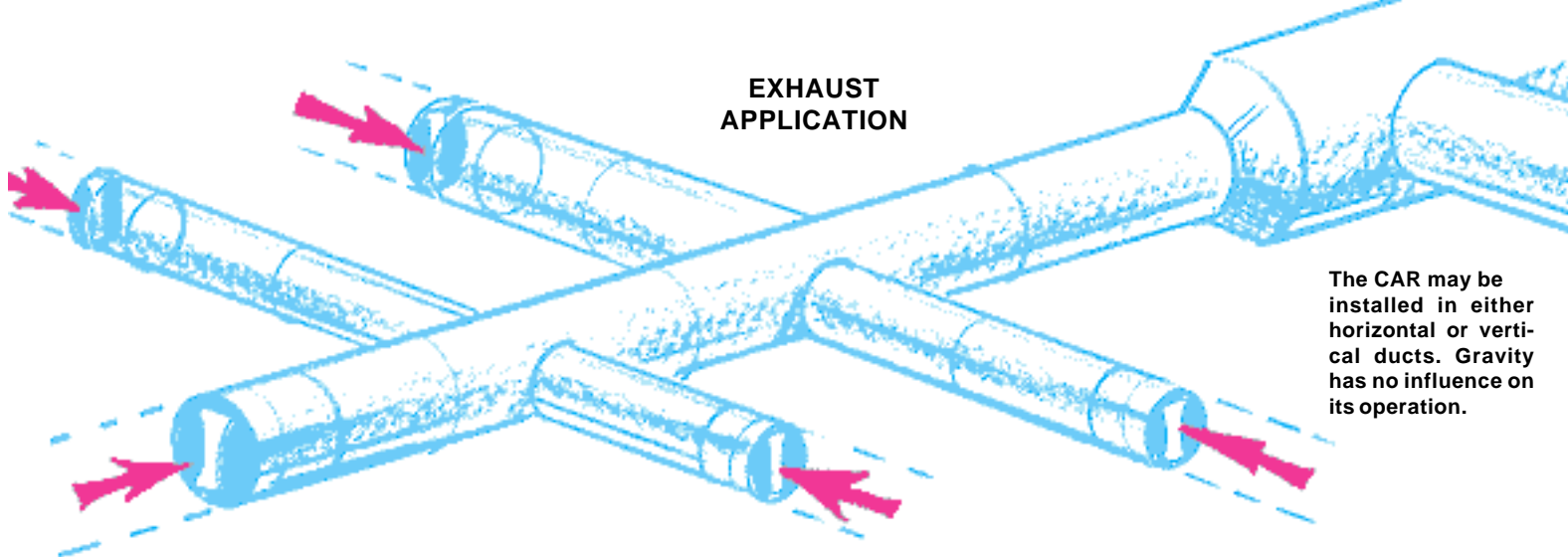




THE SIMPLE
SOLUTION
TO
BALANCING
AIRFLOWS

CONSTANT AIRFLOW REGULATOR

AUTOMATICALLY BALANCES AIRFLOWS



EXHAUST APPLICATION

The CAR may be installed in either horizontal or vertical ducts. Gravity has no influence on its operation.

The CAR Simplifies Controlling Airflows

- Automatically regulates airflows in low pressure systems
- Eliminates on-site balancing of forced air heating, cooling and ventilation systems
- No electrical or pneumatic controls
- Ideal for multi-family or commercial installations
- Simple maintenance-free design
- Particularly effective in maintaining balanced airflows in high-rise buildings, compensating for seasonal variations in stack effect in exhaust systems
- Simplifies design engineering and compensates for minor errors

DESCRIPTION

The Constant Airflow Regulator (CAR) is a device that automatically regulates airflows in ductwork to constant levels. Operation is completely passive. No electric or pneumatic sensors or controls are needed.

The CAR provides a low cost solution to balancing forced air systems for heating, air conditioning and ventilation, eliminating the need for on-site balancing. To a large degree, the CAR compensates for changes in duct pressure due to thermal stack effect, building pressure, dust clogging of filters, etc.

