



Bulletin LU-1
October 2019
Supersedes LU-1
Dated April 2014

Directflow LU SERIES

INDOOR/OUTDOOR DIRECT GAS-FIRED MAKE-UP SYSTEMS



APPROVED



DIRECT GAS FIRED MAKE-UP AIR HEATERS

TO REPLACE EXHAUST
AIR

TO ELIMINATE
NEGATIVE PRESSURE

TO ELIMINATE
CONTAMINATED AIR

TO ELIMINATE
INFILTRATION

FOR SUMMER
VENTILATION

Natural Gas or
Propane

100% Combustion
Efficiency

Completely Safe

Modulating gas valve
22:1 Turndown
Ratio

Economical to
Operate

Complete Assembled
and Tested

AIR DELIVERIES FROM
2,000 to 20,000 SCFM.
HEAT INPUT FROM
117 to 2690 MBH

LU SERIES SELECTION TABLE

Model	Air Delivery — SCFM	Outlet Velocity — FPM	Approx. Shipping Weight Lbs.	MBH Input								Motor Horsepower				
				Air Temperature Rise—Degrees F								Total Static Pressure (Refer to Notes Below)				
				50	60	70	80	90	100	110	120	3/4"	1"	1 1/4"	1 1/2"	1 3/4"
LU-112	2000	1389	545	117	141	164	188	211	235	258	NA	1/2	3/4	1	1	1 1/2
	3000	2083	550	176	211	247	282	317	352	387	NA	1	1 1/2	1 1/2	1 1/2	2
	4000	2778	555	235	282	329	376	423	470	517	NA	2	2	2	3	3
LU-115	5000	2488	560	293	352	411	470	528	587	646	NA	1 1/2	2	2	2	3
	6000	2985	565	352	423	493	563	634	704	775	NA	3	3	3	3	5
LU-215	7000	1741	835	411	493	565	657	740	822	904	986	1 1/2	2	2	3	3
	8000	1990	840	470	563	657	751	845	939	1033	1127	2	3	3	3	5
	9000	2239	850	528	634	740	845	951	1057	1162	1268	3	3	5	5	5
	10000	2488	850	587	704	822	939	1057	1174	1291	1409	5	5	5	5	7 1/2
	12000	2985	885	704	845	986	1127	1268	1409	1550	1690	7 1/2	7 1/2	7 1/2	10	10
LU-218	14000	2443	1300	822	986	1150	1315	1479	1643	1808	1972	5	7 1/2	7 1/2	7 1/2	7 1/2
	16000	2792	1300	939	1127	1315	1503	1690	1878	2066	2254	7 1/2	7 1/2	10	10	10
	18000	3141	1340	1057	1268	1479	1690	1902	2113	2325	2535	10	10	15	15	15
	20000	3487	1340	1174	1409	1643	1878	2113	2345	2583	2690	15	15	15	15	NA

NOTES: 1. Use Total Static Pressure column that will overcome total system resistance. Approximate pressure drop for component and accessory items: burner 1/2, filter (dirty) 1/4, intake hood 1/8, birdscreen 1/8, discharge louver 1/4". Damper resistance may be ignored.

Standard Equipment

General:

Horizontal unit with choice of HR-1 or HR-2 blower discharge.

Housing:

Heavy gauge aluminized steel, painted exterior casing with heat resistant enamel finish; four lifting lugs.

Burner:

Direct-fired line burner with direct spark for natural gas at inlet pressure from 4 oz. to 1 PSIG. Up to 22:1 turndown ratio. Combustion products are limited to a 5 PPM (parts pr million) of carbon monoxide and 0.5 PPM of NOX. These are the levels accepted

by ANSI standards for Direct-Fired Heating Equipment.

Blowers:

Centrifugal DWDI forward curved fan(s) with one piece blower shaft and self aligning, 200,000 hour greaseable pillowblock ball bearings. Wheels are statically and dynamically balanced. Adjustable drives through 10 HP.

Premium Energy Efficient Motors:

T-frame, ODP prelubricated ball bearing type for all standard voltages.

Base Controls - Factory Wired & Flame Tested:

- Main gas shut-off valve.
- Main gas pressure regulators
- Motorized electric safety shut-off valve.

- Electronic modulating gas valve with discharge air controller and temperature selector dial.
- Motor Starter
- Control Transformer.
- High temperature limit switch.
- Air flow switch. Max and Min.
- Automatic mild weather burner lockout.
- Ignition transformer.
- Electronic flame safeguard system.
- NEMA 1 control box.
- Remote control station with switches and indicating lights.
- Direct Spark Ignition

Options and Accessories

Components:

- Unit weatherproofing including weatherproof service enclosure.
- Inlet or discharge shut-off dampers with motor and end switch (discharge damper recommended for outdoor units).
- Weatherhood with intake birdscreen.
- Filter section less filters.
- Discharge louvers, horizontal or vertical or both for double deflection.
- Vibration Isolators.

