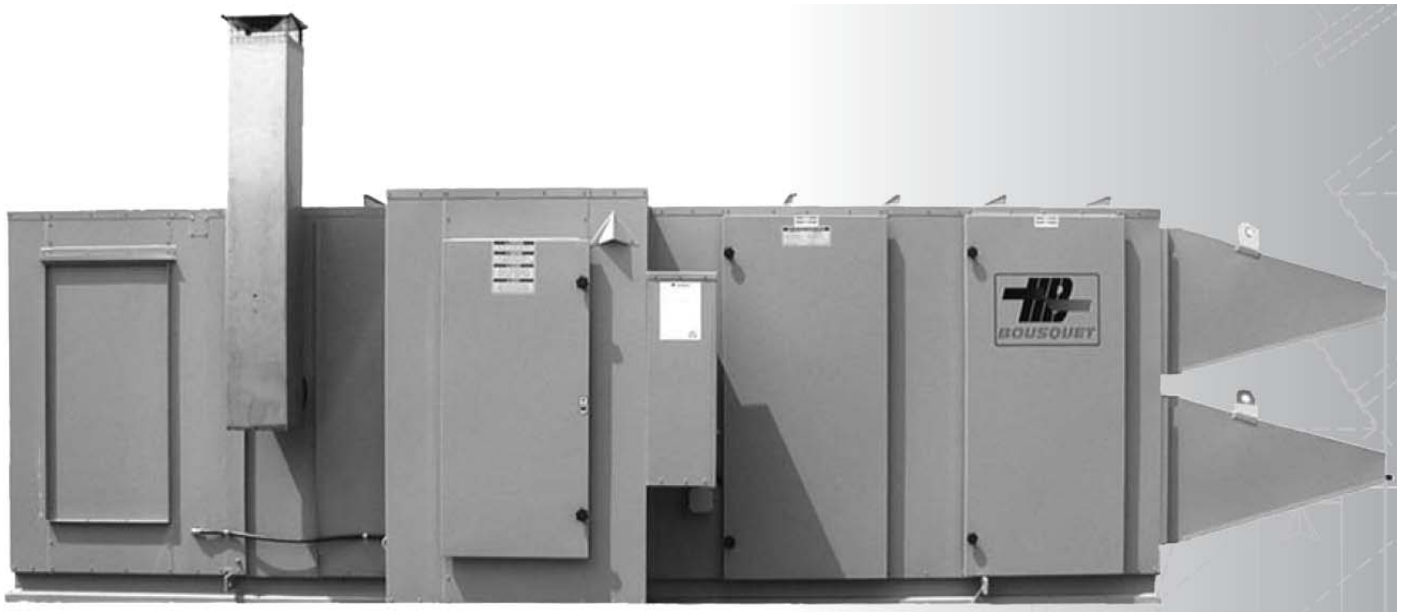


## INDIRECT OIL-FIRED AIR HEATERS

### HDO(H) SERIES OIL INDOOR OR OUTDOOR INSTALLATION



## ***SPECIFICATIONS MANUAL***

## TABLE OF CONTENTS

<b>TABLE OF CONTENTS</b> .....	<b>2</b>
1. DESCRIPTION.....	3
2. APPLICATIONS.....	3
3. SELECTION CRITERIA .....	4
4. INSTALLATION GUIDELINES .....	5
5. SELECTION TABLE.....	6
6. DIMENSIONS .....	13
7. ROOF CURB .....	17
8. WEIGHT TABLE .....	18
9. OPTIONS.....	19
10. REMOTE CONTROL PANEL (optional) .....	20
11. CHARACTERISTICS .....	21
12. TYPICAL SPECIFICATIONS .....	22

## 1. DESCRIPTION

The HDO(H) indirect oil-fired duct furnace manufactured by **BOUSQUET** are sturdy and of industrial quality. They are certified for both indoor and outdoor installation and designed to serve as a heating element in ventilation systems with or without air recycling. They operate with a minimum thermal efficiency of 80% and use oil #1 or #2 as fuel. The capacities available range from 400 to 5000 MBH (from 117 to 1464 kW) and from 5291 to 66138 SCFM (from 2497 to 31213 l/s) of air at temperature rise of 70°F to 120°F (39°C to 67°C), which enables flexibility of use for multiple applications.

The multiple pass heat exchanger comprises a primary drum and secondary tubes made of 316 grade stainless steel requiring no thermal treatment to prevent the cracking of welded joints. In addition, 300 series stainless steel is known for its great resistance to corrosion and high temperatures, which increases the service life of the unit. The heat exchanger is equipped with access panels for the inspection and cleaning of the tubes. It is installed as to enable the thermal expansion that occurs during the heating cycles of the unit. The forced draft and oil burner offers optimal heat transfer on all the surfaces of the heat exchanger while maintaining optimal combustion efficiency through the entire range of capacity.

The support frame of the unit is sturdy and consists of welded steel channels. The sides and top are of 2-inch thick double wall construction, with panels made of 18 gauge G90 galvanized steel with double folded edges for structural rigidity and the liner is made of 22 gauge G90 galvanized steel. The unit cabinet is insulated with 2-inch thick high temperature insulation with a density of 1.02lb/ft<sup>3</sup>. For outdoor installation, a weatherproof cabinet is provided to enclose the burner, piping, controls and electrical components. The external surfaces of the device can be processed (optional) with a primer based on epoxy anticorrosive and finishing is ensured by using a high performance enamel alkyd resin grade. All HDO(H) duct furnace are cETLus approved and are certified according to standards CSA B140.0, CSA B140.4 and UL 727 latest revision.

## 2. APPLICATIONS

- Fresh air compensation with or without recirculation:
  - Apartment building corridors;
  - Schools;
  - Hospitals;
  - Industries.
- Industrial and commercial warm air heating systems;
- Ventilation unit cooling, recirculation and/or economiser cycle.

### **3. SELECTION CRITERIA**

#### **1. Capacity**

- Airflow (CFM);
- External static pressure;
- Air temperature rise;
- Final air temperature.

#### **2. Type of installation**

- Indoor;
- Outdoor.

#### **3. Control location**

- On the left-hand or right-hand side of the heater (when facing the airflow).

#### **4. Configuration du débit d'air**

- Horizontal air flow (standard);
- Vertical air flow (downward or upward);
- 100% fresh air;
- 100% recirculated air;
- Modulation (recirculated/fresh air).

#### **5. Temperature control**

- Electronic controller with integral temperature sensor;
- Electronic controller for a 0-10 VDC or 4-20 mA external signal.

#### **6. Remote controls (optional)**

- Basic or Deluxe control panel;
- Room thermostat.

#### **7. Other options**

- Low limit temperature sensor;
- Lighting;
- Power outlets;
- Switches;
- Main power disconnect.

## 4. INSTALLATION GUIDELINES

The installer of a duct furnace such as the HDO(H) must follow certain rules in order to comply with the codes governing oil equipment. Here are some recommendations:

- The final air temperature should be controlled by a duct thermostat located downstream of the duct heater;
- Allow for sufficient clearance around the unit to enable its installation and maintenance.

For indoor installation:

- The chimney must satisfy the following requirements:
  - Have double walls;
  - Be certified for positive pressure units (type **PS**);
  - Be **cULus** certified.
- Ensure that there is enough air for the combustion in the room where the air heater is installed (refer to code in effect);
- Ensure that the combustion air is clean and free of dust or corrosive material that could reduce the service life of the unit.

For chimney and breaching dimensions, consult the manufacturer.

For any other information related to the installation of the HDO(H) air heater, refer to the installation and service manual pertaining to these units.

