TEMPSTAR®
Heating and Cooling Products

TVH8

SmartComfort® Deluxe 18 with SmartSense™ Technology

Product Specifications

HIGH EFFICIENCY UP TO 19 SEER VARIABLE–SPEED HEAT PUMP WITH OBSERVER® COMMUNICATING CONTROL SYSTEM

2 THRU 5 TONS SPLIT SYSTEM

208–230 Volt, 1–phase, 60 Hz

TSTAT0201CW
(Sold Separately)

smartsense™ TECHNOLOGY

REFRIGERATION CIRCUIT

- Variable speed compressor operates at 5 stages with capacity range as wide as 25 – 100%
- Electronic expansion valve (EXV) for precise heating control
- High pressure switch
- Suction pressure transducer
- Pressure equalizer valve for easy starting
- Compressor discharge temperature sensor
- Coil temperature sensor
- Copper tube/aluminum fin coil
- Internal crankcase heater standard
- Suction line accumulator factory installed

PERFORMANCE

- Up to 13.0 EER and 11 HSPF
- Integrated inverter control enables 5–stage operation with complete Observer communicating system including Observer control
  - Observer Wall Control with version 5.0 or newer software required
  - Also capable of 2–stage operation with 2–stage thermostat
- Self–configuring installation with Observer Communicating Wall Control
- Compact ECM fan motor driven by integrated inverter control
- Outdoor temperature sensor factory installed
- High–performance compressor sound shield standard
- Isolation compressor grommets
- Enhanced dehumidification

EASY TO INSTALL AND SERVICE

- Text based diagnostics with Observer Communicating Wall Control
- Only 2 control wires required from communicating indoor unit to condenser
- External high and low refrigerant service ports
- Factory charged with R–410A refrigerant
- Adjustments for min and max staging with Observer Wall Control

BUILT TO LAST

- High gloss, baked–on powder coat finish over galvanized steel
- Post–painted (black) coil fins
- Coated inlet grille with 3/8" (10mm) spacing for extra protection (hail guard)
- Corner posts for extra strength and style

WARRANTY*

- 10 year No Hassle Replacement™ limited warranty
- 5 year parts limited warranty (including compressor and coil)
  - With timely registration, an additional 5 year parts limited warranty (including compressor and coil)

* For residential applications only. See Warranty certificate for complete details and restrictions, including warranty coverage for other applications.

ENERGY STAR PARTNER

This product has been designed and manufactured to meet ENERGY STAR criteria for energy efficiency when matched with appropriate coil components. However, proper refrigerant charge and proper air flow are critical to achieve rated capacity and efficiency. Installation of this product should follow the manufacturer's refrigerant charging and air flow instructions. Failure to confirm proper charge and airflow may reduce energy efficiency and shorten equipment life.

Qualifying models only

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AHRI CERTIFIED™ www.ahridirectory.org

Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program. For verification of certification for individual products, go to www.ahridirectory.org .

Model Number	Size (tons)	Nominal Btu/hr	Min. Circuit Ampacity	Max. Fuse or Breaker	Operating Dimensions height x length/width(sq.) in. (mm)	Operating/Ship Weight lbs. (kg)
TVH824GKA	2	24,000	13.5	20	31–13/16 x 23–1/8 (807 x 587)	132/154(60/70)
TVH825GKA‡	2	24,000	23.6	40	38–1/2 x 23–1/8 (980 x 587)	156/181 (71/82)
TVH836GKA	3	36,000	24.4	40		156/181 (71/82)
TVH837GKA ‡	3	36,000	26.0	40	38–15/16 x 31–3/16 (989 x 792)	207/244 (94/111)
TVH848GKA	4	48,000	31.4	50		207/244 (94/111)
TVH860GKA	5	60,000	40.8	60	42–5/16 x 31–3/16 (1075 x 792)	233/272 (106/123)

‡ = Meets Energy Star criteria when matched with appropriate coil

OUTDOOR UNIT MODEL NUMBER IDENTIFICATION GUIDE (single phase)

Digit Position:	1	2	3	4	5, 6	7	8	9	10	11	12
Example Part Number:	**T**	**V**	**H**	**8**	**24**	**G**	**K**	**A**	**1**	**0**	**0**

T = Mainline **BRANDING**

V = Variable Speed **KEY CHARACTERISTIC**

A = Air Conditioner
H = Heat Pump **TYPE**

6 = 16 SEER
7 = 17 SEER
8 = 18 SEER
9 = 19 SEER **NOMINAL EFFICIENCY**

24 = 24,000 BTUH = 2 tons
25 = 24,000 BTUH = 2 tons
36 = 36,000 BTUH = 3 tons
37 = 36,000 BTUH = 3 tons
48 = 48,000 BTUH = 4 tons
60 = 60,000 BTUH = 5 tons **NOMINAL CAPACITY**

G = Coil Guard Grille **FEATURES**

K = 208/230–1–60 **VOLTAGE**

Sales Code

Engineering Revision

Extra Digit

Extra Digit

ACCESSORIES PART NUMBER IDENTIFICATION GUIDE

Digit Position:	1	2	3	4	5	6, 7	8, 9	10, 11
Example Part Number:	**N**	**A**	**S**	**A**	**0**	**0 1**	**01**	**C H**

N = Non–Branded

A = Accessory **PRODUCT GROUP**

S = Split System (AC & HP) **KIT USAGE**

A = Original
B = 2nd Generation **MAJOR SERIES**

0 = Generic or Not Applicable
2 = R–22
4 = R–410A **REFRIGERANT**

Product Identifier Number

Package Quantity

Type of Kit (Example: CH = Crankcase Heater)

REFRIGERANT PIPING LENGTH LIMITATIONS

Maximum Line Lengths:

The maximum allowable total equivalent length for heat pumps can vary depending on the vertical separation. See the tables below for allowable lengths depending on whether the outdoor unit is on the same level, above or below the outdoor unit.

Maximum Line Lengths for Heat Pump Applications

	MAXIMUM ACTUAL LENGTH ft (m)	MAXIMUM EQUIVALENT LENGTH† ft (m)	MAXIMUM VERTICAL SEPARATION ft (m)
Units on equal level	100 (30.5)	100 (30.5)	N/A
Outdoor unit ABOVE indoor unit	100 (30.5)	100 (30.5)	100 (30.5)
Outdoor unit BELOW indoor unit	See Table *'Maximum Total Equivalent Length: Outdoor Unit BELOW Indoor Unit'*		

† **Total equivalent length accounts for losses due to elbows or fitting. See the Long Line Guideline for details.**

Maximum Total Equivalent Length† – Outdoor Unit BELOW Indoor Unit

Size	Liquid Line Diameter w/ TXV	HP with R–410A Refrigerant – Maximum Total Equivalent Length† Vertical Separation ft (m) Outdoor unit BELOW indoor unit;						
		0–20 (0 – 6.1)	21–30 (6.4 – 9.1)	31–40 (9.4 – 12.2)	41–50 (12.5 – 15.2)	51–60 (15.5 – 18.3)	61–70 (18.6 – 21.3)	71–80 (21.6 – 24.4)
2–Ton	3/8	100*	100*	100*	100*	100*	100*	100*
3–Ton	3/8	100*	100*	100*	100*	100*	100*	100*
4–Ton	3/8	100*	100*	100*	100*	100	100	––
5–Ton	3/8	100*	100*	100*	100*	100	100	––

*** Maximum actual length not to exceed 100 ft (30.5 m)**

† **Total equivalent length accounts for losses due to elbows or fitting.**

–– = outside acceptable range

LONG LINE APPLICATIONS

Unit is approved for up to 100 ft (30.5 m) equivalent length and vertical separations shown above with no additional accessories.

Longer line set applications are not permitted.

COOLING CAPACITY LOSS TABLE

Nominal Size (Btuh)	Line OD (in.)	TVH8 Cooling Capacity Loss (%) Total Equivalent Line Length (ft)				
		25	50	75	80	100
24	5/8	0.5	1.2	1.8	1.9	2.4
	3/4	**0.1**	**0.4**	**0.6**	**0.7**	**0.8**
25	5/8	0.5	1.2	1.8	1.9	2.4
	3/4	0.1	0.4	0.6	0.7	0.8
	7/8	0.0	0.1	0.3	0.3	0.4
36 37	5/8	1.1	2.4	3.7	4.0	5.0
	3/4	0.3	0.8	1.3	1.4	1.8
	7/8	0.0	0.3	0.5	0.6	0.8
48	3/4	0.7	1.6	2.4	2.6	3.2
	7/8	0.3	0.7	1.1	1.2	1.6
	1 1/8	0.0	0.1	0.2	0.3	0.4
60	3/4	1.0	2.3	3.5	3.8	4.8
	7/8	0.4	1.0	1.7	1.8	2.3
	1 1/8	0.0	0.1	0.3	0.4	0.5

Rating Line Size in **BOLD**

EQUIPMENT SIZING GUIDELINES

If primary load is cooling, size the same as any other air conditioning system. If primary load is heating, use the chart below for maximum size for heating.

MAXIMUM RECOMMENDED EQUIPMENT SIZE – HEATING

COOLING LOAD (tons)	MAXIMUM RECOMMENDED EQUIPMENT SIZE FOR HEATING*
1	25
1.5	25
2	37
2.5	37
3	48
3.5	60
4	60
5	60

* Make sure duct work is capable of delivering required airflow . Make sure combination rating exists for desired indoor and outdoor combination.

MIN/MAX AIRFLOW TABLES

The indoor airflow delivered by this system varies significantly based on outdoor temperature, indoor unit combination, and system demand. The airflows on these tables are for duct design considerations.

Duct systems capable of these ranges will ensure the system will deliver full capacity at all outdoor temperatures.

Minimum and maximum compressor stage can be adjusted from these numbers in the Observer® Control Heat Pump Setup screen.

Cooling — Comfort Mode			Minimum Cooling (Dehum or Zoning)
Size	Max Stage 5 Airflow	Max Stage 1 Airflow	
2−Ton	739	300	300
3−Ton	990	300	300
4−Ton	1389	542	457
5−Ton	1600	700	600

Cooling — Efficiency Mode		
Size	Max Stage 5 Airflow	Max Stage 1 Airflow
2−Ton	825	585
3−Ton	1050	600
4−Ton	1400	875
5−Ton	1800	975

Heating — Comfort Mode		
Size	Max Stage 5 Airflow	Max Stage 1 Airflow
2−Ton	819	300
3−Ton	1014	226
4−Ton	1550	429
5−Ton	1600	500

Heating — Efficiency Mode		
Size	Max Stage 5 Airflow	Max Stage 1 Airflow
2−Ton	825	585
3−Ton	1200	700
4−Ton	1600	1000
5−Ton	1600	900

Cooling Max Mode		
Size	Max Stage 5 Airflow	Max Stage 1 Airflow
2−Ton (24)	850	585
2−Ton (25) (550 cfm/ delivered ton)*	1350	510
3−Ton	1200	600
4−Ton	1600	875
4−Ton−49	1450	875
5−Ton	2000	975

Heating Max Mode		
Size	Max Stage 5 Airflow	Max Stage 1 Airflow
2−Ton (24)	850	585
2−Ton (25) (550 cfm/ delivered ton)*	850	585
3−Ton	1200	700
4−Ton	1600	1000
5−Ton	2000	900

* Serial number beginning with 0115E and newer

LEGEND::

Max Capacity Airflow − Stage 5 airflow varies depending on conditions. This is the highest airflow the system will attempt to deliver in this particular mode. Ductwork for non−zoned systems should be sized for this airflow to ensure the system can deliver full capacity when needed. Improper duct design may result in excessive airflow noise and/or cutback occurrences at max airflow conditions.

Highest Min. Capacity Airflow − Stage 1 airflow also varies depending on conditions. In zoned systems, each zone must be capable of delivering this airflow for the system to deliver full capacity into the zone. Otherwise, airflow may be diverted to other zones or cutback may occur.

Min Cooling (Dehum or Zoning) − Lowest airflow the system will deliver. May operate down to this airflow in dehumidification mode or in zoning applications where duct-work restrictions have caused the blower to cut−back.

PHYSICAL DATA

UNIT SIZE SERIES	24	25	36	37	48	60
Compressor Type	Variable Speed Rotary					
REFRIGERANT	R−410A					
Control	TXV (R−410A Hard Shutoff)					
Charge lb (kg)	5.40 (2.45)	6.38 (2.89)	6.38 (2.89)	7.5 (3.40)	8.30 (3.76)	8.60 (3.90)
Outdoor Htg Exp. Device	EXV					
COND FAN	Forward Swept Propeller Type, Direct Drive					
Air Discharge	Vertical					
Air Qty (CFM)	2080	2500	2500	3800	4500	4500
Motor HP	1/5	1/3	1/3	1/3	1/3	1/3
Motor RPM	825	1050	1050	750	850	900
COND COIL						
Face Area (Sq ft)	11.12	13.90	13.90	21.50	21.50	23.65
Fins per In.	20	20	20	20	20	20
Rows	1	1	1	1	1	1
Circuits	5	6	6	8	8	8
VALVE CONNECT. (In. ID)						
Vapor	5/8	3/4	3/4	7/8	7/8	7/8
Liquid	3/8					
REFRIGERANT TUBES (In. OD)						
Rated Vapor*	3/4	7/8	7/8	1−1/8	1−1/8	1−1/8
Max Liquid Line	3/8					

***** Units are rated with 25 ft (7.6 m) of lineset length. See Vapor Line Sizing and Cooling Capacity Loss table when using other sizes and lengths of lineset.

Note: See unit Installation Instruction for proper installation.

ELECTRICAL DATA

UNIT SIZE− VOLTAGE, SERIES	V/PH	OPER VOLTS*		COMPR		FAN	MCA	MAX FUSE ** or CKT BRK AMPS
		MAX	MIN	LRA	RLA	FLA		
24	208/230 −1−60	253	197	N/A	10.32	0.58	13.50	20
25				N/A	17.70	1.20	23.60	40
36				N/A	18.30	1.20	24.40	40
37				N/A	19.60	1.20	26.00	40
48				N/A	23.90	1.20	31.40	50
60				N/A	31.30	1.40	40.80	60

* Permissible limits of the voltage range at which the unit will operate satisfactorily

** Time−Delay fuse.

FLA − Full Load Amps

LRA − Locked Rotor Amps

MCA − Minimum Circuit Amps

RLA − Rated Load Amps

NOTE: Control circuit is 24−V on all units and requires external power source. Copper wire must be used from service disconnect to unit.
All motors/compressors contain internal overload protection.
Complies with 2010 requirements of ASHRAE Standards 90.1

CHARGING SUBCOOLING (TXV−TYPE EXPANSION DEVICE)

UNIT SIZE−VOLTAGE, SERIES	
24	**Subcooling recommendation displayed in the subcooling chart shown on the charging label must be followed**
25	
36	
37	
48	
60	

SOUND POWER LEVEL (dBA)

Unit Size– Voltage, Series	Typical Octave Band Spectrum (without tone adjustment)	Min Speed Cooling	Max Speed Cooling	Max Speed Heating
24	Freq (Hz)	1500 RPM	4700 RPM	5400 RPM
	125	40.5	44.0	45.5
	250	45.5	49.5	53.5
	500	41.5	53.0	56.0
	1000	44.0	52.5	54.0
	2000	39.0	50.5	53.0
	4000	34.5	53.0	56.5
	8000	31.0	45.0	45.5
	Sound Rating (dBA)	56	67	68
25	Freq (Hz)	1200 RPM	3300 RPM	4800 RPM
	125	43.0	52.0	52.5
	250	47.0	59.5	59.0
	500	51.0	64.5	61.5
	1000	49.5	63.0	62.0
	2000	42.5	60.0	60.0
	4000	35.5	59.5	64.0
	8000	46.0	50.5	54.5
	Sound Rating (dBA)	56	69	71
36	Freq (Hz)	1200 RPM	4800 RPM	5400 RPM
	125	43.0	53.0	51.5
	250	47.0	59.5	61.5
	500	51.0	62.5	62.5
	1000	49.5	63.5	63.5
	2000	42.5	63.0	61.5
	4000	35.5	63.5	62.0
	8000	46.0	54.0	54.5
	Sound Rating (dBA)	56	72	71
37	Freq (Hz)	1200 RPM	3000 RPM	4800 RPM
	125	49.5	55.5	62.0
	250	52.5	60.0	63.0
	500	54.0	63.0	64.5
	1000	53.5	61.0	63.5
	2000	50.5	60.5	62.0
	4000	43.0	58.0	64.5
	8000	41.5	50.0	55.0
	Sound Rating (dBA)	60	69	72
48	Freq (Hz)	1500 RPM	4320 RPM	5400 RPM
	125	49.5	59.0	52.5
	250	54.5	64.0	60.0
	500	54.0	66.0	63.5
	1000	54.5	64.5	64.0
	2000	52.0	63.5	63.0
	4000	54.5	63.5	65.5
	8000	46.5	53.0	59.0
	Sound Rating (dBA)	64	72	74
60	Freq (Hz)	1200 RPM	4140 RPM	5400 RPM
	125	39	49.5	46
	250	48	59.5	59
	500	46.5	62	60
	1000	45.5	60	57
	2000	39.5	58.5	56.5
	4000	36.5	55	56.5
	8000	35.5	48	54.5
	Sound Rating (dBA)	57	72	71

NOTE: Tested in compliance with AHRI 270–2008 but not listed with AHRI.

RPM–CAPACITY–SOUND (dBA)*

STAGE #	COMP RPM	CAPACITY %	SOUND (dBA)
TVH824			
COOLING			
1	1500	35%	56
2	2566	56%	60
3	3150	69%	65
4	3950	87%	66
5	4700	100%	67
HEATING			
1	1500	29%	56
2	2800	53%	59
3	3150	59%	62
4	4700	88%	65
5	5400	100%	68
TVH825			
COOLING			
1	1200	38%	56
2	1900	58%	60
3	2400	73%	62
4	2600	79%	66
5	3300	100%	69
HEATING			
1	1200	25%	56
2	2400	50%	60
3	3300	69%	62
4	4200	88%	68
5	4800	100%	71
TVH836			
COOLING			
1	1200	25%	56
2	2400	50%	61
3	3300	69%	65
4	4200	88%	69
5	4800	100%	72
HEATING			
1	1200	22%	56
2	2600	48%	60
3	3400	63%	63
4	4800	89%	69
5	5400	100%	71
TVH837			
COOLING			
1	1200	25%	60
2	1800	60%	61
3	2200	73%	67
4	2600	87%	67
5	3000	100%	69
HEATING			
1	1200	25%	60
2	2400	50%	67
3	2700	56%	68
4	3000	63%	69
5	4800	100%	72
TVH848			
COOLING			
1	1500	35%	64
2	2460	57%	67
3	2800	65%	68
4	3650	84%	70
5	4320	100%	72
HEATING			
1	1500	28%	64
2	2800	52%	67
3	3300	61%	68
4	4320	80%	71
5	5400	100%	74
TVH860			
COOLING			
1	1200	32%	57
2	2180	55%	61
3	2850	70%	65
4	3700	90%	68
5	4140	100%	72
HEATING			
1	1200	25%	57
2	2600	50%	51
3	3200	61%	65
4	4140	88%	69
5	5400	100%	71

*Estimated sound for stages 2, 3, and 4

*For 2–stage operation: Cooling Low = Stage 2, Heating low = Stage 3; both cooling and heating High = Stage 5

DIMENSIONS – ENGLISH

UNIT	SERIES	ELECTRICAL CHARACTERISTICS				A	B	C	D	E	F	G	K	L	M	N	P	OPERATING WEIGHT (lbs)	SHIPPING WEIGHT (lbs)	SHIPPING DIMENSIONS (L x W x H)
*VH824GKA	1	X	O	O	O	23 1/8"	31 13/16"	3 3/4"	3/4"	4 7/16"	18 1/16"	7 13/16"	2 13/16"	1/2"	11 1/4"	11 1/4"	14 1/2"	132	154	25 1/4" X 25 1/4" X 35 5/8"
*VH825GKA	1	X	O	O	O	23 1/8"	38 1/2"	3 3/4"	3/4"	4 7/16"	18 1/16"	7 13/16"	2 13/16"	1/2"	10 3/4"	10 3/4"	18 1/4"	156	181	25 1/4" X 25 1/4" X 43 3/8"
*VH836GKA	1	X	O	O	O	23 1/8"	38 1/2"	3 3/4"	3/4"	4 7/16"	18 1/16"	7 13/16"	2 13/16"	1/2"	10 3/4"	10 3/4"	18 1/4"	156	181	25 1/4" X 25 1/4" X 43 3/8"
*VH837GKA	1	X	O	O	O	31 3/16"	38 15/16"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	14 1/2"	14 5/8"	18 3/4"	207	244	33 3/8" X 33 3/8" X 46 1/8"
*VH848GKA	1	X	O	O	O	31 3/16"	38 15/16"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	14 1/2"	14 5/8"	18 3/4"	207	244	33 3/8" X 33 3/8" X 46 1/8"
*VH860GKA	1	X	O	O	O	31 3/16"	42 5/16"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	16 1/2"	15"	20"	233	272	33 3/8" X 33 3/8" X 49 9/16"

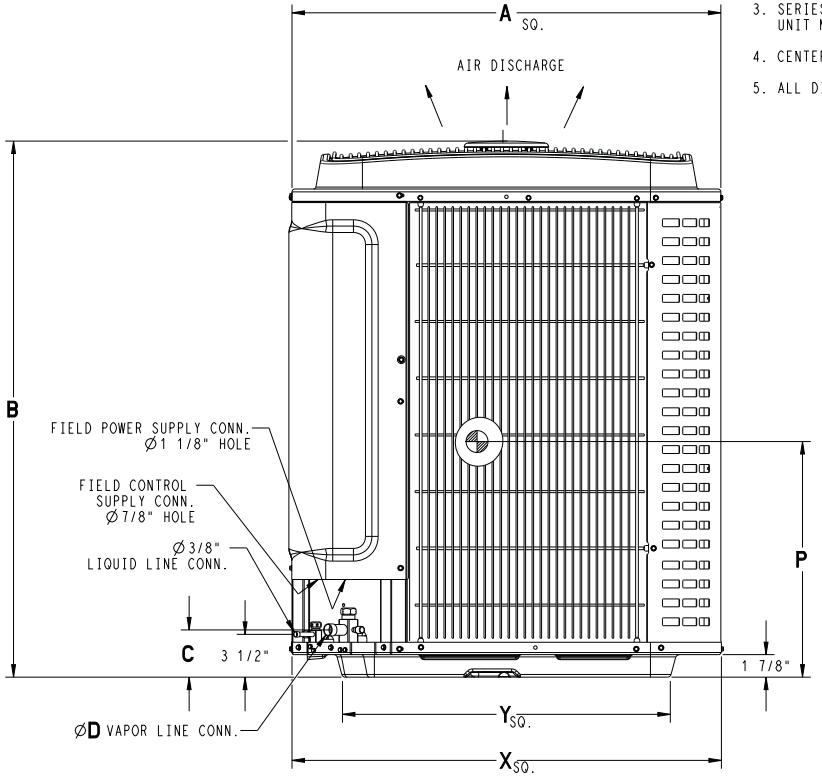
208/230-1-60	230-1-60	208/230-3-60	460-3-60

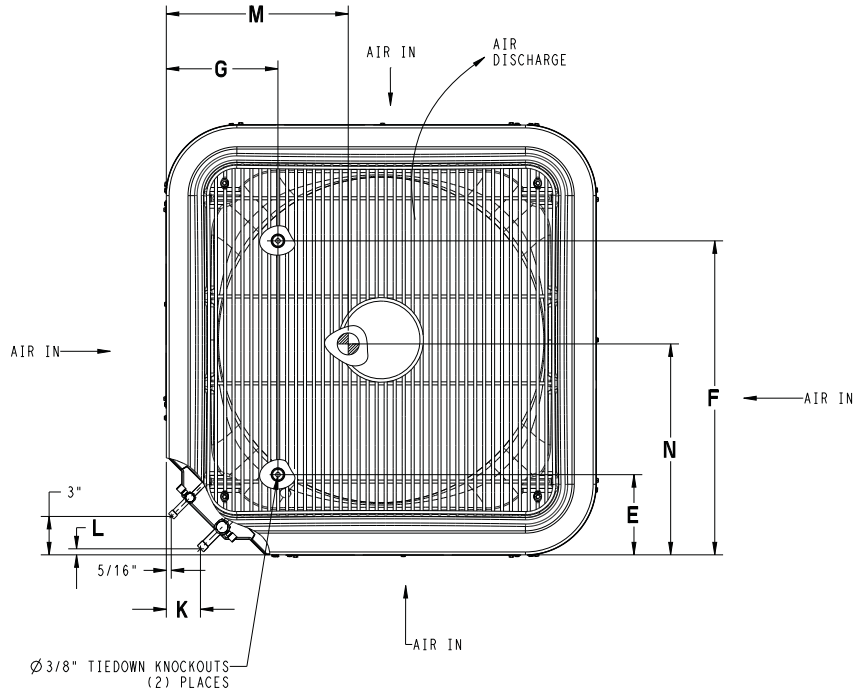
X = YES
O = NO

NOTES:

1. ALLOW 30" CLEARANCE TO SERVICE SIDE OF UNIT, 48" ABOVE UNIT, 6" ON ONE SIDE, 12" ON REMAINING SIDE, AND 24" BETWEEN UNITS FOR PROPER AIRFLOW.
2. MINIMUM OUTDOOR OPERATING AMBIENT IN COOLING MODE IS 55°F, MAX. 115°F.
3. SERIES DESIGNATION IS THE 10TH POSITION OF THE UNIT MODEL NUMBER.
4. CENTER OF GRAVITY ⊕.
5. ALL DIMENSIONS ARE IN "INCHES" UNLESS NOTED.

UNIT SIZE	"X" MIN GROUND MOUNTING PAD APPLICATION DIMENSIONS	"Y" MIN ROOF-TOP MOUNTING PAD APPLICATION DIMENSIONS
24,25,36	23 1/8"	17 3/4"
-	25 3/4"	20 7/16"
37,48,60	31 3/16"	23"
-	35"	26 3/4"





Representative drawing only, some models may vary in appearance.

