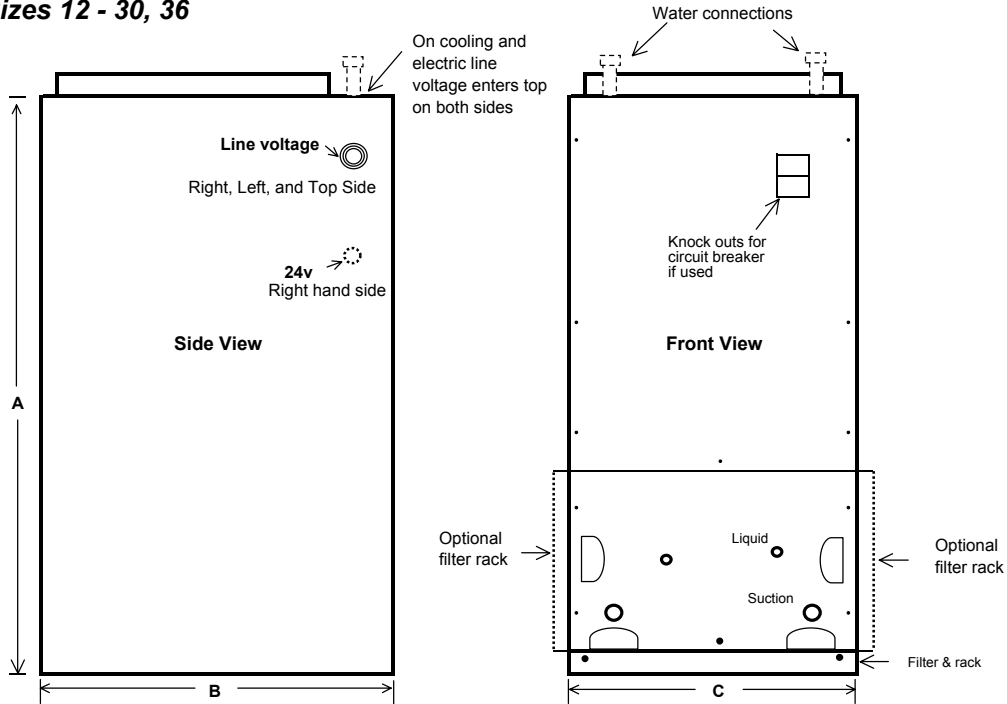
Size 31, 37 - 60 Installation Configurations
 Shading Indicates Proper Line Connections