## 5. SELECTION TABLE

Using the selection table below, choose the HDO(H) air heater according to the required airflow and net heating capacity.

Model HDO(H)	Burner capacity		Net capacity		Airflow *			
	MBTU/H	kW	MBTU/H	kW	PCM		L/s	
40	500	146	400	117	3086	5291	1457	2497
50	625	183	500	146	3858	6614	1821	3121
55	688	201	550	161	4244	7275	2003	3433
65	813	238	650	190	5015	8598	2367	4058
75	938	275	750	220	5787	9921	2731	4682
85	1063	311	850	249	6556	11243	3095	5306
100	1250	366	1000	293	7716	13228	3642	6243
125	1563	458	1250	366	9645	16534	4552	7803
150	1875	549	1500	439	11574	19841	5462	9364
175	2188	641	1750	512	13503	23148	6373	10925
200	2500	732	2000	586	15432	26455	7283	12485
250	3125	915	2500	732	19290	33069	9104	15607
300	3750	1098	3000	878	23148	39683	10925	18728
350	4375	1281	3500	1025	27006	46296	12745	21849
400	5000	1464	4000	1171	30864	52910	14566	24971
500	6250	1830	5000	1464	38580	66138	18202	31213

**\*Note :**

For a temperature rise of 70 °F to 120 °F (39 °C to 67 °C).  
 For smaller or larger amounts of CFM, consult the manufacturer.

MOTOR HORSEPOWER (HP) <sup>1</sup>											
Model	Delta T (°F)	Airflow	Fan	External static pressure in inches of water <sup>2</sup>							
		PCM		0.25	0.5	0.75	1	1.25	1.5	1.75	2
HDO(H) 40	120	3070	15-11	0.78	0.93	1.09	1.26	1.43	1.61	1.8	***
	100	3710		1.03	1.2	1.38	1.56	1.75	1.96	2.13	2.33
	90	4120		1.35	1.55	1.75	1.95	2.15	2.36	2.57	2.78
	80	4630		2.07	2.09	2.31	2.53	2.76	2.98	3.22	3.45
	70	5290		2.79	2.97	3.22	3.47	3.72	3.98	4.24	4.5
HDO(H) 50	120	3840	15-15	0.98	1.17	1.39	1.63	***	***	***	***
	100	4630		1.3	1.52	1.75	1.98	2.22	2.47	2.72	2.99
	90	5150		1.74	1.98	2.23	2.49	2.75	3.01	3.28	3.56
	80	5790		2.39	2.66	2.93	3.22	3.51	3.8	4.1	4.4
	70	6620		3.49	3.79	4.1	4.41	4.74	5.07	5.4	5.73
HDO(H) 55	120	4220	15-15	1.19	1.34	1.56	1.8	2.05	2.32	***	***
	100	5100		1.59	1.82	2.06	2.31	2.57	2.83	3.01	3.37
	90	5660		2.11	2.36	2.62	2.9	3.18	3.46	3.75	4.04
	80	6370		2.94	3.21	3.5	3.8	4.11	4.43	4.75	5.07
	70	7280		4.31	4.61	4.92	5.26	5.6	5.96	6.31	6.67
HDO(H) 65	120	4990	(2) 12-12	1.34	1.56	1.84	2.14	2.48	***	***	***
	100	6020		1.58	1.86	2.16	2.48	2.8	3.16	3.52	3.88
	90	6690		2.22	2.54	2.88	3.22	3.56	3.88	4.32	4.72
	80	7530		2.9	3.24	3.6	3.96	4.34	4.74	5.14	5.56
	70	8600		4.2	4.6	5	5.4	5.82	6.26	6.7	7.14
HDO(H) 75	120	5760	(2) 12-12	1.64	1.92	2.22	2.54	2.88	3.22	3.6	***
	100	6950		2.22	2.54	2.88	3.22	3.56	3.94	4.32	4.72
	90	7720		2.96	3.32	3.68	4.04	4.42	4.82	5.22	5.64
	80	8680		4.1	4.5	4.9	5.32	5.72	6.16	6.6	7.04
	70	9920		5.96	6.42	6.88	7.36	7.82	8.2	8.78	9.28
HDO(H) 85	120	6530	(2) 12-12	2.04	2.36	2.68	3.02	3.36	3.72	4.1	4.5
	100	7870		2.7	3.08	3.44	3.8	4.18	4.56	4.96	5.38
	90	8750		3.62	4.04	4.44	4.84	5.26	5.68	6.1	6.54
	80	9840		5.02	5.48	5.94	6.4	6.96	7.32	7.78	8.26
	70	11250	(2) 15-15	4.7	5.18	5.68	6.2	6.76	7.32	7.78	8.26

- Note :
1. Motor brake horsepower does not include the loss caused by pulley and belt friction (add 5%).
  2. Internal static pressure includes the static pressure lost through the air intake, dampers, 2-inches filters (30%) and heat exchanger.
- \*\*\* For other fan selections, consult the manufacturer.

MOTOR HORSEPOWER (kW) <sup>1</sup>											
Model	Delta T (°F)	Airflow	Fan	External static pressure in Pa <sup>2</sup>							
		l/s		62	124	187	249	311	373	251	498
HDO(H) 40	67	1458	15-11	0.58	0.69	0.82	0.94	1.06	1.2	1.34	***
	56	1751		0.77	0.89	1.03	1.16	1.3	1.46	1.59	1.74
	50	1944		1	1.16	1.3	1.45	1.6	1.76	1.92	2.07
	44	2185		1.54	1.56	1.72	1.89	2.06	2.22	2.4	2.57
	39	2497		2.08	2.21	2.4	2.59	2.77	2.97	3.16	3.36
HDO(H) 50	67	1812	15-15	0.73	0.87	1.03	1.22	***	***	***	***
	56	2185		0.97	1.13	1.3	1.48	1.66	1.84	2.03	2.23
	50	2431		1.3	1.48	1.66	1.86	2.05	2.24	2.45	2.65
	44	2733		1.78	1.98	2.18	2.4	2.62	2.83	3.06	3.28
	39	3124		2.6	2.83	3.06	3.29	3.53	3.78	4.03	4.27
HDO(H) 55	67	1992	15-15	0.89	1	1.16	1.34	1.53	1.73	***	***
	56	2407		1.19	1.36	1.54	1.72	1.92	2.11	2.24	2.51
	50	2671		1.57	1.76	1.95	2.16	2.37	2.58	2.8	3.01
	44	3006		2.19	2.39	2.61	2.83	3.06	3.3	3.54	3.78
	39	3436		3.21	3.44	3.67	3.92	4.18	4.44	4.71	4.97
HDO(H) 65	67	2355	(2) 12-12	1	1.16	1.37	1.6	1.85	***	***	***
	56	2841		1.18	1.39	1.61	1.85	2.09	2.36	2.62	2.89
	50	3157		1.66	1.89	2.15	2.4	2.65	2.89	3.22	3.52
	44	3554		2.16	2.42	2.68	2.95	3.24	3.53	3.83	4.15
	39	4059		3.13	3.43	3.73	4.03	4.34	4.67	5	5.32
HDO(H) 75	67	2718	(2) 12-12	1.22	1.43	1.66	1.89	2.15	2.4	2.68	***
	56	3280		1.66	1.89	2.15	2.4	2.65	2.94	3.22	5.52
	50	3643		2.21	2.48	2.74	3.01	3.3	3.59	3.89	4.21
	44	4097		3.06	3.36	3.65	3.97	4.27	4.59	4.92	5.23
	39	4682		4.44	4.79	5.13	5.49	5.83	6.11	6.55	6.92
HDO(H) 85	67	3082	(2) 12-12	1.52	1.76	2	2.25	2.51	2.77	3.05	3.56
	56	3714		2.01	2.3	2.57	2.83	3.12	3.4	3.7	4
	50	4130		2.7	3.01	3.31	3.61	3.92	4.24	4.55	4.88
	44	4644		3.74	4.09	4.43	4.77	5.19	5.46	5.8	6.16
	39	5309	(2) 15-15	3.5	3.86	2.24	4.62	5.04	3.09	3.29	3.49

- Note :
1. Motor brake horsepower does not include the loss caused by pulley and belt friction (add 5%).
  2. Internal static pressure includes the static pressure lost through the air intake, dampers, 2-inches filters (30%) and heat exchanger.
- \*\*\* For other fan selections, consult the manufacturer.



