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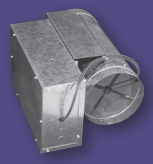
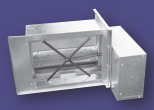
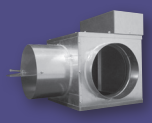


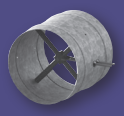
RVE
This retrofit terminal unit is designed to convert high pressure mechanical constant volume systems to low pressure variable volume systems and also used in exhaust, non reheat, or other supply applications requiring a round to round duct connections.



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.

Introduction: RVE

As energy costs rise, the need for energy conservation increases in importance. A typical building environmental (HVAC) system consumes 30 - 60% of the total energy used to operate a commercial building. This makes the HVAC system a primary target for building energy use reduction. Any reduction in the energy required to operate these buildings results in significant energy savings to the building owner.

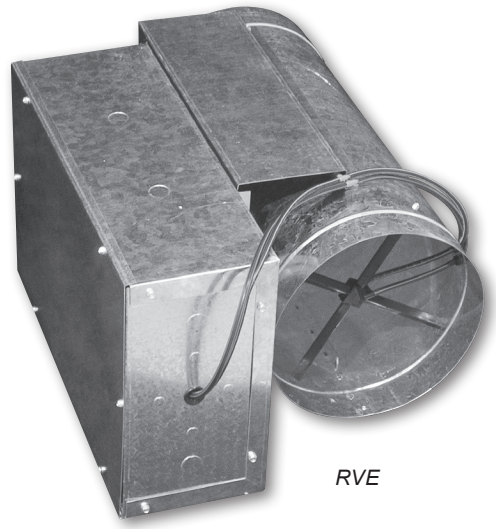
Fan power consumption normally ranks second only to chillers in building energy consumption. Many buildings today contain high pressure, constant volume air distribution systems. These single and dual duct systems operate at static pressures of up to 6" WG. Control of these distribution systems was often performed by mechanical constant volume terminal units. Most of these systems were implemented when energy was relatively inexpensive and plentiful. Now that low pressure variable air volume (VAV) systems have been established, it makes good economic sense to retrofit these constant volume systems to VAV.

By retrofitting from a high pressure, constant volume system to a low pressure, variable volume system, building owners can reduce their fan operating expense by as much as 60%.

The Krueger retrofit unit is ideal for converting a mechanical terminal unit into a VAV terminal unit. Designed to retrofit constant volume units, Krueger's RVE retrofit product offers compatible controls for most building automation systems and installation convenience. With Krueger Retrofit VAV terminals in place, building owners can make use of a variety of fan volume control options.

A major concern when retrofitting is downtime. Since the RVE terminal unit is compact and can be installed through the ceiling grid, installation costs and downtime are reduced.

Additional uses for the RVE unit are in exhaust and non reheat supply applications. The stainless steel RVE is ideal for lab applications where the exhaust consists of corrosive materials. Supply applications might include any situation where a round to round connection is desired.



RVE

MODEL
RVE - Retrofit Terminal Unit

FEATURES
- 22 Gage galvanized steel casing construction with an optional 20 gage or (304 / 316) stainless steel casing.
- Suitable for low, medium, or high pressure application with the ability to operate throughout a wide range of HVAC systems.
- Airflow capacities ranging from 40 to 3660 CFM to provide airflow control for most commercial applications.
- Round inlet and outlet sizes ranging from 4" to 16" diameter; slightly undersized to fit standard spiral and flex duct.
- Cast position indicator on damper shaft for easy monitoring of damper position.
- Delrin® damper bearings are self lubricating;unaffected by temperature and humidity.

RVE Unit Capacities

RVE, UNIT CAPACITIES

Unit Size	Airflow CFM [L/s]		Min. Ps.
	Max.	Min.	
4	230 [109]	40 [19]	0.24
5	360 [170]	62 [29]	0.26
6	515 [243]	89 [42]	0.24
7	700 [330]	121 [57]	0.25
8	920 [434]	159 [75]	0.26
9	1160 [547]	201 [95]	0.26
10	1430 [675]	248 [117]	0.25
12	2060 [972]	357 [168]	0.25
14	2800 [1321]	486 [229]	0.26
16	3660 [1727]	634 [299]	0.25

NOTES: If sizing to retrofit Krueger Model CVM, select same inlet size for RVE. The minimum CFM value is based on a signal of 0.03" WG differential pressure of the inlet airflow sensor. Some DDC controls supplied by others have differing limitations. Minimum Ps is measured at maximum airflow.