SD5334–4 REV B

* = C, H, T

DIMENSIONS – SI

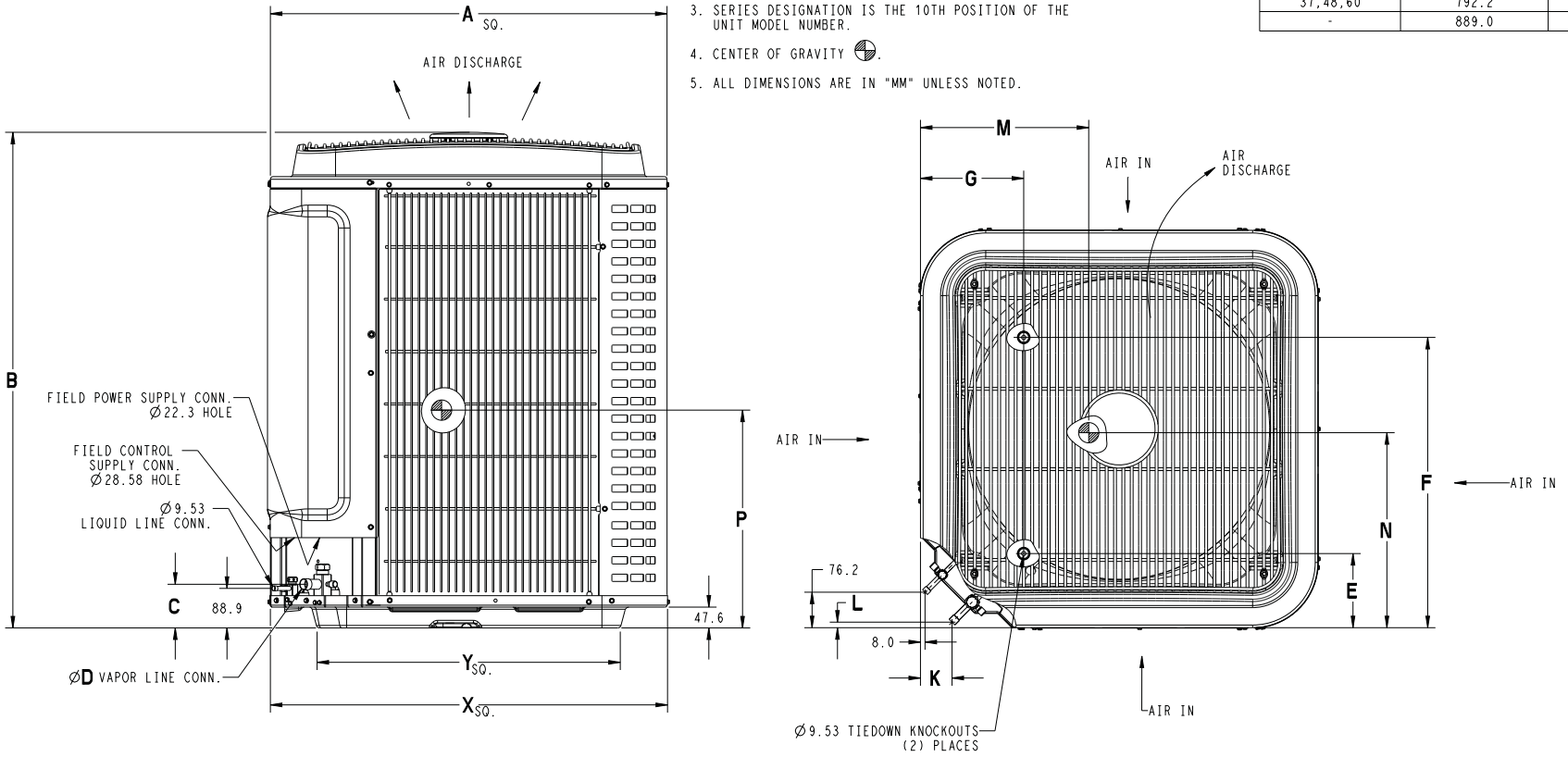
UNIT	SERIES	ELECTRICAL CHARACTERISTICS				A	B	C	D	E	F	G	K	L	M	N	P	OPERATING WEIGHT (Kgs)	SHIPPING WEIGHT (Kgs)	SHIPPING DIMENSIONS (L x W x H)
		208/230-1-60	230-1-60	208/230-3-60	460-3-60															
*VH824GKA	1	X	O	O	O	587.3	807.3	96.1	19.1	112.7	458.8	198.4	71.4	12.7	285.8	285.8	368.3	60	70	641.5 X 641.5 X 905.2
*VH825GKA	1	X	O	O	O	587.3	980.1	96.1	19.1	112.7	458.8	198.4	71.4	12.7	273.1	273.1	463.6	71	82	641.5 X 641.5 X 1102.2
*VH836GKA	1	X	O	O	O	587.3	980.1	96.1	19.1	112.7	458.8	198.4	71.4	12.7	273.1	273.1	463.6	71	82	641.5 X 641.5 X 1102.2
*VH837GKA	1	X	O	O	O	792.2	988.5	98.4	22.2	166.7	627.1	231.8	74.6	15.9	368.3	371.5	476.3	94	111	846.6 X 846.6 X 1172.2
*VH848GKA	1	X	O	O	O	792.2	988.5	98.4	22.2	166.7	627.1	231.8	74.6	15.9	368.3	371.5	476.3	94	111	846.6 X 846.6 X 1172.2
*VH860GKA	1	X	O	O	O	792.2	1074.9	98.4	22.2	166.7	627.1	231.8	74.6	15.9	419.1	381.0	508.0	106	123	846.6 X 846.6 X 1258.6

X = YES
O = NO

NOTES:

1. ALLOW 762.0 CLEARANCE TO SERVICE SIDE OF UNIT, 1219.2 ABOVE UNIT, 152.4 ON ONE SIDE, 304.8 ON REMAINING SIDE, AND 609.6 BETWEEN UNITS FOR PROPER AIRFLOW.
2. MINIMUM OUTDOOR OPERATING AMBIENT IN COOLING MODE IS 13°C, MAX. 46°C.
3. SERIES DESIGNATION IS THE 10TH POSITION OF THE UNIT MODEL NUMBER.
4. CENTER OF GRAVITY ⊕.
5. ALL DIMENSIONS ARE IN "MM" UNLESS NOTED.

UNIT SIZE	"X" MIN GROUND MOUNTING PAD APPLICATION DIMENSIONS	"Y" MIN ROOF-TOP MOUNTING PAD APPLICATION DIMENSIONS
24,25,36	587.4	451.3
-	654.0	518.5
37,48,60	792.2	583.2
-	889.0	679.7

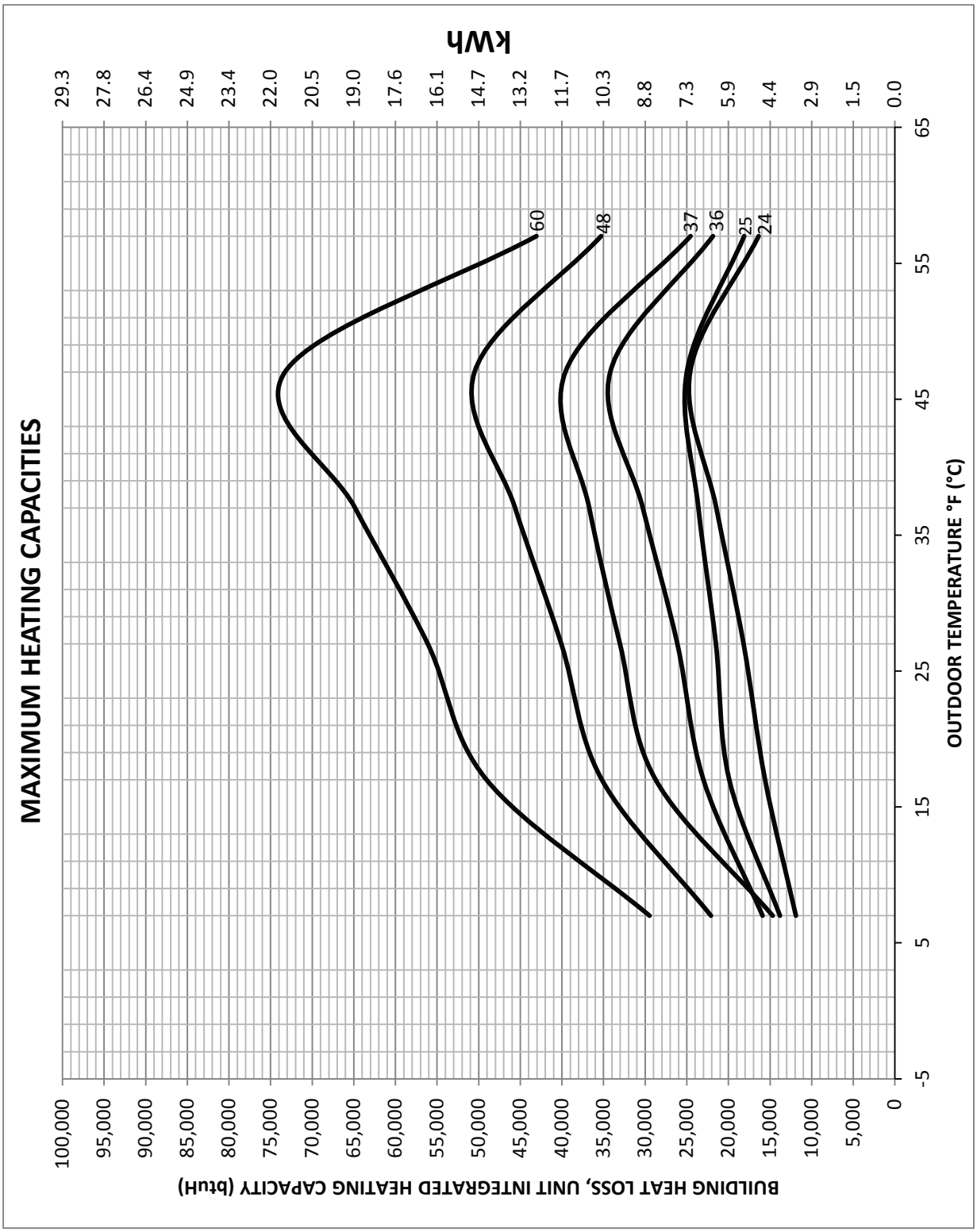


Representative drawing only, some models may vary in appearance.

SD5334–4 REV B

* = C, H, T

TVH8 BALANCE POINT WORKSHEET



TESTED AHRI COMBINATION RATINGS*

NOTE: Ratings contained in this document are subject to change at any time.

For AHRI ratings certificates, please refer to the AHRI directory. **www.ahridirectory.org**

Additional ratings and system combinations can be accessed via the Tempstar database at:
http://www.icpeqp.com/AHRIratings/ratings.aspx?Brand=Tempstar

Or scan this QR code:

				Cooling				Heating				
									High Temp		Low Temp	
Outdoor Model	Indoor Model	Furnace Model	Stages	Cooling Cap.	SEER	EER	ID CFM	HSPF	Capacity 47°F (8°C)	COP	Capacity 17°F (−8°C)	COP
TVH824GKA101	FCM4X24***L + WALLCON		5	24,000	17.5	11.0	825	10.5	24,400	3.61	15,800	2.60
TVH824GKA101	FVM4X24***L		2	23,200	15.0	10.5	700	9.0	23,800	3.42	15,600	2.52
TVH825GKA101	FCM4X48***L + WALLCON		5	24,000	18.0	12.5	825	10.0	26,800	3.56	19,900	2.58
TVH825GKA101	FVM4X36***L		2	23,200	16.5	12.0	700	8.2	30,200	3.04	19,900	2.38
TVH836GKA101	FCM4X48***L + WALLCON		5	34,200	17.5	10.5	1050	10.5	34,200	3.56	23,000	2.58
TVH836GKA101	FVM4X48***L		2	34,600	15.5	10.0	1050	9.0	34,000	3.58	22,400	2.58
TVH837GKA101	FCM4X60***L + WALLCON		5	33,600	19.0	13.0	1050	11.0	40,000	3.50	30,400	2.66
TVH848GKA101	FCM4X48***L + WALLCON		5	46,000	18.0	11.0	1400	11.0	50,500	3.44	35,200	2.66
TVH860GKA101	FCM4X60***L + WALLCON		5	57,000	17.0	10.0	1600	10.0	60,000	3.10	44,500	2.48
TVH860GKA101	FVM4X60***L		2	57,000	15.0	10.0	1750	9.0	60,000	3.05	44,000	2.45

Ratings **with** "+ WALLCON" are **communicating** systems with Observer® Wall Control and 5−stages of operation.
Ratings **without** "+ WALLCON" are **non−communicating** systems with 2−stage operation.

* Ratings are net values reflecting the effects of circulating fan heat. Supplemental electric heat is not included. Ratings are based on:
Cooling Standard: 80°F (27°C) db 67°F (19°C) wb indoor entering air temperature and 95°F (35°C) db air entering outdoor unit.
High−Temp Heating Standard: 70°F (21°C) db indoor entering air temperature and 47°F (8°C) db 43°F (6°C) wb air entering outdoor unit.
Low−Temp Heating Standard: 70°F (21°C) db indoor entering air temperature and 17°F (−8°C) db 15°F (−9°C) wb air entering outdoor unit.
COP — Coefficient of Performance
EER — Energy Efficiency Ratio
HSPF — Heating Seasonal Performance Factor
SEER — Seasonal Energy Efficiency Ratio
WALLCON— Wall Control

NOTE: Ratings contained in this document are subject to change at any time.

TVH824

DETAILED COOLING CAPACITIES# – EFFICIENCY MODE

EDB °F (°C)	EVAP. AIR	TVH824 / FCM4X24*L Efficiency Mode Condenser Entering Air Temperature °F (°C)																					
		115 (46.1)				105 (40.5)				95 (35)				85 (29.4)				75 (23.9)				65 (18.3)			
	EWB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW**	ID SCFM	Capacity MBtuh		Total Sys. KW**	ID SCFM	Capacity MBtuh		Total Sys. KW**	ID SCFM	Capacity MBtuh		Total Sys. KW**	ID SCFM	Capacity MBtuh		Total Sys. KW**	ID SCFM	Capacity MBtuh		Total Sys. KW**
			Total	Sens ‡			Total	Sens ‡			Total	Sens ‡			Total	Sens ‡			Total	Sens ‡			Total	Sens ‡	
STAGE 5																									
75 (23.9)	72(22.2)	825	23.99	9.99	3.08	825	25.38	10.48	2.68	825	26.51	10.88	2.31	825	27.76	11.32	1.97	825	28.92	11.74	1.65	825	30.00	12.14	1.37
	67(19.4)		21.78	14.06	3.03		23.03	14.51	2.64		24.07	14.89	2.29		25.19	15.30	1.95		26.23	15.68	1.65		27.21	16.06	1.38
	63(17.2)		20.14	17.25	2.99		21.29	17.68	2.61		22.25	18.03	2.26		23.28	18.42	1.94		24.25	18.78	1.65		25.14	19.13	1.38
	57(13.9)		19.20	19.20	2.96		20.07	20.07	2.59		20.78	20.78	2.25		21.53	21.53	1.93		22.23	22.23	1.65		22.88	22.88	1.39
80 (26.7)	72(22.2)	825	23.92	14.05	3.08	825	25.31	14.51	2.68	825	26.44	14.88	2.31	825	27.69	15.29	1.97	825	28.85	15.69	1.65	825	29.93	16.06	1.36
	67(19.4)		21.71	18.07	3.03		22.96	18.50	2.64		24.00	18.85	2.29		25.12	19.23	1.95		26.16	19.59	1.65		27.14	19.94	1.38
	63(17.2)		20.49	20.49	3.00		21.42	21.42	2.62		22.32	21.83	2.27		23.31	22.27	1.94		24.26	22.63	1.65		25.15	22.94	1.38
	57(13.9)		20.46	20.46	3.00		21.38	21.38	2.62		22.11	22.11	2.26		22.90	22.90	1.94		23.62	23.62	1.65		24.28	24.28	1.39
STAGE 3																									
75 (23.9)	72(22.2)	650	14.71	6.31	1.53	650	16.06	6.81	1.40	650	17.24	7.25	1.24	650	18.61	7.76	1.10	650	20.01	8.28	0.95	650	21.40	8.82	0.80
	67(19.4)		13.26	9.12	1.52		14.47	9.68	1.40		15.56	10.19	1.25		16.82	10.77	1.11		18.08	11.35	0.97		19.33	11.95	0.83
	63(17.2)		12.21	11.32	1.52		13.33	11.93	1.40		14.34	12.51	1.25		15.50	13.13	1.12		16.65	13.77	0.98		17.80	14.40	0.85
	57(13.9)		11.92	11.92	1.51		12.87	12.87	1.40		13.73	13.73	1.25		14.68	14.68	1.12		15.62	15.62	0.99		16.56	16.56	0.87
80 (26.7)	72(22.2)	650	14.65	9.16	1.53	650	16.00	9.72	1.40	650	17.18	10.22	1.24	650	18.55	10.80	1.10	650	19.95	11.38	0.95	650	21.35	11.99	0.79
	67(19.4)		13.23	11.93	1.52		14.43	12.55	1.40		15.52	13.13	1.25		16.77	13.77	1.11		18.02	14.42	0.97		19.28	15.07	0.83
	63(17.2)		12.80	12.80	1.52		13.80	13.80	1.40		14.71	14.71	1.25		15.72	15.72	1.11		16.74	16.71	0.98		17.88	17.42	0.85
	57(13.9)		12.78	12.78	1.52		13.78	13.78	1.40		14.68	14.68	1.25		15.69	15.69	1.12		16.69	16.69	0.98		17.68	17.68	0.85
STAGE 1																									
75 (23.9)	72(22.2)	650	10.98	4.91	1.02	650	12.29	5.41	1.00	585	7.32	3.62	0.42	585	8.41	4.06	0.40	585	9.55	4.54	0.36	585	10.67	5.00	0.30
	67(19.4)		9.86	7.42	1.02		11.05	8.01	1.00		6.54	5.94	0.43		7.50	6.56	0.42		8.51	7.19	0.38		9.56	7.86	0.33
	63(17.2)		9.15	9.15	1.02		10.29	9.90	1.00		6.40	6.40	0.43		7.27	7.27	0.42		8.18	8.18	0.39		9.11	9.11	0.35
	57(13.9)		9.13	9.13	1.02		10.15	10.15	1.00		6.40	6.40	0.43		7.27	7.27	0.42		8.17	8.17	0.39		9.10	9.10	0.35
80 (26.7)	72(22.2)	650	10.93	7.45	1.02	650	12.27	8.08	1.00	585	7.28	5.99	0.42	585	8.36	6.61	0.40	585	9.50	7.26	0.36	585	10.68	7.95	0.30
	67(19.4)		9.88	9.86	1.02		11.12	10.63	1.00		6.97	6.97	0.43		7.91	7.91	0.41		8.89	8.89	0.37		9.91	9.91	0.32
	63(17.2)		9.86	9.86	1.02		10.95	10.95	1.00		6.96	6.96	0.43		7.90	7.90	0.41		8.88	8.88	0.37		9.90	9.90	0.32
	57(13.9)		9.85	9.85	1.02		10.94	10.94	1.00		6.95	6.95	0.43		7.89	7.89	0.41		8.87	8.87	0.37		9.88	9.88	0.32

DETAILED COOLING CAPACITIES#– COMFORT + DEHUMIDIFY MODE

EDB °F (°C)	EVAP. AIR	TVH824 / FCM4X24***L Comfort + Dehumidify Mode Condenser Entering Air Temperature °F (°C)																					
		105 (40.5)				95 (35)				85 (29.4)				75 (23.9)				65 (18.3)					
	EWB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW	ID SCFM	Capacity MBtuh		Total Sys. KW	ID SCFM	Capacity MBtuh		Total Sys. KW	ID SCFM	Capacity MBtuh		Total Sys. KW	ID SCFM	Capacity MBtuh		Total Sys. KW
			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡	
STAGE 5																									
75 (23.9)	72(22.2)	642	24.61	9.99	2.60	608	25.43	10.26	2.22	634	26.73	10.77	1.90	663	27.99	11.27	1.60	708	29.29	11.79	1.33				
	67(19.4)		22.32	13.17	2.56		23.05	13.27	2.20		24.23	13.87	1.89		25.36	14.48	1.60		26.57	15.19	1.34				
	63(17.2)		20.62	15.67	2.53		21.29	15.62	2.18		22.39	16.30	1.87		23.44	17.00	1.60		24.55	17.84	1.34				
	57(13.9)		18.73	18.73	2.50		19.03	18.99	2.15		20.00	19.77	1.86		20.94	20.63	1.59		21.98	21.66	1.35				
80 (26.7)	72(22.2)	642	24.55	13.18	2.60	608	25.37	13.28	2.23	634	26.67	13.88	1.90	663	27.93	14.49	1.60	708	29.23	15.20	1.33				
	67(19.4)		22.26	16.33	2.56		23.00	16.25	2.20		24.17	16.95	1.89		25.31	17.67	1.60		26.51	18.55	1.34				
	63(17.2)		20.61	18.80	2.54		21.27	18.58	2.18		22.35	19.35	1.87		23.41	20.17	1.60		24.53	21.19	1.35				
	57(13.9)		19.90	19.90	2.52		20.17	20.17	2.16		21.12	21.12	1.86		22.06	22.06	1.59		23.16	23.16	1.35				
STAGE 3																									
75 (23.9)	72(22.2)	437	15.21	6.19	1.37	415	16.13	6.52	1.21	437	17.53	7.08	1.07	456	18.92	7.64	0.93	484	20.37	8.22	0.78				
	67(19.4)		13.70	8.14	1.37		14.54	8.44	1.21		15.81	9.12	1.08		17.07	9.81	0.95		18.41	10.60	0.81				
	63(17.2)		12.58	9.66	1.36		13.37	9.90	1.21		14.52	10.71	1.08		15.68	11.49	0.96		16.92	12.42	0.83				
	57(13.9)		11.42	11.42	1.35		11.92	11.92	1.20		12.92	12.92	1.09		13.91	13.91	0.98		15.03	15.03	0.86				
80 (26.7)	72(22.2)	437	15.17	8.18	1.37	415	16.09	8.46	1.21	437	17.47	9.16	1.07	456	18.87	9.88	0.93	484	20.36	10.65	0.78				
	67(19.4)		13.66	10.10	1.37		14.51	10.33	1.21		15.77	11.18	1.08		17.03	12.00	0.95		18.37	12.96	0.81				
	63(17.2)		12.58	11.62	1.36		13.35	11.80	1.21		14.51	12.75	1.08		15.66	13.67	0.96		16.91	14.77	0.83				
	57(13.9)		12.18	12.18	1.36		12.69	12.69	1.21		13.76	13.76	1.09		14.81	14.81	0.97		15.99	15.99	0.84				
STAGE 1																									
75 (23.9)	72(22.2)	362	11.44	4.66	0.97	222	6.60	2.69	0.40	234	7.58	3.09	0.38	229	8.49	3.44	0.35	245	9.61	3.90	0.30				
	67(19.4)		10.26	6.13	0.97		5.88	3.57	0.41		6.74	4.08	0.40		7.54	4.46	0.38		8.50	5.05	0.33				
	63(17.2)		9.39	7.28	0.97		5.34	4.26	0.41		6.12	4.85	0.41		6.85	5.27	0.39		7.75	5.98	0.36				
	57(13.9)		8.56	8.56	0.97		4.90	4.90	0.42		5.60	5.60	0.42		6.18	6.18	0.41		7.00	7.00	0.38				
80 (26.7)	72(22.2)	362	11.42	6.18	0.97	222	6.57	3.61	0.40	234	7.55	4.13	0.38	229	8.46	4.53	0.35	245	9.58	5.13	0.30				
	67(19.4)		10.24	7.63	0.97		5.86	4.48	0.41		6.72	5.11	0.40		7.52	5.54	0.38		8.53	6.25	0.33				
	63(17.2)		9.40	8.79	0.97		5.34	5.17	0.41		6.12	5.89	0.41		6.85	6.35	0.39		7.75	7.20	0.36				
	57(13.9)		9.15	9.15	0.97		5.26	5.26	0.42		6.02	6.02	0.41		6.63	6.63	0.40		7.51	7.51	0.37				

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage
Stage 1 – Compressor speed limited to stage two at 105 outdoor.

See additional notes on page 43

DETAILED COOLING CAPACITIES# – EFFICIENCY MODE & COMFORT + DEHUMIDIFY MODE CONTINUED

TVH824

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
FCM4X24***L	1.00	1.00	
FCM4X36***L	1.01	1.01	
EA*4X36L14A*	1.00	1.05	*8MV*0701412**
EA*4X36L17A*	1.00	1.05	*9MA*0601714A**
EA*4X36L17A*	1.00	1.05	*9MA*0801714A**
EA*4X36L17A*	1.01	1.01	*8MV*0701412**
EA*4X36L17A*	1.01	1.01	*8MV*0901716**
EA*4X36L21A*	1.00	1.05	*9MA*0601714A**
EA*4X36L21A*	1.00	1.05	*9MA*0801714A**
EA*4X36L21A*	1.00	1.05	*9MA*0602120A**
EA*4X36L21A*	1.01	1.01	*9MA*0802120A**
EA*4X36L21A*	1.01	1.01	*9MA*1002122A**
EA*4X42L21A*	1.01	1.06	*9MA*0601714A**
EA*4X42L21A*	1.01	1.06	*9MA*0801714A**
EA*4X42L21A*	1.01	1.06	*9MA*0602120A**
EA*4X42L21A*	1.02	1.02	*8MV*0901716**
EA*4X42L24A*	1.01	1.06	*9MA*0602120A**
EA*4X48L17A*	1.02	1.07	*9MA*0601714A**
EA*4X48L17A*	1.03	1.03	*9MA*0801714A**
EA*4X48L17A*	1.03	1.03	*8MV*0701412**
EA*4X48L17A*	1.03	1.03	*8MV*0901716**
EA*4X48L21A*	1.02	1.07	*9MA*0601714A**
EA*4X48L21A*	1.02	1.02	*9MA*0801714A**
EA*4X48L21A*	1.03	1.03	*8MV*0901716**
EN(A,D,W)4X36L17**	1.00	1.05	*9MA*0601714A**
EN(A,D,W)4X36L17**	1.00	1.05	*9MA*0801714A**
EN(A,D)4X36L21**	1.00	1.05	*9MA*0601714A**
EN(A,D)4X36L21**	1.00	1.05	*9MA*0801714A**
END4X42L17**	1.01	1.06	*9MA*0601714A**
END4X42L17**	1.02	1.07	*9MA*0801714A**
END4X42L17**	1.02	1.02	*8MV*0701412**
END4X42L17**	1.02	1.02	*8MV*0901716**
EN(A,D,W)4X42L21**	1.01	1.06	*9MA*0601714A**
EN(A,D,W)4X42L21**	1.01	1.06	*9MA*0801714A**
EN(A,D,W)4X42L21**	1.02	1.02	*8MV*0901716**
EN(A,D,W)4X48L21**	1.02	1.07	*9MA*0601714A**
EN(A,D,W)4X48L21**	1.02	1.02	*9MA*0801714A**
EN(A,D,W)4X48L21**	1.03	1.03	*8MV*0901716**
EHD4X36AAL	1.02	1.07	*9MA*0601714A**
EHD4X36AAL	1.02	1.07	*9MA*0801714A**
EHD4X36AAL	1.02	1.07	*8MV*0701412**
EHD4X36AAL	1.03	1.07	*8MV*0901716**
EHD4X42AAL	1.02	1.07	*9MA*0601714A**
EHD4X42AAL	1.03	1.07	*9MA*0801714A**
EHD4X42AAL	1.03	1.07	*8MV*0701412**
EHD4X42AAL	1.03	1.03	*8MV*0901716**
EHD4X48AAL	1.03	1.07	*9MA*0601714A**
EHD4X48AAL	1.03	1.07	*9MA*0801714A**

2–STAGE (Hi–Stage 5, Lo–Stage 2)					
COOLING INDOOR MODEL	HIGH SPEED CAP.	POWER	LOW SPEED CAP.	POWER	FURNACE MODEL
FVM4X24***L	1.00	1.00	1.00	1.00	
FVM4X24***L	0.98	0.84	0.97	0.96	
EA*4X24L14A*	0.96	0.91	0.96	1.07	*9MX*0401410A**
EA*4X24L17A*	0.95	0.85	0.97	1.06	*9MX*0401712A**
EA*4X24L17A*	0.97	0.88	1.00	1.12	OMV098J12*
EA*4X24L17A*	0.97	0.88	1.00	1.09	OLV098A12*
EA*4X24L17A*	0.97	0.84	1.00	1.04	OMV112K14A
EA*4X30L14A*	0.97	0.92	0.96	1.07	*9MX*0401410A**
EA*4X30L17A*	0.96	0.86	0.97	1.06	*9MX*0401712A**
EA*4X30L17A*	0.98	0.88	1.00	1.11	OMV098J12*
EA*4X30L17A*	0.98	0.84	1.00	1.08	OLV098A12*
EA*4X30L17A*	0.99	0.85	1.00	1.03	OMV112K14A
EA*4X36L14A*	0.97	0.92	0.97	1.07	*9MX*0401410A**
EA*4X36L17A*	0.97	0.83	0.97	1.05	*9MX*0401712A**
EN(A,D)4X30L14**	0.97	0.92	0.96	1.07	*9MX*0401410A**
EN(A,D)4X30L17**	0.96	0.86	0.96	1.05	*9MX*0401712A**
EN(A,D)4X30L17**	0.98	0.88	1.00	1.11	OMV098J12*
EN(A,D)4X30L17**	0.98	0.88	1.00	1.08	OLV098A12*
EN(A,D)4X30L17**	0.99	0.85	1.00	1.03	OMV112K14A
EN(A,D,W)4X36L17**	0.96	0.86	0.96	1.05	*9MX*0401712A**
END4X42L17**	0.97	0.83	0.97	1.05	*9MX*0401712A**
EHD4X24AAL	0.97	0.92	0.96	1.07	*9MX*0401410A**
EHD4X24AAL	0.95	0.85	0.97	1.06	*9MX*0401712A**
EHD4X30AAL	0.97	0.92	0.97	1.07	*9MX*0401410A**
EHD4X30AAL	0.96	0.86	0.97	1.05	*9MX*0401712A**
EHD4X36AAL	0.99	0.94	0.97	1.06	*9MX*0401410A**
EHD4X36AAL	0.97	0.88	0.97	1.04	*9MX*0401712A**
EA*4X36L17A*	0.97	0.88	0.99	1.13	*9MV*0601412A**
EA*4X36L17A*	0.98	0.84	0.99	1.05	*9MV*0601714A**
EA*4X36L17A*	0.98	0.84	0.99	1.04	*9MV*0801716A**
EA*4X36L17A*	0.97	0.83	0.97	1.05	*9MX*0401712A**
EA*4X36L21A*	0.97	0.88	0.99	1.12	*9MV*0401712A**
EA*4X36L21A*	0.98	0.84	0.99	1.05	*9MV*0601714A**
EA*4X36L21A*	0.98	0.84	1.00	1.04	*9MV*0801716A**

