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Bypass Terminal Unit
Type BPV-P

Product Overview

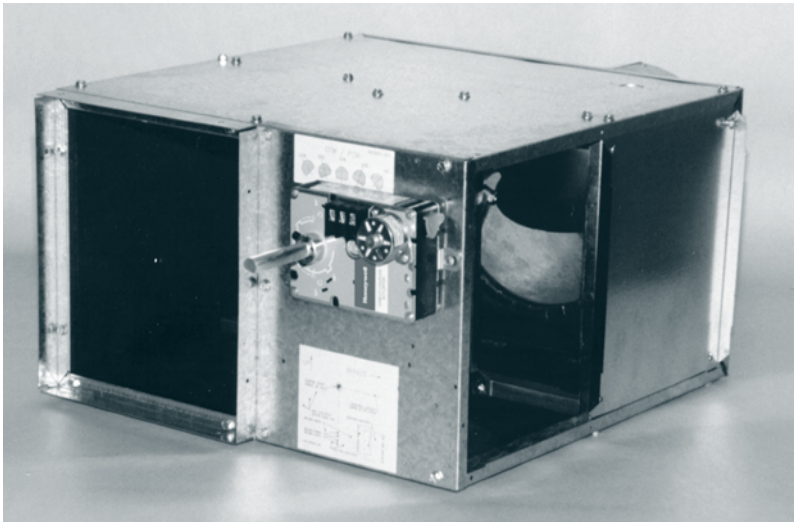
General Information:

Low Pressure By-pass

Terminal Units, provide complete zoning flexibility from a easy single zone source. BPV-P terminal units complement packaged rooftop and low pressure central station units by providing excellent temperature control and central air distribution with unlimited zoning.

BPV-P terminal units are applicable to any low pressure low velocity system where zoned capacities are required.

Advantages are as follows:-
Easy & simple to install can be used with packed units in new buildings.
Can be used to add zoned control to areas of older buildings.
Can be easily modified or relocated as interior requirements change.



Features:

Capacities ranging from 100 – 2700 cfm in 6 sizes. Unit casings constructed of 22 Ga zinc-coated steel acoustically and thermally lined 13mm thick insulation which meets the requirements of standards NFPA 90A and UL181.

Low profile, compact design features with sliding by-pass dampers.

Supply bypass dampers has polyethylene linear bearings which slide on a metal tracks.

Designed for low Noise level while adding minimal pressure to the system.

Electronic thermostat and actuator provide modulating controls.

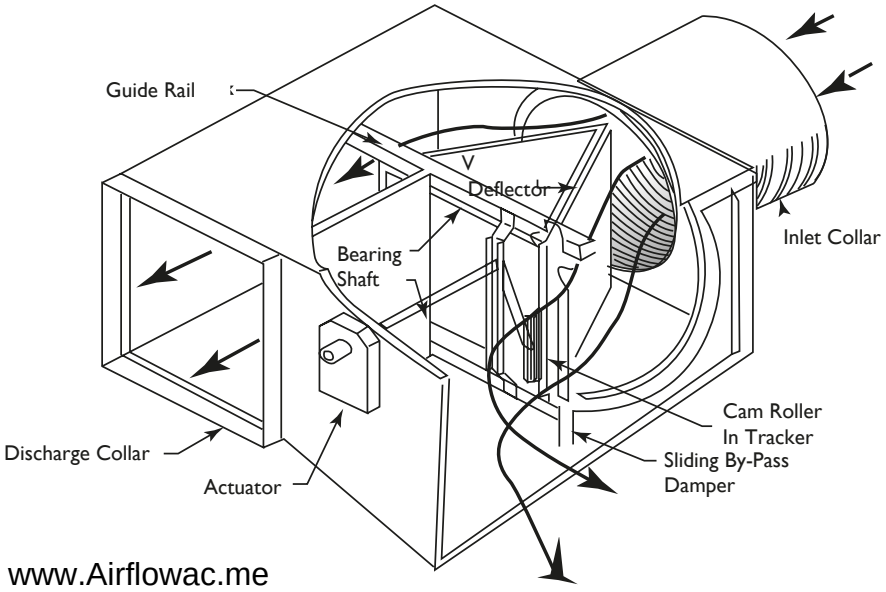
A minimum air volume stop is provided as standard. Field adjustment is required.