- Roof curb & curb adapter frame (for use with weatherproof unit).
- 2" pleated filters or 2" cleanable filters available.

Burners:

Propane or propane standby (LU-112,115 only).

Gas and Electrical Controls:

- FM or IRI approved controls.
- High gas pressure regulator—1 to 60 PSIG.
- Ultra violet flame sensor.
- Low outlet temperature shut-off.
- Gas Pilot Ignition

- Blocked intake switch and light.
- Fused disconnect switch.
- Circuit analyzer with lights.
- 2 position over-riding room thermostat for basic systems.
- Electronic modulating room control includes discharge air monitor and field mounted space temperature selector and sensor.
- Vertical unit blower arrangements with 24" support legs.
- Signal Conditioner to accept 4-20 MA or 0-10VDC Signal for gas valve modulation.

MODEL DESIGNATION

LU—XXX-X-XXX

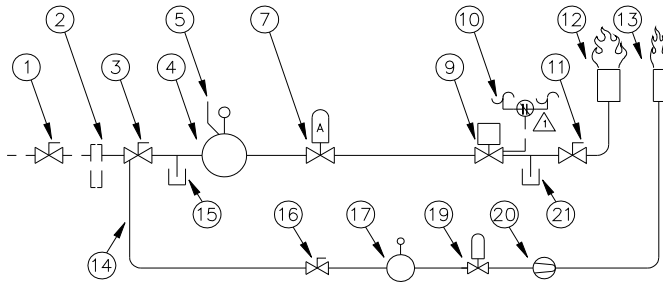
LU Blower Model
112 thru 218

Air Volume:
SCFM/1000

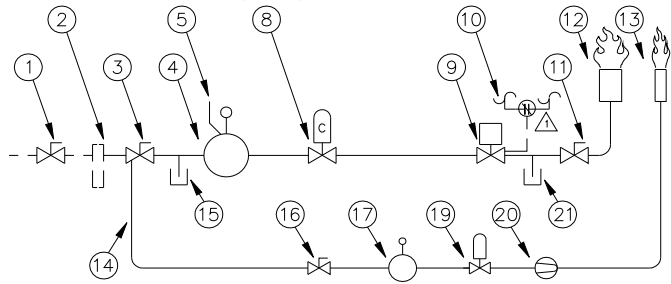
Heating Capacity:
MBH Input

SCHEMATIC PIPING DIAGRAMS

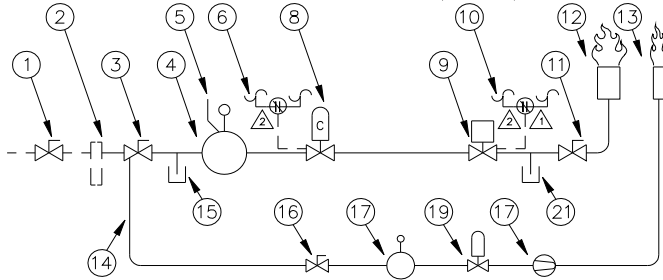
-UNLISTED UNIT 1 MILLION BTU'S & UNDER
 -FM UNDER 400,000 - UNLISTED



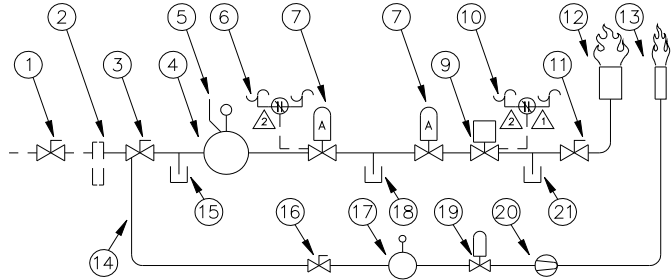
-UNLISTED UNIT ABOVE 1 MILLION
 -LISTED UNIT 5 MILLION & UNDER
 -FM 2.5 MILLION & UNDER - LISTED
 -FM 400,000 TO 2.5 MILLION - UNLISTED
 -GE GAP 5 MILLION & UNDER - LISTED
 -FM & GE GAP 2.5 MILLION & UNDER - LISTED