TVH824

HEAT PUMP HEATING PERFORMANCE – EFFICIENCY MODE

INDOOR AIR	TVH824 / FCM4X24***L Heating Efficiency Mode Outdoor Coil Entering Air Temperature °F (°C)										
	7 (–13.9)				17 (–8.3)				27 (–2.8)		
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
STAGE 5												
65 (18.3)	450	12.00	11.03	1.37	825	15.76	14.37	1.69	825	18.37	16.31	1.74
70 (21.1)		11.90	10.93	1.45		15.60	14.22	1.77		18.18	16.15	1.83
75 (23.3)		11.70	10.75	1.50		15.44	14.07	1.86		17.99	15.98	1.92
STAGE 3												
65 (18.3)	300	8.37	7.69	0.89	500	10.11	9.21	0.88	650	11.81	10.49	0.90
70 (21.1)		8.22	7.56	0.94		9.93	9.05	0.93		11.61	10.31	0.96
75 (23.3)		8.07	7.42	0.98		9.75	8.89	0.99		11.41	10.13	1.01
STAGE 1												
65 (18.3)	300	8.37	7.69	0.89	500	10.10	9.21	0.88	650	10.55	9.37	0.81
70 (21.1)		8.22	7.56	0.94		9.93	9.05	0.93		10.36	9.20	0.84
75 (23.3)		8.07	7.42	0.98		9.75	8.89	0.99		10.17	9.03	0.89

INDOOR AIR	TVH824 / FCM4X24***L Heating Efficiency Mode Outdoor Coil Entering Air Temperature °F (°C)										
	37 (2.8)				47 (8.3)				57 (13.9)		
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
STAGE 5												
65 (18.3)	825	21.73	19.77	1.82	825	24.94	24.94	1.89	650	16.71	16.71	1.01
70 (21.1)		21.46	19.52	1.92		24.60	24.60	1.99		16.37	16.37	1.08
75 (23.3)		21.18	19.27	2.02		24.26	24.26	2.10		16.03	16.03	1.16
STAGE 3												
65 (18.3)	650	13.45	12.24	0.95	650	15.09	15.09	0.99	650	16.71	16.71	1.01
70 (21.1)		13.21	12.02	1.01		14.83	14.83	1.06		16.38	16.38	1.09
75 (23.3)		12.98	11.81	1.07		14.56	14.56	1.13		16.07	16.07	1.16
STAGE 1												
65 (18.3)	650	11.91	10.84	0.81	585	7.42	7.42	0.37	585	7.98	7.98	0.37
70 (21.1)		11.62	10.58	0.87		7.20	7.20	0.42		7.74	7.74	0.42
75 (23.3)		11.38	10.35	0.93		6.99	6.99	0.46		7.52	7.52	0.47

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage

Stage 5 – Compressor speed limited to stage four at 7 and stage three at 57 outdoor; **Stage 1** – Compressor speed limited to stage three at 7 and 17 and to stage two at 27 and 37 outdoor.

See additional notes on page 45

TVH824

HEAT PUMP HEATING PERFORMANCE – COMFORT MODE

INDOOR AIR	TVH825 / FCM4X48***L Heating Comfort Mode Outdoor Coil Entering Air Temperature °F (°C)										
	7 (–13.9)				17 (–8.3)				27 (–2.8)			
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
STAGE 5												
65 (18.3)	450	12.00	11.03	1.37	825	15.76	14.37	1.69	825	18.37	16.31	1.74
70 (21.1)		11.90	10.93	1.45		15.60	14.22	1.77		18.18	16.15	1.83
75 (23.3)		11.70	10.75	1.50		15.44	14.07	1.86		17.99	15.98	1.92
STAGE 3												
65 (18.3)	300	8.37	7.69	0.89	500	10.11	9.21	0.88	650	11.81	10.49	0.90
70 (21.1)		8.22	7.56	0.94	500	9.93	9.05	0.93	650	11.61	10.31	0.96
75 (23.3)		8.07	7.42	0.98		9.75	8.89	0.99		11.41	10.13	1.01
STAGE 1												
65 (18.3)	300	8.37	7.69	0.89	500	10.10	9.21	0.88	650	10.55	9.37	0.81
70 (21.1)		8.22	7.56	0.94		9.93	9.05	0.93		10.36	9.20	0.84
75 (23.3)		8.07	7.42	0.98		9.75	8.89	0.99		10.17	9.03	0.89

INDOOR AIR	TVH825 / FCM4X48***L Heating Comfort Mode Outdoor Coil Entering Air Temperature °F (°C)										
	37 (2.8)				47 (8.3)				57 (13.9)			
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
65 (18.3)	825	21.73	19.77	1.82	825	24.94	24.94	1.89	650	16.71	16.71	1.01
70 (21.1)		21.46	19.52	1.92		24.60	24.60	1.99		16.37	16.37	1.08
75 (23.3)		21.18	19.27	2.02		24.26	24.26	2.10		16.03	16.03	1.16
65 (18.3)	650	13.45	12.24	0.95	650	15.09	15.09	0.99	650	16.71	16.71	1.01
70 (21.1)		13.21	12.02	1.01		14.83	14.83	1.06		16.38	16.38	1.09
75 (23.3)		12.98	11.81	1.07		14.56	14.56	1.13		16.07	16.07	1.16
STAGE 1												
65 (18.3)	650	11.91	10.84	0.81	585	7.42	7.42	0.37	585	7.98	7.98	0.37
70 (21.1)		11.62	10.58	0.87		7.20	7.20	0.42		7.74	7.74	0.42
75 (23.3)		11.38	10.35	0.93		6.99	6.99	0.46		7.52	7.52	0.47

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage

Stage 5 – Compressor speed limited to stage four at 7 and stage three at 57 outdoor; **Stage 1** – Compressor speed limited to stage three at 7 and 17 and to stage two at 27 and 37 outdoor.

See additional notes on page 45

DETAILED HEATING CAPACITIES# – EFFICIENCY MODE & COMFORT MODE CONTINUED

TVH824

HEATING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
FCM4X24***L	1.00	1.00	
FCM4X36***L	0.99	0.99	
EA*4X36L14A*	1.00	1.01	*8MV*0701412**
EA*4X36L17A*	1.00	1.01	*8MV*0701412**
EA*4X36L17A*	1.00	1.00	*8MV*0901716**
EA*4X36L17A*	1.01	1.03	*9MA*0601714A**
EA*4X36L17A*	1.00	1.01	*9MA*0801714A**
EA*4X36L21A*	1.01	1.03	*9MA*0601714A**
EA*4X36L21A*	1.00	1.01	*9MA*0602120A**
EA*4X36L21A*	1.00	1.01	*9MA*0801714A**
EA*4X36L21A*	1.00	1.00	*9MA*0802120A**
EA*4X36L21A*	1.00	1.00	*9MA*1002122A**
EA*4X42L21A*	0.99	0.98	*8MV*0901716**
EA*4X42L21A*	1.00	1.01	*9MA*0601714A**
EA*4X42L21A*	1.00	1.01	*9MA*0602120A**
EA*4X42L21A*	1.00	1.01	*9MA*0801714A**
EA*4X42L24A*	1.00	1.01	*9MA*0602120A**
EA*4X48L17A*	0.96	0.95	*8MV*0701412**
EA*4X48L17A*	0.96	0.94	*8MV*0901716**
EA*4X48L17A*	0.97	0.97	*9MA*0601714A**
EA*4X48L17A*	0.97	0.97	*9MA*0801714A**
EA*4X48L21A*	0.97	0.95	*8MV*0901716**
EA*4X48L21A*	0.98	0.98	*9MA*0601714A**
EA*4X48L21A*	0.98	0.98	*9MA*0801714A**
EHD4X36AAL	0.99	0.98	*8MV*0701412**
EHD4X36AAL	0.99	0.98	*8MV*0901716**
EHD4X36AAL	1.00	1.01	*9MA*0601714A**
EHD4X36AAL	1.00	1.00	*9MA*0801714A**
EHD4X42AAL	0.99	0.98	*8MV*0701412**
EHD4X42AAL	0.98	0.96	*8MV*0901716**
EHD4X42AAL	0.99	0.99	*9MA*0601714A**
EHD4X42AAL	0.99	0.99	*9MA*0801714A**
EHD4X48AAL	0.99	0.99	*9MA*0601714A**
EHD4X48AAL	0.98	0.97	*9MA*0801714A**
EN(A,D)4X36L21**	0.94	0.97	*9MA*0601714A**
EN(A,D)4X36L21**	1.01	1.03	*9MA*0801714A**
EN(A,D,W)4X36L17**	1.01	1.04	*9MA*0601714A**
EN(A,D,W)4X36L17**	1.01	1.03	*9MA*0801714A**
EN(A,D,W)4X42L21**	1.00	0.99	*8MV*0901716**
EN(A,D,W)4X42L21**	1.01	1.02	*9MA*0601714A**
EN(A,D,W)4X42L21**	1.00	1.01	*9MA*0801714A**
EN(A,D,W)4X48L21**	0.98	0.96	*8MV*0901716**
EN(A,D,W)4X48L21**	0.99	0.99	*9MA*0601714A**
EN(A,D,W)4X48L21**	0.99	0.98	*9MA*0801714A**
END4X42L17**	0.99	0.98	*8MV*0701412**
END4X42L17**	0.99	0.97	*8MV*0901716**
END4X42L17**	1.00	1.01	*9MA*0601714A**
END4X42L17**	1.00	1.00	*9MA*0801714A**

2-STAGE (Hi-Stage 5, Lo-Stage 2)					
HEATING INDOOR MODEL	HIGH SPEED CAP.	POW-ER	LOW SPEED CAP.	POW-ER	FURNACE MODEL
FVM4X24***L	1.00	1.00	1.00	1.00	
FVM4X36***L	0.96	1.03	0.98	1.02	
EA*4X24L14A*	1.02	1.09	1.01	1.11	*9MX*0401410A**
EA*4X24L17A*	1.00	1.10	1.01	1.09	*9MX*0401712A**
EA*4X24L17A*	1.02	1.04	1.03	1.06	OMV098J12*
EA*4X24L17A*	1.02	1.03	1.02	1.04	OLV098A12*
EA*4X24L17A*	1.02	1.02	1.01	1.02	OMV112K14A
EA*4X30L14A*	1.00	1.07	1.00	1.09	*9MX*0401410A**
EA*4X30L17A*	0.98	1.08	0.99	1.07	*9MX*0401712A**
EA*4X30L17A*	1.00	1.02	1.01	1.03	OMV098J12*
EA*4X30L17A*	1.00	1.02	1.01	1.02	OLV098A12*
EA*4X30L17A*	1.00	1.01	1.01	1.00	OMV112K14A
EA*4X36L14A*	1.00	1.07	0.99	1.08	*9MX*0401410A**
EA*4X36L17A*	0.98	1.08	0.99	1.06	*9MX*0401712A**
EN(A,D)4X30L14**	1.00	1.08	0.99	1.08	*9MX*0401410A**
EN(A,D)4X30L17**	0.98	1.09	0.99	1.07	*9MX*0401712A**
EN(A,D)4X30L17**	1.00	1.02	1.01	1.03	OMV098J12*
EN(A,D)4X30L17**	1.00	1.02	1.01	1.02	OLV098A12*
EN(A,D)4X30L17**	1.00	1.01	1.01	1.00	OMV112K14A
EN(A,D,W)4X36L17**	0.98	1.09	0.99	1.07	*9MX*0401712A**
END4X42L17**	0.98	1.07	0.99	1.06	*9MX*0401712A**
EHD4X24AAL	1.02	1.07	1.00	1.10	*9MX*0401410A**
EHD4X24AAL	1.00	1.10	1.00	1.10	*9MX*0401712A**
EHD4X30AAL	1.01	1.05	1.00	1.08	*9MX*0401410A**
EHD4X30AAL	0.99	1.08	1.00	1.08	*9MX*0401712A**
EHD4X36AAL	1.00	1.04	0.99	1.07	*9MX*0401410A**
EHD4X36AAL	0.98	1.06	0.99	1.06	*9MX*0401712A**

TVH825

DETAILED COOLING CAPACITIES# – EFFICIENCY MODE

EDB °F (°C)	EVAP. AIR	TVH825 / FCM4X48***L Efficiency Mode Condenser Entering Air Temperature °F (°C)																					
		115 (46.1)				105 (40.5)				95 (35)				85 (29.4)				75 (23.9)				65 (18.3)			
	EWB °F (°C)	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens ‡	Total Sys. KW**	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens ‡	Total Sys. KW**	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens ‡	Total Sys. KW**	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens ‡	Total Sys. KW**	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens ‡	Total Sys. KW**	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens ‡	Total Sys. KW**
STAGE 5																									
75 (23.9)	72 (22.2)	**825**	23.61	9.88	2.53	**825**	25.24	10.47	2.23	**825**	26.64	10.98	1.92	**825**	28.18	11.54	1.66	**825**	29.67	12.09	1.41	**825**	31.12	12.64	1.18
	67 (19.4)		21.33	13.74	2.50		22.80	14.32	2.22		24.06	14.87	1.92		25.46	15.46	1.67		26.82	16.05	1.43		28.12	16.59	1.21
	63 (17.2)		19.66	16.76	2.48		21.01	17.35	2.21		22.17	17.92	1.92		23.46	18.51	1.67		24.71	19.11	1.44		25.92	19.72	1.23
	57 (13.9)		18.72	18.72	2.47		19.79	19.79	2.20		20.71	20.71	1.91		21.71	21.71	1.67		22.67	22.67	1.45		23.60	23.60	1.24
80 (26.7)	72 (22.2)	**825**	23.53	13.78	2.53	**825**	25.17	14.37	2.23	**825**	26.56	14.92	1.92	**825**	28.10	15.50	1.66	**825**	29.60	16.09	1.41	**825**	31.02	16.63	1.18
	67 (19.4)		21.28	17.58	2.50		22.75	18.19	2.22		24.00	18.75	1.92		25.40	19.35	1.67		26.74	19.96	1.43		28.05	20.56	1.21
	63 (17.2)		20.03	20.03	2.49		21.17	21.09	2.21		22.29	21.72	1.92		23.54	22.34	1.67		24.78	22.95	1.44		25.96	23.61	1.23
	57 (13.9)		19.99	19.99	2.49		21.10	21.10	2.21		22.06	22.06	1.91		23.08	23.08	1.67		24.09	24.09	1.44		25.06	25.06	1.23
STAGE 3																									
75 (23.9)	72 (22.2)	**650**	15.43	6.56	1.50	**650**	16.55	6.96	1.36	**650**	17.40	7.27	1.13	**650**	18.52	7.59	0.97	**650**	19.58	8.06	0.82	**650**	20.65	8.45	0.67
	67 (19.4)		13.88	9.30	1.50		14.90	9.71	1.36		15.70	10.04	1.14		16.69	10.46	0.99		17.67	10.87	0.85		18.63	11.27	0.71
	63 (17.2)		12.80	11.44	1.50		13.73	11.87	1.37		14.47	12.22	1.14		15.39	12.65	1.00		16.27	13.10	0.87		17.17	13.48	0.73
	57 (13.9)		12.38	12.38	1.50		13.13	13.13	1.37		13.73	13.73	1.14		14.44	14.44	1.01		15.14	15.14	0.88		15.81	15.81	0.76
80 (26.7)	72 (22.2)	**650**	15.37	9.34	1.50	**650**	16.49	9.75	1.36	**650**	17.33	10.09	1.13	**650**	18.42	10.48	0.97	**650**	19.51	10.89	0.82	**650**	20.58	11.27	0.67
	67 (19.4)		13.87	12.03	1.50		14.88	12.46	1.36		15.67	12.80	1.14		16.66	13.25	0.99		17.62	13.69	0.85		18.59	14.08	0.71
	63 (17.2)		13.28	13.28	1.50		14.07	14.07	1.37		14.69	14.69	1.14		15.58	15.21	1.00		16.44	15.74	0.87		17.23	16.25	0.73
	57 (13.9)		13.26	13.26	1.50		14.04	14.04	1.37		14.66	14.66	1.14		15.42	15.42	1.00		16.14	16.14	0.87		16.85	16.85	0.74
STAGE 1																									
75 (23.9)	72 (22.2)	**650**	11.91	5.24	1.08	**650**	12.82	5.56	1.00	**585**	10.38	4.52	0.57	**585**	11.19	4.70	0.49	**585**	11.92	5.07	0.40	**585**	12.67	5.34	0.30
	67 (19.4)		10.68	7.75	1.09		11.52	8.07	1.01		9.32	6.60	0.59		10.00	6.88	0.52		10.68	7.16	0.44		11.35	7.44	0.35
	63 (17.2)		9.85	9.65	1.09		10.61	10.02	1.02		8.58	8.20	0.60		9.20	8.49	0.54		9.81	8.79	0.47		10.41	9.08	0.38
	57 (13.9)		9.79	9.79	1.09		10.43	10.43	1.02		8.47	8.47	0.60		8.98	8.98	0.54		9.48	9.48	0.48		9.96	9.96	0.40
80 (26.7)	72 (22.2)	**650**	11.85	7.79	1.08	**650**	12.79	8.13	1.00	**585**	10.33	6.64	0.57	**585**	11.10	6.91	0.49	**585**	11.86	7.20	0.40	**585**	12.62	7.48	0.30
	67 (19.4)		10.87	9.78	1.09		11.51	10.58	1.01		9.33	8.66	0.58		10.00	8.96	0.52		10.67	9.26	0.44		11.33	9.56	0.35
	63 (17.2)		10.56	10.56	1.09		11.24	11.24	1.02		9.12	9.12	0.59		9.67	9.67	0.52		10.20	10.20	0.45		10.72	10.72	0.37
	57 (13.9)		10.54	10.54	1.09		11.22	11.22	1.02		9.11	9.11	0.59		9.65	9.65	0.52		10.18	10.18	0.45		10.69	10.69	0.37

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage
Stage 1 – Compressor speed limited to stage two at 105 and 115 outdoor.

TVH825

DETAILED COOLING CAPACITIES# – COMFORT + DEHUMIDIFY MODE

EDB °F (°C)	EVAP. AIR	TVH825 / FCM4X48***L Comfort + Dehumidify Mode Condenser Entering Air Temperature °F (°C)																			
		105 (40.5)				95 (35)				85 (29.4)				75 (23.9)				65 (18.3)			
	EWB °F (°C)	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens‡	Total Sys. KW	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens‡	Total Sys. KW	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens‡	Total Sys. KW	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens‡	Total Sys. KW	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens‡	Total Sys. KW
STAGE 5																					
75 (23.9)	72 (22.2)	**608**	24.05	9.74	2.20	**608**	25.31	10.23	1.90	**634**	26.93	10.87	1.64	**663**	28.53	11.51	1.40	**708**	30.24	12.20	1.18
	67 (19.4)		21.69	12.60	2.19		22.84	13.11	1.89		24.30	13.88	1.65		25.76	14.68	1.42		27.35	15.63	1.20
	63 (17.2)		19.98	14.84	2.17		21.05	15.36	1.88		22.40	16.25	1.65		23.76	17.17	1.43		25.20	18.29	1.22
	57 (13.9)		17.96	17.96	2.15		18.83	18.68	1.87		20.01	19.72	1.64		21.32	20.70	1.43		22.50	22.16	1.24
80 (26.7)	72 (22.2)	**608**	23.98	12.65	2.20	**608**	25.25	13.15	1.90	**634**	26.85	13.94	1.64	**663**	28.46	14.73	1.40	**708**	30.15	15.64	1.18
	67 (19.4)		21.63	15.47	2.19		22.79	15.99	1.89		24.25	16.90	1.65		25.71	17.85	1.42		27.28	19.03	1.20
	63 (17.2)		19.98	17.70	2.17		21.04	18.23	1.88		22.39	19.25	1.65		23.75	20.31	1.43		25.21	21.65	1.22
	57 (13.9)		19.08	19.08	2.16		19.91	19.91	1.88		21.11	21.11	1.65		22.34	22.34	1.43		23.76	23.76	1.23
STAGE 3																					
75 (23.9)	72 (22.2)	**437**	15.55	6.31	1.34	**437**	16.33	6.61	1.11	**452**	17.39	7.04	0.97	**475**	18.54	7.49	0.82	**510**	19.78	8.00	0.67
	67 (19.4)		13.99	8.14	1.35		14.70	8.46	1.12		15.68	8.96	0.98		16.71	9.53	0.84		17.84	10.19	0.71
	63 (17.2)		12.85	9.59	1.35		13.52	9.91	1.12		14.42	10.48	0.99		15.37	11.12	0.86		16.42	11.92	0.73
	57 (13.9)		11.51	11.51	1.35		12.02	12.02	1.12		12.80	12.70	1.00		13.64	13.47	0.88		14.57	14.45	0.77
80 (26.7)	72 (22.2)	**437**	15.51	8.19	1.34	**437**	16.26	8.49	1.11	**452**	17.34	9.02	0.97	**475**	18.49	9.57	0.82	**510**	19.72	10.27	0.67
	67 (19.4)		13.96	10.01	1.35		14.66	10.33	1.12		15.64	10.92	0.98		16.67	11.58	0.84		17.81	12.41	0.71
	63 (17.2)		12.84	11.44	1.35		13.51	11.79	1.12		14.41	12.41	0.99		15.36	13.18	0.86		16.40	14.13	0.73
	57 (13.9)		12.26	12.26	1.35		12.79	12.79	1.12		13.57	13.57	1.00		14.43	14.43	0.87		15.44	15.44	0.75
STAGE 1 — FCM4X48*L ONLY**																					
75 (23.9)	72 (22.2)	**342**	11.60	4.69	1.00	**250**	8.92	3.59	0.58	**250**	9.47	3.82	0.52	**250**	10.00	4.04	0.45	**250**	10.52	4.25	0.32
	67 (19.4)		10.38	6.01	1.01		7.98	4.45	0.60		8.46	4.67	0.54		8.93	4.88	0.48		9.39	5.10	0.41
	63 (17.2)		9.51	7.00	1.01		7.29	5.10	0.61		7.72	5.33	0.56		8.15	5.55	0.50		8.56	5.76	0.44
	57 (13.9)		10.39	5.98	1.01		6.36	6.09	0.62		6.74	6.31	0.58		7.10	6.52	0.54		7.47	6.73	0.48
80 (26.7)	72 (22.2)	**342**	11.57	6.04	1.00	**250**	8.90	4.49	0.58	**250**	9.45	4.72	0.52	**250**	9.98	4.95	0.45	**250**	10.49	5.17	0.37
	67 (19.4)		10.36	7.32	1.01		7.96	5.34	0.60		8.44	5.57	0.54		8.91	5.79	0.48		9.37	6.01	0.41
	63 (17.2)		9.50	8.34	1.01		7.28	5.99	0.61		7.71	6.23	0.56		8.14	6.45	0.51		8.54	6.67	0.44
	57 (13.9)		8.99	8.99	1.02		6.65	6.65	0.61		6.96	6.96	0.58		7.27	7.27	0.53		7.56	7.56	0.48
STAGE 1 — ALL OTHER INDOOR COMBINATIONS																					
75 (23.9)	72 (22.2)	**342**	11.60	4.69	1.00	**222**	8.64	3.49	0.58	**234**	9.30	3.76	0.52	**229**	9.74	3.95	0.45	**245**	10.45	4.23	0.32
	67 (19.4)		10.38	6.01	1.01		7.72	4.24	0.59		8.31	4.55	0.54		8.69	4.72	0.48		9.32	5.06	0.41
	63 (17.2)		9.51	7.00	1.01		7.04	4.82	0.60		7.58	5.17	0.56		7.93	5.31	0.51		8.50	5.70	0.45
	57 (13.9)		8.42	8.42	1.02		6.16	5.65	0.61		6.61	6.07	0.58		6.92	6.18	0.54		7.42	6.65	0.49
80 (26.7)	72 (22.2)	**342**	11.57	6.03	1.00	**222**	8.62	4.29	0.58	**234**	9.28	4.61	0.52	**229**	9.72	4.78	0.45	**245**	10.43	5.13	0.37
	67 (19.4)		10.36	7.32	1.01		7.70	5.03	0.59		8.29	5.39	0.54		8.68	5.55	0.48		9.31	5.95	0.41
	63 (17.2)		9.50	8.34	1.01		7.03	5.61	0.60		7.57	6.01	0.56		7.92	6.14	0.51		8.49	6.59	0.45
	57 (13.9)		8.99	8.99	1.02		6.30	6.30	0.61		6.76	6.76	0.57		6.98	6.98	0.53		7.49	7.49	0.48

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage
Stage 1 – Compressor speed limited to stage two at 105 outdoor.

