

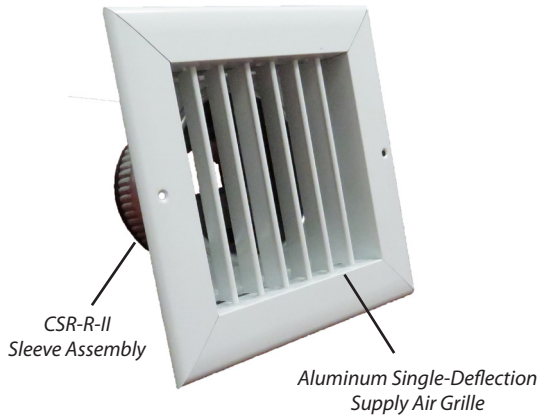


# AIRFLOW & ZONE CONTROLS

## CSR-R-II

### Constant Supply Register for Round Ducting

PRODUCT  
SPECIFICATIONS  
& TECHNICAL  
DATA



#### GENERAL

Model CSR-R-II Constant Supply Register incorporates a modulating orifice that automatically regulates airflows in duct systems to constant levels. The passive control element in the CSR-R-II responds to duct pressure and requires no electric or pneumatic sensors or controls.

The CSR-R-II compensates for changes in duct pressure caused by thermal stack effect, building pressure, dust-clogged filters, etc. The CSR-R-II also eliminates the need for on-site balancing in supply air duct systems.

The active control element of the CSR-R-II is a unique aerofoil (CAR-II). Using Bernoulli's Principle, the aero-wing damper lifts in response to increasing static pressure. This operation regulates the free-area opening through the control, resulting in maintenance of velocity and specific airflow set points. Each CAR-II is designed and produced for control of air in temperatures ranging from -25° to 140°F (-32° to 60°C.)

#### CONSTRUCTION

The CSR-R-II single-deflection grille face is constructed of heavy-gauge extruded aluminum to prevent rusting in moist environments such as bathrooms, showers, etc. The CAR-II regulating element is integral to the grille, and it is secured in an air-tight mounting plate. The entire assembly is designed to be attached directly to round ducting.

#### PERFORMANCE

The CAR-II controls airflow accurately to within 10% of rated flow (15% for units 50 CFM or less) throughout the target operating pressure range of 0.2 to 0.8 in. w.g. (50 to 200 Pa). Each CAR-II is factory tested and calibrated to the rated set point before shipping. Each CAR-II is available in multiple factory-calibrated set points (see performance curves).

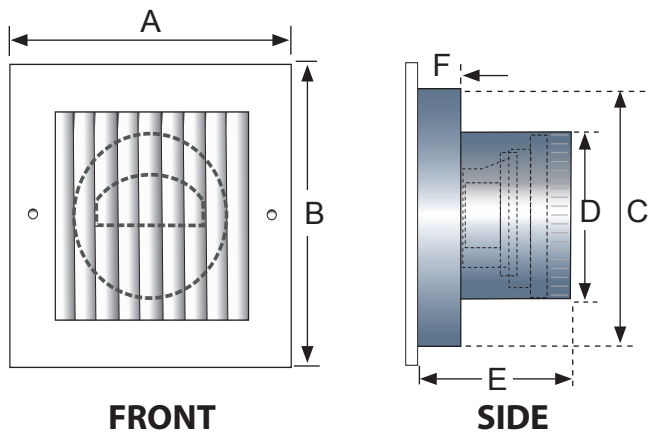
#### MAINTENANCE

The CAR-II needs no maintenance when used in normal conditions. There is no risk of dust deposit or obstruction because the CAR-II 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, should be provided.

#### WARRANTY

Guaranteed for five 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.

