



BY JOHNSON CONTROLS



DSH Model Air Cooled Self
Contained Indoor Packaged Units
2-5 Tons
Preliminary Application Data

July 28, 2008

| | |
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| PROJECT: | TAG: |
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| | |
|-----------------------------------|-----------------|
| Gross Cooling Capacity [Btuh]: | 25,240* |
| Design CFM: | 800 |
| Seasonal Energy Efficiency Ratio: | 13.5 SEER** |
| Net Cooling Capacity [Btuh]: | 24,745** |
| Net Cooling CFM: | 800 |
| | |
| Evaporator Fan No./Type: | 1/CENTRIFUGAL |
| Diameter x Width [in]: | 9x7 |
| Drive: | Adjustable Belt |
| Motor HP : | 0.25 |
| | |
| Condenser Fan No./Type: | 1/CENTRIFUGAL |
| Diameter x Width [in]: | 10x10 |
| Drive: | Adjustable Belt |
| Motor HP : | 0.5 |

| | |
|----------------------------|----------------|
| Evaporator Coil Face Area: | 4.72 [sq ft] |
| Rows/FPI: | 2 / 10 |
| Refrigerant Control: | TX Valve |
| | |
| Condenser Coil Face Area: | 5.83 [sq ft] |
| Rows/FPI: | 4 / 16 |
| | |
| Compressor No./Type: | 1/Scroll |
| Refrigerant Circuits: | 1/ Independent |
| | |
| Refrigerant: | R-410A |
| | |
| Filters - Qty./Size: | 2/20x14x2 |
| | |
| Operating Weight [lbs.]: | 565 |
| Shipping Weight [lbs.]: | 600 |
| | |
| Condensate Connection: | 3 /4 NPT |

*Cooling performance is rated at 95°F ambient, 80°F entering dry bulb, 67°F wet bulb and CFM listed. Gross capacity does not include the effect of fan motor heat.

**Rated in accordance with ARI Standard 210/240-2006

EVAPORATOR FAN PERFORMANCE

| MODEL # | SUPPLY CFM | EXTERNAL STATIC PRESSURE - Inches W.C. | | | | | | | | | | | |
|---------|------------|--|------|-----|------|-----|------|------|------|------|------|-----|-----|
| | | 0.2 | | 0.4 | | 0.6 | | 0.8 | | 1.0 | | 1.2 | |
| | | RPM | BHP | RPM | BHP | RPM | BHP | RPM | BHP | RPM | BHP | RPM | BHP |
| DSH024 | 700 | 593 | 0.06 | 755 | 0.10 | 915 | 0.13 | 1048 | 0.17 | 1175 | 0.23 | - | - |
| | 800 | 629 | 0.08 | 777 | 0.12 | 914 | 0.16 | 1169 | 0.20 | 1178 | 0.25 | - | - |
| | 900 | 668 | 0.11 | 804 | 0.15 | 930 | 0.19 | 1170 | 0.24 | - | - | - | - |

NOTE:

- At high evaporator air flows, and wet bulb conditions, condensate carry-over may occur. Adjust airflow downward as necessary.
- Values include pressure drop from wet coil and clean filters.


CONDENSER FAN PERFORMANCE

| MODEL # | OUTDOOR CFM | EXTERNAL STATIC PRESSURE - Inches W.C. | | | | | | | |
|---------|-------------|--|------|-----|------|-----|------|-----|------|
| | | 0.2 | | 0.4 | | 0.6 | | 0.8 | |
| | | RPM | BHP | RPM | BHP | RPM | BHP | RPM | BHP |
| DSH024 | 1600 | 750 | 0.29 | 852 | 0.35 | 948 | 0.42 | 996 | 0.46 |