The active element of the CAR is a flexible silicone bulb which inflates and deflates in response to the static pressure difference across the control. The housing is made of polycarbonate (Lexan) or polyvinyl chloride (Lucorex), for minimum flame spread characteristics. The CAR is made for use in a temperature range of -25 to 140°F (-32 to 60°C).

Constant Airflow Regulators maintain airflow accurately to within 10% of rated flow (15% for units 50 cfm or less). See "How the CAR Works" for conditions.

The CAR's sub-assembly, consisting of the silicone bulb and its housing, is mounted in a rolled galvanized steel sleeve. The total assembly is designed to fit inside standard rigid round ducting, as well as duct fittings such as tees, etc. A brush type seal around the circumference ensures a tight fit. A set of spring action metal clips grip the interior of the duct or fitting to secure the control firmly in place with minimum installation effort.

The CAR has been used extensively in Europe since 1975. *The expected lifetime of the silicone bulb is a minimum of 20 years under normal non-corrosive conditions.*

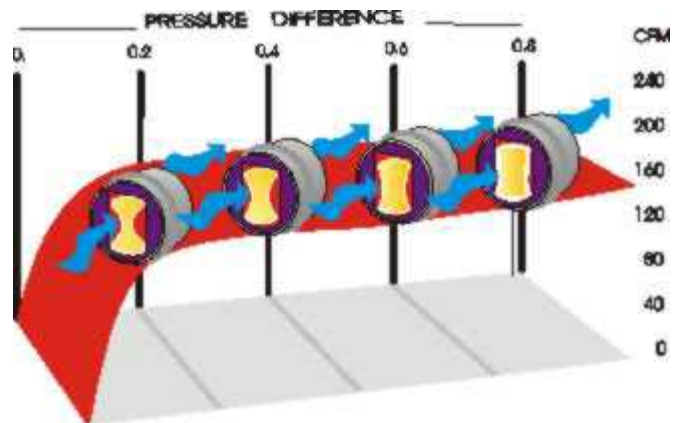
TYPICAL APPLICATIONS

- Supply or exhaust of offices.
- Balancing exhaust and supply airflows in high-rise buildings.
- Bathroom exhaust in nursing homes, hotels, motels, dormitories, apartment buildings, offices, etc.
- Clean room air supply balancing to ceiling filter modules. *Maintains constant airflow even as filter resistance increases.*
- Balancing supply airflow from packaged roof top A/C units.
- Balancing heat recovery ventilation systems
- Outdoor air injection from central supply fan into individual room fan coil units, or heat pumps.
- Supply air into individual offices.
- Supply air to sleeping quarters in military facilities, submarines, etc.
- Exhaust of chemical storage cabinets.



HOW THE CAR WORKS

Constant airflow is achieved by the inflating action of CAR's silicone bulb. At minimum static air pressure, the bulb is deflated and has the shape similar to an hourglass. As the static pressure increases across the bulb it inflates, thereby reducing the free area around the bulb. At the same time the higher static pressure increases the air velocity resulting in **CONSTANT AIRFLOW** regardless of pressure differences in the range of 0.2 to 0.8 in. w.g. (50 to 200 Pa). The air velocity in the duct is in the range of 60 to 700 ft/min. (0.3 to 3.5 m/s).



The above curve illustrates the simultaneous action of a decreasing orifice area and increasing velocity resulting from increasing pressure to maintain constant airflow.

