

SEP 100-400 Gas Fired Propeller Unit Heaters Engineering & Specification Guide



FEATURES/BENEFITS

EFFICIENCY - The SEP series gas-fired propeller unit heaters deliver 80% thermal efficiency and 78% seasonal efficiency using natural gas or LPG in all models. This excellent efficiency sets a new standard for savings when using gas-fired unit heaters.

RELIABILITY - The design of this unit heater has proven itself to be superior during the fourteen years and hundreds of thousands of hours of tough winter climate and laboratory life cycle testing under extreme conditions. The SEP has been designed to provide a long, trouble-free service life.

QUALITY - Every heater undergoes continuous quality checks at all stages of manufacturing. After assembly, each heater is test fired and functionally tested to provide final assurance that it is performing in accordance with ADP's rigorous quality standards.

APPROVALS - All ADP heaters are built in our ISO 9001:2000 facility. The rating plate of each heater carries the mark signifying that the SEP heater is designed certified by CSA. In addition, the heater series is listed by the California Energy Code (CEC).

POWER EXHAUST - All heaters have a sealed flue collector and a power exhaust system that enables conventional vertical venting or horizontal venting up to 35 feet. Power exhaust, when used with horizontal venting, lowers operating cost because it reduces stack losses. It also allows the option of not penetrating the roof, or multiple floors. The versatile SEP series power exhaust reduces installation cost further by allowing the exhaust to be directed upward, left or right, just by rotating the exhaust assembly on certain models.

TUBULAR HEAT EXCHANGERS - Constructed of aluminized steel for superior resistance to corrosion and oxidation. Additional protection is available with an optional stainless steel heat exchanger. The curving design provides for complete exposure of the heating surface to the supply air stream. Rounded surfaces minimize air resistance and permit air to surround all heat transfer surfaces for excellent heat transfer. Tubular design means lighter weight and significantly

longer service life due to lower thermal-induced stresses. Further, the tubular exchangers create less resistance to air flowing through the unit, therefore providing higher airflow and great throw distance of the heated air to the space.

INSHOT BURNERS - These lightweight aluminized steel burners are maintenance-free and never require adjustment. The burning venturi mixes air and gas in the correct proportion for efficient combustion. The entire burner assembly is removable as one piece for ease of service.

DIRECT SPARK IGNITION - In combination with the 24-volt main gas valve with 100% shutoff for safety, the direct spark ignition control provides positive, reliable and safe main burner ignition. This eliminates the need for a pilot light, improving system efficiency and reliability. A separate flame sensor proves main burner ignition. If loss of main burner flame should occur, the control will reinitiate ignition 3 times before locking out for one hour, thus reducing nuisance service calls. The unit will reinitiate ignition after the one hour lockout.

AIR DISTRIBUTION - All models are equipped with efficient, quiet, direct-drive propeller fans, which have been dynamically balanced for quiet, smooth operation. Heated air flows easily through the tubular heat exchangers and is effectively directed to the heated space by means of aerodynamically shaped outlet louvers.

CABINET - Constructed on 18- to 22-gauge cold rolled steel, each cabinet has a pre-painted finish for superior resistance to corrosive elements. Each cabinet has a two-point (3/8" X 16" spotnut) suspension system for easy installation. The two fan models have four-point suspensions. Generous use of inside cabinet insulation keeps the outer surface temperatures low. The wiring junction box is conveniently located on the side of the cabinet for easy access and adequate protection.

WARRANTY - All components have a limited warranty for two full years. The aluminized steel heat exchangers have a limited warranty for ten years. The stainless steel heat exchangers have a limited warranty for fifteen years. Consult the warranty certificate for details.