***Example**: (Based on CFM range) For an existing size 4 terminal unit to be retrofitted, the space requires 200 CFM of primary air during peak load. The minimum can be set above 40 CFM or 0.*

RVE Product Description

CASING
- All RVE unit casing components are constructed of 22 gage galvanized steel with 20 gage galvanized steel or 22 gage 304/316 stainless steel options.

INLET AND OUTLET COLLARS
- All inlet and outlet collars are round and accommodate standard spiral or flex duct sizes.

DAMPER ASSEMBLY
- All unit sizes utilize a round volume control damper with a solid 1/2" shaft that rotates in self lubricating Delrin® bearings.
- Damper blade incorporates a flexible gasket for tight airflow shutoff and operates over a full 90° rotation.
- The damper position is marked by an arrow embossment on the end of the damper shaft.

AIRFLOW SENSOR
- All units are equipped with a factory installed airflow sensor device.
- The standard is a K4 LineaCross four quadrant center averaging sensor.
- An optional sensor is a linear, multi-point, velocity averaging sensor with an amplified signal. Stainless steel sensor is used with stainless steel casing.
- Balancing taps are provided to allow for easy airflow verification.

CONTROLS
- Pneumatic, electric, analog, or factory mounted direct digital control types are available. A "no control" unit is also available for field mounting of direct digital controls.

CONTROL TRANSFORMER
- Electronic 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), balancing chart, and tagging data.

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

RVE Selection Guidelines

Determine which retrofit design best suits your particular retrofit application. Consider ease of access to the unit, need to re-duct to the inlet and amount of wiring/tubing required. In either case, the internal mechanical valve will need to be removed.

RVE units with pneumatic or analog controls are mounted to the unit and factory calibrated. This reduces the amount of field wiring/tubing to be performed. Since installation requires removing the existing inlet duct, re-ducting to the inlet is a consideration.

Determine the required maximum and minimum airflow required for the zone. Select the RVE unit rated for airflows compatible with the existing airflows. Keep in mind that the retrofit will add the ability to control airflow between maximum and minimum flow setpoints. These setpoints are field adjustable.

If a Krueger CVM Series terminal is to be retrofitted, it is recommended that the equivalent size RVE unit be selected. For instance, a CVM size 4 will need a size 4 RVE.

If terminals by other manufacturers are to be retrofitted, select the RVE unit based on volume (CFM) requirements and required dimensions.

Note: Maximum and minimum airflow capacities vary slightly with control package selected.

Select the RVE control package to be used for the project. Determine whether the retrofit unit is to be controlled by pneumatic, electric, analog, or factory mounted direct digital control.

Select the appropriate control scheme from the control's section. The RVE retrofit terminal can be shipped with DDC controls by most DDC manufacturers. As an option, Krueger can provide a factory mounted 24 volt actuator compatible with most DDC control offerings.

RVE Damper & Casing Leakage

RVE, DAMPER & CASING LEAKAGE DETAIL

Inlet Size	Damper Leakage 1.5" WG CFM	3.0" WG CFM	6.0" WG CFM
4	4	5	7
5	4	5	7
6	4	5	7
7	4	5	7
8	4	5	7
9	4	5	7
10	4	5	7
12	4	5	7
14	4	6	8
16	5	7	9

NOTES: Damper leakage is measured with the damper fully closed using an actuator. A precision low flow orifice is used upstream of the unit to measure the leakage rate as a function of the measured upstream static pressure. Casing leakage is determined with the damper fully open and the discharge of the unit sealed. A precision low flow orifice is used upstream of the unit to measure the leakage rate as a function of the supplied static pressure. Leakage testing conducted in accordance with ASHRAE 130-2008.

