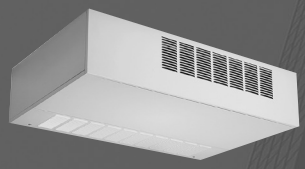
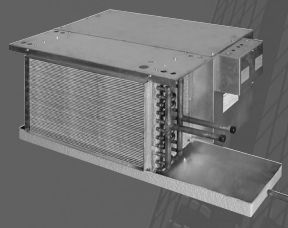
FAN COILS

E2





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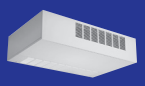
KRUEGER
Excellence in Air Distribution

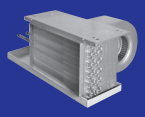


KHFE
Part of the Horizontal Low Profile series, this model features an exposed cabinet configuration.

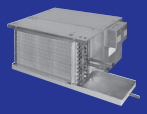
KHFH
Part of the Horizontal Low Profile series, this model features a concealed ceiling configuration.

KHFP
Part of the Horizontal Low Profile Series, this model features a standard concealed ceiling with plenum. configuration.

KHGE
Part of the Horizontal High Capacity Series, this model features a horizontal exposed cabinet configuration.

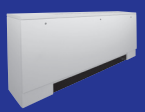


KHGH
Part of the Horizontal High Capacity Series, this model features a concealed ceiling configuration.

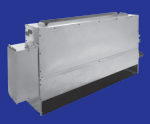


KHGP
Part of the Horizontal High Capacity Series, this model features a concealed ceiling with plenum configuration.

KVFS
Part of the Vertical Standard Series, this model features an exposed cabinet slant top configuration.



KVFF
Part of the Vertical Standard Series, this model features an exposed cabinet flat top configuration.



KVFH
Part of the Vertical Standard Series, this model features a concealed console configuration.

KVPH
Part of the Vertical Stack Series, this model features a vertical stack, recessed hi-rise configuration.

KVPP
Part of the Vertical Stack Series, this model features a vertical stack, recessed primary configuration.

KVPS
Part of the Vertical Stack Series, this model features a vertical stack, recessed secondary configuration.

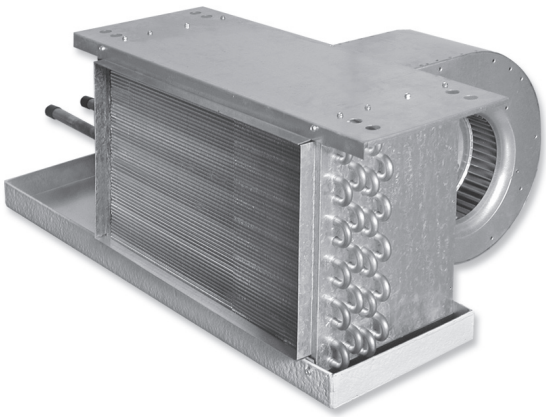
KVIP
Part of the Vertical Stack Series, this model features a twin pack primary vertical stack, recessed hi-rise configuration.

KVIS
Part of the Vertical Stack Series, this model features a twin pack secondary vertical stack, recessed hi-rise configuration.

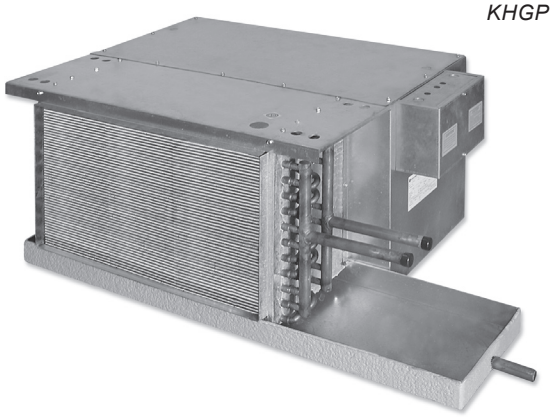
KVPE
Part of the Vertical Stack Series, this model features a vertical stack, recessed hi-rise configuration.

KHGE

KHGH



KHGP



Introduction: KHG Series

The Krueger KHG Series horizontal high capacity fan coil units are designed to maximize flexibility of selection and installation. The units are 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 horizontal fan coil units set the new standards for quality, flexibility, and competitive pricing.

MODEL

KHGE - Horizontal High Capacity Fan Coil, Exposed Cabinet
KHGH - Horizontal High Capacity Fan Coil, Concealed Ceiling
KHGP - Horizontal High Capacity Fan Coil, Concealed with Plenum

KHG Series Product Description

DESIGNED FOR MAXIMUM FLEXIBILITY

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

Options include: mixing box with linkage, rear or bottom ducted return, foil faced or elastomeric closed cell foam insulation, solid or telescoping bottom panels for unit recessing, single wall stainless steel drain pans, and electric heat with single power connection. All electric heat units are listed with ETL as an assembly and carry the cETL label.

All units comply with the latest edition of AHRI Standard 440 for testing and rating fan coil units, are certified, and display the AHRI symbol. Sizes 14 through 20 exceed the maximum airflow rate in AHRI 440 and are therefore not certified.

High efficiency motors, fan relays, disconnects and fusing mean easier coordination between mechanical and electrical trades.

Coil options allow for three, four, or six row chilled water or DX coils. One to four row hot water coils may be placed in the preheat or reheat position.

QUALITY PRODUCT

This series of fan coil units are built from galvanized steel. This metal surpasses the ASTM 125 hour salt spray test for corrosion and rust. Exposed Model KHGE cabinetry is powder coated galvannealed steel.

Standard insulation is 1/2" thick fiberglass, complying with UL 181 and NFPA 90A. Optional foil faced or elastomeric closed cell foam insulation may be specified.

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.

This series of fan coil units have a removable fan assembly. The entire fan assembly can be removed from the unit and serviced easily on a workbench.

CONSTRUCTION HIGHLIGHTS

Electrical Enclosure: The side access electrical enclosure provides access to all electric heat and control components. Terminal strips are furnished for simple power and control wiring connections. Multiple knockouts allow wiring entries from either side of the compartment.

Mixing Box: The optional fully insulated mixing box section comes completely assembled to the KHGP unit, featuring low leakage, heavy gauge steel dampers with integral linkage. Damper positioning is field configurable and bottom filter access is standard. A factory provided and installed damper actuator is also available.

Coils: All fan coils are available in 2 or 4 pipe configurations. The heating coil may be placed in the reheat or preheat position. Heating and cooling coils are field reversible for right or left side connections.

Drain Pan: Standard drain pans are externally insulated, single wall galvanized steel with an option for stainless steel. Drain pans are available with secondary drain connection. On concealed models, the drain pan is easily removable for cleaning or reversing connections.

Filters: 1" throwaway filters are tight fitting to prevent air bypass. Filters are easily removable from the bottom without the need for tools. The filter rack is convertible from rear to bottom return without the need for additional parts. Optional 1" and 2" pleated filters are available for use with the KHGP unit.

Powder Coated Painted Surface: Exposed cabinet, model KHGE, features powder coat finish that resists scuffing, scratching, fading, and fingerprints.

CONVENIENT INSTALLATION

All units 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.

Plenum units are field reversible for either rear or bottom return without the need for special adapters and tools.

All coils and drain pans are field reversible for right or left side connections.

These fan coil units have a side access electrical enclosure, allowing easy access to all electrical components, terminal blocks and wiring.

Available factory installed control packages can greatly reduce field labor and setup time. Consisting of control transformer and all needed relays, these packages integrate seamlessly with either factory provided thermostats or field installed thermostats and controllers.

Factory furnished valve packages assure proper fit, operation and performance. Valve packages are completely assembled and shipped loose with the units.

KHG Series Product Description

STANDARD FEATURES

Construction

All Units
- AHRI 440 certified and labeled.
- Galvanized steel construction.
- 1/2” thick fiberglass insulation.
- 1 1/2” duct discharge collar.
- Four point hanger mounting brackets.

Plenum units
- Integral filter rack with 1” throwaway filter.
- Integral rear ducted return - field reversible to bottom return.

Exposed units
- Single deflection rear return grille.
- Double deflection discharge grille.
- Durable powder coat paint.
- 18 gauge cabinet construction.

Coils
- Cooling - 3, 4 or 6 row chilled water or DX, heat pump compatible.
- Heating - 1, 2, 3 or 4 row hot water - reheat or preheat position.
- 8 total rows of cooling and heating coils maximum.
- 1/2” O.D. seamless copper tubes.
- 0.016” tube wall thickness.
- High efficiency aluminum fin surface for optimizing heat transfer, pressure drop and carryover.
- Left or right hand connections – field reversible (water coils only).
- Removable for service.
- Manual air vent.

Drain Pans
- Single wall, galvanized steel, externally insulated – fire retardant and antimicrobial closed cell foam.
- Positively sloped to drain connection.
- Removable, field reversible.
- 7/8” O.D. primary drain connection.

Fan Assemblies
- Forward curved, DWDI centrifugal type.
- 115 volt, single phase, three tap PSC motors.
- Quick disconnect motor connections.
- Removable fan(s)/motor(s) for service.

Electrical
- cETL listed for safety compliance.
- Electrical junction box for field wiring terminations.
- Terminal block for field connections.

Electric Heat
- cETL listed as an assembly for safety compliance.
- Integral electric heat assembly with removable elements for easy service.
- Automatic reset primary and back-up secondary thermal limits.
- Single point power connection.
- Side-hinged electrical enclosure.

OPTIONAL FEATURES

Construction

All Units
- Foil faced fiberglass insulation.
- Elastomeric closed cell foam insulation.

Plenum Units
- Bottom return.
- Mixing box with top/rear or rear/bottom dampers - field reversible.
- Damper actuator.
- Spare 1” throwaway filters.
- 1” and 2” pleated filters.

Exposed Units
- Single deflection bottom return grille.
- Ducted supply.
- Ducted rear return.

Coils
- Automatic air vents.
- Stainless steel coil casings.
- 3/8" O.D. seamless copper tubes (0.012" tube wall thickness).

Drain Pans
- Stainless steel with external insulation.
- 5/8” O.D. secondary drain connection.
- Auxiliary drip pans.

Fan Assemblies
- 208-230 & 277 volt, single phase, three tap PSC motors.
- EC motors.

Electrical
- Side access electrical enclosure.
- Silent solid state fan relays.
- SCR fan speed controller.
- Toggle disconnect switch.
- Condensate overflow switch (drain pan).
- Main fusing.
- Unit and remote mounted three speed fan switches.
- Fan relay packages.
- Control power transformers.

Electric Heat
- Door interlocking disconnect switches.
- Main fusing.
- Silent relay / contactor.

Piping Packages
- Factory assembled – shipped loose for field installation.
- 1/2”, 3/4”, and 1”, 2 way and 3 way normally closed, two position electric motorized valves.
- Isolation ball valves with memory stop.
- Fixed and adjustable flow control devices.
- Unions and P/T ports.
- Modulating control valves.
- High pressure close-off actuators (1/2” = 50 PSIG; 3/4” = 25 PSIG; 1” = 20 PSIG).

Thermostats
- Remote mounted analog, digital display or programmable.
- 2 and 4 pipe control sequences.
- Automatic and manual changeover.
- Integral three speed fan switches.

KHG Series Coil & Filter Information

COILS

Krueger offers hot water, chilled water, and direct expansion (DX) coils for specific application with all KHG series fan coil units. Strict on-site inspection before, during, and after installation guarantees the highest quality and performance available.

STANDARD FEATURES

- Cooling - 3, 4 or 6 row chilled water or DX.
- Heating - 1, 2, 3 or 4 row hot water.
- 8 total rows of cooling and heating coils maximum.
- 1/2” O.D. seamless copper tubes.
- 0.016” tube wall thickness.
- High efficiency aluminum fin surface for optimizing heat transfer, pressure drop and carryover.
- Left or right hand connections.
- Manual air vents.

OPTIONAL FEATURES

- Automatic air vents.
- Stainless steel coil casings.
- DX coils are heat pump compatible.
- 3/8" O.D. seamless copper tubes (0.012" tube wall thickness).

NOMINAL COIL CONNECTION SIZES

Unit Size	Water Coil Type				
	Water				
	1-Row	2-Rows	3-Rows	4-Rows	6-Rows
06	5/8” (16)	5/8” (16)	7/8” (22)	7/8” (22)	7/8” (22)
08	5/8” (16)	5/8” (16)	7/8” (22)	7/8” (22)	7/8” (22)
10	5/8” (16)	5/8” (16)	7/8” (22)	7/8” (22)	7/8” (22)
12	5/8” (16)	7/8” (22)	7/8” (22)	7/8” (22)	1 1/8” (29)
14	5/8” (16)	7/8” (22)	7/8” (22)	1 1/8” (29)	1 1/8” (29)
16	5/8” (16)	7/8” (22)	7/8” (22)	1 1/8” (29)	1 1/8” (29)
18	5/8” (16)	7/8” (22)	1 1/8” (29)	1 1/8” (29)	1 1/8” (29)
20	5/8” (16)	7/8” (22)	1 1/8” (29)	1 1/8” (29)	1 1/8” (35)

NOTES: All dimensional data is outside diameter (O.D.), measured in inches (millimeters). See submittal drawings for connection locations. Connection sizes are for standard circuit coils. Consult Krueger for special applications. Direct Expansion (DX) suction header connection sizes are either 5/8” (16mm) or 7/8” (22mm). Refer to coil selection. DX coils include a fixed orifice distributor for multi-circuited coils. A DX coil with a single circuit requires no distributor. Thermal expansion valves (TXV’s) are field supplied by others.

FACE AREA, FREE AREA AND FILTER SIZES

Unit Size	Coil Face Area	Nominal Filter Sizes	1” Throwaway Face Area	1” Pleated Gross Media Area	2” Pleated Gross Media Area
06	1.56 [0.15]	(Qty 1) 16” x 16” (406 x 406)	1.62 [0.15]	4.0 [0.37]	5.4 [0.50]
08	2.08 [0.19]	(Qty 1) 16” x 20” (406 x 508)	2.04 [0.19]	4.8 [0.45]	6.8 [0.63]
10	2.50 [0.23]	(Qty 1) 16” x 25” (406 x 381)	2.57 [0.24]	6.0 [0.56]	8.5 [0.79]
12	3.02 [0.28]	(Qty 2) 16” x 16” (406 x 406)	3.23 [0.30]	8.0 [0.74]	10.4 [0.97]
14	3.54 [0.33]	(Qty 1) 16” x 16” -- and -- (Qty 1) 16” x 20” (Qty 1) (406 x 406) -- and -- (Qty 1) (406 x 508)	3.65 [0.34]	8.8 [0.82]	12.2 [1.13]
16	4.06 [0.38]	(Qty 2) 16” x 20” (406 x 508)	4.08 [0.38]	9.6 [0.89]	13.4 [1.24]
18	4.58 [0.43]	(Qty 1) 16” x 20” -- and -- (Qty 1) 16” x 25” (Qty 1) (406 x 508) -- and -- (Qty 1) (406 x 635)	4.61 [0.43]	10.8 [1.00]	14.3 [1.33]
20	5.00 [0.46]	(Qty 2) 16” x 25” (406 x 635)	5.14 [0.48]	12.0 [1.11]	17.0 [1.58]

NOTES: Face and free areas are in square feet [square meters]. Filter sizes are in inches (millimeters).