See additional notes on page 43

DETAILED COOLING CAPACITIES# – EFFICIENCY MODE & COMFORT + DEHUMIDIFY MODE CONTINUED

TVH825

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
FCM4X48***L	1.00	1.00	
FCM4X24***L	1.01	1.10	
EA*4X36L14A*	1.01	1.05	*8MV*0701412**
EA*4X36L17A*	1.00	1.09	*9MA*0601714A**
EA*4X36L17A*	1.01	1.05	*9MA*0801714A**
EA*4X36L17A*	1.01	1.05	*8MV*0901716**
EA*4X36L21A*	1.01	1.10	*9MA*0602120A**
EN(A,D,W)4X36L17**	1.00	1.09	*9MA*0601714A**
EN(A,D,W)4X36L17**	1.00	1.09	*9MA*0801714A**
EN(A,D,W)4X36L17**	1.01	1.05	*8MV*0901716**
EN(A,D)4X36L21**	1.00	1.09	*9MA*0602120A**
EN(A,D)4X36L21**	1.01	1.05	*9MA*0802120A**
END4X42L17**	1.02	1.11	*9MA*0601714A**
END4X42L17**	1.02	1.06	*9MA*0801714A**
END4X42L17**	1.03	1.07	*8MV*0901716**
EN(A,D,W)4X42L21**	1.01	1.05	*9MA*0602120A**
EHD4X36AAL	1.02	1.16	*9MA*0601714A**
EHD4X36AAL	1.02	1.11	*9MA*0801714A**
EHD4X36AAL	1.02	1.11	*9MA*0602120A**
EHD4X36AAL	1.03	1.11	*8MV*0701412**
EHD4X36AAL	1.03	1.11	*8MV*0901716**
EHD4X42AAL	1.03	1.11	*9MA*0601714A**
EHD4X42AAL	1.03	1.11	*9MA*0801714A**
EHD4X42AAL	1.03	1.11	*9MA*0602120A**
EHD4X42AAL	1.03	1.11	*8MV*0701412**
EHD4X42AAL	1.03	1.12	*8MV*0901716**

2–STAGE (Hi–Stage 5, Lo–Stage 2)					
COOLING INDOOR MODEL	HIGH SPEED CAP.	POWER	LOW SPEED CAP.	POWER	FURNACE MODEL
FVM4X48***L	1.00	1.00	1.00	1.00	
FVM4X36***L	0.94	0.98	0.97	1.00	
FVM4X24***L	0.94	0.98	0.98	1.02	
EA*4X24L14A*	0.93	1.06	0.96	1.14	*9MX*0401410A**
EA*4X24L17A*	0.93	1.01	0.96	1.12	*9MX*0401712A**
EA*4X24L17A*	0.98	1.07	1.01	1.12	OMV098J12*
EA*4X24L17A*	0.98	1.07	1.02	1.19	OLV098A12*
EA*4X24L17A*	0.98	1.07	1.02	1.14	OMV112K14A
EA*4X30L14A*	0.95	1.08	0.96	1.13	*9MX*0401410A**
EA*4X30L17A*	0.94	1.03	0.96	1.11	*9MX*0401712A**
EA*4X30L17A*	0.99	1.08	1.00	1.14	OMV098J12*
EA*4X30L17A*	0.99	1.08	1.02	1.17	OLV098A12*
EA*4X30L17A*	1.00	1.04	1.02	1.13	OMV112K14A
EA*4X36L14A*	0.95	1.08	0.96	1.13	*9MX*0401410A**
EA*4X36L17A*	0.94	1.03	0.97	1.11	*9MX*0401712A**
EN(A,D)4X24L17**	0.98	1.11	1.00	1.16	OMV098J12*
EN(A,D)4X24L17**	0.98	1.11	1.02	1.22	OLV098A12*
EN(A,D)4X24L17**	0.98	1.07	1.02	1.16	OMV112K14A
EN(A,D)4X30L14**	0.94	1.07	0.96	1.13	*9MX*0401410A**
EN(A,D)4X30L17**	0.93	1.02	0.96	1.12	*9MX*0401712A**
EN(A,D)4X30L17**	0.99	1.08	1.00	1.14	OMV098J12*
EN(A,D)4X30L17**	0.99	1.08	1.02	1.18	OLV098A12*
EN(A,D)4X30L17**	1.00	1.04	1.02	1.13	OMV112K14A
EN(A,D,W)4X36L17**	0.93	1.02	0.96	1.12	*9MX*0401712A**
END4X42L17**	0.95	1.03	0.98	1.11	*9MX*0401712A**
EHD4X24AAL	0.94	1.12	0.96	1.14	*9MX*0401410A**
EHD4X24AAL	0.93	1.06	0.96	1.12	*9MX*0401712A**
EHD4X30AAL	0.95	1.08	0.97	1.12	*9MX*0401410A**
EHD4X30AAL	0.94	1.03	0.98	1.11	*9MX*0401712A**
EHD4X36AAL	0.97	1.10	0.98	1.12	*9MX*0401410A**
EHD4X36AAL	0.96	1.04	0.98	1.10	*9MX*0401712A**

TVH825

HEAT PUMP HEATING PERFORMANCE – EFFICIENCY MODE

INDOOR AIR	TVH825 / FCM4X48***L Heating Efficiency Mode Outdoor Coil Entering Air Temperature °F (°C)										
	7 (–13.9)				17 (–8.3)				27 (–2.8)			
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
STAGE 5												
65 (18.3)	450	13.73	12.61	1.94	825	20.11	18.34	2.16	825	22.21	19.73	2.08
70 (21.1)		13.57	12.47	2.01		19.90	18.14	2.26		21.97	19.52	2.17
75 (23.3)		13.48	12.39	2.08		19.71	17.97	2.36		21.73	19.30	2.27
STAGE 3												
65 (18.3)	340	9.32	8.57	1.42	500	11.26	10.27	1.36	650	13.17	11.70	1.22
70 (21.1)		9.21	8.46	1.48		11.11	10.13	1.42		12.99	11.54	1.29
75 (23.3)		9.10	8.36	1.54		10.96	10.00	1.48		12.82	11.39	1.35
STAGE 1												
65 (18.3)	340	9.32	8.56	1.42	500	11.23	10.24	1.35	650	8.59	7.63	0.80
70 (21.1)		9.19	8.45	1.48		11.07	10.10	1.41		8.45	7.50	0.83
75 (23.3)		9.07	8.34	1.53		10.87	9.91	1.47		8.30	7.37	0.88

INDOOR AIR	TVH825 / FCM4X48***L Heating Efficiency Mode Outdoor Coil Entering Air Temperature °F (°C)										
	37 (2.8)				47 (8.3)				57 (13.9)			
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
STAGE 5												
65 (18.3)	825	25.00	22.75	2.11	825	27.16	27.16	2.11	650	19.19	19.19	1.28
70 (21.1)		24.69	22.46	2.21		26.80	26.80	2.21		19.22	19.22	1.36
75 (23.3)		24.36	22.17	2.31		26.41	26.41	2.31		18.44	18.44	1.42
STAGE 3												
65 (18.3)	650	15.11	13.75	1.25	650	17.04	17.04	1.25	650	19.10	19.10	1.27
70 (21.1)		14.89	13.55	1.32		16.77	16.77	1.32		18.78	18.78	1.35
75 (23.3)		14.67	13.35	1.39		16.51	16.51	1.40		18.44	18.44	1.42
STAGE 1												
65 (18.3)	650	10.20	9.28	0.80	585	7.58	7.58	0.44	585	9.05	9.05	0.42
70 (21.1)		9.99	9.09	0.85		7.40	7.40	0.48		8.83	8.83	0.47
75 (23.3)		9.81	8.93	0.90		7.22	7.22	0.52		8.62	8.62	0.52

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage
Stage 5 – Compressor speed limited to stage four at 7 and stage three at 57 outdoor; **Stage 1** – Compressor speed limited to stage three at 7 and 17 and to stage two at 27 and 37 outdoor.

See additional notes on page 45

TVH825

HEAT PUMP HEATING PERFORMANCE – COMFORT MODE

INDOOR AIR	TVH825 / FCM4X48***L Heating Comfort Mode Outdoor Coil Entering Air Temperature °F (°C)										
	7 (–13.9)				17 (–8.3)				27 (–2.8)		
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
STAGE 5												
65 (18.3)	450	13.73	12.61	1.94	825	20.11	18.34	2.16	825	22.21	19.73	2.08
70 (21.1)		13.57	12.47	2.01		19.90	18.14	2.26		21.97	19.52	2.17
75 (23.3)		13.48	12.39	2.08		19.71	17.97	2.36		21.73	19.30	2.27
STAGE 3												
65 (18.3)	340	9.32	8.57	1.42	500	11.26	10.27	1.36	650	13.17	11.70	1.22
70 (21.1)		9.21	8.46	1.48		11.11	10.13	1.42		12.99	11.54	1.29
75 (23.3)		9.10	8.36	1.54		10.96	10.00	1.48		12.82	11.39	1.35
STAGE 1												
65 (18.3)	340	9.32	8.56	1.42	500	11.23	10.24	1.35	650	8.59	7.63	0.80
70 (21.1)		9.19	8.45	1.48		11.07	10.10	1.41		8.45	7.50	0.83
75 (23.3)		9.07	8.34	1.53		10.87	9.91	1.47		8.30	7.37	0.88

INDOOR AIR	TVH825 / FCM4X48***L Heating Comfort Mode Outdoor Coil Entering Air Temperature °F (°C)										
	37 (2.8)				47 (8.3)				57 (13.9)		
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
STAGE 5												
65 (18.3)	825	25.00	22.75	2.11	825	27.16	27.16	2.11	650	19.19	19.19	1.28
70 (21.1)		24.69	22.46	2.21		26.80	26.80	2.21		19.22	19.22	1.36
75 (23.3)		24.36	22.17	2.31		26.41	26.41	2.31		18.44	18.44	1.42
STAGE 3												
65 (18.3)	650	15.11	13.75	1.25	650	17.04	17.04	1.25	650	19.10	19.10	1.27
70 (21.1)		14.89	13.55	1.32		16.77	16.77	1.32		18.78	18.78	1.35
75 (23.3)		14.67	13.35	1.39		16.51	16.51	1.40		18.44	18.44	1.42
STAGE 1												
65 (18.3)	650	10.20	9.28	0.80	585	7.58	7.58	0.44	585	9.05	9.05	0.42
70 (21.1)		9.99	9.09	0.85		7.40	7.40	0.48		8.83	8.83	0.47
75 (23.3)		9.81	8.93	0.90		7.22	7.22	0.52		8.62	8.62	0.52

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage
Stage 5 – Compressor speed limited to stage four at 7 and stage three at 57 outdoor; **Stage 1** – Compressor speed limited to stage three at 7 and 17 and to stage two at 27 and 37 outdoor.

See additional notes on page 45

DETAILED HEATING CAPACITIES# – EFFICIENCY MODE & COMFORT MODE CONTINUED

TVH825

HEATING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
FCM4X48***L	1.00	1.00	
FCM4X24***L	1.08	1.10	
EA*4X36L14A*	1.07	1.11	*8MV*0701412**
EA*4X36L17A*	1.07	1.11	*9MA*0601714A**
EA*4X36L17A*	1.07	1.11	*9MA*0801714A**
EA*4X36L17A*	1.07	1.09	*8MV*0901716**
EA*4X36L21A*	1.07	1.11	*9MA*0602120A**
EN(A,D,W)4X36L17**	1.08	1.13	*9MA*0601714A**
EN(A,D,W)4X36L17**	1.08	1.12	*9MA*0801714A**
EN(A,D,W)4X36L17**	1.07	1.10	*8MV*0901716**
EN(A,D)4X36L21**	1.08	1.12	*9MA*0602120A**
EN(A,D)4X36L21**	1.08	1.11	*9MA*0802120A**
END4X42L17**	1.07	1.09	*9MA*0601714A**
END4X42L17**	1.07	1.08	*9MA*0801714A**
END4X42L17**	1.06	1.06	*8MV*0901716**
EN(A,D,W)4X42L21**	1.07	1.10	*9MA*0602120A**
EHD4X36AAL	1.07	1.09	*9MA*0601714A**
EHD4X36AAL	1.07	1.08	*9MA*0801714A**
EHD4X36AAL	1.07	1.08	*9MA*0602120A**
EHD4X36AAL	1.06	1.07	*8MV*0701412**
EHD4X36AAL	1.06	1.06	*8MV*0901716**
EHD4X42AAL	1.06	1.07	*9MA*0601714A**
EHD4X42AAL	1.06	1.07	*9MA*0801714A**
EHD4X42AAL	1.06	1.07	*9MA*0602120A**
EHD4X42AAL	1.05	1.05	*8MV*0701412**
EHD4X42AAL	1.05	1.05	*8MV*0901716**

2–STAGE (Hi–Stage 5, Lo–Stage 2)					
COOLING INDOOR MODEL	HIGH SPEED CAP.	POWER	LOW SPEED CAP.	POWER	FURNACE MODEL
FVM4X48***L	1.00	1.00	1.00	1.00	
FVM4X36***L	1.01	1.09	1.01	1.00	
FVM4X24***L	1.03	1.09	1.01	1.05	
EA*4X24L14A*	1.07	1.16	1.05	1.14	*9MX*0401410A**
EA*4X24L17A*	1.05	1.17	1.05	1.13	*9MX*0401712A**
EA*4X24L17A*	1.09	1.15	1.08	1.12	OMV098J12*
EA*4X24L17A*	1.09	1.15	1.09	1.11	OLV098A12*
EA*4X24L17A*	1.09	1.13	1.08	1.10	OMV112K14A
EA*4X30L14A*	1.05	1.14	1.02	1.11	*9MX*0401410A**
EA*4X30L17A*	1.03	1.14	1.02	1.09	*9MX*0401712A**
EA*4X30L17A*	1.07	1.12	1.06	1.10	OMV098J12*
EA*4X30L17A*	1.07	1.12	1.07	1.07	OLV098A12*
EA*4X30L17A*	1.07	1.10	1.06	1.06	OMV112K14A
EA*4X36L14A*	1.04	1.12	1.02	1.09	*9MX*0401410A**
EA*4X36L17A*	1.03	1.14	1.02	1.08	*9MX*0401712A**
EN(A,D)4X24L17**	1.09	1.13	1.09	1.12	OMV098J12*
EN(A,D)4X24L17**	1.09	1.13	1.09	1.09	OLV098A12*
EN(A,D)4X24L17**	1.09	1.12	1.09	1.08	OMV112K14A
EN(A,D)4X30L14**	1.05	1.14	1.02	1.11	*9MX*0401410A**
EN(A,D)4X30L17**	1.03	1.16	1.02	1.09	*9MX*0401712A**
EN(A,D)4X30L17**	1.07	1.12	1.06	1.09	OMV098J12*
EN(A,D)4X30L17**	1.07	1.12	1.07	1.06	OLV098A12*
EN(A,D)4X30L17**	1.07	1.10	1.06	1.05	OMV112K14A
EN(A,D,W)4X36L17**	1.03	1.16	1.02	1.09	*9MX*0401712A**
END4X42L17**	1.03	1.12	1.02	1.07	*9MX*0401712A**
EHD4X24AAL	1.06	1.13	1.04	1.13	*9MX*0401410A**
EHD4X24AAL	1.05	1.16	1.04	1.13	*9MX*0401712A**
EHD4X30AAL	1.05	1.10	1.04	1.11	*9MX*0401410A**
EHD4X30AAL	1.04	1.13	1.04	1.10	*9MX*0401712A**
EHD4X36AAL	1.04	1.09	1.02	1.08	*9MX*0401410A**
EHD4X36AAL	1.03	1.11	1.02	1.07	*9MX*0401712A**

TVH836

DETAILED COOLING CAPACITIES# – EFFICIENCY MODE

EDB °F (°C)	EVAP. AIR	TVH836 / FCM4X48***L Efficiency Mode Condenser Entering Air Temperature °F (°C)																							
		115 (46.1)				105 (40.5)				95 (35)				85 (29.4)				75 (23.9)				65 (18.3)			
	EWB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW**	ID SCFM	Capacity MBtuh		Total Sys. KW**	ID SCFM	Capacity MBtuh		Total Sys. KW**	ID SCFM	Capacity MBtuh		Total Sys. KW**	ID SCFM	Capacity MBtuh		Total Sys. KW**	ID SCFM	Capacity MBtuh		Total Sys. KW**
			Total	Sens ‡			Total	Sens ‡			Total	Sens ‡			Total	Sens ‡			Total	Sens ‡			Total	Sens ‡	
STAGE 5																									
75 (23.9)	72 (22.2)	**1050**	33.66	13.76	3.92	**1050**	35.83	14.56	3.62	**1050**	37.64	15.24	3.33	**1050**	39.71	16.02	3.03	**1050**	41.70	16.78	2.74	**1050**	43.66	17.54	2.45
	67 (19.4)		30.67	18.58	3.83		32.63	19.41	3.55		34.28	20.14	3.26		36.14	20.93	2.98		37.96	21.76	2.70		39.71	22.50	2.42
	63 (17.2)		28.43	22.37	3.76		30.25	23.22	3.49		31.80	23.97	3.20		33.50	24.78	2.93		35.17	25.58	2.67		36.77	26.36	2.41
	57 (13.9)		26.29	26.29	3.70		27.67	27.67	3.42		28.85	28.85	3.14		30.12	30.12	2.88		31.51	31.06	2.63		32.87	31.93	2.38
80 (26.7)	72 (22.2)	**1050**	33.58	18.53	3.92	**1050**	35.75	19.37	3.62	**1050**	37.55	20.09	3.33	**1050**	39.61	20.91	3.03	**1050**	41.61	21.68	2.74	**1050**	43.56	22.44	2.45
	67 (19.4)		30.58	23.31	3.83		32.54	24.17	3.55		34.20	24.92	3.26		36.06	25.73	2.98		37.87	26.55	2.70		39.64	27.35	2.42
	63 (17.2)		28.45	27.05	3.77		30.25	27.93	3.49		31.78	28.71	3.20		33.48	29.54	2.93		35.15	30.40	2.67		36.73	31.18	2.41
	57 (13.9)		27.92	27.92	3.75		29.37	29.37	3.47		30.60	30.60	3.18		31.93	31.93	2.91		33.21	33.21	2.65		34.45	34.45	2.39
STAGE 3																									
75 (23.9)	72 (22.2)	**900**	21.50	9.09	2.51	**900**	22.99	9.62	2.19	**900**	24.00	9.99	1.85	**900**	25.46	10.52	1.58	**900**	26.89	11.04	1.32	**900**	28.22	11.54	1.09
	67 (19.4)		19.38	12.78	2.49		20.72	13.34	2.18		21.71	13.77	1.84		23.03	14.33	1.57		24.32	14.88	1.33		25.58	15.44	1.11
	63 (17.2)		17.85	15.69	2.47		19.07	16.26	2.18		20.03	16.73	1.83		21.24	17.32	1.57		22.42	17.89	1.34		23.59	18.46	1.12
	57 (13.9)		17.16	17.16	2.47		18.15	18.15	2.17		18.94	18.94	1.82		19.90	19.90	1.57		20.84	20.84	1.34		21.76	21.76	1.13
80 (26.7)	72 (22.2)	**900**	21.43	12.83	2.51	**900**	22.91	13.39	2.19	**900**	23.93	13.80	1.85	**900**	25.39	14.36	1.58	**900**	26.81	14.92	1.32	**900**	28.20	15.48	1.09
	67 (19.4)		19.34	16.49	2.49		20.67	17.07	2.18		21.66	17.54	1.84		22.97	18.13	1.57		24.25	18.71	1.33		25.52	19.29	1.11
	63 (17.2)		18.40	18.40	2.48		19.44	19.44	2.18		20.23	20.23	1.83		21.35	21.04	1.57		22.50	21.67	1.34		23.66	22.27	1.12
	57 (13.9)		18.36	18.36	2.48		19.40	19.40	2.18		20.20	20.20	1.83		21.20	21.20	1.57		22.18	22.18	1.34		23.13	23.13	1.12
STAGE 1																									
75 (23.9)	72 (22.2)	**800**	14.47	6.38	1.82	**800**	15.58	6.77	1.53	**600**	10.69	4.69	0.66	**600**	11.51	4.98	0.49	**600**	12.34	5.28	0.34	**600**	13.17	5.58	0.22
	67 (19.4)		13.00	9.42	1.82		14.02	9.86	1.54		9.54	6.85	0.69		10.28	7.17	0.52		11.02	7.49	0.37		11.76	7.81	0.25
	63 (17.2)		12.02	11.77	1.82		12.97	12.18	1.55		8.78	8.53	0.70		9.43	8.87	0.54		10.10	9.21	0.39		10.77	9.55	0.27
	57 (13.9)		11.94	11.94	1.82		12.73	12.73	1.55		8.69	8.69	0.71		9.25	9.25	0.54		9.81	9.81	0.40		10.36	10.36	0.28
80 (26.7)	72 (22.2)	**800**	14.41	9.47	1.82	**800**	15.54	9.92	1.52	**600**	10.64	6.90	0.71	**600**	11.46	7.22	0.54	**600**	12.29	7.55	0.40	**600**	13.12	7.88	0.28
	67 (19.4)		13.03	12.45	1.82		14.03	12.93	1.54		9.56	9.02	0.71		10.28	9.37	0.54		11.01	9.72	0.40		11.75	10.07	0.28
	63 (17.2)		12.86	12.86	1.82		13.70	13.70	1.54		9.40	9.40	0.69		9.99	9.99	0.52		10.58	10.58	0.38		11.17	11.17	0.26
	57 (13.9)		12.84	12.84	1.82		13.67	13.67	1.54		9.38	9.38	0.69		9.97	9.97	0.52		10.56	10.56	0.38		11.15	11.15	0.26

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage
Stage 1 – Compressor speed limited to stage two at 105 and 115 outdoor.

See additional notes on page 43

TVH836

DETAILED COOLING CAPACITIES# – COMFORT + DEHUMIDIFY MODE

EDB °F (°C)	EVAP. AIR	TVH836 / FCM4X48***L Comfort + Dehumidify Mode Condenser Entering Air Temperature °F (°C)																			
		105 (40.5)				95 (35)				85 (29.4)				75 (23.9)				65 (18.3)			
	EWB °F (°C)	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens‡	Total Sys. KW	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens‡	Total Sys. KW	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens‡	Total Sys. KW	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens‡	Total Sys. KW	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens‡	Total Sys. KW
STAGE 5																					
75 (23.9)	72 (22.2)	812	34.41	13.87	3.52	812	36.07	14.52	3.23	848	38.26	15.40	2.95	887	40.48	16.29	2.67	948	42.89	17.25	2.40
	67 (19.4)		31.28	17.66	3.45		32.82	18.35	3.16		34.81	19.41	2.89		36.83	20.49	2.63		39.01	21.75	2.38
	63 (17.2)		28.96	20.61	3.39		30.39	21.30	3.10		32.22	22.51	2.85		34.07	23.75	2.60		30.74	18.23	4.07
	57 (13.9)		25.84	24.91	3.30		27.09	25.64	3.03		28.72	27.04	2.79		30.37	28.48	2.56		28.52	21.76	3.99
80 (26.7)	72 (22.2)	812	34.33	17.65	3.52	812	35.98	18.32	3.23	848	38.18	19.39	2.95	887	40.34	20.45	2.67	948	26.01	26.01	3.90
	67 (19.4)		31.22	21.37	3.45		32.75	22.08	3.16		34.75	23.33	2.89		36.76	24.61	2.63		33.65	18.17	4.17
	63 (17.2)		28.92	24.31	3.39		30.34	25.03	3.10		32.18	26.41	2.85		34.02	27.82	2.60		30.66	22.60	4.07
	57 (13.9)		26.99	26.99	3.34		28.06	28.06	3.05		29.68	29.68	2.81		31.34	31.34	2.57		28.51	26.12	3.99
STAGE 3																					
75 (23.9)	72 (22.2)	566	21.33	8.62	2.14	566	22.26	8.99	1.80	600	23.79	9.60	1.53	626	25.26	10.19	1.29	664	26.82	10.82	1.07
	67 (19.4)		19.21	10.97	2.13		20.08	11.37	1.78		21.48	12.15	1.53		22.80	12.86	1.30		24.22	13.70	1.08
	63 (17.2)		17.68	12.82	2.12		18.52	13.25	1.77		19.80	14.15	1.53		21.03	14.96	1.30		22.34	15.92	1.09
	57 (13.9)		15.76	15.54	2.10		16.50	16.02	1.75		17.65	17.11	1.52		18.74	18.07	1.31		19.91	19.23	1.11
80 (26.7)	72 (22.2)	566	21.30	11.04	2.14	566	22.20	11.42	1.80	600	23.73	12.20	1.53	626	25.20	12.92	1.29	664	26.77	13.74	1.07
	67 (19.4)		19.17	13.36	2.13		20.04	13.77	1.78		21.43	14.71	1.53		22.75	15.55	1.30		24.18	16.55	1.08
	63 (17.2)		17.67	15.20	2.12		18.51	15.64	1.77		19.79	16.70	1.53		21.01	17.64	1.30		22.33	18.78	1.09
	57 (13.9)		16.63	16.63	2.11		17.30	17.30	1.76		18.49	18.49	1.52		19.59	19.59	1.30		20.84	20.84	1.10
STAGE 1 – FCM4X48*L ONLY**																					
75 (23.9)	72 (22.2)	417	14.17	5.74	1.50	250	9.11	3.68	0.68	250	9.70	3.92	0.52	250	10.29	4.16	0.38	267	11.09	4.48	0.26
	67 (19.4)		12.71	7.33	1.51		8.12	4.54	0.70		8.64	4.78	0.54		9.16	5.03	0.40		9.89	5.42	0.28
	63 (17.2)		11.65	8.59	1.51		7.40	5.21	0.71		7.88	5.46	0.56		8.35	5.71	0.42		9.01	6.16	0.30
	57 (13.9)		10.35	10.35	1.51		6.44	6.21	0.72		6.86	6.46	0.57		7.27	6.71	0.44		7.86	7.24	0.32
80 (26.7)	72 (22.2)	417	14.11	7.38	1.50	250	9.09	4.60	0.68	250	9.68	4.85	0.52	250	10.26	5.10	0.38	267	11.06	5.50	0.26
	67 (19.4)		12.68	8.97	1.51		8.10	5.46	0.70		8.62	5.71	0.54		9.14	5.97	0.40		9.86	6.44	0.28
	63 (17.2)		11.65	10.21	1.51		7.38	6.13	0.71		7.86	6.39	0.56		8.34	6.65	0.42		9.00	7.18	0.30
	57 (13.9)		11.03	11.03	1.51		6.76	6.76	0.72		7.12	7.12	0.57		7.46	7.46	0.44		8.06	8.06	0.32
STAGE 1 – ALL OTHER INDOOR COMBINATIONS																					
75 (23.9)	72 (22.2)	417	14.17	5.74	1.50	236	8.96	3.62	0.69	232	9.48	3.83	0.52	246	10.23	4.13	0.38	267	11.09	4.48	0.26
	67 (19.4)		14.17	5.74	1.50		7.98	4.42	0.71		8.44	4.62	0.55		9.11	4.99	0.41		9.88	5.42	0.28
	63 (17.2)		14.17	5.74	1.50		7.27	5.05	0.72		7.69	5.25	0.56		8.30	5.65	0.42		9.01	6.16	0.30
	57 (13.9)		14.17	5.74	1.50		6.32	5.98	0.73		6.69	6.17	0.58		7.23	6.64	0.44		7.85	7.24	0.33
80 (26.7)	72 (22.2)	417	14.17	5.74	1.50	236	8.94	4.49	0.69	232	9.43	4.69	0.52	246	10.20	5.06	0.38	267	11.06	5.50	0.26
	67 (19.4)		14.17	5.74	1.50		7.96	5.29	0.71		8.42	5.49	0.55		9.09	5.91	0.41		9.86	6.43	0.28
	63 (17.2)		14.17	5.74	1.50		7.26	5.92	0.72		7.67	6.11	0.56		8.29	6.58	0.42		8.99	7.17	0.30
	57 (13.9)		14.17	5.74	1.50		6.58	6.58	0.72		6.86	6.86	0.57		7.40	7.40	0.44		8.06	8.06	0.32

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage
Stage 1 – Compressor speed limited to stage two at 105 outdoor.