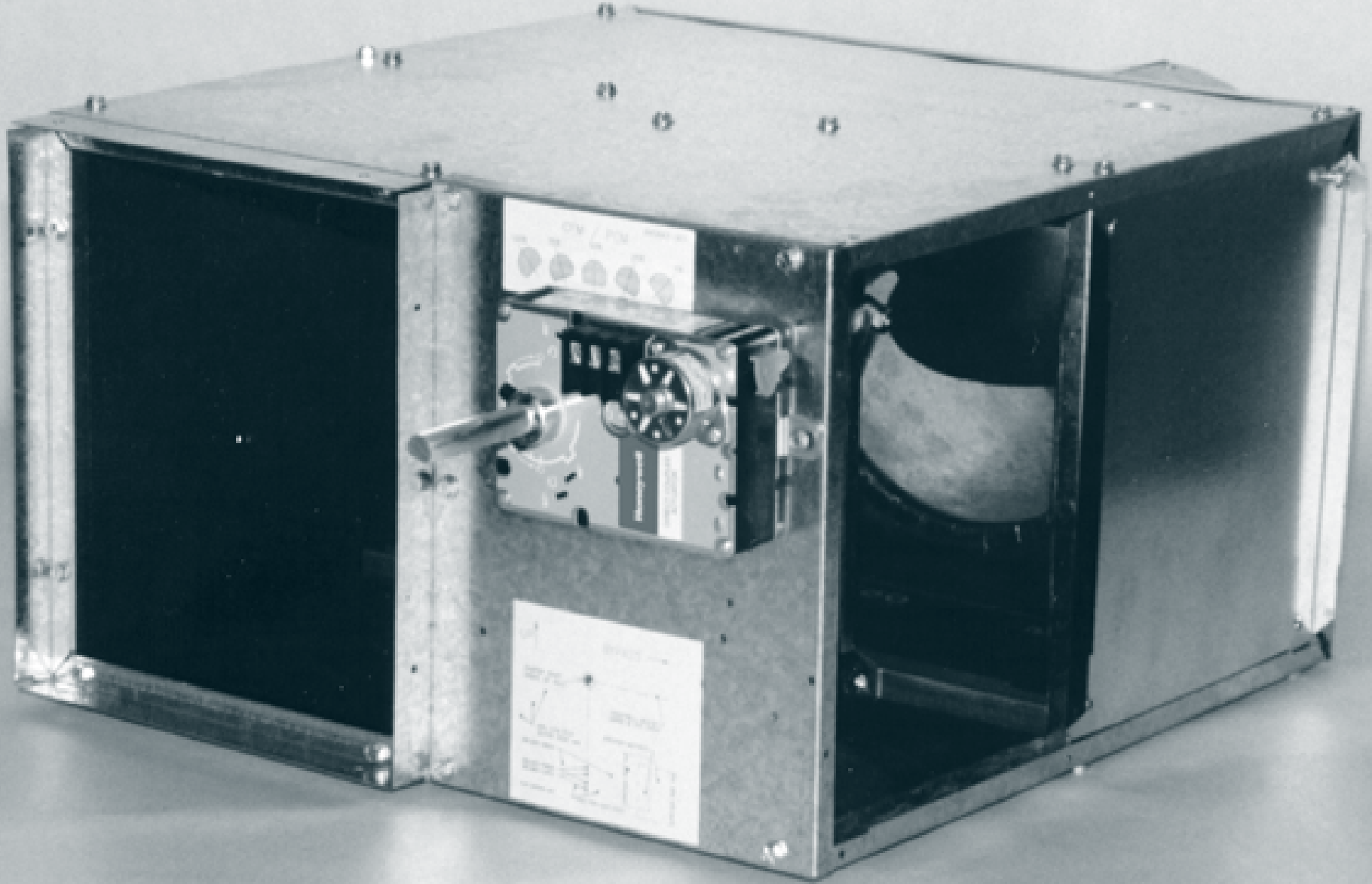
System Operation

A variable volume, low pressure, by-pass system of BPV-P terminal units connected to the supply air duct system of a constant volume single zone source. A constant volume of air conditioned is supplied to each terminal unit. The bypass damper modulates in response to thermostat demand, to vary the amount of conditioned air delivered to the occupied space. Damper modulation will range from full airflow to shut-off, or to a minimum air volume. As the thermostat modulates the bypass damper to reduce the air volume to the occupied space, the excess air is diverted through the by-pass port into the ceiling voild for free or ducted return.

