



## OIL FIRED UPFLOW FURNACE SPECIFICATIONS

MODEL NO.	VHF-ABP / VHF-ABT (BECKETT AFG)			VHF-ACP / VHF-ACT (CARLIN EZ-1HP)		
	High Fire	Med Fire <sup>1</sup>	Low Fire	High Fire	Med Fire <sup>1</sup>	Low Fire
HEATING CAPACITY						
HEAT INPUT RATE (BTUH)	106,250	85,000	70,000	106,250	85,000	70,000
OUTPUT BTUH <sup>2</sup>	90,000	72,000	60,000	90,000	72,000	60,000
SEASONAL EFFICIENCY <sup>3</sup>	85.0%			86.0%		
LARGEST REC A/C <sup>4</sup>	4 Tons			4 Tons		
NOMINAL TEMP RISE	70°	70°	70°	70°	70°	70°
HEAT EXCHANGE AREA						
CASING HEIGHT (IN.):	45"			45"		
CASING WIDTH (IN.):	21"			21"		
CASING DEPTH (IN.):	30"			30"		
NOMINAL FLUE OUTLET DIA.	5"			5"		
APPROX SHIPPING WEIGHT	270			270		
APPROVAL AGENCY	ETL			ETL		
QTY AND SIZE OF PERMANENT FILTERS	(1) 25" X 16" X 1"			(1) 25" X 16" X 1"		
ELECTRICAL REQUIREMENTS	120/60/1			120/60/1		
MAX FUSE SIZE	15			15		
TOTAL CURRENT (AMPS) PSC / ECM	8.7 / 8.5			8.7 / 8.5		
HEIGHT FROM FLOOR TO CENTER OF FLUE	40-11/16"			40-11/16"		
SUPPLY AIR OUTLET SIZE (W-IN. X D-IN.)	19" X 19"			19" X 19"		
RETURN AIR DUCTWORK CONNECTION FLANGE SIZE ON FILTER RACK (D-IN. X H-IN.)	24" X 14-1/4"			24" X 14-1/4"		
RETURN AIR INLET OPENING SIZE IN SIDE CASING (TO BE CUT-OUT BY DEALER) (D-IN. X H-IN.)	23" X 14"			23" X 14"		
FIELD VENT TERMINATION KIT	AOPS8393			N/A		
SIDEWALL VENT ACCESSORIES KIT	AOPS8394			N/A		
COMBUSTION AIR KIT	AOPS8397			AOPS8433		
BLOCKED VENT KIT <sup>5</sup>	AOPS2686			AOPS2686		
PARTS KIT	AOPS2695			-		

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<sup>1</sup> AFUE RATINGS AS SHIPPED

<sup>2</sup> OUTPUT BTUH BASED ON ANNUAL FUEL UTILIZATION EFFICIENCY RATED BY MANUFACTURER.

<sup>3</sup> SEASONAL EFFICIENCY (ALSO CALLED AFUE - ANNUAL FUEL UTILIZATION EFFICIENCY) RATINGS ARE BASED ON TESTS FOLLOWING U.S. DEPARTMENT OF ENERGY TEST PROCEDURES.

<sup>4</sup> TO PERMIT LARGEST RECOMMENDED AIR CONDITIONING (AT .5 STATIC PRESSURE), SELECTION OF THE HIGHEST MOTOR SPEED IS REQUIRED.

ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

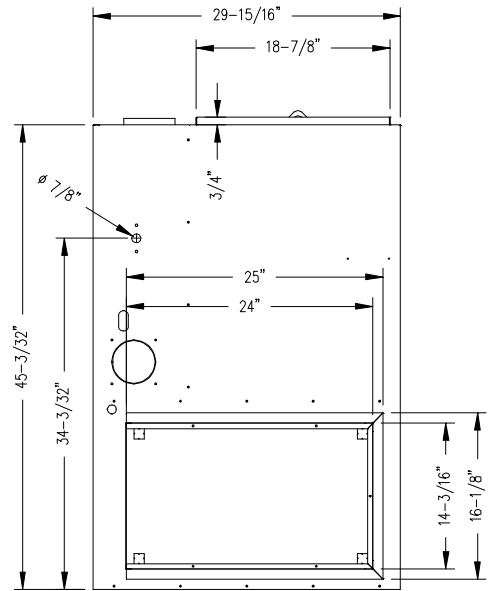
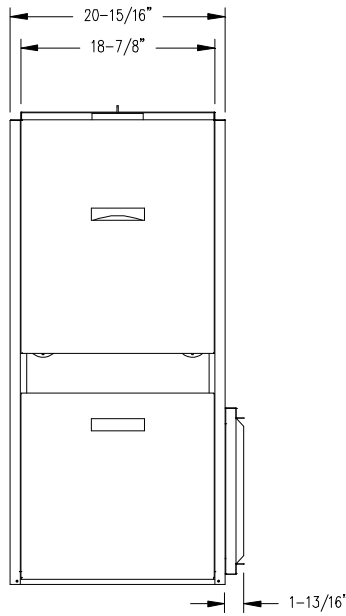
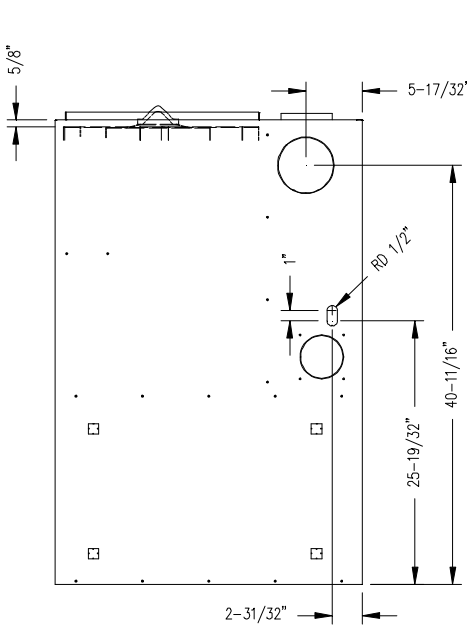
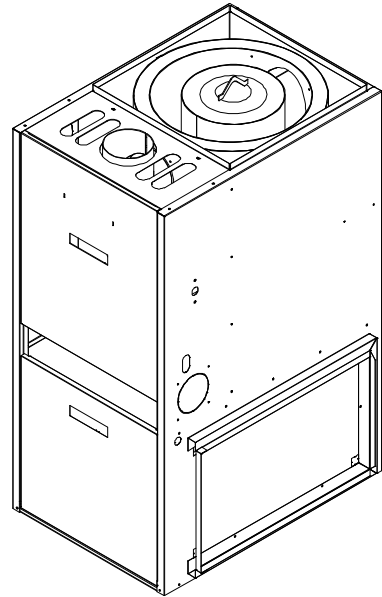
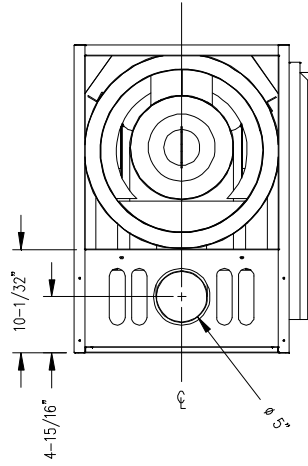
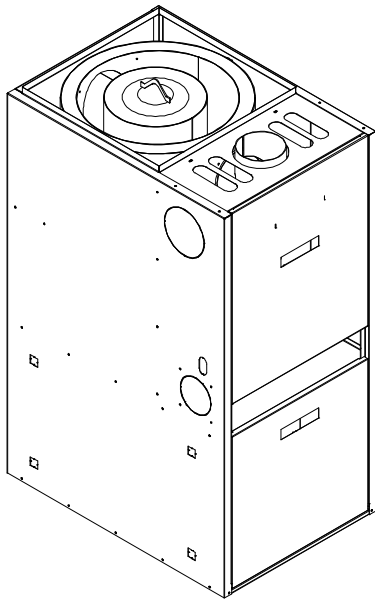
<sup>5</sup> NOT TO BE USED IN SIDEWALL VENT APPLICATIONS, USE ONLY WHEN CHIMNEY VENTED.