$$\text{Area (sq. ft.)} \times \text{velocity (fpm)} = Q \text{ (cfm)}$$

AIRFLOWS and DIAMETERS AVAILABLE

4"/100mm		5"/125mm		6"/150mm		8"/200mm'		10"/250mm	
10 cfm (15 m ³ /h)	30 cfm (50 m ³ /h)	15 cfm (25 m ³ /h)	60 cfm (100 m ³ /h)	75 cfm (130 m ³ /h)	120 cfm (200 m ³ /h)	175 cfm (300 m ³ /h)			
15 cfm (25 m ³ /h)	35 cfm (60 m ³ /h)	30 cfm (50 m ³ /h)	75 cfm (130 m ³ /h)	100 cfm (170 m ³ /h)	150 cfm (250 m ³ /h)	235 cfm (400 m ³ /h)			
20 cfm (30 m ³ /h)	45 cfm (75 m ³ /h)	45 cfm (75 m ³ /h)	95 cfm (160 m ³ /h)	125 cfm (210 m ³ /h)	180 cfm (300 m ³ /h)	300 cfm (500 m ³ /h)			
25 cfm (45 m ³ /h)	50 cfm (90 m ³ /h)			150 cfm (250 m ³ /h)	205 cfm (350 m ³ /h)	320 cfm (550 m ³ /h)			
					235 cfm (400 m ³ /h)	380 cfm (650 m ³ /h)			

AIRFLOWS ARE ROUNDED TO THE NEAREST 5 CFM OR 5 m³/h. SIZES ARE NOMINAL. PRODUCT IS DESIGNED TO BE INSERTED INTO DUCT OF INDICATED DIAMETER. AIRFLOWS ARE FACTORY PRESET AND CANNOT BE MODIFIED BY INSTALLER.

MAINTENANCE

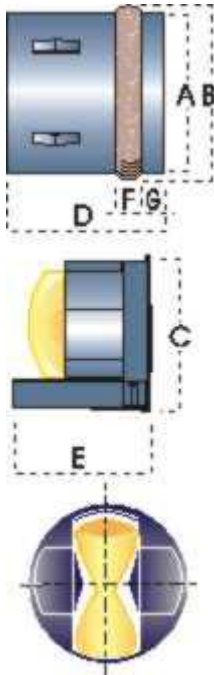
The CAR needs no maintenance when used in normal conditions. There is no risk of dust deposit or obstruction because the CAR has no airways subject to clogging. If the intended application includes air heavily loaded with grease or dust, a fitting with an access panel or door, such as that used for flame dampers, must be provided.

WARRANTY

Guaranteed for 5 years, from date of shipment, against all defects in material or workmanship, provided that the material has been installed and utilized under normal conditions. This warranty is limited to the repair or replacement of the material upon its return freight paid to our factory.



The CAR is a patented Aldes product. We reserve the right to change specifications without notice.



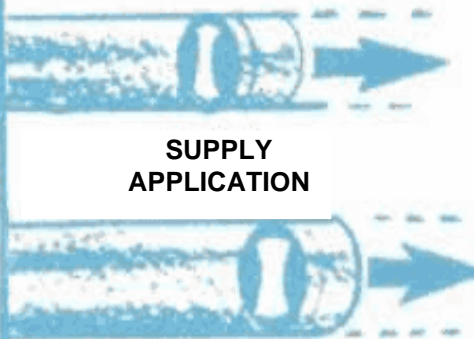
DIMENSIONS

(FOR SIZE- MATCH COLUMN LETTER TO LOCATION ON DRAWINGS ABOVE LEFT)

Duct Diam. in.	A	B	C	D	E	F	G	Weight Oz.
4"	3.9"	4.1"	3.8"	3.1"	2.4"	0.5"	0.4"	6.7
5"	4.8"	5.0"	4.7"	5.4"	3.7"	0.5"	0.8"	14.1
6"	5.7"	6.3"	5.8"	5.4"	4.1"	0.8"	0.8"	19.4
8"	7.7"	8.1"	7.6"	6.1"	4.9"	0.8"	0.8"	32.5
10"	9.7"	10.0"	9.5"	7.5"	6.2"	0.8"	0.8"	60.0

Duct Diam. mm	A	B	C	D	E	F	G	Weight gr
100	98	104	96	80	60	13	10	190
125	121	128	119	137	95	13	20	400
150	145	160	148	137	105	20	20	550
200	196	206	192	155	125	20	20	920
250	246	256	242	190	158	20	19	1700

