



# WSH6

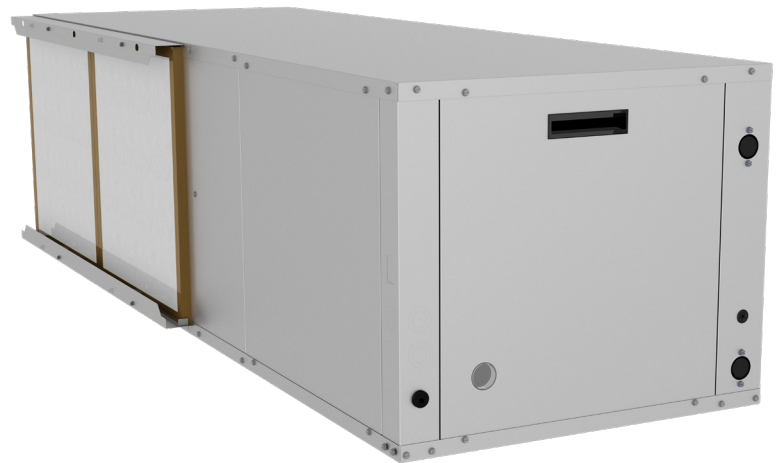
*Horizontal Water Source Heat Pump*



3/4 thru 6 Tons

16 EER

R454B



Water Source HP  
ANSI/AHRI/ASHRAE/ISO13256-1

# NOMENCLATURE

**WSH6 024 D 6 L C F S 1 0 0 0 0 000 A**

**MODEL**  
WSH6

**UNIT SIZE**

- 009 - 9,000 BTUH
- 012 - 12,000 BTUH
- 018 - 18,000 BTUH
- 024 - 24,000 BTUH
- 030 - 30,000 BTUH
- 036 - 36,000 BTUH
- 042 - 42,000 BTUH
- 048 - 48,000 BTUH
- 060 - 60,000 BTUH
- 072 - 72,000 BTUH

**REVISION LEVEL**

D - R454B Initial Release

**VOLTAGE**

- 6 - 208-230V/1Ph/60Hz
- 7 - 265V/1Ph/60Hz
- M - 208-230V3Ph/60Hz
- N - 460V/3Ph/60Hz

**RETURN AIR LOCATION**

- L - Left Hand
- R - Right Hand

**HEAT EXCHANGER**

- C - Copper
- N - Cupro-Nickel

**WATER CIRCUIT OPTIONS**

- F - Front
- G - Economizer with 3 Way Valve (Sizes 48, 60, 72)

**SUPPLY AIR LOCATION**

- E - End
- S - Side

**BRAND**

A - AE AIR

**OPTIONS: GENERAL**

- 000- No Options
- 00E- E-Coating
- 0V0- Vacated Premise Switch

**OPTIONS: CABINET**

- 0 - Standard Insulation
- A - Closed Cell Foam
- C - Compressor Jacket
- E - Extended Range (Geothermal)
- F - Geothermal + Sound Kit (Closed Cell+Compressor Blanket)
- S - Sound Kit (Closed Cell+ Compressor Jacket)

**OPTIONS: DEHUMIDIFIER**

- 0 - None
- H - Hot Gas Reheat with DDC

**OPTIONS: CONTROL**

- 0 - Standard without Service Switch
- A - Standard w/Service Switch
- B - DDC (BacNET, Modbus) w/Service Switch

**OPTIONS: FILTER**

- 0- 1" TA Standard
- A - 2" MERV 8
- B - 2" MERV 11
- C - 2" MERV 13
- D - 4" MERV 11
- E - 4" MERV 13
- F - 4" MERV 14
- G - 1" MERV 8
- H - 1" MERV 11
- J - 1" MERV 13

**FILTER FRAME**

- 1 - 1" or 2" 2 Sided Field Convertible
- 2 - 1" or 2" 4 Sided Field Convertible
- 4 - 1" or 4" 4 Sided Field Convertible
- 6 - 2" Permanent + 4" 4 Sided

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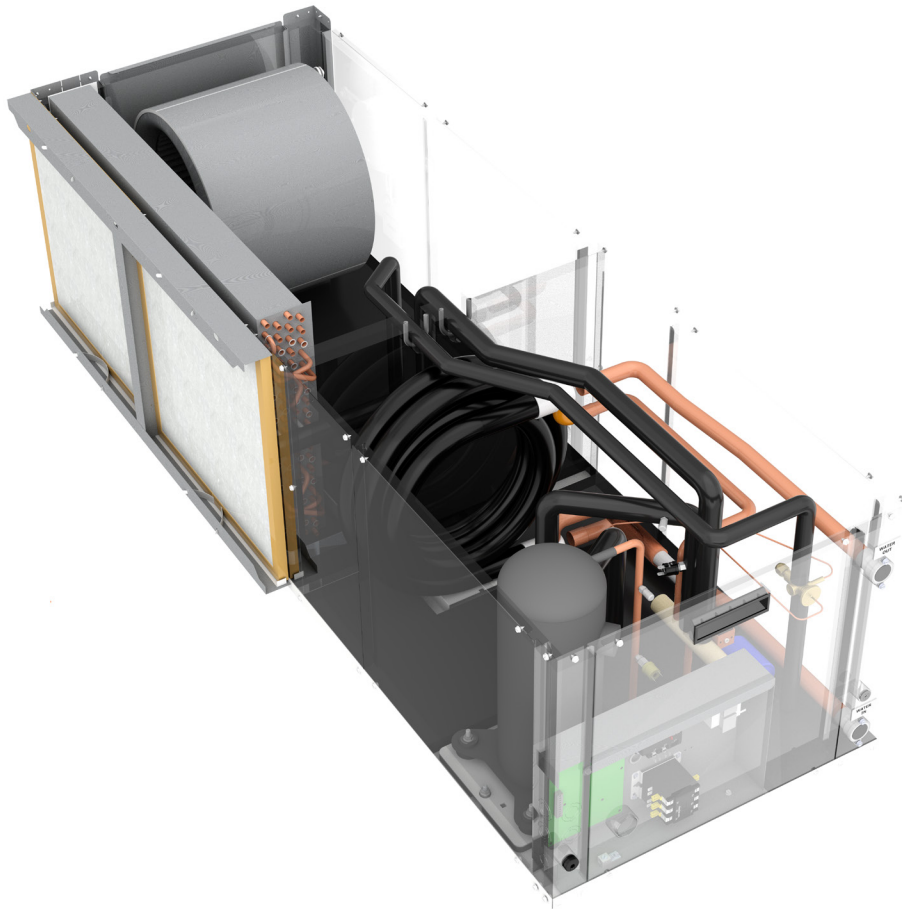
## HORIZONTAL WATER SOURCE HEAT PUMP

### FEATURES

The HydroTech WSH6 is AE Air's premium high efficiency, geothermal unit, available in sizes 0.75 to 6 tons. ENERGY STAR certified for ground water and ground loop applications.

The HydroTech WSH6 series water to air heat pump is designed from the ground up to address the needs of architects, owners, and contractors. It provides the best combination of performance, efficiency and reliability in a compact design. The WSH6 series comes standard with ECM blower motors for high efficiency and comfort.

All WSH6 models feature double compressor vibration isolation for quiet operation, easy to remove blower housing for quick service, as well as a single compressor designs to maximize reliability and improve serviceability.



