

TRANQUILITY[®]
LARGE VERTICAL
(TLV) SERIES
SUBMITTAL DATA

MODELS TLV084 - 300
50Hz - HFC-410A

ENGLISH LANGUAGE/S-I UNITS



Revised: 08 February, 2012



SUBMITTAL DATA - S-I UNITS

Unit Designation: _____

Job Name: _____

Architect: _____

Engineer: _____

Contractor: _____

PERFORMANCE DATA

Cooling Capacity: _____ kW

EER: _____

Heating Capacity: _____ kW

COP: _____

Ambient Air Temp: _____ °C

Entering Water Temp (Clg): _____ °C

Entering Air Temp (Clg): _____ °C

Entering Water Temp (Htg): _____ °C

Entering Air Temp (Htg): _____ °C

Airflow: _____ l/s

Fan Speed or Motor/RPM/Turns: _____

Operating Weight: _____ (kg)

ELECTRICAL DATA

Power Supply: _____ Volts Phase Hz

Minimum Circuit Ampacity: _____

Maximum Overcurrent Protection: _____

ClimateMaster works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice and may not be as described herein. Please contact ClimateMaster's Customer Service Department at +1-405-745-6000 for specific information on the current design and specifications. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely ClimateMaster's opinion or commendation of its products. The latest version of this document is available at climatemaster.com.





***Page Number**

| | |
|--|----|
| Unit Features | 3 |
| Selection Procedure | 4 |
| TLV Series Nomenclature | 5 |
| Performance Data - AHRI/ASHRAE/ISO 13256-1 | 6 |
| Performance Data Selection Notes | 7 |
| Performance Data - TLV084 | 8 |
| Performance Data - TLV096 | 9 |
| Performance Data - TLV120 | 10 |
| Performance Data - TLV150 | 11 |
| Performance Data - TLV168 | 12 |
| Performance Data - TLV192 | 13 |
| Performance Data - TLV240 | 14 |
| Performance Data - TLV300 | 15 |
| TLV Performance Data Correction Tables | 16 |
| Antifreeze Correction Table | 16 |
| Blower Performance Data - TLV084 - Standard Unit | 17 |
| Blower Performance Data - TLV096 - Standard Unit | 18 |
| Blower Performance Data - TLV120 - Standard Unit | 19 |
| Blower Performance Data - TLV150 - Standard Unit | 21 |
| Blower Performance Data - TLV168 - Standard Unit | 23 |
| Blower Performance Data - TLV192 - Standard Unit | 24 |
| Blower Performance Data - TLV240 - Standard Unit | 25 |
| Blower Performance Data - TLV300 - Standard Unit | 27 |
| TLV Physical Data | 29 |
| TLV084-150 Dimensional Data | 30 |
| TLV168-300 Dimensional Data | 31 |
| TLV Electrical Data Standard | 32 |
| TLV Electrical Data Dual Point Power | 32 |
| TLV Series Wiring Diagram Matrix | 33 |
| Typical Wiring Diagrams | 34 |
| Tranquility® Large Vertical (TLV) Series 50Hz Engineering Specifications | 36 |
| Revision History | 44 |

*Document page number is shown next to part number (e.g. LC810 - 3 = page 3). Since not all pages are typically used in the submittals process, the page number in the lower right corner can still be used (page ____ of ____).



THE TRANQUILITY® LARGE VERTICAL (TLV) SERIES

The award winning Tranquility® Large Vertical (TLV) Series raises the bar for water-source heat pump efficiencies, features and application flexibility. Not only does the Tranquility® Large Vertical (TLV) Series exceed ASHRAE 90.1 efficiencies, but it also uses EarthPure® (HFC-410A) zero ozone depletion refrigerant, making it an extremely environmentally-friendly option. Tranquility® Large Series is eligible for additional LEED® (Leadership in Energy and Environmental Design) points because of the "green" technology design.

UNIT FEATURES

- Vertical sizes 084 (24.6 kW) through 300 (87.9 kW)
- Unit configuration can be ordered with, or converted to front or back return and top, front, or back discharge. Field conversion uses all existing parts including panels and belts
- Electrical box can be field converted to be on front or back of unit
- Electric power can enter from any side of unit
- Water and drain can be connected to either side
- Dual refrigeration circuits (TLV168, 192, 240, 300)
- Exceeds ASHRAE 90.1 efficiencies
- TXV metering device
- Extended range (-6.7 to 48.9 °C operation)
- Microprocessor controls standard (optional DXM and/or DDC controls)
- LonWorks, BACnet, Modbus and Johnson N2 compatibility options for DDC controls
- Unit Performance Sentinel performance monitoring system
- Belt drive blowers with high efficiency motors and multiple pulley adjustment
- 25, 50, or 100 mm Full Filter Rack with bottom access

OPTIONS INCLUDE

- Hot gas bypass
- Dual point power
- Coated air coil
- Internal motorized valve
- Internal secondary pump
- UltraQuiet
- Extended range insulation
- Cupro-nickel water coil
- Stainless steel drain pan



Legend and Glossary of Abbreviations

| | |
|--|---------------------------------------|
| l/s = airflow or water flow, liters per second | LAT = leaving air temperature, °C |
| COP = coefficient of performance, W/W | LC = latent cooling capacity, kW |
| DB = dry bulb temperature, °C | LWT = leaving water temperature, °C |
| EAT = entering air temperature, °C (dry bulb/wet bulb) | S/T = sensible to total cooling ratio |
| EER = energy efficiency ratio = Watt output/Watt input | SC = sensible cooling capacity, kW |
| FPT = female pipe thread (U.S) | TC = total cooling capacity, kW |
| MPT = male pipe thread (U.S) | WB = wet bulb temperature, °C |
| ESP = external static pressure, kPa | WPD = waterside pressure drop (kPa) |
| EWT = entering water temperature, °C | ΔT = temperature difference, °C |
| HE = total heat of extraction, kW | kW = kilowatt = 1000 Watts |
| HC = air heating capacity, kW | kPa = kilopascal = 1000 Pascals |
| HR = total heat of rejection, kW | m/s = meters per second |



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

TL
V
096
A
U
F
1
A
C
BT
S

MODEL TYPE
TL = TRANQUILITY® LARGE COMMERCIAL

CONFIGURATION
V = VERTICAL

UNIT SIZE
084
096
120
150
168
192
240
300

REVISION LEVEL
A = CURRENT

VOLTAGE
U = 380-420/50/3 - R410A

CONTROLS
F = CXM
G = DXM
H = CXM w/ LON
J = DXM w/ LON
T = CXM w/ MPC
U = DXM w/ MPC

CE APPROVED EUROPE

SPECIAL OPTIONS
S = STANDARD
A = DUAL POINT POWER
B = HOT GAS BYPASS
C = DUAL POINT POWER + HOT GAS BYPASS

AIR FLOW OPTIONS
BF = BACK RETURN / FRONT SUPPLY
BT = BACK RETURN / TOP SUPPLY
FB = FRONT RETURN / BACK SUPPLY
FT = FRONT RETURN / TOP SUPPLY
YF = BACK RETURN / FRONT SUPPLY + SS DRAIN PAN
ZB = FRONT RETURN / BACK SUPPLY + SS DRAIN PAN
ZT = FRONT RETURN / TOP SUPPLY + SS DRAIN PAN

**HEAT EXCHANGER /
MOTORIZED VALVE OPTIONS**

| OPTION | COPPER WATER COOL | CUPRONICKEL WATER COOL | NON COATED AIR COIL | COATED AIR COIL | MTRZD VALVE (WATER OUT) |
|--------|-------------------|------------------------|---------------------|-----------------|-------------------------|
| A | YES | NO | NO | YES | |
| C | | | YES | NO | |
| J | NO | YES | NO | YES | NO |
| N | | | YES | NO | |
| U | YES | NO | NO | YES | |
| T | | | YES | NO | |
| W | | | NO | | YES |
| S | NO | YES | YES | NO | |

BLOWER DRIVE PACKAGE
A = STANDARD RPM & STANDARD MOTOR
B = LOW & RPM & STANDARD MOTOR
C = HIGH RPM & STANDARD MOTOR
E = HIGH RPM & LARGE MOTOR

CABINET INSULATION / FILTER RACK

| OPTION | RANGE | ULTRA QUIET | 1" FILTER RACK | 2" FILTER RACK | 4" FILTER RACK |
|--------|-------|-------------|----------------|----------------|----------------|
| 1 | | | YES | | NO |
| A | | NO | NO | YES | NO |
| B | | NO | | NO | YES |
| 2 | | YES | | | NO |
| C | | NO | NO | YES | NO |
| D | | | NO | | YES |
| 3 | | | YES | | NO |
| E | | NO | NO | YES | NO |
| F | | | NO | | YES |
| 4 | | YES | | | NO |
| G | | NO | NO | YES | NO |
| H | | | NO | | YES |



AHRI/ASHRAE/ISO 13256-1. Metric (S-I) Units

| Model | Water Loop Heat Pump | | | | Ground Water Heat Pump | | | | Ground Loop Heat Pump | | | |
|--------|----------------------|---------|--------------|-----|------------------------|---------|--------------|-----|-----------------------|---------|-------------|-----|
| | Cooling 30°C | | Heating 20°C | | Cooling 15°C | | Heating 10°C | | Cooling 25°C | | Heating 0°C | |
| | Capacity kW | EER W/W | Capacity kW | COP | Capacity kW | EER W/W | Capacity kW | COP | Capacity kW | EER W/W | Capacity kW | COP |
| TLV084 | 22.01 | 4.9 | 26.88 | 5.3 | 23.68 | 6.7 | 22.13 | 4.7 | 22.10 | 5.3 | 17.53 | 4.0 |
| TLV096 | 24.97 | 4.8 | 31.01 | 5.2 | 27.52 | 6.6 | 25.21 | 4.6 | 25.15 | 5.1 | 19.34 | 3.8 |
| TLV120 | 31.65 | 4.8 | 38.19 | 5.3 | 35.96 | 6.7 | 30.48 | 4.6 | 31.77 | 5.1 | 24.41 | 3.9 |
| TLV150 | 40.06 | 4.5 | 48.65 | 5.1 | 45.93 | 6.4 | 39.92 | 4.5 | 40.71 | 4.9 | 30.78 | 3.8 |
| TLV168 | 44.02 | 4.9 | 53.75 | 5.3 | 47.36 | 6.7 | 44.26 | 4.7 | 44.20 | 5.3 | 35.05 | 4.0 |
| TLV192 | 49.94 | 4.8 | 62.02 | 5.2 | 55.04 | 6.6 | 50.41 | 4.6 | 50.29 | 5.1 | 38.69 | 3.8 |
| TLV240 | 63.31 | 4.8 | 76.38 | 5.3 | 71.92 | 6.7 | 60.96 | 4.6 | 63.54 | 5.1 | 48.83 | 3.9 |
| TLV300 | 80.13 | 4.5 | 97.31 | 5.1 | 91.85 | 6.4 | 79.84 | 4.5 | 81.42 | 4.9 | 61.55 | 3.8 |

Cooling capacities based upon 27°C DB, 19°C WB entering air temperature.
 Heating capacities based upon 20°C DB, 15°C WB entering air temperature.
 All ratings based upon operation at lower voltage of dual voltage rated models.
 All TLV084 ratings at 1321 l/s with sheave settings at 3.5 turns open.
 All TLV096 ratings at 1510 l/s with sheave settings at 3.5 turns open.
 All TLV120 ratings at 1888 l/s with sheave settings at 3.5 turns open.



For operation in the shaded area when water is used in lieu of an antifreeze solution, the LWT (Leaving Water Temperature) must be calculated. Flow must be maintained to a level such that the LWT is maintained above 5°C when the JW3 jumper is not clipped (see example below). This is due to the potential of the refrigerant temperature being as low as 0°C with 5°C LWT, which may lead to a nuisance cutout due to the activation of the Low Temperature Protection. JW3 should never be clipped for standard range equipment or systems without antifreeze.

Example:

At 10°C EWT (Entering Water Temperature) and 0.63 l/s (minimum flow rate), a TLV096 unit has a HE of 18.74 kW. To calculate LWT, rearrange the formula for HE as follows:

$$HE = TD \times \text{Flow} \times 4.18$$

where HE = Heat of Extraction (kW); TD = temperature difference (EWT - LWT); and

Flow = Water Flow Rate in l/s

$$TD = HE / (\text{l/s} \times 4.18)$$

$$TD = 18.74 / (0.63 \times 4.18)$$

$$TD = 7.1^\circ\text{C}$$

$$LWT = EWT - TD$$

$$LWT = 10 - 7.1 = 2.9^\circ\text{C}$$

In this example, LWT is below 5°C. Antifreeze will be required.

| HEATING - EAT 20°C | | | | | |
|--------------------|----------|----------|----------|-----------|-----|
| ER W/W | HC KW | PI KW | HE KW | LAT °C | COP |
| | 18.05 | 5.54 | 12.51 | 33.3 | 3.3 |
| 6.9 | 19.31 | 5.62 | 13.69 | 34.5 | 3.4 |
| 7.2 | 20.20 | 5.68 | 14.52 | 35.3 | 3.6 |
| 7.4 | 20.70 | 5.71 | 14.99 | 35.7 | 3.6 |
| 6.4 | 22.14 | 5.80 | 16.34 | 37.0 | 3.8 |
| 6.8 | 23.27 | 5.87 | 17.41 | 38.1 | 4.0 |
| 7.0 | 23.91 | 5.90 | 18.00 | 38.7 | 4.0 |
| | 24.69 | 5.95 | 18.74 | 39.4 | 4.1 |
| | 26.04 | 6.03 | 20.00 | 40.6 | |
| | | 6.08 | 20.71 | | |

TLV SERIES 50HZ - HFC-410A SUBMITTAL DATA ENG/S-I



Performance Data TLV084

991 l/s Nominal Airflow Heating & Cooling

Performance capacities shown in kW

| WATER / BRINE | | | COOLING - EAT 27/19 °C | | | | | | HEATING - EAT 20°C | | | | | *WPD Adder for Motorized Water Valve TLV 084 Cv=37 MOPD = 150 | | | |
|---------------|---------------------------|--------|---------------------------|-------|-----------|-------|-------|---------|---------------------------|-------|-------|--------|-----|---|------|------|--------|
| EWT °C | FLOW l/s | PD kPa | TC kW | SC kW | S/T Ratio | PI kW | HR kW | EER W/W | HC kW | PI kW | HE kW | LAT °C | COP | | | Flow | PD kPa |
| -5 | 1.10 | 48.98 | Operation Not Recommended | | | | | | 15.53 | 4.48 | 11.04 | 31.9 | 3.5 | | | | |
| 0 | 0.55 | 11.65 | 21.59 | 14.40 | 0.67 | 3.23 | 24.81 | 6.7 | 16.57 | 4.57 | 12.00 | 32.8 | 3.6 | 0.55 | 0.55 | | |
| | 0.83 | 26.68 | 20.50 | 13.58 | 0.66 | 2.98 | 23.48 | 6.9 | 17.28 | 4.63 | 12.65 | 33.4 | 3.7 | | | 0.83 | 1.24 |
| | 1.10 | 45.09 | 19.86 | 13.12 | 0.66 | 2.86 | 22.72 | 6.9 | 17.67 | 4.66 | 13.01 | 33.8 | 3.8 | | | 1.10 | 2.21 |
| 5 | 0.55 | 10.36 | 22.64 | 15.26 | 0.67 | 3.59 | 26.23 | 6.3 | 18.93 | 4.77 | 14.16 | 34.9 | 4.0 | | | | |
| | 0.83 | 24.23 | 22.07 | 14.77 | 0.67 | 3.36 | 25.43 | 6.6 | 19.86 | 4.85 | 15.01 | 35.7 | 4.1 | | | | |
| | 1.10 | 41.19 | 21.68 | 14.46 | 0.67 | 3.25 | 24.92 | 6.7 | 20.37 | 4.89 | 15.48 | 36.2 | 4.2 | | | | |
| 10 | 0.55 | 9.62 | 22.97 | 15.63 | 0.68 | 3.89 | 26.86 | 5.9 | 21.12 | 4.96 | 16.16 | 36.9 | 4.3 | | | | |
| | 0.83 | 22.66 | 22.79 | 15.38 | 0.68 | 3.66 | 26.45 | 6.2 | 22.22 | 5.05 | 17.17 | 37.8 | 4.4 | | | | |
| | 1.10 | 38.87 | 22.59 | 15.20 | 0.67 | 3.55 | 26.14 | 6.4 | 22.83 | 5.10 | 17.73 | 38.4 | 4.5 | | | | |
| 15 | 0.55 | 6.51 | 22.75 | 15.62 | 0.69 | 4.18 | 26.93 | 5.4 | 23.38 | 5.15 | 18.22 | 38.9 | 4.5 | | | | |
| | 0.83 | 17.54 | 22.86 | 15.56 | 0.68 | 3.95 | 26.81 | 5.8 | 24.63 | 5.26 | 19.37 | 40.0 | 4.7 | | | | |
| | 1.10 | 31.65 | 22.83 | 15.48 | 0.68 | 3.83 | 26.66 | 6.0 | 25.31 | 5.32 | 20.00 | 40.6 | 4.8 | | | | |
| 20 | 0.55 | 5.99 | 22.25 | 15.50 | 0.70 | 4.53 | 26.78 | 4.9 | 25.99 | 5.38 | 20.61 | 41.2 | 4.8 | | | | |
| | 0.83 | 16.45 | 22.63 | 15.60 | 0.69 | 4.29 | 26.91 | 5.3 | 27.37 | 5.50 | 21.87 | 42.4 | 5.0 | | | | |
| | 1.10 | 30.11 | 22.75 | 15.61 | 0.69 | 4.17 | 26.92 | 5.5 | 28.11 | 5.57 | 22.55 | 43.1 | 5.1 | | | | |
| 25 | 0.55 | 5.48 | 21.64 | 15.28 | 0.71 | 4.87 | 26.50 | 4.4 | 28.26 | 5.58 | 22.68 | 43.2 | 5.1 | | | | |
| | 0.83 | 15.36 | 22.17 | 15.47 | 0.70 | 4.61 | 26.78 | 4.8 | 29.69 | 5.71 | 23.98 | 44.5 | 5.2 | | | | |
| | 1.10 | 28.57 | 22.40 | 15.54 | 0.69 | 4.48 | 26.89 | 5.0 | 30.43 | 5.78 | 24.65 | 45.1 | 5.3 | | | | |
| 30 | 0.55 | 5.16 | 20.74 | 14.92 | 0.72 | 5.27 | 26.02 | 3.9 | 30.56 | 5.79 | 24.76 | 45.3 | 5.3 | | | | |
| | 0.83 | 14.83 | 21.40 | 15.18 | 0.71 | 4.99 | 26.38 | 4.3 | 31.93 | 5.93 | 26.01 | 46.5 | 5.4 | | | | |
| | 1.10 | 27.82 | 21.70 | 15.29 | 0.70 | 4.85 | 26.55 | 4.5 | 32.61 | 6.00 | 26.61 | 47.1 | 5.4 | | | | |
| 35 | 0.55 | 4.84 | 19.76 | 14.52 | 0.74 | 5.71 | 25.47 | 3.5 | Operation Not Recommended | | | | | | | | |
| | 0.83 | 14.31 | 20.46 | 14.81 | 0.72 | 5.39 | 25.85 | 3.8 | | | | | | | | | |
| | 1.10 | 27.08 | 20.91 | 14.94 | 0.71 | 5.24 | 26.04 | 4.0 | | | | | | | | | |
| 40 | 0.55 | 4.52 | 18.74 | 14.14 | 0.75 | 6.21 | 24.96 | 3.0 | Operation Not Recommended | | | | | | | | |
| | 0.83 | 13.78 | 19.45 | 14.41 | 0.74 | 5.86 | 25.30 | 3.3 | | | | | | | | | |
| | 1.10 | 26.33 | 19.69 | 14.50 | 0.74 | 5.69 | 25.49 | 3.5 | | | | | | | | | |
| 45 | Operation Not Recommended | | | | | | | | | | | | | | | | |
| | 0.83 | 13.26 | 18.39 | 14.01 | 0.76 | 6.41 | 24.80 | 2.9 | | | | | | | | | |
| | 1.10 | 25.58 | 18.73 | 14.14 | 0.75 | 6.22 | 24.95 | 3.0 | | | | | | | | | |

Interpolation is permissible; extrapolation is not.

All entering air conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating.

AHRI/ISO certified conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating.

Table does not reflect fan or pump power corrections for AHRI/ISO conditions.

All performance data is based upon the lower voltage of dual voltage rated units.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

Operation below 4°C EWT is based upon a 15% methanol antifreeze solution.

Operation below 16°C EWT requires optional insulated water/refrigerant circuit.

See performance correction tables for operating conditions other than those listed above.

Gray shaded area refers to calculations required to determine if heating water flow is sufficient for non-antifreeze systems.

TLV SERIES 50HZ - HFC-410A SUBMITTAL DATA ENG/S-I



**Performance Data
TLV096**

1133 l/s Nominal Airflow Heating & Cooling

Performance capacities shown in kW

| WATER / BRINE | | | COOLING - EAT 27/19 °C | | | | | | HEATING - EAT 20°C | | | | | *WPD Adder for Motorized Water Valve TLV 096 Cv=37 MOPD = 150 | | |
|---------------|---------------------------|--------|---------------------------|-------|-----------|-------|-------|---------|---------------------------|---------------------------|-------|--------|-----|---|--------|--|
| EWT °C | FLOW l/s | PD kPa | TC kW | SC kW | S/T Ratio | PI kW | HR kW | EER W/W | HC kW | PI kW | HE kW | LAT °C | COP | | | |
| -5 | 1.26 | 49.8 | Operation Not Recommended | | | | | | 18.05 | 5.54 | 12.51 | 33.3 | 3.3 | | | |
| 0 | 0.63 | 10.5 | 28.56 | 19.36 | 0.68 | 4.12 | 32.68 | 6.9 | 19.31 | 5.62 | 13.69 | 34.5 | 3.4 | Flow | PD kPa | |
| | 0.95 | 25.7 | 28.55 | 19.39 | 0.68 | 3.94 | 32.48 | 7.2 | 20.20 | 5.68 | 14.52 | 35.3 | 3.6 | 0.63 | 0.76 | |
| | 1.26 | 45.3 | 28.46 | 19.38 | 0.68 | 3.86 | 32.32 | 7.4 | 20.70 | 5.71 | 14.99 | 35.7 | 3.6 | 0.95 | 1.65 | |
| 5 | 0.63 | 9.3 | 28.30 | 19.19 | 0.68 | 4.43 | 32.73 | 6.4 | 22.14 | 5.80 | 16.34 | 37.0 | 3.8 | 1.26 | 2.90 | |
| | 0.95 | 23.3 | 28.53 | 19.33 | 0.68 | 4.20 | 32.73 | 6.8 | 23.27 | 5.87 | 17.41 | 38.1 | 4.0 | | | |
| | 1.26 | 40.9 | 28.58 | 19.37 | 0.68 | 4.10 | 32.67 | 7.0 | 23.91 | 5.90 | 18.00 | 38.7 | 4.0 | | | |
| 10 | 0.63 | 8.5 | 27.85 | 18.97 | 0.68 | 4.75 | 32.60 | 5.9 | 24.69 | 5.95 | 18.74 | 39.4 | 4.1 | | | |
| | 0.95 | 21.8 | 28.26 | 19.17 | 0.68 | 4.47 | 32.74 | 6.3 | 26.04 | 6.03 | 20.00 | 40.6 | 4.3 | | | |
| | 1.26 | 38.6 | 28.41 | 19.25 | 0.68 | 4.35 | 32.76 | 6.5 | 26.78 | 6.08 | 20.71 | 41.3 | 4.4 | | | |
| 15 | 0.63 | 7.2 | 27.18 | 18.68 | 0.69 | 5.12 | 32.30 | 5.3 | 27.32 | 6.11 | 21.21 | 41.8 | 4.5 | | | |
| | 0.95 | 18.7 | 27.74 | 18.92 | 0.68 | 4.81 | 32.55 | 5.8 | 28.85 | 6.20 | 22.64 | 43.2 | 4.7 | | | |
| | 1.26 | 33.5 | 27.98 | 19.03 | 0.68 | 4.66 | 32.64 | 6.0 | 29.69 | 6.25 | 23.43 | 44.0 | 4.7 | | | |
| 20 | 0.63 | 6.6 | 26.22 | 18.27 | 0.70 | 5.62 | 31.83 | 4.7 | 30.36 | 6.29 | 24.06 | 44.6 | 4.8 | | | |
| | 0.95 | 17.8 | 26.93 | 18.57 | 0.69 | 5.26 | 32.18 | 5.1 | 32.06 | 6.40 | 25.66 | 46.1 | 5.0 | | | |
| | 1.26 | 32.1 | 27.25 | 18.70 | 0.69 | 5.09 | 32.33 | 5.4 | 32.97 | 6.46 | 26.52 | 47.0 | 5.1 | | | |
| 25 | 0.63 | 5.9 | 25.19 | 17.86 | 0.71 | 6.12 | 31.31 | 4.1 | 33.02 | 6.46 | 26.56 | 47.0 | 5.1 | | | |
| | 0.95 | 16.8 | 26.01 | 18.19 | 0.70 | 5.72 | 31.73 | 4.5 | 34.81 | 6.58 | 28.23 | 48.6 | 5.3 | | | |
| | 1.26 | 30.7 | 26.39 | 18.35 | 0.70 | 5.53 | 31.92 | 4.8 | 35.75 | 6.64 | 29.11 | 49.5 | 5.4 | | | |
| 30 | 0.63 | 5.4 | 23.95 | 17.37 | 0.73 | 6.72 | 30.68 | 3.6 | 35.75 | 6.64 | 29.11 | 49.5 | 5.4 | | | |
| | 0.95 | 16.0 | 24.86 | 17.73 | 0.71 | 6.28 | 31.14 | 4.0 | 37.54 | 6.77 | 30.77 | 51.1 | 5.5 | | | |
| | 1.26 | 29.7 | 25.29 | 17.90 | 0.71 | 6.07 | 31.36 | 4.2 | 38.46 | 6.84 | 31.62 | 51.9 | 5.6 | | | |
| 35 | 0.63 | 4.8 | 22.65 | 16.86 | 0.74 | 7.37 | 30.03 | 3.1 | Operation Not Recommended | | | | | | | |
| | 0.95 | 15.3 | 23.62 | 17.24 | 0.73 | 6.89 | 30.51 | 3.4 | | | | | | | | |
| | 1.26 | 28.7 | 24.23 | 17.43 | 0.72 | 6.66 | 30.75 | 3.6 | | | | | | | | |
| 40 | 0.63 | 4.3 | 21.27 | 16.31 | 0.77 | 8.09 | 29.35 | 2.6 | Operation Not Recommended | | | | | | | |
| | 0.95 | 14.5 | 22.27 | 16.71 | 0.75 | 7.57 | 29.84 | 2.9 | | | | | | | | |
| | 1.26 | 27.7 | 22.61 | 16.85 | 0.74 | 7.31 | 30.08 | 3.1 | | | | | | | | |
| 45 | Operation Not Recommended | | | | | | | | | Operation Not Recommended | | | | | | |
| | 0.95 | 13.7 | 20.79 | 16.12 | 0.78 | 8.34 | 29.13 | 2.5 | | | | | | | | |
| | 1.26 | 26.7 | 21.30 | 16.33 | 0.77 | 8.07 | 29.37 | 2.6 | | | | | | | | |

Interpolation is permissible; extrapolation is not.

All entering air conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating.

AHRI/ISO certified conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating.

Table does not reflect fan or pump power corrections for AHRI/ISO conditions.

All performance data is based upon the lower voltage of dual voltage rated units.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

Operation below 4°C EWT is based upon a 15% methanol antifreeze solution.

Operation below 16°C EWT requires optional insulated water/refrigerant circuit.

See performance correction tables for operating conditions other than those listed above.

Gray shaded area refers to calculations required to determine if heating water flow is sufficient for non-antifreeze systems.