SEP SERIES HEATERS

TECHNICAL DATA										
MODEL NUMBER: SEP-	100 (A,S)	115 (A,S)	145 (A,S)	175 (A,S)	200 (A,S)	230 (A,S)	250 (A,S)	300 (A,S)	345 (A,S)	400 (A,S)
TOTAL INPUT, BTUH*	100,000	115,000	145,000	172,500	195,000	230,000	250,000	300,000	345,000	390,000
TOTAL OUTPUT, BTUH	80,500	92,000	116,000	138,000	156,000	184,000	201,250	241,500	276,000	312,000
AIR VOLUME, CFM	1900	1900	1900	2200	2200	4400	4400	4400	4400	4400
AIR THROW AT 8 FT. MTNG.	60	60	60	65	65	80	80	80	80	80
HEIGHT, FEET										
RECOMMENDED MOUNTING HEIGHT, FEET	16	16	20	20	20	30	30	30	30	30
FAN DIAMETER, INCHES/ NUMBER OF FANS	16/1	16/1	16/1	16/1	16/1	16/2	16/2	16/2	16/2	16/2
SHIP WEIGHT, POUNDS	140	140	150	165	175	260	285	305	310	310
NET WEIGHT, POUNDS	125	125	130	145	145	225	270	280	285	285
FAN HORSEPOWER	1/8	1/8	1/8	1/8	1/8	1/8 (2)	1/8 (2)	1/8 (2)	1/8 (2)	1/8 (2)
MOTOR AMPS @ 115V/1PH/60Hz	2.1	2.1	2.1	2.1	2.1	4.2	4.2	4.2	4.2	4.2
MOTOR DATA	RPM	1075	1075	1075	1075	1075	1075	1075	1075	1075
	MOTOR TYPE	PSC	PSC	PSC	PSC	PSC	PSC	PSC	PSC	PSC
TOTAL UNIT AMPS	6.0	6.0	6.0	6.0	6.0	9.0	9.0	9.0	9.0	9.0
FLUE CONNECTION SIZE, INCHES**	4	4	4	5	5	5	5	5	6	6
GAS CONNECTION, INCHES	1/2	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4	3/4



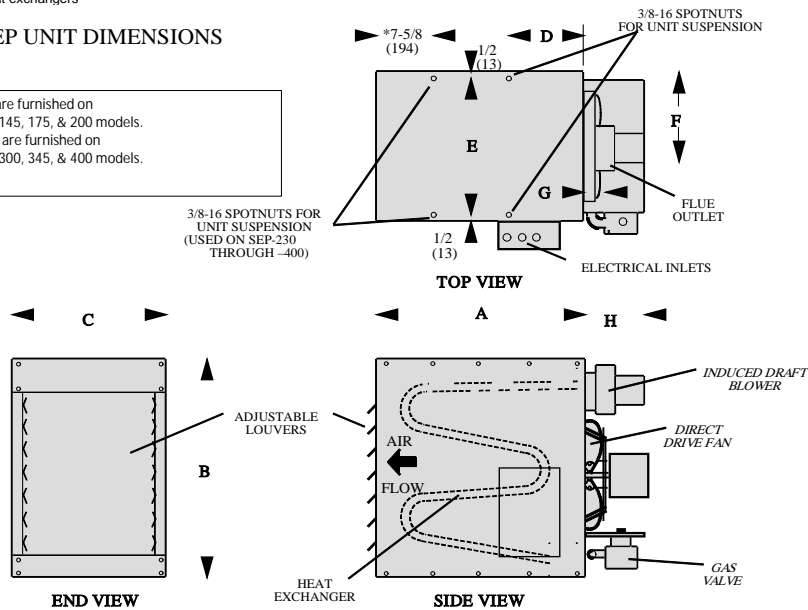
* Ratings shown are for elevations up to 2,000 feet. For elevations above 2,000 feet, ratings should be reduced at the rate of 4% for each 1,000 feet above sea level.

** Diameter of round pipe - adaptor furnished with heater.

A,S - Aluminized or Stainless Steel heat exchangers

SEP UNIT DIMENSIONS

*NOTE - Two spotnuts are furnished on SEP 100, 115, 145, 175, & 200 models.
-Four spotnuts are furnished on SEP 230, 250, 300, 345, & 400 models.