WSH6

# WSH6

## HORIZONTAL WATER SOURCE HEAT PUMP

### STANDARD FEATURES

- 100% FACTORY TESTED.
- R-454B REFRIGERANT - ALL UNITS OPERATE WITH ENVIRONMENTALLY FRIENDLY R-454B REFRIGERANT
- NON-CORROSIVE THERMOPLASTIC CONDENSATE PAN-SLOPED FOR POSITIVE DRAINAGE.
- SUPERIOR INSULATION: FULLY INSULATED CABINET WITH 1" FOIL FACE INSULATION FOR THE AIR HANDLING SECTION, AND 1" TUF-SKIN INSULATION FOR THE COMPRESSOR SECTION.
- HIGH AND LOW PRESSURE SERVICE PORTS
- REFRIGERANT FILTER-DRIER
- PANEL-MOUNTED FPT WATER CONNECTIONS - NO BACK-UP WRENCH NEEDED.
- 50 VA TRANSFORMER
- 1" TO 2" CONVERTIBLE FILTER RAIL
- WATER COIL FREEZE SENSOR
- AIR COIL FREEZE SENSOR
- CONDENSATE OVERFLOW SENSOR
- DIGITAL DIAGNOSTIC DISPLAY - A TWO-DIGIT DISPLAY INDICATES EITHER THE CURRENT OPERATIONAL MODE OR A FAULT CODE THRU-THE-DOOR SITE GLASS TO READ DISPLAY.
- 24V STATUS LED - GREEN LIGHT INDICATES 24V POWER TO THE CONTROL MODULE.
- NUISANCE TRIP PROTECTION - UNIT WILL ATTEMPT TO START UP TO THREE TIMES WITH A FAULT SIGNAL. IF THE FAULT CONTINUES, THE UNIT LOCKS OUT.
- OVER/UNDER VOLTAGE PROTECTION
- RANDOM SEQUENCING START TIMER
- TEST MODE WITH LED INDICATOR - SPEEDS UP CONTROL TIMERS FOR SERVICE PERSONNEL.
- ALARM RELAY - ACTIVATED

### OPTIONAL FEATURES

- CUPRONICKEL COAXIAL HEAT EXCHANGER
- VACATED PREMISES CONTROL - ALLOWS THE UNIT TO OPERATE FOR EITHER 1 OR 2 HOURS PER DAY (TOTAL) DURING EXTENDED PERIODS OF UNOCCUPANCY (REQUIRES OPTIONAL KIT).
- E-COATED AIR COIL CORROSION PROTECTION
- SOUND ATTENUATION KIT
- EXTENDED RANGE (GEOTHERMAL)
- Waterside Economizer



**Thermoplastic Drain Pan**



**Optional  
Vacated Premises Selector Switch  
(Kit# 9WS01)**

# WSH6

## HORIZONTAL WATER SOURCE HEAT PUMP

### DIGITAL CONTROL MODULE

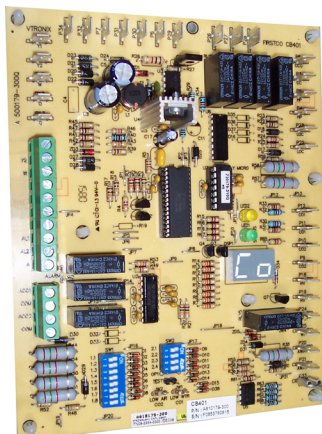
CONTROLS UNIT OPERATION AND MONITORS ALL SAFETY CONTROLS. (PATENT PENDING)

#### STANDARD FEATURES

- DIGITAL DIAGNOSTIC DISPLAY - A TWO-DIGIT DISPLAY INDICATES EITHER THE CURRENT OPERATIONAL MODE OR A FAULT CODE
- 24V STATUS LED - GREEN LIGHT INDICATES 24V POWER TO THE CONTROL MODULE
- NUISANCE TRIP PROTECTION - UNIT WILL ATTEMPT TO START UP TO THREE TIMES WITH A FAULT SIGNAL. IF THE FAULT CONTINUES, THE UNIT LOCKS OUT.
- CONDENSATE OVERFLOW LOCKOUT
- HIGH AND LOW PRESSURE CONTROLS
- WATER COIL LOW TEMPERATURE PROTECTION
- OVER / UNDER VOLTAGE PROTECTION
- RANDOM SEQUENCING START TIMER
- ANTI-SHORT CYCLE TIMER
- TEST MODE WITH LED INDICATOR - SPEEDS UP CONTROL TIMERS FOR SERVICE PERSONNEL
- ALARM RELAY - ACTIVATED IF THE UNIT LOCKS OUT
- CONFORMAL COATING ON BOTH SIDES OF CONTROL BOARD FOR HUMIDITY AND CONDENSATION PROTECTION

#### DIP SWITCHES (FIELD SELECTABLE SETTINGS):

- 5 SECOND COMPRESSOR DELAY - BLOWER STARTS BEFORE THE COMPRESSOR, WHICH HELPS ATTENUATE COMPRESSOR START UP SOUND.
- 45 SECOND BLOWER-OFF DELAY - INCREASES COOLING EFFICIENCY.
- CONTINUOUS DEHUMIDIFICATION MODE - SELECTS CONTINUOUS LOW SPEED FAN OPERATION FOR INCREASED HUMIDITY REMOVAL.
- VPC SWITCH - SELECTS EITHER ONE OR TWO HOUR DAILY OPERATION (REQUIRES OPTIONAL KIT)
- LOWER WATER AND AIR COIL TEMPERATURE CUTOFF OPTIONS - OPTIONAL 10°F CUTOFFS FOR APPLICATIONS WHERE WATER TEMPERATURE IS BELOW 50 DEGREES°F (REQUIRES ANTIFREEZE SOLUTION).
- TWO ACCESSORY RELAYS - THE RELAYS CAN CYCLE WITH EITHER THE FAN OR COMPRESSOR. IN ADDITION, RELAY NUMBER ONE CAN BE CONFIGURED FOR USE WITH SLOW OPENING WATER VALVES (60 SECOND PRE-COMPRESSOR INITIALIZATION) AND RELAY NUMBER 2 CAN BE CONFIGURED FOR A 30 SECOND POST FAN DELAY.



Electronic Control Module



| DESCRIPTION OF OPERATION                | LED Readout       |
|---|-------------------|
| NORMAL MODE                             | ON (Green Light)  |
| CONTROLLER NON-FUNCTIONAL               | OFF (Green Light) |
| TEST MODE (pins shorted momentarily)    | ON (Yellow Light) |
| STANDBY                                 | St                |
| FAN ONLY (G active)                     | Fo                |
| COOL (Ti & O active)                    | Co                |
| HEAT (Ht Slope Y1 active)               | H1                |
| ACCESSORY RELAY 1                       | A1                |
| ACCESSORY RELAY 2                       | A2                |
| VACATED PREMISES CONTROL                | Ay                |
| FAULTY RETRY                            | rE & CODE #       |
| LOCKOUT                                 | Lp & Code #       |
| OVER / UNDER VOLTAGE SHUTDOWN           | Ou & Code #       |
| TEMPERATURE SENSOR ERROR                | SE & CODE #       |
| TEST MODE - NO FAULT                    | CODE 11           |
| TEST MODE - HP FAULT                    | CODE 12           |
| TEST MODE - LP FAULT                    | CODE 13           |
| TEST MODE - CO1 FAULT                   | CODE 14           |
| TEST MODE - CO2 FAULT                   | CODE 15           |
| TEST MODE - COND. OVERFLOW FAULT        | CODE 16           |
| TEST MODE - OVER/UNDER SHUTDOWN         | CODE 17           |
| TEST MODE - SWAPPED CO1/CO2 THERMISTORS | CODE 18           |
| TEST MODE - TEMPERATURE SENSOR ERROR    | CODE 19           |

