

Introduction: KBH, KBV

Model KBH and KBV belt drive blower coils offer a wide range of application flexibility, while maintaining a simple, easy to install unit design. They may be applied in many types of building structures including schools, office buildings, hospitals, condominiums, assisted living facilities, apartments or stores. Applications can be constant or variable volume. There are many applications the KBH and KBV product can be utilized. Some examples are listed below.

Constant Volume Applications:

- Two-pipe hydronic system for cooling and/or heating.
- Two-pipe hydronic cooling system with electric heat.
- Four-pipe system with dedicated heating and cooling coils.
- Direct Expansion (DX) split systems with hydronic heat.
- Direct Expansion (DX) split systems with electric heat.

Variable Volume Applications:

- Two-pipe hydronic system for cooling and/or heating.
- Two-pipe hydronic cooling system with electric heat.
- Four-pipe system with dedicated heating and cooling coils.

MODEL

KBH - Horizontal Unit

KBV - Vertical Unit



BLOWER COILS

KBH - KBV

KBH, KBV Product Description

ACOUSTICS

Control of noise within both occupied and unoccupied spaces has become increasingly important to designers and building owners/occupants. Proper consideration must be given to placement of indoor air conditioning units, particularly in the occupied space. Inherent flexibility of the fan and coil combination in the vertical configuration allows application in sound-sensitive areas. In such instances, a fan running at a low speed with a high capacity coil normally yields satisfactory results. It also may be desirable to select a larger nominal capacity unit and operate it at a less than nominal airflow for further acoustic benefit.

Three phase motors are recommended for soundsensitive applications to avoid potential single phase motor hum. Unit operation in the stall region of the fan curve is not recommended since it may cause unsatisfactory noise levels and excessive unit vibration.

INSTALLATION

These floor mounted or ceiling hung units can be installed with external vibration isolation on a base rail (KBH or KBV) or hanger rods (KBH only) at the corner points. This requires flex connections at the corner brackets, ductwork, electrical connections and piping connections. One of the most important and basic IAQ issues is condensate management. The first step to trouble-free operation is proper installation. It is very important that the unit be mounted high enough so that the condensate drain from the unit may be properly trapped.

Please refer to the KBH and KBV IOM manual at www.krueger-hvac.com for specifics on this issue. As with all HVAC systems, these units should be installed according to all applicable ASHRAE standards, SMACNA, and local code requirements.

OPERATING LIMITATIONS

Units must not be operated above maximum fan speed or unit airflow as listed in the fan performance section of this catalog. Unit operation at greater than maximum fan speed could drastically reduce bearing life and may result in a catastrophic wheel failure. Operating at greater than the maximum allowable airflow in the cooling mode may result in unsatisfactory operation due to moisture carry over from the coil. In addition, it is often not economical to operate a unit at its maximum fan speed due to the greater motor power requirements.

Units with electric heat should not be operated with leaving air temperature greater than 104°F (40°C), to prevent excessive leaving air temperatures and electric heat limit trips. A hydronic (or steam) coil and electric heat should not be operated simultaneously to prevent excessive leaving air temperatures and limit trips. Electric heat units are equipped with a high limit lockout switch that disables the electric heater if the temperature of the hydronic coil is greater than 104°F (40°C).

Water coils must not be operated above a fluid velocity of 8 ft./sec. to reduce the possibility of velocity induced erosion and flow noise. Water coils must not be operated below a fluid velocity of 1 ft./sec. to prevent degraded coil performance caused by laminar flow. These high or low fluid flow rates may not be included in the AHRI coil certification.

DESIGNED FOR MAXIMUM FLEXIBILITY

Both horizontal and vertical belt drive blower coils are designed to maximize flexibility of selection and installation.

The units will exceed the stringent quality standards of the institutional market, while remaining cost competitive in the light commercial segment of the market.

COMPONENT OPTIONS

The extensive variety of standard options available on the KBH and KBV units are where you find the versatility to fit any HVAC system designer's needs.

Options include mixing boxes with standard low leak dampers, high efficiency filter sections for 2" prefilter and 4" final filter and blow thru electric heat with single point power connection. All Electric Heat units are listed with ETL as an assembly and carry the cETL label.

High Efficiency motors, starters, disconnects and fusing mean easier coordination between mechanical and electrical trades. All KBH and KBV belt drive blower coils have the option of foil faced insulation.

COIL OPTIONS

Coil options allow for 4 or 6 row cooling coils. Water coils have optional circuiting that can be used to reduce water pressure drop, which may also allow for pipe size reductions and lower material cost. Hot water or standard steam coils may be placed in the preheat or reheat position.