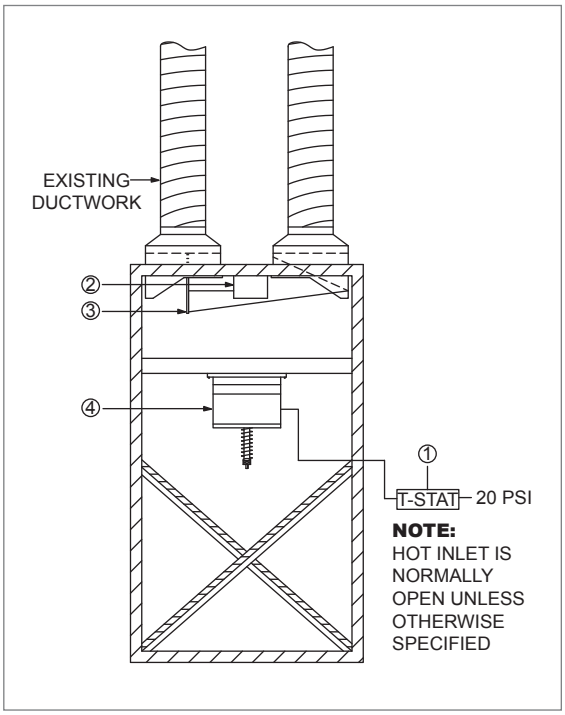
CVM (Discontinued Krueger Model) Operating Characteristics & Control Sequence

MODEL CVM-E *

The Krueger model CVM-E, mechanical constant volume mixing box, varies the discharge air temperature to satisfy room conditions. It operates in the following manner: A direct acting thermostat (1) senses room temperature and delivers control air pressure to the inlet valve pneumatic operator (2) on a call for cooling the pneumatic operator (2) strokes, modulating the temperature mixing damper (3). On a call for full cooling, the pneumatic actuator (2) will extend to its maximum stroke, opening the cold inlet completely and tightly sealing the hot inlet. During the entire modulation of the temperature mixing damper (3), the automatic volume control valve (4) maintains constant volume at the discharge. Air is supplied to the CVM-E from a constant volume air handler at static pressures up to 6" WG.

** Krueger model CVM-E is no longer available.*

CVM-E DETAIL



CVM (Discontinued Krueger Model) Retrofit Procedures & Control Sequence

MODEL CVM-E *

To retrofit an existing CVM-E, two model RVE retrofit terminals are required, sized to match the existing CVM-E inlet.

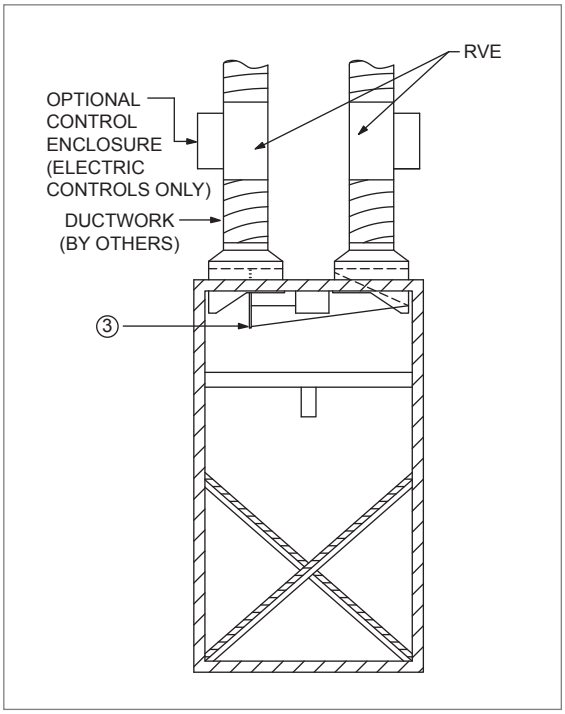
The control valve (4) is removed through the bottom access panel. The mixing dampers (3) are removed or fixed to a full-open position. The operator (2) is no longer used and is disconnected from the thermostat. The RVE units are installed as shown.

For installation convenience, the RVE is available with factory mounted pneumatic or analog controls. If factory or field mounted direct digital controls are specified, Krueger will provide factory-mounted control enclosures and optional transformers.

The resulting dual duct sequence of operation is dependent on the controls installed and must be specified when the RVE terminals are ordered. Each RVE ships with a factory installed airflow sensor to facilitate pressure independent control.

The RVE with proper controls allows operation of the terminal in a variable volume mode. Room temperature is controlled by varying the amount of warm or cold air. Air should be provided to the RVE from a variable volume air handler at static pressures typically <1.0" WG at the RVE inlet. Actual pressure requirement varies with downstream duct and outlet configurations.