LBL02

Sight Glass on Door

# WSH6

## HORIZONTAL WATER SOURCE HEAT PUMP

### PHYSICAL DATA

| Model   |  | Size                  |                              |                     |                     |                    |                     |                     |                      |             |              |         |
|---|--|-----------------------|------------------------------|---------------------|---------------------|--------------------|---------------------|---------------------|----------------------|-------------|--------------|---------|
|   |  | 9                     | 12                           | 18                  | 24                  | 30                 | 36                  | 42                  | 48                   | 60          | 72           |         |
| Compressor (1 Each)                                 |  | Rotary                |                              |                     | Scroll              |                    |                     |                     |                      |             |              |         |
| Refrigerant Type                                    |  | R454B                 |                              |                     |                     |                    |                     |                     |                      |             |              |         |
| Factory Charge (lb) [kg]                            |  | 1.32 [0.60]           | 1.5 [0.68]                   | 2.0 [0.91]          | 2.7 [1.22]          | 3.14 [1.42]        | 3.36 [1.52]         | 4.12 [1.87]         | 4.56 [2.07]          | 5.0 [2.27]  | 7.58 [3.44]  |         |
| A2L Sensor and Mitigation YES/NO                    |  | NO                    | NO                           | NO                  | NO                  | NO                 | NO                  | YES                 | YES                  | YES         | YES          |         |
| Minimum Room Area Ft <sup>2</sup> [m <sup>2</sup> ] |  | N/A                   | N/A                          | N/A                 | N/A                 | N/A                | N/A                 | 62 [6]              | 68 [6]               | 75 [7]      | 114 [11]     |         |
| Minimum Air Flow CFM [m <sup>3</sup> /hr]           |  | N/A                   | N/A                          | N/A                 | N/A                 | N/A                | N/A                 | 111 [189]           | 123 [210]            | 135 [230]   | 205 [348]    |         |
| Motor   |  | ECM                   |                              |                     |                     |                    |                     |                     |                      |             |              |         |
|   |  | Type                  | Up to 4 Speed Taps Available |                     |                     |                    |                     |                     |                      |             |              |         |
|   |  | Speeds                |                              |                     |                     |                    |                     |                     |                      |             |              |         |
|   |  | HP [kw]               | 1/4 [.18]                    | 1/4 [.18]           | 1/3 [.24]           | 1/2 [.37]*         | 1/2 [.37]*          | 1/2 [.37]*          | 3/4 [.56]            | 3/4 [.56]   | 1 [.75]      | 1 [.75] |
| Blower Wheel Size (Dia x W) in. [mm]                |  | 6.75 x 7 [171 x 178]  |                              | 9 x 7 [229 x 178]   | 9 x 8 [229 x 203]   | 10 x 8 [254 x 203] |                     | 10 x 10 [254 x 254] | 11 x 10 [279 x 254]  |             |              |         |
| COAX Volume (US Gallons) [liters]                   |  | 0.116 [0.44]          | 0.144 [0.55]                 | 0.238 [0.90]        | 0.359 [1.36]        | 0.432 [1.64]       | 0.533 [2.02]        | 0.624 [2.36]        | 0.88 [3.33]          | 0.88 [3.33] | 1.084 [4.10] |         |
| Water Connection FTP (in)                           |  | 3/4                   | 3/4                          | 3/4                 | 3/4                 | 3/4                | 3/4                 | 1                   | 1                    | 1           | 1            |         |
| Condensate Connection FTP (in)                      |  | 3/4                   | 3/4                          | 3/4                 | 3/4                 | 3/4                | 3/4                 | 3/4                 | 3/4                  | 3/4         | 3/4          |         |
| Air Coil Dimension (H x L) (in) [mm]                |  | 16 x 15.5 [406 x 394] |                              | 16 x 22 [406 x 559] | 20 x 25 [508 x 635] |                    | 20 x 35 [508 x 889] |                     | 20 x 45 [508 x 1143] |             |              |         |
| Standard TA Filter 1" [25.4mm] (in) [mm]            |  | 16 x 20 [406 x 508]   |                              | 16 x 25 [406 x 635] | 20 x 30 [508 x 762] |                    | 20 x 20 [508 x 508] |                     | 20 x 25 [508 x 635]  |             |              |         |
| Filter Qty  |  | 1                     | 1                            | 1                   | 1                   | 1                  | 1                   | 2                   | 2                    | 2           | 2            |         |
| Operating Weight lbs [kg]                           |  | 137 [62.2]            | 142 [64.4]                   | 189 [85.8]          | 245 [111.2]         | 254 [115.3]        | 271 [123]           | 335 [152]           | 356 [161.5]          | 365 [165.6] | 404 [183.3]  |         |
| Shipping Weight lbs [kg]                            |  | 159 [72.2]            | 164 [74.4]                   | 214 [97.1]          | 289 [131.1]         | 289 [131.1]        | 306 [138.8]         | 378 [171.5]         | 399 [181]            | 408 [185.1] | 450 [204.2]  |         |
| Operating Weight with Economizer option lbs [kg]    |  | -                     | -                            | -                   | -                   | -                  | -                   | 410 [186]           | 432 [196]            | 440 [200]   | 515 [234]    |         |
| Shipping Weight with Economizer option lbs [kg]     |  | -                     | -                            | -                   | -                   | -                  | -                   | 453 [206]           | 474 [216]            | 483 [220]   | 550 [250]    |         |

NOTE: \*3/4HP for 460V Models

# WSH6

## HORIZONTAL WATER SOURCE HEAT PUMP

### PHYSICAL DATA (CONT'D)

| Model   | Rated Airflow | GPM  | Water Loop (Entering Water Temperature) |      |         |     |
|---------|---------------|------|---|------|---------|-----|
|         |               |      | 86°F                                    |      | 68°F    |     |
|         |               |      | Cooling                                 | EER  | Heating | COP |
| WSH6009 | 350           | 3.0  | 9,000                                   | 16.0 | 9,000   | 5.1 |
| WSH6012 | 450           | 3.0  | 12,000                                  | 16.0 | 13,000  | 5.4 |
| WSH6018 | 600           | 4.5  | 18,000                                  | 16.0 | 19,500  | 4.9 |
| WSH6024 | 850           | 6.0  | 25,000                                  | 16.0 | 25,000  | 5.0 |
| WSH6030 | 1025          | 7.5  | 29,000                                  | 16.0 | 31,400  | 5.0 |
| WSH6036 | 1050          | 9.0  | 35,000                                  | 16.0 | 42,500  | 4.6 |
| WSH6042 | 1400          | 10.5 | 42,000                                  | 16.0 | 46,000  | 5.0 |
| WSH6048 | 1500          | 12.0 | 48,000                                  | 15.6 | 54,500  | 4.8 |
| WSH6060 | 1750          | 15.0 | 60,000                                  | 15.9 | 61,000  | 4.8 |
| WSH6072 | 2100          | 18.0 | 71,000                                  | 15.3 | 82,000  | 4.3 |

| Model   | Rated Airflow | GPM  | Ground Water (Entering Water Temperature) |      |         |     |
|---------|---------------|------|---|------|---------|-----|
|         |               |      | 59°F                                      |      | 50°F    |     |
|         |               |      | Cooling                                   | EER  | Heating | COP |
| WSH6009 | 350           | 3.0  | 10,000                                    | 23.0 | 8,000   | 4.2 |
| WSH6012 | 450           | 3.0  | 13,000                                    | 23.0 | 11,000  | 4.6 |
| WSH6018 | 600           | 4.5  | 20,400                                    | 25.0 | 16,000  | 4.3 |
| WSH6024 | 850           | 6.0  | 28,000                                    | 25.0 | 21,400  | 4.3 |
| WSH6030 | 1025          | 7.5  | 32,400                                    | 24.0 | 26,000  | 4.2 |
| WSH6036 | 1050          | 9.0  | 39,000                                    | 23.2 | 35,000  | 4.1 |
| WSH6042 | 1400          | 10.5 | 45,500                                    | 23.3 | 38,000  | 4.3 |
| WSH6048 | 1500          | 12.0 | 52,500                                    | 23.6 | 45,500  | 4.2 |
| WSH6060 | 1750          | 15.0 | 64,000                                    | 23.5 | 51,000  | 4.3 |
| WSH6072 | 2100          | 18.0 | 78,000                                    | 21.8 | 68,000  | 4.1 |

# WSH6

## HORIZONTAL WATER SOURCE HEAT PUMP

### PHYSICAL DATA (CONT'D)

| Model   | Rated Airflow | GPM  | Ground Loop (Entering Water Temperature) |      |         |     |
|---------|---------------|------|--|------|---------|-----|
|         |               |      | 77°F                                     |      | 32°F    |     |
|         |               |      | Cooling                                  | EER  | Heating | COP |
| WSH6009 | 350           | 3.0  | 9,500                                    | 18.9 | 6,500   | 3.6 |
| WSH6012 | 450           | 3.0  | 12,000                                   | 17.9 | 8,500   | 3.8 |
| WSH6018 | 600           | 4.5  | 19,000                                   | 18.0 | 12,000  | 3.6 |
| WSH6024 | 800           | 6.0  | 26,000                                   | 18.4 | 17,500  | 3.6 |
| WSH6030 | 1025          | 7.5  | 30,000                                   | 18.4 | 21,000  | 3.6 |
| WSH6036 | 1050          | 9.0  | 36,400                                   | 18.0 | 28,000  | 3.6 |
| WSH6042 | 1400          | 10.5 | 43,500                                   | 18.5 | 31,000  | 3.8 |
| WSH6048 | 1500          | 12.0 | 49,500                                   | 18.0 | 36,000  | 3.6 |
| WSH6060 | 1750          | 15.0 | 60,000                                   | 18.1 | 41,000  | 3.6 |
| WSH6072 | 2100          | 18.0 | 73,000                                   | 17.1 | 55,000  | 3.6 |

Cooling capacities based on 80.6°F DB, 66.2°F WB entering air temperature  
Heating capacities based on 68°F DB, 59°F WB entering air temperature  
All ratings based upon operation at lower voltage of dual voltage rated models  
Data is subject to change. Please verify most current information on [ww.firstco.com](http://ww.firstco.com).



