DCA DEHUMIDIFIER CORPORATION OF AMERICA

INDOOR GAS DUCT FURNACES

DUCT FURNACE DESIGN FEATURES

Indoor Separated Combustion (DFS)

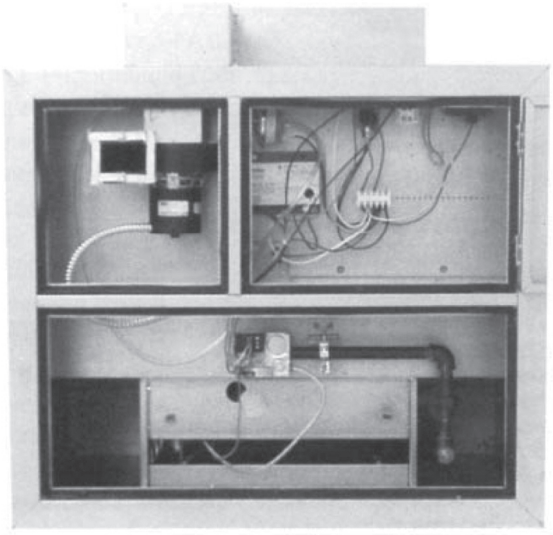
The indoor separated combustion duct furnace was designed as a building's heating system. Separated combustion duct furnaces are specifically designed for buildings with hostile atmospheric conditions, such as high humidity, or negative pressures. Available in 11 power exhausted model sizes, the unit covers a wide variety of applications. They have input ranges from 75,000 to 400,000 Btu/Hr and can operate on either natural or propane gas.

The airflow direction can be specified when ordering the unit. The duct furnace is certified for location downstream from dehumidifier and has a drain pan that allows connection to a condensate drain line.

STANDARD FEATURES

- C.S.A. certification for use in the US and Canada
- ETL certification
- 80% thermally efficient
- Power exhauster motor
- Separate electrical, venting and gas control access with fully gasketed doors
- 20 guage aluminized steel cabinet
- 115V control step down transformer with 24V gas controls
- 409 stainless steel heat exchanger and burners
- 409 stainless steel drip pan
- Certified to 3.0" W.C. external static pressure
- Single stage intermittent pilot with continuous retry control system for operation on natural gas.
- Differential pressure switch for proof of combustion air
- Power exhauster relay for pre-purge and post-purge
- Separate line voltage and low voltage terminal strips
- Left side (when looking into the discharge) access to burner and gas controls with slide-out burner drawer
- Side or bottom gas connection access
- High limit safety control
- Two-stage gas valve
- Natural gas input

INDOOR SEPARATED COMBUSTION DUCT FURNACE (DFS)



OPTIONAL FEATURES - FACTORY INSTALLED

- Single stage intermittent pilot with retry control system for operation on propane gas
- Two-stage, mechanical modulation, and electronic modulation controls for propane gas
- Mechanical modulation and electronic modulation controls for natural gas
- Building management compatible gas controls for modulation control using a 0-10 Vdc or 4-20 mA input
- Multiple furnace electronic amplifier for controlling up to 4 duct furnaces with one discharge air sensor
- Gas control step down transformers for 208/230V/1Ph and 208/230/460/575V/3 Ph
- Right side access to burner and gas controls
- Adjustable differential air flow proving system
- Fan delay timer
- High and/or low gas pressure switches
- Manual reset high limit switch
- Timed freeze protection
- Supply air fire stat
- Control relay - double pole, double throw

PERFORMANCE DATA

Air Temperature Rise - Low Temperature Rise Separated Combustion/Indoor Duct Furnaces ① ② ③

Model Size	Btu/Hr		Air Temperature Rise Through Unit (°F)								
			20	25	30	35	40	45	50	55	60
	Input	Output	Max	CFM							Min.
75	75,000	60,000	2778	2222	1852	1587	1389	1235	1111	1010	926
100	100,000	80,000	3704	2963	2469	2116	1852	1646	1481	1347	1235
125	125,000	100,000	4630	3704	3086	2646	2315	2058	1852	1684	1543
150	150,000	120,000	5556	4444	3704	3175	2778	2469	2222	2020	1852
175	175,000	140,000	6481	5185	4321	3704	3241	2881	2593	2357	2160
200	200,000	160,000	7407	5926	4938	4233	3704	3292	2963	2694	2469
225	225,000	180,000	8333	6667	5556	4762	4167	3704	3333	3030	2778
250	250,000	200,000	9259	7407	6173	5291	4630	4115	3704	3367	3086
300	300,000	240,000	11111	8889	7407	6349	5556	4938	4444	4040	3704
350	350,000	280,000	12963	10370	8642	7407	6481	5761	5185	4714	4321
400	400,000	320,000	14815	11852	9877	8466	7407	6584	5926	5387	4938

Air Temperature Rise - High Temperature Rise Separated Combustion/Indoor Duct Furnaces and All Gravity Vented Indoor Duct Furnaces ① ② ③