See additional notes on page 43

DETAILED COOLING CAPACITIES# – EFFICIENCY MODE & COMFORT + DEHUMIDIFY MODE CONTINUED

TVH836

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
EA*4X36L14A*	0.95	1.05	*8MV*0701412**
EA*4X36L17A*	0.95	1.11	*9MA*0601714A**
EA*4X36L17A*	0.95	1.05	*9MA*0801714A**
EA*4X36L17A*	0.96	1.06	*8MV*0901716**
EA*4X36L21A*	0.95	1.05	*9MA*0602120A**
EA*4X36L21A*	0.96	1.06	*9MA*0802120A**
EA*4X36L21A*	0.96	1.06	*9MA*1002122A**
EA*4X36L21A*	0.96	1.06	*8MV*1102120**
EA*4X42L21A*	0.96	1.06	*9MA*0602120A**
EA*4X42L21A*	0.96	1.07	*9MA*0802120A**
EA*4X42L21A*	0.96	1.07	*9MA*1002122A**
EA*4X42L21A*	0.96	1.07	*8MV*1102120**
EA*4X42L24A*	0.96	1.07	*9MA*1202422A**
EA*4X42L24A*	0.96	1.07	*8MV*1352422**
EA*4X48L17A*	0.97	1.07	*9MA*0601714A**
EA*4X48L17A*	0.98	1.08	*9MA*0801714A**
EA*4X48L17A*	0.98	1.03	*8MV*0901716**
EA*4X48L21A*	0.97	1.07	*9MA*0602120A**
EA*4X48L21A*	0.98	1.08	*9MA*0802120A**
EA*4X48L21A*	0.98	1.03	*9MA*1002122A**
EA*4X48L21A*	0.98	1.03	*8MV*1102120**
EA*4X48L24A*	0.98	1.03	*9MA*1202422A**
EA*4X48L24A*	0.98	1.03	*8MV*1352422**
EN(A,D,W)4X36L17**	0.95	1.11	*9MA*0601714A**
EN(A,D,W)4X36L17**	0.95	1.11	*9MA*0801714A**
EN(A,D,W)4X36L17**	0.95	1.05	*8MV*0901716**
EN(A,D,W)4X36L17**	0.96	1.06	*8MV*0701412**
EN(A,D)4X36L21**	0.95	1.11	*9MA*0602120A**
EN(A,D)4X36L21**	0.95	1.05	*9MA*0802120A**
EN(A,D)4X36L21**	0.95	1.05	*9MA*1002122A**
EN(A,D)4X36L21**	0.95	1.05	*8MV*1102120**
END4X42L17**	0.96	1.07	*9MA*0601714A**
END4X42L17**	0.96	1.07	*9MA*0801714A**
END4X42L17**	0.97	1.07	*8MV*0901716**
END4X42L17**	0.98	1.08	*8MV*0701412**
EN(A,D,W)4X42L21**	0.96	1.06	*9MA*0602120A**

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
EN(A,D,W)4X42L21**	0.96	1.07	*9MA*0802120A**
EN(A,D,W)4X42L21**	0.96	1.07	*9MA*1002122A**
EN(A,D,W)4X42L21**	0.96	1.07	*8MV*1102120**
EN(A,D,W)4X48L21**	0.98	1.08	*9MA*0602120A**
EN(A,D,W)4X48L21**	0.98	1.08	*9MA*0802120A**
EN(A,D,W)4X48L21**	0.98	1.03	*9MA*1002122A**
EN(A,D,W)4X48L21**	0.98	1.03	*8MV*1102120**
EN(A,D)4X48L24**	0.98	1.08	*9MA*1202422A**
EN(A,D)4X48L24**	0.98	1.03	*8MV*1352422**
EHD4X36AAL	0.96	1.13	*9MA*0601714A**
EHD4X36AAL	0.97	1.13	*9MA*0801714A**
EHD4X36AAL	0.97	1.13	*9MA*0602120A**
EHD4X36AAL	0.98	1.08	*9MA*0802120A**
EHD4X36AAL	0.98	1.08	*9MA*1002122A**
EHD4X36AAL	0.98	1.14	*9MA*1202422A**
EHD4X36AAL	0.97	1.07	*8MV*0701412**
EHD4X36AAL	0.98	1.08	*8MV*0901716**
EHD4X36AAL	0.98	1.08	*8MV*1102120**
EHD4X36AAL	0.98	1.08	*8MV*1352422**
EHD4X42AAL	0.97	1.13	*9MA*0601714A**
EHD4X42AAL	0.98	1.08	*9MA*0801714A**
EHD4X42AAL	0.98	1.08	*9MA*0602120A**
EHD4X42AAL	0.98	1.09	*9MA*0802120A**
EHD4X42AAL	0.98	1.09	*9MA*1002122A**
EHD4X42AAL	0.98	1.09	*9MA*1202422A**
EHD4X42AAL	0.98	1.08	*8MV*0701412**
EHD4X42AAL	0.98	1.09	*8MV*0901716**
EHD4X42AAL	0.98	1.09	*8MV*1102120**
EHD4X42AAL	0.98	1.09	*8MV*1352422**
EHD4X48AAL	0.98	1.14	*9MA*0601714A**
EHD4X48AAL	0.98	1.14	*9MA*0801714A**
EHD4X48AAL	0.98	1.09	*9MA*0602120A**
EHD4X48AAL	0.98	1.09	*9MA*0802120A**
EHD4X48AAL	0.98	1.09	*9MA*1002122A**
EHD4X48AAL	0.98	1.09	*9MA*1202422A**
EHD4X48AAL	0.98	1.09	*8MV*0701412**
EHD4X48AAL	0.98	1.09	*8MV*0901716**
EHD4X48AAL	0.99	1.09	*8MV*1102120**
EHD4X48AAL	0.99	1.09	*8MV*1352422**

2–STAGE (Hi–Stage 5, Lo–Stage 2)					
COOLING INDOOR MODEL	HIGH SPEED CAP.	POWER	LOW SPEED CAP.	POWER	FURNACE MODEL
FVM4X48***L	1.00	1.00	1.00	1.00	
FVM4X36***L	0.97	0.97	1.09	1.13	
FVM4X24***L	0.95	1.00	1.08	1.18	
EA*4X36L14A*	0.94	1.10	1.05	1.23	*9MX*0601412A**
EA*4X36L17A*	0.95	1.00	1.06	1.16	*9MX*0601714A**
EA*4X36L17A*	0.95	1.00	1.08	1.25	OLV098A12*
EA*4X36L17A*	0.95	1.00	1.09	1.20	OMV112K14A
EA*4X36L21A*	0.96	1.01	1.09	1.24	OLV112A16A
EA*4X42L21A*	0.97	1.02	1.09	1.23	OLV112A16A
EA*4X42L24A*	0.97	0.97	1.09	1.14	OMV154L20A
EA*4X48L17A*	0.98	1.03	1.08	1.14	*9MX*0601714A**
EN(A,D)4X24L17**	0.92	1.02	1.07	1.26	OMV112K14A
EN(A,D,W)4X36L17**	0.95	1.00	1.06	1.17	*9MX*0601714A**
EN(A,D,W)4X36L17**	0.94	1.05	1.07	1.26	OLV098A12*
EN(A,D,W)4X36L17**	0.95	1.00	1.08	1.20	OMV112K14A
EN(A,D)4X36L21**	0.95	1.00	1.08	1.25	OLV112A16A
END4X42L17**	0.96	1.07	1.08	1.36	*9MX*0401712A**
END4X42L17**	0.97	1.02	1.07	1.15	*9MX*0601714A**
END4X42L17**	0.97	1.02	1.09	1.28	OMV098J12*
END4X42L17**	0.97	1.02	1.09	1.24	OLV098A12*
END4X42L17**	0.97	1.02	1.09	1.17	OMV112K14A
EN(A,D,W)4X42L21**	0.97	1.02	1.09	1.23	OLV112A16A
EHD4X36AAL	0.97	1.14	1.08	1.36	*9MX*0401712A**
EHD4X36AAL	0.96	1.13	1.07	1.22	*9MX*0601412A**
EHD4X36AAL	0.97	1.02	1.07	1.15	*9MX*0601714A**
EHD4X42AAL	0.97	1.14	1.07	1.21	*9MX*0601412A**
EHD4X42AAL	0.98	1.03	1.08	1.15	*9MX*0601714A**
EHD4X48AAL	0.97	1.14	1.08	1.21	*9MX*0601412A**
EHD4X48AAL	0.98	1.03	1.08	1.14	*9MX*0601714A**

TVH836

HEAT PUMP HEATING PERFORMANCE – EFFICIENCY MODE

INDOOR AIR	TVH836 / FCM4X48***L Heating Efficiency Mode Outdoor Coil Entering Air Temperature °F (°C)										
	7 (–13.9)				17 (–8.3)				27 (–2.8)		
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
STAGE 5												
65 (18.3)	450	16.00	14.70	2.35	1200	23.19	21.15	2.51	1200	26.38	23.43	2.48
70 (21.1)		15.90	14.61	2.44		23.00	20.97	2.61		26.13	23.21	2.60
75 (23.3)		15.75	14.48	2.53		22.80	20.79	2.72		25.87	22.98	2.71
STAGE 3												
65 (18.3)	360	10.11	9.29	1.52	500	12.21	11.13	1.49	900	14.64	13.01	1.31
70 (21.1)		9.99	9.18	1.58		12.06	10.99	1.56		14.47	12.85	1.38
75 (23.3)		9.87	9.07	1.64		11.91	10.86	1.63		14.29	12.69	1.45
STAGE 1												
65 (18.3)	360	10.10	9.28	1.51	500	12.21	11.14	1.49	900	10.13	9.00	0.92
70 (21.1)		9.98	9.17	1.57		12.06	11.00	1.56		9.98	8.86	0.96
75 (23.3)		9.85	9.06	1.64		11.92	10.86	1.63		9.83	8.73	1.01

INDOOR AIR	TVH836 / FCM4X48***L Heating Efficiency Mode Outdoor Coil Entering Air Temperature °F (°C)										
	37 (2.8)				47 (8.3)				57 (13.9)		
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
STAGE 5												
65 (18.3)	1200	30.62	27.87	2.60	1200	34.60	34.60	2.69	900	22.12	22.12	1.39
70 (21.1)		30.29	27.56	2.72		34.20	34.20	2.82		21.86	21.86	1.48
75 (23.3)		29.94	27.24	2.84		33.79	33.79	2.94		21.51	21.51	1.57
STAGE 3												
65 (18.3)	900	17.02	15.49	1.35	900	19.45	19.45	1.35	900	22.19	22.19	1.38
70 (21.1)		16.79	15.28	1.42		19.17	19.17	1.44		21.81	21.81	1.47
75 (23.3)		16.57	15.08	1.50		18.89	18.89	1.52		21.45	21.45	1.56
STAGE 1												
65 (18.3)	900	11.92	10.84	0.92	700	7.88	7.88	0.44	700	9.16	9.16	0.42
70 (21.1)		11.73	10.68	0.98		7.70	7.70	0.49		8.95	8.95	0.47
75 (23.3)		11.55	10.51	1.04		7.52	7.52	0.53		8.74	8.74	0.52

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage

Stage 5 – Compressor speed limited to stage four at 7 and stage three at 57 outdoor; **Stage 1** – Compressor speed limited to stage three at 7 and 17 and to stage two at 27 and 37 outdoor.

See additional notes on page 45

TVH836

HEAT PUMP HEATING PERFORMANCE – COMFORT MODE

INDOOR AIR	TVH836 / FCM4X48***L Heating Comfort Mode Outdoor Coil Entering Air Temperature °F (°C)										
	7 (–13.9)				17 (–8.3)				27 (–2.8)			
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
STAGE 5												
65 (18.3)	434	16.04	14.74	2.38	595	22.29	20.33	2.79	735	25.50	22.65	2.67
70 (21.1)		15.86	14.57	2.46		22.09	20.14	2.90		25.24	22.42	2.79
75 (23.3)		15.74	14.46	2.56		21.88	19.95	3.01		24.99	22.20	2.90
STAGE 3												
65 (18.3)	277	9.92	9.11	1.64	325	11.82	10.78	1.69	425	13.89	12.34	1.55
70 (21.1)		9.80	9.01	1.70		11.68	10.65	1.76		13.71	12.18	1.62
75 (23.3)		9.69	8.90	1.76		11.53	10.52	1.83		13.54	12.02	1.69
STAGE 1 – FCM4X48*L ONLY**												
65 (18.3)	277	9.90	9.10	1.63	277	11.61	10.59	1.79	341	9.37	8.32	1.09
70 (21.1)		9.78	8.99	1.69		11.46	10.45	1.85		9.22	8.19	1.14
75 (23.3)		9.66	8.88	1.75		11.32	10.32	1.92		9.06	8.05	1.20
STAGE 1 – ALL OTHER INDOOR COILS												
65 (18.3)	277	9.90	9.10	1.63	277	11.61	10.59	1.79	341	9.37	8.32	1.09
70 (21.1)		9.78	8.99	1.69		11.46	10.45	1.85		9.22	8.19	1.14
75 (23.3)		9.66	8.88	1.75		11.32	10.32	1.92		9.06	8.05	1.20

INDOOR AIR	TVH836 / FCM4X48***L Heating Comfort Mode Outdoor Coil Entering Air Temperature °F (°C)										
	37 (2.8)				47 (8.3)				57 (13.9)			
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
STAGE 5												
65 (18.3)	874	29.79	27.11	2.72	1014	34.01	34.01	2.75	736	21.71	21.71	1.46
70 (21.1)		29.45	26.80	2.84		33.62	33.62	2.88		21.29	21.29	1.55
75 (23.3)		29.09	26.48	2.96		33.20	33.20	3.01		20.98	20.98	1.64
STAGE 3												
65 (18.3)	526	16.28	14.82	1.53	626	18.77	18.77	1.49	737	21.39	21.39	1.46
70 (21.1)		16.06	14.61	1.61		18.51	18.51	1.57		21.31	21.31	1.55
75 (23.3)		15.84	14.41	1.69		18.23	18.23	1.65		20.96	20.96	1.64
STAGE 1 – FCM4X48*L ONLY**												
65 (18.3)	406	11.08	10.08	1.09	250	6.91	6.91	0.64	250	7.92	7.92	0.67
70 (21.1)		10.89	9.91	1.15		6.75	6.75	0.68		7.73	7.73	0.71
75 (23.3)		10.70	9.74	1.21		6.58	6.58	0.72		7.55	7.55	0.76
STAGE 1 – ALL OTHER INDOOR COILS												
65 (18.3)	406	11.09	10.09	1.09	199	6.61	6.61	0.72	217	7.68	7.68	0.73
70 (21.1)		10.89	9.91	1.15		6.46	6.46	0.76		7.50	7.50	0.77
75 (23.3)		10.70	9.74	1.21		6.31	6.31	0.80		7.31	7.31	0.82

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage

Stage 5 – Compressor speed limited to stage four at 7 and stage three at 57 outdoor; **Stage 1** – Compressor speed limited to stage three at 7 and 17 and to stage two at 27 and 37 outdoor.

See additional notes on page 45

DETAILED HEATING CAPACITIES# – EFFICIENCY MODE & COMFORT MODE CONTINUED

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HEATING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
EA*4X36L14A*	1.05	1.12	*8MV*0701412**
EA*4X36L17A*	1.04	1.08	*8MV*0901716**
EA*4X36L17A*	1.05	1.14	*9MA*0601714A**
EA*4X36L17A*	1.05	1.12	*9MA*0801714A**
EA*4X36L21A*	1.04	1.08	*8MV*1102120**
EA*4X36L21A*	1.04	1.10	*9MA*0602120A**
EA*4X36L21A*	1.04	1.08	*9MA*0802120A**
EA*4X36L21A*	1.04	1.08	*9MA*1002122A**
EA*4X42L21A*	1.02	1.05	*8MV*1102120**
EA*4X42L21A*	1.04	1.09	*9MA*0602120A**
EA*4X42L21A*	1.04	1.07	*9MA*0802120A**
EA*4X42L21A*	1.04	1.07	*9MA*1002122A**
EA*4X42L24A*	1.02	1.05	*8MV*1352422**
EA*4X42L24A*	1.04	1.07	*9MA*1202422A**
EA*4X48L17A*	1.00	1.01	*8MV*0901716**
EA*4X48L17A*	1.02	1.07	*9MA*0601714A**
EA*4X48L17A*	1.02	1.05	*9MA*0801714A**
EA*4X48L21A*	1.01	1.02	*8MV*1102120**
EA*4X48L21A*	1.02	1.05	*9MA*0602120A**
EA*4X48L21A*	1.02	1.03	*9MA*0802120A**
EA*4X48L21A*	1.01	1.02	*9MA*1002122A**
EA*4X48L24A*	1.01	1.01	*8MV*1352422**
EA*4X48L24A*	1.02	1.03	*9MA*1202422A**
EHD4X36AAL	1.04	1.07	*8MV*0701412**
EHD4X36AAL	1.02	1.04	*8MV*0901716**
EHD4X36AAL	1.02	1.04	*8MV*1102120**
EHD4X36AAL	1.02	1.03	*8MV*1352422**
EHD4X36AAL	1.04	1.09	*9MA*0601714A**
EHD4X36AAL	1.04	1.07	*9MA*0602120A**
EHD4X36AAL	1.04	1.08	*9MA*0801714A**
EHD4X36AAL	1.02	1.05	*9MA*0802120A**
EHD4X36AAL	1.02	1.04	*9MA*1002122A**

HEATING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
EHD4X36AAL	1.02	1.05	*9MA*1202422A**
EHD4X42AAL	1.02	1.05	*8MV*0701412**
EHD4X42AAL	1.02	1.03	*8MV*0901716**
EHD4X42AAL	1.02	1.03	*8MV*1102120**
EHD4X42AAL	1.02	1.02	*8MV*1352422**
EHD4X42AAL	1.04	1.08	*9MA*0601714A**
EHD4X42AAL	1.02	1.05	*9MA*0602120A**
EHD4X42AAL	1.02	1.05	*9MA*0801714A**
EHD4X42AAL	1.02	1.04	*9MA*0802120A**
EHD4X42AAL	1.02	1.03	*9MA*1002122A**
EHD4X42AAL	1.02	1.04	*9MA*1202422A**
EHD4X48AAL	1.02	1.04	*8MV*0701412**
EHD4X48AAL	1.02	1.02	*8MV*0901716**
EHD4X48AAL	1.02	1.02	*8MV*1102120**
EHD4X48AAL	1.02	1.01	*8MV*1352422**
EHD4X48AAL	1.04	1.08	*9MA*0601714A**
EHD4X48AAL	1.02	1.05	*9MA*0602120A**
EHD4X48AAL	1.02	1.05	*9MA*0801714A**
EHD4X48AAL	1.02	1.03	*9MA*0802120A**
EHD4X48AAL	1.02	1.02	*9MA*1002122A**
EHD4X48AAL	1.02	1.03	*9MA*1202422A**
EN(A,D)4X36L21**	1.05	1.10	*8MV*1102120**
EN(A,D)4X36L21**	1.05	1.13	*9MA*0602120A**
EN(A,D)4X36L21**	1.05	1.11	*9MA*0802120A**
EN(A,D)4X36L21**	1.05	1.11	*9MA*1002122A**
EN(A,D)4X48L24**	1.02	1.02	*8MV*1352422**
EN(A,D)4X48L24**	1.02	1.03	*9MA*1202422A**
EN(A,D,W)4X36L17**	1.02	1.10	*8MV*0701412**
EN(A,D,W)4X36L17**	1.05	1.11	*8MV*0901716**
EN(A,D,W)4X36L17**	1.05	1.15	*9MA*0601714A**
EN(A,D,W)4X36L17**	1.05	1.14	*9MA*0801714A**
EN(A,D,W)4X42L21**	1.04	1.07	*8MV*1102120**
EN(A,D,W)4X42L21**	1.05	1.10	*9MA*0602120A**
EN(A,D,W)4X42L21**	1.04	1.08	*9MA*0802120A**
EN(A,D,W)4X42L21**	1.02	1.07	*9MA*1002122A**
EN(A,D,W)4X48L21**	1.02	1.02	*8MV*1102120**
EN(A,D,W)4X48L21**	1.02	1.05	*9MA*0602120A**
EN(A,D,W)4X48L21**	1.02	1.03	*9MA*0802120A**
EN(A,D,W)4X48L21**	1.02	1.03	*9MA*1002122A**
END4X42L17**	1.02	1.07	*8MV*0701412**
END4X42L17**	1.02	1.05	*8MV*0901716**
END4X42L17**	1.05	1.11	*9MA*0601714A**
END4X42L17**	1.04	1.08	*9MA*0801714A**

2–STAGE (Hi–Stage 5, Lo–Stage 2)					
COOLING INDOOR MODEL	HIGH SPEED CAP.	POWER	LOW SPEED CAP.	POWER	FURNACE MODEL
FVM4X48***L	1.00	1.00	1.00	1.00	
FVM4X36***L	1.01	1.06	1.01	1.05	
FVM4X24***L	1.04	1.08	1.04	1.08	
EA*4X36L14A*	1.05	1.16	1.03	1.13	*9MX*0601412A**
EA*4X36L17A*	1.04	1.11	1.02	1.10	*9MX*0601714A**
EA*4X36L17A*	1.04	1.12	1.04	1.10	OLV098A12*
EA*4X36L17A*	1.03	1.10	1.03	1.07	OMV112K14A
EA*4X36L21A*	1.04	1.10	1.04	1.08	OLV112A16A
EA*4X42L21A*	1.03	1.08	1.04	1.07	OLV112A16A
EA*4X42L24A*	1.02	1.06	1.03	1.05	OMV154L20A
EA*4X48L17A*	1.01	1.04	1.00	1.05	*9MX*0601714A**
EN(A,D)4X24L17**	1.05	1.12	1.05	1.12	OMV112K14A
EN(A,D,W)4X36L17**	1.04	1.12	1.03	1.12	*9MX*0601714A**
EN(A,D,W)4X36L17**	1.04	1.13	1.04	1.11	OLV098A12*
EN(A,D,W)4X36L17**	1.04	1.11	1.03	1.09	OMV112K14A
EN(A,D)4X36L21**	1.04	1.11	1.04	1.10	OLV112A16A
END4X42L17**	1.05	1.13	1.05	1.12	*9MX*0401712A**
END4X42L17**	1.03	1.08	1.02	1.08	*9MX*0601714A**
END4X42L17**	1.04	1.08	1.04	1.08	OMV098J12*
END4X42L17**	1.04	1.09	1.04	1.08	OLV098A12*
END4X42L17**	1.03	1.07	1.03	1.05	OMV112K14A
EN(A,D,W)4X42L21**	1.04	1.08	1.04	1.08	OLV112A16A
EHD4X36AAL	1.05	1.12	1.05	1.12	*9MX*0401712A**
EHD4X36AAL	1.05	1.12	1.03	1.11	*9MX*0601412A**
EHD4X36AAL	1.03	1.07	1.02	1.08	*9MX*0601714A**
EHD4X42AAL	1.05	1.11	1.03	1.10	*9MX*0601412A**
EHD4X42AAL	1.03	1.06	1.02	1.07	*9MX*0601714A**
EHD4X48AAL	1.04	1.10	1.03	1.09	*9MX*0601412A**
EHD4X48AAL	1.03	1.05	1.02	1.06	*9MX*0601714A**

TVH837

DETAILED COOLING CAPACITIES# – EFFICIENCY MODE

EDB °F (°C)	EVAP. AIR EWB °F (°C)	TVH837 / FCM4X48***L Efficiency Mode Condenser Entering Air Temperature °F (°C)																					
		115 (46.1)				105 (40.5)				95 (35)				85 (29.4)				75 (23.9)				65 (18.3)			
		ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens ‡	Total Sys. KW**	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens ‡	Total Sys. KW**	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens ‡	Total Sys. KW**	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens ‡	Total Sys. KW**	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens ‡	Total Sys. KW**	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens ‡	Total Sys. KW**
STAGE 5																									
75 (23.9)	72 (22.2)	**1050**	33.34	13.68	3.38	**1050**	35.38	14.43	2.99	**1050**	37.11	15.07	2.60	**1050**	39.00	15.77	2.25	**1050**	40.82	16.46	1.93	**1050**	42.56	17.12	1.64
	67 (19.4)		30.28	18.76	3.34		32.11	19.52	2.97		33.70	20.19	2.58		35.41	20.92	2.26		37.04	21.61	1.95		38.64	22.30	1.66
	63 (17.2)		28.02	22.76	3.31		29.71	23.52	2.95		31.19	24.21	2.57		32.77	24.95	2.25		34.29	25.67	1.95		35.77	26.37	1.67
	57 (13.9)		26.22	26.22	3.28		27.53	27.53	2.93		28.66	28.66	2.56		29.86	29.86	2.25		31.00	31.00	1.96		32.09	32.09	1.69
80 (26.7)	72 (22.2)	**1050**	33.22	18.74	3.38	**1050**	35.26	19.50	2.99	**1050**	36.99	20.17	2.60	**1050**	38.88	20.89	2.25	**1050**	40.70	21.60	1.93	**1050**	42.44	22.28	1.64
	67 (19.4)		30.18	23.76	3.34		32.01	24.54	2.97		33.60	25.23	2.58		35.31	25.97	2.26		36.94	26.69	1.95		38.54	27.40	1.66
	63 (17.2)		28.06	27.66	3.31		29.73	28.49	2.95		31.18	29.21	2.57		32.75	29.98	2.25		34.26	30.72	1.95		35.73	31.44	1.67
	57 (13.9)		27.88	27.88	3.31		29.25	29.25	2.95		30.44	30.44	2.57		31.68	31.68	2.25		32.88	32.88	1.96		34.02	34.02	1.68
STAGE 3																									
75 (23.9)	72 (22.2)	**900**	22.97	9.60	3.06	**900**	24.68	10.23	2.52	**900**	26.27	10.83	1.97	**900**	27.96	11.46	1.55	**900**	29.61	12.08	1.19	**900**	31.25	12.70	0.88
	67 (19.4)		20.76	13.46	3.06		22.31	14.15	2.53		23.77	14.82	1.99		25.28	15.50	1.58		26.77	16.18	1.23		28.24	16.87	0.92
	63 (17.2)		19.15	16.49	3.06		20.58	17.23	2.54		21.93	17.94	2.00		23.33	18.68	1.60		24.69	19.40	1.25		26.04	20.13	0.95
	57 (13.9)		18.30	18.30	3.06		19.47	19.47	2.54		20.57	20.57	2.01		21.69	21.69	1.61		22.78	22.78	1.27		23.85	23.85	0.98
80 (26.7)	72 (22.2)	**900**	22.86	13.49	3.06	**900**	24.58	14.18	2.52	**900**	26.17	14.84	1.97	**900**	27.85	15.54	1.55	**900**	29.51	16.22	1.19	**900**	31.14	16.90	0.88
	67 (19.4)		20.69	17.29	3.06		22.23	18.04	2.53		23.70	18.78	1.99		25.20	19.52	1.58		26.69	20.27	1.23		28.16	21.01	0.92
	63 (17.2)		19.55	19.55	3.06		20.79	20.79	2.54		22.01	21.83	2.00		23.37	22.66	1.60		24.72	23.46	1.25		26.05	24.25	0.95
	57 (13.9)		19.52	19.52	3.06		20.75	20.75	2.54		21.91	21.91	2.00		23.09	23.09	1.60		24.24	24.24	1.26		25.37	25.37	0.96
STAGE 1																									
75 (23.9)	72 (22.2)	**800**	17.86	7.53	2.92	**800**	19.41	8.11	2.31	**600**	14.82	6.15	1.11	**600**	16.14	6.65	0.76	**600**	17.47	7.17	0.48	**600**	18.85	7.63	0.26
	67 (19.4)		16.10	10.65	2.94		17.51	11.32	2.34		13.41	8.44	1.15		14.59	9.03	0.80		15.79	9.63	0.52		17.00	10.24	0.30
	63 (17.2)		14.87	13.08	2.95		16.15	13.82	2.36		12.38	10.26	1.18		13.46	10.91	0.83		14.56	11.57	0.55		15.67	12.24	0.33
	57 (13.9)		14.32	14.32	2.95		15.40	15.40	2.37		11.67	11.67	1.20		12.58	12.58	0.85		13.49	13.49	0.57		14.41	14.41	0.35
80 (26.7)	72 (22.2)	**800**	17.78	10.67	2.92	**800**	19.33	11.35	2.31	**600**	14.76	8.44	1.11	**600**	16.08	9.04	0.76	**600**	17.41	9.64	0.48	**600**	18.76	10.26	0.26
	67 (19.4)		16.07	13.74	2.94		17.46	14.50	2.34		13.37	10.73	1.15		14.55	11.41	0.80		15.74	12.09	0.52		16.94	12.78	0.30
	63 (17.2)		15.31	15.31	2.94		16.47	16.47	2.35		12.45	12.45	1.17		13.49	13.26	0.82		14.58	14.02	0.54		15.67	14.78	0.33
	57 (13.9)		15.28	15.28	2.94		16.44	16.44	2.35		12.43	12.43	1.18		13.39	13.39	0.83		14.36	14.36	0.55		15.33	15.33	0.33

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage
Stage 1 – Compressor speed limited to stage two at 105 and 115 outdoor.

