

BYPASS TERMINAL UNITS

FEATURES:

- Casing – 22 ga. galvanized steel with round or flat oval inlets. Outlets are rectangular with slip and drive connections.
- Damper – New heavy gauge steel cylindrical "Flow Diverter" valve design for reliable long term operation. Eliminates any internal damper linkage. 90° rotation. CW to close.
- 1/2" (13) dia. plated steel driveshaft. An indicator mark on the end of the shaft shows damper position.
- 3/4" (19) dual density insulation. Exposed edges are coated to prevent airflow erosion.
- Inlet balancing damper.
- Easily adjustable bypass port balancing dampers.
- Sizes range from 6" (152) to 16" (406) with capacities from 100 to 2750 cfm. Tested in accordance with ANSI/ASHRAE Standard 130-1996
- Compact low profile design is ideally suited for installation in tight spaces.
- Minimum air volume stop on electric actuator. It cannot be factory set and must be field adjusted as required for the application.
- Variety of control options available, based on applications.

Options:

- Multi-outlet plenum.
- Round/Oval discharge collar.

Controls:

electronic control. Factory supplied and mounted.

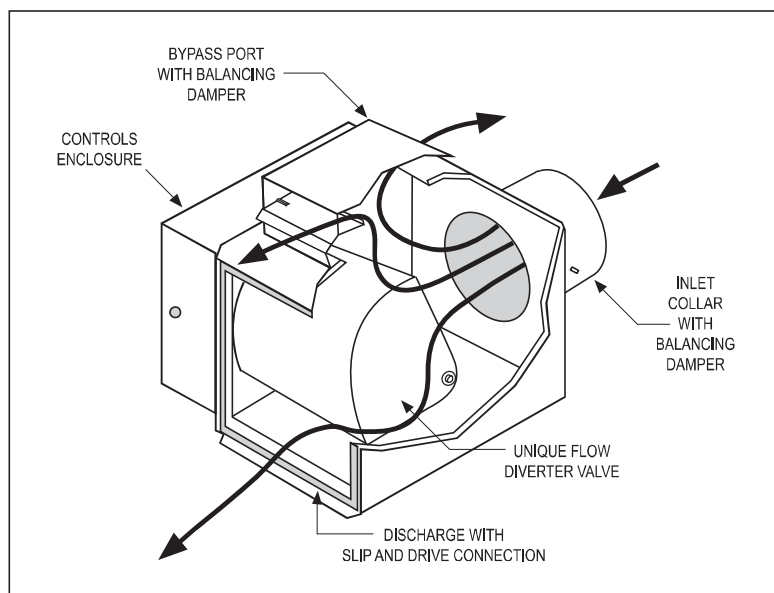
BYPASS TERMINAL UNITS

"Flow Diverter" Valve

bypass terminal units utilize cylindrical

flow diverter valve for superior control and performance. A common problem with standard pivoted single blade damper designs is objectionable noise and loss of modulation due to pulsating and/or a snap-closing action of the valve. This is caused by a poor valve design, which struggles to modulate turbulent airflow and requires excessive torque.

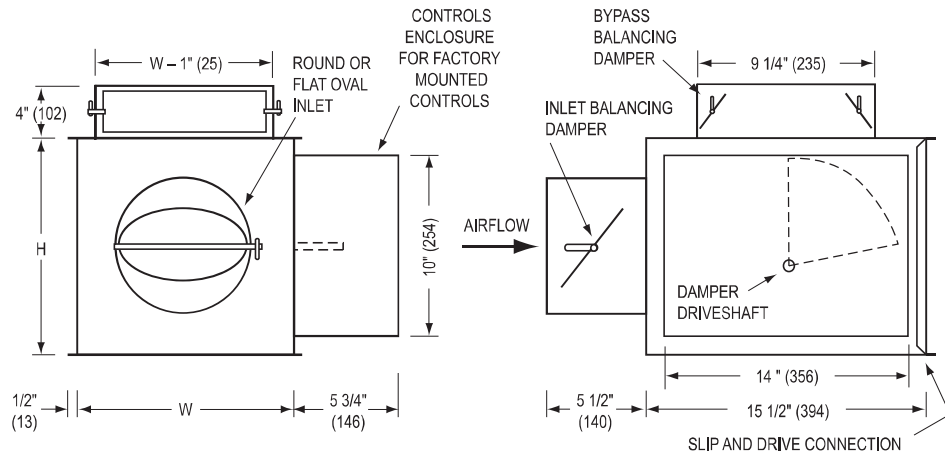
The flow diverter valve eliminates these problems. The rugged cylindrical damper design smoothly modulates between supply and bypass conditions and when installed under airflow is essentially self-balancing, requiring only a negligible torque requirement. The result is superior reliable long-term performance and quiet operation.