# WSH6

## HORIZONTAL WATER SOURCE HEAT PUMP

### AIRFLOW DATA

| Model                  | Fan Speed | Rated Airflow | CFM VS. External Static Pressure (in. wg) |       |       |       |       |       |       |       |       |       |
|------------------------|-----------|---------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                        |           |               | 0.1                                       | 0.2   | 0.3   | 0.4   | 0.5   | 0.6   | 0.7   | 0.8   | 0.9   | 1.0   |
| WSH6009                | WHITE     | 350 - T3      | -   | -     | 370   | 340   | 310   | 280   | 250   | -     | -     | -     |
|                        | VIOLET    |               | -   | 370   | 340   | 310   | 280   | 250   | -     | -     | -     |       |
|                        | GRAY      |               | 375                                       | 350   | 320   | 290   | 260   | -     | -     | -     | -     |       |
| WSH6012                | WHITE     | 450 - T3      | -   | -     | 470   | 440   | 410   | 380   | 350   | 320   | -     | -     |
|                        | VIOLET    |               | -   | 460   | 430   | 400   | 370   | 340   | 310   | -     | -     |       |
|                        | GRAY      |               | 440                                       | 410   | 380   | 350   | 320   | -     | -     | -     | -     |       |
| WSH6018                | T4        | 600 - T3      | -   | -     | -     | -     | 675   | 650   | 600   | 530   | 490   | -     |
|                        | T3        |               | -   | -     | -     | 675   | 630   | 590   | 540   | 480   | -     |       |
|                        | T2        |               | -   | -     | 660   | 620   | 570   | 540   | 490   | -     | -     |       |
|                        | T1        |               | 675                                       | 650   | 610   | 560   | 510   | 480   | -     | -     | -     |       |
| WSH6024                | T4        | 850 - T3      | -   | -     | -     | -     | 920   | 880   | 840   | 810   | 780   | 720   |
|                        | T3        |               | -   | -     | -     | 900   | 860   | 820   | 790   | 760   | 720   |       |
|                        | T2        |               | -   | -     | 890   | 840   | 800   | 760   | 730   | 690   | -     |       |
|                        | T1        |               | -   | 880   | 830   | 770   | 740   | 710   | 680   | -     | -     |       |
| WSH6030                | T4        | 1025 - T3     | -   | -     | -     | -     | 1,170 | 1,050 | 950   | 850   | 750   | -     |
|                        | T3        |               | -   | -     | 1,160 | 1,130 | 1,090 | 1,000 | 900   | 800   | -     |       |
|                        | T2        |               | 1,130                                     | 1,090 | 1,060 | 1,030 | 990   | 940   | 850   | -     | -     |       |
|                        | T1        |               | 1,030                                     | 1,000 | 970   | 940   | 900   | 860   | -     | -     | -     |       |
| WSH6036                | T3        | 1050 - T3     | -   | 1,380 | 1,350 | 1,310 | 1,200 | 1,090 | 1,000 | 900   | -     | -     |
|                        | T2        |               | 1,330                                     | 1,280 | 1,240 | 1,200 | 1,140 | 1,030 | 930   | -     | -     |       |
|                        | T1        |               | 1,240                                     | 1,190 | 1,160 | 1,130 | 1,090 | 970   | -     | -     | -     |       |
| WSH6042                | T4        | 1400 - T3     | -   | -     | -     | -     | 1,570 | 1,530 | 1,500 | 1,470 | 1,440 | 1,350 |
|                        | T3        |               | -   | 1,550 | 1,520 | 1,490 | 1,460 | 1,430 | 1,400 | 1,370 | 1,340 | 1,280 |
|                        | T2        |               | 1,450                                     | 1,420 | 1,390 | 1,360 | 1,330 | 1,300 | 1,260 | 1,230 | 1,200 | 1,170 |
|                        | T1        |               | 1,380                                     | 1,350 | 1,320 | 1,290 | 1,260 | 1,230 | 1,200 | 1,170 | -     | -     |
| WSH6042<br>-Economizer | T4        | 1400 - T3     | -   | -     | -     | -     | -     | -     | -     | 1,567 | 1,354 | 982   |
|                        | T3        |               | -   | -     | -     | -     | -     | 1,601 | 1,568 | 1,480 | 1,289 | 936   |
|                        | T2        |               | -   | 1,571 | 1,536 | 1,509 | 1,490 | 1,473 | 1,440 | 1,364 | 1,211 | 934   |
|                        | T1        |               | 1,540                                     | 1,508 | 1,473 | 1,444 | 1,425 | 1,408 | 1,379 | 1,315 | 1,184 | 946   |
| WSH6048                | T4        | 1500 - T3     | -   | -     | -     | -     | 1,760 | 1,700 | 1,540 | 1,430 | 1,300 | 1,200 |
|                        | T3        |               | -   | 1,750 | 1,720 | 1,690 | 1,660 | 1,610 | 1,500 | 1,400 | 1,300 | -     |
|                        | T2        |               | 1,700                                     | 1,640 | 1,600 | 1,570 | 1,540 | 1,510 | 1,450 | 1,370 | -     | -     |
|                        | T1        |               | 1,560                                     | 1,520 | 1,490 | 1,460 | 1,420 | 1,380 | 1,330 | -     | -     | -     |
| WSH6048<br>-Economizer | T4        | 1500 - T3     | -   | -     | -     | 1,720 | 1,612 | 1,494 | 1,372 | 1,253 | 1,146 | 1,056 |
|                        | T3        |               | -   | -     | 1,772 | 1,689 | 1,589 | 1,479 | 1,364 | 1,251 | 1,148 | 1,060 |
|                        | T2        |               | 1,757                                     | 1,734 | 1,688 | 1,623 | 1,541 | 1,449 | 1,348 | 1,244 | 1,141 | 1,042 |
|                        | T1        |               | 1,638                                     | 1,613 | 1,578 | 1,533 | 1,478 | 1,412 | 1,336 | 1,247 | 1,146 | 1,033 |

NOTE: Airflow data shown is with a wet coil at 80°F DB, 67°F WB EAT and with standard 1" MERV 8 filter

# WSH6

## HORIZONTAL WATER SOURCE HEAT PUMP

### AIRFLOW DATA (CONT'D)

| Model              | Fan Speed | Rated Airflow | CFM VS. External Static Pressure (in. wg) |       |       |       |       |       |       |       |       |       |
|--------------------|-----------|---------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                    |           |               | 0.1                                       | 0.2   | 0.3   | 0.4   | 0.5   | 0.6   | 0.7   | 0.8   | 0.9   | 1.0   |
| WSH6060            | T4        | 1750 - T2     | -   | -     | -     | -     | 2,240 | 2,210 | 2,150 | 2,080 | 2,000 | 1,900 |
|                    | T3        |               | 2,240                                     | 2,210 | 2,180 | 2,150 | 2,100 | 2,070 | 2,030 | 1,970 | 1,920 | 1,830 |
|                    | T2        |               | 2,100                                     | 2,060 | 2,030 | 2,000 | 1,960 | 1,920 | 1,880 | 1,870 | 1,830 | 1,760 |
|                    | T1        |               | 1,940                                     | 1,910 | 1,880 | 1,840 | 1,790 | 1,750 | 1,710 | 1,680 | -     | -     |
| WSH6060 Economizer | T4        | 1750 - T2     | 2,149                                     | 2,061 | 1,961 | 1,849 | 1,722 | 1,579 | 1,417 | -     | -     | -     |
|                    | T3        |               | 2,115                                     | 2,038 | 1,943 | 1,831 | 1,703 | 1,560 | 1,403 | -     | -     | -     |
|                    | T2        |               | 2,016                                     | 1,961 | 1,887 | 1,794 | 1,681 | 1,549 | 1,396 | -     | -     | -     |
|                    | T1        |               | 1,884                                     | 1,836 | 1,783 | 1,718 | 1,635 | 1,527 | 1,389 | -     | -     | -     |
| WSH6072            | T3        | 2100 - T3     | 2,420                                     | 2,380 | 2,360 | 2,320 | 2,260 | 2,240 | 2,210 | 2,130 | 2,040 | 1,960 |
|                    | T2        |               | 2,290                                     | 2,250 | 2,220 | 2,180 | 2,140 | 2,110 | 2,070 | 2,010 | 1,950 | -     |
|                    | T1        |               | 2,160                                     | 2,120 | 2,090 | 2,040 | 2,010 | 1,970 | 1,940 | -     | -     | -     |
| WSH6072 Economizer | T3        | 2100 - T3     | 2,265                                     | 2,215 | 2,154 | 2,083 | 2,003 | 1,917 | 1,825 | 1,729 | 1,629 | 1,528 |
|                    | T2        |               | 2,219                                     | 2,178 | 2,123 | 2,057 | 1,982 | 1,898 | 1,808 | 1,714 | 1,617 | 1,520 |
|                    | T1        |               | 2,111                                     | 2,083 | 2,044 | 1,995 | 1,937 | 1,869 | 1,793 | 1,709 | 1,618 | 1,520 |