See additional notes on page 43

TVH837

DETAILED COOLING CAPACITIES# – COMFORT + DEHUMIDIFY MODE

EDB °F (°C)	EVAP. AIR	TVH837 / FCM4X60***L Comfort + Dehumidify Mode Condenser Entering Air Temperature °F (°C)																	
		105 (40.5)				95 (35)				85 (29.4)				75 (23.9)				65 (18.3)			
	EWB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW	ID SCFM	Capacity MBtuh		Total Sys. KW	ID SCFM	Capacity MBtuh		Total Sys. KW	ID SCFM	Capacity MBtuh		Total Sys. KW	ID SCFM	Capacity MBtuh		Total Sys. KW
			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡	
STAGE 5																					
75 (23.9)	72 (22.2)	812	34.02	13.71	2.91	812	35.60	14.33	2.52	848	37.64	15.13	2.19	888	39.66	15.93	1.89	948	41.83	16.79	1.61
	67 (19.4)		30.97	17.74	2.85		32.42	18.38	2.47		34.27	19.38	2.17		36.10	20.40	1.88		37.30	21.11	1.73
	63 (17.2)		28.74	20.92	2.80		30.10	21.57	2.43		31.81	22.72	2.14		32.83	23.41	2.00		34.63	24.80	1.72
	57 (13.9)		25.73	25.56	2.73		26.93	26.26	2.37		27.87	27.05	2.26		29.38	28.45	1.98		31.01	30.18	1.72
80 (26.7)	72 (22.2)	812	34.41	17.92	2.77	812	35.26	18.16	2.58	848	37.27	19.15	2.25	888	39.27	20.16	1.94	948	41.41	21.33	1.65
	67 (19.4)		30.67	21.50	2.92		32.12	22.15	2.53		33.95	23.33	2.22		35.78	24.54	1.92		37.75	26.02	1.65
	63 (17.2)		28.49	24.67	2.87		29.84	25.33	2.49		31.53	26.66	2.19		33.25	28.05	1.90		35.08	29.75	1.64
	57 (13.9)		27.02	27.02	2.82		28.04	28.04	2.45		29.59	29.59	2.16		31.17	31.17	1.88		32.28	32.28	1.75
STAGE 3																					
75 (23.9)	72 (22.2)	566	22.84	9.21	2.45	566	24.22	9.76	1.91	600	26.00	10.47	1.51	625	27.69	11.14	1.16	665	29.54	11.89	0.87
	67 (19.4)		20.96	11.85	2.26		22.23	12.44	1.76		23.85	13.36	1.39		25.39	14.20	1.07		24.68	13.84	1.44
	63 (17.2)		19.62	14.03	2.06		20.81	14.66	1.60		22.32	15.74	1.25		21.65	15.23	1.74		23.11	16.32	1.38
	57 (13.9)		17.72	17.24	1.86		18.79	17.93	1.43		18.37	17.54	2.03		19.57	18.63	1.65		20.88	19.98	1.32
80 (26.7)	72 (22.2)	566	24.22	12.44	1.66	566	23.40	11.90	2.24	600	25.13	12.78	1.80	625	26.78	13.60	1.41	665	28.58	14.55	1.07
	67 (19.4)		20.25	13.91	2.65		21.49	14.53	2.09		23.07	15.61	1.68		24.57	16.59	1.32		26.21	17.77	1.01
	63 (17.2)		18.96	16.11	2.46		20.15	16.72	1.93		21.61	17.97	1.55		23.01	19.07	1.22		24.55	20.43	0.93
	57 (13.9)		18.02	18.02	2.26		18.96	18.96	1.77		20.34	20.34	1.42		21.63	21.63	1.11		21.07	21.07	1.53
STAGE 1 – FCM4X60 ONLY																					
75 (23.9)	72 (22.2)	500	17.97	7.25	2.27	500	14.42	5.88	1.11	500	15.67	6.37	0.76	500	16.94	6.86	0.48	500	18.21	7.36	0.27
	67 (19.4)		15.37	8.76	2.23		13.55	8.09	0.95		14.69	8.66	0.64		15.85	9.23	0.39		15.11	8.71	0.70
	63 (17.2)		14.72	10.65	1.87		12.96	10.01	0.78		14.03	10.64	0.50		13.42	10.01	0.94		14.30	10.52	0.68
	57 (13.9)		13.65	13.33	1.50		12.28	12.28	0.60		11.69	11.69	1.18		12.40	12.40	0.90		12.11	12.11	0.72
80 (26.7)	72 (22.2)	500	18.97	9.81	1.10	500	14.74	8.00	1.27	500	15.86	8.48	0.93	500	15.67	8.28	0.72	500	16.90	8.84	0.45
	67 (19.4)		15.73	10.94	2.56		13.71	10.22	1.18		13.59	9.93	0.96		14.70	10.56	0.65		15.82	11.20	0.41
	63 (17.2)		14.92	12.81	2.31		12.02	11.19	1.17		13.04	11.88	0.82		14.08	12.56	0.55		15.13	13.26	0.33
	57 (13.9)		13.31	13.31	2.25		12.15	12.15	0.98		13.05	13.05	0.67		13.95	13.95	0.42		13.19	13.19	0.79
STAGE 1 – OTHER COILS																					
75 (23.9)	72 (22.2)	417	17.21	6.93	2.27	236	11.89	4.85	1.16	232	12.71	5.21	0.82	246	13.90	5.70	0.54	267	15.29	6.25	0.32
	67 (19.4)		14.73	8.14	2.23		11.15	5.91	0.99		11.87	6.32	0.68		12.96	6.90	0.43		12.64	6.74	0.80
	63 (17.2)		14.10	9.74	1.87		10.62	6.89	0.80		11.31	7.28	0.52		10.96	7.06	1.03		11.97	7.72	0.76
	57 (13.9)		12.97	12.07	1.50		9.73	8.24	0.61		9.18	7.68	1.24		9.95	8.34	0.96		10.04	8.43	0.79
80 (26.7)	72 (22.2)	417	18.18	9.13	1.10	236	12.17	5.90	1.33	232	12.87	6.23	1.01	246	12.88	6.23	0.81	267	14.20	6.88	0.53
	67 (19.4)		15.07	9.98	2.56		11.27	6.98	1.22		11.00	6.75	1.02		12.04	7.40	0.72		13.26	8.18	0.47
	63 (17.2)		14.28	11.55	2.30		9.83	7.28	1.22		10.51	7.69	0.87		11.50	8.42	0.60		12.66	9.30	0.37
	57 (13.9)		12.37	12.37	2.25		9.04	8.60	1.02		9.64	9.01	0.72		10.53	9.87	0.47		10.28	9.71	0.91

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage
Stage 1 – Compressor speed limited to stage two at 105 outdoor.

See additional notes on page 43

DETAILED COOLING CAPACITIES# – EFFICIENCY MODE & COMFORT + DEHUMIDIFY MODE CONTINUED

TVH837

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
FCM4X60***L	1.00	1.00	
FCM4X36***L	0.96	1.04	
FCM4X48***L	0.99	0.99	
EA*4X36L14A*	0.95	1.08	*8MV*0701412**
EA*4X36L17A*	0.95	1.12	*9MA*0601714A**
EA*4X36L17A*	0.95	1.08	*9MA*0801714A**
EA*4X36L17A*	0.95	1.08	*8MV*0701412**
EA*4X36L17A*	0.96	1.02	*8MV*0901716**
EA*4X36L21A*	0.95	1.12	*9MA*0601714A**
EA*4X36L21A*	0.95	1.08	*9MA*0801714A**
EA*4X36L21A*	0.95	1.08	*9MA*0602120A**
EA*4X36L21A*	0.96	1.04	*9MA*0802120A**
EA*4X36L21A*	0.96	1.04	*9MA*1002122A**
EA*4X36L21A*	0.96	1.02	*8MV*0901716**
EA*4X36L21A*	0.96	1.04	*8MV*1102120**
EA*4X42L21A*	0.95	1.13	*9MA*0601714A**
EA*4X42L21A*	0.96	1.08	*9MA*0801714A**
EA*4X42L21A*	0.96	1.08	*9MA*0602120A**
EA*4X42L21A*	0.96	1.04	*9MA*0802120A**
EA*4X42L21A*	0.96	1.04	*9MA*1002122A**
EA*4X42L21A*	0.96	1.03	*8MV*0901716**
EA*4X42L21A*	0.96	1.04	*8MV*1102120**
EA*4X42L24A*	0.96	1.08	*9MA*0602120A**
EA*4X42L24A*	0.96	1.04	*9MA*0802120A**
EA*4X42L24A*	0.96	1.04	*9MA*1002122A**
EA*4X42L24A*	0.96	1.04	*9MA*1202422A**
EA*4X42L24A*	0.96	1.04	*8MV*1102120**
EA*4X42L24A*	0.96	1.00	*8MV*1352422**
EA*4X48L17A*	0.97	1.15	*9MA*0601714A**
EA*4X48L17A*	0.98	1.06	*9MA*0801714A**
EA*4X48L17A*	0.98	1.04	*8MV*0701412**
EA*4X48L17A*	0.98	1.02	*8MV*0901716**
EA*4X48L21A*	0.96	1.14	*9MA*0601714A**
EA*4X48L21A*	0.97	1.05	*9MA*0801714A**
EA*4X48L21A*	0.97	1.05	*9MA*0602120A**
EA*4X48L21A*	0.98	1.06	*9MA*0802120A**
EA*4X48L21A*	0.98	1.02	*9MA*1002122A**
EA*4X48L21A*	0.98	1.02	*8MV*0901716**
EA*4X48L21A*	0.98	1.02	*8MV*1102120**
EA*4X48L24A*	0.97	1.05	*9MA*0602120A**
EA*4X48L24A*	0.98	1.06	*9MA*0802120A**
EA*4X48L24A*	0.98	1.02	*9MA*1002122A**
EA*4X48L24A*	0.98	1.06	*9MA*1202422A**
EA*4X48L24A*	0.98	1.02	*8MV*1102120**
EA*4X48L24A*	0.98	1.02	*8MV*1352422**
EA*4X60L21A*	0.98	1.06	*9MA*0601714A**
EA*4X60L21A*	0.98	1.05	*9MA*0801714A**
EA*4X60L21A*	0.98	1.06	*9MA*0602120A**
EA*4X60L21A*	0.99	1.03	*9MA*0802120A**
EA*4X60L21A*	0.99	1.03	*9MA*1002122A**
EA*4X60L21A*	0.99	1.03	*8MV*0901716**
EA*4X60L21A*	0.99	1.03	*8MV*1102120**
EA*4X60L24A*	0.98	1.06	*9MA*0602120A**
EA*4X60L24A*	0.99	1.03	*9MA*0802120A**
EA*4X60L24A*	0.99	1.03	*9MA*1002122A**
EA*4X60L24A*	0.99	1.03	*9MA*1202422A**
EA*4X60L24A*	0.99	1.03	*8MV*1102120**
EA*4X60L24A*	0.99	1.03	*8MV*1352422**
EN(A,D,W)4X36L17**	0.94	1.11	*9MA*0601714A**
EN(A,D,W)4X36L17**	0.95	1.12	*9MA*0801714A**
EN(A,D,W)4X36L17**	0.95	1.03	*8MV*0901716**
EN(A,D)4X36L21**	0.95	1.12	*9MA*0601714A**
EN(A,D)4X36L21**	0.95	1.12	*9MA*0801714A**
EN(A,D)4X36L21**	0.95	1.07	*9MA*0602120A**
EN(A,D)4X36L21**	0.95	1.08	*9MA*0802120A**
EN(A,D)4X36L21**	0.95	1.08	*9MA*1002122A**
EN(A,D)4X36L21**	0.95	1.03	*8MV*0901716**
EN(A,D)4X36L21**	0.95	1.03	*8MV*1102120**
END4X42L17**	0.96	1.13	*9MA*0601714A**
END4X42L17**	0.96	1.09	*9MA*0801714A**
END4X42L17**	0.97	1.05	*8MV*0901716**
EN(A,D,W)4X42L21**	0.95	1.13	*9MA*0601714A**
EN(A,D,W)4X42L21**	0.96	1.08	*9MA*0801714A**
EN(A,D,W)4X42L21**	0.96	1.08	*9MA*0602120A**
EN(A,D,W)4X42L21**	0.96	1.04	*9MA*0802120A**
EN(A,D,W)4X42L21**	0.96	1.03	*9MA*1002122A**
EN(A,D,W)4X42L21**	0.96	1.04	*8MV*0901716**
EN(A,D,W)4X42L21**	0.96	1.04	*8MV*1102120**
EN(A,D,W)4X48L21**	0.97	1.10	*9MA*0601714A**
EN(A,D,W)4X48L21**	0.97	1.05	*9MA*0801714A**
EN(A,D,W)4X48L21**	0.98	1.06	*9MA*0602120A**
EN(A,D,W)4X48L21**	0.98	1.02	*9MA*0802120A**
EN(A,D,W)4X48L21**	0.98	1.02	*9MA*1002122A**
EN(A,D,W)4X48L21**	0.98	1.02	*8MV*0901716**
EN(A,D,W)4X48L21**	0.98	1.02	*8MV*1102120**
EN(A,D)4X48L24**	0.98	1.06	*9MA*0602120A**
EN(A,D)4X48L24**	0.98	1.02	*9MA*0802120A**
EN(A,D)4X48L24**	0.98	1.02	*9MA*1002122A**
EN(A,D)4X48L24**	0.98	1.02	*9MA*1202422A**
EN(A,D)4X48L24**	0.98	1.02	*8MV*1102120**
EN(A,D)4X48L24**	0.98	1.02	*8MV*1352422**
EN(A,D,W)4X60L24**	0.99	1.07	*9MA*0602120A**
EN(A,D,W)4X60L24**	0.99	1.03	*9MA*0802120A**
EN(A,D,W)4X60L24**	0.99	1.03	*9MA*1002122A**
EN(A,D,W)4X60L24**	0.99	1.03	*9MA*1202422A**
EN(A,D,W)4X60L24**	0.99	1.03	*8MV*1102120**
EN(A,D,W)4X60L24**	0.99	1.03	*8MV*1352422**
EHD4X36AAL	0.96	1.14	*9MA*0601714A**
EHD4X36AAL	0.97	1.10	*9MA*0801714A**
EHD4X36AAL	0.97	1.10	*9MA*0602120A**
EHD4X36AAL	0.98	1.06	*9MA*0802120A**
EHD4X36AAL	0.98	1.06	*9MA*1002122A**
EHD4X36AAL	0.98	1.06	*9MA*1202422A**
EHD4X36AAL	0.98	1.06	*8MV*0901716**
EHD4X36AAL	0.98	1.06	*8MV*1102120**
EHD4X36AAL	0.98	1.04	*8MV*1352422**
EHD4X42AAL	0.97	1.15	*9MA*0601714A**
EHD4X42AAL	0.98	1.10	*9MA*0801714A**
EHD4X42AAL	0.98	1.06	*9MA*0602120A**
EHD4X42AAL	0.98	1.06	*9MA*0802120A**
EHD4X42AAL	0.98	1.05	*9MA*1002122A**
EHD4X42AAL	0.98	1.06	*9MA*1202422A**
EHD4X42AAL	0.98	1.06	*8MV*0901716**
EHD4X42AAL	0.98	1.06	*8MV*1102120**
EHD4X42AAL	0.98	1.02	*8MV*1352422**
EHD4X48AAL	0.98	1.15	*9MA*0601714A**
EHD4X48AAL	0.98	1.06	*9MA*0801714A**
EHD4X48AAL	0.98	1.06	*9MA*0602120A**
EHD4X48AAL	0.98	1.06	*9MA*0802120A**
EHD4X48AAL	0.98	1.06	*9MA*1002122A**
EHD4X48AAL	0.98	1.06	*9MA*1202422A**
EHD4X48AAL	0.98	1.06	*8MV*0901716**
EHD4X48AAL	0.98	1.06	*8MV*1102120**
EHD4X48AAL	0.98	1.06	*8MV*1352422**
EHD4X60AAL	0.98	1.06	*9MA*1202422A**
EHD4X48AAL	0.98	1.06	*8MV*0901716**
EHD4X48AAL	0.99	1.07	*8MV*1102120**
EHD4X48AAL	0.99	1.03	*8MV*1352422**
EHD4X60AAL	0.98	1.11	*9MA*0601714A**
EHD4X60AAL	0.99	1.07	*9MA*0801714A**
EHD4X60AAL	0.99	1.07	*9MA*0602120A**
EHD4X60AAL	0.99	1.03	*9MA*0802120A**
EHD4X60AAL	0.99	1.03	*9MA*1002122A**
EHD4X60AAL	0.99	1.03	*9MA*1202422A**
EHD4X60AAL	0.99	1.03	*8MV*0901716**
EHD4X60AAL	0.99	1.03	*8MV*1102120**
EHD4X60AAL	0.99	1.03	*8MV*1352422**

2–STAGE (Hi–Stage 5, Lo–Stage 2)

COOLING INDOOR MODEL	HIGH SPEED CAP.	POWER	LOW SPEED CAP.	POWER	FURNACE MODEL
FCM4X60***L	1.00	1.00	1.00	1.00	
EA*4X36L14A*	0.93	1.16	0.96	1.13	*9MX*0601412A**
EA*4X36L17A*	0.94	1.22	0.98	1.26	*9MX*0401712A**
EA*4X36L17A*	0.95	1.07	0.97	1.06	*9MX*0601714A**
EA*4X36L17A*	0.95	1.12	0.98	1.19	OMV098J12*
EA*4X36L17A*	0.94	1.06	0.98	1.15	OLV098A12*
EA*4X36L17A*	0.95	1.08	0.98	1.08	OMV112K14A
EA*4X36L21A*	0.95	1.08	0.99	1.12	OLV112A16A
EA*4X42L21A*	0.96	1.09	1.00	1.12	OLV112A16A
EA*4X42L24A*	0.96	1.03	1.00	1.05	OMV154L20A
EA*4X48L17A*	0.98	1.10	0.99	1.05	*9MX*0601714A**
EA*4X48L17A*	0.98	1.10	0.99	1.05	*9MX*0601714A**
EHD4X36AAL	0.96	1.19	0.97	1.10	*9MX*0401712A**
EHD4X36AAL	0.96	1.19	0.98	1.12	*9MX*0601412A**
EHD4X36AAL	0.97	1.10	0.98	1.07	*9MX*0601714A**
EHD4X36AAL	0.96	1.19	0.98	1.12	*9MX*0601412A**
EHD4X36AAL	0.97	1.10	0.98	1.07	*9MX*0601714A**
EHD4X48AAL	0.97	1.20	0.98	1.11	*9MX*0601412A**
EHD4X48AAL	0.98	1.10	0.99	1.05	*9MX*0601714A**
EN(A,D)4X36L21**	0.95	1.08	0.99	1.15	OLV112A16A
EN(A,D,W)4X36L17**	0.95	12.30	0.00	0.00	*9MX*0601714A**
EN(A,D,W)4X36L17**	0.94	1.11	0.98	1.21	OMV098J12*
EN(A,D,W)4X36L17**	0.95	1.07	0.98	1.09	OMV112K14A
EN(A,D,W)4X42L21**	0.96	1.09	1.00	1.14	OLV112A16A
END4X42L17**	0.96	1.09	0.98	1.06	*9MX*0601714A**
END4X42L17**	0.96	1.08	1.00	1.19	OMV098J12*
END4X42L17**	0.96	1.08	1.00	1.15	OLV098A12*
END4X42L17**	0.96	1.09	1.00	1.08	OMV112K14A

TVH837

HEAT PUMP HEATING PERFORMANCE – EFFICIENCY MODE

INDOOR AIR	TVH837 / FCM4X60***L Heating Efficiency Mode Outdoor Coil Entering Air Temperature °F (°C)											
	7 (–13.9)				17 (–8.3)				27 (–2.8)			
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	INTEG‡			Total	Integ‡	
STAGE 5 – FCM4X60*L ONLY**												
65 (18.3)	500	15.01	13.79	1.95	1200	30.72	28.01	3.22	1200	34.01	30.20	3.21
70 (21.1)		14.67	13.48	2.00		30.40	27.72	3.35		33.69	29.92	3.35
75 (23.3)		14.23	13.08	2.04		30.00	27.36	3.47		33.30	29.58	3.48
STAGE 5 – OTHER COILS												
65 (18.3)	450	14.91	13.70	1.98	1200	30.72	28.01	3.22	1200	34.01	30.20	3.21
70 (21.1)		14.50	13.33	2.02		30.40	27.72	3.35		33.69	29.92	3.35
75 (23.3)		14.00	12.87	2.05		30.00	27.36	3.47		33.30	29.58	3.48
STAGE 3 – FCM4X60*L ONLY**												
65 (18.3)	500	12.11	11.13	1.72	500	14.47	13.20	1.82	900	17.03	15.12	1.63
70 (21.1)		11.88	10.92	1.78		14.26	13.00	1.89		16.82	14.94	1.71
75 (23.3)		11.58	10.64	1.83		14.02	12.78	1.96		16.60	14.74	1.80
STAGE 3 – OTHER COULS												
65 (18.3)	360	11.82	10.86	1.82	500	14.47	13.20	1.82	900	17.03	15.12	1.63
70 (21.1)		11.45	10.52	1.85		14.26	13.00	1.89		16.82	14.94	1.71
75 (23.3)		11.00	10.11	1.86		14.02	12.78	1.96		16.60	14.74	1.80
STAGE 1 – FCM4X60*L ONLY**												
65 (18.3)	500	12.11	11.13	1.72	500	14.47	13.19	1.82	900	13.77	12.23	1.51
70 (21.1)		11.88	10.91	1.78		14.25	12.99	1.89		13.60	12.08	1.55
75 (23.3)		11.58	10.64	1.83		14.01	12.78	1.96		13.41	11.91	1.63
STAGE 1 – OTHER COILS												
65 (18.3)	360	11.83	10.87	1.83	500	14.47	13.19	1.82	900	13.77	12.23	1.51
70 (21.1)		11.45	10.52	1.85		14.25	12.99	1.89		13.60	12.08	1.55
75 (23.3)		11.00	10.11	1.86		14.01	12.78	1.96		13.41	11.91	1.63

INDOOR AIR	TVH837 / FCM4X60***L Heating Efficiency Mode Outdoor Coil Entering Air Temperature °F (°C)											
	37 (2.8)				47 (8.3)				57 (13.9)			
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
STAGE 5 – FCM4X60*L ONLY**												
65 (18.3)	1200	37.61	34.23	3.24	1200	40.49	40.49	3.21	900	25.27	25.27	1.66
70 (21.1)		37.20	33.85	3.38		40.00	40.00	3.35		24.90	24.90	1.75
75 (23.3)		36.77	33.46	3.52		39.49	39.49	3.48		24.49	24.49	1.85
STAGE 5 – OTHER COILS												
65 (18.3)	1200	37.61	34.23	3.24	1200	40.49	40.49	3.21	900	25.27	25.27	1.66
70 (21.1)		37.20	33.85	3.38		40.00	40.00	3.35		24.90	24.90	1.75
75 (23.3)		36.77	33.46	3.52		39.49	39.49	3.48		24.49	24.49	1.85
STAGE 3 – FCM4X60*L ONLY**												
65 (18.3)	900	19.68	17.91	1.65	900	22.48	22.48	1.66	900	25.26	25.26	1.66
70 (21.1)		19.42	17.67	1.74		22.17	22.17	1.75		24.82	24.82	1.75
75 (23.3)		19.15	17.43	1.83		21.84	21.84	1.84		24.43	24.43	1.85
STAGE 3 – OTHER COULS												
65 (18.3)	900	19.68	17.91	1.65	900	22.48	22.48	1.66	900	25.26	25.26	1.66
70 (21.1)		19.42	17.67	1.74		22.17	22.17	1.75		24.82	24.82	1.75
75 (23.3)		19.15	17.43	1.83		21.84	21.84	1.84		24.43	24.43	1.85
STAGE 1 – FCM4X60*L ONLY**												
65 (18.3)	900	16.65	15.15	1.51	700	11.61	11.61	0.70	700	14.22	14.22	0.68
70 (21.1)		16.42	14.94	1.60		11.40	11.40	0.76		13.94	13.94	0.74
75 (23.3)		16.18	14.73	1.68		11.19	11.19	0.82		13.65	13.65	0.81
STAGE 1 – OTHER COILS												
65 (18.3)	900	16.65	15.15	1.51	700	11.61	11.61	0.70	700	14.22	14.22	0.68
70 (21.1)		16.42	14.94	1.60		11.40	11.40	0.76		13.94	13.94	0.74
75 (23.3)		16.18	14.73	1.68		11.19	11.19	0.82		13.65	13.65	0.81

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage

Stage 5 – Compressor speed limited to stage four at 7 and stage three at 57 outdoor; **Stage 1** – Compressor speed limited to stage three at 7 and 17 and to stage two at 27 and 37 outdoor.

See additional notes on page 45

TVH837

HEAT PUMP HEATING PERFORMANCE – COMFORT MODE

INDOOR AIR	TVH837 / FCM4X60***L Heating Comfort Mode Outdoor Coil Entering Air Temperature °F (°C)											
	7 (–13.9)				17 (–8.3)				27 (–2.8)			
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
STAGE 5 – FCM4X60*L ONLY**												
65 (18.3)	500	15.03	13.81	1.95	595	29.43	26.83	3.54	735	33.56	29.80	3.54
70 (21.1)		14.68	13.49	2.00		28.74	26.20	3.60		33.03	29.34	3.65
75 (23.3)		14.23	13.08	2.04		27.40	24.98	3.54		32.53	28.89	3.75
STAGE 5 – OTHER COILS												
65 (18.3)	434	14.85	13.64	1.99	595	29.43	26.83	3.54	735	33.56	29.80	3.54
70 (21.1)		14.41	13.25	2.03		28.74	26.20	3.60		33.03	29.34	3.65
75 (23.3)		13.90	12.78	2.05		27.40	24.98	3.54		32.53	28.89	3.75
STAGE 3 – FCM4X60*L ONLY**												
65 (18.3)	500	12.11	11.13	1.72	500	14.47	13.20	1.82	500	16.81	14.93	1.86
70 (21.1)		11.88	10.91	1.78		14.26	13.00	1.89		16.58	14.73	1.94
75 (23.3)		11.58	10.64	1.83		14.01	12.78	1.96		16.33	14.51	2.02
STAGE 3 – OTHER COILS												
65 (18.3)	277	11.00	10.11	1.82	325	14.13	12.88	2.05	425	16.74	14.87	1.97
70 (21.1)		10.46	9.61	1.81		13.78	12.56	2.09		16.49	14.65	2.05
75 (23.3)		10.14	9.32	1.84		13.37	12.19	2.12		16.22	14.40	2.12
STAGE 1 – FCM4X60*L ONLY**												
65 (18.3)	500	12.11	11.13	1.72	500	14.47	13.19	1.82	500	13.59	12.07	1.76
70 (21.1)		11.88	10.91	1.78		14.26	13.00	1.89		13.40	11.90	1.74
75 (23.3)		11.58	10.64	1.83		14.01	12.78	1.96		13.19	11.72	1.81
STAGE 1 – ALL OTHER INDOOR COILS												
65 (18.3)	277	11.00	10.11	1.82	277	13.71	12.50	2.11	341	13.42	11.92	1.92
70 (21.1)		10.47	9.62	1.81		13.27	12.09	2.12		13.19	11.72	1.98
75 (23.3)		10.14	9.32	1.84		12.79	11.66	2.13		12.95	11.50	2.04

INDOOR AIR	TVH837 / FCM4X60***L Heating Comfort Mode Outdoor Coil Entering Air Temperature °F (°C)											
	37 (2.8)				47 (8.3)				57 (13.9)			
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
STAGE 5 – FCM4X60*L ONLY**												
65 (18.3)	875	37.18	33.84	3.48	1014	40.10	40.10	3.34	737	24.96	24.96	1.77
70 (21.1)		36.72	33.41	3.61		39.59	39.59	3.47		24.55	24.55	1.86
75 (23.3)		36.23	32.97	3.73		39.05	39.05	3.60		24.14	24.14	1.95
STAGE 5 – OTHER COILS												
65 (18.3)	875	37.18	33.84	3.48	1014	40.10	40.10	3.34	737	24.96	24.96	1.77
70 (21.1)		36.72	33.41	3.61		39.59	39.59	3.47		24.55	24.55	1.86
75 (23.3)		36.23	32.97	3.73		39.05	39.05	3.60		24.14	24.14	1.95
STAGE 3 – FCM4X60*L ONLY**												
65 (18.3)	526	19.31	17.58	1.91	626	22.06	22.06	1.84	737	24.96	24.96	1.77
70 (21.1)		19.04	17.32	1.99		21.73	21.73	1.93		24.38	24.38	1.85
75 (23.3)		18.75	17.07	2.08		21.39	21.39	2.02		24.12	24.12	1.95
STAGE 3 – OTHER COILS												
65 (18.3)	526	19.31	17.58	1.91	626	22.06	22.06	1.84	737	24.96	24.96	1.77
70 (21.1)		19.04	17.32	1.99		21.73	21.73	1.93		24.55	24.55	1.86
75 (23.3)		18.75	17.07	2.08		21.39	21.39	2.02		24.14	24.14	1.95
STAGE 1 – FCM4X60*L ONLY**												
65 (18.3)	500	16.30	14.84	1.76	500	11.40	11.40	0.77	500	13.86	13.86	0.77
70 (21.1)		16.06	14.62	1.84		11.19	11.19	0.83		13.45	13.45	0.83
75 (23.3)		15.81	14.39	1.92		10.97	10.97	0.89		13.18	13.18	0.89
STAGE 1 – OTHER COILS												
65 (18.3)	405	16.15	14.70	1.92	199	10.53	10.53	1.24	217	12.45	12.45	1.23
70 (21.1)		15.90	14.47	1.99		10.31	10.31	1.28		12.27	12.27	1.28
75 (23.3)		15.64	14.24	2.07		10.08	10.08	1.33		11.98	11.98	1.33

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage

Stage 5 – Compressor speed limited to stage four at 7 and stage three at 57 outdoor; **Stage 1** – Compressor speed limited to stage three at 7 and 17 and to stage two at 27 and 37 outdoor.