TLV SERIES 50HZ - HFC-410A SUBMITTAL DATA ENG/S-I



Performance Data
TLV120

1416 l/s Nominal Airflow Heating & Cooling

Performance capacities shown in kW

| WATER / BRINE | | | COOLING - EAT 27/19 °C | | | | | | HEATING - EAT 20°C | | | | | *WPD Adder for Motorized Water Valve TLV 120 Cv=37 MOPD = 150 | | | |
|---------------|---------------------------|--------|---------------------------|-------|-----------|-------|-------|---------|---------------------------|-------|-------|--------|-----|---|--------|--|--|
| EWT °C | FLOW l/s | PD kPa | TC kW | SC kW | S/T Ratio | PI kW | HR kW | EER W/W | HC kW | PI kW | HE kW | LAT °C | COP | | | | |
| -5 | 1.58 | 49.69 | Operation Not Recommended | | | | | | 21.82 | 6.42 | 15.40 | 31.6 | 3.4 | | | | |
| 0 | 0.79 | 10.25 | 36.96 | 24.10 | 0.65 | 5.20 | 42.16 | 7.1 | 23.16 | 6.51 | 16.66 | 32.5 | 3.6 | Flow | PD kPa | | |
| | 1.18 | 25.84 | 37.52 | 24.14 | 0.64 | 4.98 | 42.50 | 7.5 | 24.08 | 6.57 | 17.50 | 33.1 | 3.7 | 0.79 | 1.10 | | |
| | 1.58 | 45.83 | 37.73 | 24.08 | 0.64 | 4.88 | 42.60 | 7.7 | 24.58 | 6.61 | 17.97 | 33.4 | 3.7 | 1.18 | 2.55 | | |
| 5 | 0.79 | 9.13 | 35.99 | 23.82 | 0.66 | 5.53 | 41.51 | 6.5 | 26.26 | 6.74 | 19.52 | 34.4 | 3.9 | 1.58 | 4.55 | | |
| | 1.18 | 23.49 | 36.77 | 24.06 | 0.65 | 5.27 | 42.05 | 7.0 | 27.45 | 6.81 | 20.64 | 35.2 | 4.0 | | | | |
| | 1.58 | 41.97 | 37.11 | 24.13 | 0.65 | 5.16 | 42.27 | 7.2 | 28.11 | 6.85 | 21.26 | 35.6 | 4.1 | | | | |
| 10 | 0.79 | 8.42 | 34.96 | 23.41 | 0.67 | 5.84 | 40.80 | 6.0 | 29.16 | 6.95 | 22.21 | 36.3 | 4.2 | | | | |
| | 1.18 | 21.41 | 35.89 | 23.78 | 0.66 | 5.56 | 41.45 | 6.5 | 30.60 | 7.04 | 23.57 | 37.2 | 4.3 | | | | |
| | 1.58 | 39.81 | 36.32 | 23.94 | 0.66 | 5.43 | 41.75 | 6.7 | 31.41 | 7.09 | 24.32 | 37.7 | 4.4 | | | | |
| 15 | 0.79 | 6.28 | 33.76 | 22.85 | 0.68 | 6.20 | 39.96 | 5.4 | 32.44 | 7.17 | 25.26 | 38.4 | 4.5 | | | | |
| | 1.18 | 18.21 | 34.79 | 23.31 | 0.67 | 5.89 | 40.68 | 5.9 | 34.13 | 7.28 | 26.86 | 39.4 | 4.7 | | | | |
| | 1.58 | 34.30 | 35.28 | 23.52 | 0.67 | 5.75 | 41.03 | 6.1 | 35.07 | 7.33 | 27.74 | 40.0 | 4.8 | | | | |
| 20 | 0.79 | 5.72 | 32.21 | 22.11 | 0.69 | 6.68 | 38.88 | 4.8 | 36.37 | 7.44 | 28.93 | 40.9 | 4.9 | | | | |
| | 1.18 | 17.16 | 33.31 | 22.62 | 0.68 | 6.33 | 39.64 | 5.3 | 38.34 | 7.57 | 30.77 | 42.1 | 5.1 | | | | |
| | 1.58 | 32.71 | 33.85 | 22.87 | 0.68 | 6.17 | 40.02 | 5.5 | 39.43 | 7.64 | 31.78 | 42.8 | 5.2 | | | | |
| 25 | 0.79 | 5.15 | 30.71 | 21.42 | 0.70 | 7.16 | 37.87 | 4.3 | 39.76 | 7.67 | 32.09 | 43.0 | 5.2 | | | | |
| | 1.18 | 16.11 | 31.82 | 21.93 | 0.69 | 6.78 | 38.61 | 4.7 | 41.93 | 7.83 | 34.10 | 44.4 | 5.4 | | | | |
| | 1.58 | 31.12 | 32.38 | 22.19 | 0.69 | 6.60 | 38.98 | 4.9 | 43.11 | 7.92 | 35.19 | 45.1 | 5.4 | | | | |
| 30 | 0.79 | 4.88 | 29.04 | 20.69 | 0.71 | 7.75 | 36.79 | 3.7 | 43.98 | 8.03 | 35.95 | 45.6 | 5.5 | | | | |
| | 1.18 | 15.64 | 30.15 | 21.19 | 0.70 | 7.33 | 37.48 | 4.1 | 44.99 | 7.83 | 37.17 | 46.5 | 5.7 | | | | |
| | 1.58 | 30.22 | 30.71 | 21.45 | 0.70 | 7.13 | 37.85 | 4.3 | 45.55 | 7.74 | 37.82 | 46.9 | 5.9 | | | | |
| 35 | 0.79 | 4.61 | 27.49 | 20.06 | 0.73 | 8.39 | 35.88 | 3.3 | Operation Not Recommended | | | | | | | | |
| | 1.18 | 15.17 | 28.56 | 20.50 | 0.72 | 7.93 | 36.50 | 3.6 | | | | | | | | | |
| | 1.58 | 29.33 | 29.29 | 20.74 | 0.71 | 7.71 | 36.83 | 3.8 | | | | | | | | | |
| 40 | 0.79 | 4.34 | 26.03 | 19.53 | 0.75 | 9.11 | 35.14 | 2.9 | | | | | | | | | |
| | 1.18 | 14.70 | 27.04 | 19.89 | 0.74 | 8.61 | 35.65 | 3.1 | | | | | | | | | |
| | 1.58 | 28.44 | 27.40 | 20.03 | 0.73 | 8.37 | 35.93 | 3.3 | | | | | | | | | |
| 45 | Operation Not Recommended | | | | | | | | | | | | | | | | |
| | 1.18 | 14.23 | 25.52 | 19.36 | 0.76 | 9.40 | 34.92 | 2.7 | | | | | | | | | |
| | 1.58 | 27.54 | 26.01 | 19.52 | 0.75 | 9.13 | 35.14 | 2.8 | | | | | | | | | |

Interpolation is permissible; extrapolation is not.

All entering air conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating.

AHRI/ISO certified conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating.

Table does not reflect fan or pump power corrections for AHRI/ISO conditions.

All performance data is based upon the lower voltage of dual voltage rated units.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

Operation below 4°C EWT is based upon a 15% methanol antifreeze solution.

Operation below 16°C EWT requires optional insulated water/refrigerant circuit.

See performance correction tables for operating conditions other than those listed above.

Gray shaded area refers to calculations required to determine if heating water flow is sufficient for non-antifreeze systems.

TLV SERIES 50HZ - HFC-410A SUBMITTAL DATA ENG/S-I



Performance Data TLV150

1770 l/s Nominal Airflow Heating & Cooling

Performance capacities shown in kW

| WATER / BRINE | | | COOLING - EAT 27/19 °C | | | | | | HEATING - EAT 20°C | | | | | *WPD Adder for Motorized Water Valve TLV 150 Cv=57 MOPD = 150 | |
|---------------|---------------------------|--------|---------------------------|-------|-----------|-------|-------|---------|---------------------------|-------|-------|--------|-----|---|--------|
| EWT °C | FLOW l/s | PD kPa | TC kW | SC kW | S/T Ratio | PI kW | HR kW | EER W/W | HC kW | PI kW | HE kW | LAT °C | COP | | |
| -5 | 2.00 | 58.50 | Operation Not Recommended | | | | | | 28.12 | 8.52 | 19.60 | 31.8 | 3.3 | | |
| 0 | 1.00 | 13.27 | 45.62 | 32.40 | 0.71 | 6.91 | 52.53 | 6.6 | 29.99 | 8.69 | 21.30 | 32.7 | 3.5 | Flow | PD kPa |
| | 1.47 | 30.25 | 45.43 | 33.90 | 0.75 | 6.58 | 52.01 | 6.9 | 31.19 | 8.79 | 22.40 | 33.3 | 3.5 | 1.00 | 0.76 |
| | 2.00 | 53.80 | 45.12 | 34.78 | 0.77 | 6.39 | 51.51 | 7.1 | 31.93 | 8.86 | 23.08 | 33.7 | 3.6 | 1.47 | 1.65 |
| 5 | 1.00 | 11.36 | 45.13 | 30.57 | 0.68 | 7.38 | 52.50 | 6.1 | 34.13 | 9.03 | 25.10 | 34.8 | 3.8 | 2.00 | 3.03 |
| | 1.47 | 27.17 | 45.54 | 31.80 | 0.70 | 7.03 | 52.58 | 6.5 | 35.66 | 9.14 | 26.51 | 35.6 | 3.9 | | |
| | 2.00 | 49.10 | 45.61 | 32.57 | 0.71 | 6.85 | 52.45 | 6.7 | 36.60 | 9.21 | 27.38 | 36.1 | 4.0 | | |
| 10 | 1.00 | 10.48 | 44.19 | 29.27 | 0.66 | 7.79 | 51.98 | 5.7 | 37.90 | 9.31 | 28.59 | 36.7 | 4.1 | | |
| | 1.47 | 25.50 | 45.01 | 30.28 | 0.67 | 7.43 | 52.44 | 6.1 | 39.71 | 9.43 | 30.27 | 37.6 | 4.2 | | |
| | 2.00 | 46.44 | 45.34 | 30.91 | 0.68 | 7.24 | 52.58 | 6.3 | 40.81 | 9.51 | 31.30 | 38.2 | 4.3 | | |
| 15 | 1.00 | 8.13 | 42.82 | 28.24 | 0.66 | 8.24 | 51.06 | 5.2 | 41.96 | 9.61 | 32.35 | 38.8 | 4.4 | | |
| | 1.47 | 20.98 | 43.91 | 29.06 | 0.66 | 7.86 | 51.77 | 5.6 | 44.04 | 9.76 | 34.28 | 39.8 | 4.5 | | |
| | 2.00 | 39.27 | 44.43 | 29.59 | 0.67 | 7.66 | 52.09 | 5.8 | 45.30 | 9.85 | 35.45 | 40.5 | 4.6 | | |
| 20 | 1.00 | 7.44 | 40.99 | 27.21 | 0.66 | 8.83 | 49.82 | 4.6 | 46.74 | 9.98 | 36.76 | 41.2 | 4.7 | | |
| | 1.47 | 19.81 | 42.28 | 27.87 | 0.66 | 8.42 | 50.71 | 5.0 | 49.07 | 10.15 | 38.91 | 42.4 | 4.8 | | |
| | 2.00 | 37.67 | 42.96 | 28.29 | 0.66 | 8.20 | 51.16 | 5.2 | 50.47 | 10.26 | 40.21 | 43.1 | 4.9 | | |
| 25 | 1.00 | 6.75 | 39.15 | 26.40 | 0.67 | 9.44 | 48.59 | 4.1 | 50.84 | 10.30 | 40.54 | 43.2 | 4.9 | | |
| | 1.47 | 18.65 | 40.54 | 26.97 | 0.67 | 8.99 | 49.53 | 4.5 | 53.32 | 10.50 | 42.82 | 44.5 | 5.1 | | |
| | 2.00 | 36.06 | 41.30 | 27.32 | 0.66 | 8.75 | 50.04 | 4.7 | 54.79 | 10.63 | 44.15 | 45.2 | 5.2 | | |
| 30 | 1.00 | 6.40 | 37.08 | 25.61 | 0.69 | 10.18 | 47.26 | 3.6 | 55.06 | 10.66 | 44.40 | 45.4 | 5.2 | | |
| | 1.47 | 18.04 | 38.48 | 26.12 | 0.68 | 9.68 | 48.16 | 4.0 | 57.60 | 10.91 | 46.69 | 46.6 | 5.3 | | |
| | 2.00 | 35.05 | 39.27 | 26.42 | 0.67 | 9.42 | 48.68 | 4.2 | 59.05 | 11.07 | 47.98 | 47.3 | 5.3 | | |
| 35 | 1.00 | 6.06 | 35.10 | 24.89 | 0.71 | 10.98 | 46.09 | 3.2 | Operation Not Recommended | | | | | | |
| | 1.47 | 17.44 | 36.44 | 25.37 | 0.70 | 10.43 | 46.87 | 3.5 | | | | | | | |
| | 2.00 | 34.05 | 37.45 | 25.65 | 0.68 | 10.14 | 47.35 | 3.7 | | | | | | | |
| 40 | 1.00 | 5.71 | 33.27 | 24.21 | 0.73 | 11.90 | 45.16 | 2.8 | | | | | | | |
| | 1.47 | 16.83 | 34.47 | 24.66 | 0.72 | 11.27 | 45.75 | 3.1 | | | | | | | |
| | 2.00 | 33.04 | 34.97 | 24.84 | 0.71 | 10.95 | 46.14 | 3.2 | | | | | | | |
| 45 | Operation Not Recommended | | | | | | | | | | | | | | |
| | 1.47 | 16.23 | 32.62 | 23.96 | 0.73 | 12.28 | 44.90 | 2.7 | | | | | | | |
| | 2.00 | 32.03 | 33.24 | 24.20 | 0.73 | 11.91 | 45.15 | 2.8 | | | | | | | |

Interpolation is permissible; extrapolation is not.

All entering air conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating.

AHRI/ISO certified conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating.

Table does not reflect fan or pump power corrections for AHRI/ISO conditions.

All performance data is based upon the lower voltage of dual voltage rated units.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

Operation below 4°C EWT is based upon a 15% methanol antifreeze solution.

Operation below 16°C EWT requires optional insulated water/refrigerant circuit.

See performance correction tables for operating conditions other than those listed above.

Gray shaded area refers to calculations required to determine if heating water flow is sufficient for non-antifreeze systems.

TLV SERIES 50HZ - HFC-410A SUBMITTAL DATA ENG/S-I



Performance Data TLV168

1882 l/s Nominal (Rated) Airflow

Performance capacities shown in kW

| WATER / BRINE | | | COOLING - EAT 27/19 °C | | | | | | HEATING - EAT 20°C | | | | | *WPD Adder for Motorized Water Valve TLV 168 Cv=37 MOPD = 150 | |
|---------------|---------------------------|--------|---------------------------|-------|-----------|-------|-------|---------|---------------------------|-------|-------|--------|-----|---|------|
| EWT °C | FLOW l/s | PD kPa | TC kW | SC kW | S/T Ratio | PI kW | HR kW | EER W/W | HC kW | PI kW | HE kW | LAT °C | COP | | |
| -5 | 2.21 | 55.11 | Operation Not Recommended | | | | | | 31.06 | 8.97 | 22.09 | 31.9 | 3.5 | | |
| 0 | 1.10 | 13.11 | 43.17 | 28.79 | 0.67 | 6.45 | 49.62 | 6.7 | 33.14 | 9.14 | 24.00 | 32.8 | 3.6 | 1.10 | 0.55 |
| | 1.66 | 30.02 | 40.99 | 27.17 | 0.66 | 5.96 | 46.96 | 6.9 | 34.56 | 9.26 | 25.30 | 33.4 | 3.7 | 1.66 | 1.24 |
| | 2.21 | 50.72 | 39.72 | 26.25 | 0.66 | 5.72 | 45.45 | 6.9 | 35.35 | 9.33 | 26.02 | 33.8 | 3.8 | 2.21 | 2.21 |
| 5 | 1.10 | 11.65 | 45.27 | 30.51 | 0.67 | 7.19 | 52.46 | 6.3 | 37.87 | 9.55 | 28.32 | 34.9 | 4.0 | | |
| | 1.66 | 27.25 | 44.14 | 29.54 | 0.67 | 6.72 | 50.86 | 6.6 | 39.71 | 9.70 | 30.01 | 35.7 | 4.1 | | |
| | 2.21 | 46.34 | 43.35 | 28.92 | 0.67 | 6.49 | 49.85 | 6.7 | 40.74 | 9.78 | 30.96 | 36.2 | 4.2 | | |
| 10 | 1.10 | 10.83 | 45.94 | 31.26 | 0.68 | 7.78 | 53.72 | 5.9 | 42.23 | 9.92 | 32.31 | 36.9 | 4.3 | | |
| | 1.66 | 25.49 | 45.57 | 30.77 | 0.68 | 7.33 | 52.90 | 6.2 | 44.44 | 10.10 | 34.34 | 37.8 | 4.4 | | |
| | 2.21 | 43.73 | 45.18 | 30.40 | 0.67 | 7.10 | 52.28 | 6.4 | 45.65 | 10.20 | 35.45 | 38.4 | 4.5 | | |
| 15 | 1.10 | 7.32 | 45.50 | 31.25 | 0.69 | 8.36 | 53.86 | 5.4 | 46.75 | 10.31 | 36.45 | 38.9 | 4.5 | | |
| | 1.66 | 19.73 | 45.72 | 31.12 | 0.68 | 7.89 | 53.61 | 5.8 | 49.26 | 10.52 | 38.74 | 40.0 | 4.7 | | |
| | 2.21 | 35.61 | 45.66 | 30.95 | 0.68 | 7.67 | 53.33 | 6.0 | 50.63 | 10.63 | 40.00 | 40.6 | 4.8 | | |
| 20 | 1.10 | 6.74 | 44.51 | 31.00 | 0.70 | 9.06 | 53.56 | 4.9 | 51.98 | 10.76 | 41.22 | 41.2 | 4.8 | | |
| | 1.66 | 18.50 | 45.25 | 31.19 | 0.69 | 8.57 | 53.82 | 5.3 | 54.74 | 11.00 | 43.74 | 42.4 | 5.0 | | |
| | 2.21 | 33.87 | 45.50 | 31.21 | 0.69 | 8.34 | 53.84 | 5.5 | 56.22 | 11.13 | 45.09 | 43.1 | 5.1 | | |
| 25 | 1.10 | 6.16 | 43.27 | 30.55 | 0.71 | 9.74 | 53.01 | 4.4 | 56.53 | 11.16 | 45.37 | 43.2 | 5.1 | | |
| | 1.66 | 17.28 | 44.35 | 30.94 | 0.70 | 9.22 | 53.57 | 4.8 | 59.38 | 11.42 | 47.96 | 44.5 | 5.2 | | |
| | 2.21 | 32.14 | 44.80 | 31.08 | 0.69 | 8.97 | 53.77 | 5.0 | 60.86 | 11.56 | 49.30 | 45.1 | 5.3 | | |
| 30 | 1.10 | 5.81 | 41.49 | 29.84 | 0.72 | 10.54 | 52.03 | 3.9 | 61.11 | 11.58 | 49.53 | 45.3 | 5.3 | | |
| | 1.66 | 16.69 | 42.79 | 30.36 | 0.71 | 9.97 | 52.77 | 4.3 | 63.87 | 11.85 | 52.01 | 46.5 | 5.4 | | |
| | 2.21 | 31.30 | 43.40 | 30.59 | 0.70 | 9.70 | 53.10 | 4.5 | 65.22 | 12.00 | 53.23 | 47.1 | 5.4 | | |
| 35 | 1.10 | 5.45 | 39.51 | 29.05 | 0.74 | 11.42 | 50.93 | 3.5 | Operation Not Recommended | | | | | | |
| | 1.66 | 16.10 | 40.91 | 29.61 | 0.72 | 10.79 | 51.70 | 3.8 | | | | | | | |
| | 2.21 | 30.46 | 41.81 | 29.88 | 0.71 | 10.49 | 52.09 | 4.0 | | | | | | | |
| 40 | 1.10 | 5.09 | 37.49 | 28.27 | 0.75 | 12.43 | 49.91 | 3.0 | | | | | | | |
| | 1.66 | 15.51 | 38.89 | 28.81 | 0.74 | 11.72 | 50.61 | 3.3 | | | | | | | |
| | 2.21 | 29.62 | 39.37 | 29.00 | 0.74 | 11.38 | 50.98 | 3.5 | | | | | | | |
| 45 | Operation Not Recommended | | | | | | | | | | | | | | |
| | 1.66 | 14.91 | 36.77 | 28.02 | 0.76 | 12.83 | 49.60 | 2.9 | | | | | | | |
| | 2.21 | 28.78 | 37.47 | 28.27 | 0.75 | 12.44 | 49.91 | 3.0 | | | | | | | |

Interpolation is permissible; extrapolation is not.
 All entering air conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating.
 AHRI/ISO certified conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating.
 Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
 All performance data is based upon the lower voltage of dual voltage rated units.
 Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
 Operation below 4°C EWT is based upon a 15% methanol antifreeze solution.
 Operation below 16°C EWT requires optional insulated water/refrigerant circuit.
 See performance correction tables for operating conditions other than those listed above.
 Gray shaded area refers to calculations required to determine if heating water flow is sufficient for non-antifreeze systems.

TLV SERIES 50HZ - HFC-410A SUBMITTAL DATA ENG/S-I



**Performance Data
TLV192**

2265 l/s Nominal Airflow Heating & Cooling

Performance capacities shown in kW

| WATER / BRINE | | | COOLING - EAT 27/19 °C | | | | | | HEATING - EAT 20°C | | | | | *WPD Adder for Motorized Water Valve TLV 192 Cv=37 MOPD = 150 | | | |
|---------------|---------------------------|--------|---------------------------|-------|-----------|-------|-------|---------|---------------------------|-------|-------|--------|-------|---|--------|------|------|
| EWT °C | FLOW l/s | PD kPa | TC kW | SC kW | S/T Ratio | PI kW | HR kW | EER W/W | HC kW | PI kW | HE kW | LAT °C | COP | | | | |
| -5 | 2.52 | 77.75 | Operation Not Recommended | | | | | | 34.61 | 10.35 | 24.25 | 31.5 | 3.3 | | | | |
| 0 | 1.26 | 20.65 | 47.66 | 31.70 | 0.67 | 6.71 | 54.37 | 7.1 | 37.15 | 10.56 | 26.59 | 32.5 | 3.5 | Flow | PD kPa | | |
| | 1.89 | 44.24 | 42.92 | 28.44 | 0.66 | 5.62 | 48.53 | 7.6 | 38.81 | 10.71 | 28.10 | 33.1 | 3.6 | | | 1.26 | 0.76 |
| | 2.52 | 71.32 | 40.32 | 26.67 | 0.66 | 5.07 | 45.39 | 7.9 | 39.72 | 10.79 | 28.94 | 33.5 | 3.7 | | | 1.89 | 1.65 |
| 5 | 1.26 | 18.47 | 52.39 | 34.96 | 0.67 | 8.12 | 60.51 | 6.5 | 42.67 | 11.07 | 31.60 | 34.6 | 3.9 | | | | |
| | 1.89 | 39.71 | 50.03 | 33.30 | 0.67 | 7.31 | 57.34 | 6.8 | 44.77 | 11.24 | 33.53 | 35.4 | 4.0 | | | | |
| | 2.52 | 64.90 | 48.42 | 32.19 | 0.66 | 6.86 | 55.29 | 7.1 | 45.93 | 11.34 | 34.59 | 35.9 | 4.1 | | | | |
| 10 | 1.26 | 17.10 | 53.83 | 36.00 | 0.67 | 8.98 | 62.80 | 6.0 | 47.67 | 11.52 | 36.15 | 36.5 | 4.1 | | | | |
| | 1.89 | 37.25 | 53.07 | 35.40 | 0.67 | 8.34 | 61.41 | 6.4 | 50.15 | 11.72 | 38.43 | 37.5 | 4.3 | | | | |
| | 2.52 | 61.60 | 52.29 | 34.84 | 0.67 | 7.98 | 60.27 | 6.6 | 51.53 | 11.83 | 39.70 | 38.0 | 4.4 | | | | |
| 15 | 1.26 | 13.43 | 53.44 | 35.88 | 0.67 | 9.64 | 63.08 | 5.5 | 52.91 | 12.00 | 40.91 | 38.6 | 4.4 | | | | |
| | 1.89 | 30.80 | 53.77 | 35.96 | 0.67 | 9.09 | 62.86 | 5.9 | 55.78 | 12.23 | 43.54 | 39.7 | 4.6 | | | | |
| | 2.52 | 52.78 | 53.62 | 35.81 | 0.67 | 8.80 | 62.42 | 6.1 | 57.36 | 12.36 | 45.00 | 40.3 | 4.6 | | | | |
| 20 | 1.26 | 12.49 | 51.90 | 35.10 | 0.68 | 10.34 | 62.25 | 5.0 | 59.06 | 12.56 | 46.50 | 40.9 | 4.7 | | | | |
| | 1.89 | 29.13 | 53.08 | 35.68 | 0.67 | 9.85 | 62.93 | 5.4 | 62.33 | 12.84 | 49.49 | 42.2 | 4.9 | | | | |
| | 2.52 | 50.45 | 53.48 | 35.86 | 0.67 | 9.59 | 63.07 | 5.6 | 64.12 | 12.99 | 51.13 | 42.9 | 4.9 | | | | |
| 25 | 1.26 | 11.54 | 49.80 | 34.06 | 0.68 | 10.99 | 60.79 | 4.5 | 64.50 | 13.04 | 51.46 | 43.1 | 4.9 | | | | |
| | 1.89 | 27.47 | 51.39 | 34.84 | 0.68 | 10.49 | 61.88 | 4.9 | 68.07 | 13.36 | 54.71 | 44.4 | 5.1 | | | | |
| | 2.52 | 48.13 | 52.09 | 35.19 | 0.68 | 10.24 | 62.33 | 5.1 | 70.00 | 13.54 | 56.46 | 45.2 | 5.2 | | | | |
| 30 | 1.26 | 11.13 | 47.19 | 32.88 | 0.70 | 11.78 | 58.97 | 4.0 | 70.25 | 13.56 | 56.68 | 45.3 | 5.2 | | | | |
| | 1.89 | 26.68 | 48.95 | 33.69 | 0.69 | 11.22 | 60.16 | 4.4 | 74.05 | 13.94 | 60.11 | 46.7 | 5.3 | | | | |
| | 2.52 | 47.13 | 49.81 | 34.10 | 0.68 | 10.95 | 60.76 | 4.5 | 76.07 | 14.15 | 61.92 | 47.5 | 5.4 | | | | |
| 35 | 1.26 | 10.71 | 44.74 | 31.91 | 0.71 | 12.72 | 57.46 | 3.5 | Operation Not Recommended | | | | | | | | |
| | 1.89 | 25.89 | 46.42 | 32.57 | 0.70 | 12.04 | 58.46 | 3.9 | | | | | | | | | |
| | 2.52 | 46.14 | 47.59 | 32.96 | 0.69 | 11.73 | 59.04 | 4.1 | | | | | | | | | |
| 40 | 1.26 | 10.30 | 42.68 | 31.35 | 0.73 | 13.92 | 56.60 | 3.1 | Operation Not Recommended | | | | | | | | |
| | 1.89 | 25.10 | 44.06 | 31.68 | 0.72 | 13.06 | 57.12 | 3.4 | | | | | | | | | |
| | 2.52 | 45.14 | 44.59 | 31.86 | 0.71 | 12.68 | 57.53 | 3.5 | | | | | | | | | |
| 45 | Operation Not Recommended | | Operation Not Recommended | | | | | | | | | | | | | | |
| | 1.89 | 24.32 | | | | | | | 42.11 | 31.32 | 0.74 | 14.43 | 56.53 | 2.9 | | | |
| | 2.52 | 44.15 | | | | | | | 42.67 | 31.35 | 0.73 | 13.94 | 56.61 | 3.1 | | | |

Interpolation is permissible; extrapolation is not.
 All entering air conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating.
 AHRI/ISO certified conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating.
 Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
 All performance data is based upon the lower voltage of dual voltage rated units.
 Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
 Operation below 4°C EWT is based upon a 15% methanol antifreeze solution.
 Operation below 16°C EWT requires optional insulated water/refrigerant circuit.
 See performance correction tables for operating conditions other than those listed above.
 Gray shaded area refers to calculations required to determine if heating water flow is sufficient for non-antifreeze systems.

TLV SERIES 50HZ - HFC-410A SUBMITTAL DATA ENG/S-I



**Performance Data
TLV240**

2832 l/s Nominal Airflow Heating & Cooling

Performance capacities shown in kW

| WATER / BRINE | | | COOLING - EAT 27/19 °C | | | | | | HEATING - EAT 20°C | | | | | *WPD Adder for Motorized Water Valve TLV 240 Cv=37 MOPD = 150 | | | | | | |
|---------------|---------------------------|--------|---------------------------|-------|-----------|-------|-------|---------|---------------------------|-------|-------|--------|-----|---|-------|-------|--------|-------|-------|-----|
| EWT °C | FLOW l/s | PD kPa | TC kW | SC kW | S/T Ratio | PI kW | HR kW | EER W/W | HC kW | PI kW | HE kW | LAT °C | COP | | | Flow | PD kPa | | | |
| -5 | 3.15 | 55.90 | Operation Not Recommended | | | | | | 43.64 | 12.84 | 30.80 | 31.6 | 3.4 | | | | | | | |
| 0 | 1.58 | 11.53 | 73.91 | 48.21 | 0.65 | 10.40 | 84.31 | 7.1 | 46.33 | 13.01 | 33.31 | 32.5 | 3.6 | | | | | | | |
| | 2.37 | 29.07 | 75.04 | 48.28 | 0.64 | 9.96 | 85.00 | 7.5 | 48.15 | 13.15 | 35.00 | 33.1 | 3.7 | | | | | | | |
| | 3.15 | 51.55 | 75.46 | 48.16 | 0.64 | 9.75 | 85.21 | 7.7 | 49.17 | 13.22 | 35.95 | 33.4 | 3.7 | 1.58 | 1.10 | | | | | |
| 5 | 1.58 | 10.27 | 71.97 | 47.64 | 0.66 | 11.05 | 83.02 | 6.5 | 52.52 | 13.47 | 39.05 | 34.4 | 3.9 | | | | | | | |
| | 2.37 | 26.43 | 73.55 | 48.13 | 0.65 | 10.55 | 84.10 | 7.0 | 54.90 | 13.63 | 41.28 | 35.2 | 4.0 | | | | | | | |
| | 3.15 | 47.21 | 74.23 | 48.26 | 0.65 | 10.31 | 84.54 | 7.2 | 56.23 | 13.71 | 42.52 | 35.6 | 4.1 | 2.37 | 2.55 | | | | | |
| 10 | 1.58 | 9.47 | 69.92 | 46.81 | 0.67 | 11.68 | 81.60 | 6.0 | 58.33 | 13.90 | 44.43 | 36.3 | 4.2 | | | | | | | |
| | 2.37 | 24.09 | 71.79 | 47.57 | 0.66 | 11.12 | 82.91 | 6.5 | 61.21 | 14.08 | 47.13 | 37.2 | 4.3 | | | | | | | |
| | 3.15 | 44.78 | 72.65 | 47.87 | 0.66 | 10.86 | 83.51 | 6.7 | 62.81 | 14.17 | 48.64 | 37.7 | 4.4 | 3.15 | 4.55 | | | | | |
| 15 | 1.58 | 7.07 | 67.51 | 45.71 | 0.68 | 12.40 | 79.91 | 5.4 | 64.87 | 14.35 | 50.53 | 38.4 | 4.5 | | | | | | | |
| | 2.37 | 20.49 | 69.57 | 46.63 | 0.67 | 11.79 | 81.36 | 5.9 | 68.26 | 14.55 | 53.71 | 39.4 | 4.7 | | | | | | | |
| | 3.15 | 38.58 | 70.56 | 47.04 | 0.67 | 11.50 | 82.05 | 6.1 | 70.14 | 14.67 | 55.47 | 40.0 | 4.8 | | | | | | | |
| 20 | 1.58 | 6.43 | 64.42 | 44.23 | 0.69 | 13.35 | 77.77 | 4.8 | 72.74 | 14.89 | 57.86 | 40.9 | 4.9 | | | | | | | |
| | 2.37 | 19.30 | 66.62 | 45.25 | 0.68 | 12.67 | 79.29 | 5.3 | 76.69 | 15.14 | 61.54 | 42.1 | 5.1 | | | | | | | |
| | 3.15 | 36.80 | 67.70 | 45.74 | 0.68 | 12.34 | 80.04 | 5.5 | 78.85 | 15.29 | 63.56 | 42.8 | 5.2 | | | | | | | |
| 25 | 1.58 | 5.79 | 61.42 | 42.83 | 0.70 | 14.32 | 75.74 | 4.3 | 79.52 | 15.34 | 64.18 | 43.0 | 5.2 | | | | | | | |
| | 2.37 | 18.12 | 63.64 | 43.87 | 0.69 | 13.57 | 77.21 | 4.7 | 83.86 | 15.66 | 68.21 | 44.4 | 5.4 | | | | | | | |
| | 3.15 | 35.01 | 64.75 | 44.39 | 0.69 | 13.21 | 77.96 | 4.9 | 86.22 | 15.84 | 70.38 | 45.1 | 5.4 | | | | | | | |
| 30 | 1.58 | 5.49 | 58.08 | 41.39 | 0.71 | 15.50 | 73.58 | 3.7 | 87.95 | 16.05 | 71.90 | 45.6 | 5.5 | | | | | | | |
| | 2.37 | 17.59 | 60.30 | 42.37 | 0.70 | 14.67 | 74.96 | 4.1 | 89.98 | 16.65 | 74.33 | 46.5 | 5.7 | | | | | | | |
| | 3.15 | 34.00 | 61.43 | 42.89 | 0.70 | 14.27 | 75.69 | 4.3 | 91.11 | 15.47 | 75.64 | 46.9 | 5.9 | | | | | | | |
| 35 | 1.58 | 5.19 | 54.98 | 40.12 | 0.73 | 16.78 | 71.76 | 3.3 | Operation Not Recommended | | | | | | | | | | | |
| | 2.37 | 17.06 | 57.12 | 41.01 | 0.72 | 15.87 | 72.99 | 3.6 | | | | | | | | | | | | |
| | 3.15 | 33.00 | 58.59 | 41.48 | 0.71 | 15.43 | 73.66 | 3.8 | | | | | | | | | | | | |
| 40 | 1.58 | 4.88 | 52.06 | 39.05 | 0.75 | 18.23 | 70.29 | 2.9 | | | | | | | | | | | | |
| | 2.37 | 16.54 | 54.07 | 39.78 | 0.74 | 17.22 | 71.29 | 3.1 | | | | | | | | | | | | |
| | 3.15 | 31.99 | 54.79 | 40.05 | 0.73 | 16.74 | 71.87 | 3.3 | | | | | | | | | | | | |
| 45 | Operation Not Recommended | | | | | | | | | | | | | | | | | | | |
| | 2.37 | 16.01 | | | | | | | | | | | | | 51.05 | 38.73 | 0.76 | 18.80 | 69.85 | 2.7 |
| | 3.15 | 30.98 | | | | | | | | | | | | | 52.02 | 39.04 | 0.75 | 18.26 | 70.28 | 2.8 |

Interpolation is permissible; extrapolation is not.

