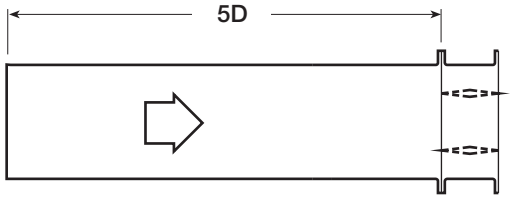
This pressure drop testing was conducted in accordance with AMCA Standard 500-D using the three configurations shown. All data has been corrected to represent standard air at a density of .075 lb/ft^3(1.201 kg/m^3).

Actual pressure drop found in any HVAC system is a combination of many factors. This pressure drop information along with an analysis of other system influences should be used to estimate actual pressure losses for a damper installed in a given HVAC system.

AMCA Test Figures

Figure 5.2 Illustrates a ducted damper exhausting air into an open area. This configuration has a lower pressure drop than Figure 5.5 because entrance losses are minimized by a straight duct run upstream of the damper.



$$D = \sqrt{\frac{4\,(W)\,(H)}{3.14}}$$

Figure 5.3 Illustrates a fully ducted damper. This configuration has the lowest pressure drop of the three test configurations because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.

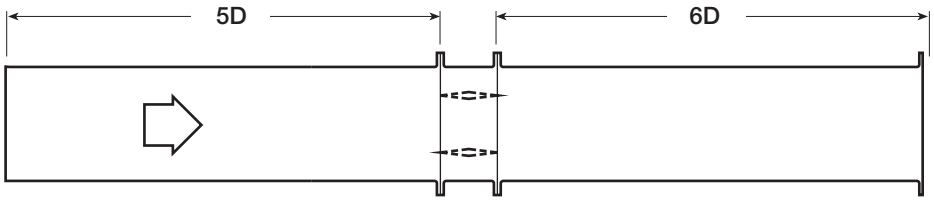
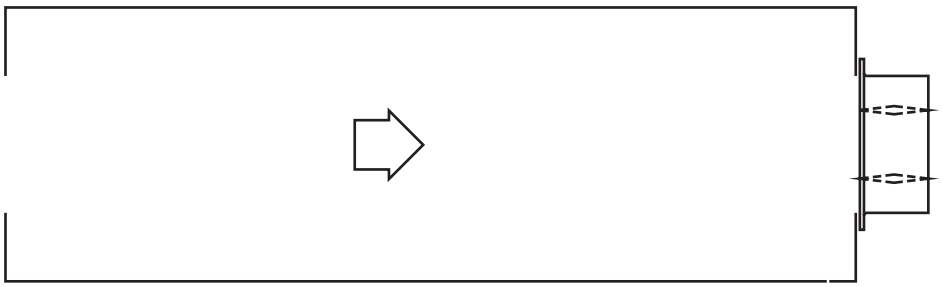
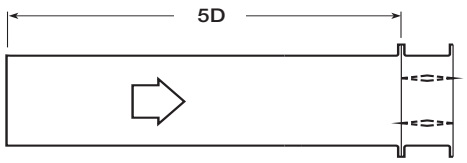


Figure 5.5 Illustrates a plenum mounted damper. This configuration has the highest pressure drop because of extremely high entrance and exit losses due to the sudden changes of area in the system.



AMCA 5.2 Pressure Drop



Type A

12 in. x 12 in. (305 mm x 305 mm)		24 in. x 24 in. (610 mm x 610 mm)		36 in. x 36 in. (914 mm x 914 mm)		12 in. x 48 in. (305 mm x 1219 mm)		48 in. x 12 in. (1219 mm x 305 mm)	
Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)
726	.06	698	.04	-	-	725	.05	731	.05
987	.11	994	.08	974	.06	1005	.10	977	.09
1492	.26	1490	.17	1510	.15	1509	.21	1472	.20
2050	.48	1992	.31	2012	.26	1997	.38	1988	.37
2479	.72	2518	.49	2515	.41	2488	.58	2493	.58
3017	1.02	3015	.70	3030	.59	2976	.83	3012	.85
3518	1.40	3493	.94	3516	.80	3538	1.18	3528	1.17
4041	1.84	4050	1.27	4030	1.04	4057	1.55	4097	1.58