KHG Series AHRI Ratings, Weight Information, & Heating Capacity

AHRI STANDARD RATINGS

Model / Size	AHRI 440 Certified	Coil		Airflow CFM (Dry Flow)	Cooling Capacity		Water		Power Input (WATTS)
		Rows	FPI		QT (BTUH)	QS (BTUH)	Flow Rate GPM	WPD ft-wg	
KHG06	*	4	10	669	20299	15560	4	5.64	247
KHG08	*	4	10	950	25889	19389	5.2	8.03	375
KHG10	*	4	10	1001	30180	22420	6.1	6.87	457
KHG12	*	4	10	1437	44169	33509	8.8	6.68	494
KHG14		4	10	1906	51990	41159	10.4	5.01	750
KHG16		4	10	1852	56810	43029	11.3	6.4	914
KHG18		4	10	1915	62750	46369	12.4	8.18	914
KHG20		4	10	1999	68059	49580	13.6	10.06	914

NOTE: Based on 80°F DB and 67°F WB EAT, 45°F EWT, 10°F temperature rise, high fan speed. Motor type is PSC and motor voltage is 115/1/60. Airflow under dry coil conditions. All models tested at 0.05" external static pressure. Airflow rate CFM on sizes 14 through 20 exceed maximum ratings in AHRI 440 and are therefore not certified.

UNIT WEIGHTS

Component		Unit Size							
		06	08	10	12	14	16	18	20
KHGH Base Unit		68 [31]	73 [33]	77 [35]	114 [52]	119 [54]	124 [56]	128 [58]	132 [60]
KHGP Base Unit		87 [40]	95 [43]	101 [46]	141 [64]	150 [68]	157 [71]	164 [75]	170 [77]
KHGP with Mixing Box		119 [54]	132 [60]	144 [65]	189 [86]	204 [93]	217 [99]	229 [104]	246 [112]
KHGE Base Unit		137 [62]	146 [66]	158 [72]	202 [92]	219 [99]	228 [103]	240 [109]	250 [113]
Coil Rows	1 Row - Dry	5 [2]	6 [3]	7 [3]	8 [4]	10 [5]	10 [5]	11 [5]	12 [5]
	1 Row - Wet	7 [3]	9 [4]	10 [5]	11 [5]	14 [6]	14 [6]	16 [7]	17 [8]
	2 Row - Dry	11 [5]	13 [6]	14 [6]	16 [7]	20 [9]	20 [9]	22 [10]	24 [11]
	2 Row - Wet	14 [6]	18 [8]	20 [9]	23 [10]	27 [12]	28 [13]	32 [15]	35 [16]
	3 Row - Dry	16 [7]	19 [9]	21 [10]	24 [11]	30 [13]	30 [14]	33 [15]	36 [16]
	3 Row - Wet	21 [10]	27 [12]	30 [14]	34 [15]	41 [19]	42 [19]	48 [22]	52 [24]
	4 Row - Dry	21 [10]	25 [12]	29 [13]	33 [15]	40 [18]	40 [18]	44 [20]	48 [22]
	4 Row - Wet	27 [12]	35 [16]	41 [19]	46 [21]	54 [25]	56 [25]	64 [29]	69 [31]
	5 Row - Dry	26 [12]	30 [14]	34 [16]	38 [17]	42 [19]	46 [21]	50 [23]	54 [25]
	5 Row - Wet	33 [15]	39 [18]	45 [21]	51 [23]	57 [26]	63 [29]	70 [32]	77 [35]
	6 Row - Dry	32 [15]	38 [17]	43 [19]	49 [22]	59 [27]	61 [28]	67 [30]	71 [32]
	6 Row - Wet	42 [19]	53 [24]	61 [28]	69 [31]	80 [36]	85 [39]	97 [44]	103 [47]
	7 Row - Dry	38 [17]	42 [19]	48 [22]	54 [25]	60 [28]	66 [30]	72 [33]	78 [35]
	7 Row - Wet	49 [23]	56 [26]	63 [29]	70 [32]	77 [35]	84 [38]	91 [42]	98 [45]
	8 Row - Dry	43 [20]	49 [22]	55 [25]	61 [28]	67 [30]	73 [33]	79 [36]	85 [39]
	8 Row - Wet	55 [26]	63 [29]	71 [32]	79 [36]	87 [40]	95 [43]	103 [47]	111 [50]

NOTE: Unit weight data is in pounds [kilograms].

HEATING CAPACITY

Unit Size	1-Row				2-Row				3-Row				4-Row			
	CFM	QS (MBH)	GPM	WPD	CFM	QS (MBH)	GPM	WPD	CFM	QS (MBH)	GPM	WPD	CFM	QS (MBH)	GPM	WPD
KHG06	790	16040	0.8	0.34	762	26629	1.4	1.27	703	39889	2.0	0.75	674	55540	2.9	13.45
KHG08	1019	22399	1.2	0.69	984	42159	2.2	1.38	890	51939	2.7	0.8	872	70760	3.6	7.89
KHG10	1132	26799	1.4	1.1	1096	51380	2.6	0.3	1066	63569	3.3	1.33	1036	84989	4.4	12.67
KHG12	1489	34430	1.8	2.01	1441	68470	3.5	0.51	1389	82059	4.2	1.02	1361	110569	5.7	11.06
KHG14	2027	41560	2.1	1.05	1966	89059	4.6	0.94	1885	98150	5.0	0.61	1856	122870	6.3	13.17
KHG16	2316	48590	2.5	1.55	2237	103849	5.3	1.38	2138	114050	5.9	0.89	2053	158399	8.1	5.69
KHG18	2401	53700	2.8	2.07	2313	98989	5.1	0.27	2232	124940	6.4	1.16	2159	171660	8.8	7.32
KHG20	2546	61200	3.1	0.33	2455	123220	6.3	2.23	2370	142250	7.3	10.3	2292	184740	9.5	9.07

NOTE: Based on 70°F DB EAT, 180°F EWT, 40°F temperature drop, high fan speed. KHGE performance data varies from KHGH and KHGP units.

KHG Series Electric Heat Features & Capacities

ELECTRIC HEAT STANDARD FEATURES

- ETL listed as an assembly for safety compliance.
- Single point power connection.
- Mounted in preheat position.
- Automatic reset primary and back-up secondary thermal limits.
- Internal wiring rated at 105°C.
- Integral electric heat assembly with removable element for easy service.

OPTIONAL HEATER CONTROL

- Solid state silent relay.
- Door interlocking disconnect switch.
- Main fusing.

ELECTRICAL CALCULATIONS INFORMATION

- Non-Fused door interlock disconnect switch shall be sized according to MCA.
- Fused door interlock disconnect switch and main fusing shall be sized according to MOP.

USEFUL FORMULAS

kW* = (CFM x ΔT x 1.085**) / 3413

1Ø AMPs = (kW x 1000) / Volts

** 1kW = 3413 BTU/H*

*** Capacity at Sea Level*

ALTITUDE CONSIDERATIONS:

Reduce by 0.034 for each 1000 ft. of altitude above sea level.

Example:

5000 ft./1000 ft. = 5

5 x 0.034 = 0.17

1.085 - 0.17 = 0.915

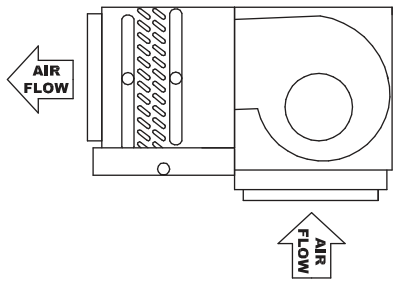
ELECTRIC HEAT SELECTION CHART

Unit Size	MBH	6.8	8.5	10.2	11.9	13.7	17.1	20.5	23.9	27.3	30.7	34.1	41.0	47.8
	kW	2.0	2.5	3.0	3.5	4.0	5.0	6.0	7.0	8.0	9.0	10.0	12.0	14.0
	VOLTS	AMPS												
06	115	17.4	21.7	26.1	30.4	34.8	-	-	-	-	-	-	-	-
	208	9.6	12.0	14.4	16.8	19.2	-	-	-	-	-	-	-	-
	230	8.7	10.9	13.0	15.2	17.4	-	-	-	-	-	-	-	-
	277	7.2	9.0	10.8	12.6	14.4	-	-	-	-	-	-	-	-
08	115	17.4	21.7	26.1	30.4	34.8	43.5	-	-	-	-	-	-	-
	208	9.6	12.0	14.4	16.8	19.2	24.0	28.8	-	-	-	-	-	-
	230	8.7	10.9	13.0	15.2	17.4	21.7	26.1	-	-	-	-	-	-
	277	7.2	9.0	10.8	12.6	14.4	18.1	21.7	-	-	-	-	-	-
10	115	17.4	21.7	26.1	30.4	34.8	43.5	-	-	-	-	-	-	-
	208	9.6	12.0	14.4	16.8	19.2	24.0	28.8	33.7	-	-	-	-	-
	230	8.7	10.9	13.0	15.2	17.4	21.7	26.1	30.4	-	-	-	-	-
	277	7.2	9.0	10.8	12.6	14.4	18.1	21.7	25.3	-	-	-	-	-
12	115	-	-	-	-	34.8	43.5	-	-	-	-	-	-	-
	208	-	-	-	-	19.2	24.0	28.8	33.7	38.5	43.3	-	-	-
	230	-	-	-	-	17.4	21.7	26.1	30.4	34.8	39.1	-	-	-
	277	-	-	-	-	14.4	18.1	21.7	25.3	28.9	32.5	-	-	-
14	115	-	-	-	-	34.8	43.5	-	-	-	-	-	-	-
	208	-	-	-	-	19.2	24.0	28.8	33.7	38.5	43.3	48.1	-	-
	230	-	-	-	-	17.4	21.7	26.1	30.4	34.8	39.1	43.5	-	-
	277	-	-	-	-	14.4	18.1	21.7	25.3	28.9	32.5	36.1	-	-
16	115	-	-	-	-	34.8	43.5	-	-	-	-	-	-	-
	208	-	-	-	-	19.2	24.0	28.8	33.7	38.5	43.3	48.1	57.7	-
	230	-	-	-	-	17.4	21.7	26.1	30.4	34.8	39.1	43.5	52.2	-
	277	-	-	-	-	14.4	18.1	21.7	25.3	28.9	32.5	36.1	43.3	-
18	115	-	-	-	-	34.8	43.5	-	-	-	-	-	-	-
	208	-	-	-	-	19.2	24.0	28.8	33.7	38.5	43.3	48.1	57.7	-
	230	-	-	-	-	17.4	21.7	26.1	30.4	34.8	39.1	43.5	52.2	-
	277	-	-	-	-	14.4	18.1	21.7	25.3	28.9	32.5	36.1	43.3	-
20	115	-	-	-	-	34.8	43.5	-	-	-	-	-	-	-
	208	-	-	-	-	19.2	24.0	28.8	33.7	38.5	43.3	48.1	57.7	67.3
	230	-	-	-	-	17.4	21.7	26.1	30.4	34.8	39.1	43.5	52.2	60.9
	277	-	-	-	-	14.4	18.1	21.7	25.3	28.9	32.5	36.1	43.3	50.5

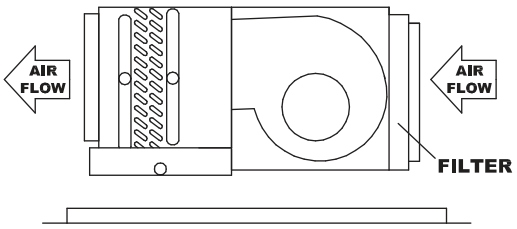
NOTES: Shaded areas indicate kW and voltage options not available. Available voltages are single phase, 60 hertz. Heaters over 48 AMPs are subdivided and fused per NEC.

KHG Series Dimensional Information

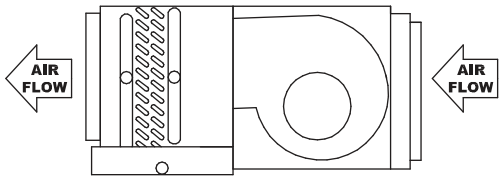
KHGP UNIT ARRANGEMENTS



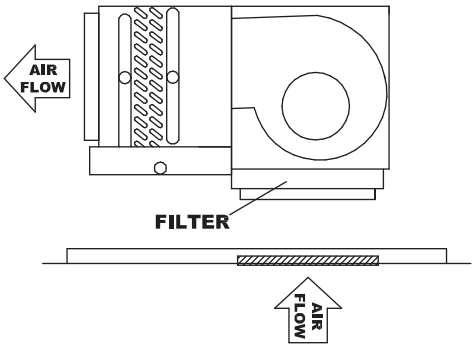
KHGP BOTTOM RETURN



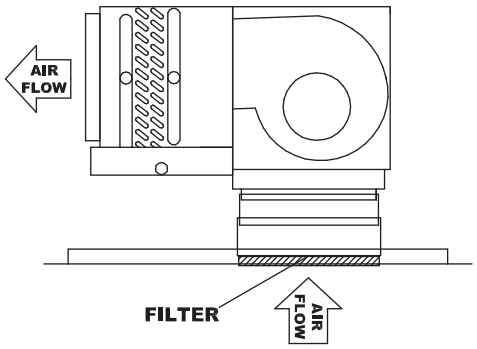
KHGP REAR RETURN WITH SOLID ACCESS PANEL



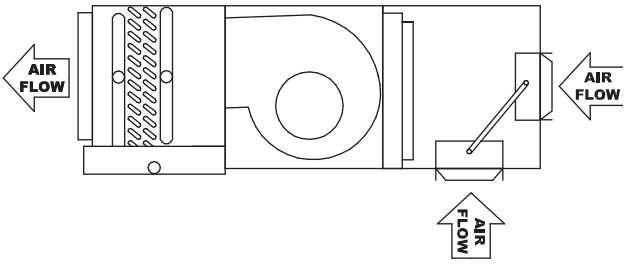
KHGP REAR RETURN



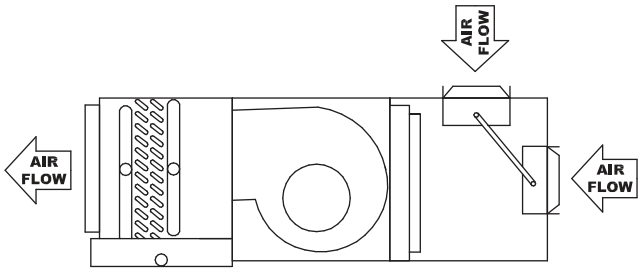
KHGP BOTTOM RETURN WITH BOTTOM CEILING PANEL