NOTE: Airflow data shown is with a wet coil at 80°F DB, 67°F WB EAT and with standard 1" MERV 8 filter

# WSH6

## HORIZONTAL WATER SOURCE HEAT PUMP

### ELECTRICAL DATA

| Model    | Voltage       | Compressor |       | Blower |     | MCA | MOP |
|----------|---------------|------------|-------|--------|-----|-----|-----|
|          |               | RLA        | LRA   | FLA    | HP  |     |     |
| WSH6009* | 208/230V-1-60 | 3.97       | 22    | 2.3    | 1/4 | 8   | 15  |
|          | 265V-1-60     | 3.97       | 23    | 2.3    | 1/4 | 8   | 15  |
| WSH6012* | 208/230V-1-60 | 4.7        | 25    | 2.3    | 1/4 | 9   | 15  |
|          | 265V-1-60     | 3.91       | 21    | 2.3    | 1/4 | 8   | 15  |
| WSH6018* | 208/230V-1-60 | 6.6        | 36    | 2.8    | 1/3 | 12  | 15  |
|          | 265V-1-60     | 5.45       | 36    | 2.6    | 1/3 | 10  | 15  |
| WSH6024* | 208/230V-1-60 | 10.6       | 59    | 4.6    | 1/2 | 18  | 25  |
|          | 265V-1-60     | 8.09       | 45    | 3.6    | 1/2 | 14  | 20  |
| WSH6030* | 208/230V-1-60 | 12.8       | 71    | 4.6    | 1/2 | 21  | 30  |
|          | 265V-1-60     | 10.4       | 68    | 3.6    | 1/2 | 17  | 25  |
| WSH6036* | 208/230V-1-60 | 15.5       | 86    | 4.6    | 1/2 | 24  | 35  |
|          | 265V-1-60     | 10.26      | 55    | 3.6    | 1/2 | 17  | 25  |
|          | 208/230V-3-60 | 21.84      | 70    | 4.6    | 1/2 | 32  | 50  |
|          | 460V-3-60     | 7.1        | 39    | 3.2    | 3/4 | 13  | 15  |
| WSH6042* | 208/230V-1-60 | 17.3       | 96    | 6.3    | 3/4 | 28  | 45  |
|          | 208/230V-3-60 | 23.2       | 90    | 6.3    | 3/4 | 36  | 50  |
|          | 460V-3-60     | 6.5        | 36    | 3.2    | 3/4 | 12  | 15  |
| WSH6048* | 208/230V-1-60 | 19.3       | 102   | 6.3    | 3/4 | 31  | 45  |
|          | 208/230V-3-60 | 22.1       | 123   | 6.3    | 3/4 | 34  | 50  |
|          | 460V-3-60     | 10.7       | 60    | 3.2    | 3/4 | 17  | 25  |
| WSH6060* | 208/230V-1-60 | 26.6       | 148   | 7.6    | 1   | 41  | 60  |
|          | 208/230V-3-60 | 16.7       | 93    | 7.6    | 1   | 29  | 45  |
|          | 460V-3-60     | 6.6        | 60    | 4      | 1   | 13  | 15  |
| WSH6072* | 208/230V-1-60 | 30.1       | 170   | 7.6    | 1   | 46  | 70  |
|          | 208/230V-3-60 | 21.2       | 156.5 | 7.6    | 1   | 35  | 50  |
|          | 460V-3-60     | 9.1        | 74.8  | 4      | 1   | 16  | 20  |

# WSH6

## HORIZONTAL WATER SOURCE HEAT PUMP

### WATER PRESSURE DROP

|                |                     |     |      |      |
|----------------|---------------------|-----|------|------|
| <b>WSH6009</b> | Flow Rate (GPM)     | 1.1 | 1.7  | 2.3  |
|                | Pressure Drop (PSI) | 0.2 | 0.7  | 1.2  |
| <b>WSH6012</b> | Flow Rate (GPM)     | 1.5 | 2.5  | 3.0  |
|                | Pressure Drop (PSI) | 0.5 | 1.5  | 2.0  |
| <b>WSH6018</b> | Flow Rate (GPM)     | 2.3 | 3.4  | 4.5  |
|                | Pressure Drop (PSI) | 0.5 | 1.4  | 2.4  |
| <b>WSH6024</b> | Flow Rate (GPM)     | 3.0 | 4.5  | 6.0  |
|                | Pressure Drop (PSI) | 0.3 | 1.1  | 2.0  |
| <b>WSH6030</b> | Flow Rate (GPM)     | 3.8 | 5.6  | 7.5  |
|                | Pressure Drop (PSI) | 1.0 | 2.1  | 3.5  |
| <b>WSH6036</b> | Flow Rate (GPM)     | 4.5 | 6.8  | 9.0  |
|                | Pressure Drop (PSI) | 0.3 | 1.3  | 2.4  |
| <b>WSH6042</b> | Flow Rate (GPM)     | 5.3 | 7.9  | 10.5 |
|                | Pressure Drop (PSI) | 0.3 | 1.6  | 2.8  |
| <b>WSH6048</b> | Flow Rate (GPM)     | 6.0 | 9.0  | 12.0 |
|                | Pressure Drop (PSI) | 1.1 | 2.2  | 3.5  |
| <b>WSH6060</b> | Flow Rate (GPM)     | 7.5 | 11.3 | 15.0 |
|                | Pressure Drop (PSI) | 1.4 | 3.2  | 5.3  |
| <b>WSH6072</b> | Flow Rate (GPM)     | 9.0 | 13.5 | 18.0 |
|                | Pressure Drop (PSI) | 1.6 | 3.0  | 5.1  |

All values based on pure water at 70°F

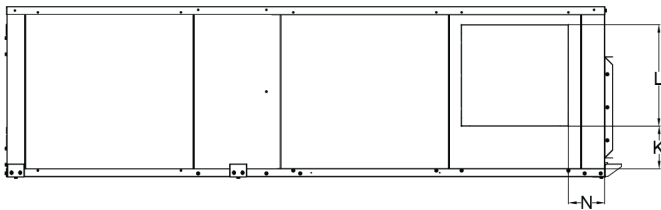
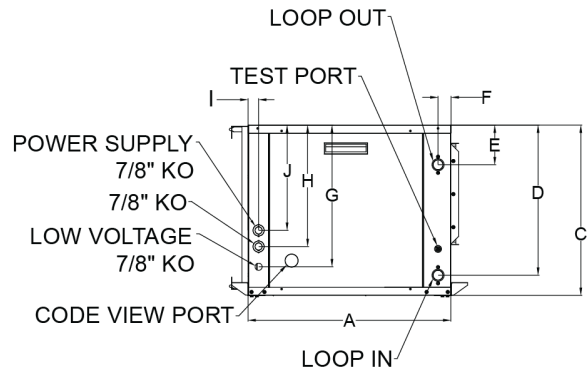
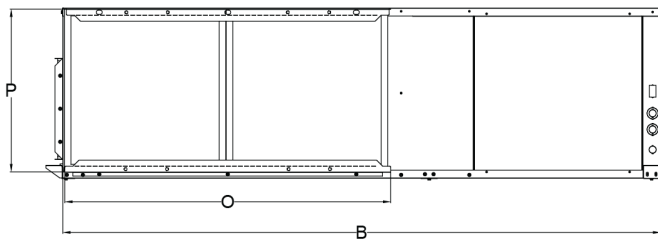
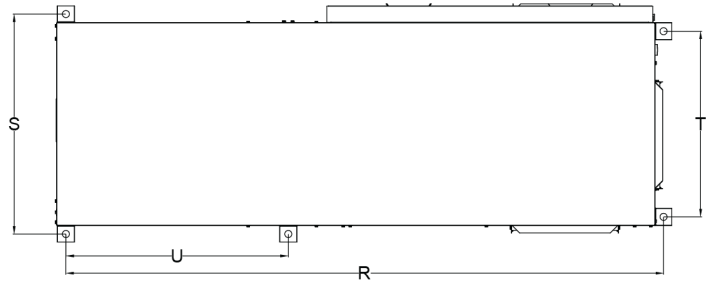
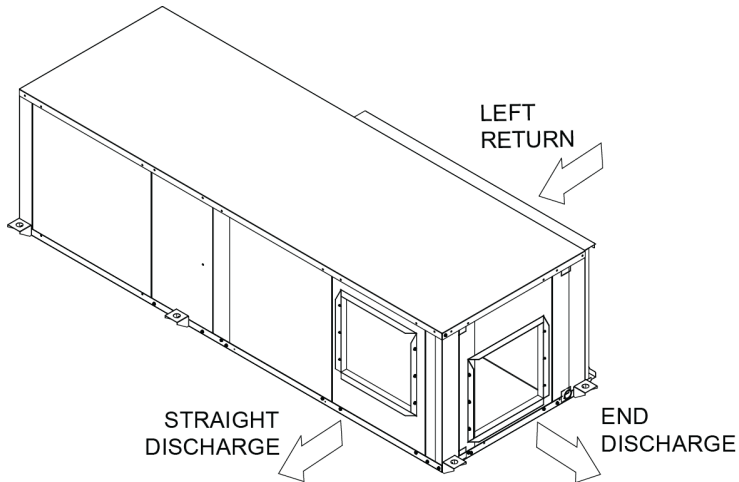
### WATER PRESSURE DROP WITH ECONOMIZER OPTION

