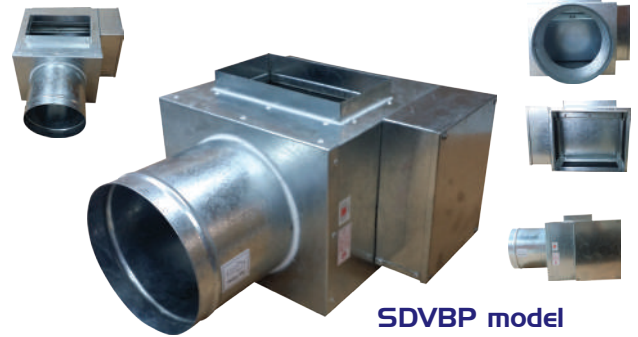




BY-PASS SINGLE DUCT VAV - SDVBP/SDVBPE MODELS

CONSTRUCTION

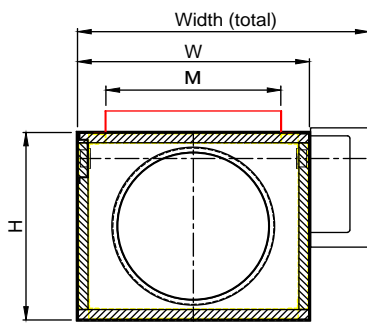
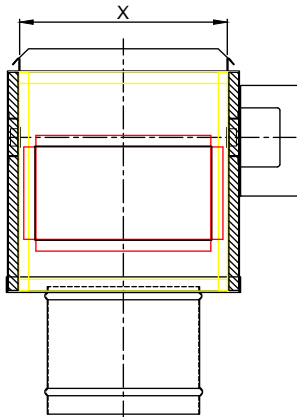
- * Casing is made of 0.9mm & damper blade is made of 1.2mm; galvanized steel sheet.
- * Damper shaft is made of solid square 1/2X1/2 inch G.I., with self-lubricating plastic bushes.
- * Lined with 1/2 inch thick clean highly efficient insulation made of strong resilient dual density glass fibers 32kg/m³ that conform to NFPA-90A & 255, UL 181 and ASTM C665.
- * Insulation edges are covered by metal to prevent exposing to airstream for zero fiber migration.
- * Equipped with a By-Pass outlet to release conditioned air to the return duct or above false-ceiling plenum instead of Discharge outlet; when cooling demand decreases at the room to be conditioned.
- * Sound and Pressure Drop of SDV terminals are tested at Intertek – USA in accordance with industry standards AHRI 880-2008 and ASHRAE 130-2008.
- SDVBPE model is enabled for electric heater for re-heat application by extended length of box.



SDVBP model

DIMENSIONS

A) SDVBP MODEL: TOP VIEW

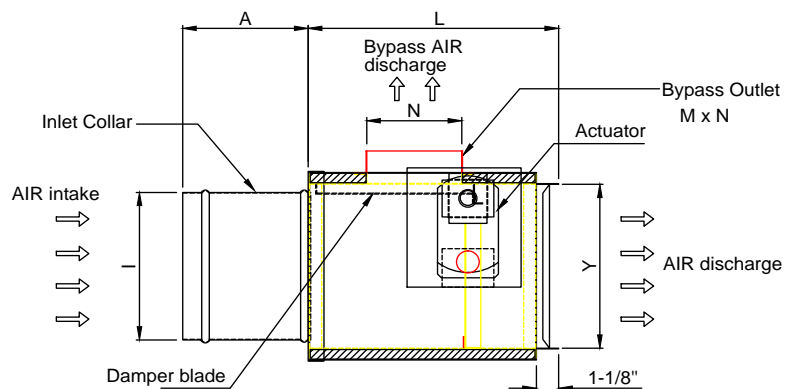


FRONT VIEW

UNIT SIZE	DIMENSIONS								BY-PASS	
	Width(total)	W	H	L	A	I	X	Y	M	N
4	13 (330)	10 (254)	10 (254)	13 (330)	10.5 (267)	3.875 (99)	8.75 (222)	8.75 (222)	5 (130)	4.9 (125)
6	13 (330)	10 (254)	10 (254)	13 (330)	6.5 (165)	5.875 (150)	8.75 (222)	8.75 (222)	7 (180)	4.9 (125)
8	15 (381)	12 (305)	10 (254)	13 (330)	6.5 (165)	7.875 (200)	10.75 (273)	8.75 (222)	9 (230)	4.9 (125)
10	17 (432)	14 (356)	12.5(318)	15 (381)	6.5 (165)	9.875 (251)	12.75 (324)	11.25 (286)	11 (280)	6.9 (175)
12	19 (482)	16 (406)	15 (381)	17 (432)	6.5 (165)	11.875 (302)	14.75 (375)	13.25 (349)	13 (330)	6.9 (175)
14	23 (584)	20 (508)	17.5 (445)	19.5 (496)	6.5 (165)	13.875 (352)	18.75 (476)	16.25 (413)	15 (380)	8.9 (225)
16	27 (686)	24 (610)	17.5 (445)	19.5 (496)	6.5 (165)	15.875 (403)	22.75 (578)	16.25 (413)	17 (430)	8.9 (225)