QUALITY PRODUCT

KBH and KBV belt drive blower coils are built from 18 gage galvanized steel. This metal surpasses the ASTM 125 hour salt spray test for corrosion and rust. Standard insulation is 1 inch thick fiberglass, complying with UL 181 and NFPA 90A.

All units, with or without electric heat, are cETL listed and labeled. All wiring is in compliance with NEC, assuring safety and quality for the owner.

LOWER INSTALLED COST

All KBH and KBV belt drive blower coils are shipped completely assembled, reducing field installation time and labor. All units are thoroughly inspected and tested prior to shipment, eliminating potential problems at startup. Motor wiring is brought to a junction box on the outside of the unit casing, reducing electrical hook-up time.

A wide variety of fan discharge configurations allow for increased flexibility and easier installation on the jobsite, resulting in cost reductions by eliminating expensive elbows, etc.

KBH, KBV Product Description

STANDARD FEATURES

Construction

- Galvanized steel cabinet construction, minimum 18 gage.
- 1" thick fiberglass insulation.
- 1" supply duct collars.
- Gasketed, removable access panels sized for easy handling.
- IAQ galvanized steel drain pan.
- Left and right hand arrangement.

Fan Assembly

- Forward curved (double width, double inlet) fans .
- Statically and dynamically balanced.
- Solid steel shafting.
- Ball bearings with a minimum design average life (L50) of 100,000 hours.

Fan Motor and Drive

- NEMA design ODP motors.
- 1750 RPM single speed, 60 Hertz.
- Single phase motors with inherent thermal protection.
- Three phase motors.
- Rigid mount adjustable motor base.
- Standard cross section "V-belt" drive with 1.2 service factor.
- Adjustable pitch motor pulley and fixed pitch blower pulley.

Coils

- Krueger coils are designed, manufactured and tested by Krueger.
- 1/2" O.D. seamless copper tubes.
- High efficiency aluminum fin surface for optimizing heat transfer, pressure drop and carryover.
- Mechanically expanded copper tubes leak tested to a minimum 450 PSIG air pressure under water.
- Manual air vent plug on all water coils.
- Copper ODM sweat connections.
- 300 PSIG working pressure at 200°F.
- Evaporator coils are factory sealed and charged with a minimum of 5 PSIG nitrogen or refrigerated dry air.
- Refrigerant coils are provided with a fixed orifice distributor.
- Steam coils rated at 15 PSIG maximum operating pressure at about 35°F.
- 0.016" tube wall thickness (0.025" on steam).

Filters and Filter Rack

- Hinged side access flat filter rack.
- Standard size 2" nominal throwaway filters.
- Filter rack designed to accept 2" filters.

Electrical

- Fan motor wired and terminated to junction box.
- All units cETL listed in compliance with UL/ANSI Standard 1995.

OPTIONAL FEATURES

Construction

- IAQ (sloped) stainless steel drain pan with 1" MPT galvanized pipe outlet.
- Galvanized steel drain pan.
- External rubber-in-shear or spring type vibration isolators, hangers or floor mount.
- Fan discharge arrangements.
- Scrim reinforced foil faced insulation.
- Hinged access panels with lift and turn fasteners.
- Base rails with rigging slots factory assembled and installed.
- Auxiliary (secondary) drain connections.

Fan Motor and Drive

- High efficiency motors.
- TEFC motors.

Coils

- 3, 4 and 6 row chilled water or DX coils.
- 1 and 2 row hot water or standard steam coils.
- Heating coil in preheat or reheat position.
- Coil connections opposite handing.
- Stainless steel coil casings.
- Automatic air vents on water coils.
- Heat pump compatible cooling coils.
- 0.025" tube wall thickness.

Filters

- 2" pleated filter.
- Spare throwaway or pleated filters.
- High efficiency filter rack with 2" and 4" filters.

Inlet Damper Section

- Factory assembled and installed.
- Heavy gage galvanized steel formed blade dampers.
- Low leak dampers with extruded vinyl blade seals and flexible metal jamb seals.
- Parallel blade operation.
- Interconnecting damper linkage.

Electrical

- Motor wiring on conduit.
- Motor starter (contactor with overload for three phase; contactor for single phase), factory installed (mounted and wired).
- Door interlocking disconnect switch (non-fused).
- Hand off auto switch (HOA).
- Main fusing.

Electric Heat Section

- Factory mounted electric heater with single point power connection, cETL listed as an assembly (see page 13).