BYPASS TERMINAL UNITS

Electronic Controls

- A full controls enclosure is provided for factory mounted controls. Optional for field mounted controls.



Dimensional Data

Imperial Units (inches)				
Unit Size	cfm Range	W	H	Inlet Size
6	0 - 400	10	12 1/2	5 7/8 Round
8	0 - 700	12	12 1/2	7 7/8 Round
10	0 - 1100	14	12 1/2	9 7/8 Round
12	0 - 1600	18	12 1/2	12 15/16 x 9 13/16 Oval
14	0 - 2100	24	12 1/2	16 1/16 x 9 13/16 Oval
16	0 - 2800	28	12 1/2	19 3/16 x 9 13/16 Oval

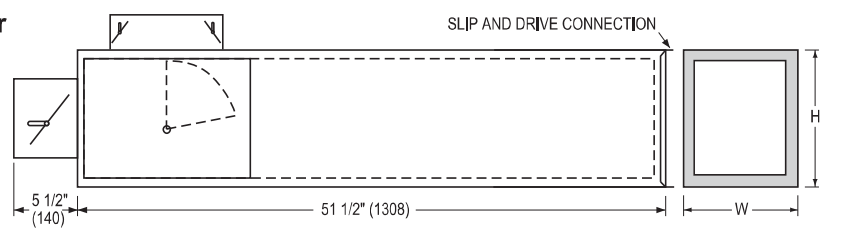
Metric Units (mm)				
Unit Size	I/s Range	W	H	Inlet Size
6	0 - 189	254		149 Round
8	0 - 330	305		200 Round
10	0 - 519	356		251 Round
12	0 - 755	457		329 x 249 Oval
14	0 - 991	610		408 x 249 Oval
16	0 - 1322	711		487 x 249 Oval

BYPASS TERMINAL UNITS

Dimensions • Bypass Terminal Unit Accessories

Integral Sound Attenuator

- Single continuous length terminal construction minimizes casing leakage.
- Continuous internal insulation reduces insulation seams and minimizes airflow disturbance.

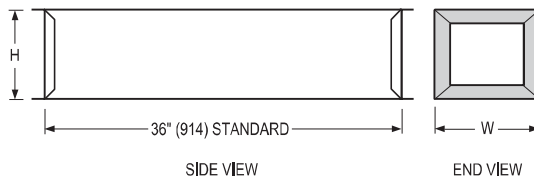


BYPASS TERMINAL UNITS

Dimensions

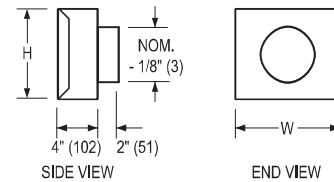
• Bypass Terminal Unit Accessories

Discharge Sound Attenuator

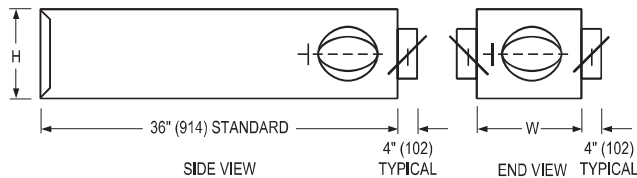


- Shipped loose for field attachment.
- Slip and drive connection.
- dual density internal insulation standard. Treated to prevent erosion.

Round Discharge Collar



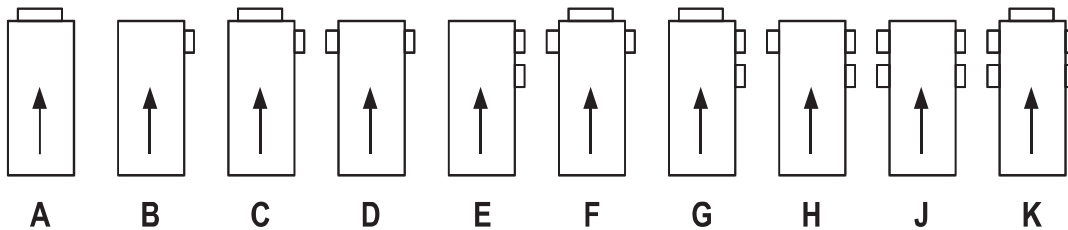
MOA Multi-Outlet Attenuator (3 ft. (914))