NOTES:-

- ALL DIMENSIONS ARE IN INCHES(MM) WITH A TOLLERANCE OF ±0.125 "(3MM)



SIDE VIEW





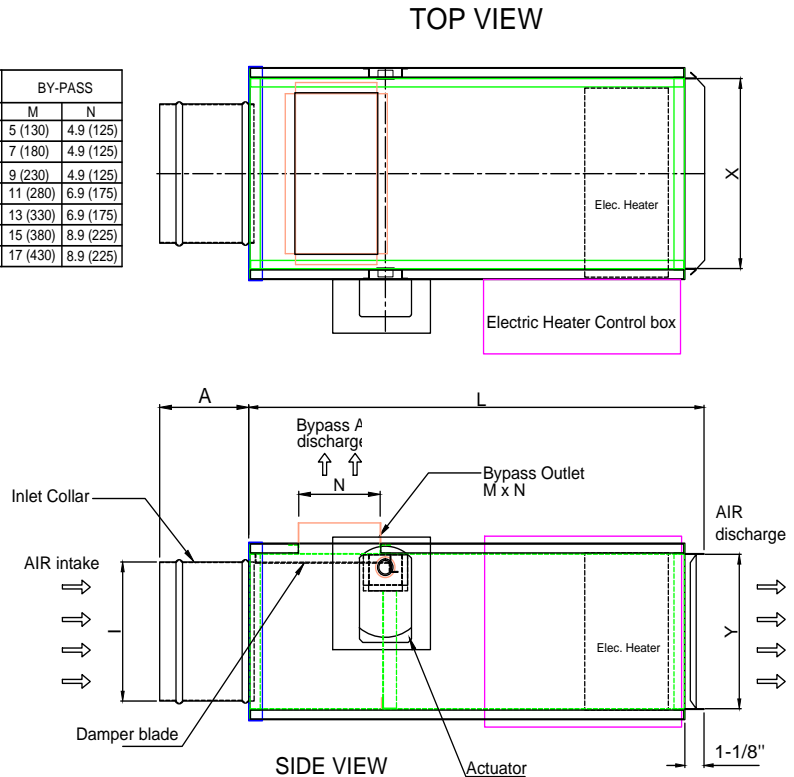
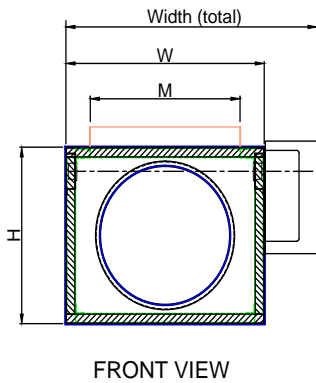
BY-PASS SINGLE DUCT VAV - SDVBP/SDVBPE MODELS

PERFORMANCE DATA

B) SDVBPE MODEL:

UNIT SIZE	DIMENSIONS									BY-PASS	
	Width (total)	W	H	L	A	I	X	Y	M	N	
4	13 (330)	10 (254)	10 (254)	35.5 (895)	10.5 (267)	3.875 (98)	8.75 (222)	8.75 (222)	5 (130)	4.9 (125)	
6	13 (330)	10 (254)	10 (254)	35.5 (895)	6.5 (165)	5.875 (149)	8.75 (222)	8.75 (222)	7 (180)	4.9 (125)	
8	15 (381)	12 (305)	10 (254)	35.5 (895)	6.5 (165)	7.875 (200)	10.75 (273)	8.75 (222)	9 (230)	4.9 (125)	
10	17 (432)	14 (356)	12.5 (318)	32.1 (816)	6.5 (165)	9.875 (251)	12.75 (324)	11.25 (286)	11 (280)	6.9 (175)	
12	19 (482)	16 (406)	15 (381)	39.3 (1000)	6.5 (165)	11.875 (302)	14.75 (375)	13.25 (349)	13 (330)	6.9 (175)	
14	23 (584)	20 (508)	17.5 (445)	39.3 (1000)	6.5 (165)	13.875 (352)	18.75 (476)	16.25 (413)	15 (380)	8.9 (225)	
16	27 (686)	24 (610)	17.5 (445)	39.3 (1000)	6.5 (165)	15.875 (403)	22.75 (578)	16.25 (413)	17 (430)	8.9 (225)	

