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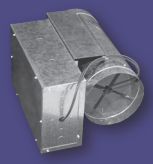
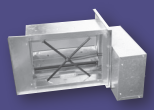
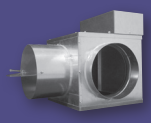


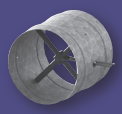
RVE
This retrofit terminal unit is designed to convert high pressure mechanical constant volume systems to low pressure variable volume systems and also used in exhaust, non reheat, or other supply applications requiring a round to round duct connections.



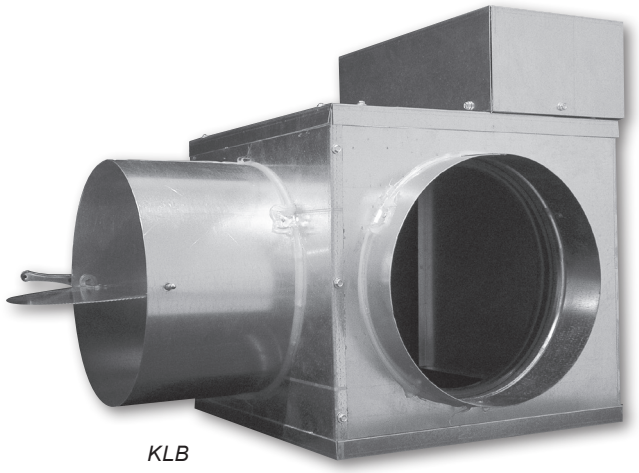
SVE
This slide-in, retrofit terminal unit is designed to convert constant volume or booster coil systems into modern, energy efficient variable air volume systems with low installation costs.



KLB
This unit is designed to maintain optimum occupant comfort by varying the amount of cold air from the constant volume air handler and bypassing the excess cooling air into the ceiling plenum or return air duct.



KMS
The Krueger Measuring Station (KMS) is designed to accurately measure airflow with a linear or four-quadrant multi-point differential pressure sensor in round duct applications.



KLB

KLB Product Description

CASING
- All KLB unit casing panels are constructed of 20 gage galvanized steel.

INLET COLLARS
- All collars are round to accommodate standard flex duct sizes.
- An optional manual inlet damper is available.

OUTLET CONNECTIONS
- Bypass and outlet connections are round.
- Optional multiple outlet is available.
- Optional manual dampers are available.

INSULATION
- Casing insulation is 1/2” thick, 1 1/2 lb. dual density, fiberglass liner that meets UL 181 and NFPA 90A requirements.

CONTROLS
- Pressure dependent pneumatic and electric control types are available. A “no control” unit is also available for field mounting of controls.

HANGER BRACKETS
- Optional hanger brackets are available.

CONTROL TRANSFORMERS
- Electric controlled units are available with a factory supplied and wired optional 24 volt control transformer, mounted inside the control enclosure.

LABELS
- Label information adhered to each unit includes model name, unit size, configuration code, airflow (CFM) and tagging information.

PACKAGING
- Units are individually packaged in a carton and stacked on a pallet. Each pallet of units is banded and stretch wrapped with cellophane.

Introduction: KLB

The Model KLB is designed to maintain optimum occupant comfort by varying the amount of cold air from the constant volume air handler and bypassing the excess cooling air back to the air handler. The KLB responds to the thermostat demand for cooling by varying the position of the unit damper, which in turn controls the amount of air entering a zone. During reduced loads, the damper position changes to deflect supply air into the ceiling plenum or return air duct. In this way, the air handler operates at constant volume, while individual zones benefit from increased control of comfort levels.

Savings result from the elimination of variable speed drives for the air handling system fan(s). At reduced zone loads, cool primary air is returned to the air handler via the plenum or return air duct without experiencing zone heat gains. The lower return air temperature allows the air handler to operate more efficiently.

