REZNOR®
Model UDBS

Separated Combustion, High Static Blower Type Unit Heaters for Commercial/Industrial Use

CSA 2.6b

ANSI Z83.8b

DESCRIPTION

Reznor® V3 Series Model UDBS gas-fired separated combustion unit heaters are available in 14 sizes ranging from 30,000 to 400,000 BTUH gas input. Model UDBS heaters are designed for 82-83% thermal efficiency and are approved for commercial/industrial installations in the United States and Canada by the Canadian Standards Association (CSA).

Reznor V3 Series unit heaters have a refreshing new appearance with a glossy white cabinet finish and less visible hardware. Each size cabinet is easily suspended from four suspension points. The low voltage terminal strip on the outside of the cabinet makes connecting control wiring easy with no panels to remove. The addition of a "G" terminal to the low voltage strip, along with the new design of the circuit board, allows for blower only operation (without adding relays). All units have a factory installed gas line nipple to the exterior of the cabinet for easy gas service connection.

The preeminent new internal feature is the TCORE² heat exchanger and single burner combustion system. Other standard features include a single-stage gas valve, multi-try direct spark ignition with timed lockout, pressure switch to verify vent flow, resiliently isolated venter motor, venter wheel with improved housing, a high temperature limit control, interlock door switch, and a built-in disconnect switch. Sizes 30-125 are equipped with a centrifugal blower and direct drive motor with multispeed taps. Sizes 30 and 45 are capable of handling up to .5" w.c. of external static pressure; Sizes 60-125 will handle up to .75" w.c. of external static pressure. Sizes 150-400 are equipped with a centrifugal blower with an adjustable belt drive and motor. All units are designed for use with optional 30° and 60° downturn nozzles with horizontal and vertical louvers. Operation is controlled through an integrated circuit board. The circuit board monitors heater operation and has LED diagnostic indicator lights to identify abnormalities in control functions.

The 1ST ever separated combustion system in the commercial/industrial heating industry **was introduced on a Reznor heater** in the 1960s, and that proven technology is continued in this new separated combustion product. Model UDBS separated combustion units require installation of a specially designed combustion air/vent system including the unique concentric adapter box that allows for only one building penetration for both the vent and combustion air.

The V3 Series unit heaters are designed to provide all the features you expect in a Reznor heater plus improved efficiency, easier installation, and a new look ***~ both inside and out.*** Look for the unique white unit with no visible front and bottom hardware, deep red louvers, black side handle, and angled corner to know you have a genuine Reznor unit by Thomas & Betts.

STANDARD FEATURES

- Certified for commercial/industrial heating applications
- 82-83% Thermal efficient ***~ TOP in its class!***
- 45-75°F Rise range - Sizes 30-350 50-80°F Rise range - Size 400
- TCORE² titanium stabilized aluminized steel heat exchanger
- Patented [A] single burner combustion system including a one-piece burner assembly
- 115/1/60 Supply voltage
- 115 Volt open dripproof blower motor with internal overload protection - Sizes 30-125
- 115 Volt open dripproof blower motor with internal overloads and definite purpose motor contactor - Sizes 150-400
- Direct drive blower with multispeed taps - Sizes 30-125
- Adjustable belt drive blower - Sizes 150-400
- Transformer for 24-volt controls
- Integrated circuit board with diagnostic indicator lights
- Blower relay (included on the circuit board)
- Multi-try direct spark ignition with timed lockout
- Single-stage natural gas valve (field adjustable for operation to 9,000 ft. elevation ◎)
- Vibration/noise isolated venter motors
- Sealed compartment houses all electrical components
- 4-pt Suspension
- Built-in disconnect switch - Sizes 30-125, 20A@115V rating; Sizes 150-400 30A@115V rating
- External terminal strip for 24-volt wiring
- Sealed junction box for supply wiring
- External gas connection
- Fully gasketed door panel with safety door switch
- Improved cabinet design with less visible hardware

[A] U.S. Patent No. 6,889,686

OPTIONAL FEATURES - FACTORY INSTALLED

- Equipped for propane gas
- Single-stage, propane gas valve (field adjustable for operation to 9,000 ft. elevation [B])
- Two-stage natural gas or propane gas valve - Sizes 60-400
- 409 or 316 Stainless steel heat exchanger
- 208, 230, 480, and 575 Three phase voltage - Sizes 150-400 (step down transformer shipped separate for field installation for 480 and 575 units)
- Adjustable belt drive and motor for up to .5" w.c. external static pressure - Sizes 150-400
- Totally enclosed blower motor - Sizes 150-250
- Belt and blower guards

