

THERMAL **CORPORATION**

A Division of Nailor International Inc.



- Up to 8 total coil rows
- Removable access panels on all sides
- DWDI Forward Curved Fans
- Stainless steel sloped drain pans
- Various IAQ liner options

- Compact small air handler design
- Horizontal ceiling mount and Vertical floor mount models
- 16 ga. galvanized steel 'Space Frame Construction' for rigidity
- 800 - 4000 cfm nominal airflow range
- 1 to 10 ton cooling capacity
- 3/4 to 3 HP Belt drive motors



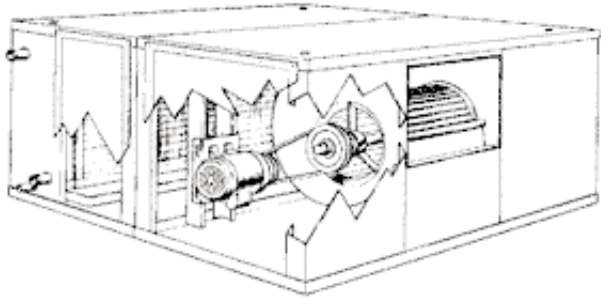
BFC SERIES: BELT DRIVE FAN COIL UNITS

MODELS: BFCH & BFCV

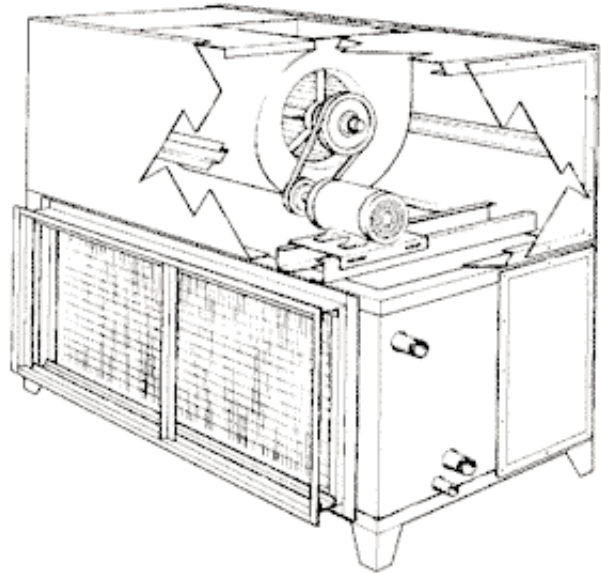
Contents

	Page No.
Product Overview • Model BFCH and BFCV	1
Fan Performance Data	2
Component Pressure Drop Data	2
Coil, Fan Motor and Filter Dimensional Data	2
Cooling and Heating Coil Performance Data:	
Chilled Water Coil	3
DX Coil (R-410A)	4
Hot Water and Steam Coil	4
Dimensional Data:	
CFCH Horizontal Unit	5
CFCV Vertical Unit	6

Standard Specification



Model BFCH: Belt Drive Horizontal Fan Coil Unit



Model BFCV: Belt Drive Vertical Fan Coil Unit

Description

Models BFCH & BFCV are compact belt drive fan coil units designed for efficient and economical heating and cooling of retail, commercial and institutional spaces.

Six unit sizes provide an airflow range from 800 to 4000 cfm.

Configuration

Units include filters, coils with drain pans and fans, and are available as both horizontal units for floor and suspended mounting in the ceiling, and as vertical units for floor mounting.

Cabinets

Cabinets utilize unique 16 ga. galvanized steel space frame construction which provides extreme rigidity. Removable side panels are 20 ga. galvanized steel. Horizontal units are supplied with hanger brackets. Vertical units are provided with support legs. Standard insulation is 1" thick, dual density coated fiberglass. NFPA 90A and UL 181 compliant. Cabinets are designed for working pressures up to 3" w.g.

Fans and Drives

Fans are centrifugal, forward curved DWDI type. Solid cold rolled steel shafts are mounted in self-aligning, permanently lubricated ball bearings. Fan drives are variable pitch "V" belt type which allow the air flow rate to be balanced to actual system conditions.

Motors

Fan motors are open drip proof type, internally mounted on an adjustable base. Both three phase and single phase motors are available. Motors 1 HP and smaller are available with resilient base.