ELECTRICAL DATA

| MODEL # | VOLTAGE | COMPRESSOR | | | EVAPORATOR FAN | | CONDENSER FAN | | MIN. CCT. | "MOP" Max Overcurrent Prot. | |
|---------|--------------|------------|-----|------|----------------|------|---------------|------|-----------|-----------------------------|----|
| | | QTY | RLA | LRA | HP | FLA | HP | FLA | AMPACITY | | |
| DSH024 | 208-230/1/60 | 1 | @ | 13.5 | 58.3 | 0.25 | 2.6 | 0.50 | 4.5 | 23.98 | 35 |
| | 208-230/3/60 | 1 | @ | 8.6 | 55.0 | 0.25 | 1.4 | 0.50 | 2.2 | 14.35 | 20 |

Johnson Controls maintains a continuous product improvement policy, therefore specifications are subject to change without notice.

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|  BY JOHNSON CONTROLS | DESCRIPTION: HIGH EFFICIENCY DSH024 HORIZONTAL UNIT AIR-COOLED SELF-CONTAINED | Form YK145.11-PA1 (308) |
| | | DATE: March 2008 |

“DSH” HI-EFFICIENCY SERIES HORIZONTAL INDOOR AIR-CONDITIONING SYSTEM

GENERAL

All models 2-5 tons ship as factory-charged unitized packages. These units include refrigerant line shut-off valves between the condenser and evaporator section, allowing the unit to be field split. All packages/modules are designed for suspended mounting via integral structural channels.

CABINET

All cabinets are completely constructed of heavy gauge corrosion-resistant steel. The entire unit interior (both evaporator and condensing section) is insulated with 1/2" thick, 2-lb. density insulation. Service panels are equipped with lifting handles for ease of removal and handling.

REFRIGERANT CIRCUIT

The 2-5 ton units have a single refrigeration circuit. All models utilize high-efficiency ‘Scroll’ compressors. Each refrigeration circuit is thoroughly evacuated, and fully charged with R-410A refrigerant before shipment. Internal motor overload protection is provided. Compressors are mounted on rubber isolators to minimize vibration transmission.

Each refrigeration circuit includes a thermal expansion valve (with external equalizer), liquid line filter drier, sight glass/moisture indicator, a high refrigerant pressure safety switch, a low refrigerant pressure switch (for compressor protection), and service gauge ports.

EVAPORATOR AND CONDENSER COILS

The evaporator and condenser coils are constructed of internally enhanced copper tubes mechanically bonded to enhanced-surface aluminum fins. Both coils are employed in a draw-thru configuration. The large evaporator coil face area minimizes potential for water blow-off.

INDOOR/OUTDOOR FANS


Forward curved, double inlet and double width centrifugal blowers are used for both evaporator and condenser air movement. Blower wheels are fabricated of galvanized steel. Blowers employ solid steel shafts, supported in permanently lubricated ball bearing. All blowers are belt-driven. Variable-pitch motor sheaves allow for field adjustment of blower rpm.

ELECTRICAL/CONTROLS

All units are completely factory wired with all necessary controls. Current overlaod protection is provided on both evaporator and condenser motors (Internal auto-reset overloads on single-phase units, external manual-reset overload on three-phase). A manual reset circuit is also provided on each compressor control circuit in the event of high/low pressure cutout. A 24-volt control circuit, with oversize transformer, is provided for field connection.