|                    |                             |      |      |       |
|--------------------|-----------------------------|------|------|-------|
| <b>WSH6042-ECO</b> | Flow Rate (GPM)             | 5.3  | 7.9  | 10.5  |
|                    | Eco. Coil Press. Drop (PSI) | 0.26 | 0.64 | 1.08  |
|                    | System Press. Drop (PSI)    | 1.55 | 3.35 | 5.64  |
| <b>WSH6048-ECO</b> | Flow Rate (GPM)             | 6.0  | 9.0  | 12.0  |
|                    | Eco. Coil Press. Drop (PSI) | 0.42 | 0.80 | 1.32  |
|                    | System Press. Drop (PSI)    | 2.1  | 4.3  | 7.4   |
| <b>WSH6060-ECO</b> | Flow Rate (GPM)             | 7.5  | 11.3 | 15.0  |
|                    | Eco. Coil Press. Drop (PSI) | 0.54 | 1.17 | 1.93  |
|                    | System Press. Drop (PSI)    | 3.13 | 6.76 | 11.82 |
| <b>WSH6072-ECO</b> | Flow Rate (GPM)             | 9.0  | 13.5 | 18.0  |
|                    | Eco. Coil Press. Drop (PSI) | 1.01 | 2.06 | 3.45  |
|                    | System Press. Drop (PSI)    | 5.3  | 9.8  | 17.2  |

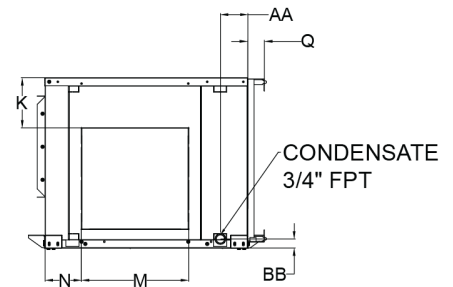
# WSH6

## HORIZONTAL WATER SOURCE HEAT PUMP

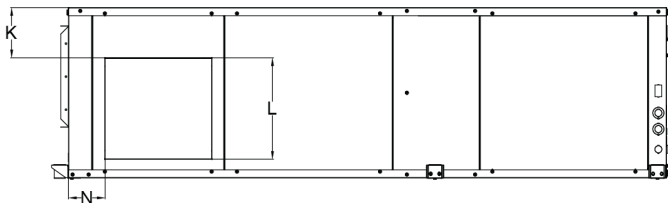
### DIMENSIONS



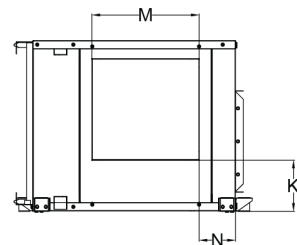
LEFT RETURN STRAIGHT DISCHARGE



LEFT RETURN END DISCHARGE



RIGHT RETURN STRAIGHT DISCHARGE



RIGHT RETURN END DISCHARGE

# WSH6

## HORIZONTAL WATER SOURCE HEAT PUMP

### DIMENSIONS (CONT'D)

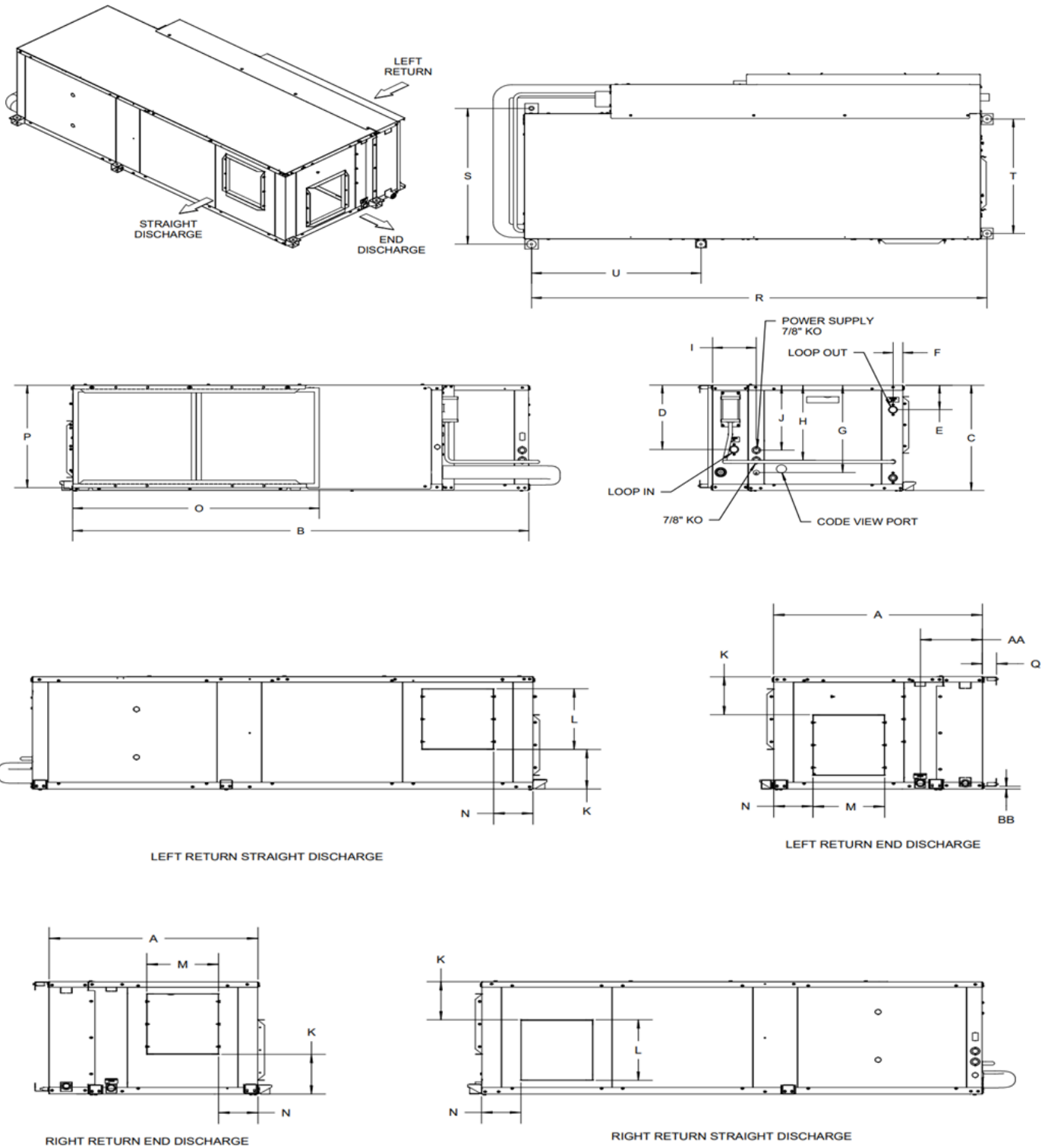
| Model   | Overall Cabinet |       |        | Water Connections |     |     | Loop In/<br>Out FTP | Electrical Knockouts |    |     |    |
|---------|-----------------|-------|--------|-------------------|-----|-----|---------------------|----------------------|----|-----|----|
|         | Width           | Depth | Height | Loop In/Out       |     |     |                     | G                    | H  | I   | J  |
|         | A               | B     | C      | D                 | E   | F   |                     |                      |    |     |    |
| WSH6009 | 22.1            | 41.1  | 17     | 14.6              | 4.9 | 1.6 | 3/4                 | 1.5                  | 11 | 1.2 | 9  |
| WSH6012 | 22.1            | 41.1  | 17     | 14.6              | 4.9 | 1.6 | 3/4                 | 1.5                  | 11 | 1.2 | 9  |
| WSH6018 | 22.1            | 48.1  | 17     | 14.6              | 4.9 | 1.6 | 3/4                 | 1.5                  | 11 | 1.2 | 9  |
| WSH6024 | 25.1            | 60.1  | 21     | 18.6              | 4.9 | 1.6 | 3/4                 | 17.5                 | 15 | 1.2 | 13 |
| WSH6030 | 25.1            | 60.1  | 21     | 18.6              | 4.9 | 1.6 | 3/4                 | 17.5                 | 15 | 1.2 | 13 |
| WSH6036 | 25.1            | 60.1  | 21     | 18.6              | 4.9 | 1.6 | 3/4                 | 17.5                 | 15 | 1.2 | 13 |
| WSH6042 | 25.1            | 74.1  | 21     | 18.6              | 4.9 | 1.6 | 1                   | 17.5                 | 15 | 1.2 | 13 |
| WSH6048 | 25.1            | 74.1  | 21     | 18.6              | 4.9 | 1.6 | 1                   | 17.5                 | 15 | 1.2 | 13 |
| WSH6060 | 25.1            | 74.1  | 21     | 18.6              | 4.9 | 1.6 | 1                   | 17.5                 | 15 | 1.2 | 13 |
| WSH6072 | 25.1            | 84.1  | 21     | 18.6              | 4.9 | 1.6 | 1                   | 17.5                 | 15 | 1.2 | 13 |