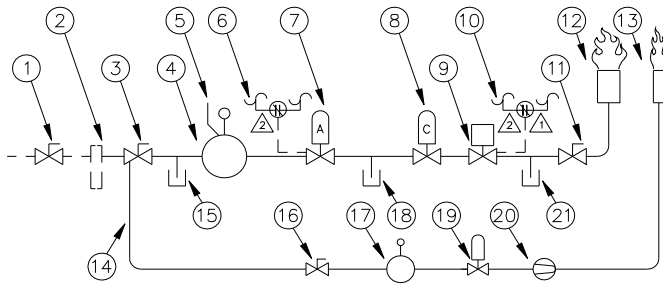
-FM ABOVE 2.5 MILLION TO 5 MILLION - LISTED/UNLISTED
 -GE GAP 1 MILLION & UNDER - UNLISTED (CUSTOM)
 -FM & GE GAP ABOVE 2.5 MILLION TO 5 MILLION - LISTED
 -FM & GE GAP 1 MILLION & UNDER - UNLISTED (CUSTOM)



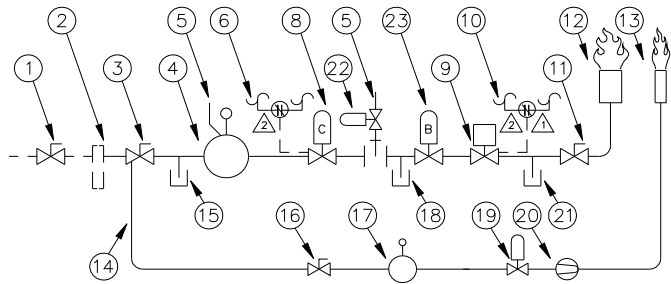
-LISTED UNIT ABOVE 5 MILLION
 -GE GAP ABOVE 5 MILLION - LISTED
 -FM ABOVE 5 MILLION TO 12.5 MILLION- LISTED
 -FM AND GE GAP ABOVE 5 MILLION TO 12.5 MILLION - LISTED



-FM OVER 12.5 MILLION - UNLISTED / LISTED
 -FM AND GE GAP OVER 12.5 MILLION - LISTED



-GE GAP ABOVE 1 MILLION - UNLISTED (CUSTOM)
 -FM & GE GAP ABOVE 1 MILLION - UNLISTED (CUSTOM)

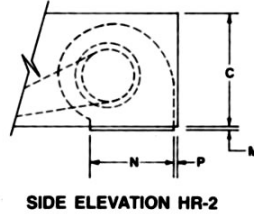
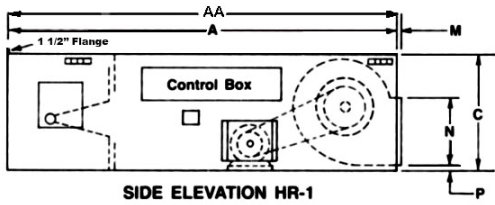
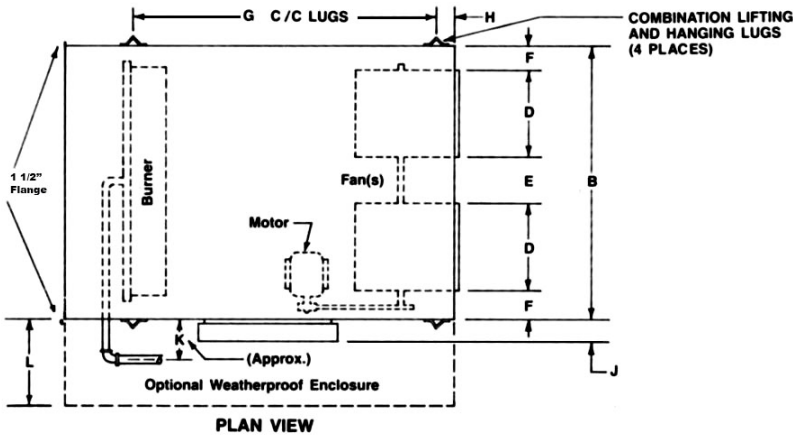


FURNISHED & INSTALLED BY OTHERS		
FACTORY FURNISHED & INSTALLED		
ITEM	DESCRIPTION	
1	MAIN GAS HAND SHUT-OFF VALVE (IF RECOMMENDED BY FM)	X
2	DRIP LEG	X
3	MAIN GAS HAND SHUT-OFF VALVE NPT	X
4	MAIN GAS PRESSURE REGULATOR	X
5	VENT LINE THRU ROOF TO OUTSIDE ATMOSPHERE	X
6	LOW GAS PRESSURE SWITCH	X
7	SAFETY SHUT-OFF VALVE (SSOV)	X
8	SAFETY SHUT-OFF VALVE WITH PROOF OF CLOSURE	X
9	SELECTRA VALVE	X
10	HIGH GAS PRESSURE SWITCH	X
11	MANUAL LEAK TEST HAND VALVE	X
12	MAIN GAS BURNER	X
13	PILLOT GAS BURNER	X
14	PILLOT GAS SUPPLY LINE	X
15	TEST CONNECTION UPSTREAM OF ITEM 4	X
16	PILLOT GAS HAND VALVE	X
17	PILLOT PRESSURE REGULATOR	X
18	TEST CONNECTION BETWEEN SSOV'S	X
19	PILLOT SOLENOID VALVE	X
20	PILLOT NEEDLE VALVE (IF REQUIRED)	X
21	TEST CONNECTION DOWNSTREAM OF ITEM 9	X
22	VENT VALVE (NORMALLY OPEN)	X
23	SLOW OPENING SAFETY SHUT-OFF VALVE (SSOV)	X