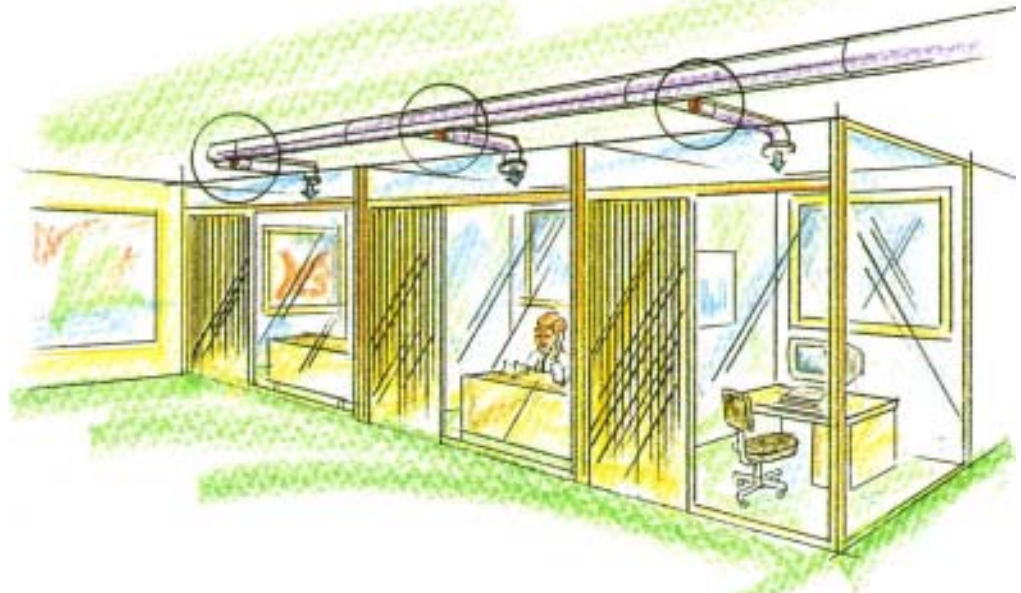
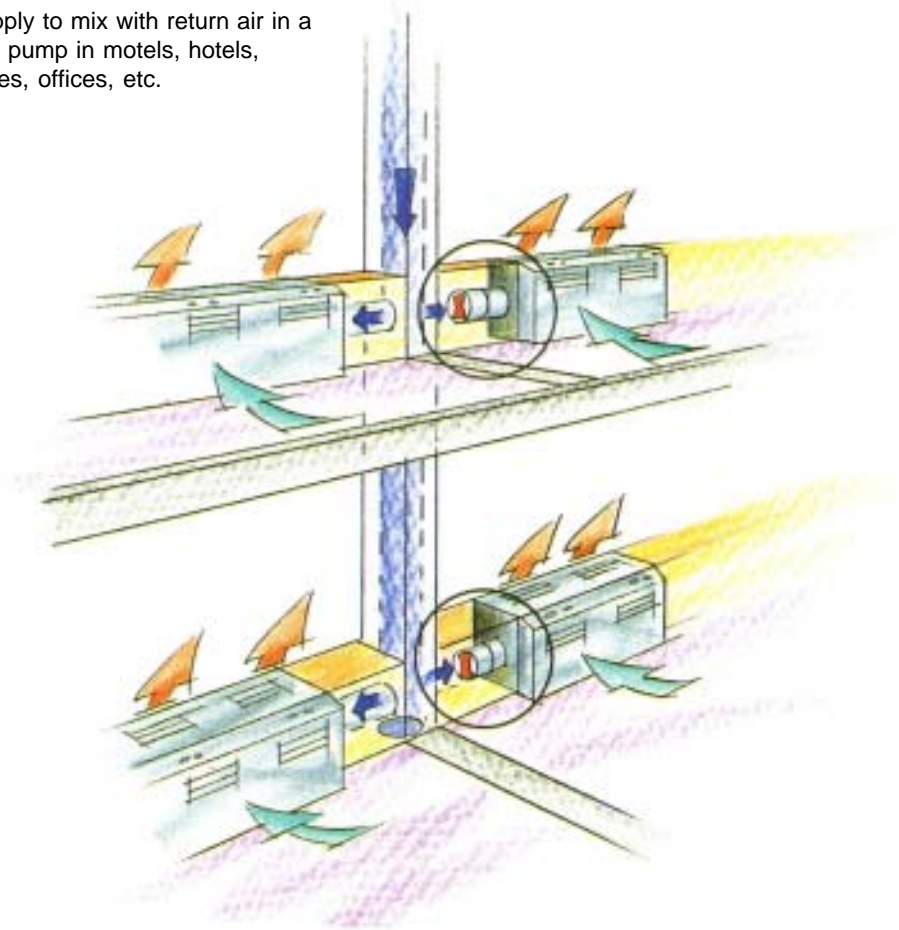
SUPPLY APPLICATION