Model Size	Btu/Hr		Air Temperature Rise Through Unit (°F)										
			20 ④	40 ④	50 ④	60	65	70	75	80	85	90	95	100
	Input	Output	Max	CFM										Min.
75	75,000	60,000	2778	1389	1111	926	855	794	741	694	654	617	585	556
100	100,000	80,000	3704	1852	1481	1235	1140	1058	988	926	871	823	780	741
125	125,000	100,000	4630	2315	1852	1543	1425	1323	1235	1157	1089	1029	975	926
150	150,000	120,000	5556	2778	2222	1852	1709	1587	1481	1389	1307	1235	1170	1111
175	175,000	140,000	6481	3241	2593	2160	1994	1852	1728	1620	1525	1440	1365	1296
200	200,000	160,000	7407	3704	2963	2469	2279	2116	1975	1852	1743	1646	1559	1481
225	225,000	180,000	8333	4167	3333	2778	2564	2381	2222	2083	1961	1852	1754	1667
250	250,000	200,000	9259	4630	3704	3086	2849	2646	2469	2315	2179	2058	1949	1852
300	300,000	240,000	11111⑤	5556	4444	3704	3419	3175	2963	2778	2614	2469	2339	2222
350	350,000	280,000	11111⑥	6481	5185	4321	3989	3704	3457	3241	3050	2881	2729	2593
400	400,000	320,000	11111⑥	7407	5926	4938	4558	4233	3951	3704	3486	3292	3119	2963

① Ratings are shown for elevations up to 2000 feet. For higher elevations, the input rating should be reduced at the rate of 4% per 1000 feet elevation above sea level. For Canada, in elevations between 2000 and 4500 feet, the unit must be derated to 90% of the rating listed above.

② Units approved for use in California by CEC.

③ High air temperature rise separated combustion/outdoor units include an air distribution baffle and restrictor change when compared to the low air temperature rise separated combustion/outdoor units. Field conversion of a high air temperature rise to a low air temperature rise unit (or the opposite) requires a factory supplied conversion kit.

④ For separated combustion/outdoor units, the certified range of the High Temperature Rise Duct Furnaces is 20° - 100°F but it is recommended that they be used from 60° - 100°F to reduce the system pressure drop. All gravity vented indoor duct furnaces are supplied with a factory installed air baffle. For applications where an air temperature rise less than 60°F is desired, it is recommended to remove this baffle to reduce system pressure drop.

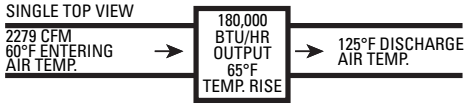
⑤ For High Temp Rise Separated Combustion and Outdoor Furnaces the max CFM is 9578 due to the maximum 3" W.C. static pressure on the heat exchanger.

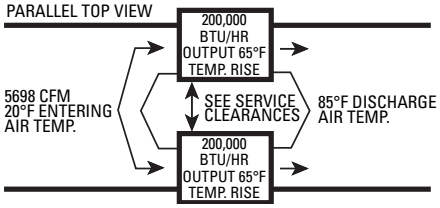
⑥ The maximum CFM for the 350 and 400 results in a 23°F and a 27°F air temperature rise (respectively) based on the maximum unit pressure drop.

Air Temperature and External Static Pressure Limits

The maximum allowable discharge air temperature is 150°F. The maximum allowable air temperature rise for Low Air Temperature Rise Outdoor Units is 60°F. The maximum allowable air temperature rise for High Air Temperature Rise Outdoor Units is 100°F. All duct furnaces are designed for a maximum allowable static pressure of 3.0" W.C. on the heat exchanger.