MODEL
KLB - Bypass Terminal Unit

FEATURES
- 20 Gage galvanized steel casing construction.
- Single-blade design results in fewer parts and leads to increased reliability and a low pressure drop.
- Manual discharge damper with no spring loaded parts to fail.
- Side bypass discharge for easy access to balancing dampers.
- Manual inlet air damper to control air volume entering the unit.
- Low pressure drop; requires less energy than competing models and a lower central fan motor horsepower requirement.
- Insulated case provides thermal and acoustical insulation.
- Capacities as high as 4400 CFM to increase design flexibility.
- Choice of Pneumatic or Electric Controls on top or bottom of unit; results in flexibility to fit most building control packages.

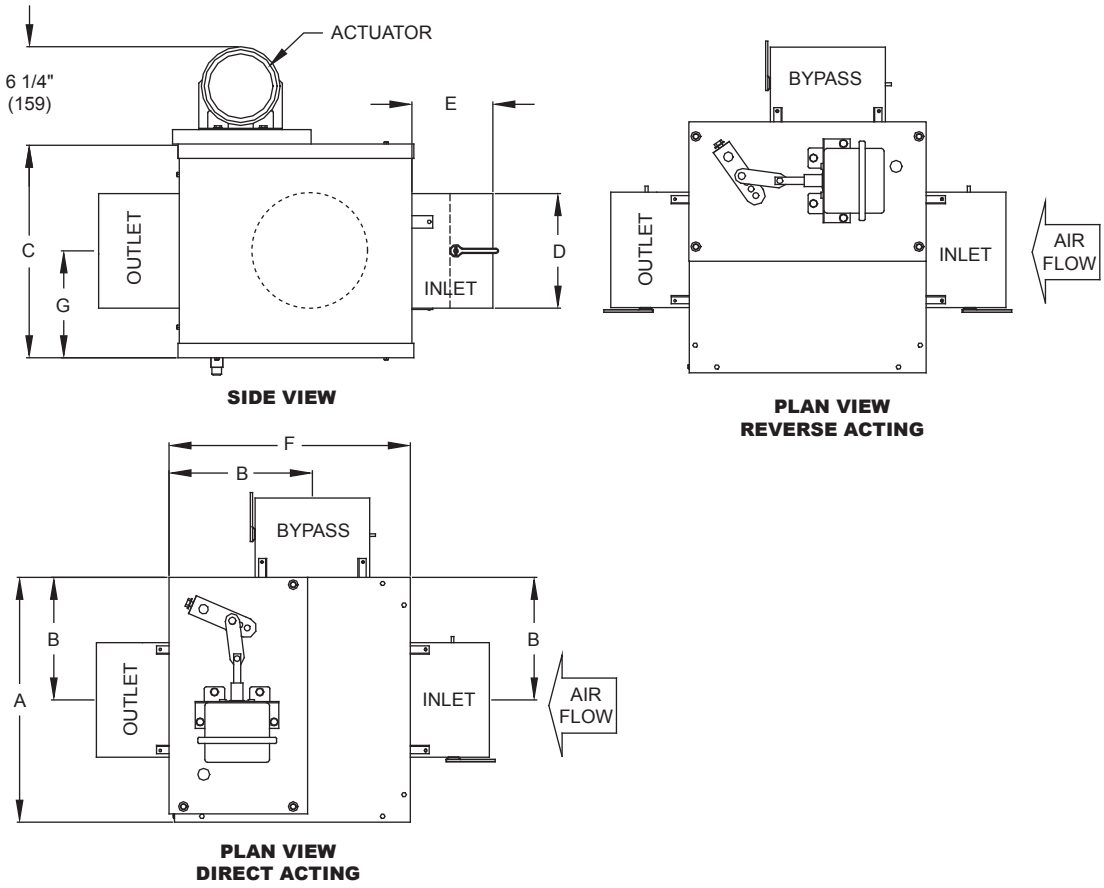
KLB Unit Capacities

KLB, UNIT CAPACITIES

Unit Size	Max. CFM [L/s]
6	500 [236]
8	900 [425]
10	1300 [614]
12	2000 [944]
14	2500 [1180]
16	3600 [1699]
18	4400 [2077]