All entering air conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating.

AHRI/ISO certified conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating.

Table does not reflect fan or pump power corrections for AHRI/ISO conditions.

All performance data is based upon the lower voltage of dual voltage rated units.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

Operation below 4°C EWT is based upon a 15% methanol antifreeze solution.

Operation below 16°C EWT requires optional insulated water/refrigerant circuit.

See performance correction tables for operating conditions other than those listed above.

Gray shaded area refers to calculations required to determine if heating water flow is sufficient for non-antifreeze systems.

TLV SERIES 50HZ - HFC-410A SUBMITTAL DATA ENG/S-I



Performance Data TLV300

3540 l/s Nominal (Rated) Airflow

Performance capacities shown in kW

| WATER / BRINE | | | COOLING - EAT 27/19 °C | | | | | | HEATING - EAT 20°C | | | | | *WPD Adder for Motorized Water Valve TLV 300 Cv=57 MOPD = 150 | | | | | | |
|---------------|---------------------------|--------|---------------------------|-------|-----------|-------|--------|---------|---------------------------|-------|-------|--------|-----|---|--------|-------|------|-------|-------|-----|
| EWT °C | FLOW l/s | PD kPa | TC kW | SC kW | S/T Ratio | PI kW | HR kW | EER W/W | HC kW | PI kW | HE kW | LAT °C | COP | | | | | | | |
| -5 | 4.00 | 65.99 | Operation Not Recommended | | | | | | 56.24 | 17.03 | 39.20 | 31.8 | 3.3 | | | | | | | |
| 0 | 2.00 | 14.97 | 91.23 | 64.80 | 0.71 | 13.83 | 105.06 | 6.6 | 59.99 | 17.38 | 42.61 | 32.7 | 3.5 | Flow | PD kPa | | | | | |
| | 2.94 | 34.12 | 90.87 | 67.80 | 0.75 | 13.15 | 104.02 | 6.9 | 62.39 | 17.59 | 44.80 | 33.3 | 3.5 | 2.00 | 0.76 | | | | | |
| | 4.00 | 60.68 | 90.24 | 69.57 | 0.77 | 12.78 | 103.02 | 7.1 | 63.86 | 17.71 | 46.15 | 33.7 | 3.6 | 2.94 | 1.65 | | | | | |
| 5 | 2.00 | 12.82 | 90.25 | 61.13 | 0.68 | 14.76 | 105.01 | 6.1 | 68.26 | 18.06 | 50.20 | 34.8 | 3.8 | 4.00 | 3.03 | | | | | |
| | 2.94 | 30.65 | 91.09 | 63.61 | 0.70 | 14.07 | 105.16 | 6.5 | 71.32 | 18.29 | 53.03 | 35.6 | 3.9 | | | | | | | |
| | 4.00 | 55.38 | 91.22 | 65.14 | 0.71 | 13.69 | 104.91 | 6.7 | 73.19 | 18.42 | 54.77 | 36.1 | 4.0 | | | | | | | |
| 10 | 2.00 | 11.82 | 88.38 | 58.54 | 0.66 | 15.59 | 103.97 | 5.7 | 75.80 | 18.61 | 57.18 | 36.7 | 4.1 | | | | | | | |
| | 2.94 | 28.76 | 90.02 | 60.55 | 0.67 | 14.87 | 104.89 | 6.1 | 79.41 | 18.87 | 60.54 | 37.6 | 4.2 | | | | | | | |
| | 4.00 | 52.38 | 90.67 | 61.83 | 0.68 | 14.48 | 105.15 | 6.3 | 81.63 | 19.02 | 62.60 | 38.2 | 4.3 | | | | | | | |
| 15 | 2.00 | 9.17 | 85.64 | 56.49 | 0.66 | 16.48 | 102.13 | 5.2 | 83.93 | 19.23 | 64.70 | 38.8 | 4.4 | | | | | | | |
| | 2.94 | 23.67 | 87.82 | 58.13 | 0.66 | 15.73 | 103.55 | 5.6 | 88.07 | 19.52 | 68.55 | 39.8 | 4.5 | | | | | | | |
| | 4.00 | 44.30 | 88.86 | 59.17 | 0.67 | 15.32 | 104.17 | 5.8 | 90.59 | 19.70 | 70.89 | 40.5 | 4.6 | | | | | | | |
| 20 | 2.00 | 8.39 | 81.98 | 54.42 | 0.66 | 17.67 | 99.64 | 4.6 | 93.47 | 19.96 | 73.51 | 41.2 | 4.7 | | | | | | | |
| | 2.94 | 22.35 | 84.57 | 55.75 | 0.66 | 16.84 | 101.41 | 5.0 | 98.14 | 20.31 | 77.83 | 42.4 | 4.8 | | | | | | | |
| | 4.00 | 42.49 | 85.92 | 56.57 | 0.66 | 16.40 | 102.32 | 5.2 | 100.94 | 20.52 | 80.41 | 43.1 | 4.9 | | | | | | | |
| 25 | 2.00 | 7.61 | 78.31 | 52.80 | 0.67 | 18.87 | 97.18 | 4.1 | 101.68 | 20.60 | 81.09 | 43.2 | 4.9 | | | | | | | |
| | 2.94 | 21.03 | 81.08 | 53.95 | 0.67 | 17.98 | 99.06 | 4.5 | 106.65 | 21.01 | 85.64 | 44.5 | 5.1 | | | | | | | |
| | 4.00 | 40.68 | 82.59 | 54.65 | 0.66 | 17.50 | 100.09 | 4.7 | 109.57 | 21.27 | 88.30 | 45.2 | 5.2 | | | | | | | |
| 30 | 2.00 | 7.22 | 74.16 | 51.21 | 0.69 | 20.35 | 94.52 | 3.6 | 110.12 | 21.32 | 88.80 | 45.4 | 5.2 | | | | | | | |
| | 2.94 | 20.35 | 76.96 | 52.24 | 0.68 | 19.36 | 96.32 | 4.0 | 115.20 | 21.82 | 93.38 | 46.6 | 5.3 | | | | | | | |
| | 4.00 | 39.54 | 78.54 | 52.85 | 0.67 | 18.83 | 97.37 | 4.2 | 118.11 | 22.14 | 95.96 | 47.3 | 5.3 | | | | | | | |
| 35 | 2.00 | 6.83 | 70.21 | 49.78 | 0.71 | 21.97 | 92.18 | 3.2 | Operation Not Recommended | | | | | | | | | | | |
| | 2.94 | 19.67 | 72.88 | 50.74 | 0.70 | 20.86 | 93.74 | 3.5 | | | | | | | | | | | | |
| | 4.00 | 38.40 | 74.89 | 51.30 | 0.68 | 20.27 | 94.70 | 3.7 | | | | | | | | | | | | |
| 40 | 2.00 | 6.44 | 66.53 | 48.42 | 0.73 | 23.79 | 90.32 | 2.8 | | | | | | | | | | | | |
| | 2.94 | 18.99 | 68.94 | 49.32 | 0.72 | 22.55 | 91.49 | 3.1 | | | | | | | | | | | | |
| | 4.00 | 37.27 | 69.95 | 49.68 | 0.71 | 21.89 | 92.28 | 3.2 | | | | | | | | | | | | |
| 45 | Operation Not Recommended | | | | | | | | | | | | | | | | | | | |
| | 2.94 | 18.31 | | | | | | | | | | | | | 65.24 | 47.93 | 0.73 | 24.56 | 89.80 | 2.7 |
| | 4.00 | 36.13 | | | | | | | | | | | | | 66.49 | 48.41 | 0.73 | 23.82 | 90.30 | 2.8 |

Interpolation is permissible; extrapolation is not.
 All entering air conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating.
 AHRI/ISO certified conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating.
 Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
 All performance data is based upon the lower voltage of dual voltage rated units.
 Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
 Operation below 4°C EWT is based upon a 15% methanol antifreeze solution.
 Operation below 16°C EWT requires optional insulated water/refrigerant circuit.
 See performance correction tables for operating conditions other than those listed above.
 Gray shaded area refers to calculations required to determine if heating water flow is sufficient for non-antifreeze systems.



Air Flow Correction Table

| Percentage of Rated Airflow | Cooling | | | | Heating | | |
|-----------------------------|----------------|-------------------|-------|-------------------|------------------|-------|--------------------|
| | Total Capacity | Sensible Capacity | Power | Heat of Rejection | Heating Capacity | Power | Heat of Extraction |
| 75% | 0.957 | 0.868 | 0.944 | 0.954 | 0.960 | 1.045 | 0.938 |
| 81% | 0.970 | 0.901 | 0.957 | 0.967 | 0.971 | 1.027 | 0.956 |
| 88% | 0.982 | 0.940 | 0.971 | 0.980 | 0.983 | 1.015 | 0.974 |
| 94% | 0.991 | 0.970 | 0.985 | 0.990 | 0.991 | 1.007 | 0.987 |
| 100% | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| 106% | 1.002 | 1.025 | 1.013 | 1.004 | 1.006 | 0.999 | 1.009 |
| 113% | 1.004 | 1.050 | 1.026 | 1.009 | 1.013 | 0.998 | 1.019 |
| 119% | 1.008 | 1.073 | 1.042 | 1.015 | 1.021 | 0.997 | 1.028 |
| 125% | 1.013 | 1.095 | 1.058 | 1.022 | 1.029 | 0.996 | 1.038 |

Entering Air Correction Table

| Entering Air DB °C | Heating Capacity | Power | Heat of Extraction |
|--------------------|------------------|-------|--------------------|
| 10.0 | 1.034 | 0.843 | 1.087 |
| 12.8 | 1.027 | 0.877 | 1.068 |
| 15.6 | 1.022 | 0.916 | 1.051 |
| 18.3 | 1.010 | 0.957 | 1.025 |
| 20.0 | 1.004 | 0.982 | 1.010 |
| 21.1 | 1.000 | 1.000 | 1.000 |
| 23.9 | 0.991 | 1.045 | 0.976 |
| 26.7 | 0.982 | 1.101 | 0.948 |

| Entering Air WB °C | Total Capacity | Sensible Cooling Capacity Multiplier - Entering Air WB °C | | | | | | | | Power | Heat of Rejection |
|--------------------|----------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------------------|
| | | 18.3 | 21.1 | 23.9 | 26.7 | 27.0 | 29.4 | 32.2 | 35.0 | | |
| 12.8 | 0.953 | 0.909 | * | * | * | * | * | * | * | 0.988 | 0.960 |
| 15.6 | 0.954 | 0.760 | 0.810 | 1.076 | 1.209 | 1.233 | * | * | * | 0.991 | 0.962 |
| 18.3 | 0.975 | | 0.644 | 0.872 | 1.089 | 1.115 | 1.238 | * | * | 0.995 | 0.979 |
| 19.0 | 0.988 | | 0.594 | 0.818 | 1.036 | 1.064 | 1.198 | * | * | 0.998 | 0.990 |
| 19.4 | 1.000 | | 0.568 | 0.782 | 1.000 | 1.027 | 1.164 | 1.350 | 1.421 | 1.000 | 1.000 |
| 21.1 | 1.045 | | | 0.647 | 0.864 | 0.889 | 1.034 | 1.295 | 1.421 | 1.009 | 1.037 |
| 23.9 | 1.122 | | | | 0.638 | 0.658 | 0.806 | 1.076 | 1.294 | 1.025 | 1.103 |

* = Sensible capacity equals total capacity
AHRI/ISO/ASHRAE 13256-1 uses entering air conditions of Cooling - 27°C DB/19°C WB, and Heating - 20°C DB/15°C WB entering air temperature.

Antifreeze Correction Table

| Antifreeze Type | Antifreeze % | Cooling | | | Heating | | WPD Corr. Fct. EWT 30°C |
|------------------|--------------|-----------|----------|-------|----------|-------|-------------------------|
| | | EWT 32°C | | | EWT -1°C | | |
| | | Total Cap | Sens Cap | Power | Htg Cap | Power | |
| Water | 0 | 1.000 | 1.000 | 1.000 | | | 1.000 |
| Propylene Glycol | 5 | 0.995 | 0.995 | 1.003 | 0.989 | 0.997 | 1.070 |
| | 15 | 0.986 | 0.986 | 1.009 | 0.968 | 0.990 | 1.210 |
| | 25 | 0.978 | 0.978 | 1.014 | 0.947 | 0.983 | 1.360 |
| Methanol | 5 | 0.997 | 0.997 | 1.002 | 0.989 | 0.997 | 1.070 |
| | 15 | 0.990 | 0.990 | 1.007 | 0.968 | 0.990 | 1.160 |
| | 25 | 0.982 | 0.982 | 1.012 | 0.949 | 0.984 | 1.220 |
| Ethanol | 5 | 0.998 | 0.998 | 1.002 | 0.981 | 0.994 | 1.140 |
| | 15 | 0.994 | 0.994 | 1.005 | 0.944 | 0.983 | 1.300 |
| | 25 | 0.986 | 0.986 | 1.009 | 0.917 | 0.974 | 1.360 |
| Ethylene Glycol | 5 | 0.998 | 0.998 | 1.002 | 0.993 | 0.998 | 1.040 |
| | 15 | 0.994 | 0.994 | 1.004 | 0.980 | 0.994 | 1.120 |
| | 25 | 0.988 | 0.988 | 1.008 | 0.966 | 0.990 | 1.200 |

ClimateMaster works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice and may not be as described herein. Please contact ClimateMaster's Customer Service Department at +1-405-745-6000 for specific information on the current design and specifications. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely ClimateMaster's opinion or commendation of its products. The latest version of this document is available at climatemaster.com.

TLV SERIES 50HZ - HFC-410A SUBMITTAL DATA ENG/S-I



Blower Performance Data TLV084 - Standard Unit

All Data is Wet Coil

| Airflow l/s | Pa | Airflow (l/s) at External Static Pressure (Pa) | | | | | | | | | | | | | | | |
|----------------|------------|--|----|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|
| | | 0 | 25 | 50 | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 325 | 350 | 375 |
| 755.2 | BkW | | | 0.12 | 0.15 | 0.13 | 0.19 | 0.22 | 0.24 | 0.26 | 0.30 | 0.31 | 0.33 | 0.37 | 0.39 | | |
| | Sheave/Mtr | | | B | B | A | A | A | A | C | C | C | C | C | C | | |
| | RPM | | | 388 | 437 | 482 | 527 | 564 | 599 | 630 | 663 | 690 | 716 | 744 | 767 | | |
| | Turns Open | | | 3.5 | 1.5 | 5 | 3.5 | 2.5 | 1.5 | 5.5 | 4.5 | 3.5 | 2.5 | 2 | 1 | | |
| 802.4 | BkW | | | 0.13 | 0.16 | 0.15 | 0.20 | 0.24 | 0.25 | 0.28 | 0.32 | 0.34 | 0.36 | 0.40 | 0.42 | | |
| | Sheave/Mtr | | | B | B | A | A | A | A | C | C | C | C | C | C | | |
| | RPM | | | 392 | 440 | 485 | 529 | 566 | 601 | 633 | 666 | 693 | 720 | 747 | 771 | | |
| | Turns Open | | | 3 | 1.5 | 5 | 3.5 | 2 | 1.5 | 5.5 | 4.5 | 3 | 2.5 | 2 | 1 | | |
| 849.6 | BkW | | | 0.14 | 0.17 | 0.17 | 0.22 | 0.25 | 0.27 | 0.29 | 0.33 | 0.36 | 0.38 | 0.42 | | | |
| | Sheave/Mtr | | | B | B | A | A | A | A | C | C | C | C | C | | | |
| | RPM | | | 395 | 444 | 488 | 530 | 568 | 603 | 636 | 668 | 697 | 723 | 751 | | | |
| | Turns Open | | | 2.5 | 1 | 5 | 3.5 | 2 | 1 | 5 | 4 | 3 | 2 | 1.5 | | | |
| 896.8 | BkW | | | 0.15 | 0.18 | 0.19 | 0.23 | 0.27 | 0.28 | 0.31 | 0.35 | 0.38 | 0.41 | 0.45 | | | |
| | Sheave/Mtr | | | B | B | A | A | A | C | C | C | C | C | C | | | |
| | RPM | | | 399 | 447 | 491 | 532 | 571 | 606 | 639 | 671 | 700 | 727 | 754 | | | |
| | Turns Open | | | 2.5 | 1 | 4.5 | 3 | 2 | 5.5 | 5 | 4 | 3 | 2 | 1.5 | | | |
| 944.0 | BkW | | | 0.11 | 0.16 | 0.19 | 0.21 | 0.25 | 0.28 | 0.30 | 0.33 | 0.37 | 0.40 | 0.43 | 0.47 | | |
| | Sheave/Mtr | | | B | B | A | A | A | A | C | C | C | C | C | C | | |
| | RPM | | | 352 | 403 | 450 | 493 | 534 | 573 | 608 | 641 | 673 | 703 | 730 | 757 | | |
| | Turns Open | | | 4.5 | 2.5 | 5.5 | 4.5 | 3 | 2 | 5.5 | 4.5 | 4 | 2.5 | 2 | 1.5 | | |
| 991.2 | BkW | | | 0.12 | 0.18 | 0.22 | 0.25 | 0.28 | 0.31 | 0.33 | 0.37 | 0.40 | 0.44 | 0.48 | 0.52 | | |
| | Sheave/Mtr | | | B | B | A | A | A | A | C | C | C | C | C | C | | |
| | RPM | | | 362 | 410 | 457 | 499 | 537 | 577 | 612 | 647 | 678 | 710 | 737 | 764 | | |
| | Turns Open | | | 4.5 | 2 | 5.5 | 4.5 | 3 | 1.5 | 5.5 | 4.5 | 3.5 | 2.5 | 1.5 | 1 | | |
| 1038.4 | BkW | | | 0.17 | 0.21 | 0.24 | 0.25 | 0.29 | 0.33 | 0.37 | 0.40 | 0.44 | 0.48 | 0.52 | 0.55 | | |
| | Sheave/Mtr | | | B | B | A | A | A | A | C | C | C | C | C | C | | |
| | RPM | | | 375 | 424 | 467 | 507 | 548 | 584 | 621 | 653 | 684 | 716 | 743 | 772 | | |
| | Turns Open | | | 4 | 2 | 5 | 4 | 2.5 | 1.5 | 5 | 4.5 | 3.5 | 2.5 | 1.5 | 1 | | |
| 1085.6 | BkW | | | 0.18 | 0.22 | 0.25 | 0.29 | 0.33 | 0.37 | 0.40 | 0.44 | 0.48 | 0.52 | 0.55 | | | |
| | Sheave/Mtr | | | B | B | A | A | A | A | C | C | C | C | C | | | |
| | RPM | | | 387 | 435 | 476 | 518 | 555 | 590 | 627 | 659 | 692 | 721 | 751 | | | |
| | Turns Open | | | 3.5 | 1.5 | 5 | 4 | 2.5 | 1.5 | 5 | 4 | 3 | 2 | 1.5 | | | |
| 1132.8 | BkW | | | 0.18 | 0.22 | 0.25 | 0.29 | 0.33 | 0.37 | 0.40 | 0.44 | 0.48 | 0.52 | 0.55 | 0.59 | | |
| | Sheave/Mtr | | | B | B | A | A | A | A | C | C | C | C | C | C | | |
| | RPM | | | 353 | 403 | 446 | 485 | 527 | 563 | 600 | 633 | 665 | 697 | 726 | 756 | | |
| | Turns Open | | | 4.5 | 3 | 1.5 | 4.5 | 3.5 | 2.5 | 1 | 5 | 4 | 3 | 2 | 1.5 | | |
| 1180.0 | BkW | | | 0.21 | 0.23 | 0.25 | 0.29 | 0.33 | 0.37 | 0.40 | 0.44 | 0.48 | 0.55 | 0.59 | 0.63 | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | C | C | C | C | C | | |
| | RPM | | | 362 | 411 | 452 | 495 | 532 | 567 | 604 | 636 | 670 | 700 | 729 | 759 | | |
| | Turns Open | | | 4 | 2.5 | 1 | 4.5 | 3.5 | 2 | 1 | 4.5 | 4 | 3 | 2 | 1 | | |
| 1227.2 | BkW | | | 0.22 | 0.25 | 0.32 | 0.36 | 0.40 | 0.43 | 0.47 | 0.51 | 0.55 | 0.58 | 0.62 | 0.66 | | |
| | Sheave/Mtr | | | B | B | A | A | A | A | C | C | C | C | C | C | | |
| | RPM | | | 377 | 420 | 460 | 500 | 536 | 570 | 606 | 638 | 671 | 701 | 729 | 759 | | |
| | Turns Open | | | 3.5 | 2 | 5.5 | 4 | 3 | 2 | 5.5 | 4.5 | 3.5 | 2.5 | 2 | 1 | | |
| 1274.4 | BkW | | | 0.25 | 0.28 | 0.32 | 0.36 | 0.40 | 0.44 | 0.48 | 0.52 | 0.55 | 0.59 | 0.63 | 0.67 | | |
| | Sheave/Mtr | | | B | B | A | A | A | A | C | C | C | C | C | C | | |
| | RPM | | | 381 | 423 | 463 | 504 | 539 | 576 | 609 | 641 | 674 | 703 | 734 | 762 | | |
| | Turns Open | | | 3.5 | 2 | 5.5 | 4 | 3 | 1.5 | 5.5 | 4.5 | 3.5 | 2.5 | 1.5 | 1 | | |
| 1321.6 | BkW | | | 0.25 | 0.29 | 0.33 | 0.37 | 0.40 | 0.48 | 0.52 | 0.55 | 0.59 | 0.63 | 0.67 | 0.70 | | |
| | Sheave/Mtr | | | B | B | A | A | A | A | C | C | C | C | C | C | | |
| | RPM | | | 390 | 431 | 474 | 510 | 545 | 581 | 613 | 647 | 677 | 706 | 737 | 764 | | |
| | Turns Open | | | 3 | 1.5 | 5 | 3.5 | 2.5 | 1.5 | 5.5 | 4 | 3.5 | 2.5 | 1.5 | 1 | | |
| 1368.8 | BkW | | | 0.29 | 0.33 | 0.37 | 0.40 | 0.44 | 0.48 | 0.55 | 0.59 | 0.63 | 0.67 | 0.70 | 0.78 | | |
| | Sheave/Mtr | | | B | B | A | A | A | A | C | C | C | C | C | E | | |
| | RPM | | | 399 | 440 | 481 | 517 | 551 | 586 | 618 | 651 | 681 | 710 | 740 | 767 | | |
| | Turns Open | | | 2.5 | 1.5 | 5 | 3.5 | 2 | 1 | 5 | 4 | 3 | 2 | 1.5 | 1 | | |
| 1416.0 | BkW | | | 0.32 | 0.37 | 0.40 | 0.44 | 0.48 | 0.52 | 0.55 | 0.63 | 0.67 | 0.70 | 0.78 | 0.82 | | |
| | Sheave/Mtr | | | B | B | A | A | A | A | C | C | C | C | E | E | | |
| | RPM | | | 412 | 455 | 492 | 526 | 563 | 595 | 628 | 658 | 687 | 718 | 745 | 774 | | |
| | Turns Open | | | 2.5 | 1 | 4.5 | 3 | 2 | 1 | 5 | 4 | 3 | 2 | 1.5 | 1 | | |

A = Standard Static/Standard Motor, B = Low Static/Standard Motor, C = High Static/Standard Motor, E = High Static/Large Motor.
 Unit factory shipped with standard static sheave and drive at 2.5 turns open. Other speeds require field selection.
 For applications requiring higher static pressures, contact your local representative. Performance data does not include drive losses and is based on sea level conditions.
 Do not operate in black regions. All airflow is rated at lowest Voltage if unit is dual Voltage rated, i.e. 208V for 208-230V units.

ClimateMaster works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice and may not be as described herein. Please contact ClimateMaster's Customer Service Department at +1-405-745-6000 for specific information on the current design and specifications. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely ClimateMaster's opinion or commendation of its products. The latest version of this document is available at climatemaster.com.