OPTIONAL FEATURES - FIELD INSTALLED

- Horizontal or Vertical Combustion Air/Vent Kit including concentric adapter [C]
- Thermostat
- Thermostat guard with locking cover
- Vertical louvers
- Downturn nozzle (30° or 60° deflection, with and without vertical louvers)
- Gas conversion kits
- Manual shutoff valves
- High altitude kits (above 6,000 ft. to 9,000 ft.)
- Primary/secondary controls for zoning up to six units
- Duct flange
- Polytube adapters
- Blower and belt guards
- Hanger kits for 1" pipe
- Stepdown transformer (for 208/115, 230/115 or 460/115 supply voltage) - Sizes 30-125

[B] Pressure switch change required for installations above 6,000 ft.
[C] Selection of either a horizontal or vertical combustion air/vent kit is required.

For installations where dirt, dust, and other air borne contamination is present in the indoor environment, it is recommended to use separated combustion units (Model UDBS). These models use air from outside the space for combustion. This will help reduce the build up of contaminates on the burner which would affect the combustion process. Refer to the installation manuals for recommended frequency of maintenance and cleaning.

TECHNICAL DATA

Model UDBS

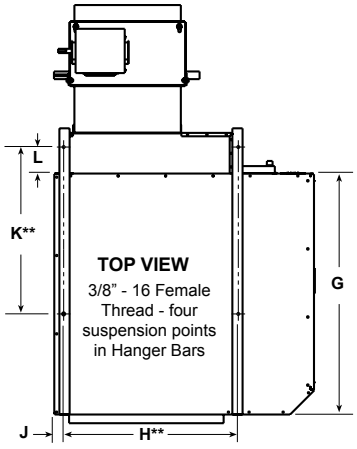
Size		30	45	60	75	100	125	150	175	200	225	250	300	350	400
Input Heating Capacity	BTUH	30,000	45,000	60,000	75,000	105,000	120,000	150,000	175,000	200,000	225,000	250,000	300,000	350,000	400,000
	kw/h	8.8	13.2	17.6	22.0	30.8	35.2	43.9	51.2	58.6	65.9	73.2	87.8	102.5	117.1
Thermal Efficiency (%)		82	82	82	82	83	83	83	83	83	83	83	83	83	82
Output Heating Capacity [D]	BTUH	24,600	36,900	49,200	61,500	87,150	99,600	124,500	145,250	166,000	186,750	207,500	249,000	290,500	328,000
	kw/h	7.2	10.8	14.4	18.0	25.6	29.2	36.4	42.5	48.6	54.7	60.8	72.9	85.1	96.0
Gas Connection (in.) [E]	Natural	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4	3/4
	Propane	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4	3/4
Vent Connection [F] (in. diameter)		4	4	4	4	4	4	5	5	5	5	5	6	6	6
Combustion Air Inlet [F] (in. diameter)		4	4	4	4	4	4	6	6	6	6	6	6	6	6
Control Amps (24 volt)		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
FLA (with standard HP 115V motor)		3.7	3.7	7.1	7.1	13.0	13.0	5.9	6.3	10.5	12.7	12.7	17.7	27.3	27.3
Maximum OCP (115V) [G]		15	15	15	15	30	30	15	15	25	30	30	40	60	60
Normal Power Consumption (watts @ full load, medium speed)		215	215	447	447	537	537	230	415	485	675	675	1260	1635	1635
Minimum Discharge Air Temperature Rise	°F	45	45	45	45	45	45	45	45	45	45	45	45	45	50
Maximum Discharge Air Temperature Rise	°F	75	75	75	75	75	75	75	75	75	75	75	75	75	80
Maximum Air Volume	CFM	506	759	1012	1265	1793	2049	2562	2989	3416	3843	4270	5123	5977	6185
	M^3/min	14.3	21.5	28.7	35.8	50.8	58.0	72.5	84.6	96.7	108.8	120.9	145.1	169.2	175.1
Minimum Air Volume	CFM	304	456	607	759	1076	1230	1537	1793	2049	2306	2562	3074	3586	4100
	M^3/min	8.6	12.9	17.2	21.5	30.5	34.8	43.5	50.8	58.0	65.3	72.5	87.0	101.5	116.1
Discharge Air Opening Area	Ft^2	0.96	0.96	1.25	1.25	2.01	2.01	2.56	2.56	2.56	3.51	3.51	4.79	4.79	4.79
	M^2	0.09	0.09	0.12	0.12	0.19	0.19	0.24	0.24	0.24	0.33	0.33	0.45	0.45	0.45
Maximum Output Velocity	FPM	527	791	810	1012	892	1020	1001	1168	1334	1095	1217	1070	1248	1291
	M^3/min	159	239	239	299	267	305	305	356	407	334	371	326	380	393
Minimum Output Velocity	FPM	316	475	486	607	535	612	600	700	800	657	730	642	749	856
	M^3/min	96	143	143	179	160	183	183	213	244	200	223	196	228	261
Standard Blower Motor HP		1/6	1/6	1/3	1/3	3/4	3/4	1/4	1/2	1/2	3/4	3/4	1-1/2	2	2
Blower Size	inches	9 X 6	9 X 6	9 X 6	9 X 6	10 X 10	10 X 10	12 x 12	12 x 12	12 x 12	15 x 11	15 x 11	15 x 15	15 x 15	15 x 15
Approximate Net Weight	lbs	72	77	89	94	131	136	255	275	275	320	335	375	410	425
	kg	33	35	40	43	59	62	116	125	125	145	152	170	186	193
Approximate Ship Weight	lbs	90	95	110	115	176	181	315	335	335	400	415	475	510	525
	kg	41	43	50	52	80	82	143	152	152	181	188	215	231	238