- Only one outlet size to be specified per M.O.A. No mixing of outlet sizes on the same unit. Number and size of outlets on M.O.A. not to exceed the limits listed in table, both maximum quantity of outlets and maximum size of outlet.
- All round outlets c/w manual dampers with hand locking quadrant.
- 3/4" (19) dual density insulation.
- Denotes inlet airflow direction. ➔

Unit Size	M.O.A. Outlets
6 (152)	3 @ 6" (152)
8 (203)	5 @ 8" (203) 5 @ 6" (152)
10 (254)	3 @ 10" (254) 5 @ 8" (203)
12 (305)	5 @ 8" (203) 5 @ 10" (254)
14, 16 (356, 406)	5 @ 10" (254)

Standard Outlet Arrangements



Dimensional Data

Unit Size	Imperial Units			Metric Units		
	W	H	FF Outlet Size	W	H	FF Outlet Size
6	10	12 ½	6	254	318	152
8	12	12 ½	8	305	318	203
10	14	12 ½	10	356	318	254
12	18	12 ½	12	457	318	305
14	24	12 ½	14	610	318	356
16	28	12 ½	16	711	318	406

BYPASS TERMINAL UNITS

Performance Data • NC Level Application Guide

Inlet Size	Airflow cfm l/s		Min. Discharge Δ Ps "w.g. Pa		Min. Bypass Δ Ps "w.g. Pa		NC Levels		
							Discharge	Bypass Closed	Bypass Open
6	400	189	0.01	2	0.14	35	-	-	25
	300	142	0.01	2	0.08	20	-	-	-
	200	94	0.01	2	0.04	10	-	-	-
	100	47	0.01	2	0.01	2	-	-	-
8	700	330	0.01	2	0.21	52	-	-	30
	500	236	0.01	2	0.11	27	-	-	20
	350	165	0.01	2	0.05	12	-	-	-
	200	94	0.01	2	0.02	5	-	-	-
10	1100	519	0.01	2	0.43	107	-	20	37
	800	378	0.01	2	0.23	57	-	-	25
	500	236	0.01	2	0.09	22	-	-	-
	250	118	0.01	2	0.02	5	-	-	-
12	1600	755	0.01	2	0.50	124	-	20	40
	1200	566	0.01	2	0.28	70	-	-	33
	800	378	0.01	2	0.13	32	-	-	22
	400	189	0.01	2	0.03	7	-	-	-
14	2100	991	0.05	12	0.50	124	-	31	43
	1600	755	0.03	7	0.29	72	-	24	35
	1050	495	0.01	2	0.12	30	-	-	23
	550	260	0.01	2	0.03	7	-	-	-
16	2750	1298	0.06	15	0.50	124	21	34	47
	2050	967	0.03	7	0.28	70	-	24	37
	1375	649	0.01	2	0.13	32	-	-	27
	700	330	0.01	2	0.03	7	-	-	-

Performance Notes:

1. NC levels are calculated from the published raw data and based on procedures outlined in Appendix E, ARI 885-98.

2. Discharge sound attenuation deductions are based on environmental effect, duct lining, branch power division, insulated flex duct, end reflection and space effect and are as follows:

Discharge attenuation	Octave Band						
	2	3	4	5	6	7	
< 300 cfm	24	28	39	53	58	40	
300 – 700 cfm	27	29	40	51	53	39	
> 700 cfm	29	30	41	51	52	39	

3. Radiated sound attenuation deductions are based on a mineral tile ceiling and environmental effect and are as follows:

Radiated attenuation	Octave Band						
	2	3	4	5	6	7	
Total dB reduction	18	19	20	26	31	36	