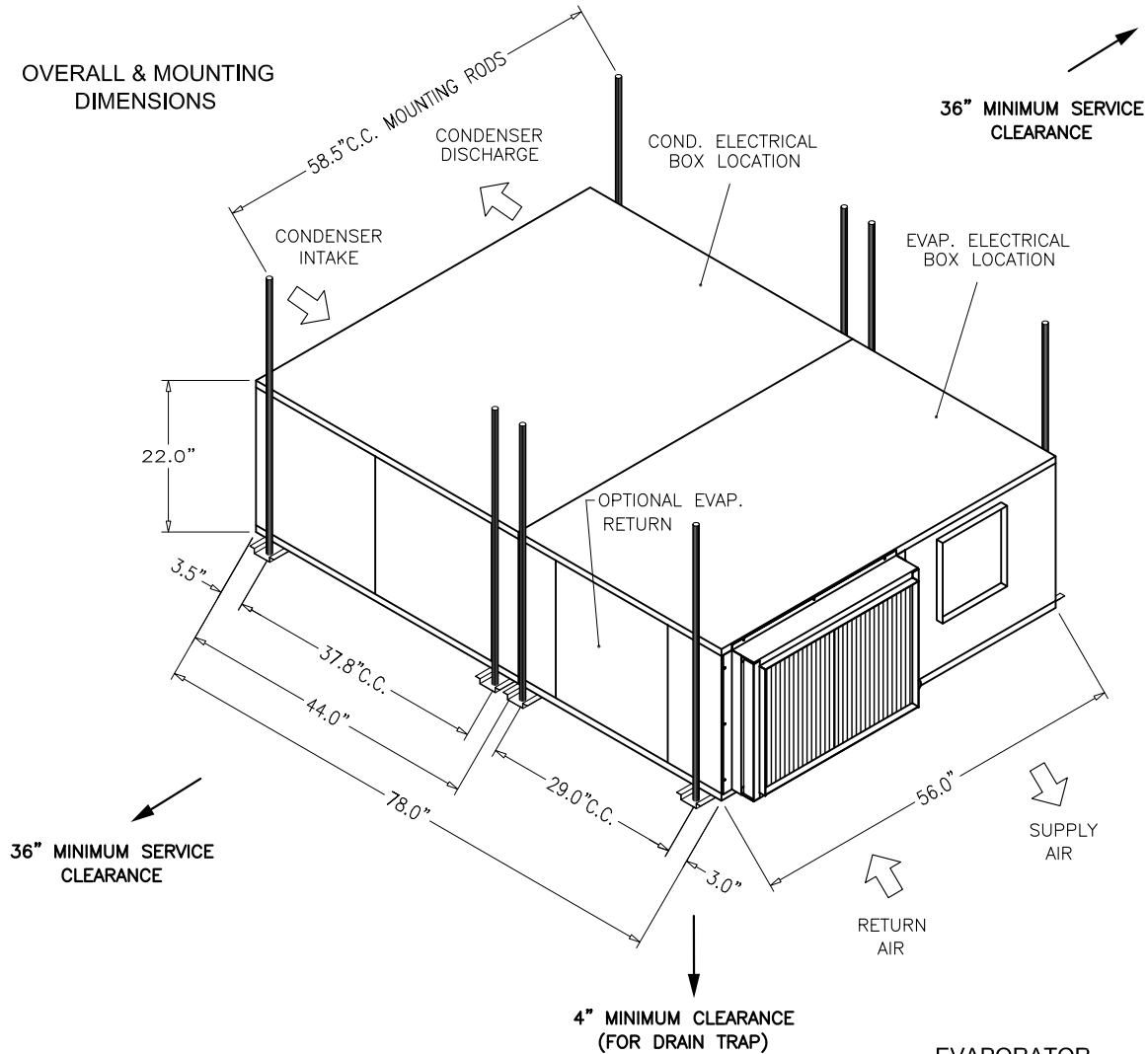
FILTERS

All models are shipped with 2 inch thick medium-efficiency throwaway filters factory installed.

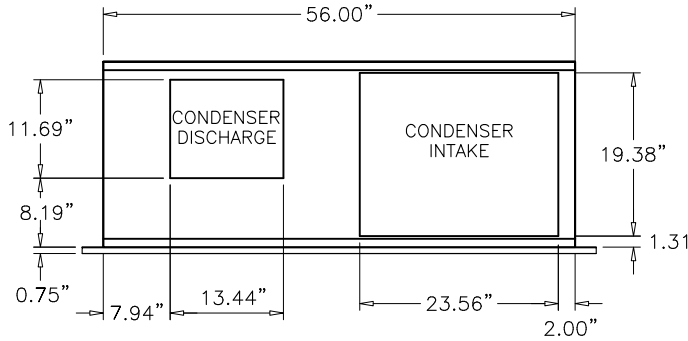
| | | |
|--|---|-------------------------|
|  BY JOHNSON CONTROLS | DESCRIPTION: MECHANICAL SPECIFICATIONS DSH024 HORIZONTAL UNIT AIR-COOLED SELF-CONTAINED HIGH EFFICIENCY | Form YK145.11-PA1 (308) |
| | | DATE: March 2008 |