KHGP BOTTOM RETURN WITH TELESCOPING BOTTOM PANEL

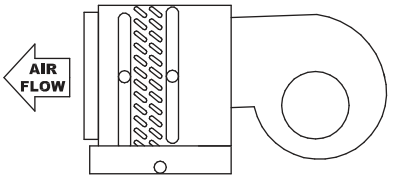


KHGP MIXING BOX WITH BOTTOM AND REAR RETURN



KHGP MIXING BOX WITH TOP & REAR RETURN

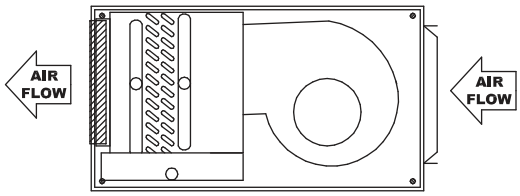
KHGH UNIT ARRANGEMENT



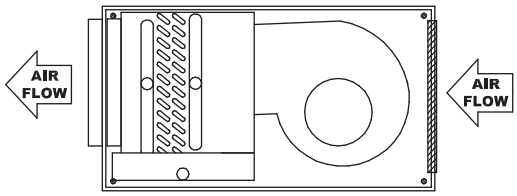
KHGH FREE RETURN

KHG Series Dimensional Information

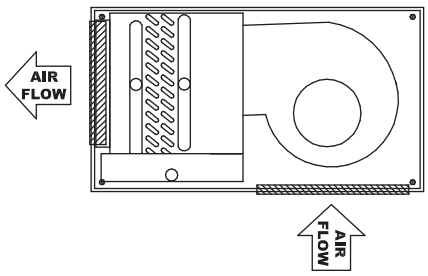
KHGE UNIT ARRANGEMENTS



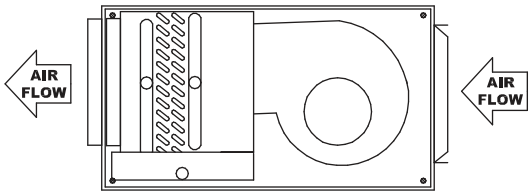
KHGE DOUBLE DEFLECTION SUPPLY GRILLE
AND DUCTED REAR RETURN



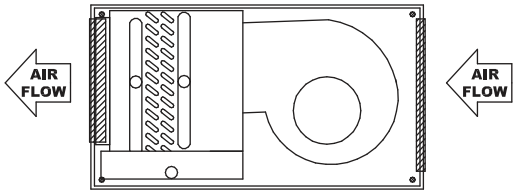
KHGE DUCTED SUPPLY AND
SINGLE DEFLECTION REAR RETURN GRILLE



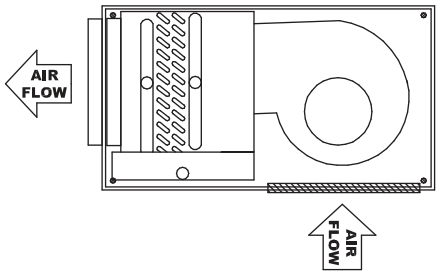
KHGE DOUBLE DEFLECTION SUPPLY GRILLE
AND SINGLE DEFLECTION BOTTOM RETURN GRILLE



KHGE DUCTED SUPPLY
AND DUCTED REAR RETURN



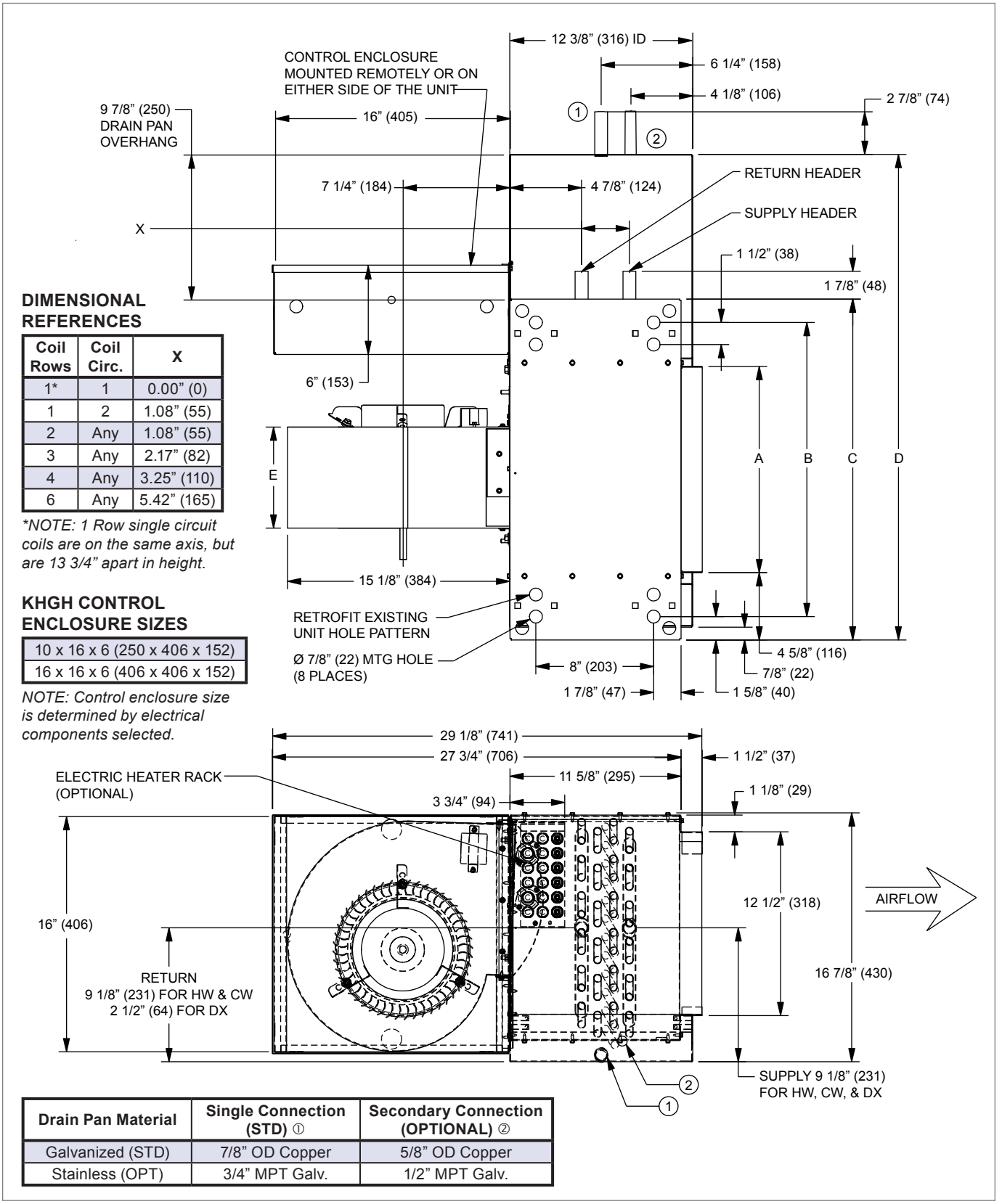
KHGE DOUBLE DEFLECTION SUPPLY GRILLE
AND SINGLE DEFLECTION REAR RETURN GRILLE



KHGE DUCTED SUPPLY AND
SINGLE DEFLECTION BOTTOM RETURN GRILLE

KHGH Dimensional Information

KHGH TOP AND SIDE VIEWS



DIMENSIONAL REFERENCES

Coil Rows	Coil Circ.	X
1*	1	0.00" (0)
1	2	1.08" (55)
2	Any	1.08" (55)
3	Any	2.17" (82)
4	Any	3.25" (110)
6	Any	5.42" (165)

**NOTE: 1 Row single circuit coils are on the same axis, but are 13 3/4" apart in height.*

KHGH CONTROL ENCLOSURE SIZES

10 x 16 x 6 (250 x 406 x 152)
16 x 16 x 6 (406 x 406 x 152)

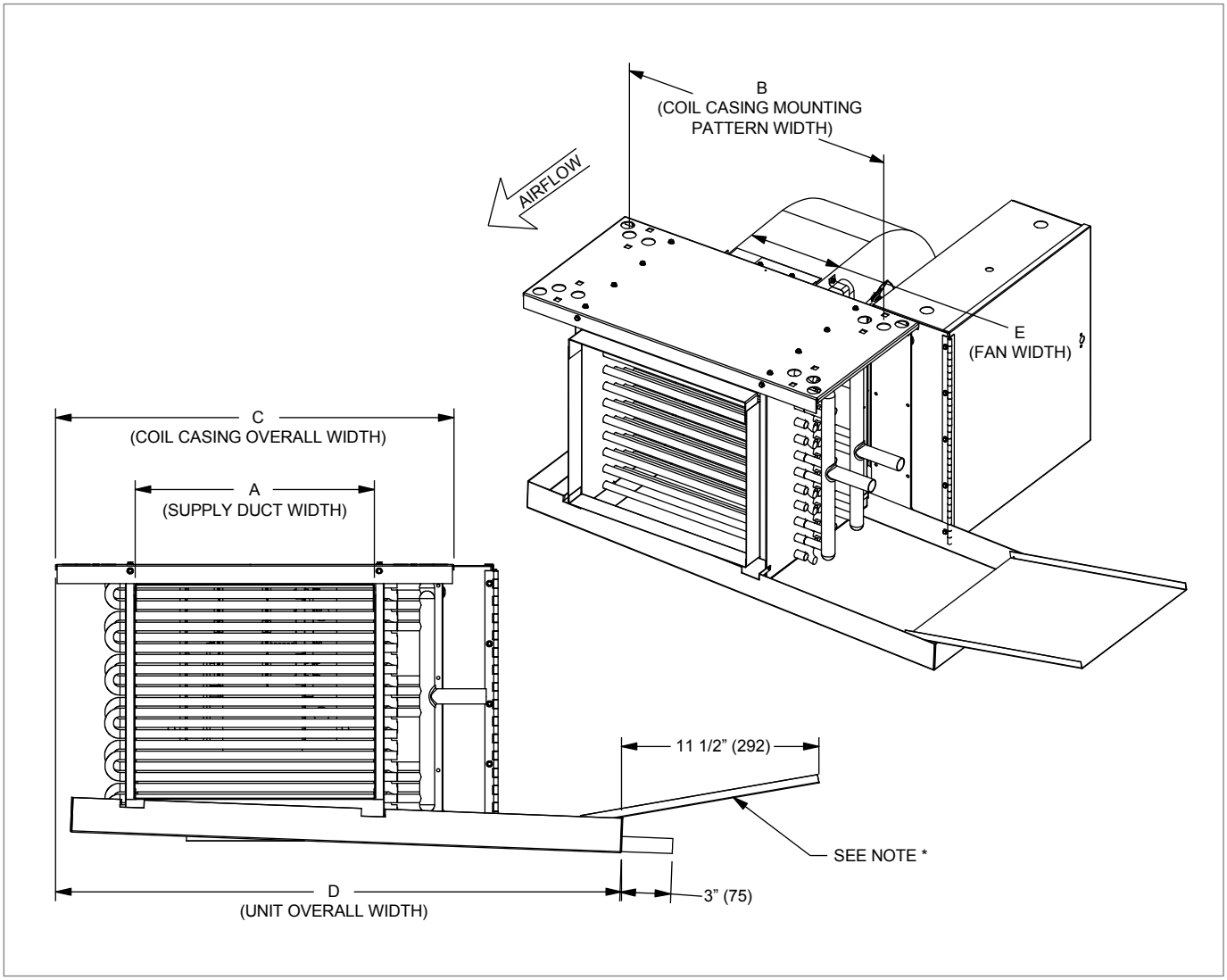
NOTE: Control enclosure size is determined by electrical components selected.

Drain Pan Material	Single Connection (STD) ①	Secondary Connection (OPTIONAL) ②
Galvanized (STD)	7/8" OD Copper	5/8" OD Copper
Stainless (OPT)	3/4" MPT Galv.	1/2" MPT Galv.

NOTES: All dimensions are in inches (millimeters) and are +/- 1/8". See next page for specific unit dimensions, options and specifications. It is recommended to provide 3' access on pipe connection side. Provide access clearance for electrical enclosure per local and national electrical code requirements.

KHGH Dimensional Information

KHGH ISOMETRIC AND SIDE VIEWS



DIMENSIONAL REFERENCES

Unit Size	Fan Quantity	A	B	C	D	E
6	1	14" (356)	20" (508)	23 1/8" (587)	34" (864)	6 7/8" (175)
8	1	19" (483)	25" (635)	28 1/8" (714)	39" (991)	8 1/4" (210)
10	1	23" (584)	29" (737)	32 1/8" (816)	43" (1092)	8 1/4" (210)
12	2	28" (711)	34" (864)	37 1/8" (943)	48" (1219)	6 7/8" (175)
14	2	33" (838)	39" (991)	42 1/8" (1070)	53" (1346)	8 1/4" (210)
16	2	38" (965)	44" (1118)	47 1/8" (1197)	58" (1473)	8 1/4" (210)
18	2	43" (1092)	49" (1245)	52 1/8" (1324)	63" (1600)	8 1/4" (210)
20	2	47" (1194)	53" (1346)	56 1/8" (1426)	67" (1702)	8 1/4" (210)

NOTES: All dimensions are in inches (millimeters) and are +/- 1/8". Drain pan is field reversible 180° and externally insulated. Coil hand is field reversible (left hand unit shown).