Coils

2-pipe cooling or heat/cool changeover and 4-pipe heating and cooling are available.

Units are designed to accept coils up to a total of 8 rows deep. Up to 6 rows cooling and 1 or 2 row heating. Coils are 1/2" OD seamless copper tube with aluminum or copper platefins at 12 fins per inch. Water coils feature copper MPT connections and manual vents and drains. Refrigerant coils have copper OD sweat connections.

Stainless steel slopped insulated drain pans are standard.

Filters

Standard filters are 2" thick throwaway type, removable via a removable door on one side of the unit.

Options

A variety of popular and custom options are available:

- Stainless steel and aluminum cabinets
- 30% MERV 8, 65% MERV 11, 95% MERV 15 Pleated Filters
- Double Wall Construction. Solid and perforated galvanized steel, stainless steel and aluminum inner liners
- Epoxy paint
- Aluminum fan housings and wheels
- Stainless steel water coil casings
- Pillow block bearings with grease fittings
- Extended lube lines
- Variable coil fin spacing
- TEFC (Totally enclosed fan cooled) motors
- Motor controls: NEMA1 controls enclosure, disconnect switches, 24 volt transformer.
- Electric Heat

Fan Performance Table

Unit Size	CFM	FAN Face Velocity			Total Static Pressure ("w.g.)													
		O.V.	Coil	Filter	.50		.75		1.00		1.25		1.50		1.75		2.00	
		FPM	FPM	FPM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
80	600	1240	355	216	786	.104	946	.148	1091	.198	—	—	—	—	—	—	—	—
	700	1446	414	252	810	.132	957	.180	1093	.231	1220	.288	—	—	—	—	—	—
	800	1653	473	288	842	.167	977	.217	1103	.272	1223	.331	1336	.394	—	—	—	—
	900	1860	533	324	880	.210	1004	.264	1122	.321	1234	.383	1342	.449	1444	.519	—	—
100	800	1653	394	288	842	.167	977	.217	1103	.272	1223	.331	1336	.394	—	—	—	—
	900	1860	443	324	880	.210	1004	.264	1122	.321	1234	.383	1342	.449	1444	.519	—	—
	1000	2066	493	360	922	.263	1038	.319	1148	.380	1253	.445	1354	.513	1452	.586	1546	.662
	1100	2273	542	396	968	.324	1076	.385	1179	.449	1278	.517	1374	.588	1466	.664	1556	.741
150	1250	1923	413	282	875	.282	1009	.353	1132	.425	1247	.501	1357	.580	1463	.664	—	—
	1350	2077	446	304	901	.332	1030	.406	1148	.483	1259	.563	1365	.645	1466	.731	1564	.820
	1500	2308	495	338	945	.418	1064	.500	1177	.584	1283	.669	1383	.757	1479	.847	1571	.941
	1650	2538	545	372	994	.520	1102	.607	1209	.698	1310	.791	1406	.885	1497	.981	1585	1.08
200	1600	1914	399	288	888	.352	1021	.440	1145	.534	1263	.634	1376	.739	1483	.848	1586	.964
	1800	2153	449	324	934	.452	1055	.547	1171	.648	1282	.754	1387	.865	1489	.981	1587	1.10
	2000	2392	499	360	986	.574	1096	.674	1204	.782	1308	.896	1407	1.01	1503	1.12	1596	1.26
	2200	2632	549	396	1042	.721	1143	.826	1243	.941	1340	1.06	1434	1.19	1525	1.31	1613	1.45
300	2400	2124	404	288	649	.551	740	.671	824	.790	910	.919	980	1.04	1059	1.20	1125	1.30
	2700	2389	455	324	688	.718	767	.853	856	1.00	927	1.13	1002	1.30	1067	1.44	1138	1.58
	3000	2655	505	360	721	.899	802	1.06	877	1.21	948	1.37	1014	1.51	1083	1.66	1141	1.81
	3300	2920	556	396	761	1.18	840	1.34	909	1.51	977	1.69	1067	1.87	1112	2.03	1168	2.21
400	3200	2013	400	329	520	.654	600	.813	672	.974	746	1.23	807	1.32	870	1.53	—	—
	3600	2264	450	370	544	.837	619	1.02	688	1.19	758	1.45	814	1.56	878	1.84	931	1.96
	4000	2516	500	412	569	1.05	641	1.25	707	1.45	771	1.68	826	1.85	882	2.09	937	2.27
	4400	2767	550	453	596	1.31	665	1.53	728	1.75	792	1.97	842	2.19	898	2.43	947	2.63

BHP Brake Horsepower, Drive Losses Included

Component Pressure Drop Data (inches w.g.)