DSH024 AND DSH036 DIMENSIONAL DATA

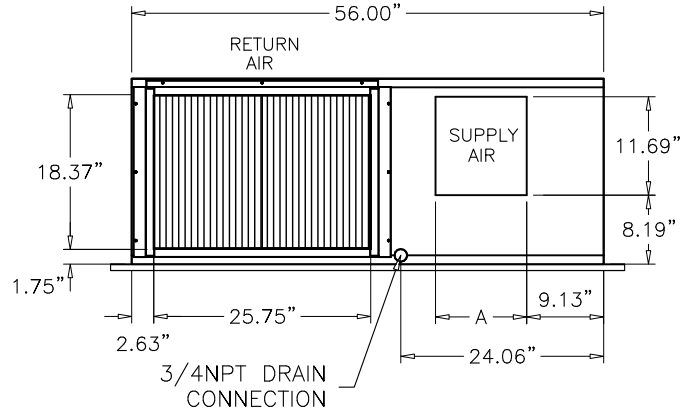
OVERALL & MOUNTING DIMENSIONS



CONDENSER OPENINGS



EVAPORATOR OPENINGS



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| | |
|-------|-------|
| | A |
| 2 TON | 9.57 |
| 3 TON | 10.88 |



DESCRIPTION:

DIMENSIONAL DATA
DSH024 & DSH036 HORIZONTAL UNIT
AIR-COOLED SELF-CONTAINED
HIGH EFFICIENCY

Form YK145.11-PA1 (308)

DATE:

March 2008

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| PROJECT: | TAG: |
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| | |
|--|-----------------|
| Gross Cooling Capacity [Btuh]: | 36,656* |
| Design CFM: | 1,200 |
| Seasonal Energy Efficiency Ratio: | 13.2 SEER** |
| Net Cooling Capacity [Btuh]: | 35,643** |
| Net Cooling CFM: | 1,200 |
| Evaporator Fan No./Type: 1/CENTRIFUGAL | |
| Diameter x Width [in]: | 10x8 |
| Drive: | Adjustable Belt |
| Motor HP : | 0.33 |
| Condenser Fan No./Type: 1/CENTRIFUGAL | |
| Diameter x Width [in]: | 10x10 |
| Drive: | Adjustable Belt |
| Motor HP : | 0.75 |

| | |
|--|----------------|
| Evaporator Coil Face Area: | 4.72 [sq ft] |
| Rows/FPI: | 3 / 12 |
| Refrigerant Control: | TX Valve |
| Condenser Coil Face Area: 5.83 [sq ft] | |
| Rows/FPI: | 4 / 16 |
| Compressor No./Type: 1/Scroll | |
| Refrigerant Circuits: | 1/ Independent |
| Refrigerant: R-410A | |
| Filters - Qty./Size: | 2/20x14x2 |
| Operating Weight [lbs.]: | 595 |
| Shipping Weight [lbs.]: | 630 |
| Condensate Connection: | 3 / 4 NPT |

*Cooling performance is rated at 95°F ambient, 80°F entering dry bulb, 67°F wet bulb and CFM listed. Gross capacity does not include the effect of fan motor heat.