** Optional auxiliary drip pan available for piping package condensate.*

KHGP Dimensional Information

KHGP TOP AND SIDE VIEWS

DIMENSIONAL REFERENCES

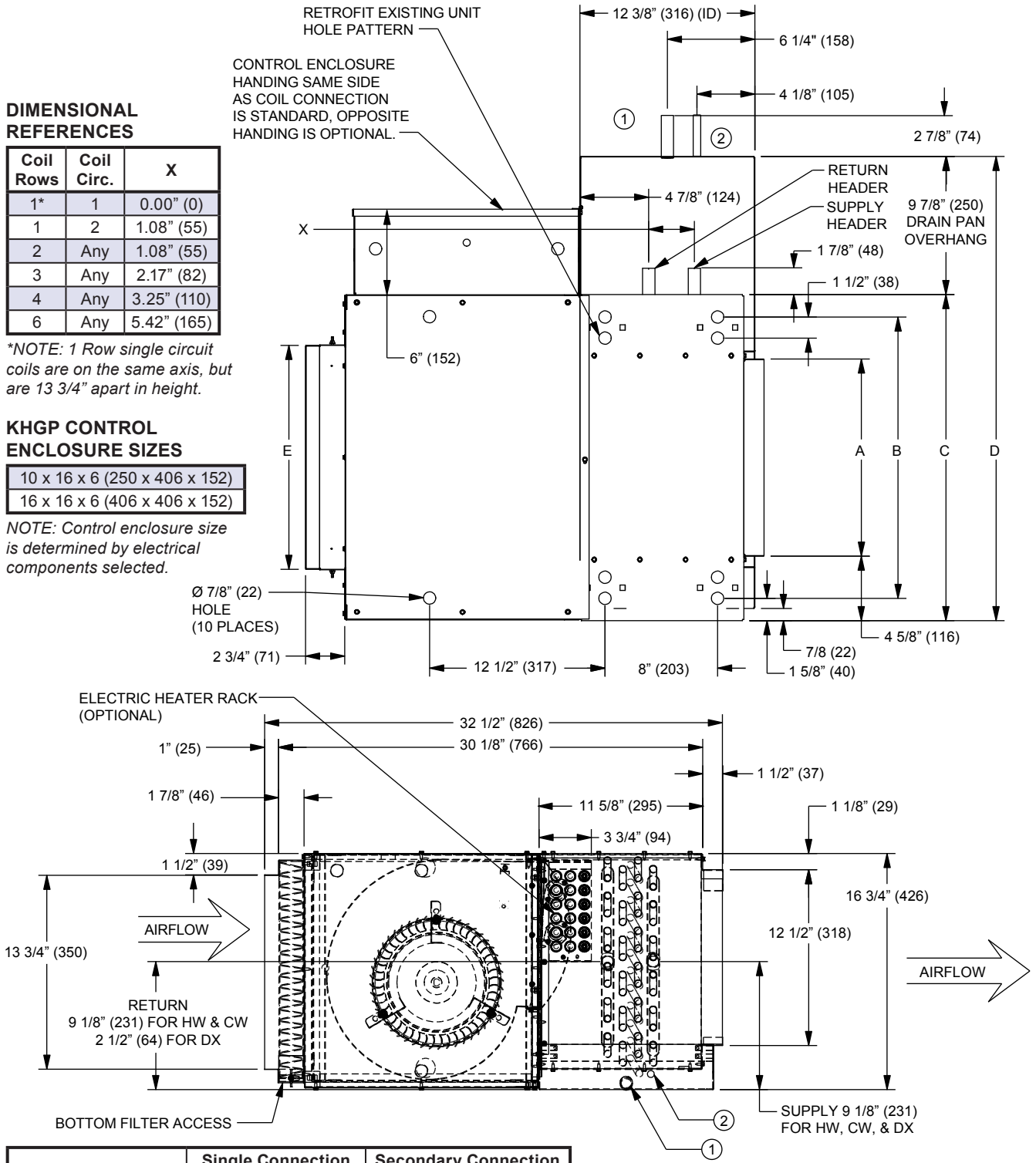
Coil Rows	Coil Circ.	X
1*	1	0.00" (0)
1	2	1.08" (55)
2	Any	1.08" (55)
3	Any	2.17" (82)
4	Any	3.25" (110)
6	Any	5.42" (165)

**NOTE: 1 Row single circuit coils are on the same axis, but are 13 3/4" apart in height.*

KHGP CONTROL ENCLOSURE SIZES

10 x 16 x 6 (250 x 406 x 152)
16 x 16 x 6 (406 x 406 x 152)

NOTE: Control enclosure size is determined by electrical components selected.

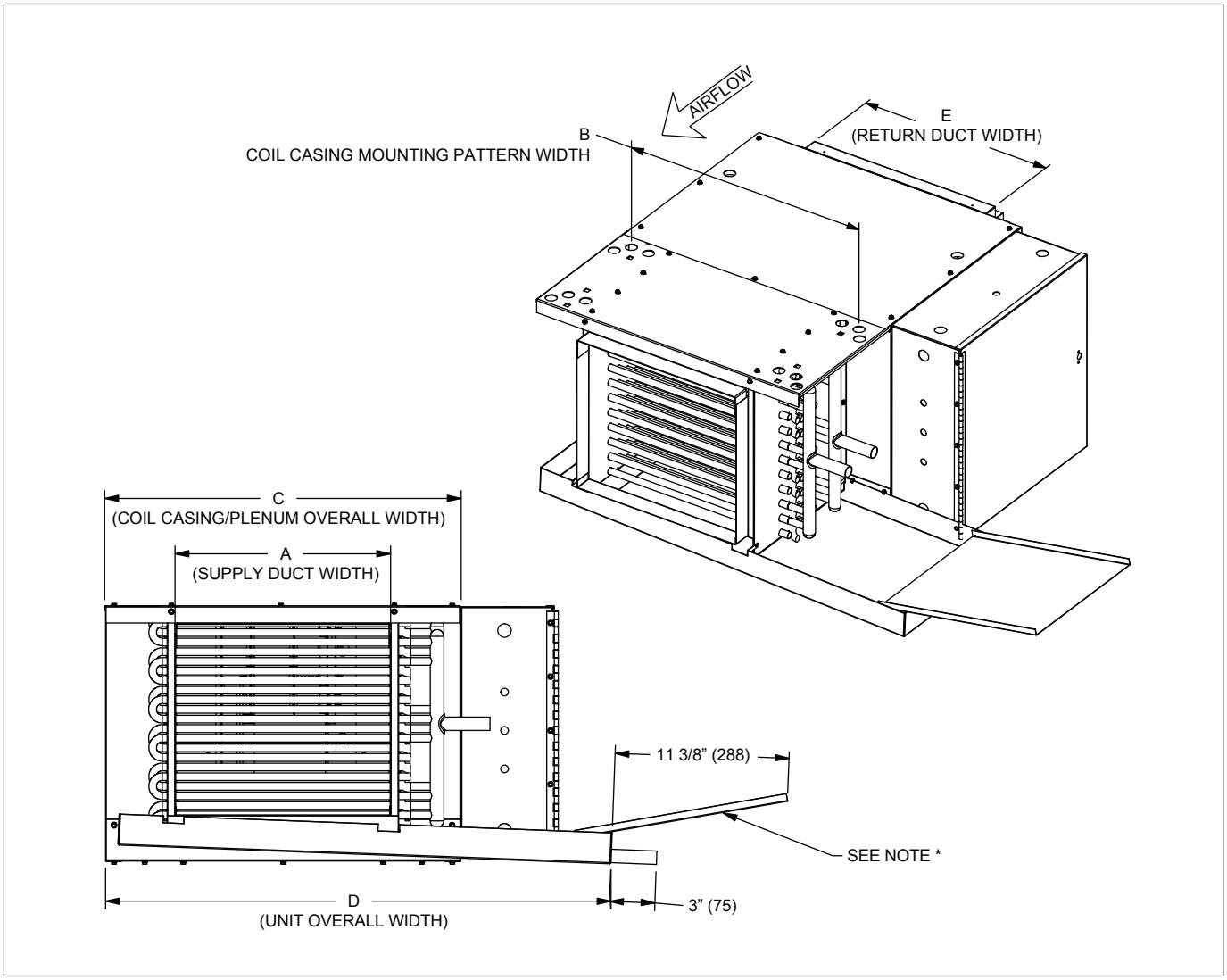


Drain Pan Material	Single Connection (STD) ①	Secondary Connection (OPTIONAL) ②
Galvanized (STD)	7/8" OD Copper	5/8" OD Copper
Stainless (OPT)	3/4" MPT Galv.	1/2" MPT Galv.

NOTES: All dimensions are in inches (millimeters) and are +/- 1/8". See next page for specific unit dimensions, options and specifications. It is recommended to provide 3' access on pipe connection side. Provide access clearance for electrical enclosure per local and national electrical code requirements.

KHGP Dimensional Information

KHGP ISOMETRIC AND SIDE VIEWS



DIMENSIONAL REFERENCES

Unit Size	Fan Quantity	A	B	C	D	E
6	1	14" (356)	20" (508)	23 1/8" (587)	34" (864)	16" (406)
8	1	19" (483)	25" (635)	28 1/8" (714)	39" (991)	19 7/8" (505)
10	1	23" (584)	29" (737)	32 1/8" (816)	43" (1092)	25 7/8" (657)
12	2	28" (711)	34" (864)	37 1/8" (943)	48" (1219)	32" (813)
14	2	33" (838)	39" (991)	42 1/8" (1070)	53" (1346)	35 7/8" (911)
16	2	38" (965)	44" (1118)	47 1/8" (1197)	58" (1473)	39 7/8" (1013)
18	2	43" (1092)	49" (1245)	52 1/8" (1324)	63" (1600)	44 7/8" (1140)
20	2	47" (1194)	53" (1346)	56 1/8" (1426)	67" (1702)	49 7/8" (1267)

NOTES: All dimensions are in inches (millimeters) and are +/- 1/8". Drain pan is field reversible 180° and externally insulated. Coil hand is field reversible (left hand unit shown). Plenum box is field reversible for rear or bottom return air. Filter rack can accommodate standard 1" TAW and 1" and 2" pleated filters.

** Optional auxiliary drip pan available for piping package condensate.*

KHGP with Mixing Box Dimensional Information

KHGP WITH MIXING BOX TOP AND SIDE VIEWS

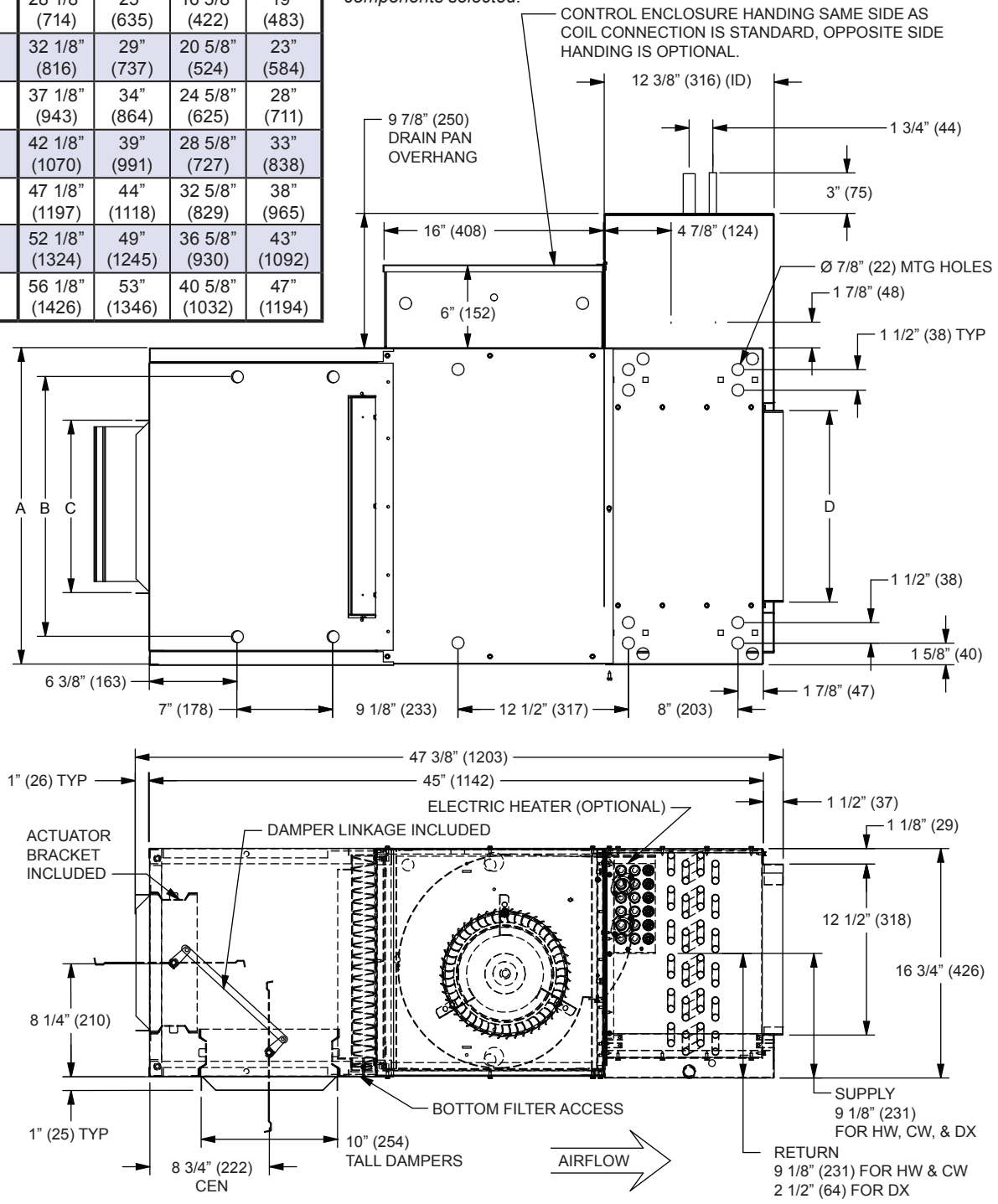
DIMENSIONAL REFERENCES

Unit Size	A	B	C	D
6	23 1/8" (587)	20" (508)	12 5/8" (321)	14" (356)
8	28 1/8" (714)	25" (635)	16 5/8" (422)	19" (483)
10	32 1/8" (816)	29" (737)	20 5/8" (524)	23" (584)
12	37 1/8" (943)	34" (864)	24 5/8" (625)	28" (711)
14	42 1/8" (1070)	39" (991)	28 5/8" (727)	33" (838)
16	47 1/8" (1197)	44" (1118)	32 5/8" (829)	38" (965)
18	52 1/8" (1324)	49" (1245)	36 5/8" (930)	43" (1092)
20	56 1/8" (1426)	53" (1346)	40 5/8" (1032)	47" (1194)

KHGP CONTROL ENCLOSURE SIZES

10 x 16 x 6 (250 x 406 x 152)
16 x 16 x 6 (406 x 406 x 152)

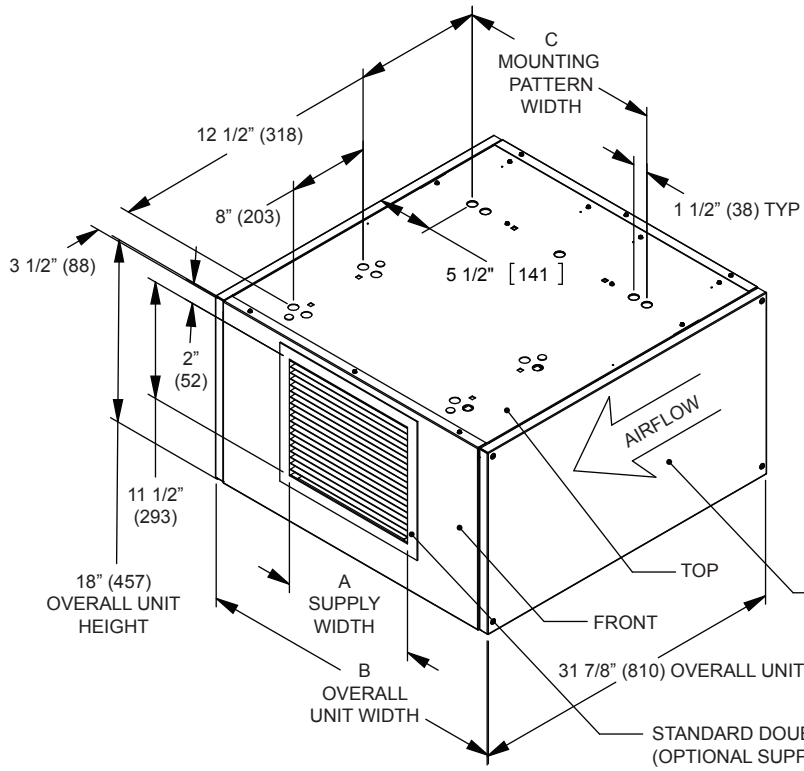
NOTE: Control enclosure size is determined by electrical components selected.



NOTES: All dimensions are in inches (millimeters) and are +/- 1/8". The mixing box is field reversible from bottom to top and rear return. It is recommended to provide 3' access on pipe connection side. Provide access clearance for electrical enclosure per local and national electrical code requirements. Mixing box side panels are removable for access to the linkage / actuator.