| Model   | Discharge Duct Flange |      |      |     | Return Duct Flange |      |   | Mounting Brackets Center Distances |      |      |      | Condensate 3/4" FTP |     |
|---------|-----------------------|------|------|-----|--------------------|------|---|------------------------------------|------|------|------|---------------------|-----|
|         | K                     | L    | M    | N   | O                  | P    | Q | R                                  | S    | T    | U    | AA                  | BB  |
| WSH6009 | 10.1                  | 3.9  | 9    | 5.6 | 20                 | 16.2 | 2 | 41                                 | 24.2 | 19.9 | -    | 3.4                 | 1.1 |
| WSH6012 | 10.1                  | 3.9  | 9    | 5.6 | 20                 | 16.2 | 2 | 41                                 | 24.2 | 19.9 | -    | 3.4                 | 1.1 |
| WSH6018 | 4.6                   | 11.4 | 9.7  | 4.8 | 25                 | 16.2 | 2 | 48                                 | 24.2 | 19.9 | -    | 3.4                 | 1.1 |
| WSH6024 | 6.9                   | 11.5 | 10.7 | 5.7 | 30                 | 20.3 | 2 | 60                                 | 27.2 | 22.9 | -    | 3.4                 | 1.1 |
| WSH6030 | 6.9                   | 11.5 | 10.7 | 5.7 | 30                 | 20.3 | 2 | 60                                 | 27.2 | 22.9 | -    | 3.4                 | 1.1 |
| WSH6036 | 6.9                   | 11.5 | 10.7 | 5.7 | 30                 | 20.3 | 2 | 60                                 | 27.2 | 22.9 | -    | 3.4                 | 1.1 |
| WSH6042 | 7.4                   | 11.5 | 10.7 | 5.7 | 40                 | 20.3 | 2 | 74                                 | 27.2 | 22.9 | 27.5 | 3.4                 | 1.1 |
| WSH6048 | 7.4                   | 11.5 | 13.1 | 4.6 | 40                 | 20.3 | 2 | 74                                 | 27.2 | 22.9 | 27.5 | 3.4                 | 1.1 |
| WSH6060 | 6                     | 12.5 | 13.3 | 4.5 | 40                 | 20.3 | 2 | 74                                 | 27.2 | 22.9 | 27.5 | 3.4                 | 1.1 |
| WSH6072 | 6                     | 12.5 | 13.3 | 4.5 | 50                 | 20.3 | 2 | 84                                 | 27.2 | 22.9 | 27.5 | 3.4                 | 1.1 |

# WSH6

## HORIZONTAL WATER SOURCE HEAT PUMP

### DIMENSIONS (CONT'D) ECONOMIZER OPTIONS



# WSH6

## HORIZONTAL WATER SOURCE HEAT PUMP

### DIMENSIONS (CONT'D) ECONOMIZER OPTIONS

| Model       | Overall Cabinet |       |        | Water Connections |     |     | Loop In/<br>Out FTP | Electrical Knockouts |    |     |    |
|-------------|-----------------|-------|--------|-------------------|-----|-----|---------------------|----------------------|----|-----|----|
|             | Width           | Depth | Height | Loop In/Out       |     |     |                     | G                    | H  | I   | J  |
|             | A               | B     | C      | D                 | E   | F   |                     |                      |    |     |    |
| WSH6042-ECO | 31.0            | 74.1  | 21     | 12.9              | 4.9 | 1.6 | 1.0                 | 17.5                 | 15 | 7.1 | 13 |
| WSH6048-ECO | 31.0            | 7.4   | 21     | 12.9              | 4.9 | 1.6 | 1.0                 | 17.5                 | 15 | 7.1 | 13 |
| WSH6060-ECO | 31.0            | 7.4   | 21     | 12.9              | 4.9 | 1.6 | 1.0                 | 17.5                 | 15 | 7.1 | 13 |
| WSH6072-ECO | 31.0            | 84.1  | 21     | 12.9              | 4.9 | 1.6 | 1.0                 | 17.5                 | 15 | 7.1 | 13 |

| Model       | Discharge Duct Flange |      |      |     | Return Duct Flange |      |   | Mounting Brackets Center Distances |      |      |      | Condensate 3/4"<br>FTP |     |
|-------------|-----------------------|------|------|-----|--------------------|------|---|------------------------------------|------|------|------|------------------------|-----|
|             | K                     | L    | M    | N   | O                  | P    | Q | R                                  | S    | T    | U    | AA                     | BB  |
| WSH6042-ECO | 7.4                   | 11.5 | 10.7 | 5.7 | 40                 | 20.3 | 2 | 74                                 | 27.2 | 22.9 | 27.5 | 9.2                    | 0.5 |
| WSH6048-ECO | 7.4                   | 11.5 | 13.1 | 4.6 | 40                 | 20.3 | 2 | 74                                 | 27.2 | 22.9 | 27.5 | 9.2                    | 0.5 |
| WSH6060-ECO | 6.0                   | 12.4 | 13.3 | 4.5 | 40                 | 20.3 | 2 | 74                                 | 27.2 | 22.9 | 27.5 | 9.2                    | 0.5 |
| WSH6072-ECO | 6.0                   | 12.5 | 13.3 | 4.5 | 50                 | 20.3 | 2 | 84                                 | 27.2 | 22.9 | 27.5 | 9.2                    | 0.5 |



# WSH6

## HORIZONTAL WATER SOURCE HEAT PUMP

### ECONOMIZER PERFORMANCE DATA

| Model       | Rated Air Flow | GPM  | Cooling Capacity (Btu/Hr) |
|-------------|----------------|------|---------------------------|
| WSH6042-ECO | 1400           | 10.5 | 40,000                    |
| WSH6048-ECO | 1500           | 12.0 | 44,000                    |
| WSH6060-ECO | 1750           | 15.0 | 51,000                    |
| WSH6072-ECO | 2100           | 18.0 | 62,500                    |

Cooling capacities for Economizer based on 80.6°F DB, 66.2°F WB entering air temperature and 45°F entering water temperature.  
All ratings based upon operation at lower voltage of dual voltage rated models