Unit Size 80 Thru 400	Coil Face Velocity FPM			
COMPONENT	400	450	500	550
BFCH HORIZONTAL CASING	.037	.055	.086	.105
BFCV VERTICAL CASING	.042	.060	.091	.110
COIL ROWS 2 DRY	.109	.130	.153	.177
COIL ROWS 4 DRY	.221	.265	.312	.361
COIL ROWS 4 WET	.266	.317	.367	.429
COIL ROWS 6 DRY	.334	.401	.471	.545
COIL ROWS 6 WET	.397	.473	.543	.640
COIL ROWS 8 DRY	.447	.537	.631	.751
COIL ROWS 8 WET	.528	.629	.720	.851
2" THROWAWAY FILTER	.075	.102	.125	.150

Coil, Fan Motor and Filter Dimensional Data

UNIT SIZE	80	100	150	200	300	400	
NOMINAL CFM	800	1000	1500	2000	3000	4000	
COIL FACE AREA FT ²	1.69	2.03	3.03	4.01	5.94	7.99	
COIL SIZE TF x FL	10 x 19-1/2	12 x 19-1/2	14 x 25	14 x 33	18 x 38	20 x 46	
FAN WHEEL DIAMETER	9"	9"	9"	9"	12"	15"	
MAXIMUM RPM	1540	1550	1590	1610	1160	950	
MAXIMUM MOTOR H.P.	3/4	3/4	1	1-1/2	2	3	
FILTERS	QTY.	1	1	2	2	3	1 & 2
	SIZE	16 x 25	16 x 25	16 x 20	20 x 20	16 x 25	16 x 25 and 20 x 25
FILTER GROSS AREA FT ²	2.78	2.78	4.44	5.56	8.33	9.72	