MOTOR HORSEPOWER (HP) <sup>1</sup>											
Model	Delta T (°F)	Airflow	Fan	External static pressure in inches of water <sup>2</sup>							
		PCM		0.25	0.5	0.75	1	1.25	1.5	1.75	2
HDO(H) 100	120	7680	(2) 15-11	2.28	2.62	2.98	3.36	3.74	4.14	4.54	4.96
	100	9260		3.06	3.46	3.88	4.3	4.72	5.14	5.6	6.04
	90	10290		4.08	4.52	4.98	5.44	5.9	6.38	6.86	7.34
	80	11580		5.66	6.18	6.68	7.2	7.72	8.24	8.76	9.3
	70	13230	(2) 18-13	5.42	6	6.62	7.24	7.88	8.54	9.22	9.92
HDO(H) 125	120	9600	(2) 18-13	2.46	2.92	3.4	3.9	4.44	4.98	5.56	***
	100	11580		3.24	3.74	4.32	4.8	5.36	5.94	6.54	7.18
	90	12860		4.34	4.88	5.44	6.02	6.64	7.26	7.9	8.56
	80	14470		6.04	6.62	7.24	7.88	8.54	9.22	4.95	5.28
	70	16540	(2) 18-18	7.3	8.06	8.82	9.62	10.4	11.2	12.1	12.9
HDO(H) 150	120	11520	(2) 18-18	2.98	3.54	4.1	4.7	5.34	6	6.66	7.36
	100	13890		3.94	4.58	5.22	5.88	6.56	7.26	7.98	8.72
	90	15440		5.24	5.94	6.66	7.38	8.12	8.86	9.64	10.4
	80	17360		7.26	8.04	8.84	9.64	10.4	11.3	12.1	13
	70	19840	(2) 20-15	9.72	10.6	11.6	12.5	13.5	14.5	15.6	16.6
HDO(H) 175	120	13440	(2) 20-15	3.66	4.14	5.02	5.76	6.56	7.38	8.26	***
	100	16210		4.98	5.72	6.5	7.28	8.12	8.98	9.88	10.8
	90	18010		6.62	7.44	8.28	9.14	10	10.9	11.9	12.9
	80	20260		9.2	10.1	11.1	12	13	14	15	16
	70	23150		13.4	14.5	15.5	16.6	17.7	18.8	19.9	21
HDO(H) 200	120	15360	(2) 20-15	4.64	5.36	6.1	6.88	7.7	8.56	9.44	10.4
	100	18520		6.54	7.38	8.22	9.08	9.96	10.9	11.8	12.8
	90	20580		8.72	9.66	10.6	11.5	12.5	13.5	14.5	15.5
	80	23150		12.2	13.2	14.2	15.3	16.4	17.4	18.5	19.7
	70	26460	(2) 20-20	13.8	15.2	16.5	17.9	19.3	20.7	22.2	23.6
HDO(H) 250	120	19200	(2) 20-20	5.76	6.74	7.76	8.82	9.92	11.1	12.2	13.4
	100	23150		7.98	9.08	10.2	11.4	12.6	13.9	15.1	16.5
	90	25720		10.6	11.8	13.1	14.4	15.7	17.1	18.4	19.8
	80	28940	(2) 22-22	14.8	16.2	17.6	19	20.4	21.9	23.4	24.9
	70	33070		17.4	19	20.7	22.3	24.1	25.8	27.8	29.5

- Note :
1. Motor brake horsepower does not include the loss caused by pulley and belt friction (add 5%).
  2. Internal static pressure includes the static pressure lost through the air intake, dampers, 2-inches filters (30%) and heat exchanger.
- \*\*\* For other fan selections, consult the manufacturer.

MOTOR HORSEPOWER (kW) <sup>1</sup>											
Model	Delta T (°F)	Airflow l/s	Fan	External static pressure in Pa <sup>2</sup>							
				62	124	187	249	311	373	251	498
HDO(H) 100	67	3625	(2) 15-11	1.7	1.95	2.22	2.51	2.79	3.09	3.39	3.7
	56	4370		2.28	2.58	2.89	3.21	3.52	3.82	4.18	4.5
	50	4856		3.04	3.37	3.71	4.06	4.4	4.76	5.12	5.47
	44	5465		4.22	4.61	4.98	5.37	5.76	6.14	6.53	6.94
	39	6244	(2) 18-13	4.04	4.47	4.94	5.4	5.88	6.37	6.88	7.4
HDO(H) 125	67	4531	(2) 18-13	1.83	2.18	2.54	2.9	3.31	3.71	4.15	***
	56	5465		2.42	3.79	3.22	3.58	4	4.43	4.88	5.35
	50	6069		3.24	3.64	4.06	4.49	4.95	5.41	5.89	6.38
	44	6829		4.5	4.94	5.4	5.88	6.37	6.88	3.69	3.94
	39	7806	(2) 18-18	5.44	6.01	6.58	7.17	7.76	8.37	8.99	9.63
HDO(H) 150	67	5437	(2) 18-18	2.22	2.64	3.06	3.5	3.48	4.47	4.97	5.49
	56	6555		2.94	3.42	3.89	4.38	4.89	5.41	5.95	6.5
	50	7287		3.91	4.43	4.97	5.5	6.06	6.61	7.19	7.79
	44	8193		5.41	6	6.59	7.19	7.79	8.41	9.04	9.68
	39	9364	(2) 20-15	7.25	7.93	8.64	9.35	10.1	10.8	11.6	12.4
HDO(H) 175	67	6343	(2) 20-15	2.73	3.09	3.74	4.3	4.89	5.5	6.16	***
	56	7650		3.71	4.27	4.85	5.43	6.06	6.7	7.37	8.07
	50	8500		4.94	5.55	7.17	6.82	7.47	8.16	8.86	9.59
	44	9562		6.86	7.55	8.25	8.95	9.66	10.4	11.2	12
	39	10926	10	10.8	11.6	12.4	13.2	14	14.8	15.7	
HDO(H) 200	67	7249	(2) 20-15	3.46	4	4.55	5.13	5.74	6.38	7.04	7.74
	56	8740		4.88	5.5	6.13	6.77	7.43	8.11	8.81	9.53
	50	9713		6.5	7.2	7.74	8.59	9.31	10	10.8	11.6
	44	10926		9.07	9.84	10.6	11.4	12.2	13	13.8	14.7
	39	12488	(2) 20-20	10.3	11.3	12.3	13.3	14.4	15.4	16.5	17.6
HDO(H) 250	67	9061	(2) 20-20	4.3	5.02	5.79	6.58	7.4	8.25	9.11	10
	56	10926		5.98	6.77	7.64	8.52	9.41	10.4	11.3	12.3
	50	12138		7.93	8.83	9.77	10.7	11.7	12.7	13.7	14.8
	44	13658	(2) 22-22	11.1	12.1	13.1	14.1	15.2	16.3	17.5	18.6
	39	15607		13	14.2	15.4	16.7	17.9	19.3	20.8	22

- Note :
1. Motor brake horsepower does not include the loss caused by pulley and belt friction (add 5%).
  2. Internal static pressure includes the static pressure lost through the air intake, dampers, 2-inches filters (30%) and heat exchanger.
- \*\*\* For other fan selections, consult the manufacturer.