NOTES:-
 • ALL DIMENSIONS ARE IN INCHES(MM)
 WITH A TOLLERANCE OF ±0.125"(3MM)



AIR CAPACITIES

SIZE	100	150	200	250	300	350	400
INLET DIA., IN	4	6	8	10	12	14	16
INLET AREA, SQ.FT.	0.09	0.2	0.35	0.55	0.79	1.07	1.4
NOMINAL FLOW, CFM	256	639	1176	1833	2721	3534	4597

PERFORMANCE DATA



Results of Intertek test conducted in accordance with AHRI 880-2008 AND ASHRAE 130-2008:

SIZE	CFM	Min P _s Inch WG	Radiated Sound Power (dB) By octave band @ 1.5 inch WG							Radiated Sound Power (dB) By octave band @ 1.5 inch WG						
			2	3	4	5	6	7	2	3	4	5	6	7		
150	400	0.07	55	48	46	39	31	25	74	73	68	64	62	57		
250	1100	0.00	58	55	56	46	37	30	74	72	65	63	62	59		
350	2100	-0.02	63	62	54	47	41	35	76	75	66	65	64	61		

Notes: 1- Above dB values are A-scaled 2- Above dB are with ref. 10⁻¹² watt





BY-PASS SINGLE DUCT VAV - SDVBP/SDVBPE MODELS

PERFORMANCE DATA

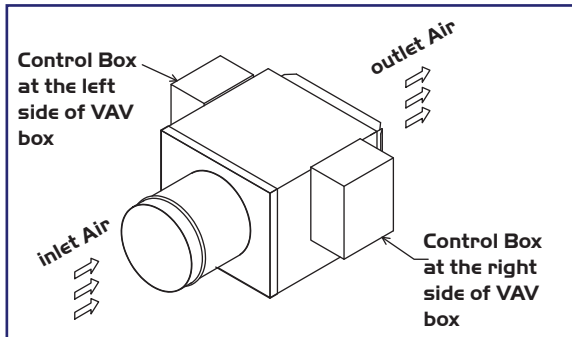
SOUND & PRESSURE DATA

NOTES:

- 1- Min ΔP_s is the static pressure loss through the unit with 100% air flow through discharge outlet.
- 2- NC_D is the discharge noise criteria through the unit with 100% air flow through discharge outlet, based on 10 dB room absorption.
- 3- NC_R is the radiated noise criteria through an exposed unit with 100% air flow through discharge outlet, based on 10 dB room absorption.

Terminal Size	CFM	Min ΔP_s (inch WG)	NC_D			NC_R		
			0.5 Inch WG	1.0 Inch WG	3.0 Inch WG	0.5 Inch WG	1.0 Inch WG	3.0 Inch WG
100	50	0.01	36	41	52	28	30	36
	100	0.02	39	44	55	32	33	39
	150	0.03	42	49	59	36	37	46
	250	0.05	51	56	66	45	45	55
150	150	0.02	36	44	56	27	33	42
	250	0.04	40	46	58	30	35	45
	450	0.07	48	55	63	37	43	52
	600	0.08	51	59	66	39	46	55
200	200	0.01	39	45	62	28	35	49
	500	0.03	44	50	64	31	38	53
	800	0.03	50	56	65	40	44	55
	1100	0.04	54	59	68	44	47	56
250	300	0.01	39	49	62	38	36	49
	800	0.01	44	54	66	33	40	55
	1200	0.01	50	57	68	37	45	56
	1900	0.03	55	61	-	43	50	61
300	450	0.01	43	53	61	33	40	53
	1100	0.01	47	57	65	37	45	57
	1700	0.02	53	59	70	40	48	59
	2700	0.03	55	61	-	44	51	62
350	600	0.01	41	50	61	31	38	48
	1500	0.01	47	55	66	35	42	53
	2300	0.02	54	58	68	38	45	56
	3500	0.03	56	60	70	43	49	60
400	800	0.01	47	52	64	32	38	50
	2600	0.02	51	56	68	37	44	57
	3600	0.03	57	61	-	44	48	59
	4500	0.04	59	63	-	47	52	63

ORDERING KEY



Ordering Key:

S	D	V	B	P	E	I	S	O	L	B	S	T
BY-PASS TYPE SINGLE DUCT VAV BOX												
--: NOT ENABLED FOR ELECTRIC HEATER												
E: ENABLED FOR ELECTRIC HEATER												
SIZE: 100, 150, 200, 250, 300, 350 OR 400												
L: CONTROL BOX AT LEFT SIDE OF VAV BOX (STANDARD)												
R: CONTROL BOX AT RIGHT SIDE OF VAV BOX												
ACTUATOR:												
B: BELIMO					J: JOHNSON							
G: GRUNER					S: SIEMENS							
H: HONEYWELL					O: OTHER BRAND							
W: WITHOUT ACTUATOR												
THERMOSTAT:												
A: ACSYS					J: JOHNSON							
B: BELIMO					S: SIEMENS							
H: HONEYWELL					T: TITAN							
O: OTHER BRAND					W: WITHOUT THERMOSTAT							
T: WITH TRANSFORMER												
--: WITHOUT TRANSFORMER												





ELECTRIC RE-HEATING FOR SINGLE DUCT VAV - SDVE/SDVBPE MODELS

ELECTRIC HEATER

DESCRIPTION & OPTIONS

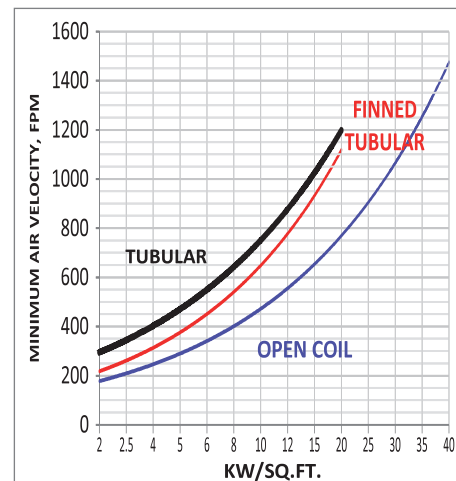
- Slip-in type electric heater made of galvanized steel of appropriate gauge.
- Configuration of the electric heater can be arranged as per customer requirements.
- Heating elements are available in Open Coil, Tubular or Finned Tubular types.
- Available in ON/Off, STAGING and MODULATING electric control.
- Primary over temperature protection is provided by auto reset thermal disc-type cutout.
- Air flow switch (requires min Pt total pressure of 0.07 inch WG at the face of the electric coil).

OPTIONS:

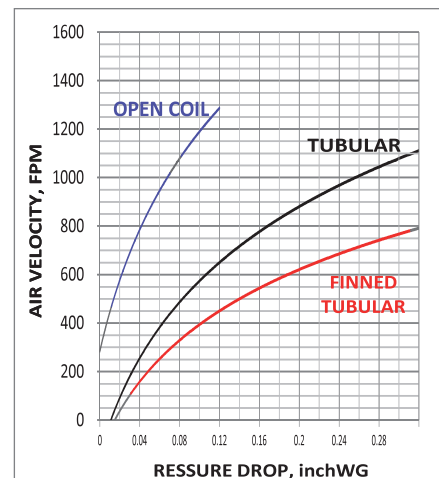
The following components can be provided upon request:

- Secondary over temperature protection with manual reset (push button) thermal disc-type cutout.
- 24V transformer & control fuse.
- Magnetic / safety contactors.
- Line and control terminal blocks.
- Up to 3 steps of heater.
- Patented Modulating HEC controls.
- Available in ETL/CSA or UL listed optional assemblies.
- Door-interlocking disconnect switch.
- Main power fuses.
- Mercury contactors.
- Proportional SSR control (0-100%).
- Discharge temperature limiting control.
- Electronic Flow Sensor can be provided.

MINIMUM AIR VELOCITY REQUIREMENTS:



HEATER'S ELEMENT PRESSURE DROP DATA:





ELECTRIC RE-HEATING FOR SINGLE DUCT VAV - SDVE/SDVBPE MODELS

ELECTRIC HEATER

HEATER CONTROL & POWER:

$$kW = CFM \times \Delta T^{\circ}F / 3160 = m^3/h \times \Delta T^{\circ}C / 2769$$

1) CONVENTIONAL STAGED CONTROL:

SIZE	STAGES	ALLOWABLE MAXIMUM KWATT		
		1 PHASE		3 PHASE
		120V	240V	380V
100	1,2	3.5	3.5	3.5
150	1,2	5.5	6.0	6.0
200	1,2,3	5.5	11.0	11.0
250	1,2,3	5.5	11.5	17.0
300	1,2,3	5.5	11.5	30.0
350	1,2,3	5.5	11.5	39.0
400	1,2,3	5.5	11.5	39.0

Notes:

- 1- Low watt density elements (Max. 35W/in²)
- 2- Min. kW:
 - Single Phase = 0.5 kW/stage
 - Three Phase = 1.5 kW
- 3- Min. based on air velocity of 200 FPM across the coil.