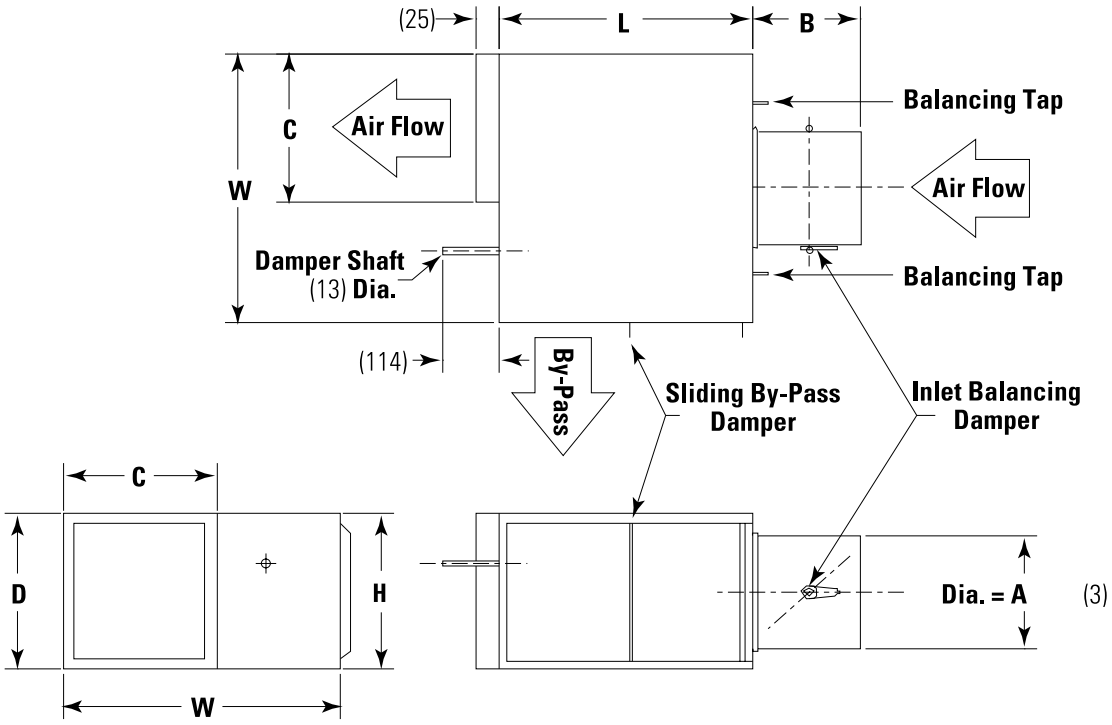
With BPV-P variable volume by-pass system, any part of the conditioned supply air that is not required to satisfy space demand, is by-passed into the return air system at its original supply temperature. This saves not only the reheat energy, but also contributes to a reduction in the energy required for cooling at central supply unit.

When Roof top units with air economizers are used, overpressurization of the building can result during full open economizer operation. a ducted return air system address this issue.





VAV DRAWINGS AND ILLUSTRATIONS



Dimensional Data — Metric (mm)

	Air Flow					Inlet		Outlet	
Unit Size	cfm	L/s	W	L	H	A	B	C	D
BPV-15	400	(189)	(432)	(432)	(254)	(152)	(160)	(229)	(254)
BPV-20	700	(330)	(432)	(432)	(254)	(203)	(200)	(229)	(254)
BPV-25	1100	(519)	(600)	(635)	(300)	(254)	(250)	(356)	(298)
BPV-30	1600	(755)	(650)	(635)	(300)	(295)	(250)	(396)	(298)
BPV-35	2100	(991)	(737)	(737)	(406)	(356)	(362)	(381)	(406)
BPV-40	2800	(1321)	(838)	(838)	(457)	(406)	(384)	(432)	(457)