MOTOR HORSEPOWER (HP) <sup>1</sup>											
Model	Delta T (°F)	Airflow	Fan	External static pressure in inches of water <sup>2</sup>							
		PCM		0.25	0.5	0.75	1	1.25	1.5	1.75	2
HDO(H) 300	120	23040	(2) 22-20	7.06	8.14	9.3	10.5	11.7	13	14.4	15.8
	100	27780		10.1	11.4	12.7	14	15.3	16.7	18.2	19.7
	90	30870		13.5	14.9	16.3	17.8	19.3	20.8	22.3	23.9
	80	34730	(2) 25-25	18.9	20.4	22	23.6	25.2	26.9	12	12.8
	70	39690		20.6	22.5	24.4	26.4	28	15.4	16.2	17
HDO(H) 350	120	26880	(2) 25-20	8.36	9.66	11	12.3	13.7	15.1	16.5	18
	100	32410		12	13.5	15	16.6	18.1	19.7	21.3	23
	90	36010		16	17.7	19.4	21.2	22.9	24.6	26.4	28.1
	80	40510	(2) 28-25	22.3	24.2	26.1	28	29.9	31.9	33.8	35.8
	70	46300		22.9	25.1	27.4	28.7	32	34.4	36.9	18.3
HDO(H) 400	120	30720	(2) 25-25	7.44	8.78	10.2	11.6	13.1	14.7	16.4	18.1
	100	37040		13.1	14.1	16.7	18.5	20.3	22.1	24	25.9
	90	41160		17.4	19.4	21.4	23.4	25.4	27.4	29.5	31.5
	80	46300	(2) 28-28	24.3	26.5	28.7	31	33.2	35.5	37.7	40
	70	52910		27.6	30.2	32.8	35.4	38.1	40.8	43.6	46.3
HDO(H) 500	120	38400	(2) 28-28	11.5	13.4	15.3	17.3	19.4	21.4	23.6	25.8
	100	46300		16	18.2	20.5	22.8	25.1	27.5	29.9	32.3
	90	51440		21.3	23.8	26.3	28.8	31.4	34	36.6	39.2
	80	57870	(2) 32-32	29.6	32.4	35.2	38	40.8	43.7	46.6	21.3
	70	66140		34.8	37.8	40.9	44.2	47.4	50.8	54.2	28.5

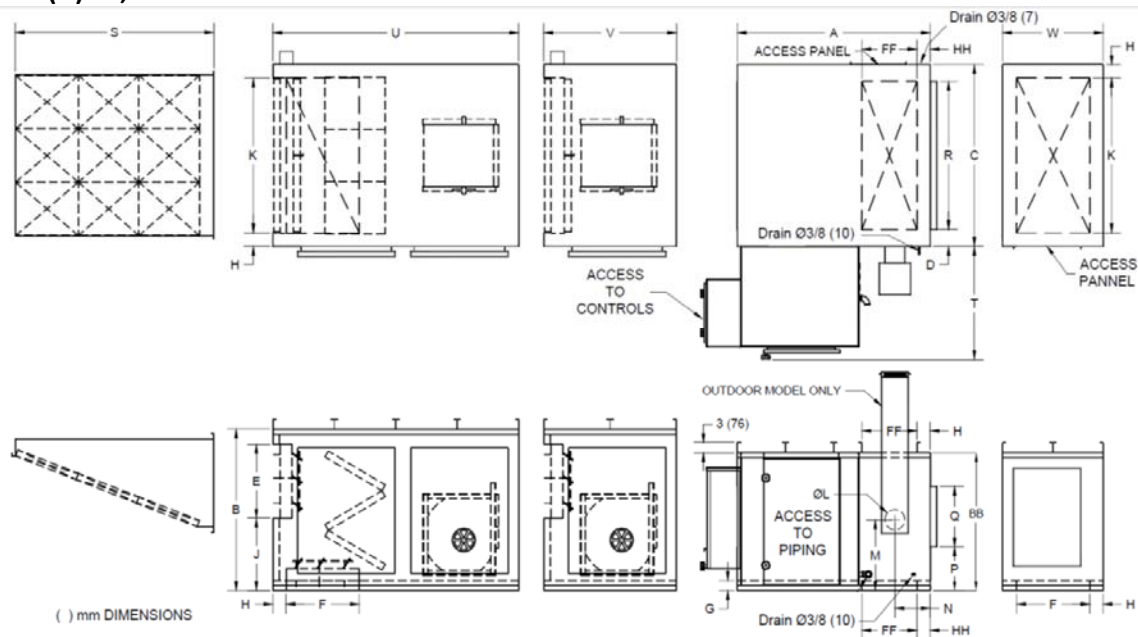
- Note :
1. Motor brake horsepower does not include the loss caused by pulley and belt friction (add 5%).
  2. Internal static pressure includes the static pressure lost through the air intake, dampers, 2-inches filters (30%) and heat exchanger.
- \*\*\* For other fan selections, consult the manufacturer.

MOTOR HORSEPOWER (kW) <sup>1</sup>											
Model	Delta T (°F)	Airflow	Fan	External static pressure in Pa <sup>2</sup>							
		l/s		62	124	187	249	311	373	251	498
HDO(H) 300	67	11043	(2) 22-20	5.26	6.07	6.94	7.81	8.75	9.72	10.7	11.8
	56	13111		7.53	8.49	9.44	10.4	11.4	12.5	13.6	14.7
	50	14569		10.1	11.1	12.2	13.3	14.4	15.5	16.6	17.8
	44	16391	(2) 25-25	14.1	15.2	16.4	17.6	18.8	20.1	8.98	9.54
	39	18732		15.3	16.8	18.2	19.7	20.9	11.5	12.1	12.7
HDO(H) 350	67	12685	(2) 25-20	6.23	7.2	8.17	9.16	10.2	11.2	12.3	13.4
	56	15296		8.92	10.1	11.2	12.4	13.5	14.7	15.9	17.1
	50	16995		12	13.2	14.5	15.8	17.1	18.3	19.7	21
	44	19119	(2) 28-25	16.6	18	19.5	20.9	22.3	24.8	25.2	26.7
	39	21851		17.1	18.7	20.4	21.4	23.9	25.7	27.5	13.7
HDO(H) 400	67	14498	(2) 25-25	5.55	6.55	7.59	8.67	9.8	11	12.2	13.5
	56	17481		9.75	10.5	12.4	13.8	15.1	16.5	17.9	19.3
	50	19425		13	14.5	16	17.5	18.9	20.5	22	23.5
	44	21851	(2) 28-28	18.1	19.8	21.4	23.1	24.8	26.5	28.1	29.8
	39	24971		20.6	22.5	24.5	26.4	28.4	30.4	32.5	34.5
HDO(H) 500	67	18122	(2) 28-28	8.56	9.98	11.4	12.9	14.4	16	17.6	19.2
	56	21851		11.9	13.6	15.3	17	18.7	20.5	22.3	24.1
	50	24277		15.9	17.7	19.6	21.5	23.4	25.3	27.3	29.3
	44	27312	(2) 32-32	22.1	24.1	26.2	28.3	30.5	32.6	34.8	15.9
	39	31215		26	28.2	30.5	32.9	32.9	35.4	37.9	21.2

- Note :
1. Motor brake horsepower does not include the loss caused by pulley and belt friction (add 5%).
  2. Internal static pressure includes the static pressure lost through the air intake, dampers, 2-inches filters (30%) and heat exchanger.
- \*\*\* For other fan selections, consult the manufacturer.