See additional notes on page 45

DETAILED HEATING CAPACITIES# – EFFICIENCY MODE & COMFORT MODE CONTINUED

TVH837

HEATING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
FCM4X36***L	1.00	1.09	
FCM4X48***L	1.00	1.02	
FCM4X60***L	1.00	1.00	
EA*4X36L14A*	1.00	1.11	*8MV*0701412**
EA*4X36L17A*	1.00	1.10	*8MV*0701412**
EA*4X36L17A*	1.00	1.09	*8MV*0901716**
EA*4X36L17A*	1.00	1.11	*9MA*0601714A**
EA*4X36L17A*	1.00	1.11	*9MA*0801714A**
EA*4X36L21A*	1.00	1.08	*8MV*0901716**
EA*4X36L21A*	1.00	1.08	*8MV*1102120**
EA*4X36L21A*	1.00	1.11	*9MA*0601714A**
EA*4X36L21A*	1.00	1.09	*9MA*0602120A**
EA*4X36L21A*	1.00	1.10	*9MA*0801714A**
EA*4X36L21A*	1.00	1.09	*9MA*0802120A**
EA*4X36L21A*	1.00	1.08	*9MA*1002122A**
EA*4X42L21A*	1.00	1.06	*8MV*0901716**
EA*4X42L21A*	1.00	1.06	*8MV*1102120**
EA*4X42L21A*	1.00	1.09	*9MA*0601714A**
EA*4X42L21A*	1.00	1.08	*9MA*0602120A**
EA*4X42L21A*	1.00	1.08	*9MA*0801714A**
EA*4X42L21A*	1.00	1.07	*9MA*0802120A**
EA*4X42L21A*	1.00	1.06	*9MA*1002122A**
EA*4X42L24A*	1.00	1.06	*8MV*1102120**
EA*4X42L24A*	1.00	1.05	*8MV*1352422**
EA*4X42L24A*	1.00	1.07	*9MA*0602120A**
EA*4X42L24A*	1.00	1.07	*9MA*0802120A**
EA*4X42L24A*	1.00	1.06	*9MA*1002122A**
EA*4X42L24A*	1.00	1.07	*9MA*1202422A**
EA*4X48L17A*	1.00	1.04	*8MV*0701412**
EA*4X48L17A*	1.00	1.02	*8MV*0901716**
EA*4X48L17A*	1.00	1.05	*9MA*0601714A**
EA*4X48L17A*	1.00	1.04	*9MA*0801714A**
EA*4X48L21A*	1.00	1.03	*8MV*0901716**
EA*4X48L21A*	1.00	1.03	*8MV*1102120**
EA*4X48L21A*	1.00	1.06	*9MA*0601714A**
EA*4X48L21A*	1.00	1.05	*9MA*0602120A**
EA*4X48L21A*	1.00	1.05	*9MA*0801714A**
EA*4X48L21A*	1.00	1.04	*9MA*0802120A**
EA*4X48L21A*	1.00	1.03	*9MA*1002122A**
EA*4X48L24A*	1.00	1.03	*8MV*1102120**
EA*4X48L24A*	1.00	1.02	*8MV*1352422**
EA*4X48L24A*	1.00	1.05	*9MA*0602120A**
EA*4X48L24A*	1.00	1.04	*9MA*0802120A**
EA*4X48L24A*	1.00	1.03	*9MA*1002122A**
EA*4X48L24A*	1.00	1.03	*9MA*1202422A**
EA*4X60L21A*	1.00	1.03	*8MV*0901716**
EA*4X60L21A*	1.00	1.03	*8MV*1102120**
EA*4X60L21A*	1.00	1.06	*9MA*0601714A**
EA*4X60L21A*	1.00	1.05	*9MA*0602120A**
EA*4X60L21A*	1.00	1.05	*9MA*0801714A**
EA*4X60L21A*	1.00	1.04	*9MA*0802120A**
EA*4X60L21A*	1.00	1.03	*9MA*1002122A**
EA*4X60L24A*	1.00	1.03	*8MV*1102120**
EA*4X60L24A*	1.00	1.02	*8MV*1352422**
EA*4X60L24A*	1.00	1.05	*9MA*0602120A**
EA*4X60L24A*	1.00	1.04	*9MA*0802120A**
EA*4X60L24A*	1.00	1.03	*9MA*1002122A**
EA*4X60L24A*	1.00	1.03	*9MA*1202422A**
EHD4X36AAL	1.00	1.04	*8MV*0901716**
EHD4X36AAL	1.00	1.04	*8MV*1102120**
EHD4X36AAL	1.00	1.03	*8MV*1352422**
EHD4X36AAL	1.00	1.07	*9MA*0601714A**
EHD4X36AAL	1.00	1.05	*9MA*0602120A**
EHD4X36AAL	1.00	1.05	*9MA*0801714A**
EHD4X36AAL	1.00	1.04	*9MA*0802120A**
EHD4X36AAL	1.00	1.04	*9MA*1002122A**
EHD4X36AAL	1.00	1.04	*9MA*1202422A**
EHD4X42AAL	1.00	1.02	*8MV*0901716**
EHD4X42AAL	1.00	1.02	*8MV*1102120**
EHD4X42AAL	1.00	1.02	*8MV*1352422**
EHD4X42AAL	1.00	1.05	*9MA*0601714A**
EHD4X42AAL	1.00	1.04	*9MA*0602120A**
EHD4X42AAL	1.00	1.04	*9MA*0801714A**
EHD4X42AAL	1.00	1.02	*9MA*0802120A**
EHD4X42AAL	1.00	1.02	*9MA*1002122A**
EHD4X42AAL	1.00	1.02	*9MA*1202422A**
EHD4X48AAL	1.00	1.01	*8MV*0901716**
EHD4X48AAL	1.00	1.01	*8MV*1102120**
EHD4X48AAL	1.00	1.01	*8MV*1352422**
EHD4X48AAL	1.00	1.05	*9MA*0601714A**
EHD4X48AAL	1.00	1.03	*9MA*0602120A**
EHD4X48AAL	1.00	1.04	*9MA*0801714A**
EHD4X48AAL	1.00	1.02	*9MA*0802120A**
EHD4X48AAL	1.00	1.01	*9MA*1002122A**
EHD4X48AAL	1.00	1.02	*9MA*1202422A**
EHD4X60AAL	1.00	1.01	*8MV*0901716**
EHD4X60AAL	1.00	1.01	*8MV*1102120**
EHD4X60AAL	1.00	1.01	*8MV*1352422**
EHD4X60AAL	1.00	1.04	*9MA*0601714A**
EHD4X60AAL	1.00	1.03	*9MA*0602120A**
EHD4X60AAL	1.00	1.04	*9MA*0801714A**
EHD4X60AAL	1.00	1.02	*9MA*0802120A**
EHD4X60AAL	1.00	1.01	*9MA*1002122A**
EHD4X60AAL	1.00	1.02	*9MA*1202422A**
EN(A,D)4X36L21**	1.00	1.09	*8MV*0901716**
EN(A,D)4X36L21**	1.00	1.09	*8MV*1102120**
EN(A,D)4X36L21**	1.00	1.12	*9MA*0601714A**
EN(A,D)4X36L21**	1.00	1.11	*9MA*0602120A**
EN(A,D)4X36L21**	1.00	1.11	*9MA*0801714A**
EN(A,D)4X36L21**	1.00	1.09	*9MA*0802120A**
EN(A,D)4X36L21**	1.00	1.09	*9MA*1002122A**
EN(A,D)4X48L24**	1.00	1.02	*8MV*1102120**
EN(A,D)4X48L24**	1.00	1.02	*8MV*1352422**
EN(A,D)4X48L24**	1.00	1.04	*9MA*0602120A**
EN(A,D)4X48L24**	1.00	1.02	*9MA*0802120A**
EN(A,D)4X48L24**	1.00	1.02	*9MA*1002122A**
EN(A,D)4X48L24**	1.00	1.02	*9MA*1202422A**
EN(A,D,W)4X36L17**	1.00	1.09	*8MV*0901716**
EN(A,D,W)4X36L17**	1.00	1.13	*9MA*0601714A**
EN(A,D,W)4X36L17**	1.00	1.11	*9MA*0801714A**
EN(A,D,W)4X42L21**	1.00	1.06	*8MV*0901716**
EN(A,D,W)4X42L21**	1.00	1.06	*8MV*1102120**
EN(A,D,W)4X42L21**	1.00	1.09	*9MA*0601714A**
EN(A,D,W)4X42L21**	1.00	1.08	*9MA*0602120A**
EN(A,D,W)4X42L21**	1.00	1.08	*9MA*0801714A**
EN(A,D,W)4X42L21**	1.00	1.07	*9MA*0802120A**
EN(A,D,W)4X42L21**	1.00	1.06	*9MA*1002122A**
EN(A,D,W)4X48L21**	1.00	1.02	*8MV*0901716**
EN(A,D,W)4X48L21**	1.00	1.02	*8MV*1102120**
EN(A,D,W)4X48L21**	1.00	1.05	*9MA*0601714A**
EN(A,D,W)4X48L21**	1.00	1.04	*9MA*0602120A**
EN(A,D,W)4X48L21**	1.00	1.04	*9MA*0801714A**
EN(A,D,W)4X48L21**	1.00	1.02	*9MA*0802120A**
EN(A,D,W)4X48L21**	1.00	1.02	*9MA*1002122A**
EN(A,D,W)4X60L24**	1.00	1.02	*8MV*1102120**
EN(A,D,W)4X60L24**	1.00	1.02	*8MV*1352422**
EN(A,D,W)4X60L24**	1.00	1.04	*9MA*0602120A**
EN(A,D,W)4X60L24**	1.00	1.02	*9MA*0802120A**
EN(A,D,W)4X60L24**	1.00	1.02	*9MA*1002122A**
EN(A,D,W)4X60L24**	1.00	1.02	*9MA*1202422A**
END4X42L17**	1.00	1.04	*8MV*0901716**
END4X42L17**	1.00	1.07	*9MA*0601714A**
END4X42L17**	1.00	1.06	*9MA*0801714A**

2–STAGE (Hi–Stage 5, Lo–Stage 2)

COOLING INDOOR MODEL	HIGH SPEED CAP.	POWER	LOW SPEED CAP.	POWER	FURNACE MODEL
FCM4X60***L	1.00	1.00	1.00	1.00	
EA*4X36L14A*	1.01	1.18	1.06	1.23	*9MX*0601412A**
EA*4X36L17A*	1.01	1.17	1.07	1.21	*9MX*0401712A**
EA*4X36L17A*	1.00	1.14	1.06	1.21	*9MX*0601714A**
EA*4X36L17A*	1.11	1.28	1.07	1.19	OMV098J12*
EA*4X36L17A*	1.11	1.29	1.07	1.18	OLV098A12*
EA*4X36L17A*	1.10	1.26	1.06	1.17	OMV112K14A
EA*4X36L21A*	1.11	1.26	1.06	1.15	OLV112A16A
EA*4X42L21A*	1.10	1.22	1.06	1.14	OLV112A16A
EA*4X42L24A*	1.10	1.22	1.05	1.12	OMV154L20A
EA*4X48L17A*	0.97	1.02	1.03	1.11	*9MX*0601714A**
EA*4X48L17A*	0.97	1.02	1.03	1.11	*9MX*0601714A**
EHD4X36AAL	1.01	1.12	1.05	1.20	*9MX*0401712A**
EHD4X36AAL	1.01	1.11	1.06	1.18	*9MX*0601412A**
EHD4X36AAL	0.99	1.07	1.05	1.16	*9MX*0601714A**
EHD4X36AAL	1.01	1.11	1.06	1.18	*9MX*0601412A**
EHD4X36AAL	0.99	1.07	1.05	1.16	*9MX*0601714A**
EN(A,D)4X36L21**	1.11	1.27	1.07	1.18	OLV112A16A
EN(A,D,W)4X36L17**					*9MX*0601714A**
EN(A,D,W)4X36L17**	1.11	1.29	1.07	1.20	OMV098J12*
EN(A,D,W)4X36L17**	1.11	1.28	1.06	1.18	OMV112K14A
EN(A,D,W)4X42L21**	1.11	1.23	1.06	1.14	OLV112A16A
END4X42L17**	0.99	1.08	1.05	1.16	*9MX*0601714A**
END4X42L17**	1.10	1.21	1.07	1.14	OMV098J12*
END4X42L17**	1.10	1.22	1.06	1.13	OLV098A12*
END4X42L17**	1.10	1.20	1.06	1.12	OMV112K14A

TVH848

DETAILED COOLING CAPACITIES# – EFFICIENCY MODE

EDB °F (°C)	EVAP. AIR	TVH848 / FCM4X48***L Efficiency Mode Condenser Entering Air Temperature °F (°C)																							
		115 (46.1)				105 (40.5)				95 (35)				85 (29.4)				75 (23.9)				65 (18.3)			
	EWB °F (°C)	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens ‡	Total Sys. KW**	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens ‡	Total Sys. KW**	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens ‡	Total Sys. KW**	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens ‡	Total Sys. KW**	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens ‡	Total Sys. KW**	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens ‡	Total Sys. KW**
STAGE 5																									
75 (23.9)	72 (22.2)	**1400**	44.46	17.96	5.30	**1400**	47.55	19.13	4.76	**1400**	50.59	20.28	4.26	**1400**	53.58	21.41	3.78	**1400**	56.49	22.53	3.33	**1400**	59.36	23.64	2.90
	67 (19.4)		40.53	24.37	5.19		43.36	25.62	4.67		46.12	26.85	4.18		48.81	28.07	3.72		51.44	29.27	3.28		54.03	30.47	2.88
	63 (17.2)		37.62	29.42	5.09		40.24	30.72	4.59		42.79	32.02	4.12		45.28	33.30	3.67		47.70	34.55	3.25		50.09	35.81	2.86
	57 (13.9)		34.79	34.79	4.99		36.84	36.84	4.50		38.82	38.82	4.04		40.75	40.75	3.61		42.87	42.14	3.21		44.94	43.50	2.83
80 (26.7)	72 (22.2)	**1400**	44.36	24.28	5.30	**1400**	47.46	25.53	4.77	**1400**	50.50	26.76	4.26	**1400**	53.48	27.99	3.78	**1400**	56.39	29.19	3.33	**1400**	59.24	30.40	2.90
	67 (19.4)		40.43	30.64	5.19		43.26	31.96	4.67		46.02	33.28	4.18		48.71	34.57	3.72		51.35	35.85	3.28		53.94	37.15	2.88
	63 (17.2)		37.66	35.55	5.10		40.25	36.99	4.59		42.77	38.38	4.12		45.25	39.75	3.67		47.66	41.09	3.25		50.04	42.41	2.86
	57 (13.9)		36.88	36.88	5.07		39.04	39.04	4.56		41.10	41.10	4.09		43.11	43.11	3.64		45.06	45.06	3.23		46.95	46.95	2.84
STAGE 3																									
75 (23.9)	72 (22.2)	**1200**	29.36	12.30	3.08	**1200**	31.57	13.11	2.74	**1200**	33.60	13.87	2.38	**1200**	35.73	14.66	2.08	**1200**	37.85	15.46	1.79	**1200**	39.94	16.25	1.53
	67 (19.4)		26.65	17.55	3.05		28.66	18.45	2.73		30.51	19.30	2.38		32.44	20.17	2.09		34.35	21.05	1.82		36.25	21.92	1.56
	63 (17.2)		24.64	21.63	3.04		26.47	22.60	2.72		28.19	23.52	2.38		29.95	24.47	2.10		31.72	25.42	1.83		33.46	26.36	1.58
	57 (13.9)		23.69	23.69	3.03		25.21	25.21	2.71		26.63	26.63	2.37		28.09	28.09	2.10		29.52	29.52	1.84		30.92	30.92	1.60
80 (26.7)	72 (22.2)	**1200**	29.26	17.54	3.08	**1200**	31.47	18.44	2.74	**1200**	33.50	19.28	2.38	**1200**	35.64	20.16	2.08	**1200**	37.75	21.04	1.79	**1200**	39.84	21.91	1.53
	67 (19.4)		26.58	22.70	3.06		28.58	23.70	2.73		30.43	24.64	2.38		32.35	25.61	2.09		34.25	26.57	1.82		36.15	27.54	1.56
	63 (17.2)		25.33	25.33	3.04		26.94	26.94	2.72		28.40	28.38	2.38		30.14	29.65	2.10		31.85	30.76	1.83		33.56	31.83	1.58
	57 (13.9)		25.29	25.29	3.04		26.90	26.90	2.72		28.39	28.39	2.38		29.92	29.92	2.10		31.42	31.42	1.83		32.90	32.90	1.58
STAGE 1																									
75 (23.9)	72 (22.2)	**1100**	25.37	10.73	2.67	**1100**	27.27	11.42	2.37	**875**	19.54	8.42	1.06	**875**	20.95	8.94	0.89	**875**	22.36	9.47	0.72	**875**	23.78	10.00	0.56
	67 (19.4)		22.95	15.36	2.66		24.75	16.20	2.37		17.66	12.16	1.09		18.94	12.78	0.92		20.22	13.39	0.76		21.49	14.00	0.61
	63 (17.2)		21.20	18.93	2.65		22.84	19.87	2.38		16.38	15.07	1.11		17.54	15.80	0.95		18.70	16.45	0.79		19.87	17.13	0.65
	57 (13.9)		20.51	20.51	2.65		21.90	21.90	2.38		16.01	16.01	1.11		17.02	17.02	0.96		18.02	18.02	0.81		19.01	19.01	0.67
80 (26.7)	72 (22.2)	**1100**	25.29	15.39	2.67	**1100**	27.28	16.22	2.37	**875**	19.46	12.19	1.06	**875**	20.87	12.80	0.89	**875**	22.28	13.41	0.72	**875**	23.69	14.03	0.56
	67 (19.4)		22.91	19.93	2.66		24.69	20.87	2.37		17.66	15.85	1.09		18.93	16.56	0.92		20.19	17.27	0.76		21.46	17.97	0.61
	63 (17.2)		21.96	21.96	2.66		23.43	23.43	2.38		17.13	17.13	1.10		18.21	18.21	0.93		19.27	19.27	0.78		20.33	20.33	0.64
	57 (13.9)		21.92	21.92	2.66		23.39	23.39	2.38		17.10	17.10	1.10		18.18	18.18	0.93		19.24	19.24	0.78		20.29	20.29	0.64

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage
Stage 1 – Compressor speed limited to stage two at 105 and 115 outdoor.

See additional notes on page 43

TVH848

DETAILED COOLING CAPACITIES# – COMFORT + DEHUMIDIFY MODE

EDB °F (°C)	EVAP. AIR	TVH848 / FCM4X***L Comfort + Dehumidify Mode Condenser Entering Air Temperature °F (°C)																		
		105 (40.5)				95 (35)				85 (29.4)				75 (23.9)				65 (18.3)		
	EWB °F (°C)	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens‡	Total Sys. KW	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens‡	Total Sys. KW	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens‡	Total Sys. KW	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens‡	Total Sys. KW	ID SCFM	Capacity MBtuh Total	Capacity MBtuh Sens‡	Total Sys. KW
STAGE 5																					
75 (23.9)	72 (22.2)	**1110**	46.15	18.51	4.57	**1184**	49.48	19.81	4.11	**1257**	52.80	21.11	3.68	**1330**	56.10	22.38	3.28	**1226**	58.13	23.21	2.80
	67 (19.4)		42.05	23.76	4.47		45.08	25.46	4.03		48.10	27.15	3.62		51.08	28.84	3.24		52.88	29.26	2.77
	63 (17.2)		39.02	27.87	4.39		41.83	29.88	3.97		44.61	31.87	3.57		47.36	33.85	3.20		49.01	33.96	2.76
	57 (13.9)		35.01	33.85	4.28		37.53	36.29	3.88		40.02	38.72	3.51		42.47	41.16	3.16		43.86	40.86	2.73
80 (26.7)	72 (22.2)	**1110**	46.07	23.69	4.57	**1184**	49.40	25.39	4.11	**1257**	52.71	27.07	3.68	**1330**	55.99	28.76	3.28	**1226**	58.04	29.22	2.80
	67 (19.4)		41.97	28.88	4.47		45.00	30.96	4.03		48.01	33.04	3.62		50.99	35.10	3.24		52.80	35.16	2.77
	63 (17.2)		38.97	32.95	4.39		41.78	35.35	3.97		44.56	37.73	3.57		47.31	40.09	3.20		48.95	39.83	2.76
	57 (13.9)		36.54	36.54	4.32		39.18	39.18	3.92		41.80	41.80	3.53		44.40	44.40	3.17		45.07	45.07	2.73
STAGE 3																					
75 (23.9)	72 (22.2)	**744**	29.64	11.97	2.58	**801**	31.86	12.87	2.24	**842**	34.06	13.75	1.96	**887**	36.31	14.65	1.69	**1001**	39.02	15.76	1.45
	67 (19.4)		26.82	15.33	2.57		28.87	16.54	2.24		30.87	17.64	1.96		32.91	18.82	1.71		35.37	20.54	1.48
	63 (17.2)		24.74	17.92	2.56		26.64	19.39	2.23		28.46	20.78	1.97		30.37	22.07	1.72		32.64	24.25	1.50
	57 (13.9)		22.07	21.73	2.54		23.80	23.54	2.22		25.49	25.08	1.97		27.16	26.77	1.74		29.37	29.37	1.53
80 (26.7)	72 (22.2)	**744**	29.56	15.35	2.58	**801**	31.78	16.57	2.24	**842**	33.99	17.69	1.96	**887**	36.22	18.85	1.69	**1001**	38.92	20.56	1.45
	67 (19.4)		26.77	18.65	2.57		28.80	20.17	2.24		30.80	21.51	1.96		32.83	22.97	1.71		35.29	25.26	1.48
	63 (17.2)		24.72	21.24	2.56		26.62	23.01	2.23		28.48	24.54	1.97		30.35	26.20	1.72		32.64	28.94	1.50
	57 (13.9)		23.28	23.28	2.55		25.15	25.15	2.23		26.88	26.88	1.97		28.66	28.66	1.73		31.18	31.18	1.52
STAGE 1																					
75 (23.9)	72 (22.2)	**662**	25.50	10.32	2.25	**457**	17.80	7.20	1.03	**482**	19.19	7.76	0.86	**508**	20.61	8.34	0.70	**534**	22.05	8.92	0.55
	67 (19.4)		23.02	13.19	2.25		16.09	9.17	1.06		17.34	9.88	0.90		18.62	10.62	0.74		19.92	11.37	0.60
	63 (17.2)		21.21	15.43	2.25		14.83	10.71	1.07		15.98	11.55	0.92		17.16	12.41	0.77		18.35	13.29	0.64
	57 (13.9)		18.95	18.71	2.24		13.20	12.99	1.09		14.23	14.01	0.95		15.29	15.05	0.81		16.35	16.12	0.68
80 (26.7)	72 (22.2)	**662**	25.43	13.24	2.25	**457**	17.75	9.19	1.03	**482**	19.14	9.91	0.86	**508**	20.56	10.65	0.70	**534**	21.99	11.40	0.55
	67 (19.4)		22.97	16.07	2.25		16.05	11.14	1.06		17.30	12.01	0.90		18.57	12.91	0.74		19.86	13.83	0.60
	63 (17.2)		21.20	18.29	2.25		14.82	12.68	1.07		15.97	13.68	0.92		17.15	14.70	0.77		18.34	15.74	0.63
	57 (13.9)		20.00	20.00	2.25		13.93	13.93	1.08		15.01	15.01	0.94		16.13	16.13	0.79		17.26	17.26	0.66

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage
Stage 5 – Compressor speed limited to stage four at 65 outdoor; Stage 1 – Compressor speed limited to stage two at 105 outdoor.