## CSR-R-II Dimensions

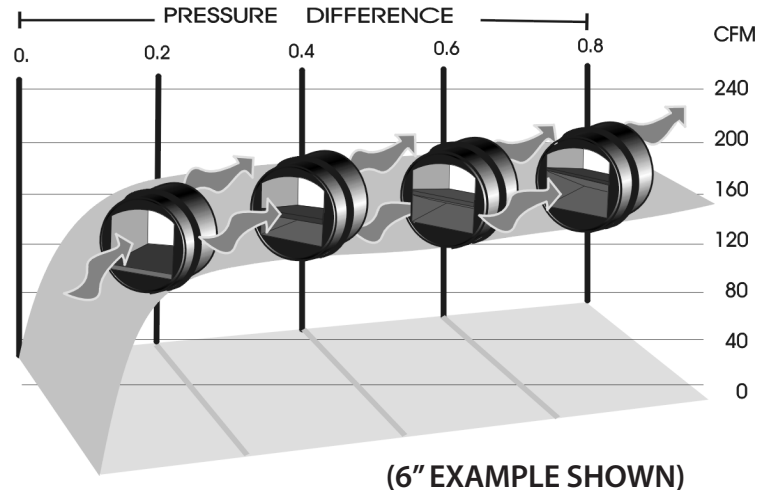


PART NUMBER	SIZE* (NOMINAL)	REGULATOR (NOMINAL)	A	B	C	D	E	F
18 802	6" x 6"	4"	7.5"	7.5"	5.6"	3.9"	4.5"	1.6"
18 803	6" x 6"	5"	7.5"	7.5"	5.6"	4.9"	5.6"	1.6"
18 805	8" x 8"	4"	9.5"	9.5"	7.6"	3.9"	4.5"	1.6"
18 806	8" x 8"	5"	9.5"	9.5"	7.6"	4.9"	5.6"	1.6"
18 807	8" x 8"	6"	9.5"	9.5"	7.6"	5.8"	5.6"	1.6"
18 809	10" x 10"	4"	11.5"	11.5"	9.6"	3.9"	4.5"	1.6"
18 810	10" x 10"	5"	11.5"	11.5"	9.6"	4.9"	5.6"	1.6"
18 811	10" x 10"	6"	11.5"	11.5"	9.6"	5.8"	5.6"	1.6"
18 812	10" x 10"	8"	11.5"	11.5"	9.6"	7.8"	5.6"	1.6"
18 814	12" x 12"	4"	13.5"	13.5"	11.6"	3.9"	5.6"	1.6"
18 815	12" x 12"	5"	13.5"	13.5"	11.6"	4.9"	5.6"	1.6"
18 816	12" x 12"	6"	13.5"	13.5"	11.6"	5.8"	5.6"	1.6"
18 817	12" x 12"	8"	13.5"	13.5"	11.6"	7.8"	5.6"	1.6"
18 818	12" x 12"	10"	13.5"	13.5"	11.6"	9.7"	5.9"	1.6"

\*Standard grille sizes shown. Contact factory for custom sizes.

## How the CAR-II Works

Constant airflow is achieved by controlling the free area through the device. At minimum static pressure, the aero-wing is parallel to the air stream. As the static pressure increases, the aero-wing lifts, reducing the amount of free area through the regulator. At the same time, higher static pressure increases the air velocity resulting in **CONSTANT AIRFLOW**. This occurs 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).



## Typical CSR-R-II Applications

- Supply air systems.
- Balancing supply airflows in high-rise building duct risers.
- Regulated air supply in nursing homes, hotels, motels, dormitories, apartment buildings, offices, etc.

## Typical Specification

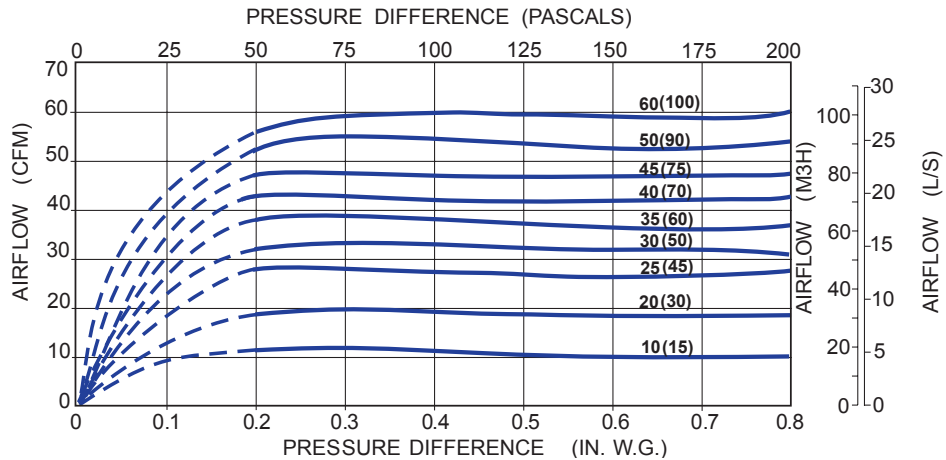
Model CSR-R-II Constant Supply Registers by American ALDES Ventilation Corporation, Bradenton, Florida, shall solely operate on duct pressure and require no external power supply. Each register shall be pre-set and factory calibrated, requiring no field adjustment to the airflows as indicated on the schedule, and shall be rated for use in air temperatures ranging from -25° to 140°F (-32° to 60°C.)

Constant Supply Registers shall be capable of maintaining constant airflow within +/- 10% of scheduled flow rates (15% for units 50 CFM or less), within the operating range of 0.2 to 0.8 in. w.g. differential pressure, or 0.1 to 0.42 in. w.g. on low-pressure models (CSR-LP-R-II). Registers shall be provided as an assembly consisting of an all-aluminum single-deflection grille and UL2043 classified and labeled airflow regulator. All Constant Supply Registers will require no maintenance and must be warranted for a period of no less than five years. Constant Supply Registers shall be installed in tight ducting systems in accordance with all applicable codes and manufacturer's instructions.