## 6. DIMENSIONS

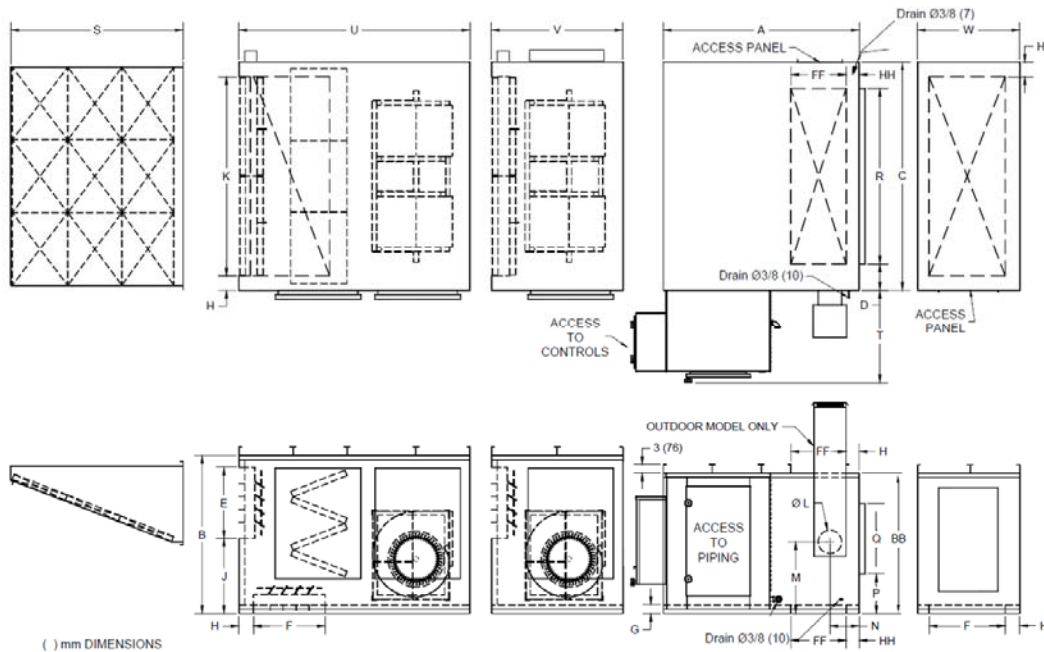
### Models HDO(H) 40, 50 and 55



	HDO(H) 40		HDO(H) 50		HDO(H) 55	
	in	mm	in	mm	in	mm
<b>Filters in air intake</b>	(6) 16x25	(6) 406x635	(6) 16x25	(6) 406x635	(6) 16x25	(6) 406x635
<b>Filters in "V" section</b>	(6) 20x25	(6) 508x635	(6) 20x25	(6) 508x635	(6) 20x25	(6) 508x635
A	58	1473	58	1473	58	1473
B	48	1219	48	1219	48	1219
BB	41	1041	41	1041	41	1041
C	54	1372	54	1372	54	1372
D	5	127	5	127	5	127
E	22	559	22	559	22	559
F	22	559	22	559	22	559
FF	14	356	14	356	14	356
G	3	76	3	76	3	76
H	4	102	4	102	4	102
HH	5	127	5	127	5	127
J	21.5	546	21.5	546	21.5	546
K	46	1168	46	1168	46	1168
L	6	152	6	152	6	152
M	21	533	21	533	21	533
N	10.6	270	10.6	270	10.6	270
P	12	305	12	305	12	305
Q	18	457	18	457	18	457
R	44	1118	44	1118	44	1118
S	50	1270	50	1270	50	1270
T	34	864	34	864	34	864
U	74	1880	74	1880	74	1880
V	45	1143	45	1143	45	1143
W	30	762	30	762	30	762

- Note :
1. Filters area is calculated for an air flow corresponding to a 70oF temperature rise.
  2. The length and width of the curb area are ½ inch smaller than those of the unit; the curb is 17 inches high.
  3. The controls shown are on left-hand side of the unit (controls on the right-hand side are also available).

**Models HDO(H) 65, 75, 85 and 100**

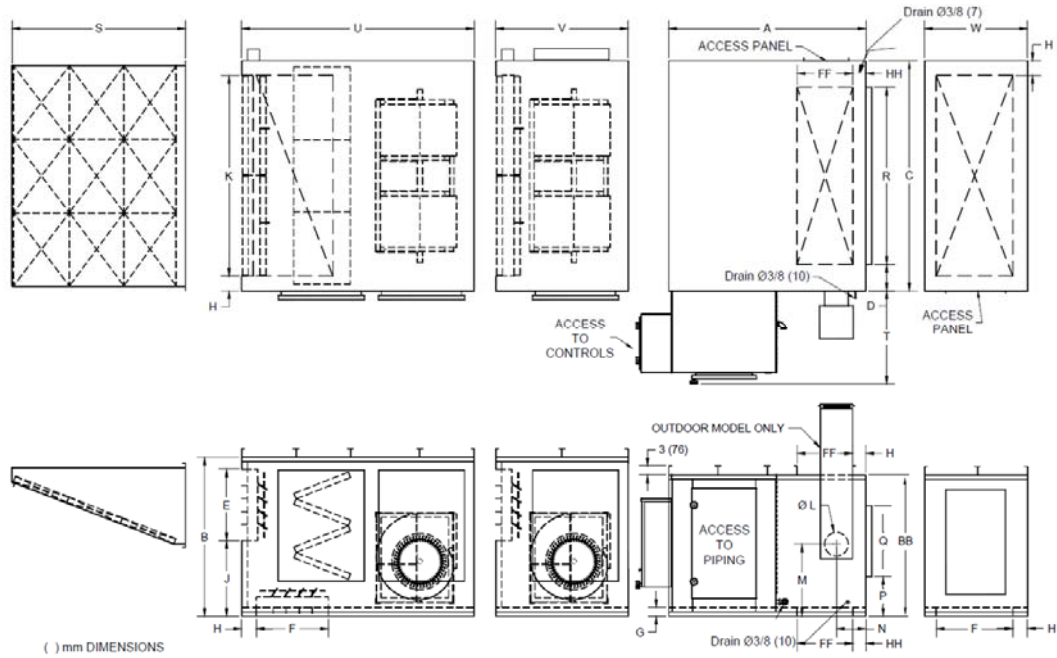


( ) mm DIMENSIONS

	HDO(H) 65		HDO(H) 75		HDO(H) 85		HDO(H) 100	
	in	mm	in	mm	in	mm	in	mm
<b>Filters in air intake</b>	(6) 20x25	(6) 508x635	(6) 20x25	(6) 508x635	(6) 20x25	(6) 508x635	(6) 20x25	(6) 508x635
	(3) 20x20	(3) 508x508	(3) 20x20	(3) 508x508	(3) 20x20	(3) 508x508	(3) 20x20	(3) 508x508
<b>Filters in "V" section</b>	(6) 20x25	(6) 508x635	(6) 20x25	(6) 508x635	(12) 20x25	(12) 508x635	(12) 20x25	(12) 508x635
	(3) 20x20	(3) 508x508	(3) 20x20	(3) 508x508				
A	58	1473	58	1473	67	1702	67	1702
B	49	1245	49	1245	56	1422	56	1422
BB	42	1067	42	1067	50	1270	50	1270
C	74	1880	74	1880	78	1981	78	1981
D	7	178	7	178	9	229	9	229
E	22	559	22	559	26	660	26	660
F	22	559	22	559	26	660	26	660
FF	18	457	18	457	20	508	20	508
G	4	102	4	102	5	127	5	127
H	4	102	4	102	5	127	5	127
HH	5	127	5	127	5	127	5	127
J	22	559	22	559	21.5	546	21.5	546
K	66	1676	66	1676	68	1727	68	1727
L	8	203	8	203	8	203	8	203
M	22	559	22	559	26.5	673	26.5	673
N	9.8	248	9.8	248	10.0	254	10.0	254
P	13	330	13	330	14.5	368	14.5	368
Q	18	457	18	457	24	610	24	610
R	60	1524	60	1524	60	1524	60	1524
S	59.8	1518	59.8	1518	62.5	1588	62.5	1588
T	34	864	34	864	32	813	32	813
U	74	1880	74	1880	82	2083	82	2083
V	45	1143	45	1143	45	1143	45	1143
W	30	762	30	762	35	889	35	889

