

DENTAL OPERATORIES

Improve indoor Air Quality in your Dental Operator

Increased air change rates and extraction of airborne particulate directly at the source can help reduce exposure to airborne particulate within a dental operator. Dental Operator solutions from Price make use of engineering controls including high-volume extraction, HEPA filtration, and recirculated room air to improve indoor air quality while maintaining system efficiency.



ROOM REQUIREMENTS

Increased air changes decreases the concentration of airborne particulate within a space, thereby improving the indoor air quality. The amount of time required for removal of airborne particulate varies based on the air change rate. As an example, increasing from 4 ACH to 12 ACH reduces the time to remove 99.9% of airborne particulate from 104 minutes to 35 minutes, a 66% reduction. Additionally, extraction of particulate directly at the source before particulate is able to become airborne helps to further reduce the risk of occupant exposure to the aforementioned particulate.

Standard Room

Air changes per hour	4 ACH
Required Airflow	200 cfm*
Time required for 99.9% removal or settling of aerosols	104 minutes

Retrofit Room

Air changes per hour	12 ACH
Required Airflow	600 cfm*
Time required for 99.9% removal or settling of aerosols	35 minutes

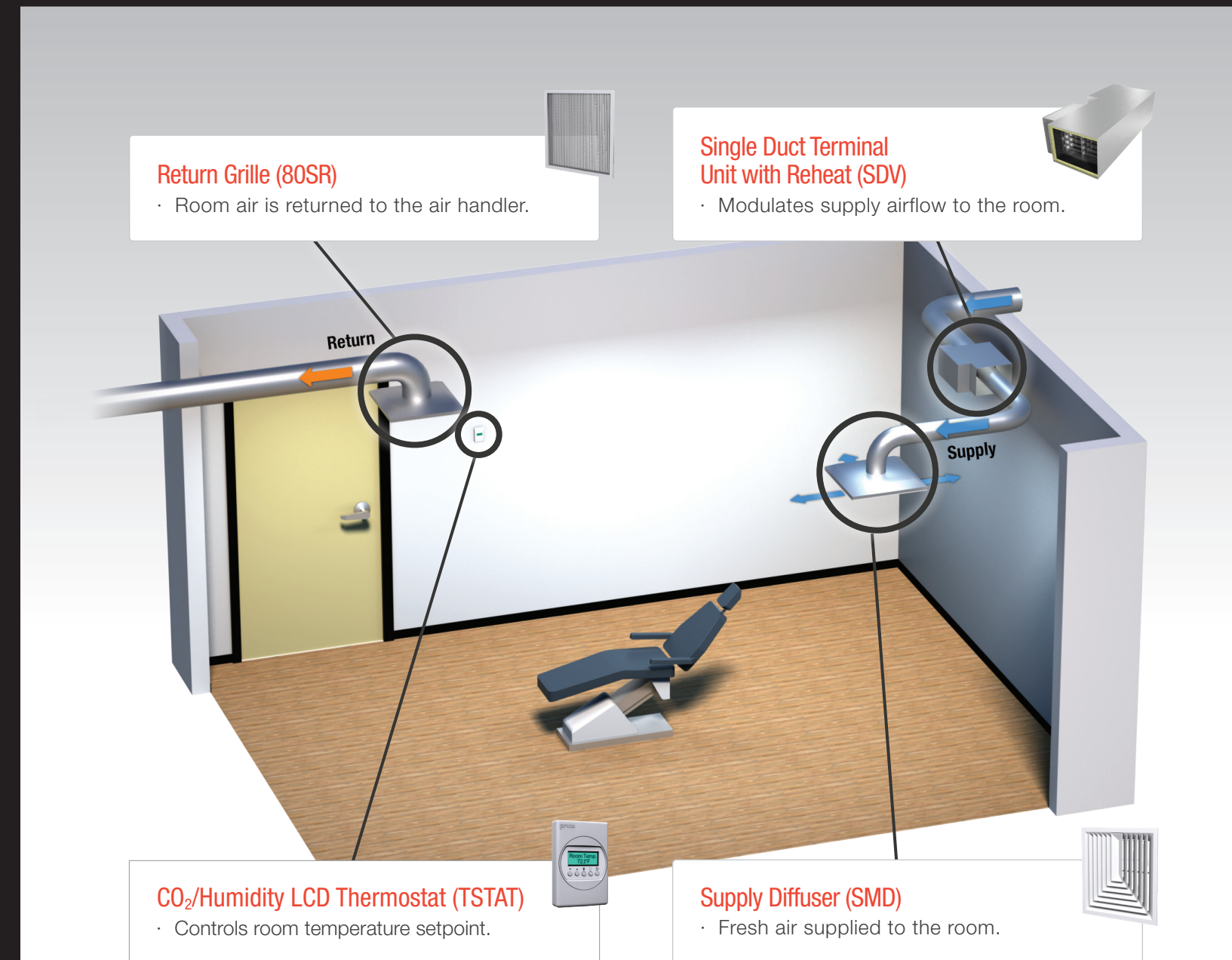
*all airflows based on a 15 x 20 ft. room with 10 ft. ceiling