DX Coil (R-410A) Performance Data

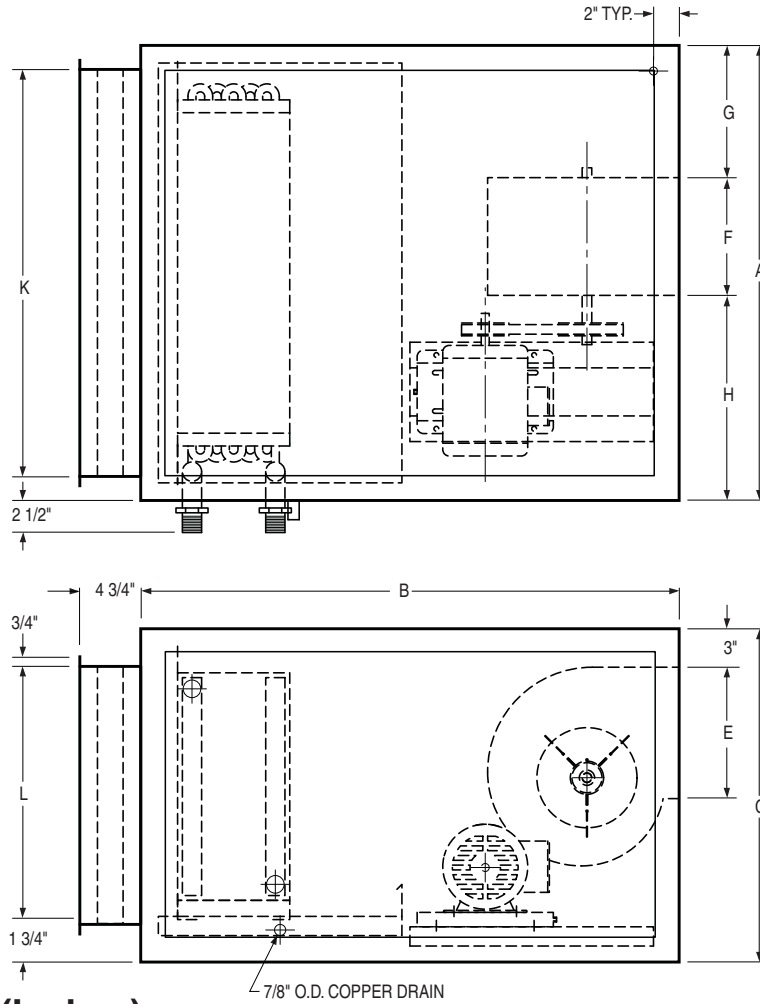
Unit Size	Nom. CFM	Refrig. Temp. °F	Coil Rows Deep	Entering Air 78°F / 65°F				Entering Air 80°F / 67°F				
				Leaving Air Temperature °F		Capacity		Leaving Air Temperature °F		Capacity		
				DB	WB	Total BTUH	Sens. BTUH	DB	WB	Total BTUH	Sens. BTUH	
80	800	40	4	55.8	53.7	26336	18889	56.3	54.5	29971	20103	
			6	51.4	50.5	32662	22595	51.6	51.0	37008	24039	
			8	48.4	48.2	37117	25158	48.4	48.4	41897	26741	
			45	4	59.4	56.8	19896	15838	60.0	57.6	23295	16984
				6	55.2	54.0	25818	19412	55.5	54.5	29932	20782
				8	52.9	52.3	29077	21321	53.0	52.6	33764	22900
100	1000	40	4	56.1	54.0	32138	23237	56.8	54.9	36411	24631	
			6	51.3	50.5	40889	28381	51.7	51.1	46027	30016	
			8	48.7	48.5	45689	31131	48.8	48.8	51570	33068	
		45	4	59.6	57.0	24316	19585	59.9	57.6	28979	21270	
			6	55.6	54.3	31333	23814	55.8	54.8	36700	25667	
			8	52.9	52.4	36291	26710	53.0	52.7	41879	28551	
150	1500	40	4	56.2	54.1	48266	34844	57.0	55.0	53952	36492	
			6	51.6	50.7	60625	42076	52.0	51.3	68310	44524	
			8	48.6	48.4	68919	46812	48.9	48.8	76959	49321	
		45	4	59.9	57.0	36266	29141	60.2	57.8	42756	31402	
			6	55.7	54.4	46863	35566	55.9	54.8	54823	38278	
			8	53.0	52.4	54156	39833	53.3	52.9	62294	42455	
200	2000	40	4	56.1	54.0	64458	46563	56.8	54.9	72566	49094	
			6	51.3	50.5	81953	56795	51.9	51.2	91010	59417	
			8	48.7	48.5	91591	62331	48.7	48.7	103326	66186	
		45	4	59.5	56.9	49192	39432	60.2	57.8	57166	42003	
			6	55.4	54.2	63344	47983	55.6	54.6	73981	51665	
			8	52.8	52.3	73006	53627	53.0	52.7	84031	57161	
300	3000	40	4	56.1	54.0	96542	69851	56.8	54.9	108845	73724	
			6	51.3	50.5	122463	85012	51.7	51.1	138104	90060	
			8	48.5	48.3	138376	94124	48.6	48.6	155738	99758	
		45	4	59.4	56.8	73884	59291	59.9	57.6	87259	63984	
			6	55.4	54.2	94903	72061	55.6	54.7	111205	77642	
			8	52.8	52.3	108971	80254	53.1	52.8	125513	85590	
400	4000	40	4	55.9	53.9	130092	93903	56.5	54.7	147957	99769	
			6	51.0	50.3	165794	114783	51.4	50.9	186219	121133	
			8	48.3	48.2	185892	126206	48.4	48.4	209022	133689	
		45	4	59.1	56.6	100835	80377	59.8	57.5	117062	85683	
			6	55.2	54.0	128223	96939	55.4	54.5	150071	104406	
			8	52.5	52.1	147924	108445	52.8	52.5	169292	115073	