TLV SERIES 50HZ - HFC-410A SUBMITTAL DATA ENG/S-I



Blower Performance Data TLV096 - Standard Unit

All Data is Wet Coil

| Airflow l/s | Pa | Airflow (l/s) at External Static Pressure (Pa) | | | | | | | | | | | | | | | |
|----------------|------------|--|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|
| | | 0 | 25 | 50 | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 325 | 350 | 375 |
| 849.6 | BkW | 0.10 | 0.14 | 0.17 | 0.17 | 0.22 | 0.25 | 0.27 | 0.29 | 0.33 | 0.36 | 0.38 | 0.42 | | | | |
| | Sheave/Mtr | B | B | A | A | A | A | A | C | C | C | C | C | | | | |
| | RPM | 343 | 395 | 444 | 488 | 530 | 568 | 603 | 636 | 668 | 697 | 723 | 751 | | | | |
| | Turns Open | 5 | 3 | 6 | 5 | 3.5 | 2.5 | 1.5 | 5 | 4 | 3 | 2.5 | 1.5 | | | | |
| 896.8 | BkW | 0.11 | 0.15 | 0.18 | 0.19 | 0.23 | 0.27 | 0.28 | 0.31 | 0.35 | 0.38 | 0.41 | 0.45 | | | | |
| | Sheave/Mtr | B | B | A | A | A | A | A | C | C | C | C | C | | | | |
| | RPM | 348 | 399 | 447 | 491 | 532 | 571 | 606 | 639 | 671 | 700 | 727 | 754 | | | | |
| | Turns Open | 4.5 | 3 | 6 | 5 | 3.5 | 2 | 1.5 | 5 | 4 | 3 | 2.5 | 1.5 | | | | |
| 944.0 | BkW | 0.11 | 0.16 | 0.19 | 0.21 | 0.25 | 0.28 | 0.30 | 0.33 | 0.37 | 0.40 | 0.43 | 0.47 | | | | |
| | Sheave/Mtr | B | B | A | A | A | A | A | C | C | C | C | C | | | | |
| | RPM | 352 | 403 | 450 | 493 | 534 | 573 | 608 | 641 | 673 | 703 | 730 | 757 | | | | |
| | Turns Open | 4.5 | 3 | 5.5 | 4.5 | 3 | 2 | 1 | 5 | 4 | 2.5 | 2 | 1.5 | | | | |
| 991.2 | BkW | 0.12 | 0.18 | 0.22 | 0.25 | 0.28 | 0.31 | 0.33 | 0.37 | 0.40 | 0.44 | 0.48 | 0.52 | | | | |
| | Sheave/Mtr | B | B | A | A | A | A | A | C | C | C | C | C | | | | |
| | RPM | 362 | 410 | 457 | 499 | 537 | 577 | 612 | 647 | 678 | 710 | 737 | 764 | | | | |
| | Turns Open | 4 | 2.5 | 5.5 | 4.5 | 3 | 2 | 1 | 4.5 | 3.5 | 2.5 | 2 | 1 | | | | |
| 1038.4 | BkW | 0.17 | 0.21 | 0.24 | 0.25 | 0.29 | 0.33 | 0.37 | 0.40 | 0.44 | 0.48 | 0.52 | 0.55 | | | | |
| | Sheave/Mtr | B | B | A | A | A | A | A | C | C | C | C | C | | | | |
| | RPM | 375 | 424 | 467 | 507 | 548 | 584 | 621 | 653 | 684 | 716 | 743 | 772 | | | | |
| | Turns Open | 4 | 2 | 5 | 4.5 | 3 | 1.5 | 1 | 4.5 | 3.5 | 2.5 | 2 | 1 | | | | |
| 1085.6 | BkW | 0.16 | 0.18 | 0.22 | 0.25 | 0.29 | 0.33 | 0.37 | 0.40 | 0.44 | 0.48 | 0.52 | 0.55 | | | | |
| | Sheave/Mtr | B | B | A | A | A | A | A | C | C | C | C | C | | | | |
| | RPM | 339 | 387 | 435 | 476 | 518 | 555 | 590 | 627 | 659 | 692 | 721 | 751 | | | | |
| | Turns Open | 5 | 3.5 | 6 | 5 | 4 | 2.5 | 1.5 | 5.5 | 4.5 | 3 | 2.5 | 1.5 | | | | |
| 1132.8 | BkW | 0.18 | 0.22 | 0.25 | 0.29 | 0.33 | 0.37 | 0.40 | 0.44 | 0.48 | 0.52 | 0.55 | 0.59 | | | | |
| | Sheave/Mtr | B | B | A | A | A | A | A | C | C | C | C | C | | | | |
| | RPM | 353 | 403 | 446 | 485 | 527 | 563 | 600 | 633 | 665 | 697 | 726 | 756 | | | | |
| | Turns Open | 4.5 | 3 | 6 | 5 | 3.5 | 2.5 | 1.5 | 5.5 | 4 | 3 | 2 | 1.5 | | | | |
| 1180.0 | BkW | 0.21 | 0.23 | 0.25 | 0.29 | 0.33 | 0.37 | 0.40 | 0.44 | 0.48 | 0.55 | 0.59 | 0.63 | | | | |
| | Sheave/Mtr | B | B | A | A | A | A | A | C | C | C | C | C | | | | |
| | RPM | 362 | 411 | 452 | 495 | 532 | 567 | 604 | 636 | 670 | 700 | 729 | 759 | | | | |
| | Turns Open | 4.0 | 2.5 | 5.5 | 4.5 | 3.5 | 2 | 1 | 5 | 4 | 3 | 2 | 1 | | | | |
| 1227.2 | BkW | 0.22 | 0.25 | 0.32 | 0.36 | 0.40 | 0.43 | 0.47 | 0.51 | 0.55 | 0.58 | 0.62 | 0.66 | | | | |
| | Sheave/Mtr | B | B | A | A | A | A | A | C | C | C | C | C | | | | |
| | RPM | 377 | 420 | 460 | 500 | 536 | 570 | 606 | 638 | 671 | 701 | 729 | 759 | | | | |
| | Turns Open | 3.5 | 2 | 5.5 | 4.5 | 3 | 2 | 1 | 5 | 3.5 | 2.5 | 2 | 1 | | | | |
| 1274.4 | BkW | 0.25 | 0.28 | 0.32 | 0.36 | 0.40 | 0.44 | 0.48 | 0.52 | 0.55 | 0.59 | 0.63 | 0.67 | | | | |
| | Sheave/Mtr | B | B | A | A | A | A | A | C | C | C | C | C | | | | |
| | RPM | 381 | 423 | 463 | 504 | 539 | 576 | 609 | 641 | 674 | 703 | 734 | 762 | | | | |
| | Turns Open | 3.5 | 2 | 5 | 4 | 3 | 1.5 | 1 | 5 | 3.5 | 2.5 | 2 | 1 | | | | |
| 1321.6 | BkW | 0.25 | 0.29 | 0.33 | 0.37 | 0.40 | 0.48 | 0.52 | 0.55 | 0.59 | 0.63 | 0.67 | | | | | |
| | Sheave/Mtr | B | B | A | A | A | A | A | C | C | C | C | C | | | | |
| | RPM | 390 | 431 | 474 | 510 | 545 | 581 | 613 | 647 | 677 | 706 | 737 | | | | | |
| | Turns Open | 3 | 2 | 5 | 4 | 3 | 1.5 | 1 | 4.5 | 3.5 | 2.5 | 2 | | | | | |
| 1368.8 | BkW | 0.29 | 0.33 | 0.37 | 0.40 | 0.44 | 0.48 | 0.55 | 0.59 | 0.63 | 0.67 | 0.70 | | | | | |
| | Sheave/Mtr | B | A | A | A | A | A | C | C | C | C | C | C | | | | |
| | RPM | 399 | 440 | 481 | 517 | 551 | 586 | 618 | 651 | 681 | 710 | 740 | | | | | |
| | Turns Open | 3 | 6 | 4.5 | 3.5 | 2.5 | 1.5 | 5.5 | 4.5 | 3 | 2.5 | 1.5 | | | | | |
| 1416.0 | BkW | 0.32 | 0.37 | 0.40 | 0.44 | 0.48 | 0.52 | 0.55 | 0.63 | 0.67 | 0.70 | 0.78 | | | | | |
| | Sheave/Mtr | B | A | A | A | A | A | A | C | C | C | C | C | | | | |
| | RPM | 412 | 455 | 492 | 526 | 563 | 595 | 628 | 658 | 687 | 718 | 745 | | | | | |
| | Turns Open | 2.5 | 5.5 | 4.5 | 3.5 | 2 | 1 | 5 | 4 | 3 | 2 | 1.5 | | | | | |
| 1463.2 | BkW | 0.33 | 0.40 | 0.44 | 0.48 | 0.52 | 0.55 | 0.63 | 0.67 | 0.70 | 0.74 | 0.78 | | | | | |
| | Sheave/Mtr | B | A | A | A | A | A | A | C | C | C | C | C | | | | |
| | RPM | 421 | 459 | 499 | 533 | 569 | 600 | 633 | 663 | 691 | 722 | 749 | | | | | |
| | Turns Open | 2 | 5.5 | 4 | 3 | 2 | 1 | 5 | 4 | 3 | 2 | 1.5 | | | | | |
| 1510.4 | BkW | 0.37 | 0.40 | 0.48 | 0.52 | 0.55 | 0.63 | 0.67 | 0.70 | 0.74 | 0.78 | 0.85 | | | | | |
| | Sheave/Mtr | A | A | A | A | A | A | C | C | C | C | C | C | | | | |
| | RPM | 441 | 478 | 513 | 549 | 581 | 614 | 644 | 672 | 703 | 730 | 759 | | | | | |
| | Turns Open | 6 | 5 | 4 | 2.5 | 1.5 | 1 | 4.5 | 3.5 | 2.5 | 2 | 1.5 | | | | | |
| 1557.6 | BkW | 0.40 | 0.48 | 0.52 | 0.55 | 0.62 | 0.67 | 0.70 | 0.74 | 0.78 | 0.85 | 0.92 | | | | | |
| | Sheave/Mtr | A | A | A | A | A | C | C | C | C | C | C | C | | | | |
| | RPM | 456 | 495 | 529 | 561 | 595 | 625 | 656 | 685 | 712 | 741 | 767 | | | | | |
| | Turns Open | 5.5 | 4.5 | 3.5 | 2 | 1 | 5.5 | 4 | 3 | 2.5 | 2 | 1 | | | | | |
| 1604.8 | BkW | 0.47 | 0.52 | 0.55 | 0.59 | 0.63 | 0.70 | 0.74 | 0.78 | 0.85 | 0.89 | 0.93 | | | | | |
| | Sheave/Mtr | A | A | A | A | A | C | C | C | C | C | C | C | | | | |
| | RPM | 471 | 506 | 539 | 574 | 604 | 633 | 664 | 692 | 721 | 747 | 773 | | | | | |
| | Turns Open | 5.5 | 4 | 3 | 1.5 | 1 | 5 | 4 | 3 | 2 | 1.5 | 1 | | | | | |
| 1652.0 | BkW | 0.48 | 0.55 | 0.59 | 0.63 | 0.70 | 0.74 | 0.78 | 0.85 | 0.92 | 0.96 | | | | | | |
| | Sheave/Mtr | A | A | A | A | C | C | C | C | C | C | C | C | | | | |
| | RPM | 486 | 520 | 555 | 586 | 615 | 647 | 674 | 704 | 730 | 756 | | | | | | |
| | Turns Open | 5 | 3.5 | 2.5 | 1 | 5.5 | 4.5 | 4 | 3 | 2 | 1.5 | | | | | | |

A = Standard Static/Standard Motor, B = Low Static/Standard Motor, C = High Static/Standard Motor.

Unit factory shipped with standard static sheave and drive at 2.5 turns open. Other speeds require field selection.

For applications requiring higher static pressures, contact your local representative. Performance data does not include drive losses and is based on sea level conditions.

Do not operate in black regions. All airflow is rated at lowest Voltage if unit is dual Voltage rated, i.e. 208V for 208-230V units.

TLV SERIES 50HZ - HFC-410A SUBMITTAL DATA ENG/S-I



Blower Performance Data TLV120 - Standard Unit

All Data is Wet Coil

| Airflow l/s | Pa | Airflow (l/s) at External Static Pressure (Pa) | | | | | | | | | | | | | | | | | |
|----------------|------------|--|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | 0 | 25 | 50 | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 325 | 350 | 375 | | |
| 1085.6 | BkW | | | 0.18 | 0.19 | 0.22 | 0.27 | 0.30 | 0.34 | 0.37 | 0.42 | 0.45 | 0.48 | 0.52 | 0.55 | 0.60 | 0.63 | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | A | A | C | C | C | C | C | | |
| | RPM | | | 376 | 423 | 466 | 503 | 543 | 580 | 616 | 649 | 682 | 712 | 742 | 770 | 797 | 822 | | |
| | Turns Open | | | 6 | 4.5 | 3 | 6 | 5 | 4 | 3 | 2 | 1 | 5.5 | 4.5 | 4 | 3 | 2.5 | | |
| 1132.8 | BkW | | | 0.19 | 0.22 | 0.27 | 0.30 | 0.34 | 0.37 | 0.42 | 0.45 | 0.52 | 0.57 | 0.60 | 0.67 | 0.70 | | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | A | C | C | C | C | C | | | |
| | RPM | | | 395 | 439 | 481 | 517 | 555 | 592 | 626 | 659 | 691 | 722 | 751 | 779 | 805 | 831 | | |
| | Turns Open | | | 5.5 | 4 | 2.5 | 5.5 | 4.5 | 3.5 | 2.5 | 1.5 | 6 | 5.5 | 4.5 | 3.5 | 3 | 2 | | |
| 1180.0 | BkW | | | 0.22 | 0.25 | 0.30 | 0.33 | 0.37 | 0.40 | 0.45 | 0.48 | 0.55 | 0.60 | 0.63 | 0.67 | 0.70 | 0.75 | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | A | C | C | C | C | C | C | | |
| | RPM | | | 412 | 455 | 496 | 530 | 567 | 603 | 637 | 669 | 701 | 730 | 759 | 787 | 813 | 839 | | |
| | Turns Open | | | 5 | 3 | 1.5 | 5.5 | 4 | 3 | 2 | 1 | 6 | 5 | 4 | 3.5 | 2.5 | 1.5 | | |
| 1227.2 | BkW | | 0.22 | 0.25 | 0.30 | 0.33 | 0.37 | 0.40 | 0.45 | 0.48 | 0.55 | 0.60 | 0.63 | 0.67 | 0.70 | 0.75 | 0.78 | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | A | C | C | C | C | C | C | | |
| | RPM | | | 385 | 430 | 471 | 506 | 544 | 579 | 614 | 647 | 679 | 710 | 739 | 768 | 795 | 822 | 847 | |
| | Turns Open | | | 6 | 4 | 2.5 | 6 | 5 | 3.5 | 2.5 | 1.5 | 1 | 5.5 | 4.5 | 4 | 3 | 2 | 1.5 | |
| 1274.4 | BkW | | | 0.25 | 0.30 | 0.33 | 0.37 | 0.40 | 0.45 | 0.55 | 0.60 | 0.63 | 0.67 | 0.70 | 0.75 | 0.78 | 0.82 | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | C | C | C | C | C | C | C | | |
| | RPM | | | 403 | 446 | 486 | 520 | 556 | 591 | 625 | 657 | 689 | 719 | 748 | 776 | 803 | 830 | 855 | |
| | Turns Open | | | 5 | 3.5 | 2 | 5.5 | 4.5 | 3.5 | 2.5 | 1 | 6 | 5.5 | 4.5 | 3.5 | 3 | 2 | 1 | |
| 1321.6 | BkW | | 0.25 | 0.30 | 0.33 | 0.37 | 0.40 | 0.45 | 0.48 | 0.52 | 0.60 | 0.63 | 0.67 | 0.70 | 0.75 | 0.78 | 0.82 | 0.90 | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | A | C | C | C | C | C | C | C | |
| | RPM | | | 377 | 421 | 462 | 501 | 534 | 569 | 603 | 636 | 668 | 698 | 728 | 757 | 785 | 812 | 838 | 860 |
| | Turns Open | | | 6 | 4.5 | 3 | 6 | 5 | 4 | 3 | 2 | 1 | 6 | 5 | 4 | 3.5 | 2.5 | 1.5 | 1 |
| 1368.8 | BkW | | | 0.30 | 0.33 | 0.37 | 0.40 | 0.45 | 0.48 | 0.52 | 0.55 | 0.63 | 0.67 | 0.70 | 0.75 | 0.85 | 0.90 | 0.93 | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | A | C | C | C | C | C | C | C | |
| | RPM | | | 395 | 438 | 478 | 515 | 547 | 582 | 615 | 647 | 678 | 708 | 737 | 765 | 793 | 819 | 845 | 868 |
| | Turns Open | | | 5.5 | 4 | 2.5 | 6 | 4.5 | 3.5 | 2.5 | 1.5 | 1 | 5.5 | 5 | 4 | 3 | 2.5 | 1.5 | 0.5 |
| 1416.0 | BkW | | | 0.33 | 0.37 | 0.40 | 0.44 | 0.48 | 0.52 | 0.55 | 0.63 | 0.67 | 0.70 | 0.78 | 0.82 | 0.85 | 0.89 | 0.93 | 1.00 |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | A | C | C | C | C | C | C | C | C |
| | RPM | | | 414 | 453 | 491 | 529 | 563 | 595 | 626 | 659 | 689 | 717 | 745 | 774 | 801 | 826 | 851 | 877 |
| | Turns Open | | | 4.5 | 3.5 | 2 | 5.5 | 4.5 | 3.5 | 2.5 | 1.5 | 6 | 5.5 | 4.5 | 3.5 | 3 | 2 | 1 | 0.5 |
| 1463.2 | BkW | | | 0.37 | 0.40 | 0.44 | 0.48 | 0.52 | 0.55 | 0.63 | 0.67 | 0.70 | 0.78 | 0.82 | 0.85 | 0.89 | 0.93 | 1.00 | 1.08 |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | A | C | C | C | C | C | C | C | C |
| | RPM | | | 431 | 469 | 504 | 542 | 575 | 607 | 637 | 670 | 699 | 726 | 754 | 783 | 809 | 834 | 859 | 884 |
| | Turns Open | | | 4 | 3 | 6 | 5 | 4 | 3 | 2 | 1 | 6 | 5 | 4.5 | 3.5 | 2.5 | 2 | 1 | 0.5 |
| 1510.4 | BkW | | | 0.40 | 0.44 | 0.48 | 0.52 | 0.55 | 0.63 | 0.67 | 0.70 | 0.78 | 0.82 | 0.85 | 0.93 | 0.96 | 1.00 | 1.08 | 1.14 |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | A | C | C | C | C | C | C | C | C |
| | RPM | | | 448 | 485 | 520 | 556 | 588 | 619 | 649 | 680 | 708 | 736 | 765 | 791 | 817 | 841 | 868 | 891 |
| | Turns Open | | | 3.5 | 2 | 5.5 | 4.5 | 3.5 | 2.5 | 1.5 | 1 | 5.5 | 5 | 4 | 3 | 2.5 | 1.5 | 0.5 | 0 |
| 1557.6 | BkW | | | 0.44 | 0.48 | 0.52 | 0.55 | 0.63 | 0.67 | 0.70 | 0.78 | 0.82 | 0.85 | 0.93 | 0.96 | 1.00 | 1.08 | 1.11 | 1.15 |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | A | C | C | C | C | C | C | C | C |
| | RPM | | | 464 | 500 | 537 | 570 | 601 | 631 | 662 | 691 | 718 | 745 | 774 | 799 | 824 | 849 | 875 | 898 |
| | Turns Open | | | 3 | 1.5 | 5 | 4 | 3 | 2 | 1.5 | 6 | 5.5 | 4.5 | 4 | 3 | 2 | 1.5 | 0.5 | 0 |
| 1604.8 | BkW | | | 0.48 | 0.52 | 0.55 | 0.63 | 0.67 | 0.70 | 0.78 | 0.82 | 0.85 | 0.93 | 0.96 | 1.00 | 1.08 | 1.11 | 1.15 | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | A | C | C | C | C | C | C | C | C |
| | RPM | | | 480 | 515 | 551 | 583 | 613 | 642 | 674 | 701 | 728 | 754 | 783 | 808 | 833 | 857 | 882 | |
| | Turns Open | | | 2.5 | 6 | 4.5 | 3.5 | 3 | 2 | 1 | 6 | 5 | 4.5 | 3.5 | 2.5 | 2 | 1 | 0 | |
| 1652.0 | BkW | | | 0.52 | 0.55 | 0.63 | 0.67 | 0.70 | 0.78 | 0.82 | 0.85 | 0.93 | 0.96 | 1.00 | 1.08 | 1.15 | 1.19 | 1.23 | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | A | C | C | C | C | C | C | C | C |
| | RPM | | | 496 | 530 | 565 | 596 | 625 | 654 | 684 | 711 | 738 | 766 | 792 | 816 | 841 | 867 | 890 | |
| | Turns Open | | | 2 | 5.5 | 4 | 3.5 | 2.5 | 1.5 | 6 | 5.5 | 4.5 | 4 | 3 | 2.5 | 1.5 | 1 | 0 | |
| 1699.2 | BkW | | | 0.55 | 0.63 | 0.67 | 0.70 | 0.78 | 0.82 | 0.85 | 0.93 | 1.00 | 1.04 | 1.08 | 1.15 | 1.19 | 1.23 | 1.30 | |
| | Sheave/Mtr | | | A | A | A | A | A | A | C | C | C | C | C | C | C | C | C | |
| | RPM | | | 511 | 544 | 578 | 608 | 637 | 668 | 695 | 722 | 748 | 776 | 800 | 825 | 849 | 874 | 897 | |
| | Turns Open | | | 6 | 5 | 3.5 | 3 | 2 | 1 | 6 | 5 | 4.5 | 3.5 | 3 | 2 | 1.5 | 0.5 | 0 | |
| 1746.4 | BkW | | | 0.63 | 0.67 | 0.70 | 0.78 | 0.85 | 0.89 | 0.93 | 1.00 | 1.04 | 1.08 | 1.15 | 1.23 | 1.26 | 1.30 | | |
| | Sheave/Mtr | | | A | A | A | A | A | A | C | C | C | C | C | C | C | C | C | |
| | RPM | | | 526 | 561 | 592 | 621 | 649 | 679 | 706 | 732 | 758 | 785 | 809 | 833 | 857 | 882 | | |
| | Turns Open | | | 5.5 | 4.5 | 3.5 | 2.5 | 1.5 | 1 | 5.5 | 5 | 4 | 3.5 | 2.5 | 2 | 1 | 0.5 | | |
| 1793.6 | BkW | | | 0.67 | 0.70 | 0.78 | 0.82 | 0.85 | 0.93 | 1.00 | 1.04 | 1.08 | 1.15 | 1.23 | 1.26 | 1.30 | 1.38 | | |
| | Sheave/Mtr | | | A | A | A | A | A | A | C | C | C | C | C | C | C | C | C | |
| | RPM | | | 544 | 575 | 605 | 633 | 661 | 691 | 717 | 742 | 767 | 794 | 818 | 842 | 867 | 890 | | |
| | Turns Open | | | 5 | 4 | 3 | 2 | 1 | 6 | 5.5 | 4.5 | 4 | 3 | 2 | 1.5 | 0.5 | 0 | | |
| 1840.8 | BkW | | | 0.70 | 0.78 | 0.85 | 0.89 | 0.93 | 1.00 | 1.08 | 1.11 | 1.15 | 1.23 | 1.30 | 1.34 | 1.38 | 1.45 | | |
| | Sheave/Mtr | | | A | A | A | A | A | C | C | C | C | C | C | C | C | E | | |
| | RPM | | | 555 | 589 | 618 | 646 | 676 | 702 | 728 | 753 | 779 | 803 | 827 | 850 | 875 | 898 | | |
| | Turns Open | | | 4.5 | 3.5 | 2.5 | 1.5 | 6 | 6 | 5 | 4 | 3.5 | 2.5 | 2 | 1 | 0.5 | 0 | | |

A = Standard Static/Standard Motor, B = Low Static/Standard Motor, C = High Static/Standard Motor, E = High Static/Large Motor.
 Unit factory shipped with standard static sheave and drive at 2.5 turns open. Other speeds require field selection.
 For applications requiring higher static pressures, contact your local representative. Performance data does not include drive losses and is based on sea level conditions.
 Do not operate in black regions. All airflow is rated at lowest Voltage if unit is dual Voltage rated, i.e. 208V for 208-230V units.

Table Continued on Next Page

TLV SERIES 50HZ - HFC-410A SUBMITTAL DATA ENG/S-I



Blower Performance Data TLV120 - Standard Unit

Table Continued from Previous Page

All Data is Wet Coil

| Airflow l/s | Pa | Airflow (l/s) at External Static Pressure (Pa) | | | | | | | | | | | | | | | |
|-------------|------------|--|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|
| | | 0 | 25 | 50 | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 325 | 350 | 375 |
| 1888.0 | BkW | 0.78 | 0.82 | 0.85 | 0.93 | 1.00 | 1.08 | 1.11 | 1.15 | 1.23 | 1.30 | 1.34 | 1.38 | 1.50 | 1.53 | | |
| | Sheave/Mtr | A | A | A | A | C | C | C | C | C | C | C | C | E | E | | |
| | RPM | 572 | 601 | 630 | 657 | 686 | 712 | 737 | 762 | 789 | 812 | 836 | 859 | 883 | 905 | | |
| | Turns Open | 4 | 3 | 2 | 1 | 6 | 5.5 | 4.5 | 4 | 3 | 2.5 | 1.5 | 1 | 0 | 0 | | |
| 1935.2 | BkW | 0.85 | 0.89 | 0.93 | 1.00 | 1.08 | 1.11 | 1.15 | 1.23 | 1.30 | 1.38 | 1.41 | 1.50 | 1.53 | | | |
| | Sheave/Mtr | A | A | A | A | C | C | C | C | C | C | C | E | E | | | |
| | RPM | 589 | 617 | 645 | 672 | 700 | 726 | 751 | 775 | 801 | 824 | 847 | 872 | 894 | | | |
| | Turns Open | 3.5 | 2.5 | 1.5 | 1 | 6 | 5 | 4.5 | 3.5 | 2.5 | 2 | 1 | 0.5 | 0 | | | |
| 1982.4 | BkW | 0.93 | 0.96 | 1.00 | 1.08 | 1.15 | 1.19 | 1.23 | 1.30 | 1.38 | 1.50 | 1.53 | 1.56 | | | | |
| | Sheave/Mtr | A | A | A | C | C | C | C | C | C | E | E | E | | | | |
| | RPM | 605 | 633 | 660 | 689 | 714 | 739 | 763 | 790 | 813 | 836 | 858 | 882 | | | | |
| | Turns Open | 3 | 2 | 1 | 6 | 5.5 | 4.5 | 4 | 3 | 2 | 1.5 | 1 | 0.5 | | | | |
| 2029.6 | BkW | 0.96 | 1.00 | 1.08 | 1.15 | 1.23 | 1.26 | 1.30 | 1.38 | 1.50 | 1.53 | 1.60 | 1.68 | | | | |
| | Sheave/Mtr | A | A | A | C | C | C | C | C | E | E | E | E | | | | |
| | RPM | 621 | 649 | 675 | 703 | 728 | 752 | 776 | 802 | 827 | 847 | 869 | 893 | | | | |
| | Turns Open | 2.5 | 1.5 | 1 | 6 | 5 | 4 | 3.5 | 2.5 | 2 | 1.5 | 1 | 0 | | | | |
| 2076.8 | BkW | 1.040 | 1.08 | 1.15 | 1.23 | 1.30 | 1.38 | 1.41 | 1.50 | 1.53 | 1.60 | 1.68 | 1.75 | | | | |
| | Sheave/Mtr | A | A | C | C | C | C | C | E | C | E | E | E | | | | |
| | RPM | 637 | 664 | 690 | 717 | 742 | 766 | 791 | 814 | 836 | 858 | 882 | 904 | | | | |
| | Turns Open | 2 | 1 | 6 | 5.5 | 4.5 | 4 | 3 | 2 | 2 | 1 | 0.5 | 0 | | | | |
| 2124.0 | BkW | 1.11 | 1.15 | 1.23 | 1.30 | 1.38 | 1.45 | 1.53 | 1.56 | 1.60 | 1.68 | 1.75 | | | | | |
| | Sheave/Mtr | A | A | C | C | C | C | E | E | C | E | E | | | | | |
| | RPM | 653 | 679 | 707 | 731 | 755 | 779 | 804 | 826 | 848 | 870 | 893 | | | | | |
| | Turns Open | 1.5 | 1 | 5.5 | 5 | 4 | 3.5 | 3 | 2 | 1.5 | 1 | 0 | | | | | |

A = Standard Static/Standard Motor, B = Low Static/Standard Motor, C = High Static/Standard Motor, E = High Static/Large Motor.

Unit factory shipped with standard static sheave and drive at 2.5 turns open. Other speeds require field selection.

For applications requiring higher static pressures, contact your local representative. Performance data does not include drive losses and is based on sea level conditions.

Do not operate in black regions. All airflow is rated at lowest Voltage if unit is dual Voltage rated, i.e. 208V for 208-230V units.

TLV SERIES 50HZ - HFC-410A SUBMITTAL DATA ENG/S-I



Blower Performance Data TLV150 - Standard Unit

All Data is Wet Coil

| Airflow l/s | Pa | Airflow (l/s) at External Static Pressure (Pa) | | | | | | | | | | | | | | | | | | | | |
|-------------|------------|--|----|----|----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | 0 | 25 | 50 | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 325 | 350 | 375 | | | | | |
| 1321.6 | BkW | | | | | | 0.34 | 0.37 | 0.42 | 0.49 | 0.52 | 0.57 | 0.64 | 0.72 | 0.79 | 0.87 | 0.94 | | | | | |
| | Sheave/Mtr | | | | | | B | B | A | A | A | A | A | A | C | C | C | | | | | |
| | RPM | | | | | | 533 | 572 | 606 | 640 | 676 | 712 | 746 | 783 | 821 | 859 | 901 | | | | | |
| | Turns Open | | | | | | 5.5 | 4 | 6 | 5 | 4 | 3 | 2 | 1 | 5.5 | 4.5 | 3 | | | | | |
| 1368.8 | BkW | | | | | | 0.37 | 0.42 | 0.45 | 0.52 | 0.57 | 0.60 | 0.67 | 0.75 | 0.81 | 0.90 | 0.97 | | | | | |
| | Sheave/Mtr | | | | | | B | B | A | A | A | A | A | A | C | C | C | | | | | |
| | RPM | | | | | | 544 | 582 | 619 | 652 | 686 | 719 | 754 | 789 | 823 | 860 | 902 | | | | | |
| | Turns Open | | | | | | 5 | 4 | 5.5 | 4.5 | 3.5 | 2.5 | 1.5 | 1 | 5.5 | 4 | 3 | | | | | |
| 1416.0 | BkW | | | | | | 0.37 | 0.42 | 0.45 | 0.52 | 0.57 | 0.60 | 0.67 | 0.75 | 0.79 | 0.82 | 0.94 | 1.02 | | | | |
| | Sheave/Mtr | | | | | | B | B | B | A | A | A | A | A | C | C | C | C | | | | |
| | RPM | | | | | | 521 | 558 | 595 | 628 | 663 | 697 | 728 | 762 | 796 | 828 | 863 | 903 | | | | |
| | Turns Open | | | | | | 6 | 4.5 | 3.5 | 5.5 | 4.5 | 3.5 | 2.5 | 1.5 | 6 | 5 | 4 | 3 | | | | |
| 1463.2 | BkW | | | | | | 0.42 | 0.45 | 0.52 | 0.55 | 0.60 | 0.64 | 0.72 | 0.78 | 0.82 | 0.90 | 0.97 | 1.05 | | | | |
| | Sheave/Mtr | | | | | | B | B | A | A | A | A | A | A | C | C | C | C | | | | |
| | RPM | | | | | | 536 | 572 | 608 | 640 | 674 | 705 | 737 | 769 | 799 | 832 | 866 | 904 | | | | |
| | Turns Open | | | | | | 5.5 | 4 | 6 | 5 | 4 | 3 | 2 | 1 | 6 | 5 | 4 | 3 | | | | |
| 1510.4 | BkW | | | | | | 0.45 | 0.49 | 0.55 | 0.60 | 0.67 | 0.70 | 0.75 | 0.85 | 0.90 | 0.97 | 1.05 | 1.12 | | | | |
| | Sheave/Mtr | | | | | | B | B | A | A | A | A | A | A | C | C | C | C | | | | |
| | RPM | | | | | | 548 | 585 | 618 | 652 | 685 | 715 | 747 | 778 | 807 | 836 | 868 | 905 | | | | |
| | Turns Open | | | | | | 5 | 3.5 | 5.5 | 4.5 | 3.5 | 2.5 | 1.5 | 1 | 5.5 | 5 | 3.5 | 3 | | | | |
| 1557.6 | BkW | | | | | | 0.45 | 0.48 | 0.52 | 0.60 | 0.64 | 0.70 | 0.78 | 0.82 | 0.90 | 0.93 | 1.00 | 1.08 | 1.15 | | | |
| | Sheave/Mtr | | | | | | B | B | A | A | A | A | A | A | C | C | C | C | | | | |
| | RPM | | | | | | 522 | 562 | 599 | 631 | 664 | 694 | 725 | 756 | 784 | 815 | 845 | 874 | 906 | | | |
| | Turns Open | | | | | | 6 | 4.5 | 6 | 5.5 | 4 | 3 | 2.5 | 1.5 | 1 | 5.5 | 4.5 | 3.5 | 3 | | | |
| 1604.8 | BkW | | | | | | 0.48 | 0.52 | 0.57 | 0.63 | 0.67 | 0.75 | 0.82 | 0.85 | 0.93 | 1.00 | 1.08 | 1.15 | 1.20 | | | |
| | Sheave/Mtr | | | | | | B | B | A | A | A | A | A | A | C | C | C | C | C | | | |
| | RPM | | | | | | 537 | 576 | 612 | 643 | 676 | 705 | 736 | 763 | 793 | 823 | 850 | 880 | 908 | | | |
| | Turns Open | | | | | | 5.5 | 4 | 5.5 | 5 | 4 | 3 | 2 | 1 | 6 | 5 | 4.5 | 3.5 | 2.5 | | | |
| 1652.0 | BkW | | | | | | 0.52 | 0.57 | 0.60 | 0.67 | 0.75 | 0.78 | 0.85 | 0.93 | 1.00 | 1.05 | 1.12 | 1.20 | 1.23 | | | |
| | Sheave/Mtr | | | | | | B | B | A | A | A | A | A | A | C | C | C | C | C | | | |
| | RPM | | | | | | 551 | 589 | 622 | 655 | 685 | 716 | 746 | 776 | 802 | 829 | 858 | 886 | 913 | | | |
| | Turns Open | | | | | | 5 | 3.5 | 5.5 | 4.5 | 3.5 | 2.5 | 2 | 1 | 6 | 5 | 4 | 3 | 2.5 | | | |
| 1699.2 | BkW | | | | | | 0.52 | 0.55 | 0.60 | 0.67 | 0.75 | 0.78 | 0.85 | 0.93 | 0.97 | 1.05 | 1.08 | 1.15 | 1.23 | 1.30 | | |
| | Sheave/Mtr | | | | | | B | B | A | A | A | A | A | A | C | C | C | C | C | C | | |
| | RPM | | | | | | 526 | 565 | 600 | 634 | 665 | 696 | 727 | 754 | 783 | 809 | 837 | 865 | 891 | 919 | | |
| | Turns Open | | | | | | 6 | 4.5 | 6 | 5 | 4 | 3 | 2 | 1.5 | 6 | 5.5 | 4.5 | 4 | 3 | 2.5 | | |
| 1746.4 | BkW | | | | | | 0.55 | 0.63 | 0.67 | 0.70 | 0.78 | 0.85 | 0.93 | 0.97 | 1.00 | 1.08 | 1.15 | 1.23 | 1.30 | 1.38 | | |
| | Sheave/Mtr | | | | | | B | B | A | A | A | A | A | A | C | C | C | C | C | C | | |
| | RPM | | | | | | 541 | 579 | 613 | 647 | 677 | 707 | 737 | 764 | 793 | 818 | 846 | 871 | 898 | 926 | | |
| | Turns Open | | | | | | 5.5 | 4 | 5.5 | 4.5 | 4 | 3 | 2 | 1.5 | 6 | 5.5 | 4.5 | 3.5 | 3 | 2 | | |
| 1793.6 | BkW | | | | | | 0.55 | 0.63 | 0.67 | 0.70 | 0.78 | 0.85 | 0.93 | 0.96 | 1.00 | 1.08 | 1.15 | 1.23 | 1.30 | 1.38 | 1.45 | |
| | Sheave/Mtr | | | | | | B | B | B | A | A | A | A | A | C | C | C | C | C | C | C | |
| | RPM | | | | | | 519 | 554 | 591 | 626 | 659 | 688 | 718 | 746 | 774 | 802 | 829 | 855 | 879 | 905 | 931 | |
| | Turns Open | | | | | | 6 | 5 | 3.5 | 5.5 | 4.5 | 3.5 | 2.5 | 2 | 1 | 5.5 | 5 | 4.5 | 3.5 | 2.5 | 2 | |
| 1840.8 | BkW | | | | | | 0.59 | 0.63 | 0.70 | 0.78 | 0.85 | 0.89 | 0.93 | 1.00 | 1.08 | 1.15 | 1.23 | 1.30 | 1.38 | 1.45 | 1.52 | |
| | Sheave/Mtr | | | | | | B | B | A | A | A | A | A | A | C | C | C | C | C | C | C | |
| | RPM | | | | | | 531 | 569 | 605 | 639 | 669 | 702 | 729 | 757 | 785 | 811 | 838 | 862 | 887 | 913 | 938 | |
| | Turns Open | | | | | | 5.5 | 4.5 | 6 | 5 | 4 | 3 | 2.5 | 1.5 | 1 | 5.5 | 5 | 4 | 3.5 | 2.5 | 2 | |
| 1888.0 | BkW | | | | | | 0.63 | 0.70 | 0.78 | 0.85 | 0.89 | 0.93 | 1.00 | 1.08 | 1.15 | 1.23 | 1.26 | 1.30 | 1.38 | 1.45 | 1.53 | |
| | Sheave/Mtr | | | | | | B | B | A | A | A | A | A | A | C | C | C | C | C | C | C | |
| | RPM | | | | | | 545 | 582 | 618 | 651 | 683 | 710 | 739 | 767 | 794 | 821 | 845 | 870 | 895 | 920 | 945 | |
| | Turns Open | | | | | | 5 | 4 | 5.5 | 4.5 | 4 | 3 | 2 | 1.5 | 6 | 5.5 | 4.5 | 4 | 3 | 2.5 | 2 | |
| 1935.2 | BkW | | | | | | 0.63 | 0.70 | 0.78 | 0.82 | 0.85 | 0.93 | 1.00 | 1.08 | 1.15 | 1.23 | 1.26 | 1.30 | 1.38 | 1.45 | 1.53 | 1.60 |
| | Sheave/Mtr | | | | | | B | B | B | A | A | A | A | A | C | C | C | C | C | C | C | C |
| | RPM | | | | | | 523 | 560 | 596 | 631 | 661 | 692 | 722 | 750 | 778 | 804 | 831 | 854 | 879 | 904 | 928 | 951 |
| | Turns Open | | | | | | 6 | 4.5 | 3.5 | 5.5 | 4.5 | 3.5 | 2.5 | 1.5 | 1 | 6 | 5 | 4.5 | 3.5 | 3 | 2 | 1.5 |

A = Standard Static/Standard Motor, B = Low Static/Standard Motor, C = High Static/Standard Motor, E = High Static/Large Motor.
 Unit factory shipped with standard static sheave and drive at 2.5 turns open. Other speeds require field selection.
 For applications requiring higher static pressures, contact your local representative. Performance data does not include drive losses and is based on sea level conditions.
 Do not operate in black regions. All airflow is rated at lowest Voltage if unit is dual Voltage rated, i.e. 208V for 208-230V units.