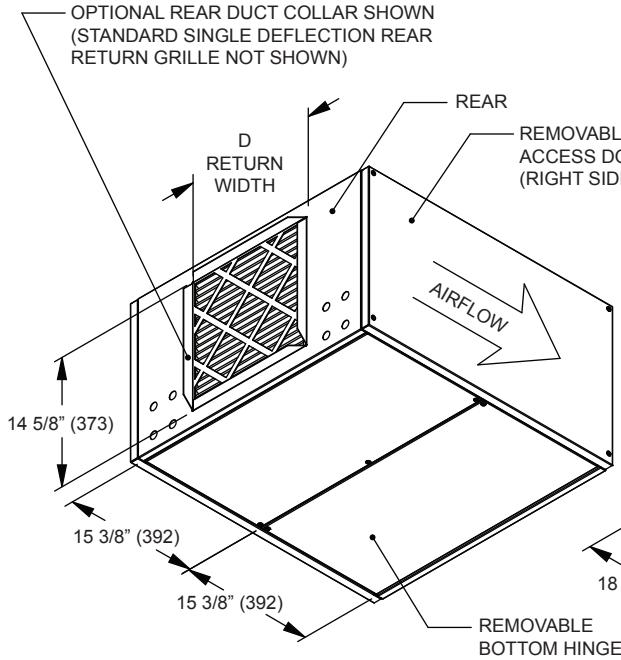
KHGE Dimensional Information

KHGE ISOMETRIC VIEWS

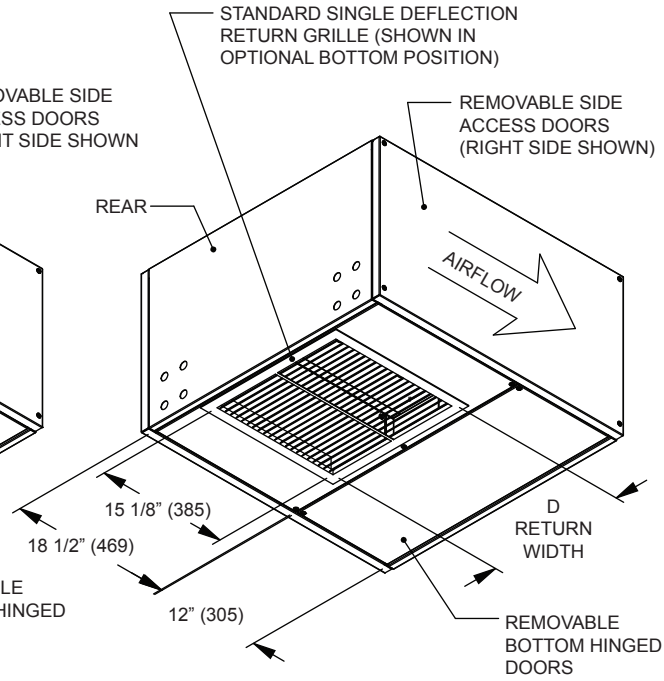


DIMENSIONAL REFERENCES

Unit Size	A	B	C	D
6	13 1/2" (343)	31 1/4" (794)	20" (508)	15 1/2" (394)
8	18 1/2" (470)	36 1/4" (921)	25" (635)	19 1/2" (495)
10	22 1/2" (572)	40 1/4" (1022)	29" (737)	24 1/2" (622)
12	27 1/2" (699)	45 1/4" (1149)	34" (864)	31 1/2" (800)
14	32 1/2" (826)	50 1/4" (1276)	39" (991)	35 1/2" (902)
16	37 1/2" (953)	55 1/4" (1403)	44" (1118)	39 1/2" (1003)
18	42 1/2" (1080)	60 1/4" (1530)	49" (1245)	44 1/2" (1130)
20	46 1/2" (1181)	64 1/4" (1632)	53" (1346)	49 1/2" (1257)



REAR RETURN UNIT



BOTTOM RETURN UNIT

KHGE CONTROL ENCLOSURE SIZES

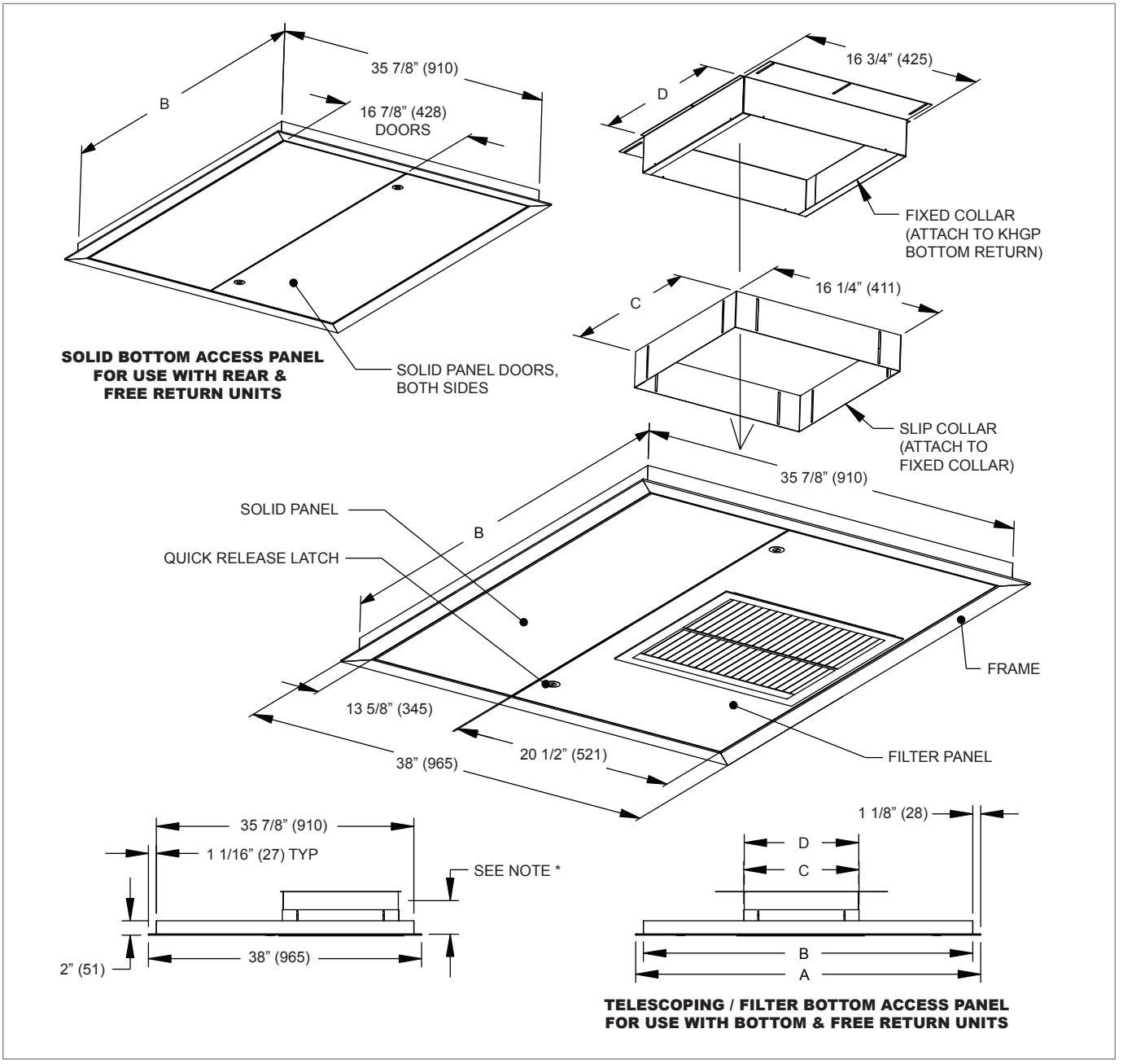
10 x 16 x 6 (250 x 406 x 152)
10 x 20 x 6 (250 x 500 x 152)

NOTE: Control enclosure size is determined by electrical components selected.

NOTES: All dimensions are in inches (millimeters) and are +/- 1/8". Internal hinged electrical enclosure not shown. Optional 1" or 2" pleated filters available (shown) standard 1" throwaway filter not shown. 1 1/4" duct collar standard on all ducted units. It is recommended to provide 3' access on pipe connection side. Provide access clearance for electrical enclosure per local and national electrical code requirements.

KHG Series Dimensional Information

KHG SERIES TELESCOPING / FILTER AND SOLID BOTTOM ACCESS PANELS



KHG SERIES TELESCOPING / FILTER AND SOLID BOTTOM ACCESS PANELS DIMENSIONAL REFERENCES

Unit Size	A	B	C	D	Recommended Ceiling Cutout
6	48" (1219)	45 7/8" (1164)	16" (408)	15 7/8" (404)	46 1/8" x 36 1/8" (1171 x 918)
8	53" (1346)	50 7/8" (1291)	20" (509)	19 7/8" (506)	51 1/8" x 36 1/8" (1298 x 918)
10	57" (1448)	54 7/8" (1392)	25" (636)	24 7/8" (633)	55 1/8" x 36 1/8" (1400 x 918)
12	62" (1575)	59 7/8" (1519)	32" (814)	31 7/8" (811)	60 1/8" x 36 1/8" (1527 x 918)
14	67" (1702)	64 7/8" (1646)	36" (916)	35 7/8" (912)	65 1/8" x 36 1/8" (1654 x 918)
16	72" (1829)	69 7/8" (1773)	40" (1017)	39 7/8" (1014)	70 1/8" x 36 1/8" (1781 x 918)
18	77" (1956)	74 7/8" (1900)	45" (1144)	44 7/8" (1141)	75 1/8" x 36 1/8" (1908 x 918)
20	81" (2057)	78 7/8" (2002)	50" (1271)	49 7/8" (1268)	79 1/8" x 36 1/8" (2009 x 918)

NOTES: All dimensions are in inches (millimeters) and are +/- 1/8". 1" TAW filter standard, 1" or 2" pleated filters are optional. Bottom panels are removable. Filter and grille sizes are the same for each unit size in the KHG product line.

** Total telescoping adjustment is 3 1/2" to 6 1/2".*

KHG Series PSC Fan Curves

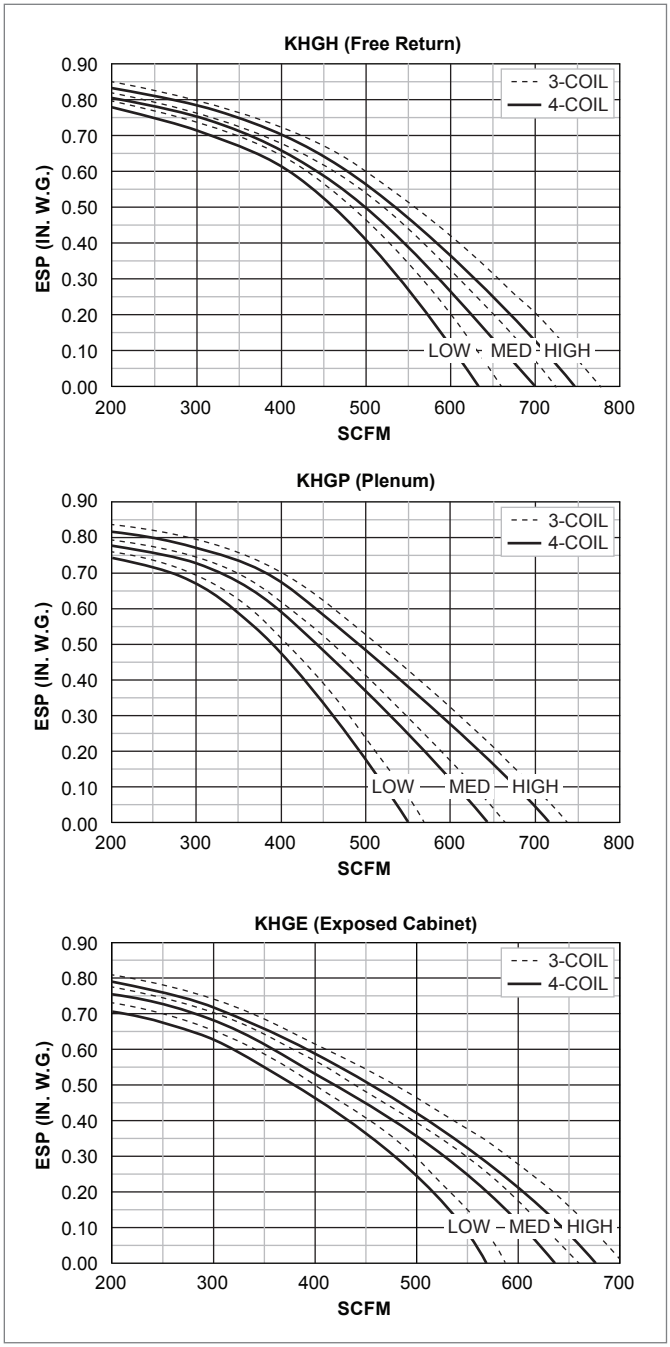
Fan curves depict actual performance of each motor tap without any additional fan balance adjustment. Actual capacities which fall below each curve can be obtained by adding an adjustment device. Units should not be run prior to installation of downstream ductwork; otherwise, damage to the motor may result.

Krueger fan coil units are equipped with permanent split-capacitor (psc) motors with three separate taps (High, Medium and Low) which provide variable horsepower outputs. Most often, size selections are conservative and actual CFM requirements and/or external static pressure requirements are lower than those specified. In this case, the unit fan motor can be run at low or medium tap, substantially reducing the operating cost of the unit.

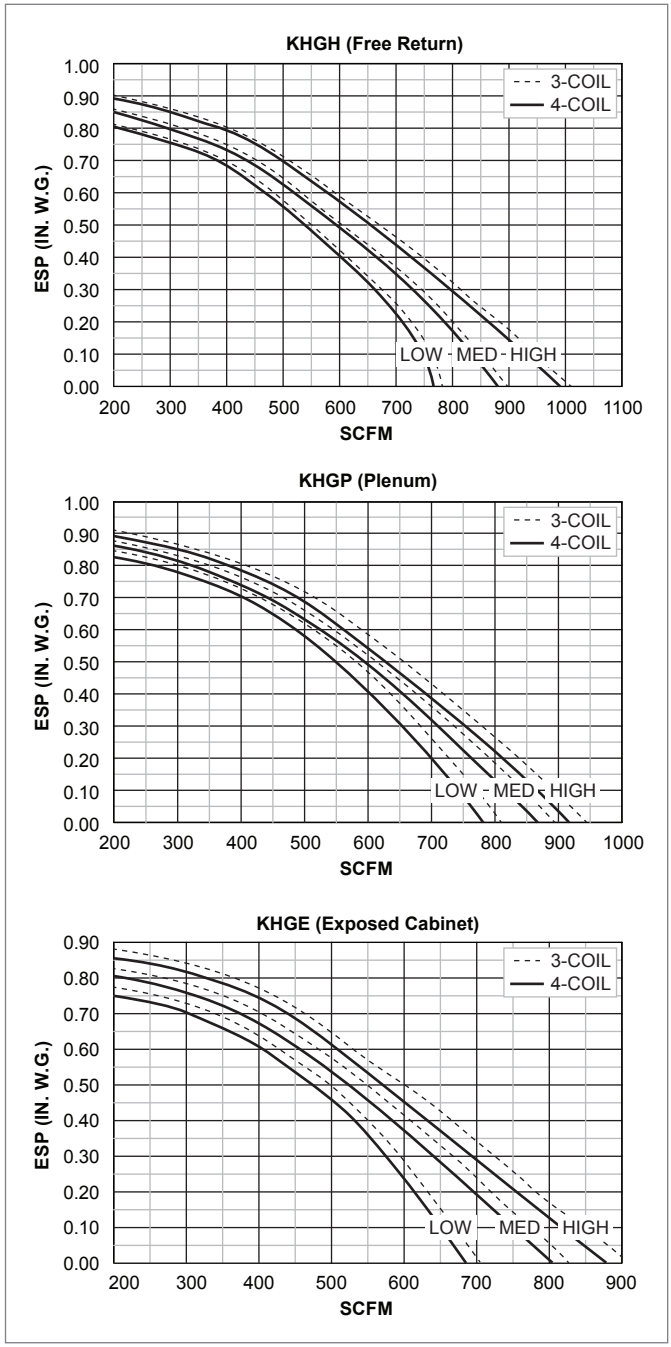
All fan curves are for 115/1/60 motors and include pressure losses for cabinet, electric heater, and 3 or 4 row coil. Plenum units include a clean 1" throwaway filter. For other coil configurations, adjust performance curves based on pressure losses for the coils as selected with the Krueger Coil Selection Program. See page E2-43 for fan motor electrical data.