Hot Water and Steam Coil Performance Data

Unit Size	Nom. CFM	Hot Water			Coil Rows Deep	Water Side Head Loss'	No. Feeds	Entering Air 70°F D.B.			
		Ent. Temp. °F	Leaving Temp. °F	GPM				Leaving Air °F	Cap. BTUH	5 psig Steam	
										Leaving Air °F	Cap. BTUH
80	800	180	164.5	5	2	5.90	2	113.9	37836	139.5	59849
100	1000	180	164.5	6.5	2	4.83	3	115.7	49279	138.4	73669
150	1500	180	165.2	10	2	3.57	7	114.7	72310	139.8	112893
200	2000	180	163.6	12	2	3.56	7	114.5	95953	141.4	153865
300	3000	180	163.6	18	2	4.51	9	114.7	144592	141.7	231754
400	4000	180	163.9	25	2	5.64	10	115.6	196631	142.4	312006

For conditions other than listed in the tables, contact your nearest representative for a computer printout for specific capacities to satisfy job conditions.

Dimensional Data • Model BFCH Horizontal Unit



Note: Standard right hand unit as shown. Left hand unit on special order only.

Dimensions (Inches)

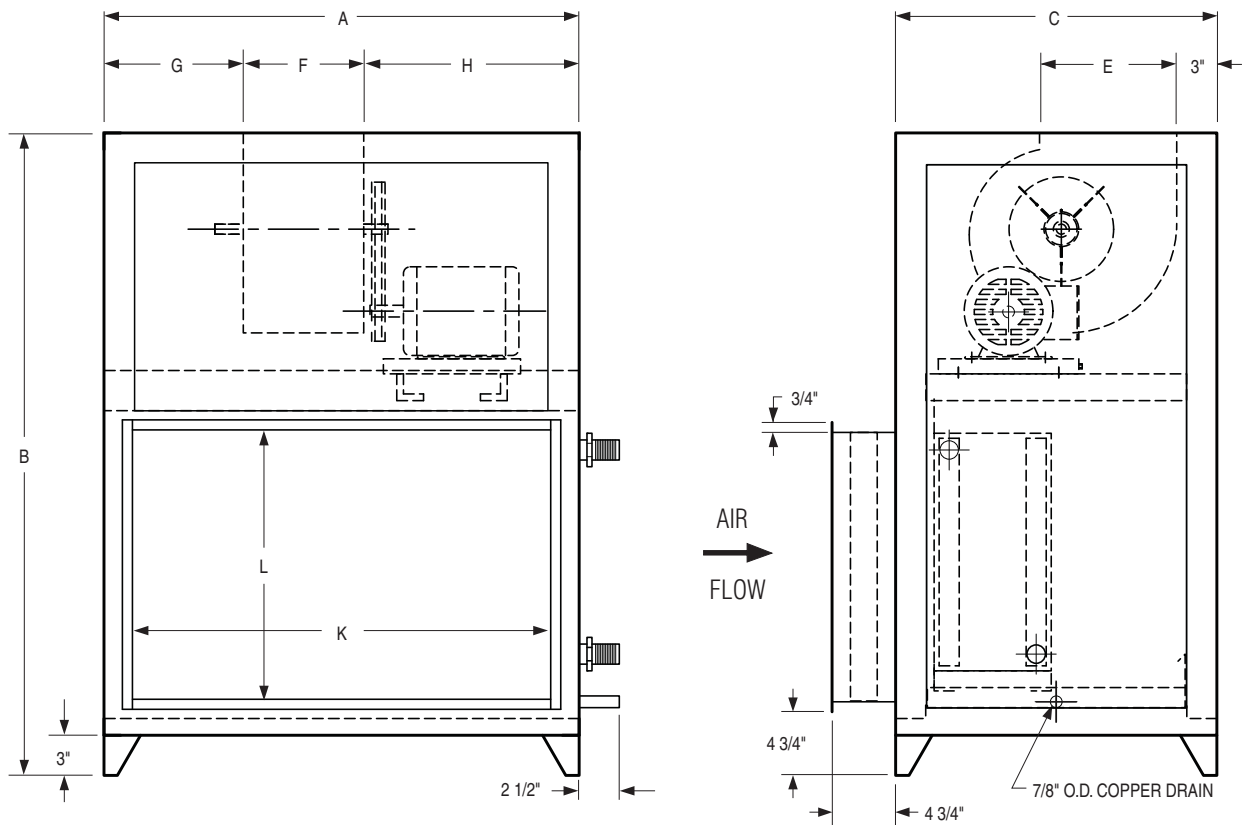
Unit Size	A	B	C	E	F	G	H	K	L
80	32	42	23 1/2	10 1/4	6 13/16	9 3/16	16	24 7/8	16 1/8
100	32	42	23 1/2	10 1/4	6 13/16	9 3/16	16	24 7/8	16 1/8
150	35 1/2	42	26	10 1/4	9 3/16	10 5/16	16	31 3/4	20 1/8
200	43 1/2	42	26	10 1/4	11 13/16	15 13/16	15 7/8	39 3/4	20 1/8
300	50	46 1/2	31	13 7/16	12 1/4	18 7/8	18 7/8	47 5/8	25 1/8
400	58	49 3/4	33 1/2	15 7/8	14 11/16	21 5/8	21 5/8	55 5/8	25 1/8