DIMENSIONAL DATA

MODEL NUMBER: SEP-	A	B	C	D	E	F	G	H	MINIMUM CLEARANCES				
									BOTTOM	TOP	SIDES	REAR	FLUE
100, 115, 145	31-5/16	32-3/16	20-3/16	11-1/2	19-1/16	11-3/4	3-1/4	7-7/8	0	6	6	18	6
175, 200	31-5/16	32-3/16	23-1/8	11-1/2	22-1/16	8-1/2	3-1/4	7-7/8	0	6	6	18	6
230*, 250*, 300*	31-5/16	32-3/16	41-1/8	3-11/16	40	17-3/4	3-1/2	8-11/16	0	6	6	18	6
345*	31-5/16	32-3/16	41-1/8	3-11/16	40	17-1/2	3-1/2	9-13/16	0	6	6	18	6
400*	31-5/16	32-3/16	41-1/8	3-11/16	40	17-1/2	3-1/2	9-13/16	0	6	6	18	6

NOTE: All dimensions are in inches. Provide 24-inch service clearance on electrical control box side and at rear of unit

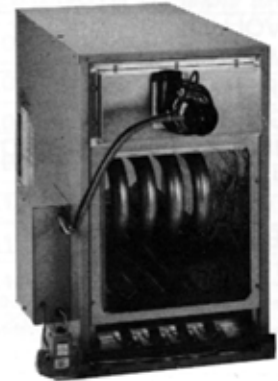
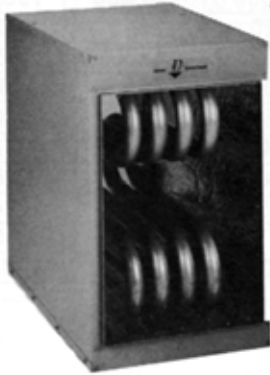
* Unit contains dual fans.

**HED SERIES
GAS FIRED
DUCT FURNACES
75,000 to 300,000 BTUH INPUT**

PRODUCT INFORMATION

GAS DUCT FURNACES

FORM DFSS-2 3/03



FEATURES/BENEFITS

EFFICIENCY – The HED series gas-fired duct furnaces deliver 80% thermal efficiency using natural gas only. This excellent efficiency sets a new standard when using gas-fired duct furnaces.

RELIABILITY – The design of this duct furnace has proven itself to be superior during seven years and hundreds of thousands of hours in the toughest winter climates of North America and under extreme conditions in laboratory life cycle testing. The HED has been designed to provide a long, trouble free service life.

QUALITY – Every heater undergoes continuous quality checks at all stages of manufacturing. After assembly, each heater is test fired and functionally tested to provide final assurance that it is performing in accordance with ADP's rigorous quality.

APPROVALS – The rating plate of each heater carries the mark signifying that the HED heater is designed certified by CSA. In addition, the heater series is listed by the California Energy Commission (CEC).

POWER EXHAUST – All heaters have a sealed flue collector and a power exhaust system which enable conventional vertical venting or horizontal venting up to 40 feet. Power exhaust, when used with horizontal venting, lowers operating cost because it reduces stack losses. It also allows the option of not penetrating the roof, or multiple floors. The versatile HED series power exhaust reduces installation cost further by allowing the exhaust to be directed upward, left or right, just by rotating the exhaust assembly (available on sizes 75-150 only). An additional benefit is reduction of clearance to combustibles on top of the unit.

TUBULAR HEAT EXCHANGERS – Constructed of aluminized steel for superior resistance to corrosion and oxidation. Additional protection is available with an optional stainless steel heat exchanger. The curving design provides for complete exposure of the heating surface to the supply air stream.

Rounded surfaces minimize air resistance and permit air to surround all heat transfer surfaces for excellent heat transfer. The compact design of the heat exchanger minimizes cubic space requirements for the heater cabinet. Tubular design means lighter weight and significantly longer service life due to lower thermal-induced stresses. Further, the tubular exchangers create less resistance to air flowing through the unit. This results in lower air handler horsepower requirements, reducing system operating costs in every season.

INSHOT BURNERS – These lightweight steel burners are maintenance-free and never require adjustment. The burner venture mixes air and gas in the correct proportion for efficient combustion. The entire burner assembly is removable as one piece for ease of service.