* See price sheet for restrictions on counterflow kits

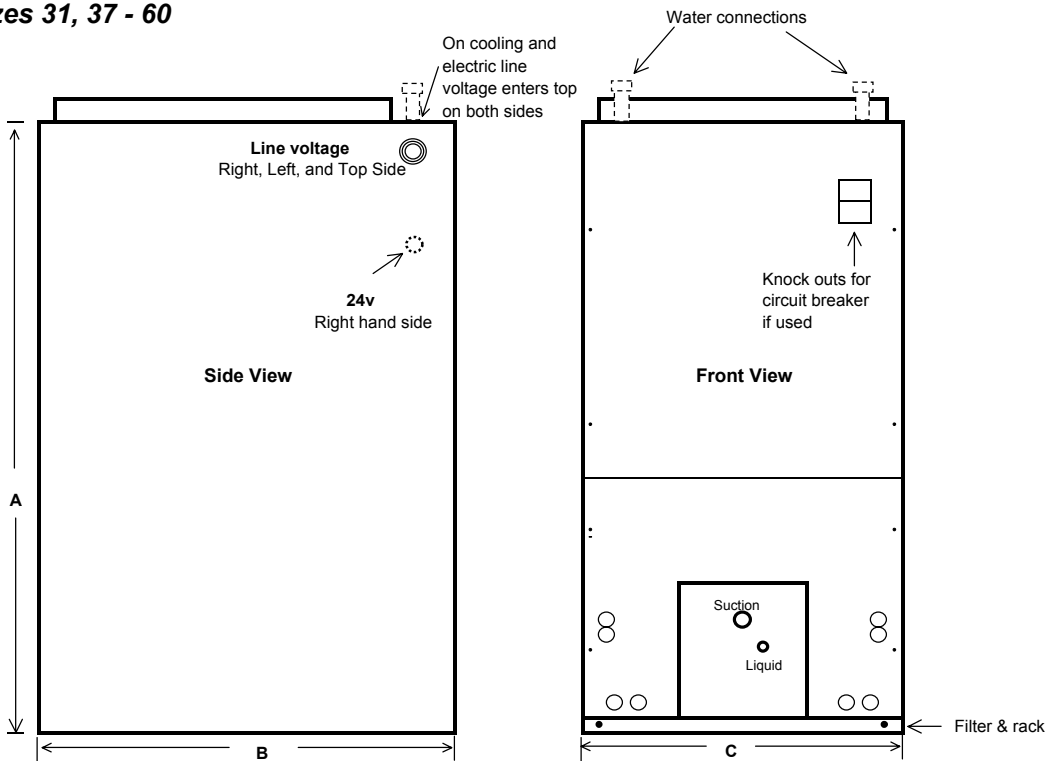
Dimensions

Sizes 12 - 30, 36



Unit Size	A	B	C	Supply Duct Opening		Return Duct Opening	
				Depth	Width	Depth	Width
12, 18 & 24	44"	22"	15"	17"	13 1/2"	17 1/4"	10 1/4"
25, 30 & 36	48"	22"	18 1/2"	17"	17"	17 1/4"	14"

Sizes 31, 37 - 60



Unit Size	A	B	C	Supply Duct Opening		Return Duct Opening	
				Depth	Width	Depth	Width
31, 37, 42 & 48	49"	26"	20"	21"	18 1/2"	22"	15 3/4"
49 & 60	53"	26"	22"	21"	20 1/2"	22"	17 3/4"

Air Handler Limited Warranty

General Five Year Parts Warranty: This ADP equipment will perform at installation according to its specifications when installed, operated, repaired and serviced in strict accordance with the installation and maintenance instructions and using authorized service parts. This warranty applies only to ADP equipment installed within the United States and Canada.

If within five (5) years from the date of original installation any covered parts fail because of a manufacturing defect, ADP will provide a replacement part. You are responsible for all other costs of warranty service. ADP assumes no responsibility for any costs associated with the replacement of this part. The costs of refrigerant, refrigerant reclaiming, driers, filters, belts or freight charges along with miscellaneous material charges are not covered. Such costs may be covered by a separate warranty provided by the installing dealer or contractor. Replacement of failed parts by ADP will be provided through a qualified servicing dealer or contractor. ADP must receive written documentation of annual preventative maintenance, for this warranty to be valid. This should include a record of normal maintenance as outlined in the installation and servicing instructions or the owners manual, including all cleaning, lubrication and standard replacement.

Use of this product other than in a single-family residential application will limit the warranty to one (1) year for covered parts.

Covered parts include all parts of this unit except for the following Excluded Components, which are not covered by this warranty: cabinets, cabinet pieces, wiring and wiring harnesses.

This warranty will begin on the date of original installation whether or not the actual use begins on that date. If the date of original installation cannot be verified, the warranty will be deemed to begin six (6) months after the date of manufacture.

Warranty Procedure – When warranty parts are required, you should contact a qualified local contractor or dealer, and be prepared to provide the following information: complete model and serial number and date of installation, and an accurate description of the problem.

Limitation of Warranties - ADP makes no express warranties other than the warranties set forth above. All implied warranties, including the implied warranties of merchantability and fitness for a particular purpose are excluded to the extent legally permissible, or are limited to a period of one (1) year. Should such exclusion or limitation of warranty be unenforceable, such implied warranties are in any event limited to the duration of the express warranty, set forth above. Liability for incidental, punitive and/or consequential damages is excluded. Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitations of incidental, punitive or consequential damages, so the limitations or exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

Conditions of Warranty - The furnishing of replacement parts under the terms of this warranty will apply to the original warranty period (including any extended warranty period) and will not serve to extend such period. This warranty is voided if the equipment is removed from the original installation site.

This warranty does not apply to damage or defect resulting from:

- Accident, or negligent or unreasonable use or operation of the equipment, including operation beyond rated capacity and operation of electrical components at voltages other than the rate specified in the nameplate.
- Modification, changes or alterations of the equipment, except as directed by ADP.
- Operation with system components, which do not match combinations listed in the Air Conditioning and refrigeration Institute (ARI) Director of Certified Unitary Equipment or operation of this system with refrigerants other than as specified in the installation instructions.
- Damage as a result of flood, winds, fires, lightning, or exposure to corrosive elements or a corrosive environment (such as salt, chlorine, Fluorine, or other damaging chemicals).