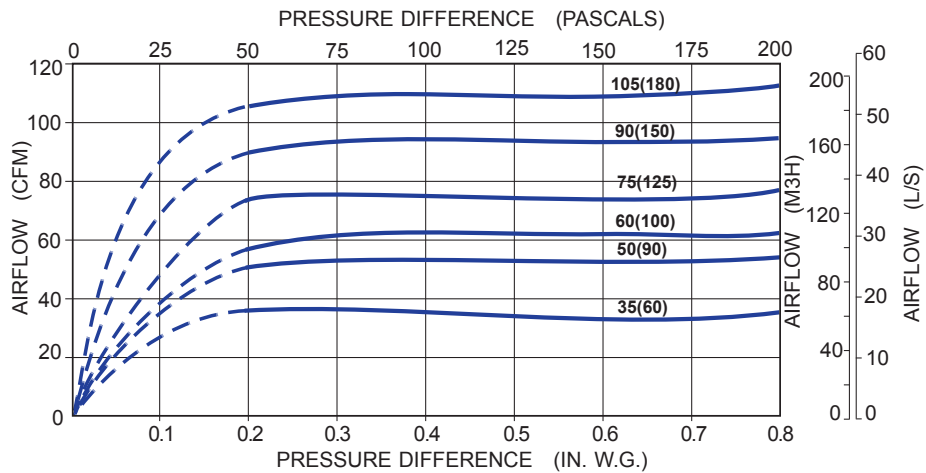
# CSR-R-II Airflow Performance Data

Performance charts reflect airflow measurements taken at 68°F (20°C) at 1 atmosphere pressure. The CSR-R-II is designed for system pressures between 0.2 and 0.8 in. w.g. Models are also available for applications with system pressures between 0.1 and 0.42 in. w.g (CSR-LP-R-II).

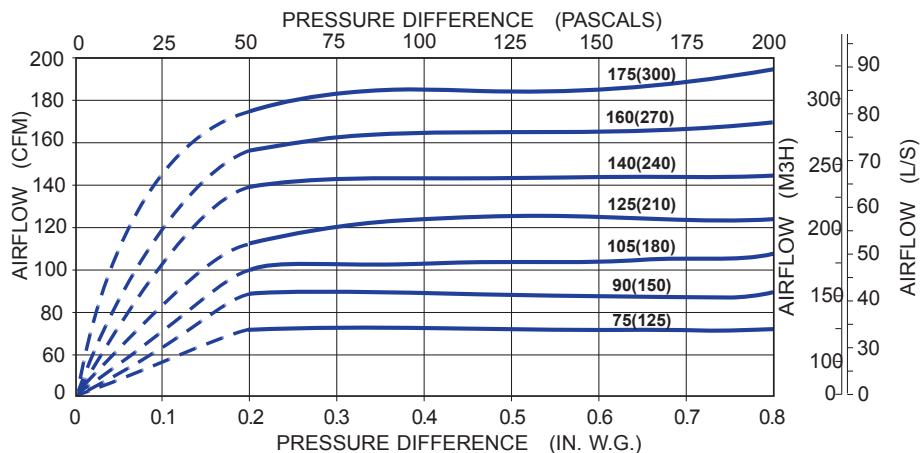
## 4" DIAMETER (100 mm) REGULATING ELEMENT



## 5" DIAMETER (125 mm) REGULATING ELEMENT



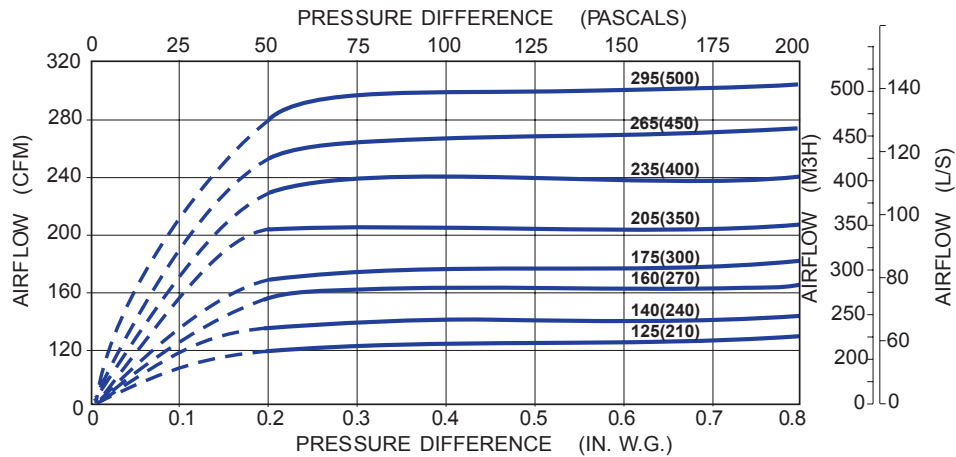
## 6" DIAMETER (150 mm) REGULATING ELEMENT



## CSR-R-II Airflow Performance Data

Performance charts reflect airflow measurements taken at 68°F (20°C) at 1 atmosphere pressure. The CSR-R-II is designed for system pressures between 0.2 and 0.8 in. w.g. Models are also available for applications with system pressures between 0.1 and 0.42 in. w.g (CSR-LP-R-II).

### 8" DIAMETER (200 mm) REGULATING ELEMENT



### 10" DIAMETER (250 mm) REGULATING ELEMENT