DIRECT SPARK IGNITION – In combination with the 24-volt main gas valve with 100% shutoff for safety, the direct spark ignition control provides positive, reliable and safe main burner ignition. This eliminates the need for a pilot light, improving system efficiency and reliability. A separate flame sensor provides proof of main burner ignition. If loss of main burner flame should occur, the control will reinitiate ignition three times before locking out, thus reducing nuisance service calls. The prepurge operation safety removes all gas and flue products from the system prior to ignition.

CABINET – Constructed on 18- to 22-gauge cold-rolled steel, each cabinet has a baked-on powder paint finish for superior resistance to corrosive elements. Each cabinet has a two-point (3/8" x 16" spotnut) suspension system for easy installation. The three largest models have four-point suspensions. Generous use of inside cabinet insulation keeps the outer surface temperature low. The wiring junction box is conveniently located on the side of the cabinet for easy access and adequate protection.

WARRANTY – All components have a limited warranty for two full years. The heat exchangers have a limited warranty for one year. Consult the warranty certificate for details.

HED SERIES DUCT FURNACES

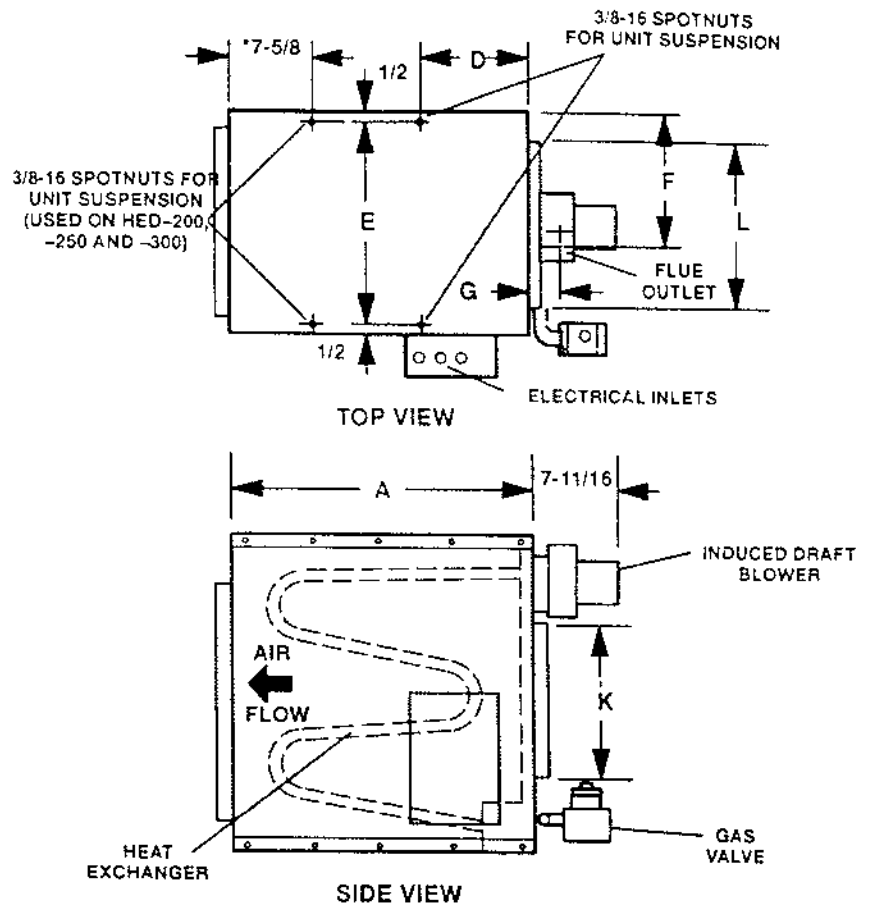
TECHNICAL DATA

MODEL NUMBER: HED -		75	100	125	150	200	250	300
TOTAL INPUT, BTUH*		75,000	100,000	125,000	150,000	200,000	250,000	300,000
TOTAL OUTPUT BTUH		60,000	80,000	100,000	120,000	160,000	200,000	240,000
AIR VOLUME (CFM)	MIN.	640	870	1100	1320	1480	1830	2160
	MAX	2700	3700	4700	5600	4230	5290	6190
TEMPERATURE RISE (DEG. F.)	MIN.	20	20	20	20	35	35	35
	MAX	85	85	85	85	100	100	100
CONDENSATE DRAIN (O.D.)		1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"
SHIP WEIGHT LB.		95	130	135	150	245	260	275
NET WEIGHT LB.		80	115	120	135	230	245	260
FLUE SIZE **		4"	4"	4"	4"	5"	5"	5"
GAS CONNECTION		1/2"	1/2"	1/2"	1/2"	3/4"	3/4"	3/4"