KLB Unit with Pneumatic Controls Dimensional Information

KLB UNIT WITH PNEUMATIC CONTROLS, PLAN & SIDE VIEWS



KLB UNIT WITH PNEUMATIC CONTROLS, DIMENSIONAL DETAILS

Unit Size	Max. CFM [L/s]	A	B	C	D	E	F	G
6	500 [236]	12 7/8" (327)	7 1/8" (182)	11 1/8" (283)	5 7/8" (149)	4 1/4" (108)	12 3/8" (314)	5 9/16" (141)
8	900 [425]	12 7/8" (327)	7 1/8" (182)	11 1/8" (283)	7 7/8" (200)	5 1/4" (133)	12 3/8" (314)	5 9/16" (141)
10	1300 [614]	14 7/8" (378)	8 1/8" (210)	13 1/8" (333)	9 7/8" (251)	6 1/4" (159)	14 3/8" (365)	6 9/16" (167)
12	2000 [944]	18 7/8" (479)	10 1/8" (257)	17 1/8" (435)	11 7/8" (302)	7 1/4" (184)	18 3/8" (467)	8 9/16" (217)
14	2500 [1180]	18 7/8" (479)	10 1/8" (257)	17 1/8" (435)	13 7/8" (352)	8 1/4" (210)	18 3/8" (467)	8 9/16" (217)
16	3600 [1699]	22 7/8" (581)	12 1/8" (308)	21 1/8" (537)	15 7/8" (403)	9 1/4" (235)	22 3/8" (568)	10 9/16" (268)
18	4400 [2077]	22 7/8" (581)	12 1/8" (308)	21 1/8" (537)	17 7/8" (454)	10 1/4" (260)	22 3/8" (568)	10 9/16" (268)

NOTES: Dimensions in parentheses are mm. 'D' dimension is diameter of inlet, bypass, and outlet connections.
Unit may be job site rotated 180˚ to have controls located on the bottom of the unit.

KLB Unit with Pneumatic Controls Features & Options

STANDARD FEATURES

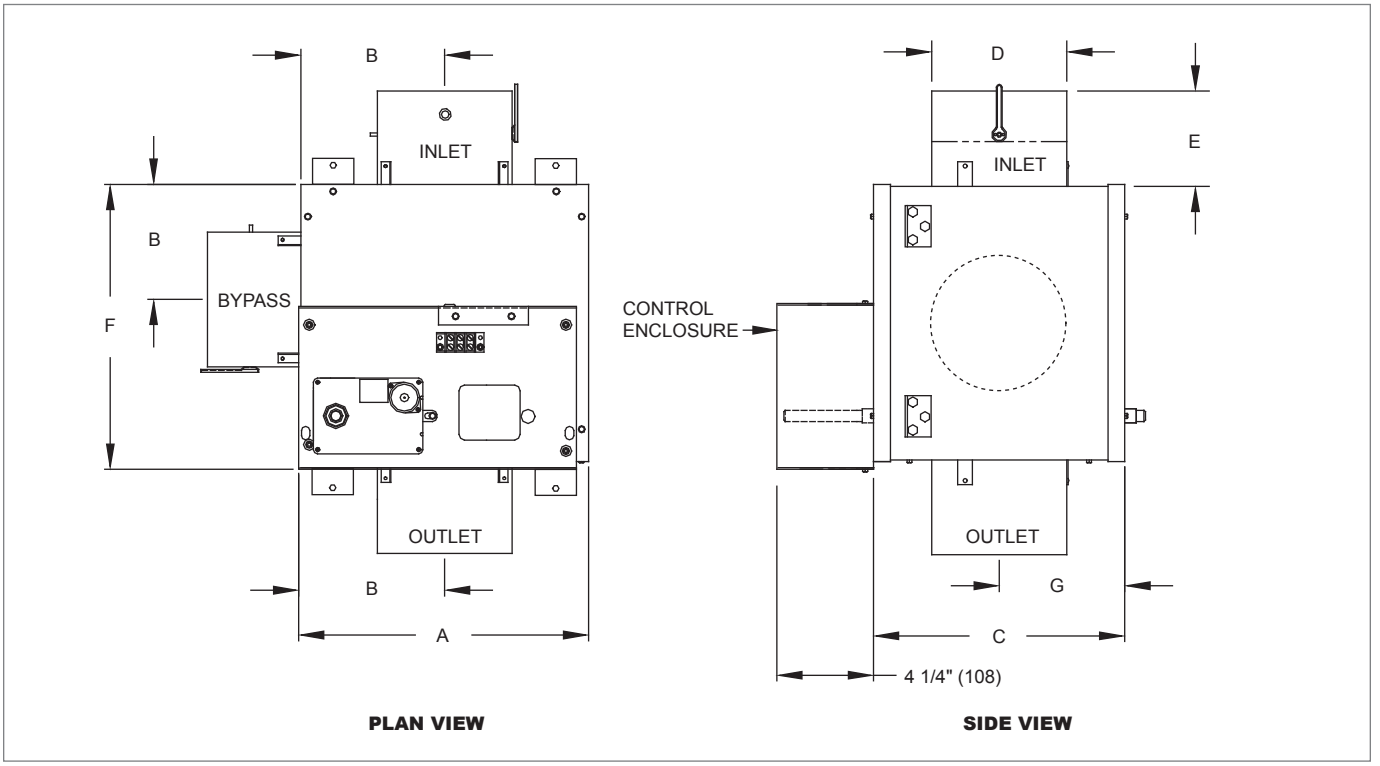
- 20 Gage galvanized steel casing construction.
- 1/2" Thick Dual Density Fiberglass Insulation that meets NFPA 90A and UL 181 safety requirements.
- Bypass discharge collar.
- Outlet discharge collar.
- 5-10 psi spring range actuator.
- Balancing damper operates on a 0-20 psi thermostat signal.