Coil Connection Sizes and Shipping Weights

Models BFCH & BFCV		80	100	150	200	300	400
DX COIL 4, 6 AND 8 ROWS O.D. SWEAT CONN	* LIQUID	1/2"	1/2"	1/2"	1/2"	5/8"	5/8"
	SUCTION	7/8"	1 1/8"	1 1/8"	1 3/8"	1 3/8"	1 5/8"
WATER COIL CONNECTION SUPPLY & RETURN (MNPT)	2 ROWS	1"	1"	1"	1"	1 1/4"	1 1/4"
	4 ROWS	1"	1"	1"	1 1/4"	1 1/4"	1 1/2"
	6 ROWS	1"	1"	1 1/4"	1 1/4"	1 1/2"	1 1/2"
	8 ROWS	1"	1"	1 1/4"	1 1/4"	1 1/2"	1 1/2"
APPROXIMATE SHIPPING WEIGHT (LBS.)	2 ROW COIL	15.8	16.5	22.2	27.5	38.8	49.4
	4 ROW COIL	25.8	28.3	39.8	49.7	68.7	90.0
	6 ROW COIL	35.0	38.7	55.3	69.7	98.6	127.8
	8 ROW COIL	44.0	50.3	71.0	89.7	127.5	165.9
COMPLETE CASING WEIGHT (LB.)	HORIZONTAL	233	233	263	285	394	474
	VERTICAL	246	246	273	304	426	511

* Thermostatic expansion valve inlet size.

Dimensional Data • Model BFCV Vertical Unit



Note: Standard right hand unit as shown. Left hand unit on special order only .

Dimensions (Inches)

Unit Size	A	B	C	E	F	G	H	K	L
80	32	45 1/2	24	10 1/4	7	9	16	24 7/8	16 1/8
100	32	45 1/2	24	10 1/4	7	9	16	24 7/8	16 1/8
150	35 1/2	48	24	10 1/4	9 3/16	10 5/16	16	31 1/4	20 1/8
200	43 1/2	48	24	10 1/4	11 13/16	15 27/32	15 27/32	39 3/4	20 1/8
300	50	57 1/2	29	13 7/16	12 7/16	18 9/16	19	47 5/8	25 1/8
400	58	63 1/4	31	15 7/8	14 7/8	21 9/16	21 9/16	55 5/8	25 1/8

General Notes

Air Friction Loss:

Calculate losses from air resistance table for equipment selected. Add external losses such as duct work for total static pressure. To establish fan R.P.M. and fan motor H.P. refer to the fan performance data table.

Winter Heating:

Add 10% to the fan brake horse power to compensate for fan motor located in the heated air stream.

Construction:

Standard BFC units are of one-piece construction and must be shipped completely assembled, motor included.

Weights:

Complete casing weight includes casing, filter rack, fan, motor and drive. Add selected coil weight to determine total weight.

Notes:



4714 Winfield Road Houston, TX 77039

Tel: 281-590-1172 • 281-897-9000

Fax: 281-897-9007

www.thermal-corp.com

12-3-10