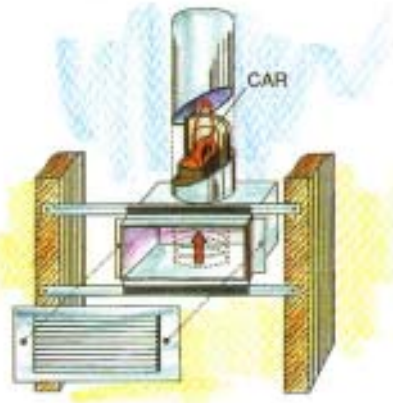
ALDES CAR APPLICATIONS

Control of outdoor air supply to mix with return air in a room fan coil unit or heat pump in motels, hotels, dormitories, nursing homes, offices, etc.

Pet stores, animal hospitals, etc. Control of exhaust airflow at very low levels, (10 CFM) from pet cages, provides source capture of odors, making pet store environment more pleasant and odor-free for the customers and management, and more hygienic for the animals.



Control of fresh air supply (or exhaust, or both) from offices.

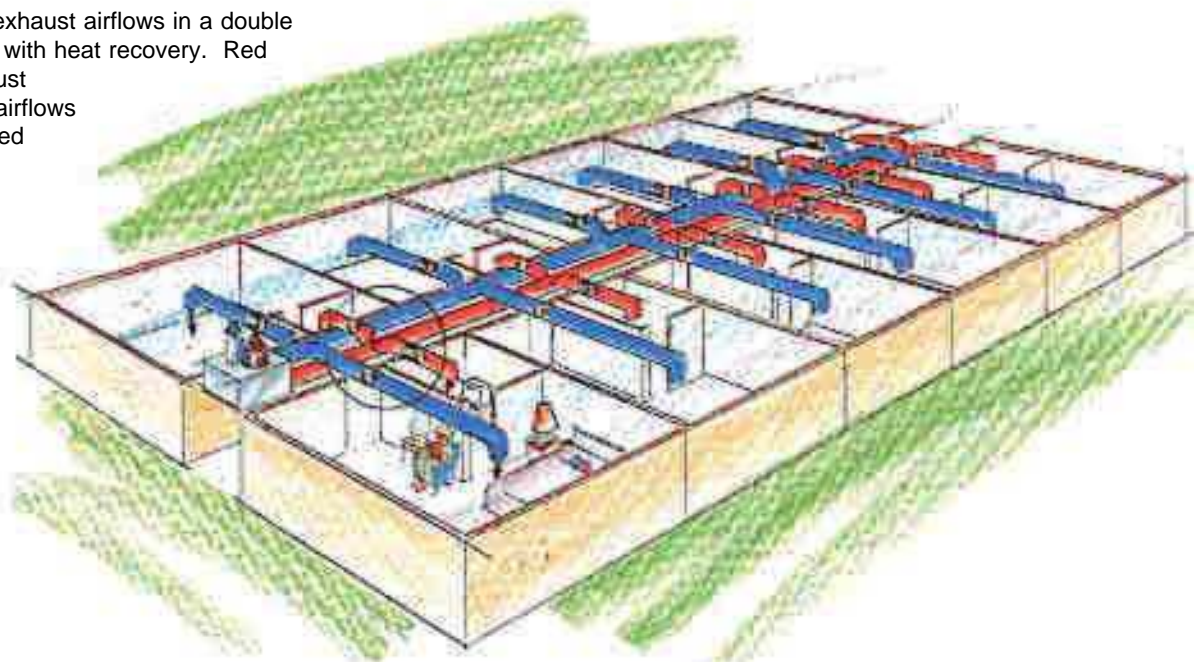
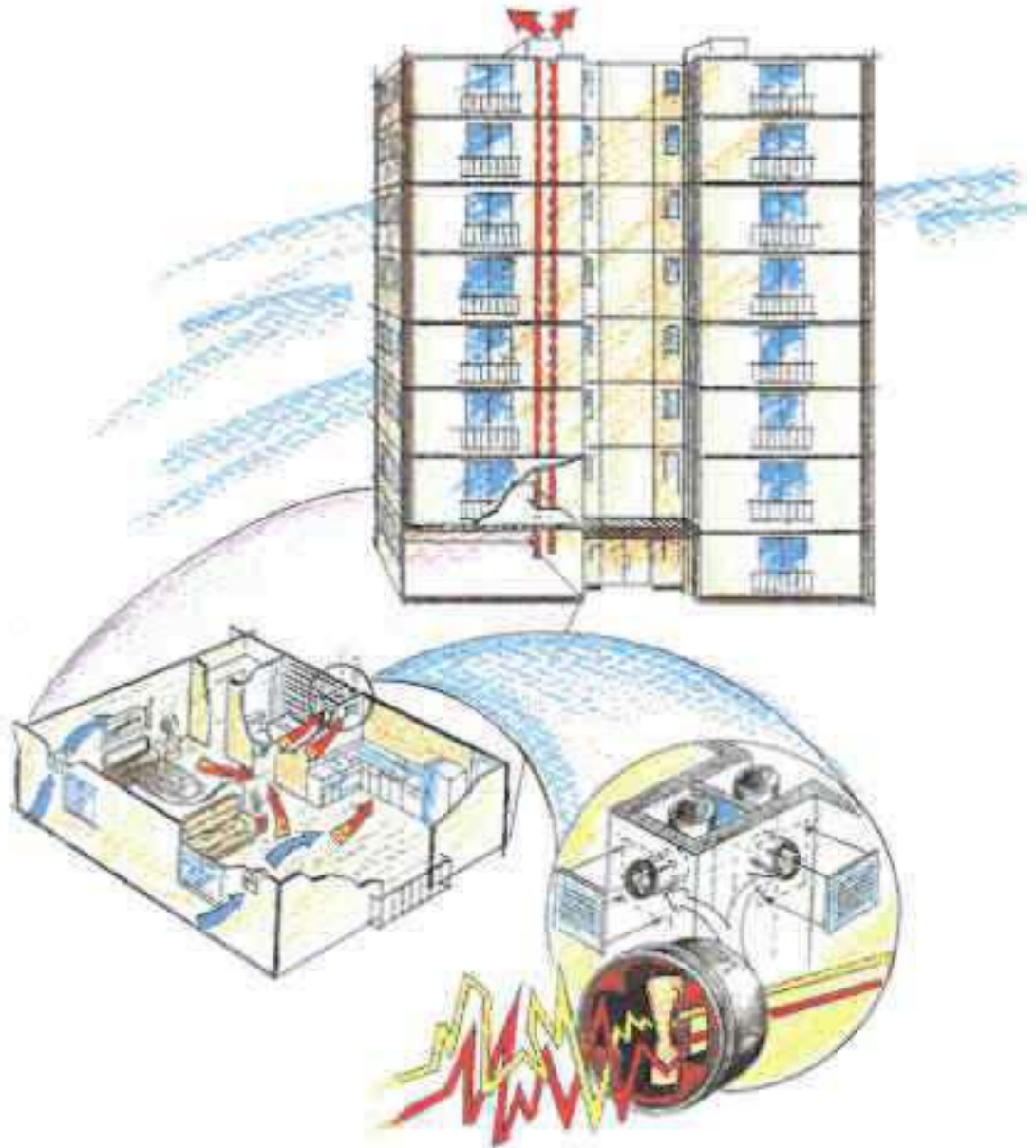


Detail showing Constant Airflow Regulator as used in takeoff of register box, for bathroom exhaust in multi-family housing, nursing homes, dormitories. (Complete assemblies are available.)