Table Continued on Next Page



Table Continued from Previous Page

All Data is Wet Coil

| Airflow l/s | Pa | Airflow (l/s) at External Static Pressure (Pa) | | | | | | | | | | | | | | | |
|-------------|------------|--|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | 0 | 25 | 50 | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 325 | 350 | 375 |
| 1982.4 | BkW | 0.70 | 0.74 | 0.78 | 0.85 | 0.93 | 1.00 | 1.08 | 1.15 | 1.19 | 1.23 | 1.30 | 1.38 | 1.45 | 1.53 | 1.60 | 1.68 |
| | Sheave/Mtr | B | B | A | A | A | A | A | A | A | C | C | C | C | C | C | C |
| | RPM | 538 | 574 | 609 | 640 | 673 | 703 | 733 | 761 | 788 | 812 | 838 | 863 | 888 | 912 | 934 | 958 |
| | Turns Open | 5.5 | 4 | 6 | 5 | 4 | 3 | 2 | 1.5 | 1 | 5.5 | 5 | 4 | 3.5 | 2.5 | 2 | 1.5 |
| 2029.6 | BkW | 0.70 | 0.78 | 0.85 | 0.93 | 1.00 | 1.08 | 1.15 | 1.19 | 1.23 | 1.30 | 1.38 | 1.45 | 1.53 | 1.60 | 1.68 | 1.75 |
| | Sheave/Mtr | B | B | A | A | A | A | A | A | C | C | C | C | C | C | C | C |
| | RPM | 553 | 588 | 620 | 653 | 685 | 715 | 744 | 771 | 796 | 822 | 847 | 872 | 896 | 919 | 942 | 966 |
| | Turns Open | 5 | 3.5 | 5.5 | 4.5 | 3.5 | 2.5 | 2 | 1 | 6 | 5.5 | 4.5 | 4 | 3 | 2.5 | 1.5 | 1 |
| 2076.8 | BkW | 0.78 | 0.85 | 0.93 | 1.00 | 1.08 | 1.15 | 1.19 | 1.23 | 1.30 | 1.38 | 1.45 | 1.53 | 1.60 | 1.68 | 1.75 | 1.83 |
| | Sheave/Mtr | B | B | A | A | A | A | A | A | C | C | C | C | C | C | C | C |
| | RPM | 568 | 602 | 633 | 666 | 697 | 726 | 755 | 782 | 806 | 832 | 857 | 881 | 904 | 927 | 950 | 973 |
| | Turns Open | 4.5 | 3 | 5 | 4 | 3.5 | 2.5 | 1.5 | 1 | 6 | 5 | 4.5 | 3.5 | 3 | 2 | 1.5 | 1 |
| 2124.0 | BkW | 0.85 | 0.90 | 0.97 | 1.05 | 1.12 | 1.20 | 1.27 | 1.35 | 1.42 | 1.50 | 1.57 | 1.65 | 1.72 | 1.80 | 1.87 | |
| | Sheave/Mtr | B | A | A | A | A | A | A | C | C | C | C | C | C | C | C | |
| | RPM | 581 | 613 | 646 | 678 | 706 | 735 | 763 | 791 | 817 | 842 | 867 | 889 | 912 | 935 | 958 | |
| | Turns Open | 4 | 6 | 4.5 | 4 | 3 | 2 | 1.5 | 6 | 5.5 | 4.5 | 4 | 3 | 2.5 | 2 | 1.5 | |
| 2171.2 | BkW | 0.89 | 0.93 | 1.00 | 1.08 | 1.15 | 1.23 | 1.30 | 1.38 | 1.45 | 1.53 | 1.60 | 1.68 | 1.75 | 1.83 | 1.90 | |
| | Sheave/Mtr | B | A | A | A | A | A | A | C | C | C | C | C | C | C | C | |
| | RPM | 598 | 623 | 656 | 687 | 715 | 744 | 772 | 799 | 825 | 850 | 872 | 896 | 919 | 942 | 963 | |
| | Turns Open | 3.5 | 5.5 | 4.5 | 3.5 | 2.5 | 2 | 1 | 6 | 5.5 | 4.5 | 3.5 | 3 | 2 | 1.5 | 1 | |
| 2218.4 | BkW | 0.93 | 1.00 | 1.08 | 1.15 | 1.23 | 1.30 | 1.38 | 1.45 | 1.53 | 1.60 | 1.68 | 1.75 | 1.83 | 1.90 | 1.97 | |
| | Sheave/Mtr | A | A | A | A | A | A | A | C | C | C | C | C | C | C | C | |
| | RPM | 605 | 637 | 666 | 697 | 727 | 755 | 783 | 809 | 835 | 858 | 882 | 905 | 928 | 951 | 973 | |
| | Turns Open | 6 | 5 | 4 | 3 | 2.5 | 1.5 | 1 | 5.5 | 5 | 4 | 3.5 | 2.5 | 2 | 1.5 | 1 | |
| 2265.6 | BkW | 1.00 | 1.08 | 1.15 | 1.23 | 1.30 | 1.38 | 1.45 | 1.53 | 1.60 | 1.68 | 1.75 | 1.83 | 1.90 | 1.97 | 2.05 | |
| | Sheave/Mtr | A | A | A | A | A | A | C | C | C | C | C | C | C | C | C | |
| | RPM | 618 | 647 | 678 | 708 | 738 | 766 | 793 | 819 | 844 | 867 | 891 | 914 | 937 | 959 | 980 | |
| | Turns Open | 5.5 | 4.5 | 4 | 3 | 2 | 1 | 6 | 5.5 | 4.5 | 4 | 3 | 2.5 | 1.5 | 1.5 | 1 | |
| 2312.8 | BkW | 1.08 | 1.15 | 1.23 | 1.30 | 1.38 | 1.45 | 1.53 | 1.60 | 1.68 | 1.75 | 1.83 | 1.90 | 1.97 | 2.05 | 2.12 | |
| | Sheave/Mtr | A | A | A | A | A | A | C | C | C | C | C | C | C | C | C | |
| | RPM | 631 | 662 | 690 | 720 | 749 | 777 | 803 | 827 | 852 | 877 | 900 | 923 | 946 | 966 | 988 | |
| | Turns Open | 5.5 | 4 | 3.5 | 2.5 | 1.5 | 1 | 6 | 5 | 4.5 | 3.5 | 3 | 2 | 1.5 | 1 | 1 | |
| 2360.0 | BkW | 1.15 | 1.23 | 1.30 | 1.38 | 1.45 | 1.53 | 1.60 | 1.68 | 1.75 | 1.83 | 1.90 | 1.97 | 2.05 | 2.12 | | |
| | Sheave/Mtr | A | A | A | A | A | C | C | C | C | C | C | C | C | C | | |
| | RPM | 642 | 672 | 702 | 731 | 760 | 785 | 811 | 837 | 862 | 886 | 909 | 932 | 953 | 975 | | |
| | Turns Open | 5 | 4 | 3 | 2 | 1.5 | 6 | 5.5 | 4.5 | 4 | 3 | 2.5 | 1.5 | 1 | 1 | | |
| 2407.2 | BkW | 1.23 | 1.30 | 1.38 | 1.45 | 1.53 | 1.60 | 1.68 | 1.75 | 1.83 | 1.90 | 1.97 | 2.05 | 2.12 | | | |
| | Sheave/Mtr | A | A | A | A | A | C | C | C | C | C | C | C | C | | | |
| | RPM | 655 | 685 | 714 | 743 | 769 | 798 | 822 | 847 | 872 | 896 | 917 | 940 | 962 | | | |
| | Turns Open | 4.5 | 3.5 | 2.5 | 1.5 | 1 | 6 | 5 | 4.5 | 3.5 | 3 | 2.5 | 1.5 | 1 | | | |
| 2454.4 | BkW | 1.30 | 1.38 | 1.45 | 1.53 | 1.60 | 1.68 | 1.75 | 1.83 | 1.90 | 1.97 | 2.05 | 2.12 | 2.24 | | | |
| | Sheave/Mtr | A | A | A | A | C | C | C | C | C | C | C | C | E | | | |
| | RPM | 668 | 697 | 726 | 752 | 782 | 806 | 832 | 857 | 882 | 903 | 926 | 949 | 971 | | | |
| | Turns Open | 4 | 3 | 2.5 | 1.5 | 6 | 5.5 | 5 | 4 | 3.5 | 2.5 | 2 | 1 | 0 | | | |
| 2501.6 | BkW | 1.38 | 1.45 | 1.53 | 1.60 | 1.68 | 1.75 | 1.83 | 1.90 | 1.97 | 2.05 | 2.12 | 2.20 | 2.31 | | | |
| | Sheave/Mtr | A | A | A | A | C | C | C | C | C | C | C | C | E | | | |
| | RPM | 680 | 709 | 737 | 763 | 790 | 817 | 842 | 867 | 889 | 912 | 935 | 957 | 979 | | | |
| | Turns Open | 3.5 | 3 | 2 | 1 | 6 | 5.5 | 4.5 | 4 | 3 | 2 | 2 | 1 | 0 | | | |
| 2548.8 | BkW | 1.45 | 1.53 | 1.60 | 1.68 | 1.75 | 1.83 | 1.90 | 1.97 | 2.05 | 2.12 | 2.20 | 2.31 | | | | |
| | Sheave/Mtr | A | A | A | A | C | C | C | C | C | C | C | E | | | | |
| | RPM | 691 | 717 | 745 | 772 | 799 | 825 | 850 | 873 | 897 | 920 | 943 | 965 | | | | |
| | Turns Open | 3.5 | 2.5 | 1.5 | 1 | 5.5 | 5 | 4.5 | 3.5 | 3 | 2 | 1.5 | 0 | | | | |
| 2596.0 | BkW | 1.53 | 1.60 | 1.68 | 1.75 | 1.83 | 1.90 | 1.97 | 2.05 | 2.12 | 2.31 | 2.35 | 2.42 | | | | |
| | Sheave/Mtr | A | A | A | C | C | C | C | C | E | E | E | | | | | |
| | RPM | 704 | 729 | 756 | 783 | 810 | 836 | 859 | 883 | 907 | 929 | 952 | 972 | | | | |
| | Turns Open | 3 | 2 | 1.5 | 6 | 5.5 | 5 | 4 | 3.5 | 2.5 | 1 | 0.5 | 0 | | | | |

A = Standard Static/Standard Motor, B = Low Static/Standard Motor, C = High Static/Standard Motor, E = High Static/Large Motor.
 Unit factory shipped with standard static sheave and drive at 2.5 turns open. Other speeds require field selection.
 For applications requiring higher static pressures, contact your local representative. Performance data does not include drive losses and is based on sea level conditions.
 Do not operate in black regions. All airflow is rated at lowest Voltage if unit is dual Voltage rated, i.e. 208V for 208-230V units.

TLV SERIES 50HZ - HFC-410A SUBMITTAL DATA ENG/S-I



Blower Performance Data TLV168 - Standard Unit

All Data is Wet Coil

| l/s | Pa | Airflow (l/s) at External Static Pressure (Pa) | | | | | | | | | | | | | | | |
|--------|------------|--|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|
| | | 0 | 25 | 50 | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 325 | 350 | 375 |
| 1510.4 | BkW | | | 0.23 | 0.30 | 0.26 | 0.38 | 0.45 | 0.48 | 0.51 | 0.60 | 0.63 | 0.66 | 0.75 | 0.78 | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | A | C | C | C | C | | |
| | RPM | | | 388 | 437 | 482 | 527 | 564 | 599 | 630 | 663 | 690 | 716 | 744 | 767 | | |
| | Turns Open | | | 6 | 4 | 2.5 | 5.5 | 4.5 | 3.5 | 2.5 | 1.5 | 3.5 | 2.5 | 2 | 1 | | |
| 1604.8 | BkW | | | 0.25 | 0.32 | 0.30 | 0.41 | 0.48 | 0.51 | 0.55 | 0.63 | 0.67 | 0.71 | 0.80 | 0.84 | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | C | C | C | C | | | |
| | RPM | | | 392 | 440 | 485 | 529 | 566 | 601 | 633 | 666 | 693 | 720 | 747 | 771 | | |
| | Turns Open | | | 5.5 | 4 | 2.5 | 5.5 | 4.5 | 3.5 | 2.5 | 1.5 | 3 | 2.5 | 2 | 1 | | |
| 1699.2 | BkW | | | 0.27 | 0.34 | 0.34 | 0.44 | 0.50 | 0.54 | 0.59 | 0.67 | 0.71 | 0.76 | 0.84 | | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | C | C | C | | | | |
| | RPM | | | 395 | 444 | 488 | 530 | 568 | 603 | 636 | 668 | 697 | 723 | 751 | | | |
| | Turns Open | | | 5.5 | 4 | 2.5 | 5.5 | 4 | 3.5 | 2.5 | 1 | 3 | 2.5 | 1.5 | | | |
| 1793.6 | BkW | | | 0.29 | 0.37 | 0.39 | 0.47 | 0.53 | 0.57 | 0.62 | 0.70 | 0.76 | 0.81 | 0.89 | | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | C | C | C | | | | |
| | RPM | | | 399 | 447 | 491 | 532 | 571 | 606 | 639 | 671 | 700 | 727 | 754 | | | |
| | Turns Open | | | 5.5 | 3.5 | 2 | 5 | 4 | 3 | 2 | 1 | 3 | 2 | 1.5 | | | |
| 1888.0 | BkW | | | 0.32 | 0.39 | 0.43 | 0.50 | 0.56 | 0.60 | 0.66 | 0.74 | 0.80 | 0.86 | 0.94 | | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | C | C | C | | | | |
| | RPM | | | 403 | 450 | 493 | 534 | 573 | 608 | 641 | 673 | 703 | 730 | 757 | | | |
| | Turns Open | | | 5 | 3.5 | 2 | 5 | 4 | 3 | 2 | 1 | 2.5 | 2 | 1.5 | | | |
| 1982.4 | BkW | | 0.24 | 0.36 | 0.43 | 0.51 | 0.55 | 0.61 | 0.66 | 0.73 | 0.81 | 0.88 | 0.96 | 1.03 | | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | C | C | C | | | | |
| | RPM | | | 362 | 410 | 457 | 499 | 537 | 577 | 612 | 647 | 678 | 710 | 737 | 764 | | |
| | Turns Open | | | 6 | 5 | 3.5 | 2 | 5 | 3.5 | 3 | 2 | 1 | 2.5 | 2 | 1 | | |
| 2076.8 | BkW | | 0.34 | 0.42 | 0.47 | 0.51 | 0.58 | 0.66 | 0.73 | 0.81 | 0.88 | 0.96 | 1.03 | 1.11 | | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | C | C | C | | | | |
| | RPM | | | 375 | 424 | 467 | 507 | 548 | 584 | 621 | 653 | 684 | 716 | 743 | 772 | | |
| | Turns Open | | | 6 | 4.5 | 3 | 1.5 | 4.5 | 3.5 | 2.5 | 1.5 | 3.5 | 2.5 | 1.5 | 1 | | |
| 2171.2 | BkW | | 0.36 | 0.43 | 0.51 | 0.58 | 0.66 | 0.73 | 0.81 | 0.88 | 0.96 | 1.03 | 1.11 | | | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | C | C | C | | | | |
| | RPM | | | 387 | 435 | 476 | 518 | 555 | 590 | 627 | 659 | 692 | 721 | 751 | | | |
| | Turns Open | | | 5.5 | 4 | 3 | 1.5 | 4.5 | 3.5 | 2.5 | 1.5 | 3 | 2.5 | 1.5 | | | |
| 2265.6 | BkW | | 0.43 | 0.51 | 0.58 | 0.66 | 0.73 | 0.81 | 0.88 | 0.96 | 1.03 | 1.11 | 1.18 | | | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | C | C | C | | | | |
| | RPM | | | 403 | 446 | 485 | 527 | 563 | 600 | 633 | 665 | 697 | 726 | 756 | | | |
| | Turns Open | | | 5.5 | 4 | 2.5 | 5.5 | 4.5 | 3 | 2.5 | 1 | 3 | 2 | 1.5 | | | |
| 2360.0 | BkW | | 0.42 | 0.46 | 0.51 | 0.58 | 0.66 | 0.73 | 0.81 | 0.88 | 0.96 | 1.11 | 1.18 | 1.26 | | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | C | C | C | | | | |
| | RPM | | | 362 | 411 | 452 | 495 | 532 | 567 | 604 | 636 | 670 | 700 | 729 | 759 | | |
| | Turns Open | | | 6 | 5 | 3.5 | 2 | 5.5 | 4 | 3 | 2 | 1 | 3 | 2 | 1 | | |
| 2454.4 | BkW | | 0.43 | 0.51 | 0.64 | 0.72 | 0.79 | 0.87 | 0.94 | 1.02 | 1.09 | 1.17 | 1.24 | 1.32 | | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | C | C | C | | | | |
| | RPM | | | 377 | 420 | 460 | 500 | 536 | 570 | 606 | 638 | 671 | 701 | 729 | 759 | | |
| | Turns Open | | | 6 | 4.5 | 3.5 | 2 | 5 | 4 | 3 | 2 | 4 | 2.5 | 2 | 1 | | |
| 2548.8 | BkW | | 0.49 | 0.57 | 0.64 | 0.72 | 0.79 | 0.88 | 0.96 | 1.03 | 1.11 | 1.18 | 1.26 | 1.33 | | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | C | C | C | | | | |
| | RPM | | | 381 | 423 | 463 | 504 | 539 | 576 | 609 | 641 | 674 | 703 | 734 | 762 | | |
| | Turns Open | | | 5.5 | 4.5 | 3 | 1.5 | 5 | 3.5 | 2.5 | 2 | 3.5 | 2.5 | 1.5 | 1 | | |
| 2643.2 | BkW | | 0.51 | 0.58 | 0.66 | 0.73 | 0.81 | 0.96 | 1.03 | 1.11 | 1.18 | 1.26 | 1.33 | | | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | C | C | C | | | | |
| | RPM | | | 390 | 431 | 474 | 510 | 545 | 581 | 613 | 647 | 677 | 706 | 737 | | | |
| | Turns Open | | | 5.5 | 4 | 3 | 1.5 | 5 | 3.5 | 2.5 | 1.5 | 3.5 | 2.5 | 1.5 | | | |
| 2737.6 | BkW | | 0.58 | 0.66 | 0.73 | 0.81 | 0.88 | 0.96 | 1.11 | 1.18 | 1.26 | 1.33 | 1.41 | | | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | C | C | C | | | | |
| | RPM | | | 399 | 440 | 481 | 517 | 551 | 586 | 618 | 651 | 681 | 710 | 740 | | | |
| | Turns Open | | | 5 | 4 | 2.5 | 5.5 | 4.5 | 3.5 | 2.5 | 1.5 | 3.5 | 2 | 1.5 | | | |
| 2832.0 | BkW | | 0.64 | 0.73 | 0.81 | 0.88 | 0.96 | 1.03 | 1.11 | 1.26 | 1.33 | 1.41 | 1.56 | | | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | C | C | C | | | | |
| | RPM | | | 412 | 455 | 492 | 526 | 563 | 595 | 628 | 658 | 687 | 718 | 745 | | | |
| | Turns Open | | | 5 | 3.5 | 2 | 5.5 | 4 | 3 | 2 | 1 | 3 | 2 | 1 | | | |

A = Standard Static/Standard Motor, B = Low Static/Standard Motor, C = High Static/Standard Motor.
 Unit factory shipped with standard static sheave and drive at 2.5 turns open. Other speeds require field selection.
 For applications requiring higher static pressures, contact your local representative. Performance data does not include drive losses and is based on sea level conditions.
 Do not operate in black regions. All airflow is rated at lowest Voltage if unit is dual Voltage rated, i.e. 208V for 208-230V units.

TLV SERIES 50HZ - HFC-410A SUBMITTAL DATA ENG/S-I



Blower Performance Data TLV192 - Standard Unit

All Data is Wet Coil

| Airflow l/s | Pa | Airflow (l/s) at External Static Pressure (Pa) | | | | | | | | | | | | | | | |
|-------------|------------|--|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|
| | | 0 | 25 | 50 | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 325 | 350 | 375 |
| 1699.2 | BkW | | | 0.27 | 0.34 | 0.34 | 0.44 | 0.50 | 0.54 | 0.59 | 0.67 | 0.71 | 0.76 | 0.84 | | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | A | C | C | C | | | |
| | RPM | | | 395 | 444 | 488 | 530 | 568 | 603 | 636 | 668 | 697 | 723 | 751 | | | |
| | Turns Open | | | 5.5 | 4 | 2.5 | 5.5 | 4 | 3.5 | 2 | 1 | 3 | 2.5 | 1.5 | | | |
| 1793.6 | BkW | | | 0.29 | 0.37 | 0.39 | 0.47 | 0.53 | 0.57 | 0.62 | 0.70 | 0.76 | 0.81 | 0.89 | | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | A | C | C | C | | | |
| | RPM | | | 399 | 447 | 491 | 532 | 571 | 606 | 639 | 671 | 700 | 727 | 754 | | | |
| | Turns Open | | | 5.5 | 4 | 2.5 | 5.5 | 4 | 3 | 2 | 1 | 3 | 2 | 1.5 | | | |
| 1888.0 | BkW | | | 0.32 | 0.39 | 0.43 | 0.50 | 0.56 | 0.60 | 0.66 | 0.74 | 0.80 | 0.86 | 0.94 | | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | A | C | C | C | | | |
| | RPM | | | 403 | 450 | 493 | 534 | 573 | 608 | 641 | 673 | 703 | 730 | 757 | | | |
| | Turns Open | | | 5.5 | 3.5 | 2 | 5 | 4 | 3 | 2 | 1 | 2.5 | 2 | 1.5 | | | |
| 1982.4 | BkW | | | 0.36 | 0.43 | 0.51 | 0.55 | 0.61 | 0.66 | 0.73 | 0.81 | 0.88 | 0.96 | 1.03 | | | |
| | Sheave/Mtr | | | B | B | B | A | A | A | A | A | C | C | C | | | |
| | RPM | | | 410 | 457 | 499 | 537 | 577 | 612 | 647 | 678 | 710 | 737 | 764 | | | |
| | Turns Open | | | 5 | 3.5 | 2 | 5 | 3.5 | 3 | 1.5 | 1 | 2.5 | 2 | 1 | | | |
| 2076.8 | BkW | | 0.34 | 0.42 | 0.47 | 0.51 | 0.58 | 0.66 | 0.73 | 0.81 | 0.88 | 0.96 | 1.03 | 1.11 | | | |
| | Sheave/Mtr | | B | B | B | B | A | A | A | A | C | C | C | C | | | |
| | RPM | | 375 | 424 | 467 | 507 | 548 | 584 | 621 | 653 | 684 | 716 | 743 | 772 | | | |
| | Turns Open | | 6 | 4.5 | 3 | 1.5 | 5 | 3.5 | 2.5 | 1.5 | 3.5 | 2.5 | 1.5 | 1 | | | |
| 2171.2 | BkW | | 0.36 | 0.43 | 0.51 | 0.58 | 0.66 | 0.73 | 0.81 | 0.88 | 0.96 | 1.03 | 1.11 | | | | |
| | Sheave/Mtr | | B | B | B | A | A | A | A | A | C | C | C | C | | | |
| | RPM | | 387 | 435 | 476 | 518 | 555 | 590 | 627 | 659 | 692 | 721 | 751 | | | | |
| | Turns Open | | 6 | 4 | 3 | 6 | 4.5 | 3.5 | 2.5 | 1.5 | 3 | 2.5 | 1.5 | | | | |
| 2265.6 | BkW | | 0.43 | 0.51 | 0.58 | 0.66 | 0.73 | 0.81 | 0.88 | 0.96 | 1.03 | 1.11 | 1.18 | | | | |
| | Sheave/Mtr | | B | B | B | A | A | A | A | A | C | C | C | C | | | |
| | RPM | | 403 | 446 | 485 | 527 | 563 | 600 | 633 | 665 | 697 | 726 | 756 | | | | |
| | Turns Open | | 5.5 | 4 | 2.5 | 5.5 | 4.5 | 3.5 | 2.5 | 1 | 3 | 2 | 1.5 | | | | |
| 2360.0 | BkW | | 0.42 | 0.46 | 0.51 | 0.58 | 0.66 | 0.73 | 0.81 | 0.88 | 0.96 | 1.11 | 1.18 | 1.26 | | | |
| | Sheave/Mtr | | B | B | B | B | A | A | A | A | C | C | C | C | | | |
| | RPM | | 362 | 411 | 452 | 495 | 532 | 567 | 604 | 636 | 670 | 700 | 729 | 759 | | | |
| | Turns Open | | 6 | 5 | 3.5 | 2 | 5.5 | 4 | 3 | 2 | 1 | 3 | 2 | 1 | | | |
| 2454.4 | BkW | | 0.43 | 0.51 | 0.64 | 0.72 | 0.79 | 0.87 | 0.94 | 1.02 | 1.09 | 1.17 | 1.24 | 1.32 | | | |
| | Sheave/Mtr | | B | B | B | B | A | A | A | A | C | C | C | C | | | |
| | RPM | | 377 | 420 | 460 | 500 | 536 | 570 | 606 | 638 | 671 | 701 | 729 | 759 | | | |
| | Turns Open | | 6 | 4.5 | 3.5 | 2 | 5 | 4 | 3 | 2 | 3.5 | 2.5 | 2 | 1 | | | |
| 2548.8 | BkW | | 0.49 | 0.57 | 0.64 | 0.72 | 0.79 | 0.88 | 0.96 | 1.03 | 1.11 | 1.18 | 1.26 | 1.33 | | | |
| | Sheave/Mtr | | B | B | B | A | A | A | A | A | C | C | C | C | | | |
| | RPM | | 381 | 423 | 463 | 504 | 539 | 576 | 609 | 641 | 674 | 703 | 734 | 762 | | | |
| | Turns Open | | 6 | 4.5 | 3 | 6 | 5 | 3.5 | 3 | 2 | 3.5 | 2.5 | 2 | 1 | | | |
| 2643.2 | BkW | | 0.51 | 0.58 | 0.66 | 0.73 | 0.81 | 0.96 | 1.03 | 1.11 | 1.18 | 1.26 | 1.33 | | | | |
| | Sheave/Mtr | | B | B | B | A | A | A | A | A | C | C | C | C | | | |
| | RPM | | 390 | 431 | 474 | 510 | 545 | 581 | 613 | 647 | 677 | 706 | 737 | | | | |
| | Turns Open | | 5.5 | 4.5 | 3 | 6 | 4.5 | 3.5 | 3 | 1.5 | 3.5 | 2.5 | 1.5 | | | | |
| 2737.6 | BkW | | 0.58 | 0.66 | 0.73 | 0.81 | 0.88 | 0.96 | 1.11 | 1.18 | 1.26 | 1.33 | 1.41 | | | | |
| | Sheave/Mtr | | B | B | B | A | A | A | A | A | C | C | C | C | | | |
| | RPM | | 399 | 440 | 481 | 517 | 551 | 586 | 618 | 651 | 681 | 710 | 740 | | | | |
| | Turns Open | | 5.5 | 4 | 2.5 | 5.5 | 4.5 | 3.5 | 2.5 | 1.5 | 3 | 2.5 | 1.5 | | | | |
| 2832.0 | BkW | | 0.64 | 0.73 | 0.81 | 0.88 | 0.96 | 1.03 | 1.11 | 1.26 | 1.33 | 1.41 | 1.56 | | | | |
| | Sheave/Mtr | | B | B | B | A | A | A | A | A | C | C | C | C | | | |
| | RPM | | 412 | 455 | 492 | 526 | 563 | 595 | 628 | 658 | 687 | 718 | 745 | | | | |
| | Turns Open | | 5 | 3.5 | 2 | 5.5 | 4 | 3 | 2 | 1 | 3 | 2 | 1.5 | | | | |
| 2926.4 | BkW | | 0.66 | 0.79 | 0.88 | 0.96 | 1.03 | 1.11 | 1.26 | 1.33 | 1.41 | 1.48 | 1.56 | | | | |
| | Sheave/Mtr | | B | B | B | A | A | A | A | A | C | C | C | C | | | |
| | RPM | | 421 | 459 | 499 | 533 | 569 | 600 | 633 | 663 | 691 | 722 | 749 | | | | |
| | Turns Open | | 4.5 | 3.5 | 2 | 5 | 4 | 3 | 2 | 1 | 2.5 | 2 | 1.5 | | | | |
| 3020.8 | BkW | | 0.73 | 0.81 | 0.96 | 1.03 | 1.11 | 1.26 | 1.33 | 1.41 | 1.48 | 1.56 | 1.71 | | | | |
| | Sheave/Mtr | | B | B | A | A | A | A | A | C | C | C | C | C | | | |
| | RPM | | 441 | 478 | 513 | 549 | 581 | 614 | 644 | 672 | 703 | 730 | 759 | | | | |
| | Turns Open | | 4 | 2.5 | 6 | 4.5 | 3.5 | 3 | 1.5 | 3.5 | 2.5 | 2 | 1 | | | | |
| 3115.2 | BkW | | 0.81 | 0.96 | 1.03 | 1.11 | 1.24 | 1.33 | 1.41 | 1.48 | 1.56 | 1.71 | 1.84 | | | | |
| | Sheave/Mtr | | B | B | A | A | A | A | A | C | C | C | C | C | | | |
| | RPM | | 456 | 495 | 529 | 561 | 595 | 625 | 656 | 685 | 712 | 741 | 767 | | | | |
| | Turns Open | | 3.5 | 2 | 5.5 | 4 | 3 | 2.5 | 1 | 3.5 | 2.5 | 2 | 1 | | | | |
| 3209.6 | BkW | | 0.94 | 1.03 | 1.11 | 1.18 | 1.26 | 1.41 | 1.48 | 1.56 | 1.71 | 1.78 | 1.86 | | | | |
| | Sheave/Mtr | | B | A | A | A | A | A | A | C | C | C | C | C | | | |
| | RPM | | 471 | 506 | 539 | 574 | 604 | 633 | 664 | 692 | 721 | 747 | 773 | | | | |
| | Turns Open | | 3 | 6 | 5 | 3.5 | 3 | 2 | 1 | 3 | 2 | 2 | 1 | | | | |
| 3304.0 | BkW | | 0.96 | 1.11 | 1.18 | 1.26 | 1.41 | 1.48 | 1.56 | 1.71 | 1.84 | 1.93 | | | | | |
| | Sheave/Mtr | | B | A | A | A | A | A | A | C | C | C | C | | | | |
| | RPM | | 486 | 520 | 555 | 586 | 615 | 647 | 674 | 704 | 730 | 756 | | | | | |
| | Turns Open | | 2.5 | 5.5 | 4.5 | 3 | 2.5 | 1.5 | 1 | 3 | 2 | 1.5 | | | | | |

A = Standard Static/Standard Motor, B = Low Static/Standard Motor, C = High Static/Standard Motor.
 Unit factory shipped with standard static sheave and drive at 2.5 turns open. Other speeds require field selection.
 For applications requiring higher static pressures, contact your local representative. Performance data does not include drive losses and is based on sea level conditions.
 Do not operate in black regions. All airflow is rated at lowest Voltage if unit is dual Voltage rated, i.e. 208V for 208-230V units.