Fixed Air Change Rate System

In order to achieve high air change rates, and therefore improved indoor air quality, the HVAC system can be designed to operate with a high volume of air exchange.

For example, the system could be designed to maintain 12 ACH during all occupied hours, with a nighttime setback to 4 ACH.

The system shown below features a VAV box and supply air diffuser located near the patient's head with a return grille located towards the patient's feet. The position of supply and return helps direct air in a path from clean to less-clean to assist in particulate control. Return air is directed back to the central air handler where it is filtered according to ASHRAE guidelines, diluted with outdoor air, and recirculated throughout the building.



Variable Air Change Rate System

Building on the base system, the implementation of a dual-outlet reverse flow fan filter unit (PURAFLU) and dedicated exhaust air outlet can provide greater variability in air change rates, and exhausts filtered air from the building to keep particulate concentrations low.

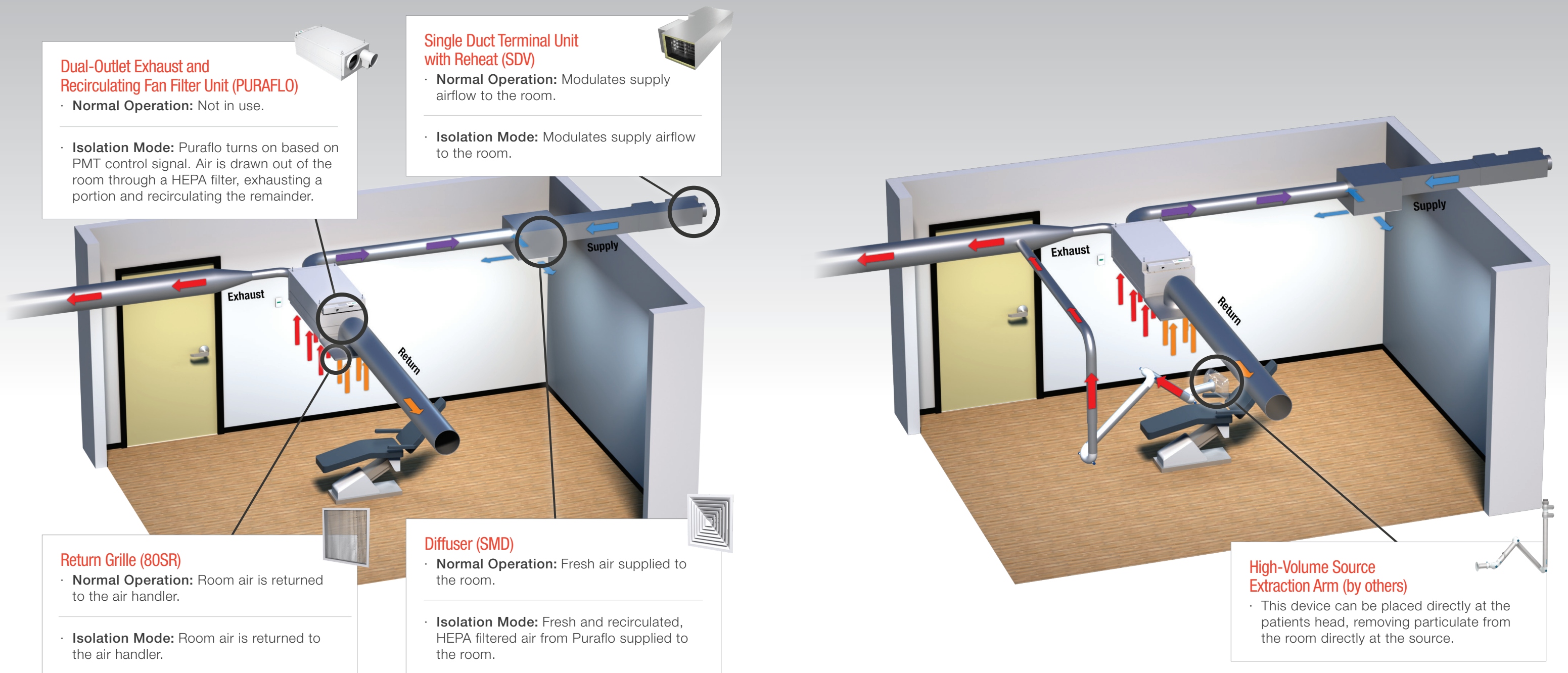
This flexible system can function in either **Normal Operation** or **Isolation Mode**, to help keep operating costs low. Switch between modes via BACnet or a simple wall switch.