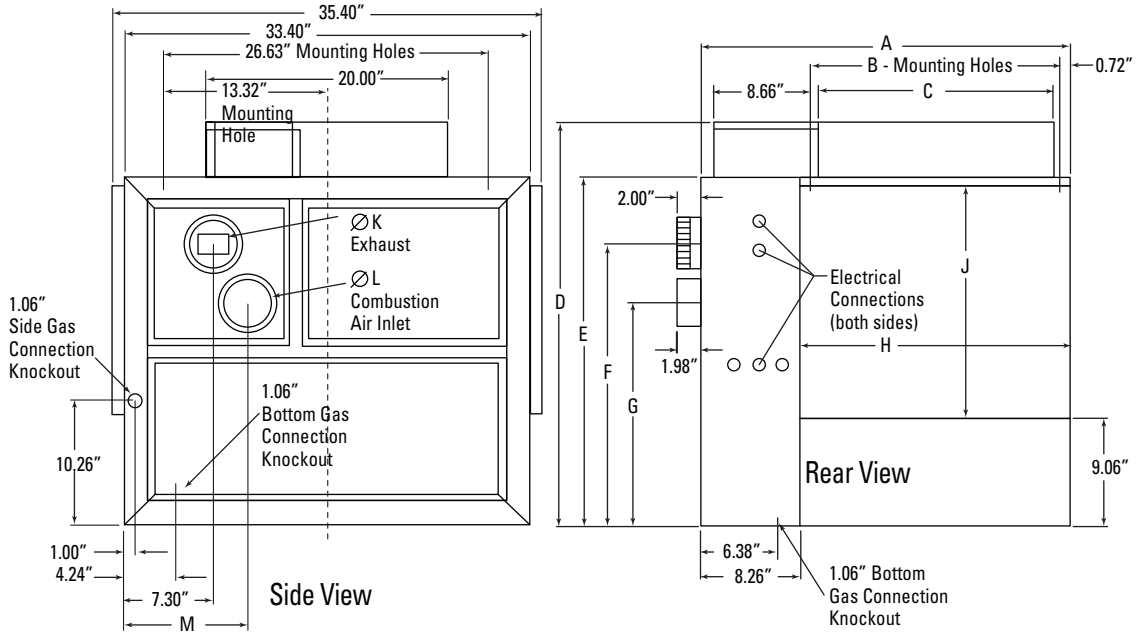
Recommended Unit Configurations





UNIT DIMENSIONS

Indoor Separated Combustion Duct Furnace Dimensions (DFS)



Indoor Separated Combustion Duct Furnace Dimensions (DFS) (All dimensions in inches)

		Model Size					
Dimension		75	100/125	150/175	200/225	250/300	350/400
A		23.74	26.24	30.50	32.60	35.60	47.14
B		13.98	16.48	20.74	22.85	25.85	37.39
C		12.58	15.08	19.34	21.45	24.48	36.00
D		33.04	33.04	33.04	37.04	37.04	37.04
E		28.61	28.61	28.61	32.61	32.61	32.61
F		23.08	23.08	23.08	26.43	26.43	26.43
G		18.19	18.19	18.19	19.21	19.21	19.21
H (duct width)		15.12	17.62	21.88	23.99	26.99	38.53
J (duct height)		18.90	18.90	18.90	22.90	22.90	22.90
K ①		3.86	3.86	3.86	5.86	5.86	5.86
L ①		4.17	4.17	4.17	6.18	6.18	6.18
M		10.26	10.26	10.26	9.60	9.60	9.60
Gas Connection Pipe Size		1/2″	1/2″	1/2″	1/2″	3/4″	3/4″
Approx Weight	Unit Shipping	226#	250#	273#	325#	385#	454#
	Unit Net	151#	170#	188#	230#	275#	329#

① Nominal vent pipe size is 4″ (Models 75-175) and 6″ (Models 200-400). Exhaust pipe installed over collar. Combustion air pipe installed inside collar.

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FAX: 262-377-7502
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TOTAL UNIT AMP DRAW

The total unit amp draw is a combination of the motor, the control step down transformer, the power exhauster motor, and the evaporative cooler pump motor (or step down transformer for 208V/1Ph, 208V/3Ph, 460V/3Ph, or 575V/3Ph units) where applicable. The control step down transformer includes damper actuators, ignition controllers, gas valves, control relays, amplifiers, and motor starters.

Control Step Down Transformer Amp Draws

Transformer ①	Supply Voltage						
	A	B	C	D	E	F	G
	(115/60/1)	(208/60/1)	(230/60/1)	(208/60/3)	(230/60/3)	(460/60/3)	(575/60/3)
0	0	0	0	0	0	0	0
1	0.35	0.19	0.17	0.19	0.17	0.09	0.07
2	0.65	0.36	0.33	0.36	0.33	0.16	0.13
3	1.30	0.72	0.65	0.72	0.65	0.33	0.26
4	2.17	1.2	1.09	1.20	1.09	0.54	0.43

①1 = 40 VA
2 = 75 VA
3 = 150 VA
4 = 250 VA
0 = None

Power Exhauster Motor Amp Draws (Outdoor Power Vented and Separated Combustion Only) ②

Model Size	Supply Voltage						
	A	B	C	D	E	F	G
	(115/60/1)	(208/60/1)	(230/60/1)	(208/60/3)	(230/60/3)	(460/60/3)	(575/60/3)
75-175	1.40	0.70	0.66/0.60	0.70	0.66/0.60	0.54③	0.43 ③
200-400	2.00/2.40	1.10/1.40	0.95/1.30	1.10/1.40	0.05/1.30	0.54③/1.09④	0.43③/0.87④
500/800	4.00/4.80	2.20/2.80	1.90/2.60	2.20/2.80	1.90/2.60	1.08④/1.63⑤	0.87④/1.03⑤
840-960	6.00/7.20	3.30/4.20	2.85/3.90	3.30/4.20	2.85/3.90	1.63⑤/2.17⑥	1.30⑤/1.74⑥

② When 2 amp draws are listed, the first is for Outdoor units and the second is for separated combustion units.

③ Amp draw is for a 250 VA transformer.

④ Amp draw is for a 500 VA transformer.

⑤ Amp draw is for a 750 VA transformer.

⑥ Amp draw is for a 1000 VA transformer.

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