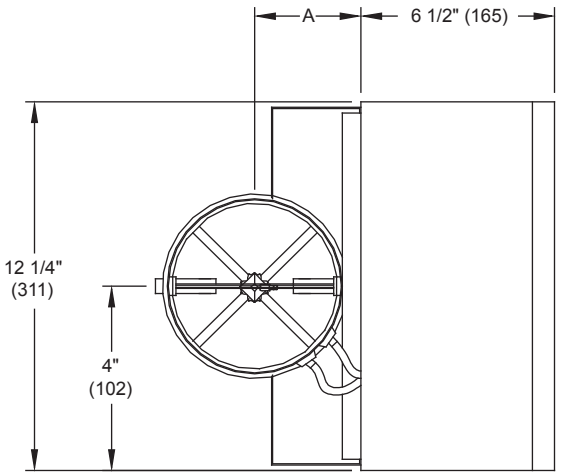
CVM-E DETAIL WITH RVE RETROFIT



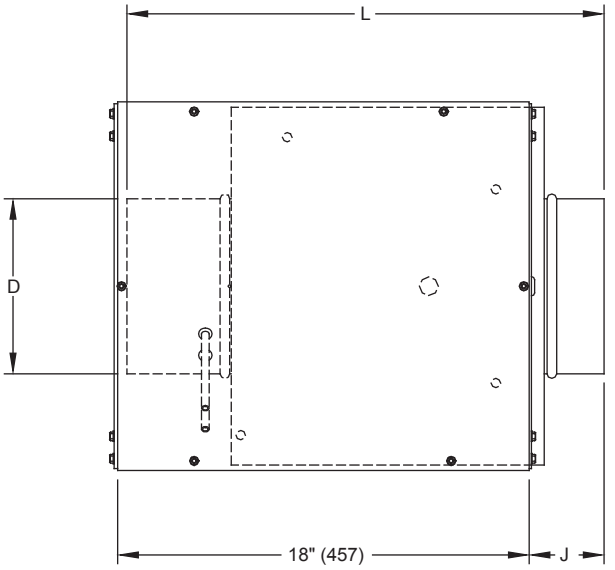
** Krueger model CVM-E is no longer available.*
Retrofit model CVM-E with two model RVE units.

RVE Dimensional Information

RVE UNIT WITH ELECTRONIC CONTROLS, INLET & SIDE VIEWS



INLET VIEW



SIDE VIEW

RVE UNIT WITH ELECTRONIC CONTROLS, DIMENSIONAL DETAILS

Unit Size	Max. CFM [L/s]	A	D	J	L
4	230 [109]	3 9/16" (90)	3 7/8" (98)	11/32" (9)	18" (457)
5	360 [170]	3 9/16" (90)	4 7/8" (124)	11/32" (9)	18" (457)
6	515 [243]	3 9/16" (90)	5 7/8" (149)	11/32" (9)	16" (406)
7	700 [330]	4 1/16" (103)	6 7/8" (175)	11/32" (9)	16" (406)
8	920 [434]	4 9/16" (116)	7 7/8" (200)	11/32" (9)	16" (406)
9	1160 [547]	5 1/16" (129)	8 7/8" (225)	2 11/32" (60)	20" (508)
10	1430 [675]	5 9/16" (141)	9 7/8" (251)	2 11/32" (60)	20" (508)
12	2060 [972]	6 9/16" (167)	11 7/8" (302)	2 11/32" (60)	20" (508)
14	2800 [1321]	7 9/16" (192)	13 7/8" (352)	4 11/32" (110)	24" (610)
16	3660 [1727]	8 9/16" (217)	15 7/8" (403)	4 11/32" (110)	24" (610)

NOTES: Dimensions in parentheses are mm. Right-hand RVE with electronic control enclosure shown; left-hand is available.

RVE Unit with Electronic Controls Features & Options

STANDARD FEATURES

- 22 Gage galvanized steel casing construction.
- Four quadrant center averaging airflow sensor.
- Variety of Pneumatic, Electric, Analog, and Factory Mounted Digital Control Packages for pressure dependent and pressure independent systems.
- ETL Listed - Adherence to UL 429 for electrically operated valves for units with electronic controls.

OPTIONAL FEATURES

- 304 or 316 Stainless steel construction.
- 20 Gage galvanized steel casing construction.
- Linear averaging airflow sensor.
- Toggle disconnect switch for electronic controls.
- Transformer.
- Thermostat.