For additional high static pressure applications and rating points, contact Krueger.

KHGH, KHGP, KHGE UNIT SIZE 06

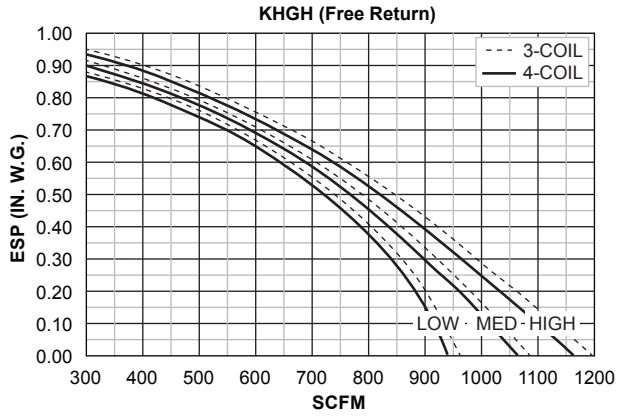


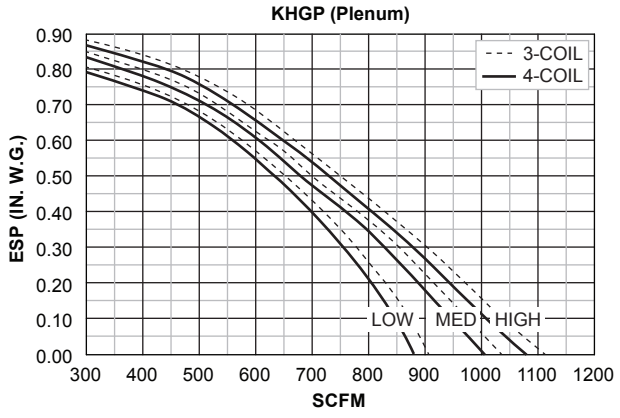
KHGH, KHGP, KHGE UNIT SIZE 08

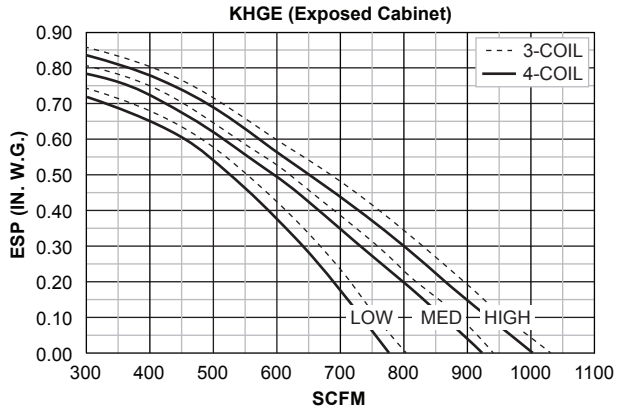


KHG Series Fan Curves

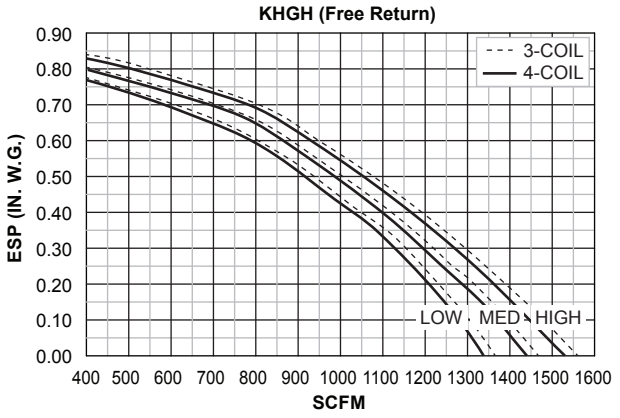
KHGH, KHGP, KHGE UNIT SIZE 10

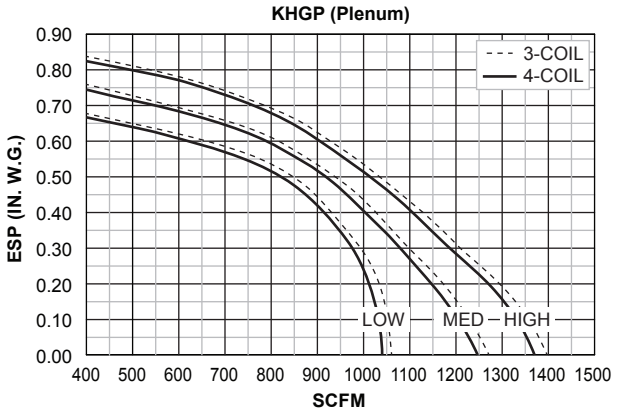


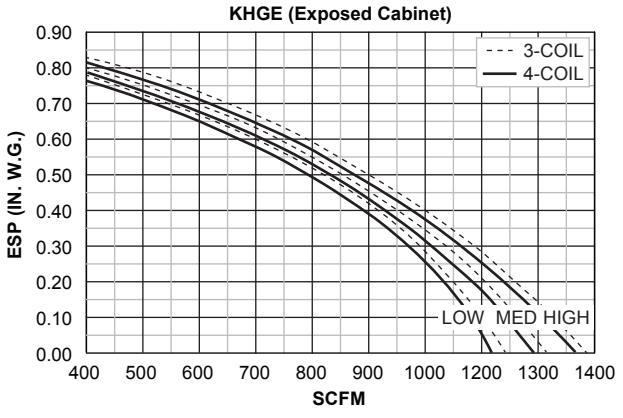




KHGH, KHGP, KHGE UNIT SIZE 12

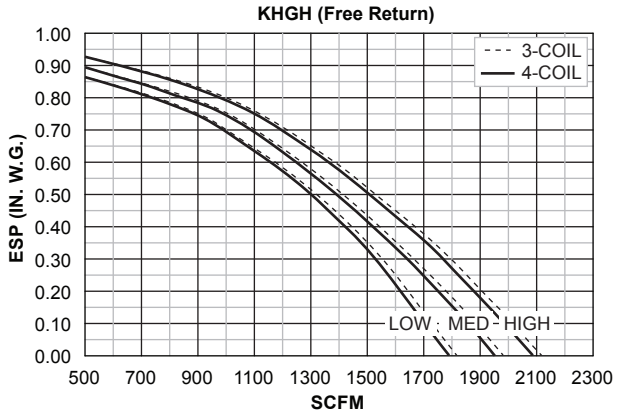


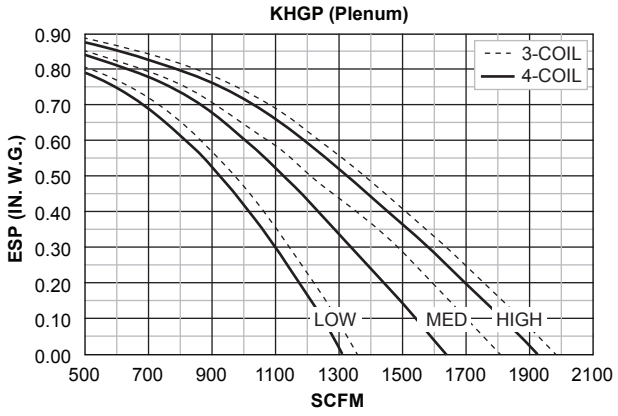


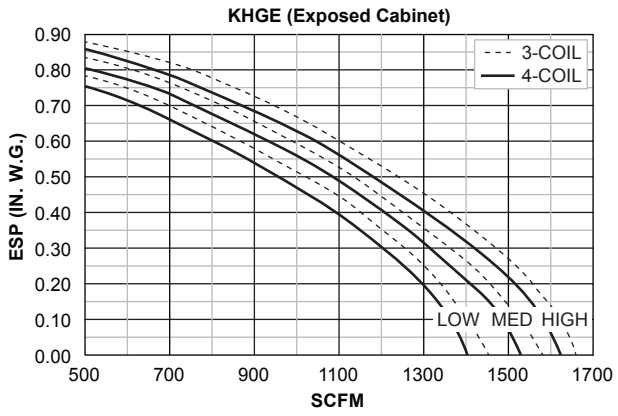


KHG Series Fan Curves

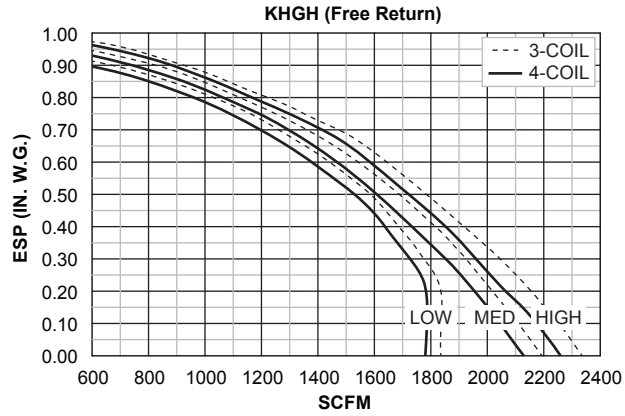
KHGH, KHGP, KHGE UNIT SIZE 14

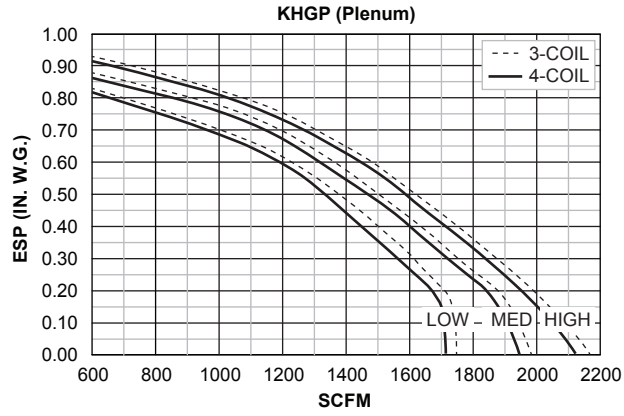


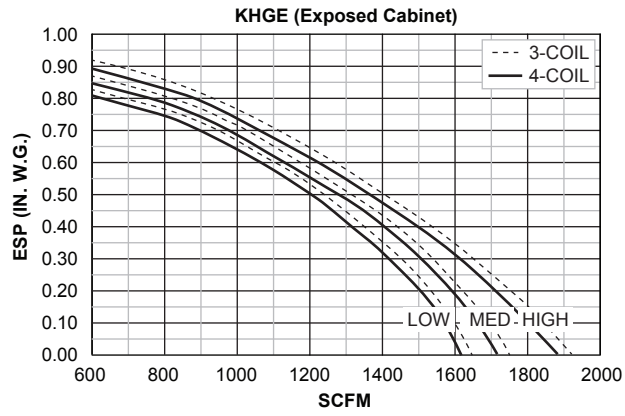




KHGH, KHGP, KHGE UNIT SIZE 16

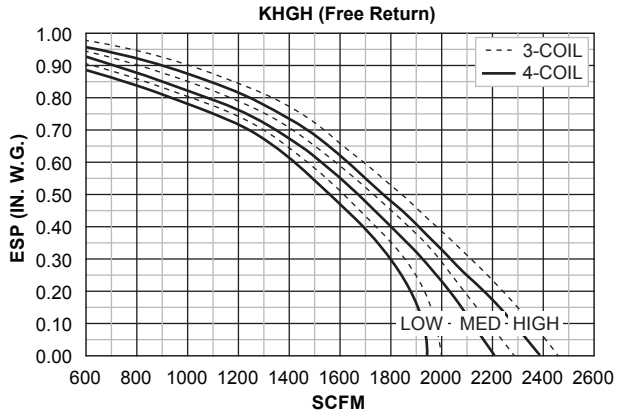


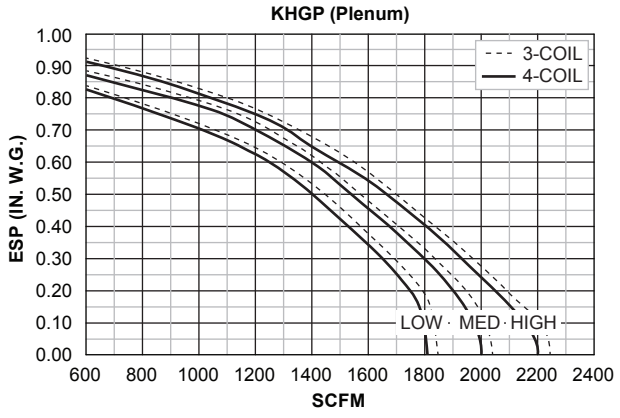


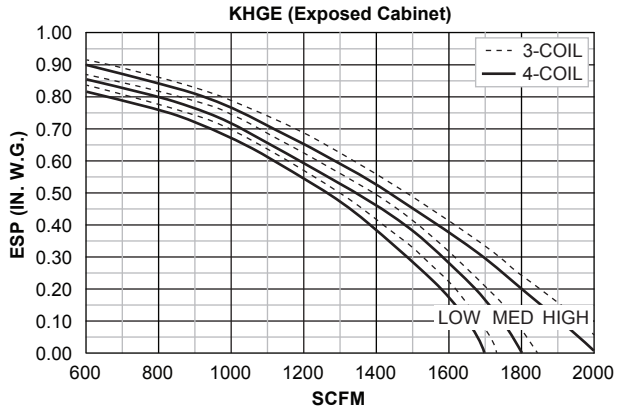


KHG Series Fan Curves

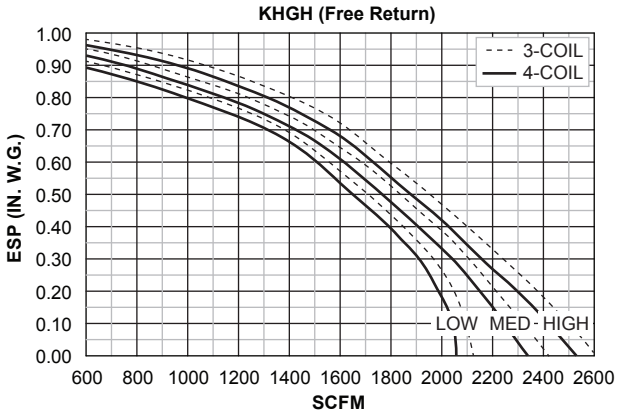
KHGH, KHGP, KHGE UNIT SIZE 18

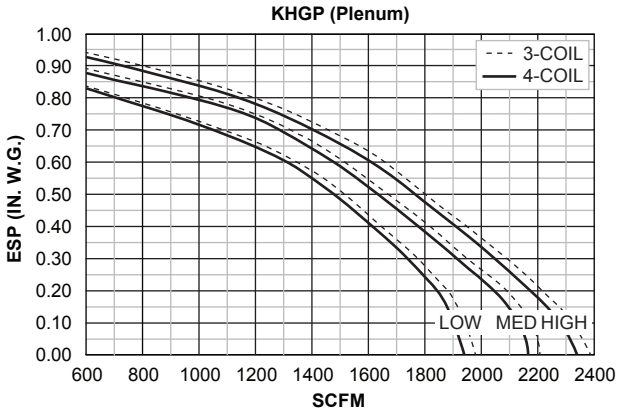


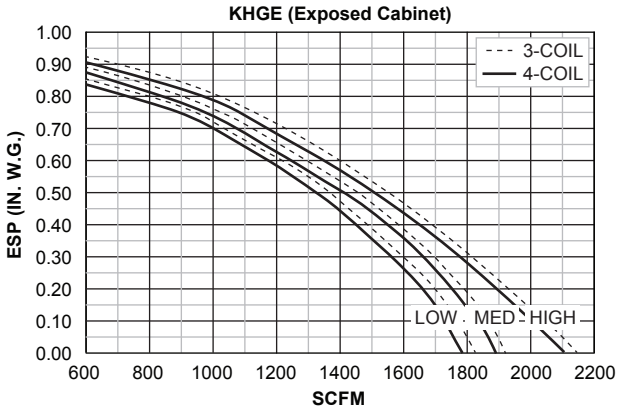




KHGH, KHGP, KHGE UNIT SIZE 20







KHGP Series ECM Fan Curves

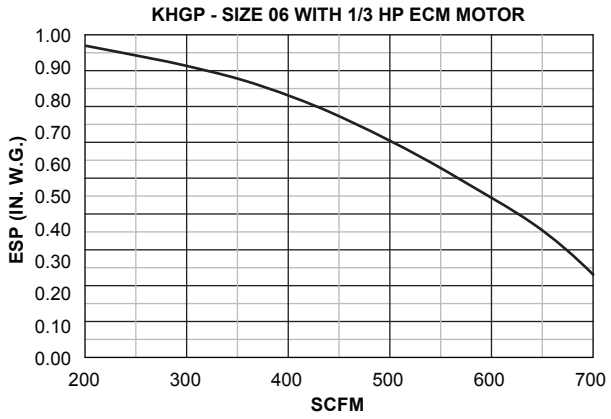
Fan curves depict actual performance at the maximum speed of the EC motor. Depending upon external static pressure, flow rates are achievable anywhere within the curve boundary by adjusting the motor speed through the electronic interface control board.

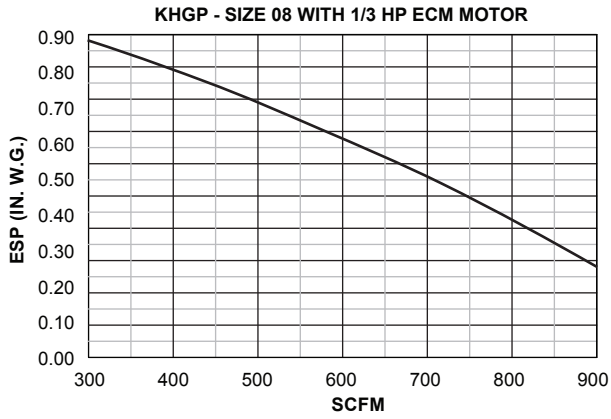
Airflow rates will be constant for varying degrees of external static pressure caused by filter loading or other duct system variables once the electronic interface control board is set to desired flow rate.

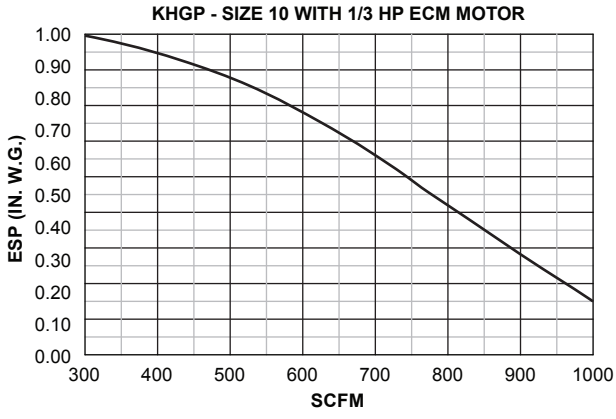
Fan curves compensate for the pressure losses of the unit cabinet, coil rows, and a loaded throwaway filter. For job specific fan curves, please refer to Krueger's selection software.

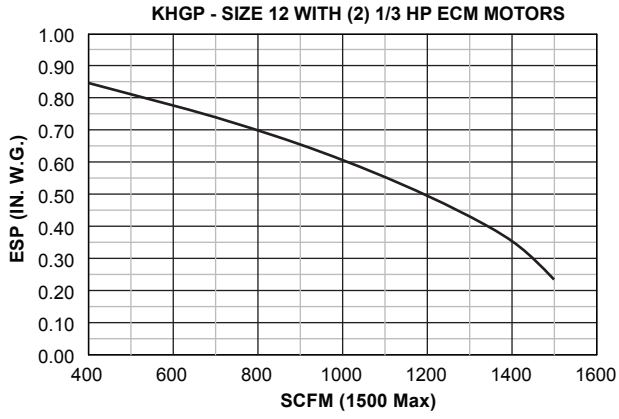
EC motors operate using a rectified AC power source that is converted to a non-sinusoidal DC power wave form. Harmonic distortion may occur and circulate on the power distribution system. Circulating harmonic currents are potentially additive on the neutral conductors of 3-phase, 4-wire Wye distribution systems. Neutral conductors must be engineered to account for the additional current (amperes) encountered. See page E2-43 for EC motor electrical data.

KHGP UNIT SIZES 06 - 12





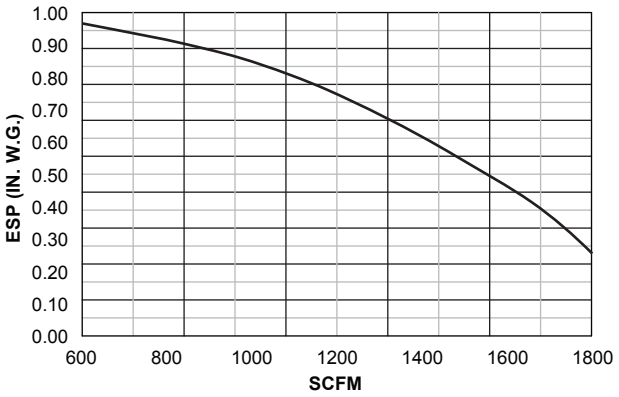




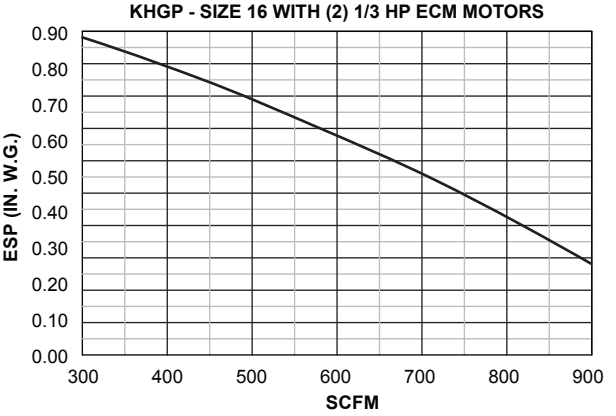
KHGP Series ECM Fan Curves

KHGP UNIT SIZES 06 - 12

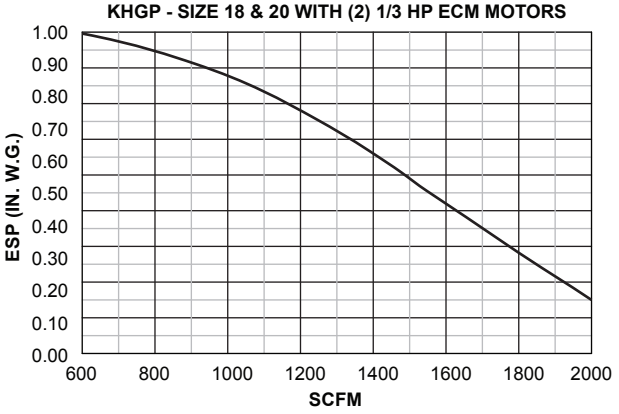
KHGP - SIZE 14 WITH 1/3 HP ECM MOTOR



KHGP - SIZE 16 WITH (2) 1/3 HP ECM MOTORS



KHGP - SIZE 18 & 20 WITH (2) 1/3 HP ECM MOTORS



ECM AIRFLOW

Unit Size	Factory Set CFM	CFM Range	
		Min.	Max.
06	600	200	700
08	800	300	900
10	1000	300	1000
12	1200	400	1500
14	1400	600	1800
16	1600	600	1900
18	1800	600	2000
20	2000	600	2000

KHG Series Performance Data

MOTOR AND FAN DATA

Unit Size	Fan Speed	Motor HP (Qty)		Number of Fans	AMPs @ 120/1/60			AMPs @ 208-230/1/60			AMPs @ 277/1/60		
					PSC	ECM		PSC	ECM		PSC	ECM	
		PSC	ECM			FLA	3-Phase Neutral Current		FLA	3-Phase Neutral Current		FLA	3-Phase Neutral Current
06	High	(1) 1/6	(1) 1/3	1	2.6	5.0	8.7	1.1	2.8	4.8	0.9	2.6	4.5
	Medium	(1) 1/8			2.1			0.9			0.8		
	Low	(1) 1/10			1.8			0.6			0.7		