OPTIONAL FEATURES

- Manual inlet damper.
- Manual bypass damper.
- Hanger brackets.
- Thermostat.

KLB Unit with Electric Controls Dimensional Information

KLB UNIT WITH ELECTRIC CONTROLS, PLAN & SIDE VIEWS



KLB UNIT WITH ELECTRIC CONTROLS, DIMENSIONAL DETAILS

Unit Size	Max. CFM [L/s]	A	B	C	D	E	F	G
6	500 [236]	12 7/8" (327)	7 1/8" (182)	11 1/8" (283)	5 7/8" (149)	4 1/4" (108)	12 3/8" (314)	5 9/16" (141)
8	900 [425]	12 7/8" (327)	7 1/8" (182)	11 1/8" (283)	7 7/8" (200)	5 1/4" (133)	12 3/8" (314)	5 9/16" (141)
10	1300 [614]	14 7/8" (378)	8 1/8" (210)	13 1/8" (333)	9 7/8" (251)	6 1/4" (159)	14 3/8" (365)	6 9/16" (167)
12	2000 [944]	18 7/8" (479)	10 1/8" (257)	17 1/8" (435)	11 7/8" (302)	7 1/4" (184)	18 3/8" (467)	8 9/16" (217)
14	2500 [1180]	18 7/8" (479)	10 1/8" (257)	17 1/8" (435)	13 7/8" (352)	8 1/4" (210)	18 3/8" (467)	8 9/16" (217)
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18	4400 [2077]	22 7/8" (581)	12 1/8" (308)	21 1/8" (537)	17 7/8" (454)	10 1/4" (260)	22 3/8" (568)	10 9/16" (268)

NOTES: Dimensions in parentheses are mm. 'D' dimension is diameter of inlet, bypass, and outlet connections.
Unit may be job site rotated 180˚ to have controls located on the bottom of the unit.

KLB Unit with Electric Controls Features & Options

STANDARD FEATURES

- 20 Gage galvanized steel casing construction.
- 1/2" Thick Dual Density Fiberglass Insulation that meets NFPA 90A and UL 181 safety requirements.
- Bypass collar.
- Round discharge to room.
- 24 VAC actuator.

OPTIONAL FEATURES

- Manual inlet damper.
- Manual bypass damper.
- Balancing damper.
- Hanger brackets.
- Thermostat.
- 24 Volt transformer.