- Note :
1. Filters area is calculated for an air flow corresponding to a 70oF temperature rise.
  2. The length and width of the curb area are ½ inch smaller than those of the unit; the curb is 17 inches high.
  3. The controls shown are on left-hand side of the unit (controls on the right-hand side are also available).

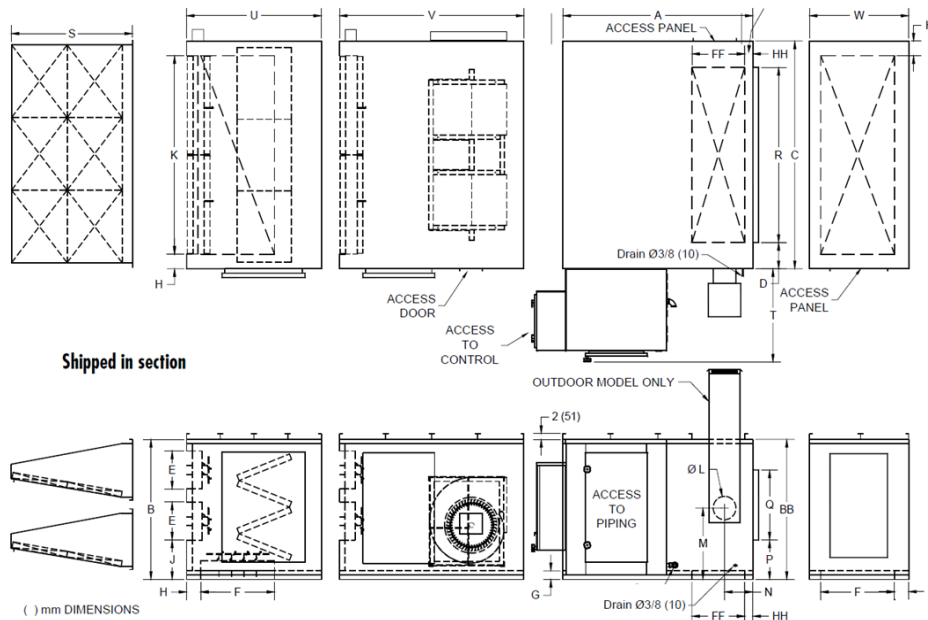
Models HDO(H) 125, 150, 175, 200 and 250.



	HDO(H) 125		HDO(H) 150		HDO(H) 175		HDO(H) 200		HDO(H) 250	
	in	mm	in	mm	in	mm	in	mm	in	mm
Filters in air intake	(6) 16x20	(6) 406x508	(6) 16x20	(6) 406x508	(6) 16x20	(6) 406x508	(32) 16x20	(32) 406x508	(32) 16x20	(32) 406x508
	(18) 16x25	(18) 406x635	(18) 16x25	(18) 406x635	(18) 16x25	(18) 406x635	(8) 16x25	(8) 406x635	(8) 16x25	(8) 406x635
Filters in "V" section	(15) 20x25	(15) 508x635	(15) 20x25	(15) 508x635	(15) 20x25	(15) 508x635	(32) 16x20	(32) 406x508	(32) 16x20	(32) 406x508
	(5) 20x20	(5) 508x508	(5) 20x20	(5) 508x508	(5) 20x20	(5) 508x508	(8) 16x25	(8) 406x635	(8) 16x25	(8) 406x635
A	74	1880	74	1880	74	1880	77	1956	77	1956
B	63	1600	63	1600	63	1600	76	1930	76	1930
BB	63	1600	63	1600	63	1600	76	1930	76	1930
C	98	2489	98	2489	98	2489	108	2743	108	2743
D	8.5	216	8.5	216	8.5	216	6	152	6	152
E	18	457	18	457	18	457	23	584	23	584
F	36	914	36	914	36	914	46	1168	46	1168
FF	26	660	26	660	26	660	26	660	26	660
G	5	127	5	127	5	127	6	152	6	152
H	5	127	5	127	5	127	5	127	5	127
HH	5	127	5	127	5	127	5	127	5	127
J	13	330	13	330	13	330	16	406	16	406
K	88	2235	88	2235	88	2235	98	2489	98	2489
L	8	203	8	203	8	203	10	254	10	254
M	33	838	33	838	33	838	40	1016	40	1016
N	9.6	244	9.6	244	9.6	244	10.9	276	10.9	276
P	21	533	21	533	21	533	28	711	28	711
Q	24	610	24	610	24	610	24	610	24	610
R	81	2057	81	2057	81	2057	96	2438	96	2438
S	49	1245	49	1245	49	1245	64	1626	64	1626
T	32	813	32	813	32	813	36	914	36	914
U	94	2388	94	2388	94	2388	105	2667	105	2667
V	52	1321	52	1321	52	1321	55	1397	55	1397
W	45	1143	45	1143	45	1143	55	1397	55	1397

- Note :
1. Filters area is calculated for an air flow corresponding to a 70oF temperature rise.
  2. The length and width of the curb area are ½ inch smaller than those of the unit; the curb is 17 inches high.
  3. The controls shown are on left-hand side of the unit (controls on the right-hand side are also available).