## OIL FIRED UPFLOW FURNACE SPECIFICATIONS

Model Number Digit	1	2	3	4	5	6	7
	Series	Configuration	Flue		Design Change	Burner Type	Blower Type
<b>Oil Furnace Model Nomenclature Example Model Numbers</b>	V	H	F	-	A	B	P
	V	H	F	-	A	B	T
<b>V = Spirit, Oil Furnace</b>	V						
<b>H = Highboy</b>		H					
<b>F = Front</b>			F				
				-			
<b>Design Change</b>					A		
<b>Burner Type: B = Beckett AFG, C = Carlin</b>						B	
<b>Motor Type: P = PSC, T = CTM (Constant torque ECM)</b>							P

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## OIL FIRED UPFLOW FURNACE SPECIFICATIONS

<b>BLOWER DATA:</b>	<b>VHF-A*P</b>	<b>VHF-A*T</b>
<b>BLOWER MODEL (DIRECT DRIVE)</b>	<b>10-9R</b>	<b>10-9R</b>
<b>MOTOR H.P.</b>	1/2 HP	1/2 HP
<b>MOTOR TYPE &amp; NUMBER OF SPEEDS</b>	PSC - 4	CTM - 5
<b>HIGH SPEED AIRFLOW (SCFM) @ 0.5 IN. W.G. EXTERNAL STATIC PRESSURE:</b>	1569	1561
<b>Diameter x Width</b>	10 x 9	10 x 9

<b>BURNER DATA</b>	<b>BECKETT "AFG" S - PLATE 3912 (3-5/8U) 31517 CERAMIC</b>		
<b>AIR TUBE LENGTH (IN.)</b>	4 ½"		
<b>BURNER HEAD TYPE:</b>	F-3		
<b>FUEL TYPE:</b>	#2		
<b>NOZZLE RATING (GPH):</b>	.75	.60	.50
<b>SPRAY ANGLE (DEG.):</b>	80°	80°	80°
<b>SPRAY PATTERN:</b>	HOLLOW (A)	HOLLOW (A)	HOLLOW (A)
<b>OIL PUMP PRESSURE (PSIG):</b>	120 PSI		
<b>COMBUSTION CHAMBER TYPE:</b>	REFRACTORY (SOFT CHAMBER)		

<b>BURNER DATA</b>	<b>CARLIN EZ-1HP</b>		
<b>AIR TUBE LENGTH (IN.)</b>	4 ½"		
<b>BURNER HEAD TYPE:</b>	N/A		
<b>FUEL TYPE:</b>	#2		
<b>NOZZLE RATING (GPH):</b>	.75	.60	.50
<b>SPRAY ANGLE (DEG.):</b>	60°	60°	60°
<b>SPRAY PATTERN:</b>	HOLLOW (A)	HOLLOW (A)	HOLLOW (A)
<b>OIL PUMP PRESSURE (PSIG):</b>	120 PSI		
<b>COMBUSTION CHAMBER TYPE:</b>	REFRACTORY (SOFT CHAMBER)		

<b>CLEARANCES</b>	
	<b>MINIMUM CLEARANCES TO COMUSTIBLE MATERIALS:</b>
<b>SIDES</b>	0"
<b>FRONT (SERVICE ACCESS)</b>	24"
<b>REAR</b>	0"
<b>FLUE</b>	7"
<b>TOP PLENUM</b>	1"

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# OIL FIRED UPFLOW FURNACE SPECIFICATIONS