2) MODULATING CONTROL:

SIZE	ALLOWABLE MAXIMUM KWATT		
	1 PHASE		3 PHASE
	120V	240V	380V
100	3.0	3.0	3.0
150	4.5	6.0	6.0
200	4.5	9.5	11.0
250	4.5	9.5	19.0
300	4.5	9.5	30.0
350	4.5	9.5	33.0
400	4.5	9.5	33.0

Notes:

- 1- Low watt density elements (Max. 35W/in²)
- 2- Min. kW:
 - Single Phase = 1.0 kW
 - Three Phase = 1.5 kW
- 3- Min. based on air velocity of 100 FPM across the coil.

* The Max Allowable KW shown is based on UL / NEC standards.

** The minimum air flow requirement for terminals with electric coils is the greater of 70 CFM/KW or the minimum allowable flow rate that can be accurately controlled. This allows proper operation of the electric coil and results in increased coil life with a maximum air temperature rise of 45° F to prevent thermal stratification in the space.

*** Uniform flow through a coil results in optimum performance, and therefore, we recommend a minimum length of 48" of full size discharge duct after the air terminal.





ELECTRIC RE-HEATING FOR SINGLE DUCT VAV - SDVE/SDVBPE MODELS

ELECTRIC HEATER

HEATER'S STANDARD & OPTIONAL FEATURES:

ELEMENT TYPE:	<input type="checkbox"/> OPEN COIL	<input type="checkbox"/> TUBULAR	<input type="checkbox"/> FINNED TUBULAR			
ELEMENT CONSTRUCTION:	<input type="checkbox"/> GRADE C NiCr 60 (standard) <input type="checkbox"/> GRADE A NiCr 80	<input type="checkbox"/> INCOLOY 800 Nickel Alloy (standard) <input type="checkbox"/> S.S. ELEMENT				
POWER PHASE:	<input type="checkbox"/> SINGLE		<input type="checkbox"/> 3 PHASE			
POWER VOLTAGE:	<input type="checkbox"/> 120V	<input type="checkbox"/> 240V	<input type="checkbox"/> 380V			
POWER FREQUENCY:	<input type="checkbox"/> 50Hz		<input type="checkbox"/> 60Hz			
HEATING STAGES:	STAGE NO.	CONTROL SIGNAL	KW	STAGE NO.	CONTROL SIGNAL	KW
	STAGE 1	<input type="checkbox"/> ON/OFF <input type="checkbox"/> MODULATING		STAGE 3	ON/OFF	
	STAGE 2	ON/OFF				
DISC-TYPE AUTOMATIC RE-SET THERMAL CUT-OUT	STANDARD					
MANUAL RE-SET THERMAL CUT-OUT	OPTIONAL					
AIR FLOW SWITCH (at least 0.07" WG)	STANDARD (OPTIONAL ONLY WITH HEC) <input type="checkbox"/> fixed (PDN) <input type="checkbox"/> adjustable (PDA)					
MAGNETIC CONTACTORS	STANDARD (OPTIONAL ONLY WITH STEP CONTROLLED HEATERS)					
DISCONNECT SWITCH	OPTIONAL: <input type="checkbox"/> Disconnect switch (door interlock) (DS) <input type="checkbox"/> Toggle switch (TS)					
TIME DELAY SWITCH	OPTIONAL: <input type="checkbox"/> Thermal relay (RT) <input type="checkbox"/> Silent relay (CS) <input type="checkbox"/> Mercury contactor (CM)					
TRANSFORMER	OPTIONAL (STANDARD ONLY WITH HEC)					
POWER FUSES	OPTIONAL: <input type="checkbox"/> Line fuses (LF) <input type="checkbox"/> Stage fuses (SF) <input type="checkbox"/> BOTH LF & SF					
CONTROL FUSES	OPTIONAL (STANDARD ONLY WITH HEC)					
SCR Modulating Controller (0-10 VDC)	OPTIONAL					
SOLID STATE RELAY	OPTIONAL (STANDARD ONLY WITH HEC)					
PILOT LIGHT	OPTIONAL: <input type="checkbox"/> Line Power (LP) <input type="checkbox"/> Stage ON (LS) <input type="checkbox"/> Heating ON (LH) <input type="checkbox"/> Overheat (LO) <input type="checkbox"/> No airflow (LN)					
VOLT FREE CONTACTS	OPTIONAL					
STEP CONTROLLER	OPTIONAL					
AUTOMATIC CIRCUIT BREAKER	OPTIONAL					