08	High	(1) 1/4	(1) 1/3	1	3.8	5.0	8.7	1.6	2.8	4.8	1.3	2.6	4.5
	Medium	(1) 1/6			3.3			1.0			0.8		
	Low	(1) 1/8			2.6			0.8			0.7		
10	High	(1) 1/4	(1) 1/3	1	4.9	5.0	8.7	2.2	2.8	4.8	1.9	2.6	4.5
	Medium	(1) 1/5			4.1			1.5			1.2		
	Low	(1) 1/6			3.2			1.1			0.8		
12	High	(2) 1/6	(2) 1/3	2	5.2	10.0	17.3	2.2	5.6	9.7	1.8	5.2	9.0
	Medium	(2) 1/8			4.2			1.8			1.6		
	Low	(2) 1/10			3.6			1.2			1.4		
14	High	(2) 1/4	(2) 1/3	2	7.6	10.0	17.3	3.2	5.6	9.7	2.6	5.2	9.0
	Medium	(2) 1/6			6.6			2.0			1.6		
	Low	(2) 1/8			5.2			1.6			1.4		
16	High	(2) 1/4	(2) 1/3	2	9.8	10.0	17.3	4.4	5.6	9.7	3.8	5.2	9.0
	Medium	(2) 1/5			8.2			3.0			2.4		
	Low	(2) 1/6			6.4			2.2			1.6		
18	High	(2) 1/4	(2) 1/3	2	9.8	10.0	17.3	4.4	5.6	9.7	3.8	5.2	9.0
	Medium	(2) 1/5			8.2			3.0			2.4		
	Low	(2) 1/6			6.4			2.2			1.6		
20	High	(2) 1/4	(2) 1/3	2	9.8	10.0	17.3	4.4	5.6	9.7	3.8	5.2	9.0
	Medium	(2) 1/5			8.2			3.0			2.4		
	Low	(2) 1/6			6.4			2.2			1.6		

NOTES: Motor electrical data is nameplate data. Actual data will vary with application. Motors name plated for 208-230/1/60. Data is at 230 volts. EC motors operated on 208/1/60 power result in reduced airflow.

KHG Series Performance Data

SOUND DATA

Unit Size	Motor Speed	Total Sound Power Level Octave Band / Center Frequency (HZ)						
		2/125	3/250	4/500	5/1000	6/2000	7/4000	8/8000
06	High	69	67	65	65	61	63	55
	Medium	66	62	62	59	57	54	47
	Low	58	53	55	50	46	44	33
08	High	72	69	68	67	65	65	56
	Medium	67	63	63	61	60	57	48
	Low	61	57	58	54	51	47	38
10	High	73	70	69	69	67	65	58
	Medium	68	64	65	63	62	57	48
	Low	62	60	60	56	54	49	39
12	High	74	73	70	71	67	67	60
	Medium	69	67	65	64	62	59	50
	Low	64	61	61	57	55	52	41
14	High	74	72	70	71	67	66	58
	Medium	70	68	65	65	63	60	51
	Low	64	60	60	58	55	51	40
16	High	75	73	71	70	68	69	58
	Medium	69	66	65	66	63	59	49
	Low	64	61	59	58	54	51	40
18	High	74	71	69	71	68	66	58
	Medium	68	64	64	64	62	57	48
	Low	63	61	59	57	54	50	39
20	High	74	72	69	71	67	66	58
	Medium	70	67	64	65	63	60	50
	Low	64	59	59	58	53	50	39

NOTES: Sound data tested in accordance with AHRI 350-2000. Sound levels are expressed in decibels, dB RE: 1 x 10-12 watts. Total sound power level data based on Model KHGP with fan CFM at corresponding motor tap with 115/1/60 volt motor, 3 or 4 row coil, 1" throwaway filter, 0.0" external static pressure and standard rated internal pressure losses.

KHG Series Engineering Specification & Configuration

GENERAL

Furnish and install Krueger KHG horizontal concealed direct drive fan coil units where indicated on the plans and in the specifications. Units shall be completely factory assembled, tested and shipped as one piece. All units shall be capable of meeting or exceeding the scheduled capacities for cooling, heating and air delivery. All unit dimensions for each model and size shall be considered maximums. Units shall be ETL listed in compliance with UL/ANSI Standard 1995, and be certified as complying with the latest edition of AHRI Standard 440.

CONSTRUCTION

All unit chassis shall be fabricated of heavy gauge galvanized steel panels able to meet 125 hour salt spray test per ASTM B-117. All exterior panels shall be insulated with 1/2" thick fiberglass insulation with a maximum k value of .24 (BTU • in) / (hr • ft^2 • °F) and rated for a maximum air velocity of 5000 f.p.m. Insulation must meet all requirements of ASTM C-1071 (including C665), UL 181 for erosion, and carry a 25/50 rating for flame spread/smoke developed per ASTM E-84, UL 723 and NFPA 90A.