## VHF-A\*P

ALTERATIONS REQ'D FOR A/C @ DESIGN EXTERNAL STATIC PRESSURE				
COOLING UNIT	HTG Speed by Input			Recommended CLG Speed
	Low Fire	Mid Fire	High Fire	
24,000	Low	ML	MH	Low
30,000	Low	ML	MH	Med Low
36,000	Low	ML	MH	Med High
42,000	Low	ML	MH	Med High
48,000	Low	ML	MH	High

Speed Tap\ Static Pressure	Furnace Airflow (CFM) vs. External Static pressure (in. WC.)						
	0.1	0.2	0.3	0.4	0.5	0.6	0.7
Low	930	915	912	910	822	774	730
ML	1155	1152	1130	1126	1085	1042	920
MH	1442	1432	1418	1382	1334	1293	1230
High	1802	1762	1705	1635	1569	1493	1428
Furnace Motor Current Draw (Amps) vs. External Static pressure (in. WC.)							
Low	3.28	3.1	3.02	2.91	2.64	2.49	2.36
ML	4.18	4.02	3.91	3.74	3.59	3.34	2.95
MH	5.44	5.17	4.95	4.72	4.43	4.21	3.95
High	6.61	6.36	6.04	5.73	5.46	5.17	4.9

Speed Tap\ Static Pressure	High Fire Temperature Rise vs. External Static pressure (in. WC.)						
	0.1	0.2	0.3	0.4	0.5	0.6	0.7
Low	90	91	91	92	101	108	114
ML	72	72	74	74	77	80	91
MH	58	58	59	60	62	64	68
High	46	47	49	51	53	56	58

Speed Tap\ Static Pressure	Mid Fire Temperature Rise vs. External Static pressure (in. WC.)						
	0.1	0.2	0.3	0.4	0.5	0.6	0.7
Low	72	73	73	73	81	86	91
ML	58	58	59	59	61	64	72
MH	46	47	47	48	50	52	54
High	37	38	39	41	42	45	47

Speed Tap\ Static Pressure	Low Fire Temperature Rise vs. External Static pressure (in. WC.)						
	0.1	0.2	0.3	0.4	0.5	0.6	0.7
Low	60	61	61	61	68	72	76
ML	48	48	49	49	51	53	60
MH	39	39	39	40	42	43	45
High	31	32	33	34	35	37	39

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# OIL FIRED UPFLOW FURNACE SPECIFICATIONS

## VHF-A\*T

ALTERATIONS REQ'D FOR A/C @ DESIGN EXTERNAL STATIC PRESSURE				
COOLING UNIT	HTG Speed by Input			Recommended CLG Speed (Color)
	Low fire	Mid Fire	High Fire	
24,000	Low	Low / ML	Med	Low (Red)
30,000	Low	Low / ML	Med	ML (Purple)
36,000	Low	Low / ML	Med	Med (Blue)
42,000	Low	Low / ML	Med	MH (Yellow)
48,000	Low	Low / ML	Med	High (Black)

Speed Tap\ Static Pressure	Furnace Airflow (CFM) vs. External Static pressure (in. WC.)						
	0.1	0.2	0.3	0.4	0.5	0.6	0.7
<b>Low</b>	1037	1012	966	889	821	789	738
<b>ML</b>	1221	1172	1139	1116	1037	979	946
<b>MED</b>	1342	1303	1278	1247	1205	1150	1080
<b>MH</b>	1519	1498	1480	1422	1399	1366	1333
<b>High</b>	1681	1650	1622	1582	1561	1544	1519
<b>Motor Current Draw (Amps/Watts) vs. External Static pressure (in. WC.)</b>							
<b>Low</b>	1.5/105	1.6/114	1.7/122	1.8/134	1.8/138	1.9/143	2.0/154
<b>ML</b>	2.1/161	2.2/171	2.3/180	2.4/188	2.6/201	2.7/212	2.8/219
<b>MED</b>	2.7/215	2.9/225	2.9/235	3.1/246	3.2/255	3.3/267	3.5/282
<b>MH</b>	3.9/319	4.0/331	4.2/340	4.2/351	4.3/358	4.5/371	4.6/383
<b>High</b>	5.1/429	5.3/445	5.4/457	5.5/478	5.7/488	5.8/498	5.8/499