ClimateMaster works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice and may not be as described herein. Please contact ClimateMaster's Customer Service Department at +1-405-745-6000 for specific information on the current design and specifications. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely ClimateMaster's opinion or commendation of its products. The latest version of this document is available at climatemaster.com.

TLV SERIES 50HZ - HFC-410A SUBMITTAL DATA ENG/S-I



Blower Performance Data TLV240 - Standard Unit

All Data is Wet Coil

| Airflow l/s | Pa | Airflow (l/s) at External Static Pressure (Pa) | | | | | | | | | | | | | | | | | | |
|-------------|------------|--|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|
| | | 0 | 25 | 50 | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 325 | 350 | 375 | | | |
| 2171.2 | BkW | | | | 0.39 | 0.45 | 0.54 | 0.60 | 0.69 | 0.75 | 0.84 | 0.90 | 0.96 | 1.05 | 1.11 | 1.20 | 1.26 | | | |
| | Sheave/Mtr | | | | B | B | B | A | A | A | A | A | A | C | C | C | C | | | |
| | RPM | | | | 423 | 466 | 503 | 543 | 580 | 616 | 649 | 682 | 712 | 742 | 770 | 797 | 822 | | | |
| | Turns Open | | | | 6 | 5 | 3.5 | 6 | 5 | 4 | 3 | 2 | 1 | 4.5 | 4 | 3 | 2.5 | | | |
| 2265.6 | BkW | | | | 0.45 | 0.54 | 0.60 | 0.69 | 0.75 | 0.84 | 0.90 | 1.05 | 1.05 | 1.14 | 1.20 | 1.35 | 1.41 | | | |
| | Sheave/Mtr | | | | B | B | B | A | A | A | A | A | A | C | C | C | C | | | |
| | RPM | | | | 439 | 481 | 517 | 555 | 592 | 626 | 659 | 691 | 722 | 751 | 779 | 805 | 831 | | | |
| | Turns Open | | | | 6 | 4.5 | 3 | 5.5 | 4.5 | 3.5 | 2.5 | 1.5 | 1 | 4.5 | 3.5 | 3 | 2 | | | |
| 2360.0 | BkW | | | | 0.51 | 0.60 | 0.66 | 0.75 | 0.81 | 0.90 | 0.96 | 1.11 | 1.20 | 1.26 | 1.35 | 1.41 | 1.50 | | | |
| | Sheave/Mtr | | | | B | B | A | A | A | A | A | A | C | C | C | C | C | | | |
| | RPM | | | | 455 | 496 | 530 | 567 | 603 | 637 | 669 | 701 | 730 | 759 | 787 | 813 | 839 | | | |
| | Turns Open | | | | 5.5 | 4 | 6 | 5 | 4 | 3 | 2 | 1.5 | 5 | 4 | 3.5 | 2.5 | 1.5 | | | |
| 2454.4 | BkW | | | 0.51 | 0.60 | 0.66 | 0.75 | 0.81 | 0.90 | 0.96 | 1.11 | 1.20 | 1.26 | 1.35 | 1.41 | 1.50 | 1.56 | | | |
| | Sheave/Mtr | | | | B | B | B | A | A | A | A | A | C | C | C | C | C | | | |
| | RPM | | | | 430 | 471 | 506 | 544 | 579 | 614 | 647 | 679 | 710 | 739 | 768 | 795 | 822 | 847 | | |
| | Turns Open | | | | 6 | 4.5 | 3.5 | 6 | 5 | 3.5 | 3 | 2 | 1 | 5 | 4 | 3 | 2 | 1.5 | | |
| 2548.8 | BkW | | | | 0.60 | 0.66 | 0.75 | 0.81 | 0.90 | 0.96 | 1.11 | 1.20 | 1.26 | 1.35 | 1.41 | 1.50 | 1.56 | 1.65 | | |
| | Sheave/Mtr | | | | B | B | B | A | A | A | A | C | C | C | C | C | C | | | |
| | RPM | | | | 446 | 486 | 520 | 556 | 591 | 625 | 657 | 689 | 719 | 748 | 776 | 803 | 830 | 855 | | |
| | Turns Open | | | | 6 | 4 | 3 | 5.5 | 4.5 | 3.5 | 2.5 | 1.5 | 5.5 | 4.5 | 3.5 | 3 | 2 | 1 | | |
| 2643.2 | BkW | | 0.60 | 0.66 | 0.75 | 0.81 | 0.90 | 0.96 | 1.05 | 1.20 | 1.26 | 1.35 | 1.41 | 2.00 | 2.08 | 2.20 | 2.40 | | | |
| | Sheave/Mtr | | | | B | B | B | A | A | A | A | C | C | C | C | C | C | | | |
| | RPM | | | | 421 | 462 | 501 | 534 | 569 | 603 | 636 | 668 | 698 | 728 | 757 | 785 | 812 | 838 | 860 | |
| | Turns Open | | | | 6 | 5 | 3.5 | 6 | 5 | 4 | 3 | 2 | 1.5 | 5 | 4 | 3.5 | 2.5 | 1.5 | 1.0 | |
| 2737.6 | BkW | | 0.66 | 0.75 | 0.81 | 0.90 | 0.96 | 1.05 | 1.11 | 1.26 | 1.35 | 1.41 | 1.50 | 2.08 | 2.28 | 2.40 | 2.48 | | | |
| | Sheave/Mtr | | | | B | B | B | A | A | A | A | C | C | C | C | C | C | | | |
| | RPM | | | | 438 | 478 | 515 | 547 | 582 | 615 | 647 | 678 | 708 | 737 | 765 | 793 | 819 | 845 | 868 | |
| | Turns Open | | | | 6 | 4.5 | 3 | 5.5 | 4.5 | 3.5 | 3 | 2 | 1 | 5 | 4 | 3.0 | 2.5 | 1.5 | 1.0 | |
| 2832.0 | BkW | | 0.73 | 0.81 | 0.88 | 0.96 | 1.03 | 1.11 | 1.26 | 1.33 | 1.41 | 1.56 | 1.63 | 2.28 | 2.38 | 2.48 | 2.68 | | | |
| | Sheave/Mtr | | | | B | B | B | A | A | A | A | C | C | C | C | C | C | | | |
| | RPM | | | | 453 | 491 | 529 | 563 | 595 | 626 | 659 | 689 | 717 | 745 | 774 | 801 | 826 | 851 | 877 | |
| | Turns Open | | | | 5.5 | 4 | 2.5 | 5.5 | 4.5 | 3.5 | 2.5 | 1.5 | 1 | 4.5 | 3.5 | 3.0 | 2.0 | 1.5 | 0.5 | |
| 2926.4 | BkW | 0.73 | 0.81 | 0.88 | 0.96 | 1.03 | 1.11 | 1.26 | 1.33 | 1.41 | 1.56 | 1.63 | 1.71 | 2.38 | 2.48 | 2.68 | 2.88 | | | |
| | Sheave/Mtr | | | | B | B | B | A | A | A | A | C | C | C | C | C | C | | | |
| | RPM | | | | 431 | 469 | 504 | 542 | 575 | 607 | 637 | 670 | 699 | 726 | 754 | 783 | 809 | 834 | 859 | 884 |
| | Turns Open | | | | 6 | 4 | 3.5 | 6 | 5 | 4 | 3 | 2 | 1.5 | 5.5 | 4.5 | 3.5 | 2.5 | 2.0 | 1.0 | 0.5 |
| 3020.8 | BkW | 0.81 | 0.88 | 0.96 | 1.03 | 1.11 | 1.26 | 1.33 | 1.41 | 1.56 | 1.63 | 1.71 | 1.86 | 2.58 | 2.68 | 2.88 | 3.06 | | | |
| | Sheave/Mtr | | | | B | B | B | A | A | A | A | C | C | C | C | C | C | | | |
| | RPM | | | | 448 | 485 | 520 | 556 | 588 | 619 | 649 | 680 | 708 | 736 | 765 | 791 | 817 | 841 | 868 | 891 |
| | Turns Open | | | | 5.5 | 4.5 | 3 | 5.5 | 4.5 | 3.5 | 3 | 2 | 1 | 5 | 4 | 3 | 2.5 | 1.5 | 1 | 0.5 |
| 3115.2 | BkW | 0.88 | 0.96 | 1.03 | 1.11 | 1.26 | 1.33 | 1.41 | 1.56 | 1.63 | 1.71 | 1.86 | 1.93 | 2.68 | 2.88 | 2.98 | 3.08 | | | |
| | Sheave/Mtr | | | | B | B | A | A | A | A | A | C | C | C | C | C | C | | | |
| | RPM | | | | 464 | 500 | 537 | 570 | 601 | 631 | 662 | 691 | 718 | 745 | 774 | 799 | 824 | 849 | 875 | 898 |
| | Turns Open | | | | 5 | 4 | 6 | 5 | 4.5 | 3.5 | 2.5 | 1.5 | 1 | 4.5 | 3.5 | 3 | 2 | 1.5 | 0.5 | 0 |
| 3209.6 | BkW | 0.96 | 1.03 | 1.11 | 1.26 | 1.33 | 1.41 | 1.56 | 1.63 | 1.71 | 1.86 | 1.93 | 2.00 | 2.88 | 2.98 | 3.08 | | | | |
| | Sheave/Mtr | | | | B | B | A | A | A | A | C | C | C | C | C | C | C | | | |
| | RPM | | | | 480 | 515 | 551 | 583 | 613 | 642 | 674 | 701 | 728 | 754 | 783 | 808 | 833 | 857 | 882 | |
| | Turns Open | | | | 4.5 | 3 | 5.5 | 4.5 | 4 | 3 | 2 | 1.5 | 5 | 4.5 | 3.5 | 2.5 | 2 | 1 | 0.5 | |
| 3304.0 | BkW | 1.03 | 1.11 | 1.26 | 1.33 | 1.41 | 1.56 | 1.63 | 1.71 | 1.86 | 1.93 | 2.00 | 2.15 | 3.08 | 3.18 | 3.28 | | | | |
| | Sheave/Mtr | | | | B | B | A | A | A | A | C | C | C | C | C | C | | | | |
| | RPM | | | | 496 | 530 | 565 | 596 | 625 | 654 | 684 | 711 | 738 | 766 | 792 | 816 | 841 | 867 | 890 | |
| | Turns Open | | | | 4 | 2.5 | 5.5 | 4 | 3.5 | 2.5 | 1.5 | 1 | 5 | 4 | 3 | 2.5 | 1.5 | 1 | 0 | |
| 3398.4 | BkW | 1.11 | 1.26 | 1.33 | 1.41 | 1.56 | 1.63 | 1.71 | 1.86 | 2.00 | 2.08 | 2.15 | 2.30 | 3.18 | 3.28 | 3.48 | | | | |
| | Sheave/Mtr | | | | B | A | A | A | A | C | C | C | C | C | C | C | | | | |
| | RPM | | | | 511 | 544 | 578 | 608 | 637 | 668 | 695 | 722 | 748 | 776 | 800 | 825 | 849 | 874 | 897 | |
| | Turns Open | | | | 3.5 | 6 | 5 | 4 | 3 | 2 | 1.5 | 5.5 | 4.5 | 3.5 | 3 | 2 | 1.5 | 0.5 | 0 | |
| 3492.8 | BkW | 1.26 | 1.33 | 1.41 | 1.56 | 1.71 | 1.78 | 1.86 | 2.00 | 2.08 | 2.15 | 2.30 | 2.45 | 3.38 | 3.48 | | | | | |
| | Sheave/Mtr | | | | B | A | A | A | A | C | C | C | C | C | C | | | | | |
| | RPM | | | | 526 | 561 | 592 | 621 | 649 | 679 | 706 | 732 | 758 | 785 | 809 | 833 | 857 | 882 | | |
| | Turns Open | | | | 3 | 5.5 | 4.5 | 3.5 | 3 | 2 | 1 | 5 | 4 | 3.5 | 2.5 | 2 | 1 | 0.5 | | |

A = Standard Static/Standard Motor, B = Low Static/Standard Motor, C = High Static/Standard Motor.
 Unit factory shipped with standard static sheave and drive at 2.5 turns open. Other speeds require field selection.
 For applications requiring higher static pressures, contact your local representative. Performance data does not include drive losses and is based on sea level conditions.
 Do not operate in black regions. All airflow is rated at lowest Voltage if unit is dual Voltage rated, i.e. 208V for 208-230V units.

Table Continued on Next Page

TLV SERIES 50HZ - HFC-410A SUBMITTAL DATA ENG/S-I



Blower Performance Data TLV240 - Standard Unit

Table Continued from Previous Page

All Data is Wet Coil

| Airflow l/s | Pa | Airflow (l/s) at External Static Pressure (Pa) | | | | | | | | | | | | | | | |
|----------------|------------|--|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|
| | | 0 | 25 | 50 | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 325 | 350 | 375 |
| 3587.2 | BkW | 1.33 | 1.41 | 1.56 | 1.63 | 1.71 | 1.86 | 2.00 | 2.08 | 2.15 | 2.30 | 2.45 | 2.53 | 2.60 | 2.75 | | |
| | Sheave/Mtr | A | A | A | A | A | A | A | C | C | C | C | C | C | C | | |
| | RPM | 544 | 575 | 605 | 633 | 661 | 691 | 717 | 742 | 767 | 794 | 818 | 842 | 867 | 890 | | |
| | Turns Open | 6 | 5 | 4 | 3 | 2.5 | 1.5 | 1 | 4.5 | 4 | 3 | 2.5 | 1.5 | 1 | 0 | | |
| 3681.6 | BkW | 1.41 | 1.56 | 1.71 | 1.78 | 1.86 | 2.00 | 2.15 | 2.23 | 2.30 | 2.45 | 2.60 | 2.68 | 2.75 | 2.90 | | |
| | Sheave/Mtr | A | A | A | A | A | A | C | C | C | C | C | C | C | C | | |
| | RPM | 555 | 589 | 618 | 646 | 676 | 702 | 728 | 753 | 779 | 803 | 827 | 850 | 875 | 898 | | |
| | Turns Open | 5.5 | 4.5 | 3.5 | 2.5 | 2 | 1 | 5 | 4.5 | 3.5 | 2.5 | 2 | 1 | 0.5 | 0 | | |
| 3776.0 | BkW | 1.56 | 1.63 | 1.71 | 1.86 | 2.00 | 2.15 | 2.23 | 2.30 | 2.45 | 2.60 | 2.68 | 2.75 | 2.90 | 3.05 | | |
| | Sheave/Mtr | A | A | A | A | A | A | C | C | C | C | C | C | C | C | | |
| | RPM | 572 | 601 | 630 | 657 | 686 | 712 | 737 | 762 | 789 | 812 | 836 | 859 | 883 | 905 | | |
| | Turns Open | 5 | 4 | 3 | 2.5 | 1.5 | 1 | 4.5 | 4 | 3 | 2.5 | 1.5 | 1 | 0.5 | 0 | | |
| 3870.4 | BkW | 1.71 | 1.78 | 1.86 | 2.00 | 2.15 | 2.23 | 2.30 | 2.45 | 2.60 | 2.75 | 2.83 | 2.90 | 3.05 | | | |
| | Sheave/Mtr | A | A | A | A | A | C | C | C | C | C | C | C | C | | | |
| | RPM | 589 | 617 | 645 | 672 | 700 | 726 | 751 | 775 | 801 | 824 | 847 | 872 | 894 | | | |
| | Turns Open | 4.5 | 3.5 | 3 | 2 | 1 | 5 | 4.5 | 3.5 | 2.5 | 2 | 1.5 | 0.5 | 0 | | | |
| 3964.8 | BkW | 1.86 | 1.93 | 2.00 | 2.15 | 2.30 | 2.38 | 2.45 | 2.60 | 2.75 | 2.99 | 3.05 | 3.13 | 3.20 | | | |
| | Sheave/Mtr | A | A | A | A | A | C | C | C | C | C | C | C | C | | | |
| | RPM | 605 | 633 | 660 | 689 | 714 | 739 | 763 | 790 | 813 | 836 | 858 | 882 | 904 | | | |
| | Turns Open | 4 | 3 | 2.5 | 1.5 | 1 | 5 | 4 | 3 | 2.5 | 1.5 | 1 | 0.5 | 0 | | | |
| 4059.2 | BkW | 1.93 | 2.00 | 2.15 | 2.30 | 2.45 | 2.53 | 2.60 | 2.75 | 2.99 | 3.05 | 3.20 | 3.35 | | | | |
| | Sheave/Mtr | A | A | A | A | C | C | C | C | C | C | C | C | | | | |
| | RPM | 621 | 649 | 675 | 703 | 728 | 752 | 776 | 802 | 827 | 847 | 869 | 893 | | | | |
| | Turns Open | 3.5 | 2.5 | 2 | 1 | 5 | 4.5 | 3.5 | 2.5 | 2 | 1.5 | 1 | 0 | | | | |
| 4153.6 | BkW | 2.08 | 2.15 | 2.30 | 2.45 | 2.60 | 2.75 | 2.83 | 2.99 | 3.05 | 3.20 | 3.35 | 3.50 | | | | |
| | Sheave/Mtr | A | A | A | C | C | C | C | C | C | C | C | C | | | | |
| | RPM | 637 | 664 | 690 | 717 | 742 | 766 | 791 | 814 | 836 | 858 | 882 | 904 | | | | |
| | Turns Open | 3 | 2 | 1.5 | 5.5 | 4.5 | 4 | 3 | 2.5 | 2 | 1 | 0.5 | 0 | | | | |
| 4248.0 | BkW | 2.23 | 2.30 | 2.45 | 2.60 | 2.75 | 2.90 | 3.05 | 3.13 | 3.20 | 3.35 | 3.50 | | | | | |
| | Sheave/Mtr | A | A | A | C | C | C | C | C | C | C | C | | | | | |
| | RPM | 653 | 679 | 707 | 731 | 755 | 779 | 804 | 826 | 848 | 870 | 893 | | | | | |
| | Turns Open | 2.5 | 1.5 | 1 | 5 | 4 | 3.5 | 3 | 2 | 1.5 | 1 | 0 | | | | | |

A = Standard Static/Standard Motor, B = Low Static/Standard Motor, C = High Static/Standard Motor.

Unit factory shipped with standard static sheave and drive at 2.5 turns open. Other speeds require field selection.

For applications requiring higher static pressures, contact your local representative. Performance data does not include drive losses and is based on sea level conditions. Do not operate in black regions. All airflow is rated at lowest Voltage if unit is dual Voltage rated, i.e. 208V for 208-230V units.

TLV SERIES 50HZ - HFC-410A SUBMITTAL DATA ENG/S-I



Blower Performance Data TLV300 - Standard Unit

All Data is Wet Coil

| Airflow l/s | Pa | Airflow (l/s) at External Static Pressure (Pa) | | | | | | | | | | | | | | | | | | |
|----------------|------------|--|----|----|----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| | | 0 | 25 | 50 | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 325 | 350 | 375 | | | |
| 2643.2 | BkW | | | | | | 0.69 | 0.75 | 0.84 | 0.99 | 1.05 | 1.14 | 1.29 | 1.44 | 1.59 | 1.74 | 1.88 | | | |
| | Sheave/Mtr | | | | | | B | B | B | A | A | A | A | A | A | C | C | | | |
| | RPM | | | | | | 533 | 572 | 606 | 640 | 676 | 712 | 746 | 783 | 821 | 859 | 901 | | | |
| | Turns Open | | | | | | 5.5 | 4 | 3 | 6 | 4.5 | 3.5 | 2 | 1 | 0 | 1.5 | 0.5 | | | |
| 2737.6 | BkW | | | | | 0.75 | 0.84 | 0.90 | 1.05 | 1.14 | 1.20 | 1.35 | 1.50 | 1.62 | 1.80 | 1.94 | | | | |
| | Sheave/Mtr | | | | | | B | B | B | A | A | A | A | A | C | C | C | | | |
| | RPM | | | | | | 544 | 582 | 619 | 652 | 686 | 719 | 754 | 789 | 823 | 860 | 902 | | | |
| | Turns Open | | | | | | 5 | 4 | 2.5 | 5.5 | 4 | 3 | 2 | 0.5 | 2.5 | 1.5 | 0 | | | |
| 2832.0 | BkW | | | | | 0.75 | 0.84 | 0.90 | 1.05 | 1.14 | 1.20 | 1.35 | 1.50 | 1.59 | 1.65 | 1.88 | 2.03 | | | |
| | Sheave/Mtr | | | | | | B | B | B | A | A | A | A | A | C | C | C | | | |
| | RPM | | | | | | 521 | 558 | 595 | 628 | 663 | 697 | 728 | 762 | 796 | 828 | 863 | 903 | | |
| | Turns Open | | | | | | 6 | 4.5 | 3 | 2 | 5 | 4 | 2.5 | 1.5 | 0.5 | 2 | 1 | 0 | | |
| 2926.4 | BkW | | | | | 0.84 | 0.90 | 1.05 | 1.11 | 1.20 | 1.29 | 1.44 | 1.56 | 1.65 | 1.80 | 1.94 | 2.09 | | | |
| | Sheave/Mtr | | | | | | B | B | B | A | A | A | A | A | C | C | C | | | |
| | RPM | | | | | | 536 | 572 | 608 | 640 | 674 | 705 | 737 | 769 | 799 | 832 | 866 | 904 | | |
| | Turns Open | | | | | | 5.5 | 4 | 3 | 6 | 4.5 | 3.5 | 2.5 | 1.5 | 0 | 2 | 1 | 0 | | |
| 3020.8 | BkW | | | | | 0.90 | 0.99 | 1.11 | 1.20 | 1.35 | 1.41 | 1.50 | 1.71 | 1.80 | 1.94 | 2.09 | | | | |
| | Sheave/Mtr | | | | | | B | B | B | A | A | A | A | A | C | C | C | | | |
| | RPM | | | | | | 548 | 585 | 618 | 652 | 685 | 715 | 747 | 778 | 807 | 836 | 868 | | | |
| | Turns Open | | | | | | 5 | 3.5 | 2.5 | 5.5 | 4 | 3 | 2 | 1 | 0 | 2 | 1 | 0 | | |
| 3115.2 | BkW | | | | | 0.90 | 0.96 | 1.05 | 1.20 | 1.29 | 1.41 | 1.56 | 1.65 | 1.80 | 2.48 | 2.68 | 2.88 | | | |
| | Sheave/Mtr | | | | | | B | B | B | A | A | A | A | A | C | C | C | | | |
| | RPM | | | | | | 522 | 562 | 599 | 631 | 664 | 694 | 725 | 756 | 784 | 815 | 845 | 874 | | |
| | Turns Open | | | | | | 6 | 4.5 | 3 | 6 | 5 | 4 | 3 | 1.5 | 1 | 2.5 | 1.5 | 0.5 | | |
| 3209.6 | BkW | | | | | 0.96 | 1.05 | 1.14 | 1.26 | 1.35 | 1.50 | 1.65 | 1.71 | 1.86 | 2.68 | 2.88 | 3.08 | | | |
| | Sheave/Mtr | | | | | | B | B | B | A | A | A | A | A | C | C | C | | | |
| | RPM | | | | | | 537 | 576 | 612 | 643 | 676 | 705 | 736 | 763 | 793 | 823 | 850 | 880 | | |
| | Turns Open | | | | | | 5.5 | 4 | 2.5 | 5.5 | 4.5 | 3.5 | 2.5 | 1.5 | 0.5 | 2.5 | 1.5 | 0.5 | | |
| 3304.0 | BkW | | | | | 1.05 | 1.14 | 1.20 | 1.35 | 1.50 | 1.56 | 1.71 | 1.86 | 2.00 | 2.80 | 3.00 | 3.20 | | | |
| | Sheave/Mtr | | | | | | B | B | B | A | A | A | A | A | C | C | C | | | |
| | RPM | | | | | | 551 | 589 | 622 | 655 | 685 | 716 | 746 | 776 | 802 | 829 | 858 | 886 | | |
| | Turns Open | | | | | | 5 | 3.5 | 2 | 5 | 4 | 3 | 2 | 1 | 0 | 2.0 | 1.0 | 0.5 | | |
| 3398.4 | BkW | | | | | 1.05 | 1.11 | 1.20 | 1.35 | 1.50 | 1.56 | 1.71 | 1.86 | 1.94 | 2.09 | 2.88 | 3.08 | 3.28 | | |
| | Sheave/Mtr | | | | | | B | B | B | A | A | A | A | A | C | C | C | | | |
| | RPM | | | | | | 526 | 565 | 600 | 634 | 665 | 696 | 727 | 754 | 783 | 809 | 837 | 865 | 891 | |
| | Turns Open | | | | | | 6 | 4.5 | 3 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 2.0 | 1.0 | 0 | |
| 3492.8 | BkW | | | | | 1.11 | 1.26 | 1.35 | 1.41 | 1.56 | 1.71 | 1.86 | 1.94 | 2.00 | 2.15 | 3.08 | 3.28 | 3.48 | | |
| | Sheave/Mtr | | | | | | B | B | B | A | A | A | A | A | C | C | C | C | | |
| | RPM | | | | | | 541 | 579 | 613 | 647 | 677 | 707 | 737 | 764 | 793 | 818 | 846 | 871 | 898 | |
| | Turns Open | | | | | | 5 | 4 | 2.5 | 5.5 | 4.5 | 3.5 | 2.5 | 1.5 | 0.5 | 2.5 | 1.5 | 0.5 | 0 | |
| 3587.2 | BkW | | | | | 1.26 | 1.33 | 1.41 | 1.56 | 1.71 | 1.86 | 1.93 | 2.00 | 2.15 | 2.30 | 3.28 | 3.48 | 3.68 | | |
| | Sheave/Mtr | | | | | | B | B | B | A | A | A | A | A | C | C | C | C | | |
| | RPM | | | | | | 554 | 591 | 626 | 659 | 688 | 718 | 746 | 774 | 802 | 829 | 855 | 879 | 905 | |
| | Turns Open | | | | | | 5 | 3.5 | 2 | 5 | 4 | 3 | 2 | 1 | 0 | 2 | 1.5 | 0.5 | 0 | |
| 3681.6 | BkW | | | | | 1.18 | 1.26 | 1.41 | 1.56 | 1.71 | 1.78 | 1.86 | 2.00 | 2.15 | 2.30 | 2.45 | 3.48 | 3.68 | | |
| | Sheave/Mtr | | | | | | B | B | B | A | A | A | A | A | C | C | C | C | | |
| | RPM | | | | | | 531 | 569 | 605 | 639 | 669 | 702 | 729 | 757 | 785 | 811 | 838 | 862 | 887 | |
| | Turns Open | | | | | | 6 | 4.5 | 3 | 6 | 5 | 3.5 | 3 | 2 | 1 | 0 | 2 | 1 | 0.5 | |
| 3776.0 | BkW | | | | | 1.26 | 1.41 | 1.56 | 1.71 | 1.78 | 1.86 | 2.00 | 2.15 | 2.30 | 2.45 | 2.53 | 3.48 | 3.68 | | |
| | Sheave/Mtr | | | | | | B | B | B | A | A | A | A | A | C | C | C | C | | |
| | RPM | | | | | | 545 | 582 | 618 | 651 | 683 | 710 | 739 | 767 | 794 | 821 | 845 | 870 | 895 | |
| | Turns Open | | | | | | 5 | 4 | 2.5 | 5.5 | 4.5 | 3.5 | 2.5 | 1.5 | 0.5 | 2.5 | 1.5 | 1 | 0 | |
| 3870.4 | BkW | | | | | 1.26 | 1.41 | 1.56 | 1.63 | 1.71 | 1.86 | 2.00 | 2.15 | 2.30 | 2.45 | 2.53 | 2.60 | 3.68 | 3.88 | |
| | Sheave/Mtr | | | | | | B | B | B | A | A | A | A | A | C | C | C | C | | |
| | RPM | | | | | | 523 | 560 | 596 | 631 | 661 | 692 | 722 | 750 | 778 | 804 | 831 | 854 | 879 | 904 |
| | Turns Open | | | | | | 6 | 4.5 | 3.5 | 2 | 5 | 4 | 3 | 2 | 1 | 0 | 2 | 1.5 | 0.5 | 0 |
| 3964.8 | BkW | | | | | 1.41 | 1.48 | 1.56 | 1.71 | 1.86 | 2.00 | 2.15 | 2.30 | 2.38 | 2.45 | 2.60 | 2.75 | 3.88 | 4.08 | |
| | Sheave/Mtr | | | | | | B | B | B | A | A | A | A | A | C | C | C | C | | |
| | RPM | | | | | | 538 | 574 | 609 | 640 | 673 | 703 | 733 | 761 | 788 | 812 | 838 | 863 | 888 | 912 |
| | Turns Open | | | | | | 5.5 | 4 | 3 | 6 | 4.5 | 3.5 | 2.5 | 1.5 | 1 | 0 | 2 | 1 | 0.5 | 0 |
| 4059.2 | BkW | | | | | 1.41 | 1.56 | 1.71 | 1.86 | 2.00 | 2.15 | 2.30 | 2.38 | 2.45 | 2.60 | 2.75 | 2.90 | 3.05 | | |
| | Sheave/Mtr | | | | | | B | B | B | A | A | A | A | A | C | C | C | C | | |
| | RPM | | | | | | 553 | 588 | 620 | 653 | 685 | 715 | 744 | 771 | 796 | 822 | 847 | 872 | 896 | |
| | Turns Open | | | | | | 5 | 3.5 | 2.5 | 5.5 | 4 | 3 | 2.5 | 1.5 | 0.5 | 2.5 | 1.5 | 1 | 0 | |

A = Standard Static/Standard Motor, B = Low Static/Standard Motor, C = High Static/Standard Motor, E = High Static/Large Motor.
 Unit factory shipped with standard static sheave and drive at 2.5 turns open. Other speeds require field selection.
 For applications requiring higher static pressures, contact your local representative. Performance data does not include drive losses and is based on sea level conditions.
 Do not operate in black regions. All airflow is rated at lowest Voltage if unit is dual Voltage rated, i.e. 208V for 208-230V units.