# WSH6

## HORIZONTAL WATER SOURCE HEAT PUMP

### ECONOMIZER PERFORMANCE DATA (CONT'D)

| Size | EWT | EAT<br>(dbt/wbt) | CFM  | GPM   | Total Capacity | Sensible Capacity |
|------|-----|------------------|------|-------|----------------|-------------------|
| 042  | 45  | 80.6 / 66.2      | 1050 | 5.3   | 20,516         | 20,087            |
|      |     |                  | 1225 |       | 24,335         | 24,335            |
|      |     |                  | 1400 |       | 26,103         | 26,103            |
|      |     |                  | 1050 | 7.9   | 27,750         | 22,812            |
|      |     |                  | 1225 |       | 31,987         | 28,079            |
|      |     |                  | 1400 |       | 33,587         | 30,896            |
|      |     |                  | 1050 | 10.5  | 31,829         | 24,499            |
|      |     |                  | 1225 |       | 37,610         | 30,409            |
|      |     |                  | 1400 |       | 40,033         | 33,413            |
| 048  | 45  | 80.6 / 66.2      | 1200 | 6     | 25,745         | 25,509            |
|      |     |                  | 1500 |       | 28,990         | 28,990            |
|      |     |                  | 1600 |       | 29,967         | 29,967            |
|      |     |                  | 1200 | 9     | 34,176         | 28,674            |
|      |     |                  | 1500 |       | 37,481         | 33,467            |
|      |     |                  | 1600 |       | 38,301         | 35,028            |
|      |     |                  | 1200 | 12    | 39,592         | 30,893            |
|      |     |                  | 1500 |       | 44,152         | 36,155            |
|      |     |                  | 1600 |       | 45,419         | 37,776            |
| 060  | 45  | 80.6 / 66.2      | 1500 | 7.50  | 31,509         | 30,465            |
|      |     |                  | 1750 |       | 33,703         | 33,703            |
|      |     |                  | 2000 |       | 36,218         | 36,218            |
|      |     |                  | 1500 | 11.30 | 41,307         | 34,133            |
|      |     |                  | 1750 |       | 44,051         | 38,111            |
|      |     |                  | 2000 |       | 41,724         | 41,680            |
|      |     |                  | 1500 | 15.00 | 47,202         | 36,547            |
|      |     |                  | 1750 |       | 51,058         | 40,784            |
|      |     |                  | 2000 |       | 54,249         | 44,684            |
| 072  | 45  | 80.6 / 66.2      | 1800 | 9     | 42,011         | 39,173            |
|      |     |                  | 2100 |       | 44,177         | 43,836            |
|      |     |                  | 2400 |       | 47,387         | 47,387            |
|      |     |                  | 1800 | 13.5  | 52,780         | 43,529            |
|      |     |                  | 2100 |       | 56,426         | 48,517            |
|      |     |                  | 2400 |       | 59,496         | 53,069            |
|      |     |                  | 1800 | 18    | 59,896         | 46,105            |
|      |     |                  | 2100 |       | 62,500         | 51,623            |
|      |     |                  | 2400 |       | 68,949         | 56,591            |

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# WSH6

## HORIZONTAL WATER SOURCE HEAT PUMP

### GUIDE SPECIFICATION

#### GENERAL

Equipment is completely assembled, piped, internally wired, fully charged with R454B refrigerant and factory tested. Filters, thermostat field interfaces, and all safety controls are factory installed.

Units shall be capable of operating over entering fluid temperature ranges of 50°F- 110°F in cooling mode and 50°F- 90°F in heating mode in standard configuration.

For Economizer option; entering fluid temperature ranges can be 35°F- 110°F.

### UNIT CONSTRUCTION

#### CONFIGURATIONS

Horizontal units are configurable in the following arrangements: left return/end discharge, left return/side discharge, right return/end discharge, right return/side discharge.

For all systems, water, refrigerant and electrical connections are accessible from the front service access panel.

#### CABINET CONSTRUCTION

Units are built with a corner post and base design using a minimum of 18 gauge galvanized steel on any weight bearing component. Corner posts and panels are designed to allow for service access to all internal components. Structural integrity of the cabinets is unaffected by the removal of any or all of the access panels.

Air handling section interior surfaces are lined with 1" thick foil faced insulation. The insulation is placed such that there is no exposed section of the fiberglass fibers into the airstream.

The condensing section interior surfaces are lined with 1" on the condensing section base pan, mid pan, and all lower access panels.

#### SERVICE CONNECTIONS

Water connections are accessible from the front of the unit. Water connections shall be made through factory installed brass FPT fittings which will be flush to the water panel. The water fittings shall be rigidly attached to the corner posts to forgo the use of a backup wrench when connecting the supply water.

#### SUPPLY AIR CONNECTIONS

Horizontal systems have 1" integral supply duct collars to allow for connection of the supply duct. All duct collars are installed on the unit from the factory.

#### DRAIN PAN

All units, except WSH6072 (stainless steel), use a thermoplastic drain pan to increase corrosion resistance with the drain pan port located near the back of the unit. The drain pan will be internally two-way sloped, with the drain port located near the front of the unit. The unit comes standard with an electronic condensate overflow sensor attached to the edge of the drain pan.

Economizer option has a 2nd drain pan with 2nd condensate overflow sensor attached.

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# WSH6

## HORIZONTAL WATER SOURCE HEAT PUMP

### REFRIGERATION CIRCUIT

#### GENERAL

All systems use R454B refrigerant. All units have factory charged refrigeration circuits, each with its own compressor, reversing valve, bi-flow TXV, coaxial heat exchanger and finned tube refrigerant to air heat exchanger. Each circuit includes a high pressure switch, low pressure switch, and heat exchanger freeze sensors. The circuits each have a high-side and low-side Schrader valve to allow for service access to the refrigeration systems. All service ports are accessible from the front of the unit.

#### COMPRESSOR

All systems use a high efficiency compressor. The scroll compressor is attached to a 12 gauge double-isolated compressor mounting plate to dampen vibration throughout the system.

For additional sound attenuation, an optional sound package is available which offers a compressor blanket.

#### COAXIAL HEAT EXCHANGER

The systems use one high efficiency coaxial heat exchanger. The coaxial heat exchanger is designed for working refrigerant pressures up to 600psi and working water pressures up to 400psi. The heat exchanger is coated in an epoxy resin to protect against corrosion.

Optional cupro-nickel coaxial heat exchangers are offered to provide additional corrosion resistance in certain hard water and open loop applications.

#### REVERSING VALVE

A system reversing valve (4-way valve) is included with all heat pump systems. The valve is piped to be energized in cooling mode to provide heat if a valve failure were to occur. Once the valve is energized in cooling mode, it will remain energized as long as the "O" call is provided to the unit control board.

#### THERMOSTATIC EXPANSION VALVE

Each independent refrigeration circuit has its own balanced port, externally equalized bi-flow thermostatic expansion valve. The thermostatic expansion valve has sweat connections on the inlet/outlet and feature a screw on equalizer port connection.

#### EVAPORATOR COIL

Internally finned, 3/8-inch copper tubes mechanically bonded to a configured aluminum finned plate is standard. Coils are leak tested at the factory to ensure the pressure integrity. The coils are leak tested to 450 psig and pressure tested to 650 psig. The tubes are completely evacuated of air and correctly charged with proper volume of refrigerant prior to shipment. The refrigerant coil distributor assembly is of orifice style with round copper distributor tubes. The tubes are sized consistently with the capacity of the coil. Suction header is fabricated from rounded copper pipe.

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# WSH6

## HORIZONTAL WATER SOURCE HEAT PUMP

### ELECTRICAL AND CONTROLS

#### GENERAL

All units have a control box mounted in the condensing section compartment which houses all necessary electrical components for unit operation. This control box serves as the location for wiring of the high voltage and low voltage circuits for unit operation.

The unit is controlled via 24V low voltage terminals, which connects to an external thermostat or controller which will control the heating and cooling provided by the unit.

The electrical control box contains the following components.

1. Compressor Contactors
2. Blower motor contactors
3. Control Board
4. Low Voltage Wiring Connections
5. High Voltage terminal block
6. 24V Transformer for low voltage control
7. Phase monitor
8. Ground Connection

#### WATER SOURCE CONTROL MODULE

All units will come standard with a WSCM electromechanical module that will control unit operation and contain safety features to protect the compressors, coaxial heat exchangers and fin-tube heat exchangers. The board will contain the following features:

1. Single cooling and Single heating control modes for optimal temperature and pressure control
2. Anti-short cycle protection
3. Random sequencing start timer
4. High and Low Pressure Safeties
5. Water Coil Freeze Protection
6. Air-coil Freeze protection
7. Over/under voltage protection
8. Fault Retry
9. Lockout with soft and hard reset
10. Condensate overflow sensor
11. Diagnostic LED display
12. Test Mode
13. Alarm Relay
14. Accessory Relays

#### UNIVERSAL TEMPERATURE CONTROLLER (ECONOMIZER OPTION)

Economizer option comes with a universal temperature controller, which continuously monitors incoming fluid temperatures. Shall incoming fluid temperature falls to 50°F 0F or below, in cooling mode, it deactivates compressor and turn on motorized 3-way valve, which directs fluid flow to Economizer coil. In Economizer mode all cooling comes from Economizer, saving energy.

#### MOTORIZED 3-WAY VALVE (ECONOMIZER OPTION)

Economizer option comes with a motorized 3-way valve, factory wired, which automatically directs fluid to Economizer or divert it to COAX, based on controller signal.



YOUR VISION. YOUR BUILD. OUR EXPERTISE.



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