**Models HDO(H) 300, 350, 400 and 500.**

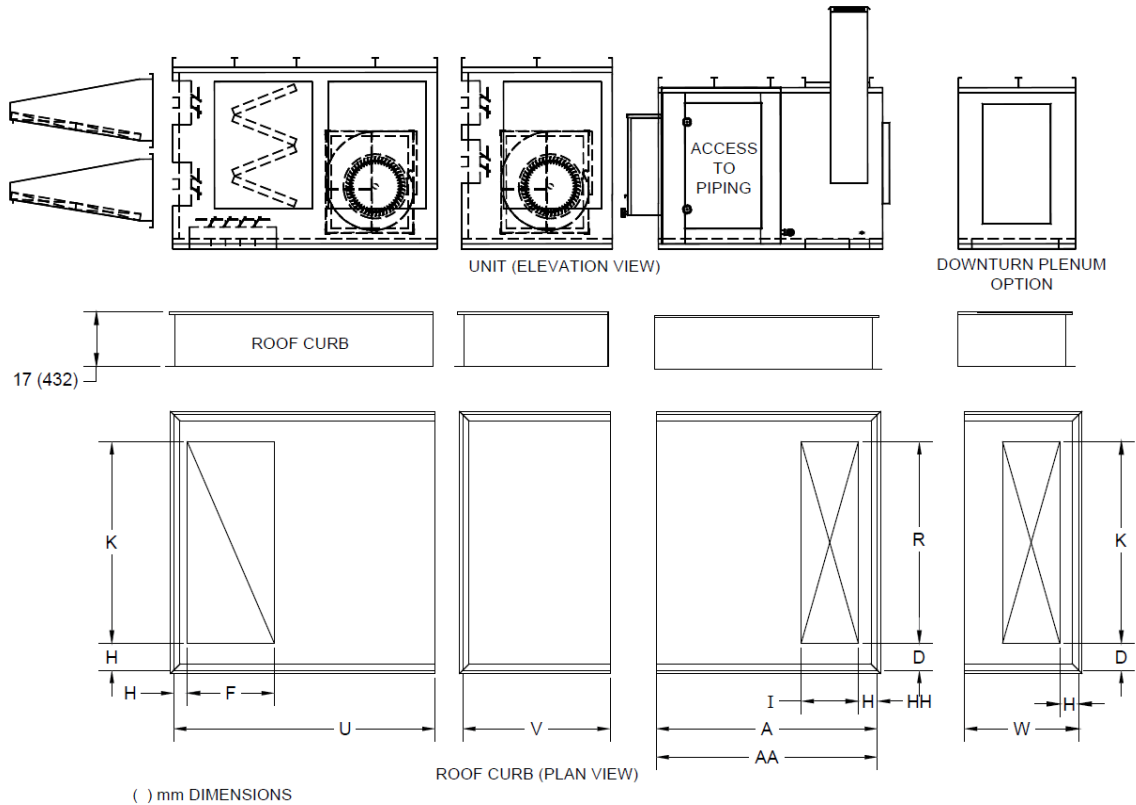


	HDO(H) 300		HDO(H) 350		HDO(H) 400		HDO(H) 500	
	in	mm	in	mm	in	mm	in	mm
Filters in air intake	(30) 16x25	(30) 406x635	(30) 16x25	(30) 406x635	(28) 20x25	(28) 508x635	(28) 20x25	(28) 508x635
	(6) 16x20	(6) 406x508	(6) 16x20	(6) 406x508	(14) 20x20	(14) 508x508	(14) 20x20	(14) 508x508
Filters in "V" section	(30) 16x25	(30) 406x635	(30) 16x25	(30) 406x635	(35) 20x25	(35) 508x635	(35) 20x25	(35) 508x635
	(6) 16x20	(6) 406x508	(6) 16x20	(6) 406x508	(7) 20x20	(7) 508x508	(7) 20x20	(7) 508x508
A	106	2692	106	2692	106	2692	106	2692
AA	114	2896	114	2896	129	3277	129	3277
B	78	1981	78	1981	84	2134	90	2286
BB	78	1981	78	1981	84	2134	90	2286
C	150	3810	150	3810	150	3810	150	3810
D	9	229	9	229	9	229	9	229
E	23	584	23	584	32	813	32	813
F	46	1168	46	1168	64	1626	64	1626
FF	30	762	30	762	44	1118	44	1118
G	6	152	6	152	6	152	6	152
H	5	127	5	127	5	127	5	127
HH	5	127	5	127	5	127	5	127
J	23	584	23	584	17	432	17	432
K	140	3556	140	3556	140	3556	140	3556
L	10	254	10	254	12	305	12	305
M	41	1041	41	1041	44	1118	47	1194
N	12.1	308	12.1	308	11.1	283	11.1	283
P	29	737	29	737	32	813	35	889
Q	24	610	24	610	24	610	24	610
R	132	3353	132	3353	132	3353	132	3353
S	48	1219	48	1219	71	1803	71	1803
T	36	914	36	914	39	991	39	991
U	63	1600	63	1600	82	2083	82	2083
V	84	2134	84	2134	95	2413	95	2413
W	55	1397	55	1397	74	1879.6	74	1880

- Note :
- Filters area is calculated for an air flow corresponding to a 70oF temperature rise.
  - The length and width of the curb area are ½ inch smaller than those of the unit; the curb is 17 inches high.
  - The controls shown are on left-hand side of the unit (controls on the right-hand side are also available).



## 7. ROOF CURB



	HDO(H)		HDO(H)		HDO(H)		HDO(H)		HDO(H)		HDO(H)		HDO(H)		HDO(H)	
	40, 50, 55		65, 75		85, 100		125, 150, 175		200, 250		300, 350		400		500	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
A	57.75	1467	57.75	1467	63.75	1619	73.75	1873	76.75	1949	105.8	2686	105.8	2686	105.8	2686
AA	-	-	-	-	-	-	-	-	-	-	113.8	2889	128.8	3270	128.8	3270
C	53.5	1359	73.5	1867	77.5	1969	97.5	2477	107.5	2731	149.5	3797	149.5	3797	149.5	3797
D	4.75	121	6.75	171	8.75	222	8.25	210	5.75	146	8.75	222	8.75	222	8.75	222
F	22	559	22	559	26	660	36	914	46	1168	46	1168	64	1626	64	1626
H	3.75	95	3.75	95	4.75	121	4.75	121	4.75	121	4.75	121	4.75	121	4.75	121
I	14	356	18	457	20	508	26	660	26	660	30	762	44	1118	44	1118
K	46	1168	66	1676	68	1727	88	2235	98	2489	140	3556	140	3556	140	3556
R	44	1118	60	1524	60	1524	81	2057	96	2438	132	3353	132	3353	132	3353
U	73.75	1873	73.75	1873	81.75	2076	93.75	2381	104.8	2661	62.75	1594	81.75	2076	81.75	2076
V	44.75	1137	44.75	1137	44.75	1137	51.75	1314	54.75	1391	83.75	2127	94.75	2407	94.75	2407
W	30	762	30	762	35	889	45	1143	55	1397	55	1397	74	1880	74	1880

## 8. WEIGHT TABLE

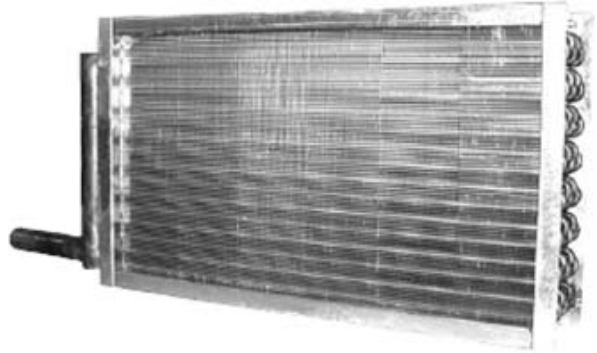
MODEL	AIR INTAKE HOOD		FRESH AIR WITH RECIRCULATION		100% FRESH AIR SECTION		EXCHANGER SECTION		PLENUM SECTION	
	Lbs	kg	Lbs	kg	Lbs	kg	Lbs	kg	Lbs	kg
HDO(H) 40	114	52	1805	819	1466	665	1746	792	526	239
HDO(H) 50	114	52	1805	819	1466	665	1746	792	526	239
HDO(H) 55	114	52	1805	819	1466	665	1746	792	526	239
HDO(H) 65	148	67	2113	958	1697	770	2194	995	665	302
HDO(H) 75	148	67	2113	958	1697	770	2194	995	665	302
HDO(H) 85	222	101	2651	1202	2100	953	2895	1315	863	391
HDO(H) 100	222	101	2651	1202	2100	953	2895	1315	863	391
HDO(H) 125	352	160	3873	1757	3086	1400	4136	1876	1387	629
HDO(H) 150	352	160	3873	1757	3086	1400	4136	1876	1387	629
HDO(H) 175	352	160	3873	1757	3086	1400	4136	1876	1387	629
HDO(H) 200	478	217	5181	2350	4121	1868	5093	2310	1908	865
HDO(H) 250	478	217	5181	2350	4121	1869	5093	2310	1908	865
HDO(H) 300	652	296	7921	3593	6292	2854	7453	3381	2486	1128
HDO(H) 350	652	296	7921	3593	6292	2854	7453	3381	2486	1128
HDO(H) 400	897	407	9882	4482	7660	3475	7583	3440	3066	1391
HDO(H) 500	897	407	9882	4482	7660	3475	8105	3676	3066	1391

- Note :
1. The weight includes the "V" filter section.
  2. Optional discharge plenum is used to turn the air flow for either up, down or side discharge. Up and down discharge are also available without the turn plenum.