Table Continued on Next Page

TLV SERIES 50HZ - HFC-410A SUBMITTAL DATA ENG/S-I



Blower Performance Data TLV300 - Standard Unit

Table Continued from Previous Page

All Data is Wet Coil

| Airflow l/s | Pa | Airflow (l/s) at External Static Pressure (Pa) | | | | | | | | | | | | | | | |
|----------------|------------|--|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|
| | | 0 | 25 | 50 | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 | 325 | 350 | 375 |
| 4153.6 | BkW | 1.56 | 1.71 | 1.86 | 2.00 | 2.15 | 2.30 | 2.38 | 2.45 | 2.60 | 2.75 | 2.90 | 3.05 | 3.20 | | | |
| | Sheave/Mtr | B | B | A | A | A | A | A | A | C | C | C | C | | | | |
| | RPM | 568 | 602 | 633 | 666 | 697 | 726 | 755 | 782 | 806 | 832 | 857 | 881 | 904 | | | |
| | Turns Open | 4.5 | 3 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 2 | 1.5 | 0.5 | 0 | | | |
| 4248.0 | BkW | 1.71 | 1.80 | 1.94 | 2.09 | 2.24 | 2.39 | 2.54 | 2.69 | 2.84 | 2.99 | 3.14 | 3.29 | | | | |
| | Sheave/Mtr | B | B | A | A | A | A | A | A | C | C | C | C | | | | |
| | RPM | 581 | 613 | 646 | 678 | 706 | 735 | 763 | 791 | 817 | 842 | 867 | 889 | | | | |
| | Turns Open | 4 | 2.5 | 5.5 | 4.5 | 3.5 | 2.5 | 1.5 | 1 | 2.5 | 2 | 1 | 0 | | | | |
| 4342.4 | BkW | 1.78 | 1.86 | 2.00 | 2.15 | 2.30 | 2.45 | 2.60 | 2.75 | 2.90 | 3.05 | 3.20 | 3.35 | | | | |
| | Sheave/Mtr | B | B | A | A | A | A | A | A | C | C | C | C | | | | |
| | RPM | 598 | 623 | 656 | 687 | 715 | 744 | 772 | 799 | 825 | 850 | 872 | 896 | | | | |
| | Turns Open | 3.5 | 2.5 | 5 | 4 | 3 | 2.5 | 1 | 0.5 | 2 | 1.5 | 1 | 0 | | | | |
| 4436.8 | BkW | 1.86 | 2.00 | 2.15 | 2.30 | 2.45 | 2.60 | 2.75 | 2.90 | 3.05 | 3.20 | 3.35 | | | | | |
| | Sheave/Mtr | B | A | A | A | A | A | A | A | C | C | C | | | | | |
| | RPM | 605 | 637 | 666 | 697 | 727 | 755 | 783 | 809 | 835 | 858 | 882 | | | | | |
| | Turns Open | 3 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 2 | 1.5 | 0.5 | | | | | |
| 4531.2 | BkW | 2.00 | 2.15 | 2.30 | 2.45 | 2.60 | 2.75 | 2.90 | 3.05 | 3.20 | 3.35 | 3.50 | | | | | |
| | Sheave/Mtr | B | A | A | A | A | A | A | C | C | C | C | | | | | |
| | RPM | 618 | 647 | 678 | 708 | 738 | 766 | 793 | 819 | 844 | 867 | 891 | | | | | |
| | Turns Open | 2.5 | 5.5 | 4.5 | 3.5 | 2.5 | 1.5 | 0.5 | 2.5 | 1.5 | 1 | 0.5 | | | | | |
| 4625.6 | BkW | 2.15 | 2.30 | 2.45 | 2.60 | 2.75 | 2.90 | 3.05 | 3.20 | 3.35 | 3.50 | 3.65 | | | | | |
| | Sheave/Mtr | A | A | A | A | A | A | A | C | C | C | C | | | | | |
| | RPM | 631 | 662 | 690 | 720 | 749 | 777 | 803 | 827 | 852 | 877 | 900 | | | | | |
| | Turns Open | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 2 | 1.5 | 0.5 | 0 | | | | | |
| 4720.0 | BkW | 2.30 | 2.45 | 2.60 | 2.75 | 2.90 | 3.05 | 3.20 | 3.35 | 3.50 | 3.65 | | | | | | |
| | Sheave/Mtr | A | A | A | A | A | A | A | C | C | C | | | | | | |
| | RPM | 642 | 672 | 702 | 731 | 760 | 785 | 811 | 837 | 862 | 886 | | | | | | |
| | Turns Open | 6 | 4.5 | 3.5 | 2.5 | 2 | 1 | 0 | 2 | 1 | 0.5 | | | | | | |
| 4814.4 | BkW | 2.45 | 2.60 | 2.75 | 2.90 | 3.05 | 3.20 | 3.35 | 3.50 | 3.65 | 3.80 | | | | | | |
| | Sheave/Mtr | A | A | A | A | A | A | C | C | C | E | | | | | | |
| | RPM | 655 | 685 | 714 | 743 | 769 | 798 | 822 | 847 | 872 | 896 | | | | | | |
| | Turns Open | 5.5 | 4 | 3 | 2 | 1.5 | 0.5 | 2.5 | 1.5 | 0.5 | 0 | | | | | | |
| 4908.8 | BkW | 2.60 | 2.75 | 2.90 | 3.05 | 3.20 | 3.35 | 3.50 | 3.65 | 3.80 | | | | | | | |
| | Sheave/Mtr | A | A | A | A | A | A | C | C | E | | | | | | | |
| | RPM | 668 | 697 | 726 | 752 | 782 | 806 | 832 | 857 | 882 | | | | | | | |
| | Turns Open | 5 | 4 | 2.5 | 2 | 1 | 0 | 2 | 1 | 0.5 | | | | | | | |
| 5003.2 | BkW | 2.75 | 2.90 | 3.05 | 3.20 | 3.35 | 3.50 | 3.65 | 3.80 | 3.95 | | | | | | | |
| | Sheave/Mtr | A | A | A | A | A | C | C | E | E | | | | | | | |
| | RPM | 680 | 709 | 737 | 763 | 790 | 817 | 842 | 867 | 889 | | | | | | | |
| | Turns Open | 4.5 | 3.5 | 2.5 | 1.5 | 0.5 | 2.5 | 1.5 | 1 | 0 | | | | | | | |
| 5097.6 | BkW | 2.90 | 3.05 | 3.20 | 3.35 | 3.50 | 3.65 | 3.80 | 3.95 | 4.10 | | | | | | | |
| | Sheave/Mtr | A | A | A | A | A | C | E | E | E | | | | | | | |
| | RPM | 691 | 717 | 745 | 772 | 799 | 825 | 850 | 873 | 897 | | | | | | | |
| | Turns Open | 4 | 3 | 2 | 1 | 0 | 2 | 1.5 | 0.5 | 0 | | | | | | | |
| 5192.0 | BkW | 3.05 | 3.20 | 3.35 | 3.50 | 3.65 | 3.80 | 3.95 | 4.10 | | | | | | | | |
| | Sheave/Mtr | A | A | A | A | A | E | E | E | | | | | | | | |
| | RPM | 704 | 729 | 756 | 783 | 810 | 836 | 859 | 883 | | | | | | | | |
| | Turns Open | 3.5 | 2.5 | 1.5 | 1 | 0 | 1.5 | 1 | 0.5 | | | | | | | | |

A = Standard Static/Standard Motor, B = Low Static/Standard Motor, C = High Static/Standard Motor, E = High Static/Large Motor.

Unit factory shipped with standard static sheave and drive at 2.5 turns open. Other speeds require field selection.

For applications requiring higher static pressures, contact your local representative. Performance data does not include drive losses and is based on sea level conditions. Do not operate in black regions. All airflow is rated at lowest Voltage if unit is dual Voltage rated, i.e. 208V for 208-230V units.



| Model | 084 | 096 | 120 | 150 | 168 | 192 | 240 | 300 |
|---|------------------|------|-------|-------------|------------------|-------|---------------|-------------|
| Compressor Quantity | Scroll (1) | | | | Scroll (2) | | | |
| Factory Charge HFC-410a [kg] per circuit | 3.97 | 4.42 | 6.35 | 7.03 | 3.97 | 4.42 | 6.35 | 7.03 |
| Blower Motor | | | | | | | | |
| Blower Motor Quantity | 1 | | | | | | | |
| Standard Motor [kw] | .75 | 1.12 | 1.49 | 2.24 | 1.49 | 2.24 | 3.73 | 3.73 |
| Large Motor [kw] | 1.12 | 1.49 | 2.24 | 3.73 | 2.24 | 3.73 | 5.60 | 5.60 |
| Blower | | | | | | | | |
| No. of Blowers | 1 | | | | 2 | | | |
| Blower Wheel Size D x W [cm] | 38.1 x 27.9 | | | 38.1 x 38.1 | 38.1 x 27.9 | | | 38.1 x 38.1 |
| Water Connection Size | | | | | | | | |
| FPT (in) [mm] | 1-1/2" [38.1] | | | 2" [50.8] | | | 2-1/2" [63.5] | |
| Coax Volume | | | | | | | | |
| Volume [liters] | 8.28 | 9.37 | 13.11 | 18.29 | | 24.08 | 27.98 | |
| Condensate Connection Size | | | | | | | | |
| FPT (in) [mm] | 1" [25.4] | | | | | | | |
| Air Coil Data | | | | | | | | |
| Air Coil Dimensions H x W [cm] | 91.4 x 121.9 | | | | 91.4 x 121.9 | | | |
| Air Coil Total Face Area [m ²] | 1.11 | | | | 2.22 | | | |
| Air Coil Tube Size [cm] | 3/8" [0.953] | | | | | | | |
| Air Coil Fin Spacing [fins per cm] | 5.5 | | 4.72 | 5.5 | | | 4.72 | |
| Air Coil Number of Rows | 2 | 3 | 4 | 2 | 3 | 4 | | |
| Miscellaneous Data | | | | | | | | |
| Filter Standard - [25.4mm] Throwaway (qty) [cm] | (4) 45.74 x 63.5 | | | | (8) 45.74 x 63.5 | | | |
| Weight - Operating [kg] | 399 | 422 | 435 | 725 | | 755 | 769 | |
| Weight - Packaged [kg] | 406 | 429 | 442 | 739 | | 769 | 782 | |

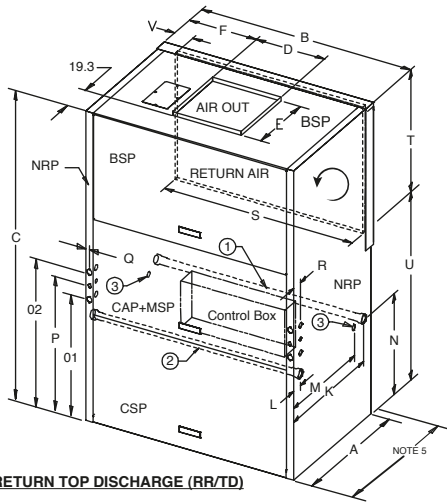
All units have grommet compressor mountings, and 2.2 cm & 3.49cm electrical knockouts.

| Unit Maximum Water Working Pressure | |
|-------------------------------------|--------------------|
| Options | Max Pressure [kPa] |
| Base Unit | 2,068 |
| Motorized Water Valve | 2,068 |
| Internal Secondary Pump | 999 |

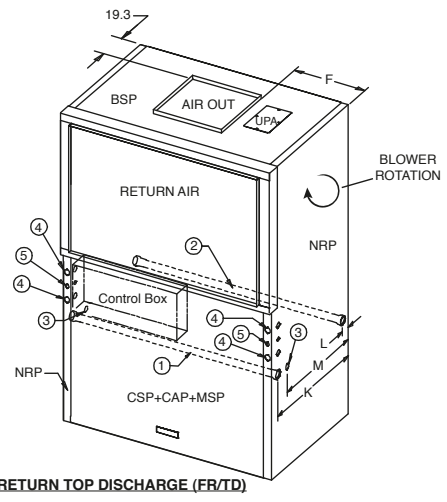
Use the lowest maximum pressure rating when multiple options are combined.



ALL CONFIGURATIONS REQUIRE SERVICE ACCESS AREA DESCRIBED IN NOTES 7, 8, 9, AND 10.



REAR RETURN TOP DISCHARGE (RR/TD)

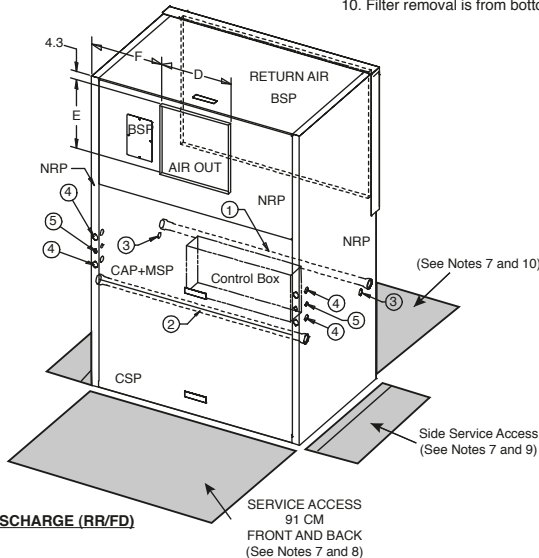


FRONT RETURN TOP DISCHARGE (FR/TD)

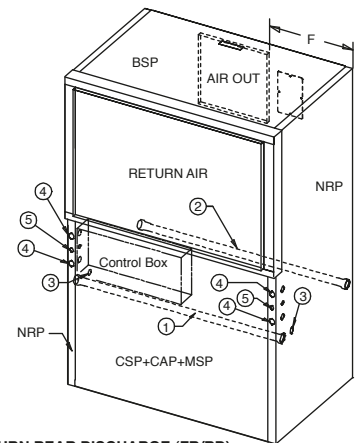
| LEGEND | TLV084-120 | TLV150 |
|--|------------|--------|
| ① Water Inlet (See Note 2) | 1-1/2" FPT | 2" FPT |
| ② Water Outlet (See Note 2) | 1-1/2" FPT | 2" FPT |
| ③ Condensate Drain (See Note 3) | 1" FPT | |
| ④ High Voltage Access (See Note 4) | 3.49 cm | |
| ⑤ Low Voltage Access (See Note 4) | 2.2 cm | |
| BSP - Blower Service Panel CAP - Control Access Panel CSP - Compressor Access Panel MSP - Motor Service Panel NRP - Non Removable Panel UPA - Upper Pulley Access | | |

NOTES:

- All dimensions in cm.
- Water inlet and water outlet connections are available on either side (left or right) of the unit. Installer must plug water inlet/outlet not being connected to.
- Condensate drain is available on either side (left or right) of unit. Drain hose and drain connection will be tied inside the unit. Installer will untie the drain hose, form trap, and connect to the condensate drain hole of installer's choice.
- Electrical access is available on either side (left or right) of unit and is also available in the front on the left or right side of the unit.
- Overall Depth - Add 8 cm for 2.5 cm or 5 cm Filter Rack; 5.12" for 4" filter rack and for FD, RD additional 2.7cm for supply air duct flange.
- Overall cabinet height dimension does not include duct flange when in top discharge configuration.
- While access to all removable panels may not be required, installer should take care to comply with all building codes and allow adequate clearance for future field service.
- Units require 91 cm clearance for water connections, CAP, CSP, MSP and BSP service access.
- Side service access must be 9.4 cm on any side that connections are made. If no connections are made on a side then service access can be 1.5 cm minimum.
- Filter removal is from bottom of frame, allow 9.4 cm access for servicing.



REAR RETURN FRONT DISCHARGE (RR/FD)



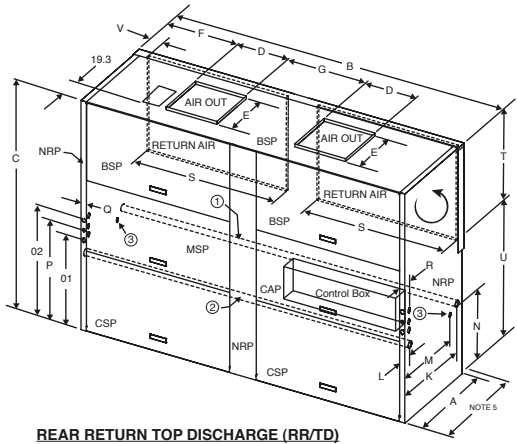
FRONT RETURN REAR DISCHARGE (FR/RD)

| Model | Overall Cabinet | | | Discharge Connections Duct Flange | | | Water Connections | | | | Electrical Knockouts | | | | Return Air Connections Using Return Air Opening | | | | | |
|----------|-----------------|-------|---------------|-----------------------------------|--------------|------|-------------------|----------------|--------------|------|----------------------|------|------|------|---|--------------|---------------|------|-------|-----|
| | A | B | C | D | E | F | K | L | M | N | O1 | O2 | P | Q | R | S | T | U | V | |
| | Depth Note 5 | Width | Height Note 6 | Supply Width | Supply Depth | | 1 Water Inlet | 2 Water Outlet | 3 Condensate | | | | | | | Return Depth | Return Height | | | |
| 084 -120 | cm. | 86.4 | 134.9 | 200.7 | 44.5 | 44.6 | 45.1 | 78.7 | 7.6 | 68.6 | 65.1 | 78.7 | 96.4 | 87.7 | 2.5 | 7.6 | 121.9 | 82.2 | 113.3 | 6.9 |
| 150 | cm. | 86.4 | 134.9 | 200.7 | 54.4 | 44.6 | 45.1 | 78.7 | 7.6 | 68.6 | 65.1 | 78.7 | 96.4 | 87.7 | 2.5 | 7.6 | 121.9 | 82.2 | 113.3 | 6.9 |

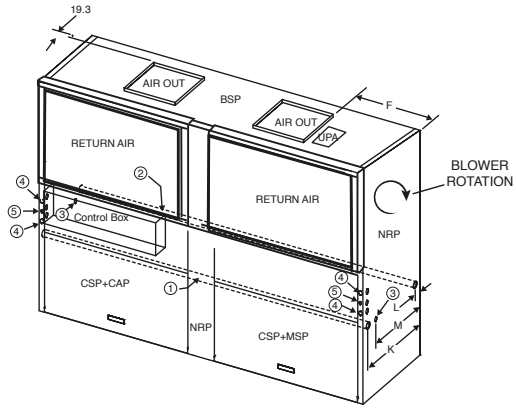
ClimateMaster works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice and may not be as described herein. Please contact ClimateMaster's Customer Service Department at +1-405-745-6000 for specific information on the current design and specifications. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely ClimateMaster's opinion or commendation of its products. The latest version of this document is available at climatemaster.com.



ALL CONFIGURATIONS REQUIRE SERVICE ACCESS AREA DESCRIBED IN NOTES 7, 8, 9, AND 10.



REAR RETURN TOP DISCHARGE (RR/TD)

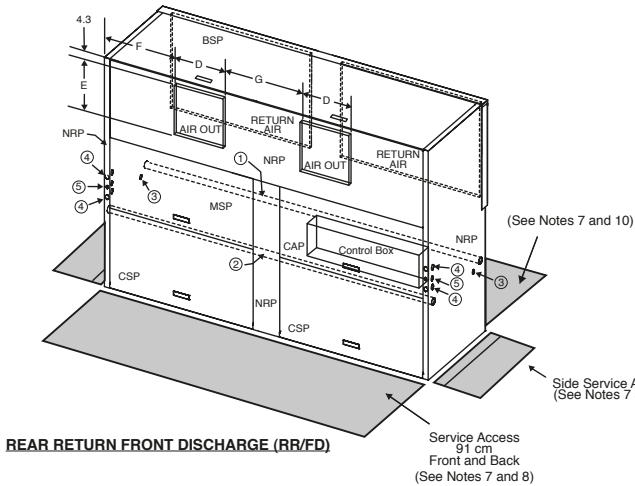


FRONT RETURN TOP DISCHARGE (FR/TD)

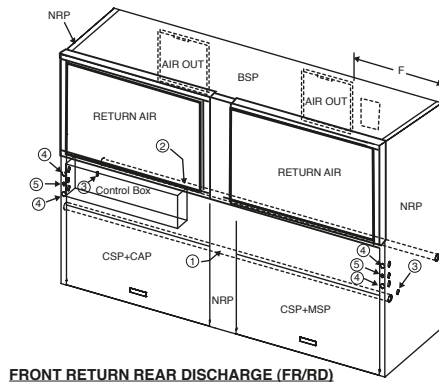
| LEGEND | 168-240 | 300 |
|--|---------|------------|
| 1. Water inlet (see note 2) | 2" FPT | 2 1/2" FPT |
| 2. Water outlet (see note 2) | 2" FPT | 2 1/2" FPT |
| 3. Condensate drain (see note 3) | | 1" FPT |
| 4. High voltage access (see note 4) | | 3.49 cm |
| 5. Low voltage access (see note 4) | | 2.2 cm |
| BSP - Blower Service Panel CAP - Control Access Panel CSP - Compressor Access Panel MSP - Motor Service Panel NRP - Non Removable Panel UPA - Upper Pulley Access | | |

NOTES:

- All dimensions in cm.
- Water inlet and water outlet connections are available on either side (left or right) of the unit. Installer must plug water inlet/outlet not being connected to.
- Condensate drain is available on either side (left or right) of unit. Drain hose and drain connection will be tied inside the unit. Installer will untie the drain hose, form trap, and connect to the condensate drain hole of installer's choice.
- Electrical access is available on either side (left or right) of unit and is also available in the front on the left or right side of the unit.
- Overall Depth - Add 8 cm for 2.5 cm or 5 cm Filter Rack; 5.12" for 4" filter rack and for FD, RD additional 2.7cm for supply air duct flange.
- Overall cabinet height dimension does not include duct flange when in top discharge configuration.
- While access to all removable panels may not be required, installer should take care to comply with all building codes and allow adequate clearance for future field service.
- Units require 91 cm clearance for water connections, CAP, CSP, MSP and BSP service access.
- Side service access must be 9.4 cm on any side that connections are made. If no connections are made on a side then service access can be 1.5 cm minimum.
- Filter removal is from bottom of frame, allow 9.4 cm access for servicing.



REAR RETURN FRONT DISCHARGE (RR/FD)



FRONT RETURN REAR DISCHARGE (FR/RD)

| Model | Overall Cabinet | | | Discharge Connections Duct Flange | | | | Water Connections | | | | Electrical Knockouts | | | | | Return Air Connections Using Return Air Opening | | | | |
|---------|-----------------|-------|---------------|-----------------------------------|--------------|------|------|-------------------|----------------|--------------|------|----------------------|------|------|------|-----|---|---------------|------|-------|-----|
| | A | B | C | D | E | F | G | K | L | M | N | O1 | O2 | P | Q | R | S | T | U | V | |
| | Depth Note 5 | Width | Height Note 6 | Supply Width | Supply Depth | | | 1 Water Inlet | 2 Water Outlet | 3 Condensate | | | | | | | Return Depth | Return Height | | | |
| 168-240 | cm. | 86.4 | 270.9 | 200.7 | 44.5 | 44.6 | 45.1 | 79.4 | 78.7 | 7.6 | 68.6 | 65.1 | 78.7 | 96.4 | 87.8 | 2.5 | 7.6 | 121.9 | 82.2 | 113.3 | 6.9 |
| 300 | cm. | 86.4 | 270.9 | 200.7 | 54.4 | 44.6 | 45.1 | 59.4 | 78.7 | 7.6 | 68.6 | 65.1 | 78.7 | 96.4 | 87.8 | 2.5 | 7.6 | 121.9 | 82.2 | 113.3 | 6.9 |

ClimateMaster works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice and may not be as described herein. Please contact ClimateMaster's Customer Service Department at +1-405-745-6000 for specific information on the current design and specifications. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely ClimateMaster's opinion or commendation of its products. The latest version of this document is available at climatemaster.com.