Option: Provide foil-faced insulation in lieu of standard. Foil insulation shall meet or exceed the requirements stated above, and in addition meet ASTM Standards C-665 and C-1136 for biological growth in insulation. Insulation shall be lined with aluminum foil, fiberglass scrim reinforcement, and 30 pound kraft paper laminated together with a flame resistant adhesive. All exposed edges shall be sealed to prevent any fibers from reaching the air stream.

Option: Provide Elastomeric Closed Cell Foam Insulation in lieu of standard. Insulation shall conform to UL 181 for erosion and NFPA 90A for fire, smoke and melting, and comply with a 25/50 Flame Spread and Smoke Developed Index per ASTM E-84 or UL 723. Additionally, insulation shall comply with Antimicrobial Performance Rating of 0, no observed growth, per ASTM G-21. Polyethylene insulation is not acceptable.

All concealed units shall have a minimum 1 1/4" duct collar on the discharge. Plenum units shall have a minimum 1" duct collar on the return.

Option: For concealed units, provide a hinged bottom access panel either solid or with bottom return single deflection grille. A telescoping plenum section is available with bottom return option.

All exposed units shall have exterior panels fabricated of galvannealed steel.

Option: For exposed units, the side and bottom access panels shall be attached with quick open fasteners to allow for easy removal and access for service.

Option: For exposed units, provide double deflection discharge grille and either a rear return or bottom return single deflection grille, powder coat painted to match unit color. Supply and return duct connections are available. Unit mounting shall be by hanger holes provided at a minimum of four locations.

FAN ASSEMBLY

Unit fan shall be a dynamically balanced, forwardly curved, DWDI centrifugal type constructed of 18 gauge zinc coated galvanized steel for corrosion resistance. Motors shall be high efficiency, permanently lubricated sleeve bearing, permanent split-capacitor type with UL and CSA listed automatic reset thermal overload protection and three separate horsepower taps. Single speed motors are not acceptable.

The fan assembly shall be easily removable for servicing the motor and blower at, or away from the unit. The entire fan assembly shall be able to come out of the unit by removing four nuts per fan and unplugging the motor(s). Plenum unit fan assemblies shall be easily serviced through the filter opening or through the bottom panel.

Option: Provide an electronic (SCR) fan speed controller as an aid in balancing the fan capacity. The speed controller shall have a turn down stop to prevent the possibility of harming the motor bearings, and incorporate electrical noise suppression to minimize noise on the incoming power lines.

Option: Provide EC motor in lieu of standard PSC motor.

COILS

All cooling and heating coils shall optimize rows and fins per inch to meet the specified capacity. Coils shall have seamless copper tubes and shall be mechanically expanded to provide an efficient, permanent bond between the tube and fin. Fins shall have high efficiency aluminum surface optimized for heat transfer, air pressure drop and carryover.

All coils shall be hydrostatically tested at 450 PSIG air pressure under water, and rated for a maximum of 300 PSIG working pressure at 200°F.

Direct expansion cooling coils shall include a fixed orifice distributor. All evaporator coils shall be factory sealed and charged with a minimum 5 PSIG nitrogen or refrigerated dry air.

All coils shall be provided with a manual air vent fitting to allow for coil venting.

Option: Provide automatic air vents in lieu of manual air vents.

Cooling and heating coils shall be in a common tube sheet. Water coils on concealed models shall be field reversible for right or left hand connections.

Heating coils shall be furnished in the reheat or preheat position.

DRAIN PANS

Primary condensate drain pans shall be single wall; heavy gauge galvanized steel for corrosion resistance, and extend under the entire cooling coil. Drain pans shall be of one-piece construction and be positively sloped for condensate removal. Drain pans shall be field reversible for right or left hand connections.

KHG Series Engineering Specification & Configuration

The drain pan shall be externally insulated with a fire retardant, closed cell foam insulation. The insulation shall carry no more than a 25/50 Flame Spread and Smoke Developed Rating per ASTM E-84 and UL 723 and an Antimicrobial Performance Rating of 0, no observed growth, per ASTM G-21.

Option: Provide a single wall primary drain pan constructed entirely of heavy gauge stainless steel for superior corrosion resistance. Stainless steel drain pans shall be externally insulated and meet or exceed the requirements stated above.

Option: Provide a secondary drain connection on the primary drain pan for condensate overflow.

Option: Provide a condensate overflow switch in the primary drain pan for condensate overflow.

FILTERS
All plenum and exposed units shall be furnished with a minimum 1" nominal glass fiber throwaway filter. Filters shall be tight fitting to prevent air bypass. Plenum and exposed unit filters shall be easily removable from the bottom of the unit without the need for tools.

Option: Provide unit with 1" or 2" pleated filters rated at 25-30% efficiency and MERV 8 based on ASHRAE 52.2 - 1999.

MIXING BOX SECTION
Provide a fully insulated integral mixing box section with return and outside air dampers, including the interconnecting damper linkage. Mixing box section shall be shipped attached to the concealed plenum unit as an assembly. Damper actuator to be factory provided, mounted, and wired to control enclosure.

ELECTRICAL
Units shall be furnished with single point power connection. Provide an electrical junction box with terminal strip for motor and other electrical terminations. The factory mounted terminal wiring strip consists of a multiple position screw terminal block to facilitate wiring terminations for the electric control valves and thermostats.

ELECTRIC HEAT
Furnish an electric resistance heating assembly as an integral part of the fan coil unit, with the heating capacity, voltage and kilowatts scheduled. The heater assembly shall be designed and rated for installation on the fan coil unit without the use of duct extensions or transitions, and be located in the unit as to not expose the fan assembly to excessive leaving air temperatures that could affect motor performance.

The heater and unit assembly shall be listed for zero clearance and meet all NEC requirements, and be ETL listed with the unit as an assembly in compliance with UL/ANSI Standard 1995.

All heating elements shall be open coil type Ni-Chrome wire mounted in ceramic insulators and located in an insulated heavy gauge galvanized steel housing. All elements shall terminate in a machine staked stainless steel terminal secured with stainless steel hardware for corrosion resistance. The element support brackets shall be spaced no greater than 3 1/2" on center. All internal wiring shall be rated for 105°C minimum.

All heaters shall include over temperature protection consisting of an automatic reset primary thermal limit and back up secondary thermal limit. All heaters shall be single stage unless noted otherwise on the plans.

All units with electric heat shall be provided with an incoming line power distribution block, designated to accept single point power wiring capable of carrying 125% of the calculated load current.

PIPING PACKAGES
Provide a standard factory assembled valve piping package to consist of a 2 or 3 way, on/off, motorized electric control valve and two ball isolation valves. Control valves are piped normally closed to the coil. Maximum entering water temperature on the control valve is 200°F, and maximum close-off pressure is 40 PSIG (1/2"), 20 PSIG (3/4"), or 17 PSIG (1"). Maximum operating pressure shall be 300 PSIG.

Option: Provide 3-wire floating point modulating control valve (fail-in-place) in lieu of standard 2-position control valve with factory assembled valve piping package.

Option: Provide high pressure close-off actuators for 2-way on/off control valves. Maximum close-off pressure is 50 PSIG (1/2"), 25 PSIG (3/4"), or 20 PSIG (1").

Option: Provide either a fixed or adjustable flow control device for each piping package.

Option: Provide unions and/or pressure-temperature ports for each piping package.

Piping package shall be completely factory assembled, including interconnecting pipe, and shipped separate from the unit for field installation on the coil, so as to minimize the risk of freight damage.

KHG Series Engineering Specification & Configuration

1. SERIES: (XXXX)
KHGE - Horizontal High Capacity Fan Coil, Exposed Cabinet
KHGH - Horizontal High Capacity Fan Coil, Concealed Ceiling
KHGP - Horizontal High Capacity Fan Coil, Concealed with Plenum

2. SIZE: (XX)
06, 08, 10, 12, 14, 16, 18, 20

3. MOTOR: (X)
(*See Krueger's selection software.*)

4. MOTOR CONTROL: (X)
0 - None
A - 3 Speed Adjustable
B - 2-10 VDC
C - 3 Speed Fixed

5. UNIT CAPACITY: (X)
0 - Standard Capacity
H - High Capacity

6. COIL 1: (X)
A - 3 Row Cold Water
B - 4 Row Cold Water
C - 6 Row Cold Water
D - 3 Row DX
E - 4 Row DX
F - 6 Row DX
G - 1 Row Hot Water
H - 2 Row Hot Water
J - 3 Row Hot Water
K - 4 Row Hot Water
L - 3 Row with Changeover
M - 4 Row with Changeover
N - 6 Row with Changeover

7. COIL 1 DIAMETER: (XX)
38 - 3/8" Tube Diameter
12 - 1/2" Tube Diameter

8. COIL 1 TUBE WALL: (X)
1 - 0.016" Tube Wall Thickness
3 - 0.012" Tube Wall Thickness

9. COIL 1 AIR VENT: (X)
1 - Manual Air Vent
2 - Auto Air Vent

10. COIL 1 REFRIGERANT TYPE: (X) (KHGE/KHGH Only)
4 - R-410

11. COIL 1 DISTRIBUTOR: (XXX)
(*See Krueger's selection software.*)

12. COIL 1 PIPING SIZE: (X)
H - 1/2"
T - 3/4"
N - 1"

13. COIL 1 PIPING VALVE: (X)
0 - None
A - 2-Way Control Valve
B - 3-Way Control Valve
C - 3-Way with Balance ByPass Valve

14. COIL 1 PIPING PACKAGE: (XX)
(*See Krueger's selection software.*)

15. COIL 1 FIXED GPM: (X)
(*See Krueger's selection software.*)

16. COIL 1 UNIONS: (X)
0 - None
U - Union

17. COIL 1 P/T PORTS: (X)
0 - None
P - P/T Port

18. COIL 1 AQUASTAT BLEED LINE: (X)
0 - None
A - Aquastat Bleed Line

19. COIL 1 ACTUATOR TYPE: (X)
0 - Field Provided by Others 2-Position Close-Off
1 - Factory Provided 2-Position Close-Off, NC
2 - MV, 2 Way,Floating Point,Fail-In-Place, 24V
3 - MV, 3 Way, Floating Point, Fail-In-Place, 24V
4 - HP Close-Off Actuator, 2-Way Valve-24/115/208V
5 - HP Close-Off Actuator, 2-Way Valve-230/277V

Note: MV = Modulating Valves, HP = High Pressure

20. ELECTRIC HEAT VOLTAGE: (X)
0 - None
A - 115 Volt, 1 Phase, 1 Stage
D - 208 Volt, 1 Phase, 1 Stage
G - 230 Volt, 1 Phase, 1 Stage
H - 220 Volt, 1 Phase, 1 Stage
K - 277 Volt, 1 Phase, 1 Stage

21. kW: (XX)
(*See Krueger's selection software.*)

22. SILENT RELAY: (X)
0 - None
S - Silent Relay

23. MANUAL RESET: (X)
0 - None
M - Manual Reset

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24. COIL 2 SELECTIONS
(*See Coil 1 options. Differences may apply.*)

25. COIL HAND: (X)
L - Left Hand
R - Right Hand

26. COIL FPI: (XX)
10 - 10 FPI

27. COIL CASING: (X)
1 - Galvanized Coil Casing
2 - Stainless Steel Coil Casing

28. FILTER: (X) (KHGE/KHGP Only)
0 - 1" Throwaway Filter
P - 1" Pleated Filter MERV 8
R - 2" Pleated Filter MERV 8

29. FILTER ACCESS: (X) (KHGE/KHGP Only)
0 - Bottom Filter Access
S - Side Filter Access (KHGP Only)

30. SPARE FILTER: (X) (KHGE/KHGP Only)
(*See Krueger's selection software.*)

31. BOTTOM RETURN DUCT CONNECTION: (X) (KHGP Only)
0 - None
D - Bottom Return Duct Connection

32. INLET: (X) (KHGP Only)
0 - None
2 - Mixing Box with Linkage

33. MIXING BOX DAMPER LOCATION: (XX) (KHGP Only)
00 - None
BR- Bottom and Rear Inlet
TR- Top and Rear Inlet

34. DAMPER ACTUATOR MOUNT: (X) (KHGP Only)
0 - None
A - Mounted and Wired Damper Actuator

35. INSULATION: (X)
0 - Standard 1/2" thick Fiberglass
F - Foil Faced Insulation (KHGE/KHGP Only)
C - Elastomeric Closed Cell Foam Insulation

36. UNIT DRAIN PAN: (X)
0 - Galvanized Drain Pan
S - Stainless Steel Unit Drain Pan

37. SECONDARY DRAIN CONNECT: (X)
0 - None
C - Secondary Drain Connection

38. AUXILIARY DRIP PAN: (X)
0 - None
G - Galvanized Auxiliary Drip Pan
S - Stainless Steel Auxiliary Drip Pan

39. ACCESS PANEL: (X) (KHGH/KHGP Only)
0 - None
C - Ceiling Access RAP - British White (KHGP Only)
S - Solid Ceiling Access Panel - British White
T - Ceiling Access RAP with Telescoping Duct - British White (KHGP Only)

40. ACCESS PANEL SIZE: (XX) (KHGH/KHGP Only)
(*See Krueger's selection software.*)

41. BASIC CONTROL PACKAGE: (X)
0 - Line Voltage with Electric Heat (EH)
1 - Line Voltage
2 - 24V, Unit S/S Relay, Fan Op. Relay, Trans.
3 - 24V, Unit S/S Relay, Fan Op. Relay, Trans. with EH

42. FAN SPEED CONTROLLER: (X)
0 - None
F - SCR Fan Speed Controller

43. DISCONNECT SWITCH: (X)
0 - None
L - Door Interlocking non-Fused Disconnect
T - Toggle Disconnect Switch

44. MAIN FUSING: (X)
0 - None
M - Main Fusing

45. FLOAT SWITCH: (X)
0 - None
D - Drain Pan Float Switch

46. SPEED SWITCH: (X)
0 - None
U - Unit Mount 3-Speed Switch with Off Position
R - Remote Mount 3-Speed Switch with Off Position

47. SOLID STATE RELAY: (X)
0 - None
1 - SSR (1) in Lieu of Start/Stop Relay
2 - SSRs (2) for (High, Low) Fan Control
3 - SSRs (3) for (High, Medium, Low) Fan Control

48. RETURN AIR: (X) (KHGE Only)
0 - Bottom Aluminum Single Deflection Return Grille
1 - Rear Aluminum Single Deflection Return Grille
2 - Rear Duct Collar

49. SUPPLY AIR: (X) (KHGE Only)
0 - Double Deflection Aluminum Supply Grille
2 - Front Duct Collar

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50. PAINT: (X) (KHGE Only)
0 - Pearl White Satin
1 - British White

51. THERMOSTAT: (XXXX)
(*See Krueger's selection software.*)

52. AQUASTAT: (X)
0 - None
A - Aquastat

53. FACTORY MOUNTED DDC MANUFACTURER: (X)
(*See Krueger's selection software.*)

54. FACTORY MOUNTED DDC MODEL: (XX)
(*See Krueger's selection software.*)