



## AIRFLOW & ZONE CONTROLS

# CSR-LP-FSA-IIR

### Low-Pressure Constant Supply Register with Integral Fire Damper for Square or Rectangular Ducting in Retrofit Applications

PRODUCT  
SPECIFICATIONS  
& TECHNICAL  
DATA



#### GENERAL

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

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

The active control element of the CSR-LP-FSA-IIR is a unique aerofoil (CAR-II-LP). 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-LP is designed and produced for control of air in temperatures ranging from -25° to 140°F (-32° to 60°C.)

#### CONSTRUCTION

The round CAR-II-LP regulating element is constructed of a UL94V-0 ABS plastic, and it is UL 2043 safety classified and labeled for flame and smoke generation. The CAR-II-LP is then mounted in a heavy-gauge galvanized steel sleeve that is designed to accommodate installation of curtain-type fire dampers and standard aluminum louvered supply air grilles. The fire damper is tested and listed per UL555 for use in wall or shaft applications, and it is rated for 2-hour protection. Three-hour fire dampers can also be used. Each sleeve is welded to prevent leakage and includes a retrofit gasket. The assembly is sized to fit inside standard duct riser openings and chases. Each sleeve is designed to specifically accommodate the control element and prevent unwanted air leakage.

#### PERFORMANCE

The CAR-II-LP 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-LP is factory tested and calibrated to the rated set point before shipping. Each CAR-II-LP is available in multiple factory-calibrated set points (see performance curves).

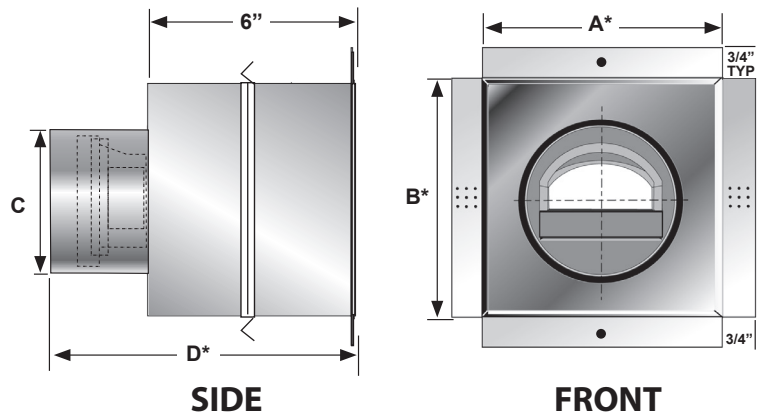
#### MAINTENANCE

The CAR-II-LP needs no maintenance when used in normal conditions. There is no risk of dust deposit or obstruction because the CAR-II-LP 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-FSA-IIR Dimensions

