



**General**

Variable Air Volume Diffusers shall be Leopard Intellivent<sup>®</sup> Personal VAV Diffuser models LB (Basic), LM (Master), and LS (Slave), built in the USA by Warren Technology.

**Face**

Diffuser face shall be constructed of a corrosion proof, scratch resistant, white thermoplastic plate affixed to an aluminum backplate. Diffuser shall be 2'x2' square with 8-way throw, unless otherwise noted.

**Sizes**

Diffuser shall be available in the following face sizes: 2'x4', 2'x2', and 1'x4'. The flow rates for a given dimple jet depth shall be directly proportional to the face area of the diffuser. Noise Criteria (NC) levels shall be consistent for all sizes for a given flow rate per unit face area.

**Supply Jets**

High induction dimple jets shall be formed into the face of the diffuser, capable of producing an airstream parallel to the ceiling at full flow and throughout the entire design range. Dimple jets shall be sized to optimize room air induction and entrainment for a variety of design cfm capacities.

**Throw Patterns**

Dimple jets shall be arranged in a variety of patterns which result in 8-way (center of the room), 5-way (next to a sidewall), 3-way (in a corner), 2-way (opposite directions), or 1-way horizontal throws. Vertical (downblow) throw dimple jets shall be available for high heating load applications. Dual pattern models shall deliver approximately 25% vertical and 75% horizontal of total airflow in each direction, for moderate heating applications. Noise criteria and SP drop ratings shall not be affected by the throw selection.

**Plenum**

Diffuser plenum shall be made from 0.030" thick aluminum with side inlet on wedge shape or top inlet on square shape.

**Damper Mechanism**

All units shall have a linear slide damper mechanism and AC-synchronous actuator with end-switches to limit maximum and minimum travel. Optional end-switches shall provide output signals for external pressure control (LB and LM only).

**DDC Stand-Alone Controller**

The LB and LM shall have a standard, integral microprocessor based controller powered by an external 24Vac source. The controller shall provide proportional-integral control of the room temperature, a built-in room temperature setpoint dial, and optionally shall have adjustable software settings for heating/cooling deadband and unoccupied mode setback. An internal thermistor (or external signal, for Linked models) shall monitor the supply air temperature. The stand-alone controller can be mounted on the unit, or on the wall thermostat. The controller's logic shall change over from heating or cooling mode in response to the supply air temperature.

**Pressure Relief Door**

All units shall have an excess pressure relief door that opens when the pressure in the unit exceeds 0.10" w.g.. It shall be factory sealed for ducted return and reheat or energy saving applications, and optionally unsealed in the field for open return air plenum applications.

**Snap-In Cables**

A factory assembled snap-in jack and plug connection system shall be provided to simplify installation and prevent incorrect connection of components. Plenum rated extension cables shall be available in 35 and 100 feet in length. Extension cables shall be used according to manufacturer's guidelines.

**Optional Accessories**

**Insulation**

Diffuser plenum shall have one half-inch thick internal insulation to reduce heat transfer and



potential for condensation. Polymer foam insulation (EPFI) shall be used, to eliminate fibers in the airstream and to provide an effective vapor barrier. It shall meet the following standards: NFPA 90A&B, 255, 259; ASTM C518, C411, C423, C665, E84, E90, E96; UL 94HBF, 181, 723.

**Mounting Frame**

Standard unit shall be suitable for T-bar mounting without requiring any special brackets. Aluminum alloy frames shall be available which permit mounting in spline, plaster and sheet-rock ceilings.

**Filter Rack**

The diffuser plenum shall have a filter rack with hinged access door and twist latches with sufficient space for two layers of one-inch thick filters.

**Filters**

Filters are each one-inch thick and may be stacked to increase efficiency. Filter face area shall equal that of the diffuser. The filter assembly shall not reduce the capacity, diminish the throw characteristics, or increase the noise levels of the diffuser.

**High Efficiency Filters:** Filters shall be constructed of permanently charged rectangular polypropylene split fibers. The effective area of the media shall be at least 1.6 square feet per square foot of face area, and will contain not less than 12 pleats per foot.

**Odor Control Filters:**

Carbon filters: carbon filters shall be constructed of nonwoven polyester that is impregnated with 150% carbon add-on. Filter media shall contain no less than 10.5 grams of carbon per square foot of media area. Effective media area shall not be less than 6.1 square feet per square foot of face area, and will not contain less than 12 pleats per foot.

Zeolite Filters: ammonia lock filters shall be constructed nonwoven polyester that is impregnated with 150% zeolite add-on. Filter

media shall contain no less than 15 grams of zeolite per square foot of media area. Effective media area shall not be less than 6.1 square feet per square foot of face area, and will not contain less than 12 pleats per foot.

**Construction Filters:** filters shall be constructed of polyester or synthetic fibers.

**On/Off Reheat Control**

This 24Vac output is designed to control 2 position reheat devices (i.e., baseboard, etc.).

**Integral Reheat Coil**

Models LM, LB and LS shall optionally have electric reheat coils mounted on their inlets. The coils shall be UL listed. Standard features include: single stage element with proportional control, dual thermal cutouts, and airflow interlock. A range of capacities from 0.5 to 6.0 kW shall be available.

**Internal Sensor Assembly**

For cooling only applications, 8-way throw diffusers shall contain a sensor assembly with a micro fan to induce room air over a thermistor. The diffuser's discharge pattern shall assure thermal isolation of the supply air and the room air sample.

**Power Modules**

The power for each, LB and LM shall be provided by a Power Module through a snap-in cable. Power modules shall be available to supply 24 Vac to multiple Intellivents. Each shall have a NEMA I enclosure, with a Class II transformer, fast blow secondary fuse, on/off back lit switch, and snap-in jacks to provide power for multiple LB and LM Intellivents.