In **Normal Operation**, the system will operate similarly to the base setup, with a fixed air change rate through the general supply and return. In **Isolation Mode** the Puraflo is activated to draw room air through a HEPA filter, exhausting the remaining filtered air to the outdoors. Isolation mode helps to increase air changes in the space, and remove particulate from the building to improve indoor air quality.

High Volume Source Extraction Package

(Pair with either Fixed Air Change Rate or Variable Air Change Rate System)

A high volume extraction arm can be positioned directly at the patients face to remove particulate directly at the source, before it is able to disperse throughout the room. Extracted air is HEPA filtered and then exhausted to the outdoors to prevent recirculation.



Pressure Control Package

(Pair with Variable Air Change Rate System)

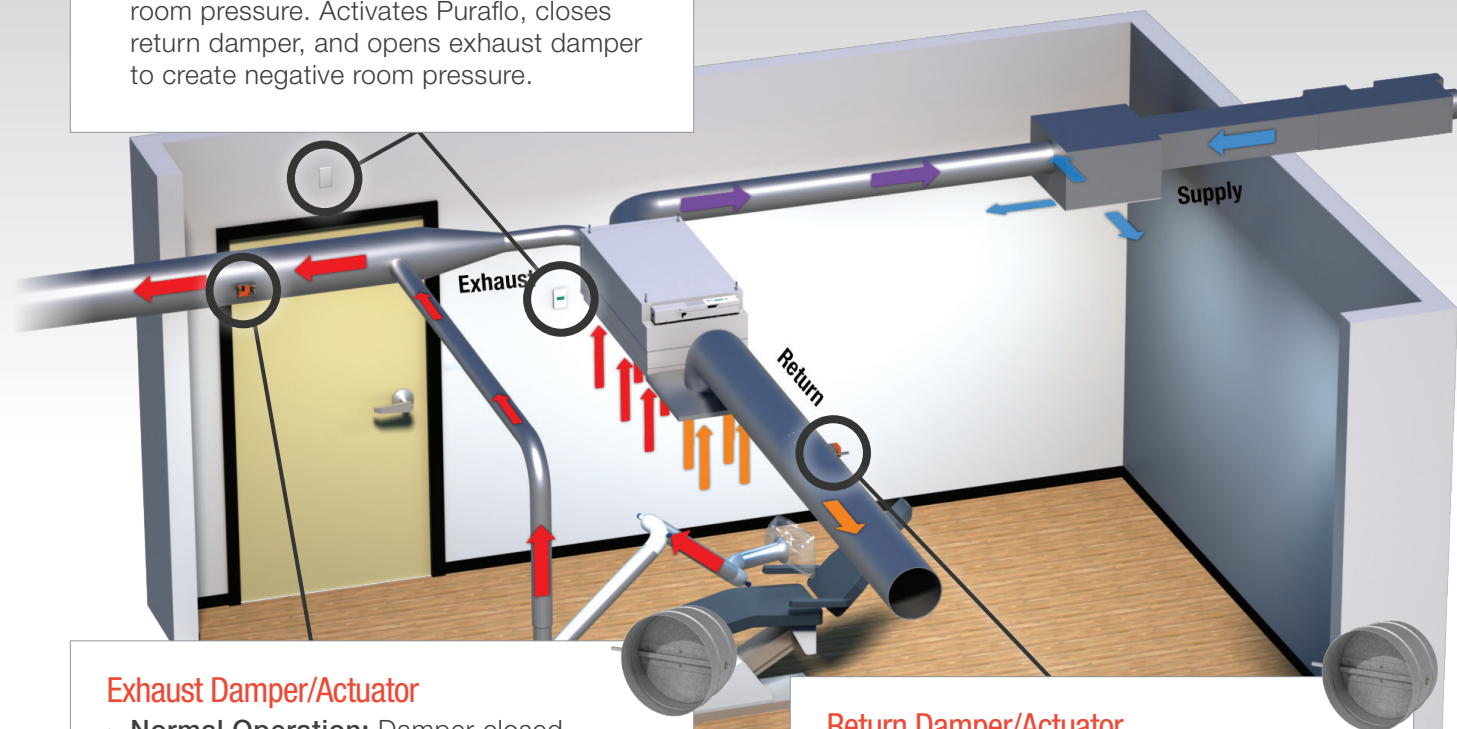
This pressure control package provides complete pressure control of the space to allow the dental operator to function with the air distribution requirements of a **standard operatory** or **negative pressure isolation room**, and can change between operational modes at the touch of a button.