Speed Tap\ Static Pressure	High Fire Temperature Rise vs. External Static pressure (in. WC.)						
	0.1	0.2	0.3	0.4	0.5	0.6	0.7
<b>Low</b>	80	82	86	93	101	105	112
<b>ML</b>	68	70	73	74	80	84	87
<b>MED</b>	62	63	65	66	69	72	77
<b>MH</b>	54	55	56	58	59	60	62
<b>High</b>	49	50	51	52	53	54	54
Speed Tap\ Static Pressure	Mid Fire Temperature Rise vs. External Static pressure (in. WC.)						
	0.1	0.2	0.3	0.4	0.5	0.6	0.7
<b>Low</b>	64	66	69	75	81	85	91
<b>ML</b>	55	57	59	60	64	68	71
<b>MED</b>	50	51	52	54	56	58	62
<b>MH</b>	44	45	45	47	48	49	50
<b>High</b>	40	41	41	42	43	43	44
Speed Tap\ Static Pressure	Low Fire Temperature Rise vs. External Static pressure (in. WC.)						
	0.1	0.2	0.3	0.4	0.5	0.6	0.7
<b>Low</b>	52	54	56	61	66	69	74
<b>ML</b>	45	46	48	49	52	56	58
<b>MED</b>	41	42	43	44	45	47	50
<b>MH</b>	36	36	37	38	39	40	41
<b>High</b>	32	33	34	34	35	35	36

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### A/C Evaporator Coil Applications

Furnace Model Number	AC Tonnage	Line Set	Cond. Model Number	Coil Model Number	Capacity	EER	SEER	AHRI Reference Number
VHF-A*P VHF-A*T	2	LS01E-30	TC4B2421H	HE33636PA212 <sup>1</sup>	23000	12.20	14.00	9136135
				HE47636PA212 <sup>1</sup>	23000	12.20	14.50	9136136
		LS01E-50	TC7B2421S	HE33636PA212 <sup>1</sup>	23600	12.50	15.00	9136145
				HE47636PA212 <sup>1</sup>	23600	13.00	16.00	9136146
	2.5	LS01E-30	TC4B3021H	HE33636PA212 <sup>1</sup>	29400	11.70	14.00	9136137
				HE47636PA212 <sup>1</sup>	29400	12.20	14.50	9136138
		LS01E-50	TC7B3021S	HE33636PA212 <sup>1</sup>	28000	12.50	15.00	9136147
				HE47636PA212 <sup>1</sup>	28400	13.00	16.00	9136148
	3	LS01E-30	TC4B3621H	HE33636PA212 <sup>1</sup>	34400	11.70	14.00	9136139
				HE47636PA212 <sup>1</sup>	34600	12.20	14.50	9136140
		LS01E-50	TC7B3621S	HE33636PA212 <sup>1</sup>	34800	12.20	15.00	9136149
				HE47636PA212 <sup>1</sup>	36000	13.00	16.00	9136150
	3.5	LS02E-30	TC7B4221S	-	-	-	-	-
				HE50660PA212 <sup>1</sup>	41500	13.00	16.00	9136152
	4	LS02E-30	TC4B4821H	-	-	-	-	-
				HE50660PA212 <sup>1</sup>	47500	12.20	14.50	9136144
LS02E-50		TC7B4821S	-	-	-	-	-	
			HE50660PA212 <sup>1</sup>	45500	12.50	15.00	9136154	

<sup>1</sup> Will need field supplied transition to connect furnace to cased coil.