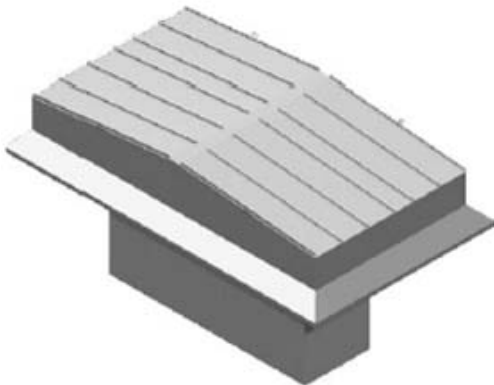
## 9. OPTIONS



Package with Dx Condensing Unit  
(up to 100 tons)



Cooling or Recovery Coils



Mushroom air intake



Lighting fixture

## 10. REMOTE CONTROL PANEL (optional)



### Base remote panel :

#### Standard equipment :

- Stop/fan/burner Switch;
- Fan operation light;
- Burner operation light;
- Connecting terminal block.

#### Optional equipment :

- Temperature selector (seperatly).



### Deluxe remote panel :

#### Standard equipment :

- Stop/start fan switch;
- Stop/start burner switch;
- Fan operation light;
- Burner operation light;
- Flame failure light;
- Connecting terminal block.

#### Optional equipment:

- Discharge air low limit light;
- Clogged filter light;
- Purge cycling completed light;
- Temperature selector;
- Key lock.

**Note :** For any other option or feature, contact the manufacturer.

## 11. CHARACTERISTICS

### CARACTÉRISTIQUES STANDARDS :

- cETLus listed;
- Fuel oil #1 or #2;
- Single stage burner;
- Heat exchanger with 316 stainless steel drum and tubes;
- Main power supply (575 volts/3 phases/60 cycles);
- Connecting terminal block;
- All the electric and mechanical components required for the proper operation of the unit;
- Pre-purge period;
- All safety controls;
- Galvanized 18 awg outer panels and galvanized 22 awg inner panels;
- 2-inch thick (51 mm) high temperature insulation with a 1.02lb/ft<sup>3</sup> density;
- Lifting lugs on both sides of the unit for easy handling and installation;
- Access panel to the exchanger tubes (for cleaning purposes);
- Supply air temperature controller.

### OPTIONAL FEATURES :

- Two stages or modulating burner;
- Partial or complete stainless steel construction;
- Electric power supply (208, 460 volts/3 phases/60 cycles);
- Main power supply disconnect with or without fuses;
- Controls and wiring required to interface with a centralized building automation system;
- Modulation controller with 0-10 VDC or 4-20 mA signal from a central building automation system;
- Room thermostat;
- Maintenance vestibule and platform;
- Double wall construction (2", 3" or 4" thick);
- 120-volt electrical outlet;
- Waterproof lighting fixture;
- Space for coils;
- Coils (cooling, heat recovery, etc).

**Note :** Refer to manufacturer for other options.

## 12. TYPICAL SPECIFICATIONS

### GENERAL

Supply and install a Bousquet Technologies Inc model HDO(H)\_\_\_\_\_ indirect oil-fired air heater for indoor or outdoor installation. The manufacturer must be accredited by the CWB to certify that he complies with standard CSA W47.1 regarding all types of welds including those on a stainless steel heat exchanger.

### PERFORMANCE

The air heater will have the capacity to heat \_\_\_\_\_ CFM of standard air from \_\_\_\_\_°F to \_\_\_\_\_°F, for a net heat output of \_\_\_\_\_ MBH at a minimum combustion efficiency of 80%. The fuel used will be fuel oil at an inlet pressure of \_\_\_\_\_ psig.

### UNIT CONSTRUCTION

The support frame will be made of structural steel. The walls and roof will be made of 18 gauges G90 galvanized steel panels with double folded longitudinal edges. A PVC gasket will be installed between each panel with an external urethane based caulking shall be provided to ensure for unit water tightness. The single wall units be insulated with a one inch anti-bacterial "Fiber duct liner with reinforced coating". The exchanger section is double wall construction with a 2-inch thick high temperature insulation with a density of 1.02lb/ft<sup>3</sup> and covered with a 22 awg galvanized steel liner. The waterproof control cabinet shall have one large access door to allow for the maintenance of piping and electric components.

### HEAT EXCHANGER

The multiple pass heat exchanger will consist of a primary drum and secondary tubes, entirely made of 316 grade stainless steel requiring no thermal treatment to prevent the cracking of welded joints and providing great resistance to corrosion and high temperatures, for longer service life of the unit. The heat exchanger will be equipped with access panels for tube inspection and cleaning. 400 series stainless steel, aluminized steel or carbon steel heat exchangers are not acceptable.

### BURNER AND OIL PIPING

The burner will be of a forced draft type, factory-installed on the exchanger with all piping and control wiring required for the proper operation of the unit.

### FAN SECTION

The fan section will be designed according to the Air Movement and Control Association standards. The fan and motor will be installed on a steel structure welded in compliance with the Canadian Welding Bureau standards and rest on anti-vibration isolators. An access door will be installed to enable the maintenance of the fan, motor, bearings, belts and pulleys. The motor will be open drip proof (ODP), thermally protected with superior efficiency; it will be installed on a base to enable belt alignment and tension. The fan will be a forward-curved blade type (FC), double width, double inlet (DWDI).

## **FILTER AND DAMPER SECTION**

Dampers will be of standard construction, galvanized steel blades equipped with electric actuators and limit switch. The filters will be disposable, 2-inch thick, 30% efficient. An access door will allow for the inspection and changing of the filters.

### **BURNER CONTROL MODE** (select one of the following options):

- G1 for 100% outside air: Final air temperature is controlled by a 0-10 volts or 4-20 ma signal provided by other.
- G2 for 100% outside air: Final air temperature is controlled by a temperature controller and sensor supplied with the unit.
- G3 for Make-Up air and heating application, with recirculation: Final air temperature is controlled by two temperature controllers sensor and room thermostat supplied with the unit. One of the controllers will be set for 70°F supply air temperature; the other controller is set for 130°F supply air temperature; the room thermostat selects the 70°F controller when room temperature is satisfied and the 130°F controller when heat is required.

### **AIR CONTROL MODE** (select one of the following options):

- V1: Damper actuators and signal are provided by others.
- V2-A for 100% outside air: ON/OFF damper actuator supplied with the unit.
- V2-B for outside and return air: Modulating dampers actuators supplied with the unit, but controlled by others.
- V2-C for outside and return air: Modulating damper actuators supplied with the unit and internally controlled with a minimum fresh air potentiometer.

### **REMOTE CONTROL PANEL (option)**

A remote control panel will be supplied by the manufacturer to turn the unit on or off from a remote location. It will be equipped with a blower/burner on-off switch and indicating lights.

## **CERTIFICATION**

All HDO(H) air heater must be cETLus approved and certified according to standards CSA B140.0, CSA B140.4 and UL 727.

## **OPTIONS**

The duct furnace will be equipped with the following options:  
(List other required options.)