**Rated in accordance with ARI Standard 210/240-2006

EVAPORATOR FAN PERFORMANCE

| MODEL # | SUPPLY CFM | EXTERNAL STATIC PRESSURE - Inches W.C. | | | | | | | | | |
|---------|------------|--|------|-----|------|-----|------|-----|------|------|------|
| | | 0.2 | | 0.4 | | 0.6 | | 0.8 | | 1.0 | |
| | | RPM | BHP | RPM | BHP | RPM | BHP | RPM | BHP | RPM | BHP |
| DSH036 | 1000 | 598 | 0.11 | 722 | 0.16 | 835 | 0.19 | 930 | 0.25 | 1141 | 0.32 |
| | 1200 | 727 | 0.20 | 831 | 0.25 | 929 | 0.31 | 972 | 0.33 | - | - |
| | 1400 | 747 | 0.26 | 844 | 0.32 | - | - | - | - | - | - |

NOTE:

1. At high evaporator air flows, and wet bulb conditions, condensate carry-over may occur. Adjust airflow downward as necessary.
2. Values include pressure drop from wet coil and clean filters.

CONDENSER FAN PERFORMANCE


| MODEL # | OUTDOOR CFM | EXTERNAL STATIC PRESSURE - Inches W.C. | | | | | | | | | |
|---------|-------------|--|------|-----|------|------|------|------|------|-----|-----|
| | | 0.2 | | 0.4 | | 0.6 | | 0.8 | | 1.0 | |
| | | RPM | BHP | RPM | BHP | RPM | BHP | RPM | BHP | RPM | BHP |
| DSH036 | 1950 | 864 | 0.47 | 949 | 0.55 | 1032 | 0.63 | 1112 | 0.72 | - | - |

ELECTRICAL DATA – STANDARD MOTOR

| MODEL # | VOLTAGE | COMPRESSOR | | | EVAPORATOR FAN | | CONDENSER FAN | | MIN. CCT. | "MOP" Max Overcurrent Prot. | |
|---------|--------------|------------|-----|------|----------------|------|---------------|------|-----------|-----------------------------|----|
| | | QTY | RLA | LRA | HP | FLA | HP | FLA | AMPACITY | | |
| DSH036 | 208-230/1/60 | 1 | @ | 14.1 | 77.0 | 0.33 | 3.3 | 0.75 | 5.5 | 26.43 | 40 |
| DSH036 | 208-230/3/60 | 1 | @ | 9.0 | 71.0 | 0.33 | 1.6 | 0.75 | 2.6 | 15.45 | 20 |
| DSH036 | 460/3/60 | 1 | @ | 5.6 | 38.0 | 0.33 | 0.8 | 0.75 | 1.3 | 9.10 | 15 |
| DSH036 | 575/3/60 | 1 | @ | 3.8 | 36.5 | 0.50 | 0.9 | 0.75 | 1.0 | 6.63 | 15 |

* Units configured for 575 volt are supplied with 0.5 HP evaporator motor.

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|---|--|-------------------------|
|  BY JOHNSON CONTROLS | DESCRIPTION: HIGH EFFICIENCY DSH036 HORIZONTAL UNIT AIR-COOLED SELF-CONTAINED | Form YK145.11-PA2 (308) |
| | DATE: March 2008 | |

"DSH" HI-EFFICIENCY SERIES HORIZONTAL INDOOR AIR-CONDITIONING SYSTEM

GENERAL

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CABINET

All cabinets are completely constructed of heavy gauge corrosion-resistant steel. The entire unit interior (both evaporator and condensing section) is insulated with 1/2" thick, 2-lb. density insulation. Service panels are equipped with lifting handles for ease of removal and handling.

REFRIGERANT CIRCUIT

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INDOOR/OUTDOOR FANS

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FILTERS

All models are shipped with 2 inch thick medium-efficiency throwaway filters factory installed.



DESCRIPTION:

MECHANICAL SPECIFICATIONS
DSH036 HORIZONTAL UNIT
AIR-COOLED SELF-CONTAINED
HIGH EFFICIENCY

Form YK145.11-PA2 (308)

DATE: March 2008