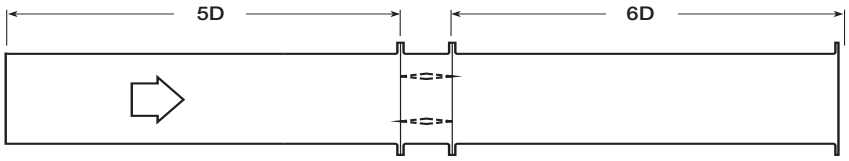
Type B Transition

12 in. x 12 in. (305 mm x 305 mm)		24 in. x 24 in. (610 mm x 610 mm)		36 in. x 36 in. (914 mm x 914 mm)		12 in. x 48 in. (305 mm x 1219 mm)		48 in. x 12 in. (1219 mm x 305 mm)	
Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)
735	.02	730	.02	-	-	724	.04	732	.05
986	.04	989	.03	992	.05	983	.06	977	.09
1471	.09	1485	.06	1519	.11	1523	.16	1472	.20
1982	.17	2009	.12	2026	.20	1983	.26	1988	.37
2482	.26	2475	.17	2492	.30	2480	.41	2493	.58
2961	.37	3042	.26	3012	.43	3060	.62	3012	.85
3489	.52	3578	.35	3526	.60	3499	.82	3528	1.17
4060	.69	4047	.45	4019	.77	4062	1.10	4097	1.58

Type C Transition

12 in. x 12 in. (305 mm x 305 mm)		24 in. x 24 in. (610 mm x 610 mm)		36 in. x 36 in. (914 mm x 914 mm)		12 in. x 48 in. (305 mm x 1219 mm)		48 in. x 12 in. (1219 mm x 305 mm)	
Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)
747	.01	729	.01	-	-	730	.02	737	.01
997	.02	998	.01	984	.03	1001	.03	965	.02
1500	.03	1487	.02	1510	.08	1518	.07	1489	.04
2005	.06	1973	.03	2035	.14	2008	.12	2050	.07
2496	.10	2492	.05	2510	.21	2482	.18	2509	.11
3001	.14	3038	.07	2994	.30	2999	.27	2972	.15
3491	.19	3528	.09	3520	.41	3524	.37	3508	.21
4118	.26	4044	.12	4035	.54	4071	.49	4055	.27

AMCA 5.3 Pressure Drop



Type A

12 in. x 12 in. (305 mm x 305 mm)		24 in. x 24 in. (610 mm x 610 mm)		36 in. x 36 in. (914 mm x 914 mm)		12 in. x 48 in. (305 mm x 1219 mm)		48 in. x 12 in. (1219 mm x 305 mm)	
Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)
720	.02	734	.01	-	-	740	.02	745	.02
975	.04	1029	.03	995	.02	992	.04	1056	.04
1478	.09	1490	.05	1494	.04	1544	.09	1568	.09
2002	.17	1983	.10	2048	.07	2006	.16	2027	.15
2501	.27	2493	.15	2522	.11	2472	.24	2510	.23
2991	.38	3081	.23	3016	.16	3010	.36	3020	.33
3502	.52	3524	.29	3517	.21	3531	.49	3539	.45
4030	.69	4093	.40	4035	.28	4019	.63	4100	.60

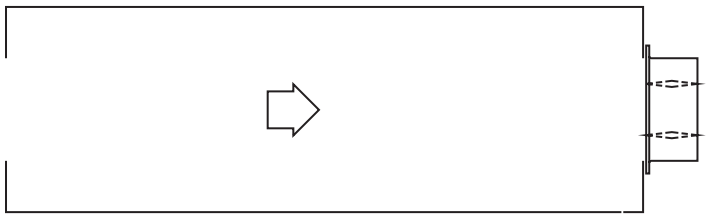
Type B Transition

12 in. x 12 in. (305 mm x 305 mm)		24 in. x 24 in. (610 mm x 610 mm)		36 in. x 36 in. (914 mm x 914 mm)		12 in. x 48 in. (305 mm x 1219 mm)		48 in. x 12 in. (1219 mm x 305 mm)	
Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)
751	.01	730	.02	-	-	725	.02	743	.01
1002	.02	989	.03	984	.02	995	.03	1059	.01
1498	.03	1485	.06	1487	.05	1493	.07	1556	.03
2009	.05	2009	.11	2026	.09	1996	.12	1979	.04
2540	.09	2475	.17	2487	.13	2456	.18	2485	.06
3043	.12	3042	.26	2993	.19	3028	.27	2998	.09
3538	.17	.3578	.35	3482	.25	3540	.36	3533	.13
4137	.23	4047	.45	4004	.33	4051	.48	4030	.17