Performance Data

	Airflow		Minimum S.P.								Discharge		Radiated
			Discharge – Basic		Discharge – 1 Row		Discharge – 2 Row		By-Pass				
Unit Size	L/s	CFM	Pa	in.wg	Pa	in.wg	Pa	in.wg	Pa	in.wg	NC(1)	NC(2)	NC
	47	100	2	0.01	4	0.02	6	0.03	2	0.01	--	--	--
BPV-15	94	200	12	0.05	18	0.08	25	0.10	10	0.04	--	21	--
	142	300	27	0.11	39	0.16	52	0.21	22	0.09	--	33	--
	189	400	50	0.20	70	0.28	91	0.36	40	0.16	--	40	24
	189	400	17	0.07	37	0.15	58	0.23	32	0.13	--	25	--
BPV-20	236	500	25	0.10	55	0.22	85	0.34	50	0.20	--	31	--
	283	600	37	0.15	78	0.31	118	0.48	72	0.29	--	36	20
	330	700	50	0.20	100	0.40	152	0.61	97	0.39	--	40	24
	236	500	10	0.04	26	0.10	41	0.17	7	0.03	--	--	--
BPV-25	330	700	20	0.08	48	0.19	75	0.30	17	0.07	--	27	--
	425	900	32	0.13	74	0.30	116	0.47	27	0.11	--	34	--
	519	1100	50	0.20	109	0.44	169	0.68	42	0.17	--	40	24
	378	800	12	0.05	47	0.19	82	0.33	25	0.10	--	21	--
BPV-30	472	1000	20	0.08	71	0.29	121	0.49	40	0.16	--	27	--
	614	1300	32	0.13	111	0.45	189	0.76	67	0.27	--	36	--
	755	1600	50	0.20	169	0.68	286	1.15	100	0.40	--	40	24
	519	1100	12	0.05	47	0.19	81	0.33	25	0.10	--	21	--
BPV-35	661	1400	22	0.09	74	0.30	126	0.51	40	0.16	--	28	--
	802	1700	32	0.13	105	0.42	177	0.72	60	0.24	--	34	--
	991	2100	50	0.20	146	0.59	241	0.97	92	0.37	--	40	25
	755	1600	17	0.07	52	0.21	86	0.35	27	0.11	--	25	--
BPV-40	944	2000	25	0.10	76	0.30	126	0.51	45	0.18	--	31	--
	1133	2400	37	0.15	106	0.43	175	0.71	65	0.26	--	36	23
	1321	2800	50	0.20	140	0.56	229	0.92	87	0.35	--	40	27

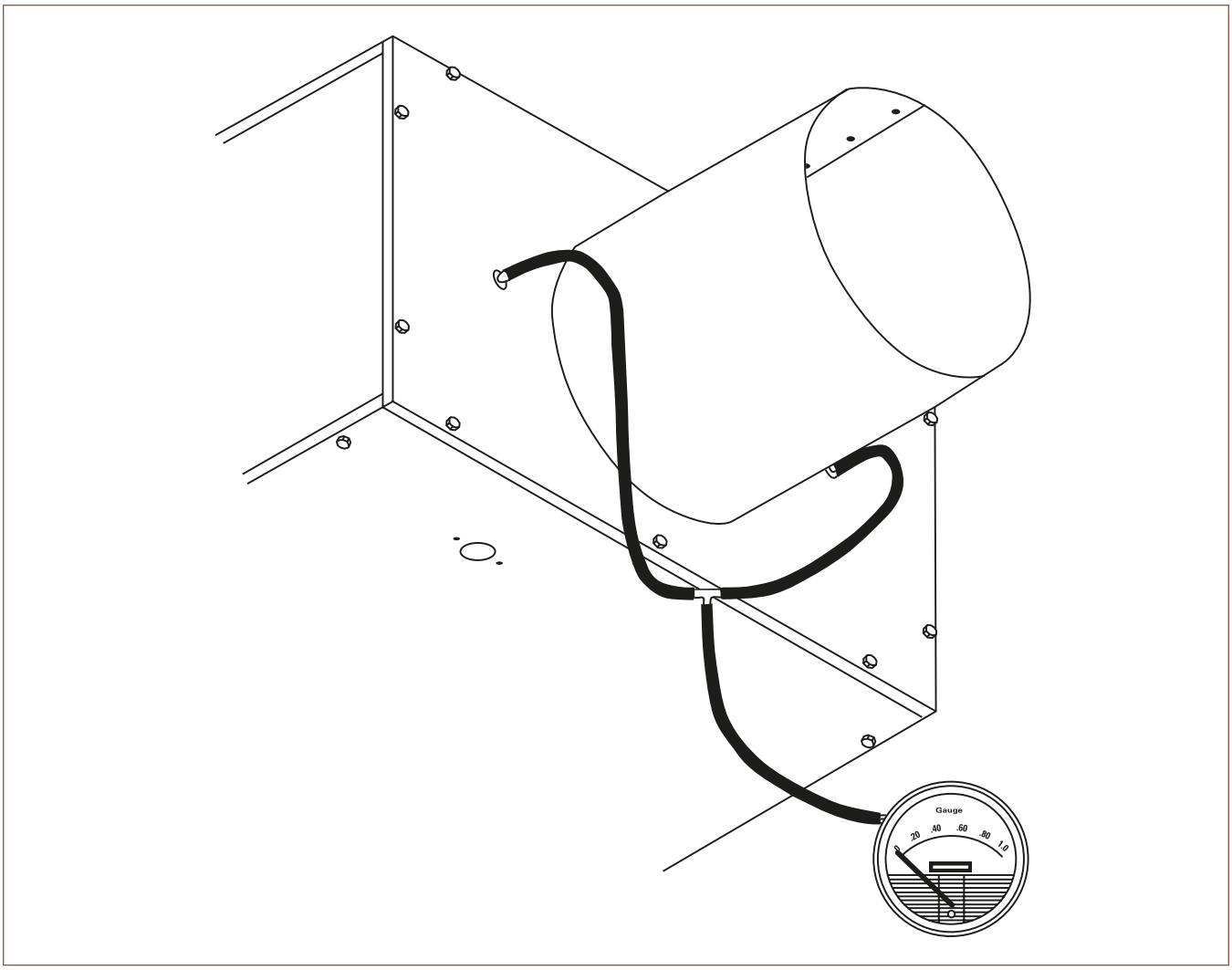
Performance Notes:

1. Test data obtained in accordance with ARI standard 880-98.
2. Airflow is given CFM and LPS.
3. Pressure in Pa and in Wg.
4. Listed minimum SP discharge is the static pressure loss through the unit with 100% airflow through the discharge outlet.
5. Listed minimum static pressure through By-pass is the static pressure loss thought the unit with 100% airflow through the bypass outlet.
6. NC value in decibels(dB) re 10-12 watts.
7. Blanks (--) indicate value <20.

ARI Certification Criteria

Unit Size	Rated Air flow		Minimum Operating Pressure Required		Radiated Sound Power Level, dB at Minimum Operating Pressure						Discharge Sound Power Level, dB at Minimum Operating Pressure					
	L/s	cfm	Pa	in. W.G.	2	3	4	5	6	7	2	3	4	5	6	7
BPV-15	189	400	50	0.20	55	55	46	38	38	38	60	59	52	50	48	41
BPV-20	330	700	50	0.20	58	55	46	40	38	38	60	59	52	50	48	41
BPV-25	519	1100	50	0.20	60	55	47	42	39	38	60	59	52	50	48	41
BPV-30	755	1600	50	0.20	61	55	48	44	41	38	60	59	52	50	48	41
BPV-35	991	2100	50	0.20	62	55	48	44	41	38	60	59	52	50	48	41
BPV-40	1321	2800	50	0.20	64	55	49	46	43	38	60	59	52	50	48	41

Balancing Procedure



The Model BPV-P is shipped standard with inlet and by-pass balancing dampers as well as two balancing taps on the inlet panel of the unit. Included on this page are easy to follow balancing procedures for setting of the by-pass damper. In the past, field balancing of the by-pass was very difficult, resulting in less than ideal operation. The balancing taps ensure accurate adjustment and optimum operation.

1. Open the dampers of all supply outlets on the discharge duct from the terminal unit.
2. Adjust the room thermostat so that 100% of the air from the terminal unit is delivered to the room.
3. Adjust the volume control of the to provide the required total amount of air.
4. Starting with the outlet furthest away, adjust the damper of each air outlet to the required air volumes.
5. Take a static pressure reading using the dual pressure taps on the inlet panel (to obtain an average reading, link the two pressure taps together using two equal lengths of tubing connected by a "T").
6. Adjust the room thermostat to provide 100% by-pass air flow (or the minimum air volume to the room, if required).
7. Position the by-pass sliding damper so that the static pressure reading obtained in step 5 remains unchanged.
8. Readjust the room thermostat to its operating set point.