The Constant Airflow Regulator is an indispensable element in any modern constant volume ventilation system. These applications present several ways in which it may be used to control primary supply and exhaust airflows. With increased awareness of indoor air quality, the need for accurately controlling outdoor supply meeting ASHRAE Standard 62 is easily met with the use of Constant Airflow Regulators.

Balancing exhaust airflows in buildings presents special challenges with thermal stack effect in retrofit situations. Constant Airflow Regulators provide a simple solution to the problem by providing automatic compensation for changing duct pressures due to temperature differences.

Balancing supply and exhaust airflows in a double flow ventilation system with heat recovery. Red airflows illustrate exhaust from bathrooms, blue airflows represent fresh tempered air supply from outdoors.



CAR AIRFLOW PERFORMANCE DATA

Performance charts reflect airflow measurements taken at 68°F (20°C) at 1 atmosphere pressure.

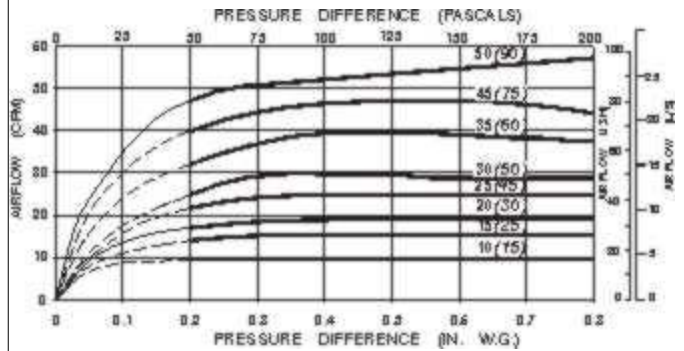
TYPICAL SPECIFICATION

Constant Airflow Regulators operating on duct system pressures shall be furnished as manufactured by American ALDES Ventilation Corporation, Sarasota, Florida, USA. Constant Airflow Regulators shall be capable of maintaining constant flow within 10% of rated flow (15% for units 50 cfm or less) over the range of 0.2 to 0.8 in. w.g. (50-200 Pa.) differential pressure across the regulator. Constant Airflow Regulators shall be provided as an assembly consisting of a flame resistant plastic (Lexan or Lucorex) housing with a self-inflating silicone bulb operating from duct system pressure, in a .75 mm galvanized steel sleeve, fitted with a brush gasket to assure perimeter air tightness with the interior surface of the duct. The Constant Airflow Regulators shall be UL Listed. Constant airflow regulators shall be installed in tight ducting systems in accordance with all applicable codes and manufacturer's instructions for the application.

ORDERING INFORMATION

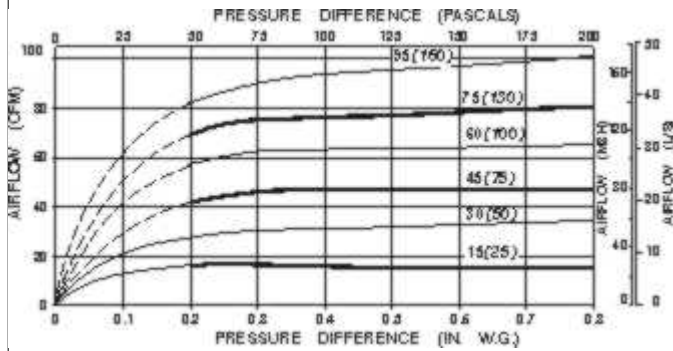
When ordering, specify the PART NUMBER (P/N #), DIAMETER and AIRFLOW.