KLB Performance Data

KLB, DISCHARGE & RADIATED SOUND DATA

Unit Size	Flow Rate		Discharge Sound										Radiated Sound								
			Min Δ Ps		0.5" Δ Ps Octave Band Sound Power, Lw							Lp	Min ΔPs		0.5" Δ Ps Octave Band Sound Power, Lw						Lp
	CFM	(L/s)	"WG	(Pa)	2	3	4	5	6	7	NC		"WG	(Pa)	2	3	4	5	6	7	NC
6	200	(94)	0.004	(1.0)	34	31	29	23	18	-	-		0.069	(17.2)	48	41	37	37	30	20	-
	300	(142)	0.009	(2.2)	46	42	39	35	30	23	-		0.155	(38.6)	59	52	49	49	43	34	23
	400	(189)	0.016	(4.0)	54	51	47	43	39	33	-		0.276	(68.6)	67	60	57	57	52	44	32
	500	(236)	0.025	(6.2)	61	57	53	49	45	41	-		0.431	(107.3)	73	67	63	64	59	51	39
8	300	(142)	0.003	(0.7)	31	28	25	20	16	-	-		0.049	(12.2)	44	36	32	30	24	14	-
	500	(236)	0.008	(2.0)	46	42	38	35	31	26	-		0.136	(33.8)	58	50	47	45	40	31	21
	700	(330)	0.016	(4.0)	55	51	47	44	41	37	-		0.266	(66.3)	67	60	56	55	50	42	31
	900	(425)	0.026	(6.6)	63	58	54	52	48	45	-		0.440	(109.6)	74	67	64	62	58	51	40
10	500	(236)	0.003	(0.8)	34	31	27	24	20	13	-		0.056	(13.9)	46	37	34	31	25	16	-
	700	(330)	0.006	(1.5)	44	40	36	34	30	25	-		0.109	(27.2)	55	47	43	41	36	27	-
	1000	(472)	0.013	(3.1)	54	50	46	44	41	37	-		0.223	(55.5)	65	57	54	51	47	39	28
	1300	(614)	0.021	(5.3)	62	57	53	51	48	46	-		0.377	(93.8)	72	64	61	59	55	48	38
12	800	(378)	0.004	(1.0)	38	34	30	29	25	19	-		0.069	(17.1)	43	34	30	27	21	11	-
	1200	(566)	0.009	(2.2)	50	45	41	40	37	34	-		0.155	(38.6)	57	49	45	42	38	29	-
	1600	(755)	0.016	(4.0)	58	53	49	48	46	44	-		0.275	(68.5)	68	60	56	53	50	41	32
	2000	(944)	0.025	(6.2)	65	59	55	54	52	52	21		0.430	(107.1)	76	68	65	61	59	51	42
14	1000	(472)	0.003	(0.8)	36	32	28	27	24	19	-		0.061	(15.1)	47	37	34	30	25	16	-
	1500	(708)	0.008	(1.9)	48	43	39	39	36	33	-		0.136	(34.0)	58	49	46	41	38	29	-
	2000	(944)	0.013	(3.3)	57	52	47	47	45	43	-		0.243	(60.4)	66	57	54	50	47	39	30
	2500	(1180)	0.021	(5.2)	63	58	53	53	51	51	-		0.379	(94.3)	72	63	61	56	54	46	38
16	1200	(566)	0.003	(0.7)	35	31	26	26	23	18	-		0.049	(12.2)	45	35	32	26	22	12	-
	1800	(849)	0.006	(1.6)	47	42	37	37	35	32	-		0.110	(27.4)	56	46	43	38	34	26	-
	2700	(1274)	0.014	(3.6)	58	53	48	49	47	46	-		0.248	(61.7)	67	58	55	50	47	40	31
	3600	(1699)	0.025	(6.3)	67	61	56	57	56	56	24		0.440	(109.6)	75	66	63	58	56	49	41
18	1600	(755)	0.003	(0.8)	37	33	28	28	26	21	-		0.054	(13.5)	38	36	33	27	23	14	-
	2400	(1133)	0.007	(1.8)	49	44	39	40	38	35	-		0.122	(30.3)	53	48	45	39	36	28	-
	3200	(1510)	0.013	(3.1)	57	52	47	48	46	46	-		0.217	(54.0)	64	56	53	47	45	37	27
	4400	(2077)	0.024	(5.9)	66	60	55	57	56	57	23		0.410	(102.0)	76	65	62	57	55	48	43