RVE Performance Data

RVE, DISCHARGE SOUND DATA

Unit Size	Flow Rate		Min Δ Ps		0.75" Δ Ps							1.5" Δ Ps							2.5" Δ Ps						
					Octave Band Sound Power, Lw						Lp	Octave Band Sound Power, Lw						Lp	Octave Band Sound Power, Lw						Lp
	CFM	(L/s)	"WG	(Pa)	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
4	40	(19)	0.007	(1.80)	37	24	27	25	25	18	-	41	28	31	28	28	23	-	44	31	34	30	31	26	-
	103	(49)	0.048	(11.99)	48	39	39	38	38	30	-	53	43	43	41	42	34	-	56	46	46	44	44	37	-
	167	(79)	0.126	(31.27)	54	46	45	44	45	35	-	59	50	49	48	48	39	-	62	53	52	50	51	42	-
	230	(109)	0.239	(59.50)	58	51	49	49	50	39	-	63	55	53	52	53	43	-	66	58	56	55	55	46	**22**
5	62	(29)	0.008	(1.93)	38	25	28	27	27	22	-	43	30	33	31	31	27	-	46	34	36	33	33	30	-
	161	(76)	0.052	(13.03)	50	41	41	41	41	34	-	55	46	46	44	44	38	-	59	49	49	47	47	42	-
	261	(123)	0.137	(34.07)	57	49	48	48	48	40	-	62	54	52	51	51	44	-	65	57	56	54	54	48	**21**
	360	(170)	0.261	(64.93)	61	54	52	52	53	44	-	66	59	57	56	56	48	-	70	63	60	58	59	51	**23**
6	90	(42)	0.007	(1.86)	39	27	31	30	31	27	-	43	32	36	34	34	31	-	47	36	39	36	37	34	-
	233	(110)	0.050	(12.46)	52	44	44	44	44	38	-	57	48	48	47	47	42	-	61	52	51	49	50	45	-
	377	(178)	0.131	(32.54)	59	52	51	50	51	44	-	64	57	55	54	54	48	-	68	60	58	56	57	51	**20**
	520	(245)	0.249	(61.98)	64	57	55	55	55	48	-	69	62	59	58	59	52	**22**	72	66	62	61	61	55	**26**
7	120	(57)	0.007	(1.84)	40	28	32	32	32	29	-	45	33	37	36	35	33	-	49	37	40	38	38	36	-
	330	(156)	0.056	(13.93)	55	46	47	47	46	42	-	60	51	51	50	50	46	-	63	55	54	52	52	49	-
	525	(248)	0.142	(35.26)	61	54	54	53	53	47	-	66	59	58	56	56	52	-	70	63	61	59	59	55	**23**
	700	(330)	0.252	(62.69)	66	59	58	57	57	51	-	70	64	62	60	61	55	**22**	74	68	65	63	63	58	**26**
8	160	(76)	0.008	(1.93)	42	32	37	35	34	32	-	47	37	41	38	38	36	-	51	40	44	41	40	39	-
	440	(208)	0.059	(14.59)	56	49	49	49	49	44	-	61	53	54	52	52	49	-	65	57	57	55	55	52	-
	675	(319)	0.138	(34.33)	62	56	55	54	55	50	-	67	61	59	58	58	54	**24**	71	64	62	60	61	57	**28**
	920	(434)	0.256	(63.78)	67	61	59	59	59	54	-	72	66	63	62	62	58	**23**	75	69	66	65	65	61	**28**
9	200	(94)	0.008	(1.90)	42	34	38	36	36	35	-	47	39	42	39	39	39	-	51	42	45	42	42	42	-
	550	(260)	0.058	(14.39)	57	50	51	50	50	47	-	62	55	55	53	53	51	-	66	59	58	56	56	54	-
	875	(413)	0.146	(36.42)	64	58	57	57	57	53	-	69	63	61	60	60	57	**21**	73	66	64	62	62	60	**25**
	1160	(547)	0.257	(64.02)	68	62	61	61	61	56	**20**	74	67	65	64	64	60	**25**	77	71	68	66	66	63	**30**
10	250	(118)	0.008	(1.91)	45	35	38	37	38	37	-	49	39	42	41	41	41	-	53	43	45	43	44	44	-
	675	(319)	0.056	(13.94)	59	51	52	51	52	49	-	64	56	56	55	55	53	-	68	60	59	57	58	56	**20**
	1075	(507)	0.142	(35.37)	66	59	58	58	58	54	-	71	64	62	61	62	59	**23**	74	67	65	64	64	62	**26**
	1430	(675)	0.252	(62.58)	70	64	62	62	62	58	**22**	75	69	66	65	66	62	**27**	79	72	69	68	68	65	**32**
12	360	(170)	0.008	(1.93)	47	38	40	40	40	42	-	52	43	45	43	43	46	-	56	47	48	46	45	49	-
	1000	(472)	0.060	(14.86)	61	55	55	54	54	53	-	66	60	59	58	58	58	**22**	70	63	62	60	60	61	**25**
	1550	(731)	0.143	(35.71)	68	62	61	61	61	59	**23**	72	67	65	64	64	63	**27**	76	70	68	66	67	66	**30**
	2060	(972)	0.253	(63.07)	72	66	65	65	65	62	**26**	76	71	69	68	68	66	**30**	80	75	72	70	71	69	**34**
14	480	(227)	0.008	(1.90)	48	38	43	42	41	43	-	53	43	47	45	45	47	-	57	47	50	48	47	50	-
	1375	(649)	0.063	(15.55)	63	56	57	57	57	56	**20**	68	61	61	60	60	60	**24**	72	65	65	63	63	64	**27**
	2125	(1003)	0.149	(37.15)	70	64	63	63	63	62	**26**	75	69	67	66	66	66	**30**	78	72	71	69	69	69	**33**
	2800	(1321)	0.259	(64.50)	74	69	67	67	67	65	**29**	79	74	71	70	70	70	**33**	82	77	74	73	73	73	**37**
16	630	(297)	0.008	(1.88)	51	41	44	43	44	45	-	56	46	48	47	47	50	-	59	50	51	49	50	53	-
	1775	(838)	0.060	(14.90)	65	58	59	58	59	59	**23**	70	63	63	62	62	63	**27**	74	67	66	64	64	66	**30**
	2725	(1286)	0.141	(35.13)	71	66	65	64	65	64	**28**	76	70	69	68	68	68	**32**	80	74	72	70	71	71	**35**
	3660	(1727)	0.255	(63.37)	75	70	69	68	69	68	**32**	80	75	73	72	72	72	**36**	84	79	76	75	75	75	**39**