* Ratings shown are for elevations up to 2,000 ft. For elevations above 2,000 ft., ratings should be reduced at the rate of 4% for each 1,000 ft. above sea level.

** Diameter of round pipe - adaptor furnished with heater.

NOTE: Two spotnuts are furnished on HED-75, -100, -125, -150
Four spotnuts are furnished on HED-200, -250, -300



DIMENSIONAL DATA (inches)

MODEL NO. HED -	A	B	C	D	E	F	G	H	J	K	L
HED - 75	26	28-1/4	19-1/2	8-1/2	18-1/2	11-3/4	2-1/2	21-1/8	17-3/8	13-3/8	15
HED - 100, 125	31-5/16	32-3/16	20-3/16	11-1/2	19-1/16	11-3/4	3-1/4	25	18-1/8	15-3/8	15-5/8
HED - 150	31-5/16	32-3/16	23-1/8	11-3/8	23-1/16	8-1/2	3-1/4	25	21-1/8	15-3/8	17-1/8
HED - 200, 250, 300	31-5/16	32-3/16	41-1/8	3-11/16	38-13/16	17-1/2	3-1/2	25	39-1/8	15-3/8	35-1/16

UNIT CLEARANCES (inches)

MODEL NO. HED -	TOP	SIDES	BOTTOM	REAR	FLUE
HED - 75	1	6	2	18	6
REMAINING UNITS	6	6	2	18	6

PERFORMANCE RATINGS

HED - 75		
AIR VOLUME (CFM)	PRESS. DROP (INCHES W. C.)	TEMP. RISE (DEG. F)
800	.01	70
1000	.02	54
1300	.05	42
1600	.07	34
1900	.10	29
2200	.12	25
2400	.15	24
2500	.17	22

HED - 100		
AIR VOLUME (CFM)	PRESS. DROP (INCHES W. C.)	TEMP. RISE (DEG. F)
900	.02	82
1300	.03	57
1700	.06	44
2100	.09	35
2500	.12	30
2900	.15	26
3300	.18	22
3700	.23	20

HED - 125		
AIR VOLUME (CFM)	PRESS. DROP (INCHES W. C.)	TEMP. RISE (DEG. F)
1100	.03	85
1600	.06	59
2100	.11	45
2600	.16	36
3100	.21	30
3600	.26	26
4100	.31	23
4600	.36	20

HED - 150		
AIR VOLUME (CFM)	PRESS. DROP (INCHES W. C.)	TEMP. RISE (DEG. F)
1400	.03	80
2000	.07	56
2600	.12	43
3200	.20	35
3800	.28	30
4400	.37	26
5000	.45	23
5600	.55	20

HED - 200		
AIR VOLUME (CFM)	PRESS. DROP (INCHES W. C.)	TEMP. RISE (DEG. F)
1500	.03	98
2000	.04	74
2500	.07	59
3000	.09	49
3300	.11	45
3500	.13	42
4000	.15	37

HED - 250		
AIR VOLUME (CFM)	PRESS. DROP (INCHES W. C.)	TEMP. RISE (DEG. F)
2000	.05	91
2500	.08	73
3000	.11	61
3500	.13	52
4000	.17	46
4500	.19	41
5000	.23	37

HED - 300		
AIR VOLUME (CFM)	PRESS. DROP (INCHES W. C.)	TEMP. RISE (DEG. F)
2200	.07	98
2800	.11	77
3400	.14	64
4000	.18	54
4600	.23	47
5200	.26	42
5800	.31	37
6200	.33	35