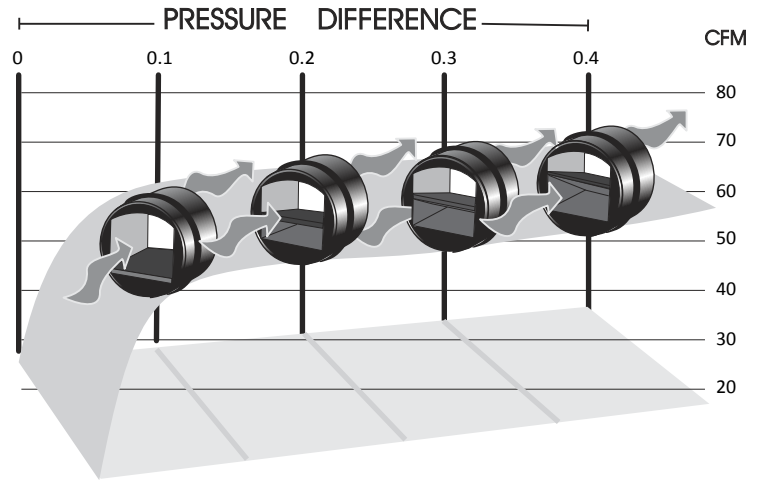


PART NUMBER	SLEEVE SIZE* (NOMINAL)	REGULATOR (NOMINAL)	A	B	C	D	GRILLE FACE
18 471LP	6" x 6"	4"	5.75"	5.75"	4"	9.5"	7.75" x 7.75"
18 472LP	6" x 6"	5"	5.75"	5.75"	5"	10.5"	7.75" x 7.75"
18 473LP	8" x 8"	4"	7.75"	7.75"	4"	9.5"	9.75" x 9.75"
18 474LP	8" x 8"	5"	7.75"	7.75"	5"	10.5"	9.75" x 9.75"
18 475LP	8" x 8"	6"	7.75"	7.75"	6"	10.6"	9.75" x 9.75"
18 476LP	10" x 10"	4"	9.75"	9.75"	4"	9.5"	11.75" x 11.75"
18 477LP	10" x 10"	5"	9.75"	9.75"	5"	10.5"	11.75" x 11.75"
18 478LP	10" x 10"	6"	9.75"	9.75"	6"	10.5"	11.75" x 11.75"
18 479LP	10" x 10"	8"	9.75"	9.75"	8"	10.5"	11.75" x 11.75"
18 480LP	12" x 12"	4"	11.75"	11.75"	4"	9.5"	13.75" x 13.75"
18 481LP	12" x 12"	5"	11.75"	11.75"	5"	10.5"	13.75" x 13.75"
18 482LP	12" x 12"	6"	11.75"	11.75"	6"	10.5"	13.75" x 13.75"
18 483LP	12" x 12"	8"	11.75"	11.75"	8"	10.5"	13.75" x 13.75"
18 484LP	12" x 12"	10"	11.75"	11.75"	10"	10.5"	13.75" x 13.75"

\* Standard sizes shown. Sleeve assemblies are also available to accommodate any damper and grille size. Contact factory.

## How the CAR-II-LP 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 0.1 to 0.42 in. w.g. (25 to 100 Pa).



## Typical CSR-LP-FSA-IIR 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

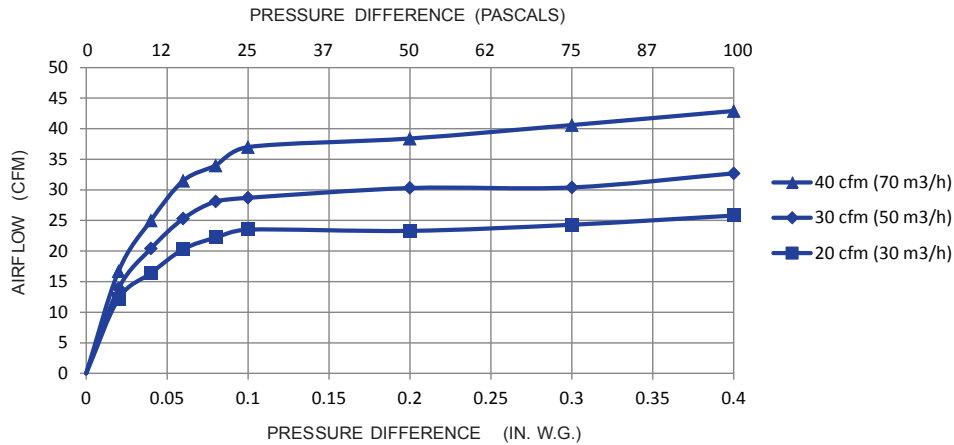
Model CSR-LP-FSA-IIR Constant Supply Registers by American ALDES Ventilation Corporation, Bradenton, Florida, shall solely operate on duct pressure and require no external power supply. Each register shall be pre-set and factory calibrated, requiring no field adjustment to the airflows as indicated on 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 0.1 to 0.42 in. w.g. differential pressure, or 0.2 to 0.8 in. w.g. on standard-pressure models (CSR-FSA-IIR). Integral CAR-II-LP Constant Airflow Regulators shall be provided as an assembly consisting of a 94V-0 UL ABS plastic body. All regulators must be classified per UL 2043 and carry the UL mark indicating compliance. The Constant Airflow Regulator assembly shall be mounted in a heavy-gauge galvanized steel sleeve with a curtain-type fire damper, retrofit gasket, and an all-aluminum single-deflection supply air grille. The fire damper shall be tested and listed per UL555 for use in wall or shaft applications, and be rated for 2-hour protection. 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.