NOTES: Discharge sound power is the sound emitted from the unit discharge. 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. Dash indicates a NC is less than 20. See Engineering section for reductions and definitions.

RVE Performance Data

RVE, RADIATED SOUND DATA

Unit Size	Flow Rate		Min Δ Ps		0.75" Δ Ps							1.5" Δ Ps							2.5" Δ Ps						
					Octave Band Sound Power, Lw						Lp	Octave Band Sound Power, Lw						Lp	Octave Band Sound Power, Lw						Lp
	CFM	(L/s)	"WG	(Pa)	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
4	40	(19)	0.007	(1.80)	13	7	8	8	11	7	-	18	12	13	12	16	11	-	21	15	16	16	20	14	-
	103	(49)	0.048	(11.99)	34	29	29	30	33	27	-	39	33	34	35	38	31	-	42	36	37	38	41	34	-
	167	(79)	0.126	(31.27)	44	39	40	41	44	37	-	49	44	44	46	49	41	-	52	47	48	49	52	44	**22**
	230	(109)	0.239	(59.50)	51	47	47	49	51	43	**21**	56	51	51	53	56	48	**26**	59	54	55	57	60	51	**30**
5	62	(29)	0.008	(1.93)	20	13	10	11	14	10	-	24	18	14	15	19	14	-	27	21	17	19	22	17	-
	161	(76)	0.052	(13.03)	38	33	32	32	35	29	-	43	37	36	37	40	33	-	46	40	39	40	43	36	-
	261	(123)	0.137	(34.07)	48	42	42	43	46	39	-	52	47	47	47	50	43	**20**	55	50	50	50	54	46	**24**
	360	(170)	0.261	(64.93)	54	49	50	50	53	46	**24**	58	53	54	54	57	50	**28**	61	56	57	57	61	53	**32**
6	90	(42)	0.007	(1.86)	14	4	7	6	14	5	-	19	10	13	12	19	10	-	23	14	17	16	22	14	-
	233	(110)	0.050	(12.46)	37	30	31	31	36	29	-	42	35	37	37	41	34	-	46	39	41	41	44	38	-
	377	(178)	0.131	(32.54)	49	42	43	43	47	41	-	54	48	49	49	52	46	**23**	58	52	53	53	55	50	**28**
	520	(245)	0.249	(61.98)	56	51	51	52	54	49	**25**	61	57	57	58	59	54	**32**	65	61	61	62	63	58	**36**
7	120	(57)	0.007	(1.84)	12	2	7	7	14	6	-	18	8	13	13	19	11	-	22	13	17	17	22	15	-
	330	(156)	0.056	(13.93)	38	31	33	33	38	31	-	44	37	39	39	43	37	-	48	42	43	43	46	41	-
	525	(248)	0.142	(35.26)	50	44	45	45	48	43	-	56	50	51	51	53	48	**25**	59	55	55	55	57	52	**30**
	700	(330)	0.252	(62.69)	58	52	52	52	55	50	**26**	63	58	58	58	60	56	**33**	67	63	63	62	64	60	**38**
8	160	(76)	0.008	(1.93)	19	11	7	8	20	9	-	24	17	13	14	25	14	-	27	21	18	18	28	18	-
	440	(208)	0.059	(14.59)	42	32	34	34	38	34	-	47	37	40	40	43	39	-	51	42	45	44	47	43	-
	675	(319)	0.138	(34.33)	52	40	45	45	46	44	-	57	46	51	51	51	49	**26**	60	50	56	55	54	53	**31**
	920	(434)	0.256	(63.78)	59	47	54	53	52	52	**28**	64	52	60	59	57	57	**35**	68	56	64	63	60	61	**40**