4" DIA. (100mm)



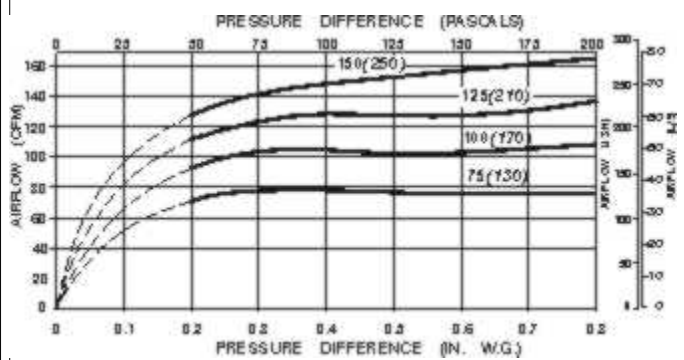
P/N #16 330	10 cfm (15 m ³ /h)	#16 337	30 cfm (50 m ³ /h)
#16 336	15 cfm (25 m ³ /h)	#16 333	35 cfm (60 m ³ /h)
#16 331	20 cfm (30 m ³ /h)	#16 334	45 cfm (75 m ³ /h)
#16 332	25 cfm (45 m ³ /h)	#16 335	50 cfm (90 m ³ /h)

5" DIA. (125mm)



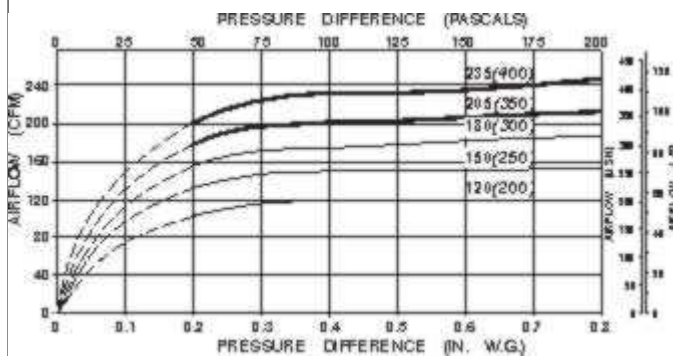
P/N #16 340	15 cfm (25 m ³ /h)	#16 343	60 cfm (100 m ³ /h)
#16 341	30 cfm (50 m ³ /h)	#16 344	75 cfm (130 m ³ /h)
#16 342	45 cfm (75 m ³ /h)	#16 345	95 cfm (160 m ³ /h)

6" DIA. (150mm)



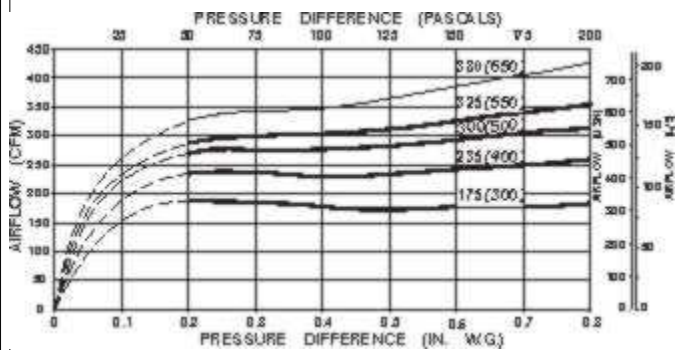
P/N #16 370	75 cfm (130 m ³ /h)	#16 372	125 cfm (210 m ³ /h)
#16 371	100 cfm (170 m ³ /h)	#16 373	150 cfm (250 m ³ /h)

8" DIA. (200mm)



P/N #16 360	120 cfm (200 m ³ /h)	#16 363	205 cfm (350 m ³ /h)
#16 361	150 cfm (250 m ³ /h)	#16 364	235 cfm (400 m ³ /h)
#16 362	180 cfm (300 m ³ /h)		

10" DIA. (250mm)



P/N #16 366	175 cfm (300 m ³ /h)	#16 368	325 cfm (550 m ³ /h)
#16 365	235 cfm (400 m ³ /h)	#16 369	380 cfm (650 m ³ /h)
#16 367	300 cfm (500 m ³ /h)		



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