In **Normal Operation** the room will function similar to the base system with minimal air changes and no room pressure relationship requirement, and in **Isolation Mode** air changes will be increased and the space will be held at negative pressure relative to adjoining spaces. In isolation mode, particulate will be contained to the operatory, preventing passage of particulate to adjoining spaces and recirculation throughout the remainder of the building.

This optional package can be applied to the **Variable Air Change Rate System** and can be paired with the **High Volume Extraction Package** for optimal particulate control.

Touchscreen Room Pressure Monitor (PMT)

- **Normal Operation:** No room pressure requirement.
- **Isolation Mode:** Measures and displays room pressure. Activates Puraflo, closes return damper, and opens exhaust damper to create negative room pressure.



Exhaust Damper/Actuator

- **Normal Operation:** Damper closed.
- **Isolation Mode:** Damper open to create negative room pressure based on PMT control signal.

Return Damper/Actuator

- **Normal Operation:** Damper open to allow return airflow to the air handler.
- **Isolation Mode:** Damper closed to prevent return airflow to the air handler.

CORE SYSTEMS

Please select a core system and add optional packages as required.

Fixed Air Change Rate System



Single Duct Terminal Unit with Reheat & LCD Thermostat

SDV8//I/2801/6/EHP/CFM//EC/2.0/277-1/2/IDSW/FUS///200/400/0/200/200/FF////////PS//CO2H-F/VAV-LF/PIC/PRB/BAC/65/550/140////////



Supply Diffuser (Price SMD)

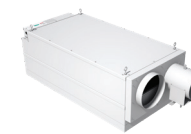
Recirculates 400 cfm* from Puraflo.
SMD//I/18/18/36/3A/24/24/SR/12//B12



Return Grille

80SR//I/24/24//2//TOP/12/BN///B12

Variable Air Change Rate System



Dual-Outlet Exhaust and Recirculating Fan Filter Unit (Price PURAFLO)

Exhaust 50 cfm*. Recirculate 400 cfm*.
PURAFLO-1-1//I/CEILING/RECIRC/24/48/10/8/RSR/HEPA/FC/ECM/115/CF/RMB/BACnet/BFC/TC/DSW-115//ASSP/M8PFE/PL-AL/F-AL/PL-B12/F-B12



Supply Diffuser (Price SMD)

Recirculates 400 cfm* from Puraflo.
SMD//I/18/18/36/3A/24/24/SR/12//B12



Single Duct Terminal Unit with Reheat & LCD Thermostat

SDV8//I/2801/6/EHP/CFM//EC/2.0/277-1/2/IDSW/FUS///200/400/0/200/200/FF////////PS//CO2H-F/VAV-LF/PIC/PRB/BAC/65/550/140////////



Return Grille

80SR//I/24/24//2//TOP/12/BN///B12

*all airflows based on 12ACH in a 15x20 ft. room with 10 ft. ceiling

OPTIONAL PACKAGES

After selecting a core system, please select an optional package below if required.

High Volume Source Extraction Package

(Pair with either Fixed Air Change Rate or Variable Air Change Rate System)



High-Volume Extraction Arm (by others)

Exhaust 150 cfm*.

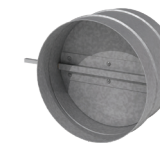
Pressure Control Package

(Pair with Variable Air Change Rate System)



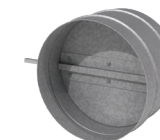
Touchscreen Room Pressure Monitor

PMT-1-4//I//SRPS1/BAC/



Return Damper/Actuator

MISCF-GRD-CE/S//RET/12/24V



Exhaust Damper/Actuator

MISCF-GRD-CE/S//EX/12/24V

Combined High Volume Source Extraction & Pressure Control Package

(Pair with Variable Air Change Rate System)



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