9	200	(94)	0.008	(1.90)	20	9	10	9	17	10	-	25	14	16	14	21	16	-	28	18	20	19	25	20	-
	550	(260)	0.058	(14.39)	43	35	35	35	40	35	-	48	40	41	40	45	40	-	51	44	45	44	48	44	-
	875	(413)	0.146	(36.42)	54	47	47	47	50	46	**21**	58	52	53	52	55	51	**27**	62	56	57	56	59	55	**32**
	1160	(547)	0.257	(64.02)	60	54	54	54	57	53	**29**	65	60	60	59	62	58	**35**	68	64	64	63	65	62	**40**
10	250	(118)	0.008	(1.91)	14	6	8	9	17	-1	-	20	12	14	15	22	6	-	24	17	19	19	26	10	-
	675	(319)	0.056	(13.94)	41	33	35	35	40	31	-	47	40	41	41	45	38	-	51	45	46	45	49	42	-
	1075	(507)	0.142	(35.37)	54	46	47	47	51	46	**21**	59	53	54	53	56	52	**28**	64	58	58	57	60	57	**33**
	1430	(675)	0.252	(62.58)	61	54	55	54	57	55	**30**	67	61	62	60	62	62	**37**	71	66	66	64	66	66	**42**
12	360	(170)	0.008	(1.93)	22	12	13	10	19	9	-	27	18	19	16	24	15	-	31	23	23	20	27	20	-
	1000	(472)	0.060	(14.86)	46	38	39	37	42	37	-	51	44	44	42	47	43	-	55	48	48	46	51	47	**22**
	1550	(731)	0.143	(35.71)	56	48	49	48	52	49	**24**	61	54	55	54	57	55	**30**	65	59	59	58	61	59	**34**
	2060	(972)	0.253	(63.07)	63	55	57	56	59	56	**31**	68	61	62	61	64	62	**38**	72	66	66	65	67	67	**42**
14	480	(227)	0.008	(1.90)	9	3	2	11	20	-4	-	16	12	9	17	25	3	-	21	18	14	21	28	8	-
	1375	(649)	0.063	(15.55)	41	34	35	38	43	32	-	48	42	42	44	49	39	-	54	49	47	48	52	45	**22**
	2125	(1003)	0.149	(37.15)	54	46	49	49	53	47	**23**	62	55	56	55	58	55	**31**	67	62	61	59	62	60	**36**
	2800	(1321)	0.259	(64.50)	63	54	58	56	60	57	**33**	70	63	65	62	65	64	**40**	75	70	70	66	68	70	**46**
16	630	(297)	0.008	(1.88)	25	11	13	12	20	16	-	30	17	19	18	25	21	-	33	21	24	22	29	25	-
	1775	(838)	0.060	(14.90)	49	39	40	39	44	41	-	54	45	47	44	49	46	**20**	58	50	51	48	53	50	**25**
	2725	(1286)	0.141	(35.13)	59	51	52	50	54	52	**26**	64	57	58	55	59	57	**33**	68	61	62	59	62	61	**38**
	3660	(1727)	0.255	(63.37)	66	59	59	57	61	59	**34**	71	65	65	63	66	64	**41**	75	70	70	67	69	68	**46**

NOTES: 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. Dash indicates a NC is less than 20. See Engineering section for reductions and definitions.

RVE Control Information

The following list shows the standard control arrangements available with the RVE product offering. Each control approach offers a variety of pressure independent operating functions. Control functions are identified by the Krueger control package number.