NOTES: Discharge sound power is the sound emitted from the unit discharge. Radiated sound power is the sound transmitted through the casing walls. All sound data is based on tests conducted in accordance with AHRI 880-11. Sound power levels are in dB, re 10^{-12} Watts. ΔPs is the difference in static pressure from inlet to discharge. NC application data is from AHRI Standard 885-08 Appendix E, as a function of flow rate shown. All data points listed are application ratings outside the scope of the Certification Program. Minimum Ps for discharge sound has damper full open for 100% discharge. Minimum Ps for radiated sound has damper full closed for 100% bypass. Dash indicates a NC is less than 20. See Engineering section for reductions and definitions.

KLB Control Information

The following list of standard control arrangements are available with the KLB product offering. Each control approach offers pressure dependent, variable air volume, control to the zone. Control functions are identified by the Krueger control package designation.

PNEUMATIC CONTROL ARRANGEMENTS
Each control arrangement includes a factory supplied and installed pneumatic actuator.

1600 - Actuator Only; DA-NC Pressure Dependent Control
1601 - Actuator Only; RA-NO Pressure Dependent Control

Pneumatic Control Legend:
DA - Direct Acting Thermostat
RA - Reverse Acting Thermostat
NO - Normally Open Damper Position to the Zone
NC - Normally Closed Damper Position to the Zone

ANALOG CONTROL ARRANGEMENT
Pressure dependent control package consists of a 24 volt electric actuator, optional 24 volt transformer and a control enclosure.

2500 - Temperature Responsive Control - Cooling
2501 - Temperature Responsive Control - Cooling with Automatic Changeover

KLB Suggested Specification & Configuration

KLB UNIT
Furnish and install Krueger model KLB bypass terminal units of the sizes shown in the plans.

Unit casing shall be constructed of not less than 20 gage galvanized steel. All air inlet/outlet collars shall accommodate standard spiral and flex duct sizes.

Controls must be capable of being located on top or bottom of unit casing.

Unit casing shall be lined with 1/2" thick, 1 1/2 lb. dual density fiberglass insulation that meets UL 181 and NFPA 90A.

The radiated and discharge attenuation factors for the specified NC levels shall be based on attenuation factors from AHRI Standard 885-08 Appendix E, which includes room absorption, environmental adjustment factor, duct insertion, end reflection and duct branching.

Label information shall be adhered to each unit to include model size, airflow (CFM), and tagging information.

Terminals shall be tested in accordance with the latest AHRI Standard 880.

1. **SERIES: (XXX)**
   KLB - Bypass Terminal Unit

2. **SENSOR TYPE: (X)**
   0 - No Sensor

3. **UNIT STYLE: (X)**
   0 - Standard KLB
   1 - KLB with Multiple Outlets

4. **INLET CODE: (XX)**
   06 - 6"
   08 - 8"
   10 - 10"
   12 - 12"
   14 - 14"
   16 - 16"
   18 - 18"

5. **CONTROL TYPE: (XXXX)**
   1600 - DA/NC Pneumatic
   1601 - RA/NO Pneumatic
   2500 - Cooling
   2501 - Cooling with Automatic Changeover

6. **UNIT ACCESSORIES: (X) (X) (X) (X)**
   0 - None
   S - Hanger Brackets
   C - Damper, Manual Inlet
   D - Damper, Manual - One for each multiple outlet
   E - Damper, Manual Bypass
   G - 24-24 VAC Transformer
   H - 120-24 VAC Transformer
   J - 208-24 VAC Transformer
   K - 240-24 VAC Transformer
   L - 277-24 VAC Transformer

SAMPLE CONFIGURATION: KLB - 0 - 0 - 08 - 1600 - S - 0 - 0 - 0