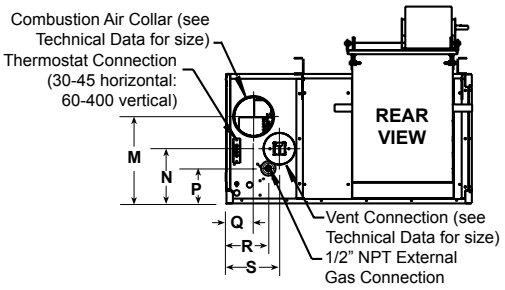
[D] CSA rating for altitudes to 2000 ft.
[E] Size shown is for gas connection to a single stage gas valve, not supply line size.
[F] Smaller and/or larger vent and combustion air pipe diameters may be allowed; refer to the Venting Installation Manual for Separated Combustion Units, Form I-UD-V-SC. If vent diameter is different from vent connection, reducer/enlargers will be field-required.
[G] MOP = 2.25 x largest motor FLA + remaining load. Answer is rounded down to the next size of commercially available circuit breaker or fuse.

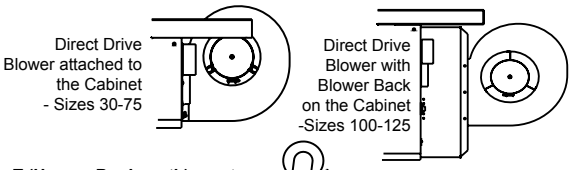
DIMENSIONS

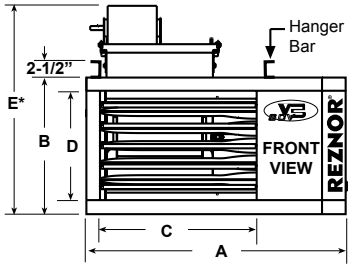
Model UDBS

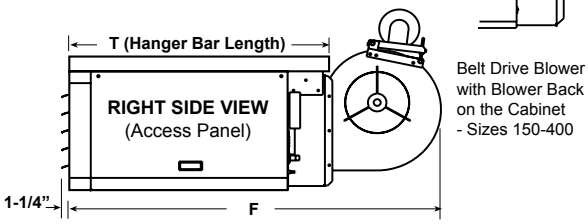
±1/16" (2mm)