PNEUMATIC CONTROL ARRANGEMENTS
All control packages are pressure independent and include a standard linear inlet airflow sensor.

1102 - Single Function; DA-NO
1103 - Single Function; RA-NC
1104 - Multi-function; DA-NO
1105 - Multi-function; DA-NC
1106 - Multi-function; RA-NO
1107 - Multi-function; RA-NC

Pneumatic Control Legend:
DA - Direct Acting Thermostat
RA - Reverse Acting Thermostat
NO - Normally Open Damper Position
NC - Normally Closed Damper Position
Single Function Controller - Provides Single Function, DA-NO or RA-NC
Multi-function Controller - Capable of Providing DA-NO, DA-NC,RA-NC or RA-NO Functions

ANALOG CONTROL ARRANGEMENTS
All control packages are pressure independent and include a standard linear averaging inlet airflow sensor, controller/actuator, control enclosure and wall thermostat to match the control type. An optional 24 volt transformer is available that will be mounted and wired inside the control enclosures.

2100 - Heating Control
2101 - Cooling Control
2115 - Upstream Static Pressure Monitoring Control
2116 - Downstream Static Pressure Monitoring Control

DIRECT DIGITAL CONTROL ARRANGEMENTS
Control packages are field supplied for factory mounting. All DDC control arrangements include a standard linear inlet airflow sensor and control enclosure. An optional 24 volt transformer is available that will be mounted and wired inside the control enclosure.

RVE Suggested Specification & Configuration

RVE UNIT
Furnish and install Krueger model RVE retrofit terminal units of the sizes shown in the plans.

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

Unit casing shall be constructed of not less than 22 gage galvanized steel. Inlet and outlet collars shall accommodate standard spiral or flex duct sizes.

- **(Optional)** 20 Gage Galvanized Steel Unit Construction: Unit casing shall be constructed of not less than 20 gage galvanized steel. Inlet and outlet collars shall accommodate standard spiral or flex duct sizes.
- **(Optional)** 304 Stainless Steel Unit Construction: Unit casing and linear type inlet sensor shall be constructed of 22 gage 304 stainless steel and shall use a stainless steel linear airflow sensor. Inlet and outlet collars shall accommodate standard spiral or flex duct sizes.
- **(Optional)** 316 Stainless Steel Unit Construction: Unit casing and linear type inlet sensor shall be constructed of 22 gage 316 stainless steel and shall use a stainless steel linear airflow sensor. Inlet and outlet collars shall accommodate standard spiral or flex duct sizes.

Label information shall be adhered to each unit to indicate model size airflow (CFM), balancing chart, and tagging data.

The control air damper assembly shall be constructed of heavy gage galvanized steel with solid shaft rotating in Delrin® bearings. Damper shaft shall be marked on the end to indicate damper position. Damper blade shall incorporate a flexible gasket for tight airflow shutoff and operate over a full 90° rotation.

The RVE unit shall be equipped with a factory installed airflow sensing device. Provide a K4 LineaCross, four quadrant, multi-point, center averaging sensor with an amplified signal.

- **(Optional)** Provide a linear multi-point velocity averaging sensor with an amplified signal.

Provide balancing taps to allow for easy airflow verification and a chart indicating airflow vs. pressure differential to allow for field calibration.

1. SERIES: (XXX)
RVE - Retrofit Terminal Unit

2. SENSOR TYPE: (X)
1 - Linear Averaging
3 - K4 LineaCross (Four Quadrant, Standard)

3. UNIT CASING CONTROLS: (XX)
0L - Left-hand Side, 22 Gage
2L - Left-hand Side, 20 Gage
4L - Left-hand Side, 304 Stainless Steel
6L - Left-hand Side, 316 Stainless Steel
0R - Right-hand Side, 22 Gage
2R - Right-hand Side, 20 Gage
4R - Right-hand Side, 304 Stainless Steel
6R - Right-hand Side, 316 Stainless Steel

4. INLET CODE: (XX)
04 - 4”
05 - 5”
06 - 6”
07 - 7”
08 - 8”
09 - 9”
10 - 10”
12 - 12”
14 - 14”
16 - 16”

5. CONTROL TYPE: (X)
D - Digital Controls *
A - Analog Controls
P - Pneumatic Controls

6. UNIT ACCESSORIES: (X) (X)
0 - None
D - Disconnect for Controls
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

** Digital controls are supplied by others; mounted by Krueger.*

SAMPLE CONFIGURATION: RVE - 3 - 2L - 06 - D - D - 0