KBM

Blower Coils | Modular

KRUEGER

INTRODUCTION

The flexibility of Krueger's KBM blower coil allows you to design the unit to meet specific project needs, including configurations for draw thru applications in horizontal, vertical, and footprint-saving arrangements. From basic applications to sophisticated isolation room systems required to meet challenging indoor air quality (IAQ), controls, and acoustic (sound sensitive) projects, Krueger's KBM is your solution.

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

KBM - Modular Blower Coil

FEATURES

- Modular construction allows for footprint saving arrangements including stacking modules in two-high configuration.
- IAQ galvanized drain pans are double sloped to prevent standing water and minimize microbial growth. Stainless steel drain pans are available.
- Removable access panels for improved accessibility, clean ability, and serviceability. Hinged access doors with quick action latches are available.
- Single point power connection – even with draw thru or blow thru electric heat – simplifies installation. Fan motors are factory mounted and wired to the junction box.
- Available in nine sizes, from 600 to 10,000 CFM.
- Internal spring isolation standard on all unit sizes 02 - 17.
- Single wall and double wall-galvanized construction are available. Double wall construction enhances indoor air quality, protects insulation, and provides the ability to clean the inside of the unit.

KBM

OPTIONAL FEATURES

- Factory-packaged blower coil units are available with starters or variable frequency drives, factory mounted and wired. Simply connect power, piping, and ductwork, and the units are ready for operation. An excellent way to minimize installation time, coordination and costs, while increasing reliability.
- Quiet, flexible, acoustical discharge plenums may be used for sound sensitive projects.
- Customized options including:
  - High Efficiency Filters
  - Double Wall Perforated Lining

PRODUCT DESCRIPTION

DESIGNED FOR MAXIMUM FLEXIBILITY

Krueger's model KBM is designed to maximize flexibility of selection and installation.

The unit is also designed to exceed the stringent quality standards of the institutional market, while remaining cost competitive in the light commercial segment of the market.

Krueger's model KBM sets the new standard for quality, flexibility, and competitive pricing.

QUALITY PRODUCT

KBM units are built from G60 minimum spangled galvanized steel with a chromate coating. This metal surpasses the ASTM 125 hour salt spray test for corrosion and rust. Standard insulation is 1 inch fiberglass insulation which is glued and pin spotted for maximum positive adhesion. Insulation complies with UL 181 and NFPA 90A.

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

PRODUCT DESCRIPTION (CONTINUED)

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 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 sound sensitive 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.

LOWER INSTALLED COST

Model KBM 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.

INSTALLATION

These floor mounted or ceiling hung units can be installed on a base rail or hanger rods at the corner points. All units have internally isolated fan decks; therefore, flex connections are not required, which will reduce installation costs. One of the most important and basic IAQ issues is condensate management. The first step to ensure 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 KBM 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 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, 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 lockout switch that disables the electric heater if the temperature of the hydronic (or steam) 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.

OPTIONAL COMPONENTS MEAN FLEXIBILITY

The extensive variety of standard options available on the KBM is 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 a 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.

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.

All KBM units have the option of foil faced insulation.

PRODUCT DESCRIPTION (CONTINUED)

STANDARD FEATURES

Construction
- Modular design facilitates retrofit
- Galvanized steel cabinet construction
- 1" thick fiberglass insulation, glued and pinned in place
- Gasketed, removable access panels sized for easy handling
- Left and right hand arrangement
- Access panels on all sections

Fan Assembly
- Single forward-curved fan sections
- Statically and dynamically balanced
- Solid steel shafting
- Ball bearings with a minimum design average life (L50) of 100,000 hours
- Fan decks with internal vibration isolation

Fan Motor and Drive
- Single speed ODP motors
- 1750 RPM single speed, 60 Hz
- Single phase motors with inherent thermal protection
- Three phase motors
- Standard cross section "v-belt" drive with 1.2 service factor
- Adjustable pitch motor pulley and fixed pitch blower pulley

Coils
- 1/2" O.D. seamless copper tubes
- G60 steel coil casings
- Collared aluminum fins
- Manual air vent plug on all water coils
- 300 PSIG working pressure at 200°F
- Copper ODM sweat connections
- 0.016" tube wall on water and evaporator coils
- 0.025" tube wall on steam coils

Filters and Filter Rack
- Hinged side access flat filter rack
- 2" pleated filters (30%)

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

Electric Heat Section
- Draw thru or blow thru configurations
- Factory mounted electric heater with single point power connection, ETL listed as an assembly

OPTIONAL FEATURES

Construction
- Double wall (solid or perforated) cabinets
- Stainless steel IAQ drain pan with stainless steel male pipe threaded connection
- Multiple fan discharge arrangements
- Scrim reinforced foil faced insulation
- Hinged access panels with lift and turn fasteners
- 4" Base rails with rigging slots factory assembled and installed

Fan Motor and Drive
- TEFC motors
- High efficiency motors
- Two-speed motors with contactors
- Variable frequency drives, factory installed (mounted & wired)
- Motor starter (contactor with overload for three phase; contactor for single phase), factory installed (mounted & wired)
- Return FC fan sections

Coils
- 3, 4, 6 and 8 row chilled water or DX coils
- Up to 4 rows hot water or up to 2 rows standard steam
- Heating coil in preheat or reheat position
- Coil connections opposite handing
- Stainless steel coil casings
- 0.025" tube wall thickness
- Auto air vents

Filters and Filter Rack
- 4" high efficiency pleated filters (65, 85, and 95%)
- Mixing box with filter sections (flat or v-bank filter arrangements)

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
- Medium and large inlet plenums with v-bank or flat filters.
- Parallel blade operation
- Interconnecting damper linkage
- Damper actuator (modulating from 100% OA to 100% RA)

Additional Modules
- Discharge plenums
- Access sections

Electrical
- Motor wiring in conduit
- Single or three phase fan control packages
- Door interlocking disconnect switch (non-fused or fused)
- Fusing (main or per stage)
- Hand off auto switch (HOA)
- Frequency inverters
- Electric heat interlock relay
- Relays, transformers, etc.