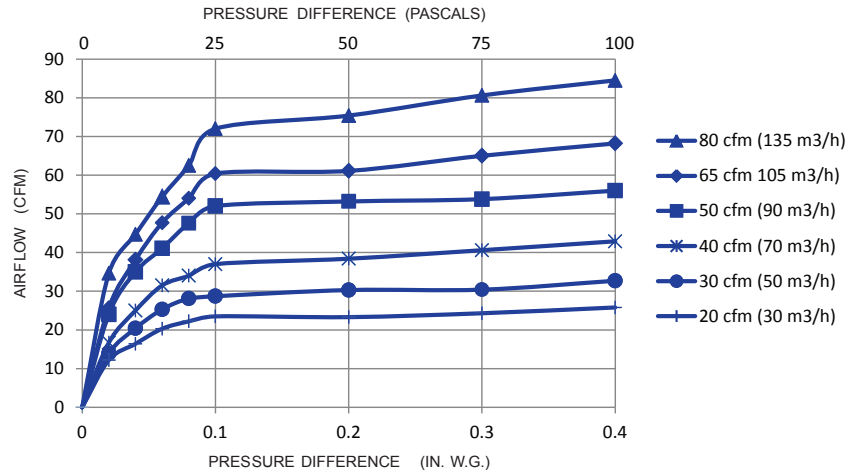
# CSR-LP-FSA-IIR Airflow Performance Data

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

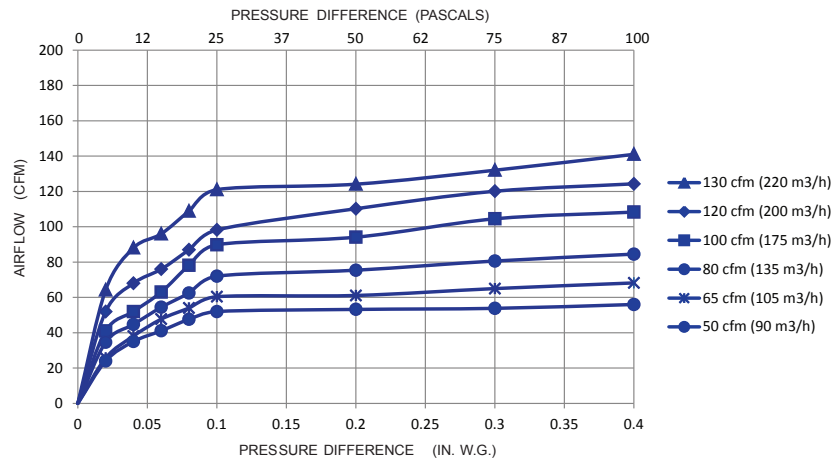
## 4" DIAMETER (100 mm) REGULATING ELEMENT



## 5" DIAMETER (125 mm) REGULATING ELEMENT



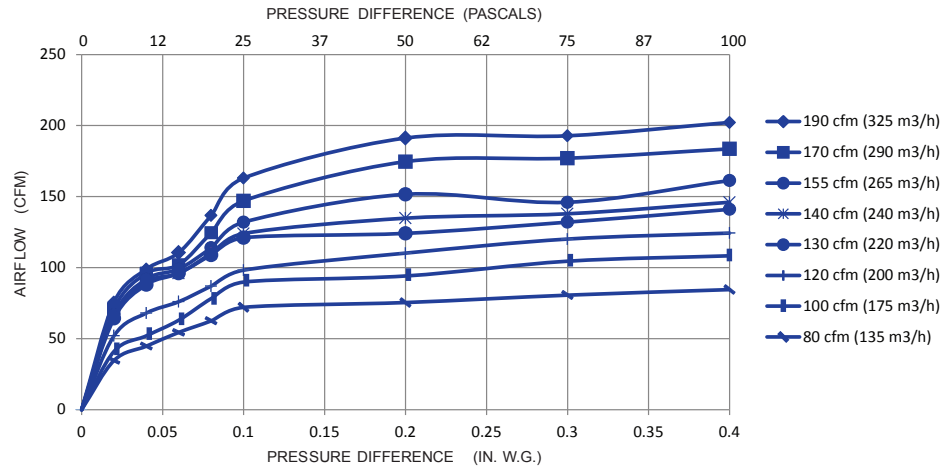
## 6" DIAMETER (150 mm) REGULATING ELEMENT



# CSR-LP-FSA-IIR Airflow Performance Data

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

## 8" DIAMETER (200 mm) REGULATING ELEMENT



## 10" DIAMETER (250 mm) REGULATING ELEMENT