4. Minimum discharge Δ Ps is the static pressure loss through the unit with 100% airflow through discharge outlet.

5. Minimum bypass Δ Ps is the static pressure loss through the unit with 100% airflow through the bypass outlet.

6. Dash (–) in space denotes an NC level of less than 20.

BYPASS TERMINAL UNITS

Performance Data • Sound Power Levels

Inlet Size	Airflow cfm l/s		Min. Discharge ΔPs "w.g. Pa	Min. Bypass ΔPs "w.g. Pa	Sound Power Octave Bands																	
					Discharge							Radiated										
												Bypass Closed					Bypass Open					
					2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7
6	400	189	0.01 2	0.14 35	45	44	41	33	29	26	42	37	33	24	20	20	54	55	52	52	51	37
	300	142	0.01 2	0.08 20	43	38	34	25	-	-	-	34	25	-	-	-	47	48	45	47	37	26
	200	94	0.01 2	0.04 10	-	31	24	-	-	-	-	-	-	-	-	-	-	38	34	32	-	-
	100	47	0.01 2	0.01 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	34	29	-	-
8	700	330	0.01 2	0.21 52	52	51	47	39	36	33	47	41	34	28	26	20	60	59	55	53	48	41
	500	236	0.01 2	0.11 27	45	43	38	29	24	-	43	34	27	-	-	-	52	50	46	43	3	28
	350	165	0.01 2	0.05 12	-	34	28	-	-	-	-	32	-	-	-	-	47	40	37	32	25	-
	200	94	0.01 2	0.02 5	-	-	-	-	-	-	-	-	-	-	-	-	43	30	-	-	-	-
10	1100	519	0.01 2	0.43 107	50	50	46	43	37	34	52	49	46	37	32	23	65	64	62	60	56	52
	800	378	0.01 2	0.23 57	47	47	36	30	28	22	49	43	39	28	26	-	56	55	52	50	46	41
	500	236	0.01 2	0.09 22	44	40	34	28	-	-	43	35	29	-	-	-	47	45	43	41	34	-
	250	118	0.01 2	0.02 5	40	30	-	-	-	-	-	-	-	-	-	-	42	28	-	-	-	-
12	1600	755	0.01 2	0.50 124	49	47	45	43	44	40	48	51	47	37	35	29	69	69	66	63	60	56
	1200	566	0.01 2	0.28 70	44	40	38	36	36	29	43	41	38	29	25	-	61	60	58	56	52	46
	800	378	0.01 2	0.13 32	40	31	25	-	-	-	40	33	29	-	-	-	50	49	49	46	39	31
	400	189	0.01 2	0.03 7	-	-	26	-	-	-	-	-	25	-	-	-	44	40	41	35	28	-
14	2100	991	0.05 12	0.50 124	60	57	54	48	45	36	54	58	56	49	49	41	69	69	67	65	61	57
	1600	755	0.03 7	0.29 72	54	49	44	39	34	24	48	50	49	42	40	29	62	62	60	57	53	48
	1050	495	0.01 2	0.12 30	47	37	31	24	-	-	44	40	38	29	-	-	51	50	50	45	40	31
	550	260	0.01 2	0.03 7	-	31	-	-	-	-	-	31	26	-	-	-	-	37	36	29	-	-
16	2750	1298	0.06 15	0.50 124	66	64	61	56	52	46	64	63	59	49	46	37	73	73	71	69	65	61
	2050	967	0.03 7	0.28 70	58	56	51	46	42	34	57	54	50	41	36	25	65	65	63	61	56	50
	1375	649	0.01 2	0.13 32	50	45	39	33	27	-	45	41	38	27	-	-	54	53	53	50	44	34
	700	330	0.01 2	0.03 7	47	31	-	-	-	-	-	-	-	-	-	-	40	35	33	25	-	-

ARI Certification Rating Points

Inlet Size	Airflow cfm l/s		Min. Inlet ΔPs "w.g. Pa		Sound Power Octave Bands													
					Discharge							Radiated						
6	8	10	12	14	16	2	3	4	5	6	7	2	3	4	5	6	7	
6	400	189	0.01	2	45	44	41	33	29	26		42	37	33	24	20	20	
8	700	330	0.01	2	52	51	47	39	36	33		47	41	34	28	26	20	
10	1100	519	0.01	2	50	50	46	45	43	37	34	52	49	46	37	32	23	
12	1600	755	0.01	2	49	47	45	43	44	40		48	51	47	37	35	29	
14	2100	991	0.05	12	60	57	54	48	45	36		54	58	56	49	49	41	
16	2750	1298	0.06	15	66	64	61	56	52	46		64	63	59	49	46	37	

Performance Notes:

1. Discharge sound power is the noise emitted from the unit discharge into the downstream duct.
2. Radiated sound power is the breakout noise transmitted through the unit casing walls.
3. Sound power levels are in decibels, dB re 10-12 watts.

4. All sound data listed by octave bands is raw data without any corrections for room absorption or duct attenuation. Dash (-) in space indicates sound power level is less than 20 or equal to background.
5. Minimum discharge ΔP_s is the static pressure loss through the unit with 100% airflow through discharge outlet.

6. Minimum bypass ΔP_s is the static pressure loss through the unit with 100% airflow through the bypass outlet.

BYPASS TERMINAL UNITS

Standard Control Sequences Electronic • Pressure Dependent

Control Sequence

Cooling Only

Central system supplies cool air. On a rise in room temperature above set point, the bypass damper will slowly modulate open, increasing the flow of air to the room, closing the bypass at the same time. On a fall in room temperature below set point, the bypass damper will modulate closed, reducing the flow of cool air into the room and opening the bypass at the same time. A mechanical air volume minimum stop is provided (field set).