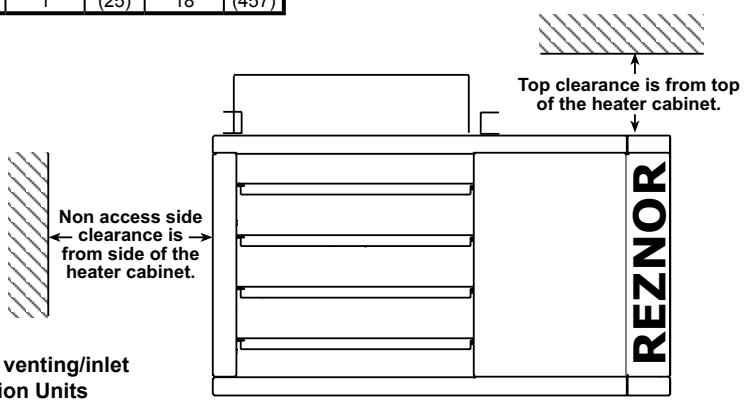
Size	A	B	C	D	E*	F	G	H**	J	K**	L	M	N	P	Q	R	S	T
30, 45	26 5/8	12 1/8	13 13/16	10	16 3/8	36 1/8	21 9/16	17 3/8	11/16	22 1/2	6 1/2	9 3/16	5 3/16	2 11/16	2 7/8	3 7/8	6 1/2	31
60	26 5/8	15 1/8	13 13/16	13	17 7/8	36 1/8	21 9/16	17 3/8	11/16	22 1/2	6 1/2	11 7/8	7 7/8	5 1/2	2 7/8	3 7/8	6 1/2	31
75	26 5/8	15 1/8	13 13/16	13	17 7/8	36 1/8	21 9/16	17 3/8	11/16	22 1/2	5 1/2	11 7/8	7 7/8	5 1/2	2 7/8	3 7/8	6 1/2	31
100	26 5/8	23 1/8	13 13/16	21	23 1/4	43 5/8	21 9/16	17 3/8	11/16	22 1/2	8 1/2	18 1/2	14 1/2	8 3/4	2 7/8	3 7/8	6 7/16	31
125	26 5/8	23 1/8	13 13/16	21	23 1/4	43 5/8	21 9/16	17 3/8	11/16	22 1/2	7 1/2	18 1/2	14 1/2	8 3/4	2 7/8	3 7/8	6 7/16	31
150, 175	38 1/8	20 1/8	23	16	30 9/16	60 1/8	35 3/8	25 5/8	1 5/16	24 1/2	3 7/8	13 1/2	8 1/2	5 7/16	4 1/4	6 1/2	8 1/4	42
200	38 1/8	20 1/8	23	16	30 9/16	60 1/8	35 3/8	25 5/8	1 5/16	24 1/2	3 7/8	14 9/16	9 9/16	5 7/16	4 5/16	6 1/2	8 5/16	42
225, 250	38 1/8	26 1/8	23	22	39 5/8	63 7/16	35 3/8	25 5/8	1 5/16	24 1/2	5 7/8	18 1/16	13 1/16	9	4 5/16	6 1/2	8 5/16	42
300, 350, 400	40 7/8	34 1/8	23	30	42 5/8	63 7/16	35 3/8	27 5/8	1 5/16	23 1/2	3 7/8	22 1/16	17 1/16	11 13/16	4 1/2	7 1/4	8 1/2	42
Size	**A**	**B**	**C**	**D**	**E***	**F**	**G**	**H****	**J**	**K****	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
30, 45	(676)	511	351	254	416	918	548	441	17	572	165	233	132	68	73	98	165	787
60	676	384	351	330	454	918	548	441	17	572	165	302	200	140	73	98	165	787
75	676	384	351	330	454	918	548	441	17	572	140	302	200	140	73	98	165	787
100	676	587	351	533	591	1108	548	441	17	572	216	470	368	222	73	98	164	787
125	676	587	351	533	594	1108	548	441	17	572	191	470	368	222	73	98	164	787
150, 175	968	511	584	406	776	1527	899	651	33	622	98	343	216	138	108	165	210	1067
200	968	511	584	406	776	1527	899	651	33	622	98	370	243	138	110	165	211	1067
225, 250	968	664	584	559	1006	1611	899	651	33	622	149	459	332	229	110	165	211	1067
300, 350, 400	1038	867	584	762	1083	1611	899	702	33	597	98	560	433	300	114	184	216	1067

NOTES: **** Sizes 150-400 - Dimension E varies with motor selection and belt adjustment.***
***** Dimensions H and K are the heater suspension points.***

CLEARANCES FROM COMBUSTIBLES

	Top		Flue Connector		Access Panel [H]		Non-Access Side		Bottom [J]		Rear [K]	
Size	inches	(mm)	inches	(mm)	inches	(mm)	inches	(mm)	inches	(mm)	inches	(mm)
30-125	6	(152)	6	(152)	18	(457)	24	(610)	1	(25)	18	(457)
150-400	14	(356)	6	(152)	18	(457)	24	(610)	1	(25)	18	(457)

[H] Access Panel clearance is required for service clearance to controls
[J] Suspend the heater so that the bottom is a minimum of 5' (1.5M) above the floor.
[K] Rear clearance is measured from the back of the blower.



Refer to Reznor web site www.RezSpec.com for venting/inlet air requirements for Reznor Separated Combustion Units