Standard Models

| Model # | Voltage Code | Voltage | Min/Max Voltage | Blower Option | Compressor | | | Fan Motor FLA | Total Unit FLA | Min Circuit Amp | Max Fuse |
|---------|--------------|--------------|-----------------|---------------|------------|------|-------|---------------|----------------|-----------------|----------|
| | | | | | QTY | RLA | LRA | | | | |
| TLV084 | U | 380-420/3/50 | 360/440 | A, B, C | 1 | 11.2 | 75.0 | 1.8 | 13.0 | 15.8 | 25 |
| | U | 380-420/3/50 | 360/440 | E | 1 | 11.2 | 75.0 | 2.5 | 13.7 | 16.5 | 25 |
| TLV096 | U | 380-420/3/50 | 360/440 | A, B, C | 1 | 12.2 | 101.0 | 2.5 | 14.7 | 17.8 | 25 |
| TLV120 | U | 380-420/3/50 | 360/440 | A, B, C | 1 | 16.7 | 111.0 | 3.6 | 20.3 | 24.5 | 40 |
| | U | 380-420/3/50 | 360/440 | E | 1 | 16.7 | 111.0 | 4.9 | 21.6 | 25.8 | 40 |
| TLV150 | U | 380-420/3/50 | 360/440 | A, B, C | 1 | 18.6 | 118.0 | 4.9 | 23.5 | 28.2 | 45 |
| | U | 380-420/3/50 | 360/440 | E | 1 | 18.6 | 118.0 | 7.8 | 26.4 | 31.1 | 45 |
| TLV168 | U | 380-420/3/50 | 360/440 | A, B, C | 2 | 11.2 | 75.0 | 3.4 | 25.8 | 28.6 | 35 |
| TLV192 | U | 380-420/3/50 | 360/440 | A, B, C | 2 | 12.2 | 101.0 | 4.9 | 29.3 | 32.3 | 40 |
| TLV240 | U | 380-420/3/50 | 360/440 | A, B, C | 2 | 16.7 | 111.0 | 7.8 | 41.2 | 45.4 | 60 |
| TLV300 | U | 380-420/3/50 | 360/440 | A, B, C | 2 | 18.6 | 118.0 | 7.8 | 45.0 | 49.7 | 60 |
| | U | 380-420/3/50 | 360/440 | E | 2 | 18.6 | 118.0 | 12.2 | 49.4 | 54.0 | 70 |

All fuses Class RK-5

Dual Point Power Models

| Model # | Voltage Code | Voltage | Min/Max Voltage | Blower Option | Compressor Power Supply | | | | | | Emergency Power Supply | | |
|---------|--------------|--------------|-----------------|---------------|-------------------------|------|-------|----------------|----------|---------------|------------------------|---------|--------------|
| | | | | | QTY | RLA | LRA | Total Comp FLA | Comp MCA | Comp Max Fuse | Fan Motor FLA | Fan MCA | Fan Max Fuse |
| TLV084 | U | 380-420/3/50 | 360/440 | A, B, C | 1 | 11.2 | 75.0 | 11.2 | 14.0 | 25 | 1.8 | 2.3 | 15 |
| | U | 380-420/3/50 | 360/440 | E | 1 | 11.2 | 75.0 | 11.2 | 14.0 | 25 | 2.5 | 3.1 | 15 |
| TLV096 | U | 380-420/3/50 | 360/440 | A, B, C | 1 | 12.2 | 101.0 | 12.2 | 15.3 | 25 | 2.5 | 3.1 | 15 |
| TLV120 | U | 380-420/3/50 | 360/440 | A, B, C | 1 | 16.7 | 111.0 | 16.7 | 20.9 | 35 | 3.6 | 4.5 | 15 |
| | U | 380-420/3/50 | 360/440 | E | 1 | 16.7 | 111.0 | 16.7 | 20.9 | 35 | 4.9 | 6.1 | 15 |
| TLV150 | U | 380-420/3/50 | 360/440 | A, B, C | 1 | 18.6 | 118.0 | 18.6 | 23.3 | 40 | 4.9 | 6.1 | 15 |
| | U | 380-420/3/50 | 360/440 | E | 1 | 18.6 | 118.0 | 18.6 | 23.3 | 40 | 7.8 | 9.8 | 15 |
| TLV168 | U | 380-420/3/50 | 360/440 | A, B, C | 2 | 11.2 | 75.0 | 22.4 | 25.2 | 35 | 3.4 | 4.3 | 15 |
| TLV192 | U | 380-420/3/50 | 360/440 | A, B, C | 2 | 12.2 | 101.0 | 24.4 | 27.4 | 35 | 4.9 | 6.1 | 15 |
| TLV240 | U | 380-420/3/50 | 360/440 | A, B, C | 2 | 16.7 | 111.0 | 33.4 | 37.6 | 50 | 7.8 | 9.8 | 15 |
| TLV300 | U | 380-420/3/50 | 360/440 | A, B, C | 2 | 18.6 | 118.0 | 37.2 | 41.9 | 60 | 7.8 | 9.8 | 15 |
| | U | 380-420/3/50 | 360/440 | E | 2 | 18.6 | 118.0 | 37.2 | 41.9 | 60 | 12.2 | 15.3 | 25 |

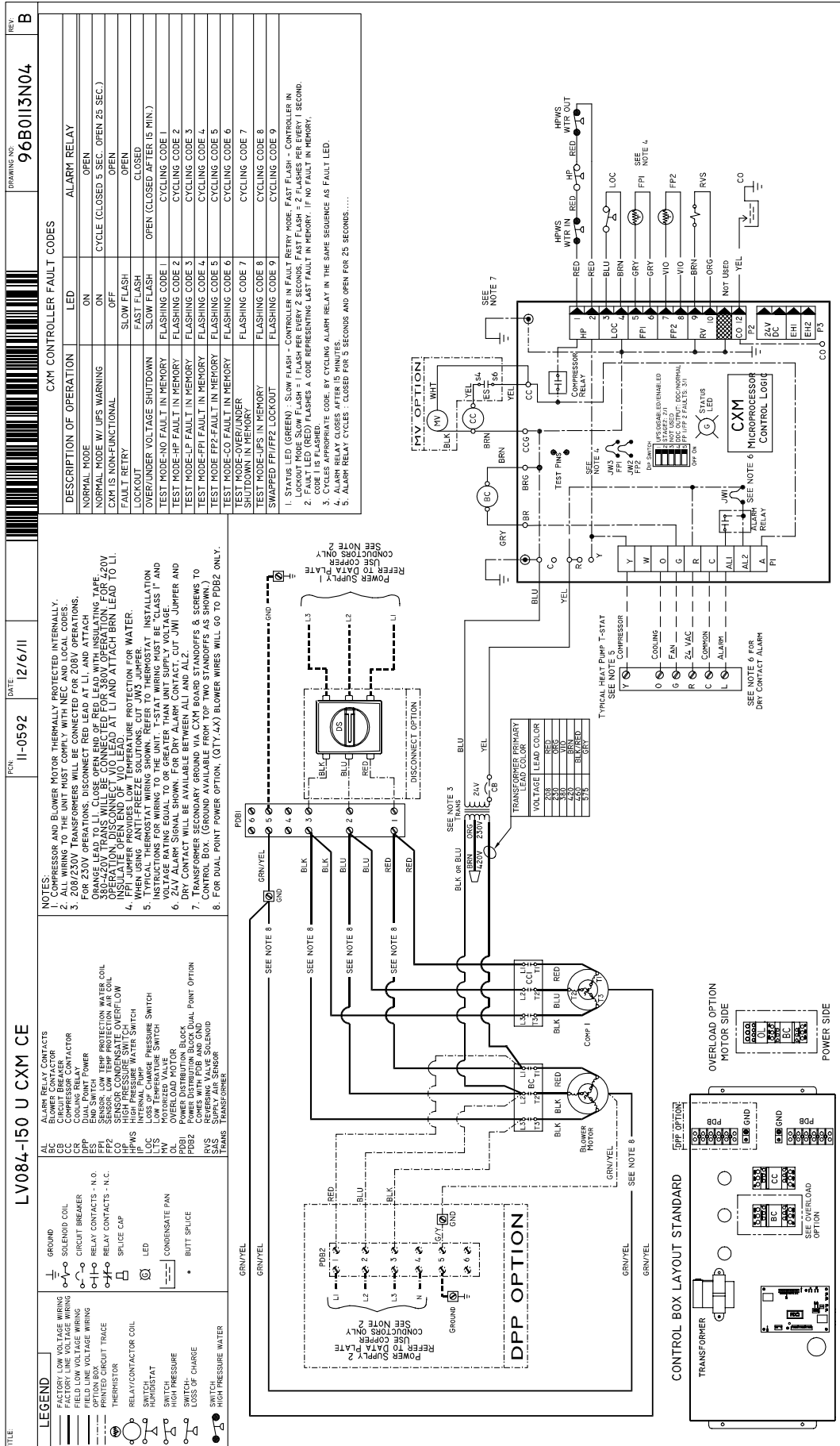
ClimateMaster works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice and may not be as described herein. Please contact ClimateMaster's Customer Service Department at +1-405-745-6000 for specific information on the current design and specifications. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely ClimateMaster's opinion or commendation of its products. The latest version of this document is available at climatemaster.com.



Only representative diagrams of CXM and DXM Options are presented in this submittal.
 All diagrams can be located online at climatemaster.com using the part numbers presented below.

| Model | Wiring Diagram Part Number | Electrical | Control | Agency |
|----------------------|----------------------------|--|---------|--------|
| TLV 084-150 | 96B0113N04 | 208-230/60/3, 460/60/3, 575/60/3 | CXM | CE |
| | 96B0113N05 | | DXM | |
| TLV 168-300 | 96B0113N10 | | CXM | |
| | 96B0113N11 | | DXM | |
| TLV 168-300 with ISP | 96B0113N13 | | CXM | |
| | 96B0113N14 | | DXM | |
| TLV 084-150 with ISP | 96B0113N15 | | CXM | |
| | 96B0113N16 | | DXM | |

ClimateMaster works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice and may not be as described herein. Please contact ClimateMaster's Customer Service Department at +1-405-745-6000 for specific information on the current design and specifications. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely ClimateMaster's opinion or commendation of its products. The latest version of this document is available at climatemaster.com.



ClimateMaster works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice and may not be as described herein. Please contact ClimateMaster's Customer Service Department at +1-405-745-6000 for specific information on the current design and specifications. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely ClimateMaster's opinion or commendation of its products. The latest version of this document is available at climatemaster.com.

**General:**

Furnish and install ClimateMaster Tranquility "Large Vertical" Water Source Heat Pumps, as indicated on the plans. Equipment shall be completely assembled, piped, and internally wired. Capacities and characteristics as listed in the schedule and the specifications that follow.

Units shall be supplied completely factory built capable of operating over an entering water temperature range from -6.7° to 48.9°C as standard. Equivalent units from other manufacturers may be proposed provided approval to bid is given 10 days prior to bid closing. All equipment listed in this section must be rated in accordance with Air-Conditioning, Heating and Refrigeration Institute/International Standards Organization (AHRI / ISO 13256-1). The units shall have CE labels.

All units shall be fully quality tested by factory run testing under normal operating conditions as described herein. Quality control system shall automatically perform via computer: triple leak check, pressure tests, evacuation and accurately charge system, perform detailed heating and cooling mode tests, and quality cross check all operational and test conditions to pass/fail criteria. Detailed report card will ship with each unit displaying status for critical tests and components. **Note: If unit fails on any cross check, it shall not be allowed to ship. Serial numbers will be recorded by factory and furnished to contractor on report card for ease of unit warranty status. Units tested without water flow are not acceptable.**

Basic Construction:

Vertical Units shall have one of the following air flow arrangements: Back Return/Top Discharge, Front Return/Top Discharge, Back Return/Front Discharge, Front Return/Back Discharge as shown on the plans. **Units can be field converted without requiring new panels or belts. Units that cannot be field converted shall not be acceptable.**

If units with these arrangements are not used, the contractor is responsible for any extra costs incurred by other trades. All units must have a minimum of two access panels for serviceability of compressor compartment. **Units having only one access panel to compressor/heat exchangers/expansion device/refrigerant piping shall not be acceptable.**

Compressor section interior surfaces shall be lined with 12.7mm thick, 24 kg/m³ acoustic type glass fiber insulation. Air handling section interior surfaces shall be lined with 12.7mm thick, 24 kg/m³ foil backed fiber insulation for ease of cleaning. Insulation placement shall be designed in a manner that will eliminate any exposed edges to prevent the introduction of glass fibers into the air stream. **Units without foil-faced insulation in the air handling section will not be accepted.**

Vertical heat pumps shall be fabricated from heavy gauge galvanized steel with powder coat paint finish on access panels. The color will be Pewter. Both sides of the panels shall be painted for added protection.

Standard insulation must meet NFPA Fire Hazard Classification requirements 25/50 per ASTM E84, UL 723, CAN/ULC S102-M88 and NFPA 90A requirements; air erosion and mold growth limits of UL-181; stringent fungal resistance test per ASTM-C1071 and ASTM G21; and shall meet zero level bacteria growth per ASTM G22. **Unit insulation must meet these stringent requirements or unit(s) will not be accepted.**

Vertical units to have discharge air duct collar and 25.4mm full filter frame with 25.4mm filters factory installed. **If units with these factory installed provisions are not used, the contractor is responsible for any extra costs to field install these provisions, and/or the extra costs for his sub-contractor to install these provisions.**

All units must have an insulated panel separating the fan compartment from the compressor compartment. Units with the compressor in the air stream are not acceptable. Units shall have a factory installed 25.4mm wide filter frame with filter removal from bottom side. Units shall have a 25.4mm thick throwaway type glass fiber filter. The contractor shall purchase one spare set of filters and replace factory shipped filters on completion of start-up. Filters shall be standard sizes. If units utilize non-standard filter sizes then the contractor shall provide 12 spare filters for each unit.

Cabinets shall have separate knockouts on front and sides for entrance of line voltage and low voltage control wiring. All factory-installed wiring passing through factory knockouts and openings shall be protected from sheet metal edges at openings by plastic ferrules. Supply and return water connections shall be copper FPT fittings (U.S.), connections on both sides (installer to choose side and plug opposite) and shall be securely mounted flush to the cabinet side allowing for connection of a flexible hose without the use of a back-up wrench. **Water connections that protrude through the cabinet or require the use of a backup wrench shall not be allowed. Water connections on only one side will not be accepted.** All water connections and electrical knockouts must not interfere with the serviceability of unit. **Contractor shall be responsible for any extra costs involved in the installation of units that do not have this feature.** Contractor must ensure that units can be easily removed for servicing and coordinate locations of electrical conduit and lights with the electrical contractor.



Option: 50.8mm full filter frame with glass fiber throwaway filters on units.

Option: 101.6 mm full filter frame with Merv 8 Filter on units.

Option: UltraQuiet package shall consist of high technology sound attenuating material that is strategically applied to the compressor and air handling compartment casings and fan scroll in addition to the standard ClimaQuiet system design, to further dampen and attenuate sound transmissions. Compressor is mounted on specially engineered sound-tested isolators.

Option: The unit shall be supplied with extended range Insulation option, which adds closed cell insulation to internal water lines, and provides insulation on suction side refrigeration tubing including refrigerant to water heat exchanger.

Option: The unit shall be supplied with internally factory mounted two-way water valve for variable speed pumping requirements. A factory-mounted or field-installed high pressure switch shall be installed in the water piping to disable compressor operation in the event water pressures build due to water freezing in the piping system.

Option: The unit shall be supplied with internally mounted secondary pump for primary/secondary applications.

Fan and Motor Assembly:

All units shall have belt-driven single or dual centrifugal fans. Fan motor shall be permanently lubricated with thermal overload protection. Units supplied without a permanently lubricated motor must provide external oilers for easy service. The fan and motor assembly must be capable of overcoming the external static pressures as shown on the schedule. Airflow / Static pressure rating of the unit shall be based on a wet coil and a clean filter in place. **Ratings based on a dry coil and/or no air filter shall NOT be acceptable.**

Option: Various blower drive packages for selectable static pressure/airflow.

Refrigerant Circuit:

All units shall contain an EarthPure® (HFC-410A) sealed refrigerant circuit including a high efficiency scroll compressor designed for heat pump operation, a thermostatic expansion valve for refrigerant metering, an enhanced corrugated aluminum lanced fin and rifled copper tube refrigerant to air heat exchanger, reversing valve, coaxial (tube in tube) refrigerant to water heat exchanger, and safety controls including a high pressure switch, low pressure switch (loss of charge), water coil low temperature sensor, and air coil low temperature sensor. Access fittings shall be factory installed on high and low pressure refrigerant lines to facilitate field service. Activation of any safety device shall prevent compressor operation via a microprocessor lockout circuit. The lockout circuit shall be reset at the thermostat or at the optional disconnect switch. **Units that cannot be reset at the thermostat shall not be acceptable.**

Hermetic compressors shall be internally sprung. The scroll compressors shall have a dual level vibration isolation system. The compressor(s) will be mounted on specially engineered sound-tested EPDM vibration isolation grommets to a large heavy gauge compressor mounting plate, which is then isolated from the cabinet base with grommets for maximized vibration attenuation. Compressor shall have thermal overload protection. Compressor shall be located in an insulated compartment isolated from air stream to minimize sound transmission.

Refrigerant to air heat exchangers shall utilize enhanced corrugated lanced aluminum fins and rifled copper tube construction rated to withstand 4309 kPa refrigerant working pressure. Refrigerant to water heat exchangers shall be of copper inner water tube and steel refrigerant outer tube design, rated to withstand 4309 kPa working refrigerant pressure. The refrigerant to water heat exchanger shall be "electro-coated" with a low cure cathodic epoxy material a minimum of 0.4 mils thick (0.4 – 1.5 mils range) on all surfaces. The black colored coating shall provide a minimum of 1000 hours salt spray protection per ASTM B117-97 on all external steel and copper tubing. The material shall be formulated without the inclusion of any heavy metals and shall exhibit a pencil hardness of 2H (ASTM D3363-92A), crosshatch adhesion of 4B-5B (ASTM D3359-95), and impact resistance of 184 kg-cm direct (ASTM D2794-93).

Refrigerant metering shall be accomplished by thermostatic expansion valve only. Expansion valves shall be a dual port balanced type with external equalizer for optimum refrigerant metering. Units shall be designed and tested for operating ranges of entering water temperatures from -6.7° to 48.9°C. Reversing valve shall be four-way solenoid activated refrigerant valve, which shall default to heating mode should the solenoid fail to function. If the reversing valve solenoid defaults to cooling mode, an additional low temperature thermostat must be provided to prevent over-cooling an already cold room.



Option: The unit shall be supplied with cupro-nickel coaxial water to refrigerant heat exchanger.

Option: The refrigerant to air heat exchanger shall be coated.

Drain Pan:

The drain pan shall be constructed of galvanized steel and have a powder coat paint application to further inhibit corrosion. This corrosion protection system shall meet the stringent 1000 hour salt spray test per ASTM B117. If plastic type material is used, it must be HDPE (High Density Polyethylene) to avoid thermal cycling shock stress failure over the lifetime of the unit. Drain pan shall be fully insulated. Drain outlet shall be located at pan as to allow complete and unobstructed drainage of condensate. Drain pan hose assembly can be connected to either side, drain outlet to be 1" FPT fitting (U.S). Choice of drain connection to only one side will not be accepted. The unit as standard will be supplied with solid-state electronic condensate overflow protection. Mechanical float switches will NOT be accepted.

Option: The unit shall be supplied with stainless steel drain pan.

Electrical:

A control box shall be located within the unit compressor compartment and shall contain a 75VA transformer with load side circuit breaker protection, 24 volt activated, 2 or 3 pole compressor contactor, terminal block for thermostat wiring and solid-state controller for complete unit operation. Reversing valve and fan motor wiring shall be routed through this electronic controller. Units shall be name-plated for use with time delay fuses. Unit controls shall be 24 Volt and provide heating or cooling as required by the remote thermostat/sensor. Two compressor units shall have a solid-state time delay relay and random start to prevent both compressors from starting simultaneously.

Solid State Control System (CXM):

Units shall have a solid-state control system. Units utilizing electro-mechanical control shall not be acceptable. The control system microprocessor board shall be specifically designed to protect against building electrical system noise contamination, EMI, and RFI interference. The control system shall interface with a heat pump type thermostat. The control system shall have the following features:

- a. Anti-short cycle time delay on compressor operation.
- b. Random start on power up mode.
- c. Low voltage protection.
- d. High voltage protection.
- e. Unit shutdown on high or low refrigerant pressures.
- f. Unit shutdown on low water temperature.
- g. Condensate overflow electronic protection.
- h. Option to reset unit at thermostat or disconnect.
- i. Automatic intelligent reset. Unit shall automatically reset the unit 5 minutes after trip if the fault has cleared. If a fault occurs 3 times sequentially without thermostat meeting temperature, then lockout requiring manual reset will occur.
- j. Ability to defeat time delays for servicing.
- k. Light emitting diode (LED) on circuit board to indicate high pressure, low pressure, low voltage, high voltage, low water/air temperature cut out, condensate overflow, and control voltage status.
- l. The low-pressure switch shall not be monitored for the first 120 seconds after a compressor start command to prevent nuisance safety trips.
- m. 24V output to cycle a motorized water valve or other device with compressor contactor.
- n. Unit Performance Sentinel (UPS). The UPS warns when the heat pump is running inefficiently.
- o. Water coil low temperature sensing (selectable for water or anti-freeze).
- p. Air coil low temperature sensing.

NOTE: Units not providing the 8 safety protections of anti-short cycle, low voltage, high voltage, high refrigerant pressure, low pressure (loss of charge), air coil low temperature cut-out, water coil low temperature cut-out, and condensate overflow protections will not be accepted.

Option: Enhanced solid state control system (DXM)

This control system features two-stage control of cooling and two-stage control of heating modes for exacting temperature and dehumidification purposes.

This control system coupled with a multi-stage thermostat will better dehumidify room air by automatically running the heat pump's fan at lower speed on the first stage of cooling thereby implementing low sensible heat ratio cooling. On the need for higher cooling performance the system will activate the second stage of cooling and automatically switch the fan to the higher fan speed setting. This system may be further enhanced with a humidistat. Units not having automatic low sensible heat ratio cooling will not be accepted; as an alternate a hot gas reheat coil may be provided with control system for automatic activation.



Control shall have all of the above-mentioned features of the CXM control system along with the following expanded features:

- a. Removable thermostat connector.
- b. Night setback control.
- c. Random start on return from night setback.
- d. Minimized reversing valve operation (Unit control logic shall only switch the reversing valve when cooling is demanded for the first time. The reversing valve shall be held in this position until the first call for heating, ensuring quiet operation and increased valve life.).
- e. Override temperature control with 2-hour timer for room occupant to override setback temperature at the thermostat.
- f. Dry contact night setback output for digital night setback thermostats.
- g. Ability to work with heat pump or heat/cool (Y, W) type thermostats.
- h. Ability to work with heat pump thermostats using O or B reversing valve control.
- i. Emergency shutdown contacts.
- j. Boilerless system heat control at low loop water temperature.
- k. Ability to allow up to 3 units to be controlled by one thermostat.
- l. Relay to operate an external damper.
- m. Ability to automatically change fan speed from multistage thermostat.
- n. Relay to start system pump.
- o. 75 VA control transformer. Control transformer shall have load side short circuit and overload protection via a built in circuit breaker.

Remote Service Sentinel (CXM/DXM):

Solid state control system shall communicate with thermostat to display (at the thermostat) the unit status, fault status, and specific fault condition, as well as retrieve previously stored fault that caused unit shutdown. The Remote Service Sentinel allows building maintenance personnel or service personnel to diagnose unit from the wall thermostat. The control board shall provide a signal to the thermostat fault light, indicating a lockout. Upon cycling the G (fan) input 3 times within a 60 second time period, the fault light shall display the specific code as indicated by a sequence of flashes. A detailed flashing code shall be provided at the thermostat LED to display unit status and specific fault status such as over/under voltage fault, high pressure fault, low pressure fault, low water temperature fault, condensate overflow fault, etc. **Units that do not provide this remote service sentinel shall not be acceptable.**

Option: Lonworks interface system

Units shall have all the features listed above (either CXM or DXM) and the control board will be supplied with a LONWORKS interface board, which is LONMark certified. This will permit all units to be daisy chained via a 2-wire twisted pair shielded cable. The following points must be available at a central or remote computer location:

- a. Space temperature
- b. Leaving water temperature
- c. Discharge air temperature
- d. Command of space temperature setpoint
- e. Cooling status
- f. Heating status
- g. Low temperature sensor alarm
- h. Low pressure sensor alarm
- i. High pressure switch alarm
- j. Condensate sensor alarm
- k. Hi/low voltage alarm
- l. Fan "ON/AUTO" position of space thermostat as specified above
- m. Unoccupied / occupied command
- n. Cooling command
- o. Heating command
- p. Fan "ON/AUTO" command
- q. Fault reset command
- r. Itemized fault code revealing reason for specific shutdown fault (any one of 7)

This option also provides the upgraded 75VA control transformer with load side short circuit and overload protection via a built in circuit breaker.

**Option: MPC (Multiple Protocol Control) interface system**

Units shall have all the features listed above (either CXM or DXM) and the control board will be supplied with a Multiple Protocol interface board. Available protocols are BACnet MS/TP, Modbus, or Johnson Controls N2. The choice of protocol shall be field selectable/changeable via the use of a simple selector switch. Protocol selection shall not require any additional programming or special external hardware or software tools. This will permit all units to be daisy chain connected by a 2-wire twisted pair shielded cable. The following points must be available at a central or remote computer location:

- a. Space temperature
- b. Leaving water temperature
- c. Discharge air temperature
- d. Command of space temperature setpoint
- e. Cooling status
- f. Heating status
- g. Low temperature sensor alarm
- h. Low pressure sensor alarm
- i. High pressure switch alarm
- j. Condensate overflow alarm
- k. Hi/low voltage alarm
- l. Fan "ON/AUTO" position of space thermostat as specified above
- m. Unoccupied / occupied command
- n. Cooling command
- o. Heating command
- p. Fan "ON/AUTO" command
- q. Fault reset command
- r. Itemized fault code revealing reason for specific shutdown fault (any one of 7)

This option also provides the upgraded 75VA control transformer with load side short circuit and overload protection via a built in circuit breaker.

Warranty:

ClimateMaster shall warranty equipment for a period of 12 months from start up or 18 months from shipment (whichever occurs first).

Option: Two-Year Extended Warranty provides coverage for a period of 24 months from date of start-up or 30 months from the date of shipment (whichever occurs first).

Option: Extended 4-year compressor warranty covers compressor for a total of 5 years.

FIELD INSTALLED OPTIONS**Hose Kits:**

All units 35 kW and below shall be connected with hoses. The hoses shall be 61cm long, braided stainless steel; fire rated hoses complete with adapters. Only fire rated hoses will be accepted.

Valves:

The following valves are available and will be shipped loose:

- a. Ball valve; bronze material, standard port full flow design, FPT connections.
- b. Ball valve with memory stop and PT port.
- c. "Y" strainer with blowdown valve; bronze material, FPT connections.
- d. Motorized water valve; slow acting, 24v, FPT connections.

Hose Kit Assemblies:

The following assemblies ship with the valves already assembled to the hose described:

- a. Supply and return hoses having ball valve with PT port.
- b. Supply hose having ball valve with PT port; return hose having automatic flow regulator valve with PT ports, and ball valve.
- c. Supply hose having "Y" strainer with blowdown valve, and ball valve with PT port; return hose having automatic flow regulator with PT ports, and ball valve.
- d. Supply hose having "Y" strainer with blowdown valve, and ball valve with PT port; return hose having ball valve with PT port.

**Thermostats:**

The thermostat shall be a ClimateMaster mechanical or electronic type thermostat as selected below with the described features:

- a. Single Stage Standard Manual Changeover (ATM11C11)
Thermostat shall be a single-stage, horizontal mount, manual changeover with HEAT-OFF-COOL system switch and fan ON-AUTO switch. Thermostat shall have a mechanical temperature set point indicator. Thermostat shall only require 4 wires for connection. Mercury bulb thermostats are not acceptable.
- b. Single Stage Digital Auto or Manual Changeover (ATA11U01)
Thermostat shall be a single-stage, digital, auto or manual changeover with HEAT-OFF-COOL-AUTO system switch and fan ON-AUTO switch. Thermostat shall have an LCD display with temperature and set-point(s) in °F or °C. The Thermostat shall provide permanent memory of set-point(s) without batteries. A fault LED shall be provided to display specific fault condition. Thermostat shall provide temperature display offset for custom applications.
- c. Single Stage Digital Automatic or Manual Changeover with Two-Speed Fan Control (ATA11C04) – DXM and PSC Fan required
Thermostat shall be a single-stage, digital, auto or manual changeover with HEAT-OFF-COOL-AUTO system switch, fan ON-AUTO switch, and fan LO-HI switch. Thermostat shall have an LCD display with temperature and set-point(s) in °F or °C. A fault LED shall be provided to display specific fault condition. Thermostat shall allow use of an accessory remote temperature sensor (AST009), but may be operated with internal sensor via orientation of a jumper.
- d. Single Stage Digital Automatic Changeover (ATA11C06)
Thermostat shall be a single-stage, digital, auto or manual changeover with HEAT-OFF-COOL-AUTO system switch and fan ON-AUTO switch. Thermostat shall have an LCD display with temperature and set-point(s) in °F or °C. A fault LED shall be provided to display specific fault condition. Thermostat shall allow use of an accessory remote temperature sensor (AST009), but may be operated with internal sensor via orientation of a jumper.
- e. Multistage Digital Automatic Changeover (ATA22U01)
Thermostat shall be multi-stage (2H/2C), manual or automatic changeover with HEAT-OFF-COOL-AUTO-EM HEAT system settings and fan ON-AUTO settings. Thermostat shall have an LCD display with temperature, set-point(s), mode, and status indication. The temperature indication shall be selectable for °F or °C. The thermostat shall provide permanent memory of set-point(s) without batteries. A fault LED shall be provided to indicate specific fault condition(s). Thermostat shall provide temperature display offset for custom applications. Thermostat shall allow unit to provide better dehumidification with optional DXM controller by automatically using lower fan speed on stage 1 cooling (higher latent cooling) as main cooling mode, and automatically shifting to high speed fan on stage 2 cooling.
- f. Multistage Manual Changeover Programmable 5/2 Day (ATP21U01)
Thermostat shall be 5 day/2 day programmable (with up to 4 set points per day), multi-stage (2H/1C), manual changeover with HEAT-OFF-COOL-EM HEAT system settings and fan ON-AUTO settings. Thermostat shall have an LCD display with temperature, set-point(s), mode, and status indication. The temperature indication shall be selectable for °F or °C. The thermostat shall provide permanent memory of set-point(s) without batteries. Thermostat shall provide convenient override feature to temporarily change setpoint.
- g. Multistage Automatic or Manual Changeover Programmable 7 Day (ATP32U03)
Thermostat shall be 7 day programmable (with up to 4 set points per day), multi-stage (3H/2C), automatic or manual changeover with HEAT-OFF-COOL-AUTO-EM HEAT system settings and fan ON-AUTO settings. Thermostat shall have a blue backlit dot matrix LCD display with temperature, set-points, mode, and status indication. The temperature indication shall be selectable for °F or °C. Time display shall be selectable for 12 or 24 hour clock. Fault identification shall be provided (when used with ClimateMaster CXM or DXM controls) to simplify troubleshooting by providing specific unit fault at the thermostat with red backlit LCD during unit lockout. The thermostat shall provide permanent memory of set-points without batteries. Thermostat shall provide heating set-point range limit, cooling set-point range limit, temperature display offset, keypad lockout, dead-band range setting, and inter-stage differential settings. Thermostat shall provide progressive recovery to anticipate time required to bring space temperature to the next programmed event. Thermostat shall provide an installer setup for configuring options and for setup of servicing contractor name and contact information. Thermostat shall allow the use of an accessory remote and/or outdoor temperature sensor (AST008). Thermostat navigation shall be accomplished via five buttons (up/down/right/left/select) with menu-driven selections for ease of use and programming.



- h. Multistage Automatic or Manual Changeover Programmable 7 Day with Humidity Control (ATP32U04)
Thermostat shall be 7 day programmable (with up to 4 set points per day), multi-stage (3H/2C), automatic or manual changeover with HEAT-OFF-COOL-AUTO-EM HEAT system settings and fan ON-AUTO settings. Separate dehumidification and humidification set points shall be configurable for discreet outputs to a dehumidification option and/or an external humidifier. Installer configuration mode shall allow thermostat dehumidification mode to operate with ClimaDry reheat or with ECM fan dehumidification mode via settings changes. Thermostat shall have a blue backlit dot matrix LCD display with temperature, relative humidity, set-points, mode, and status indication. The temperature indication shall be selectable for °F or °C. Time display shall be selectable for 12 or 24 hour clock. Fault identification shall be provided (when used with ClimateMaster CXM or DXM controls) to simplify troubleshooting by providing specific unit fault at the thermostat with red backlit LCD during unit lockout. The thermostat shall provide permanent memory of set-points without batteries. Thermostat shall provide heating set-point range limit, cooling set-point range limit, temperature display offset, keypad lockout, dead-band range setting, and inter-stage differential settings. Thermostat shall provide progressive recovery to anticipate time required to bring space temperature to the next programmed event. Thermostat shall provide an installer setup for configuring options and for setup of servicing contractor name and contact information. Thermostat shall allow the use of an accessory remote and/or outdoor temperature sensor (AST008). Thermostat navigation shall be accomplished via five buttons (up/down/right/left/select) with menu-driven selections for ease of use and programming.

DDC Sensors:

ClimateMaster wall mounted DDC sensor to monitor room temperature and interfaces with optional interface system described above. Several types as described below:

- a. Sensor only with no display (LON and MPC).
- b. Sensor with override (LON only).
- c. Sensor with setpoint adjustment and override (MPC only).
- d. Sensor with setpoint adjustment and override, LCD display, status/fault indication (LON and MPC)





| Date: | Item: | Action: |
|--------------------|---|---------------------------------|
| 08 February, 2012 | AHRI Performance Data Table | Updated |
| 09 August, 2011 | Unit Maximum Working Water Pressure | Updated to Reflect New Safeties |
| 01 June, 2011 | TLV084-150 Dimensional Data | Updated |
| 01 June, 2011 | Unit Maximum Water Working Pressure Table | Updated |
| 23 November, 2010 | Performance Data Table (sizes 240 & 300) | Updated |
| 28 September, 2010 | Engineering Specifications | Updated |
| 23 September, 2010 | Decoder | Updated/Corrected |
| 24 August, 2010 | Created | |