Type C Transition

12 in. x 12 in. (305 mm x 305 mm)		24 in. x 24 in. (610 mm x 610 mm)		36 in. x 36 in. (914 mm x 914 mm)		12 in. x 48 in. (305 mm x 1219 mm)		48 in. x 12 in. (1219 mm x 305 mm)	
Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)
744	.002	-	-	-	-	729	.01	751	.08
979	.004	1038	.002	996	.02	1027	.02	.978	.14
1467	.01	1472	.004	1495	.04	1544	.04	1514	.33
1968	.02	2005	.008	2005	.07	2013	.06	2021	.59
2487	.03	2482	.01	2511	.10	2516	.09	2542	.93
3011	.04	3001	.02	3050	.15	2995	.13	3011	1.30
3539	.06	3512	.03	3503	.20	3497	.18	3526	1.79
4065	.07	4106	.04	4043	.26	4043	.24	4025	2.33

AMCA 5.5 Pressure Drop



Type A

12 in. x 12 in. (305 mm x 305 mm)		24 in. x 24 in. (610 mm x 610 mm)		36 in. x 36 in. (914 mm x 914 mm)		12 in. x 48 in. (305 mm x 1219 mm)		48 in. x 12 in. (1219 mm x 305 mm)	
Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)
725	.10	737	.09	-	-	742	.10	735	.09
994	.19	1003	.16	986	.14	1004	.18	993	.15
1488	.43	1499	.36	1529	.34	1510	.41	1492	.35
1943	.72	2018	.65	2030	.60	1992	.72	2011	.63
2501	1.18	2472	.98	2520	.92	2516	1.14	2487	.97
2969	1.66	3010	1.45	3006	1.31	2980	1.61	2995	1.40
3503	2.30	3515	1.97	3557	1.85	3528	2.25	3502	1.92
4183	3.30	4066	2.64	4022	2.37	4040	2.95	4032	2.54

Type B Transition

12 in. x 12 in. (305 mm x 305 mm)		24 in. x 24 in. (610 mm x 610 mm)		36 in. x 36 in. (914 mm x 914 mm)		12 in. x 48 in. (305 mm x 1219 mm)		48 in. x 12 in. (1219 mm x 305 mm)	
Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)
750	.07	732	.07	-	-	737	.08	733	.06
1001	.12	1009	.13	1001	.13	992	.15	1005	.12
1502	.28	1492	.28	1497	.28	1479	.33	1495	.26
1977	.49	2020	.51	2014	.50	2002	.61	2020	.47
2499	.77	2486	.77	2517	.78	2479	.93	2510	.73
2995	1.10	3043	1.15	3016	1.12	3002	1.37	3052	1.08
3487	1.49	3466	1.49	3530	1.52	3508	1.87	3520	1.44
4089	2.05	4012	1.98	4074	2.03	4052	2.49	4100	1.95

Type C Transition

12 in. x 12 in. (305 mm x 305 mm)		24 in. x 24 in. (610 mm x 610 mm)		36 in. x 36 in. (914 mm x 914 mm)		12 in. x 48 in. (305 mm x 1219 mm)		48 in. x 12 in. (1219 mm x 305 mm)	
Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)	Velocity (fpm)	Pressure Drop (in. wg)
747	.01	729	.01	-	-	730	.02	737	.01
997	.02	998	.01	984	.03	1001	.03	965	.02
1500	.03	1487	.02	1510	.08	1518	.07	1489	.04
2005	.06	1973	.03	2035	.14	2008	.12	2050	.07
2496	.10	2492	.05	2510	.21	2482	.18	2509	.11
3001	.14	3038	.07	2994	.30	2999	.27	2972	.15
3491	.19	3528	.09	3520	.41	3524	.37	3508	.21
4118	.26	4044	.12	4035	.54	4071	.49	4055	.27

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