△ HIGH GAS PRESSURE SWITCH REQUIRED FOR:
 -FM UNITS WITH INLET PRESSURES ABOVE 14" W.C.
 -FM & GE GAP UNITS WITH INLET PRESSURES ABOVE 14" W.C.
 -ETL UNITS WITH PRESSURES ABOVE 14" W.C. AFTER REGULATOR

△ PRESSURE SWITCH REQUIRED:
 -FM OVER 2.5 MILLION - LISTED/UNLISTED
 -FM & GE GAP OVER 2.5 MILLION - LISTED

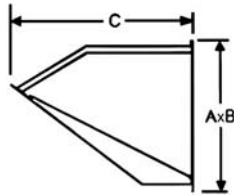
Base Unit Dimensions



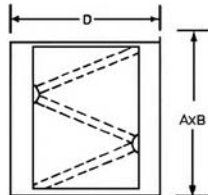
LU MODELS				
	112	115	215	218
AA	118**	118**	-	-
A	84	84	84	90
B	30 1/4	30 1/4	60	68 1/8
C	25 5/16	25 5/16	25 5/16	31 1/4
D*	15 5/8	18 5/8	18 5/8	21 7/8
E	-	-	11 1/8	12
F	7 5/16	5 13/16	5 13/16	6 3/16
G	64 3/4	64 3/4	67 1/8	70 11/16
H	3 3/8	3 3/8	4 3/4	3 1/2
J	7	7	7	7
K	8 5/8	8 5/8	8 1/2	12 1/4
L	22 7/16	22 7/16	22 7/16	22 7/16
M	1/4	-	-	5/8
N	13 7/16	15 7/8	15 7/8	18 7/8
P	3/16	1/16	1/16	1/8

All dimensions in inches
 *NOTE: LU-112 and 115 have one fan
 *NOTE: Accessory items have matching 1 1/2" flanges to match unit flanges.
 *NOTE: All top and side flanges are flanged out. All bottom flanges where required flange out.
 **NOTE: 34" Increase in unit length per ETL.(LU-112,115 only)

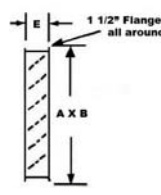
Accessory Dimensions



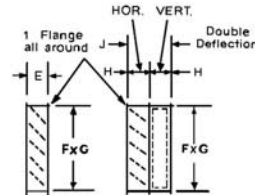
INTAKE HOOD



FILTER SECTION



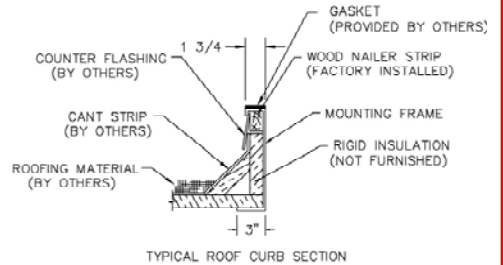
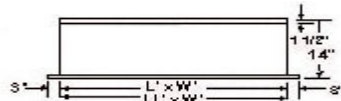
INTAKE DAMPER



DISCHARGE DAMPER DISCHARGE LOUVERS

Model	A	B	C	D	E	F	G	H	J	Filters—No. & Size
LU-112	26 3/4	33 1/8	34 7/8	29 3/4	8 5/8	18	21	6	12	3) 14 1/2x25x2 & 3) 16x25x2
LU-115	26 3/4	33 1/8	34 7/8	29 3/4	8 5/8	18	21	6	12	3) 14 1/2x25x2 & 3) 16x25x2
LU-215	26 3/4	62 7/8	35 15/16	24 7/8	8 5/8	18	50 3/8	6	12	9) 20x20x2
LU-218	32 5/8	70 7/8	40	29 7/8	8 5/8	20 1/2	58	6	12	4) 20x25x2 & 12) 16x25x2

Optional Roof Curb



MODEL	112	115	215	218
LL'	124 1/8	124 1/8	-	-
L'	90 1/8	90 1/8	90 1/8	96 3/8
W'	31 1/4	31 1/4	61	69

MODEL	112	115	215	218
LL'	122 5/8	122 5/8	-	-
L'	88 5/8	88 5/8	88 5/8	94 7/8
W'	29 3/4	29 3/4	59 1/2	67 5/8



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