See additional notes on page 43

DETAILED COOLING CAPACITIES# – EFFICIENCY MODE & COMFORT + DEHUMIDIFY MODE CONTINUED

TVH848

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
FCM4X48***L	1.00	1.00	
EA*4X48L17A*	0.98	1.08	*8MV*0901716**
EA*4X48L21A*	0.97	1.06	*9MA*0602120A**
EA*4X48L21A*	0.98	1.08	*9MA*0802120A**
EA*4X48L21A*	0.98	1.02	*9MA*1002122A**
EA*4X48L21A*	0.98	1.02	*8MV*1102120**
EA*4X48L24A*	0.98	1.02	*9MA*1202422A**
EA*4X48L24A*	0.98	1.02	*8MV*1352422**
EA*4X60L21A*	0.99	1.09	*9MA*0602120A**
EA*4X60L21A*	1.00	1.05	*9MA*0802120A**
EA*4X60L21A*	1.00	1.05	*9MA*1002122A**
EA*4X60L21A*	1.00	1.05	*8MV*1102120**
EA*4X60L24A*	1.00	1.05	*9MA*1202422A**
EA*4X60L24A*	1.00	1.05	*8MV*1352422**
EN(A,D,W)4X48L21**	0.97	1.06	*9MA*0602120A**
EN(A,D,W)4X48L21**	0.98	1.02	*9MA*0802120A**
EN(A,D,W)4X48L21**	0.98	1.02	*9MA*1002122A**
EN(A,D,W)4X48L21**	0.98	1.02	*8MV*1102120**
EN(A,D)4X48L24**	0.98	1.02	*9MA*1202422A**
EN(A,D)4X48L24**	0.98	1.02	*8MV*1352422**
EN(A,D,W)4X60L24**	1.00	1.05	*9MA*1202422A**
EN(A,D,W)4X60L24**	1.00	1.00	*8MV*1352422**
EHD4X48AAL	0.99	1.15	*9MA*0602120A**
EHD4X48AAL	0.99	1.15	*9MA*0802120A**
EHD4X48AAL	0.99	1.09	*9MA*1002122A**
EHD4X48AAL	0.99	1.15	*9MA*1202422A**
EHD4X48AAL	0.99	1.15	*8MV*0901716**
EHD4X48AAL	0.99	1.09	*8MV*1102120**
EHD4X48AAL	0.99	1.09	*8MV*1352422**
EHD4X60AAL	0.99	1.15	*9MA*0602120A**
EHD4X60AAL	1.00	1.16	*9MA*0802120A**
EHD4X60AAL	1.00	1.10	*9MA*1002122A**
EHD4X60AAL	1.00	1.10	*9MA*1202422A**
EHD4X60AAL	1.00	1.10	*8MV*0901716**
EHD4X60AAL	1.00	1.10	*8MV*1102120**
EHD4X60AAL	1.01	1.11	*8MV*1352422**

2–STAGE (Hi–Stage 5, Lo–Stage 2)					
COOLING INDOOR MODEL	HIGH SPEED CAP.	POWER	LOW SPEED CAP.	POWER	FURNACE MODEL
FVM4X48***L	1.00	1.00	1.00	1.00	
FVM4X60***L	1.00	0.99	0.98	0.95	
EA*4X48L17A*	1.05	1.08	1.01	1.05	*9MX*0801716A**
EA*4X48L21A*	1.05	1.08	1.02	1.04	*9MX*1002120A**
EA*4X48L21A*	1.06	1.10	1.02	1.07	OLV112A16A
EA*4X48L24A*	1.05	1.06	1.01	1.02	OLV154F20A
EA*4X48L24A*	1.04	1.06	1.01	1.03	OMV154L20A
EA*4X60L21A*	1.03	1.05	1.00	1.01	*9MX*1002120A**
EA*4X60L21A*	1.04	1.07	1.01	1.04	OLV112A16A
EA*4X60L24A*	1.03	1.03	0.99	0.99	OLV154F20A
EA*4X60L24A*	1.03	1.04	0.99	1.00	OMV154L20A
EN(A,D,W)4X48L21**	1.06	1.07	1.03	1.04	*9MX*1002120A**
EN(A,D)4X48L24**	1.06	1.06	1.02	1.03	OLV154F20A
EN(A,D)4X48L24**	1.06	1.07	1.02	1.04	OMV154L20A
EN(A,D,W)4X60L24**	1.04	1.03	1.00	0.99	OLV154F20A
EN(A,D,W)4X60L24**	1.04	1.05	1.01	1.01	OMV154L20A
EHD4X48AAL	1.06	1.09	1.02	1.07	*9MX*0801716A**
EHD4X48AAL	1.06	1.07	1.03	1.04	*9MX*1002120A**
EHD4X60AAL	1.05	1.07	1.01	1.04	*9MX*0801716A**

TVH848

HEAT PUMP HEATING PERFORMANCE – EFFICIENCY MODE

INDOOR AIR	TVH848 / FCM4X48***L Heating Efficiency Mode Outdoor Coil Entering Air Temperature °F (°C)											
	7 (–13.9)				17 (–8.3)				27 (–2.8)			
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
STAGE 5												
65 (18.3)	700	22.65	20.82	2.72	1600	35.57	32.43	3.74	1600	40.44	35.92	3.87
70 (21.1)		22.10	20.31	2.77		35.20	32.09	3.88		40.08	35.59	4.02
75 (23.3)		20.89	19.19	2.73		34.73	31.67	4.00		39.66	35.23	4.17
STAGE 3												
65 (18.3)	600	17.23	15.83	2.08	700	20.52	18.71	2.19	1275	24.10	21.40	2.18
70 (21.1)		16.82	15.46	2.13		20.25	18.46	2.29		23.86	21.19	2.29
75 (23.3)		16.32	15.00	2.17		19.94	18.18	2.37		23.61	20.97	2.40
STAGE 1												
65 (18.3)	600	17.23	15.83	2.08	700	20.51	18.70	2.19	1275	20.26	17.99	1.88
70 (21.1)		16.82	15.46	2.13		20.24	18.45	2.28		20.03	17.79	1.97
75 (23.3)		16.32	15.00	2.17		19.93	18.17	2.37		19.81	17.60	2.07

INDOOR AIR	TVH848 / FCM4X48***L Heating Efficiency Mode Outdoor Coil Entering Air Temperature °F (°C)											
	37 (2.8)				47 (8.3)				57 (13.9)			
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
STAGE 5												
65 (18.3)	1600	46.06	41.92	4.02	1600	51.02	51.02	4.13	1275	35.74	35.74	2.39
70 (21.1)		45.63	41.52	4.18		50.50	50.50	4.30		35.29	35.29	2.51
75 (23.3)		45.16	41.10	4.34		49.96	49.96	4.47		34.80	34.80	2.64
STAGE 3												
65 (18.3)	1275	27.80	25.30	2.26	1275	31.75	31.75	2.33	1275	35.74	35.74	2.39
70 (21.1)		27.51	25.03	2.37		31.38	31.38	2.45		35.28	35.28	2.51
75 (23.3)		27.20	24.76	2.49		31.01	31.01	2.58		34.80	34.80	2.64
STAGE 1												
65 (18.3)	1275	23.56	21.44	1.94	1000	16.14	16.14	0.88	1000	18.69	18.69	0.87
70 (21.1)		23.29	21.19	2.04		15.90	15.90	0.95		18.40	18.40	0.94
75 (23.3)		23.01	20.94	2.15		15.65	15.65	1.02		18.10	18.10	1.02

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage

Stage 5 – Compressor speed limited to stage four at 7 and stage three at 57 outdoor; **Stage 1** – Compressor speed limited to stage three at 7 and 17 and to stage two at 27 and 37 outdoor.

See additional notes on page 45

TVH848

HEAT PUMP HEATING PERFORMANCE – COMFORT MODE

INDOOR AIR	TVH860 / FCM4X60***L Heating Comfort Mode Outdoor Coil Entering Air Temperature °F (°C)										
	7 (–13.9)				17 (–8.3)				27 (–2.8)			
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
STAGE 5												
65 (18.3)	600	22.44	20.62	2.78	934	34.33	31.30	3.70	1139	39.97	35.50	3.80
70 (21.1)		20.06	18.43	2.60		33.36	30.42	3.99		40.36	35.85	4.06
75 (23.3)		20.34	18.69	2.57		32.54	29.67	3.83		39.62	35.19	4.44
STAGE 3												
65 (18.3)	450	16.76	15.40	2.15	633	20.49	18.68	2.24	724	23.71	21.06	2.29
70 (21.1)		15.82	14.54	2.03		20.28	18.49	2.36		23.55	20.92	2.43
75 (23.3)		15.13	13.91	2.12		19.73	17.99	2.41		23.38	20.76	2.56
STAGE 1												
65 (18.3)	450	16.80	15.44	2.16	569	20.44	18.64	2.30	629	19.82	17.60	1.98
70 (21.1)		16.51	15.17	2.43		20.20	18.42	2.41		20.00	17.77	1.98
75 (23.3)		13.93	12.80	2.31		18.49	16.86	2.70		19.83	17.61	2.09

INDOOR AIR	TVH860 / FCM4X60***L Heating Comfort Mode Outdoor Coil Entering Air Temperature °F (°C)										
	37 (2.8)				47 (8.3)				57 (13.9)			
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
STAGE 5												
65 (18.3)	1344	45.25	41.18	4.09	1550	50.80	50.80	4.12	996	35.14	35.14	2.47
70 (21.1)		45.69	41.58	4.37		51.38	51.38	4.42		34.47	34.47	2.34
75 (23.3)		46.09	41.94	4.66		51.92	51.92	4.74		34.72	34.72	2.52
STAGE 3												
65 (18.3)	814	27.37	24.91	2.37	905	31.23	31.23	2.43	996	35.14	35.14	2.47
70 (21.1)		27.16	24.72	2.51		30.96	30.96	2.58		34.84	34.84	2.62
75 (23.3)		26.96	24.54	2.66		30.69	30.69	2.73		34.50	34.50	2.78
STAGE 1												
65 (18.3)	690	23.02	20.95	2.06	350	15.27	15.27	1.19	403	17.49	17.49	1.15
70 (21.1)		22.56	20.53	2.16		14.75	14.75	1.17		16.87	16.87	1.22
75 (23.3)		22.78	20.73	2.16		14.36	14.36	1.23		16.27	16.27	1.20

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage

Stage 5 – Compressor speed limited to stage four at 7 and stage three at 57 outdoor; **Stage 1** – Compressor speed limited to stage three at 7 and 17 and to stage two at 27 and 37 outdoor.

See additional notes on page 45

DETAILED HEATING CAPACITIES# – EFFICIENCY MODE & COMFORT MODE CONTINUED

TVH848

HEATING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
FCM4X48***L	1.00	1.00	
EA*4X48L17A*	1.04	1.03	*8MV*0901716**
EA*4X48L21A*	1.04	1.03	*8MV*1102120**
EA*4X48L21A*	1.05	1.08	*9MA*0602120A**
EA*4X48L21A*	1.04	1.05	*9MA*0802120A**
EA*4X48L21A*	1.04	1.04	*9MA*1002122A**
EA*4X48L24A*	1.03	1.01	*8MV*1352422**
EA*4X48L24A*	1.04	1.04	*9MA*1202422A**
EA*4X60L21A*	1.02	1.02	*8MV*1102120**
EA*4X60L21A*	1.03	1.07	*9MA*0602120A**
EA*4X60L21A*	1.02	1.03	*9MA*0802120A**
EA*4X60L21A*	1.01	1.01	*9MA*1002122A**
EA*4X60L24A*	1.01	1.00	*8MV*1352422**
EA*4X60L24A*	1.02	1.02	*9MA*1202422A**
EHD4X48AAL	1.05	1.04	*8MV*0901716**
EHD4X48AAL	1.05	1.04	*8MV*1102120**
EHD4X48AAL	1.05	1.03	*8MV*1352422**
EHD4X48AAL	1.06	1.08	*9MA*0602120A**
EHD4X48AAL	1.05	1.05	*9MA*0802120A**
EHD4X48AAL	1.05	1.04	*9MA*1002122A**
EHD4X48AAL	1.05	1.04	*9MA*1202422A**
EHD4X60AAL	1.03	1.01	*8MV*0901716**
EHD4X60AAL	1.03	1.00	*8MV*1102120**
EHD4X60AAL	1.02	0.99	*8MV*1352422**
EHD4X60AAL	1.04	1.05	*9MA*0602120A**
EHD4X60AAL	1.03	1.01	*9MA*0802120A**
EHD4X60AAL	1.03	1.01	*9MA*1002122A**
EHD4X60AAL	1.03	1.01	*9MA*1202422A**
EN(A,D)4X48L24**	1.04	1.03	*8MV*1352422**
EN(A,D)4X48L24**	1.05	1.05	*9MA*1202422A**
EN(A,D,W)4X48L21**	1.05	1.04	*8MV*1102120**
EN(A,D,W)4X48L21**	1.06	1.09	*9MA*0602120A**
EN(A,D,W)4X48L21**	1.05	1.06	*9MA*0802120A**
EN(A,D,W)4X48L21**	1.05	1.04	*9MA*1002122A**
EN(A,D,W)4X60L24**	1.03	1.01	*8MV*1352422**
EN(A,D,W)4X60L24**	1.03	1.03	*9MA*1202422A**

2–STAGE (Hi–Stage 5, Lo–Stage 2)					
HEATING INDOOR MODEL	HIGH SPEED CAP.	POWER	LOW SPEED CAP.	POWER	FURNACE MODEL
FVM4X48***L	1.00	1.00	1.00	1.00	
FVM4X60***L	1.00	0.99	0.98	0.95	
EA*4X48L17A*	1.05	1.08	1.01	1.05	*9MX*0801716A**
EA*4X48L21A*	1.05	1.08	1.02	1.04	*9MX*1002120A**
EA*4X48L21A*	1.06	1.10	1.02	1.07	OLV112A16A
EA*4X48L24A*	1.05	1.06	1.01	1.02	OLV154F20A
EA*4X48L24A*	1.04	1.06	1.01	1.03	OMV154L20A
EA*4X60L21A*	1.03	1.05	1.00	1.01	*9MX*1002120A**
EA*4X60L21A*	1.04	1.07	1.01	1.04	OLV112A16A
EA*4X60L24A*	1.03	1.03	0.99	0.99	OLV154F20A
EA*4X60L24A*	1.03	1.04	0.99	1.00	OMV154L20A
EN(A,D,W)4X48L21**	1.06	1.07	1.03	1.04	*9MX*1002120A**
EN(A,D)4X48L24**	1.06	1.06	1.02	1.03	OLV154F20A
EN(A,D)4X48L24**	1.06	1.07	1.02	1.04	OMV154L20A
EN(A,D,W)4X60L24**	1.04	1.03	1.00	0.99	OLV154F20A
EN(A,D,W)4X60L24**	1.04	1.05	1.01	1.01	OMV154L20A
EHD4X48AAL	1.06	1.09	1.02	1.07	*9MX*0801716A**
EHD4X48AAL	1.06	1.07	1.03	1.04	*9MX*1002120A**
EHD4X60AAL	1.05	1.07	1.01	1.04	*9MX*0801716A**

TVH860

DETAILED COOLING CAPACITIES# – EFFICIENCY MODE

EDB °F (°C)	EVAP. AIR EWB °F (°C)	TVH860 / FCM4X60***L Efficiency Mode Condenser Entering Air Temperature °F (°C)																							
		115 (46.1)				105 (40.5)				95 (35)				85 (29.4)				75 (23.9)				65 (18.3)			
		ID SCFM	Capacity MBtuh		Total Sys. KW**	ID SCFM	Capacity MBtuh		Total Sys. KW**	ID SCFM	Capacity MBtuh		Total Sys. KW**	ID SCFM	Capacity MBtuh		Total Sys. KW**	ID SCFM	Capacity MBtuh		Total Sys. KW**	ID SCFM	Capacity MBtuh		Total Sys. KW**
			Total	Sens ‡			Total	Sens ‡			Total	Sens ‡			Total	Sens ‡			Total	Sens ‡			Total	Sens ‡	
STAGE 5																									
75 (23.9)	72 (22.2)	**1600**	54.16	21.71	7.27	**1600**	58.13	23.22	6.50	**1600**	62.05	24.71	5.83	**1600**	65.88	26.19	5.23	**1600**	69.70	27.67	4.69	**1600**	73.51	29.16	4.22
	67 (19.4)		49.48	29.16	7.08		53.10	30.83	6.32		56.62	32.47	5.65		60.10	34.10	5.06		63.54	35.73	4.54		66.97	37.36	4.08
	63 (17.2)		46.01	35.04	6.94		49.36	36.81	6.19		52.62	38.56	5.52		55.84	40.30	4.93		59.02	42.03	4.42		62.18	43.77	3.96
	57 (13.9)		42.15	42.15	6.80		44.79	44.79	6.03		47.47	47.22	5.36		50.24	49.26	4.78		53.01	51.19	4.27		55.79	53.12	3.82
80 (26.7)	72 (22.2)	**1600**	54.02	29.01	7.27	**1600**	57.99	30.66	6.51	**1600**	61.91	32.31	5.83	**1600**	65.73	33.94	5.23	**1600**	69.54	35.58	4.69	**1600**	73.38	37.25	4.22
	67 (19.4)		49.35	36.40	7.08		52.97	38.20	6.32		56.50	39.99	5.65		59.97	41.75	5.06		63.42	43.53	4.54		66.85	45.31	4.08
	63 (17.2)		45.98	42.19	6.95		49.31	44.12	6.19		52.56	46.03	5.52		55.76	47.91	4.94		58.94	49.79	4.42		62.09	51.68	3.96
	57 (13.9)		44.59	44.59	6.89		47.37	47.37	6.12		50.06	50.06	5.44		52.70	52.70	4.85		55.28	55.28	4.33		57.84	57.84	3.87
STAGE 3																									
75 (23.9)	72 (22.2)	**1350**	35.59	14.62	3.53	**1350**	38.22	15.60	3.17	**1350**	40.53	16.44	2.81	**1350**	43.15	17.42	2.52	**1350**	45.75	18.40	2.26	**1350**	48.31	19.37	2.03
	67 (19.4)		32.14	20.20	3.49		34.58	21.25	3.13		36.71	22.19	2.76		39.08	23.23	2.48		41.41	24.27	2.22		43.72	25.33	1.99
	63 (17.2)		29.59	24.58	3.46		31.84	25.69	3.11		33.86	26.69	2.73		36.06	27.78	2.44		38.24	28.87	2.19		40.37	29.94	1.96
	57 (13.9)		27.84	27.84	3.44		29.62	29.62	3.09		31.23	31.23	2.70		32.94	32.94	2.42		34.60	34.60	2.16		36.29	36.28	1.94
80 (26.7)	72 (22.2)	**1350**	35.48	20.25	3.53	**1350**	38.16	21.30	3.17	**1350**	40.41	22.20	2.81	**1350**	43.03	23.25	2.52	**1350**	45.63	24.29	2.26	**1350**	48.16	25.35	2.03
	67 (19.4)		32.03	25.76	3.49		34.46	26.87	3.13		36.60	27.89	2.76		38.97	28.99	2.48		41.31	30.09	2.22		43.64	31.19	1.99
	63 (17.2)		29.79	29.79	3.46		31.90	31.19	3.11		33.89	32.31	2.73		36.06	33.48	2.45		38.22	34.66	2.19		40.34	35.78	1.96
	57 (13.9)		29.73	29.73	3.46		31.58	31.58	3.11		33.26	33.26	2.72		35.03	35.03	2.44		36.78	36.78	2.18		38.50	38.50	1.95
STAGE 1																									
75 (23.9)	72 (22.2)	**1200**	26.64	11.15	2.26	**1200**	28.72	11.89	2.04	**975**	21.20	8.81	1.13	**975**	22.74	9.36	0.98	**975**	24.22	9.89	0.82	**975**	25.66	10.41	0.64
	67 (19.4)		23.82	15.66	2.25		25.70	16.41	2.04		18.84	12.09	1.11		20.25	12.62	0.97		21.61	13.15	0.82		22.93	13.66	0.65
	63 (17.2)		21.78	19.18	2.24		23.51	19.96	2.03		17.10	14.65	1.10		18.39	15.16	0.97		19.66	15.66	0.82		20.87	16.17	0.66
	57 (13.9)		20.87	20.87	2.23		22.22	22.22	2.03		16.17	16.17	1.10		17.13	17.13	0.97		18.04	18.04	0.83		18.90	18.90	0.68
80 (26.7)	72 (22.2)	**1200**	26.55	15.78	2.26	**1200**	28.63	16.54	2.04	**975**	21.10	12.29	1.13	**975**	22.65	12.79	0.98	**975**	24.14	13.29	0.82	**975**	25.57	13.80	0.64
	67 (19.4)		23.75	20.23	2.25		25.64	21.01	2.04		18.79	15.49	1.11		20.19	16.00	0.97		21.54	16.51	0.82		22.86	17.00	0.65
	63 (17.2)		22.48	22.48	2.24		23.92	23.92	2.03		17.50	17.50	1.11		18.50	18.45	0.97		19.71	19.00	0.82		20.90	19.49	0.66
	57 (13.9)		22.45	22.45	2.24		23.87	23.87	2.03		17.47	17.47	1.11		18.45	18.45	0.97		19.40	19.40	0.82		20.29	20.29	0.67

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage
Stage 1 – Compressor speed limited to stage two at 105 and 115 outdoor.

See additional notes on page 43

TVH860

DETAILED COOLING CAPACITIES#– COMFORT + DEHUMIDIFY MODE

EDB °F (°C)	EVAP. AIR	TVH860 / FCM4X60***L Comfort + Dehumidify Mode Condenser Entering Air Temperature °F (°C)																		
		105 (40.5)				95 (35)				85 (29.4)				75 (23.9)				65 (18.3)		
	EWB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW	ID SCFM	Capacity MBtuh		Total Sys. KW	ID SCFM	Capacity MBtuh		Total Sys. KW	ID SCFM	Capacity MBtuh		Total Sys. KW	ID SCFM	Capacity MBtuh		Total Sys. KW
			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡	
STAGE 5																					
75 (23.9)	72 (22.2)	1367	56.98	22.75	6.30	1440	61.18	24.39	5.69	1514	65.39	26.02	5.16	1566	69.54	27.67	4.65	1488	72.77	28.99	4.11
	67 (19.4)		57.22	39.64	4.45		52.98	29.89	5.92		56.86	32.03	5.32		60.74	34.16	4.81		64.57	36.23	4.32
	63 (17.2)		50.09	48.04	4.68		52.36	48.62	4.14		50.15	35.79	5.59		53.79	38.31	5.01		57.43	40.86	4.52
	57 (13.9)		62.88	32.18	5.53		66.96	34.17	4.99		70.04	35.24	4.44		45.89	44.38	5.24		49.20	47.47	4.68
80 (26.7)	72 (22.2)	1367	54.69	37.56	5.71	1440	58.47	40.09	5.17	1514	62.20	42.47	4.65	1566	64.99	43.29	4.12	1488	61.11	31.39	5.46
	67 (19.4)		48.26	40.83	5.99		51.80	43.73	5.39		55.34	46.67	4.87		58.85	49.38	4.37		61.43	50.01	3.85
	63 (17.2)		48.26	40.83	5.99		46.16	46.16	5.69		49.48	49.48	5.10		52.81	52.81	4.60		56.00	56.00	4.11
	57 (13.9)		45.30	45.30	5.89		48.58	48.58	5.29		51.87	51.87	4.77		54.71	54.71	4.27		57.84	57.84	3.87
STAGE 3																					
75 (23.9)	72 (22.2)	959	36.31	14.61	3.03	1013	38.82	15.60	2.68	1066	41.60	16.70	2.41	1120	44.40	17.81	2.17	1210	47.48	19.02	1.97
	67 (19.4)		32.79	18.66	3.00		35.12	19.95	2.63		37.63	21.32	2.37		40.17	22.70	2.13		42.96	24.35	1.93
	63 (17.2)		30.18	21.81	2.97		32.38	23.34	2.61		34.71	24.92	2.34		37.06	26.53	2.10		39.65	28.52	1.91
	57 (13.9)		26.75	26.42	2.95		28.76	28.28	2.57		30.84	30.17	2.31		32.95	32.10	2.07		35.30	34.56	1.88
80 (26.7)	72 (22.2)	959	36.22	18.72	3.03	1013	38.73	19.96	2.68	1066	41.49	21.36	2.41	1120	44.30	22.74	2.17	1210	47.35	24.41	1.97
	67 (19.4)		32.71	22.72	3.00		35.04	24.28	2.63		37.54	25.92	2.37		40.08	27.58	2.13		42.87	29.65	1.93
	63 (17.2)		30.13	25.85	2.97		32.33	27.65	2.61		34.66	29.50	2.34		37.01	31.38	2.10		39.60	33.79	1.91
	57 (13.9)		28.27	28.27	2.96		30.32	30.32	2.59		32.44	32.44	2.32		34.59	34.59	2.08		37.14	37.14	1.89
STAGE 1																					
75 (23.9)	72 (22.2)	748	26.49	10.68	1.96	600	19.30	7.79	1.08	600	20.56	8.28	0.94	647	22.21	8.94	0.78	700	23.90	9.62	0.61
	67 (19.4)		23.68	13.47	1.96		17.11	9.75	1.07		18.24	10.22	0.93		19.74	11.04	0.79		21.29	11.89	0.63
	63 (17.2)		21.61	15.64	1.95		15.49	11.27	1.06		16.55	11.74	0.93		17.93	12.67	0.79		19.36	13.65	0.64
	57 (13.9)		18.94	18.82	1.95		13.48	13.48	1.05		14.35	13.97	0.93		15.59	15.07	0.80		16.85	16.25	0.66
80 (26.7)	72 (22.2)	748	26.42	13.61	1.96	600	19.25	9.91	1.08	600	20.51	10.39	0.94	647	22.16	11.21	0.78	700	23.84	12.06	0.61
	67 (19.4)		23.63	16.38	1.96		17.06	11.86	1.07		18.20	12.32	0.93		19.69	13.29	0.79		21.24	14.31	0.63
	63 (17.2)		21.58	18.54	1.95		15.48	13.38	1.06		16.52	13.83	0.93		17.91	14.91	0.79		19.34	16.06	0.64
	57 (13.9)		20.17	20.17	1.95		14.47	14.47	1.05		15.19	15.19	0.93		16.42	16.42	0.80		17.73	17.73	0.65

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage
Stage 5 – Compressor speed limited to stage four at 65 outdoor; Stage 1 – Compressor speed limited to stage two at 105 outdoor.

DETAILED COOLING CAPACITIES# – EFFICIENCY MODE & COMFORT + DEHUMIDIFY MODE CONTINUED

TVH860

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
FCM4X60***L	1.00	1.00	
EA*4X60L21A*	0.96	1.07	*9MA*0602120A**
EA*4X60L21A*	0.97	1.02	*9MA*0802120A**
EA*4X60L21A*	0.97	1.02	*9MA*1002122A**
EA*4X60L21A*	0.97	1.02	*8MV*1102120**
EA*4X60L24A*	0.96	1.07	*9MA*0602120A**
EA*4X60L24A*	0.97	1.02	*9MA*0802120A**
EA*4X60L24A*	0.97	1.02	*9MA*1002122A**
EA*4X60L24A*	0.97	1.02	*9MA*1202422A**
EA*4X60L24A*	0.97	1.02	*8MV*1102120**
EA*4X60L24A*	0.97	0.97	*8MV*1352422**
EN(A,D,W)4X60L24**	0.96	1.02	*9MA*0602120A**
EN(A,D,W)4X60L24**	0.97	1.02	*9MA*0802120A**
EN(A,D,W)4X60L24**	0.97	1.02	*9MA*1002122A**
EN(A,D,W)4X60L24**	0.97	1.02	*9MA*1202422A**
EN(A,D,W)4X60L24**	0.97	0.97	*8MV*1102120**
EN(A,D,W)4X60L24**	0.97	0.97	*8MV*1352422**
EHD4X60AAL	0.96	1.07	*9MA*0602120A**
EHD4X60AAL	0.97	1.02	*9MA*0802120A**
EHD4X60AAL	0.98	1.03	*9MA*1002122A**
EHD4X60AAL	0.97	1.02	*9MA*1202422A**
EHD4X60AAL	0.98	1.03	*8MV*1102120**
EHD4X60AAL	0.98	1.03	*8MV*1352422**

2–STAGE (Hi–Stage 5, Lo–Stage 2)					
COOLING INDOOR MODEL	HIGH SPEED CAP.	POWER	LOW SPEED CAP.	POWER	FURNACE MODEL
FVM4X60***L	1.00	1.00	1.00	1.00	
EN(A,D,W)4X60L24**	1.00	1.11	1.00	1.09	OLV154F20A

NOTES:

* Tested combination.

† Total and sensible capacities are net capacities. Blower motor heat has been subtracted.

‡ Sensible capacities are shown for both 80°F (27°C) and 75°F (24°C) entering air at the indoor coil.
For sensible capacities at other than these, deduct 835 Btuh (245 kW) per 1000 CFM (480 L/S) of indoor coil air for each degree below reference temperature, or add 835 Btuh (245 kW) per 1000 CFM (480 L/S) of indoor coil air for each degree above reference temperature.

Detailed cooling capacities are based on indoor and outdoor unit at the same elevation per AHRI standard 210/240–2008. If additional tubing length and/or indoor unit is located above outdoor unit, a slight variation in capacity may occur.

** System kw is total of indoor and outdoor unit kilowatts.

NOTE: When the required data falls between the published data, interpolation may be performed. Extrapolation is not an acceptable practice.

EWB — Entering Wet Bulb

TVH860

HEAT PUMP HEATING PERFORMANCE – EFFICIENCY MODE

INDOOR AIR	TVH860 / FCM4X60***L Heating Efficiency Mode Outdoor Coil Entering Air Temperature °F (°C)										
	7 (–13.9)				17 (–8.3)				27 (–2.8)			
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
STAGE 5												
65 (18.3)	840	29.44	27.05	3.99	1600	48.43	44.16	6.49	1600	55.69	49.46	6.61
70 (21.1)		29.47	27.09	4.22		49.06	44.73	7.02		56.12	49.84	7.10
75 (23.3)		29.57	27.17	4.47		49.80	45.40	7.61		56.61	50.28	7.63
STAGE 3												
65 (18.3)	700	20.47	18.81	2.46	900	24.06	21.94	2.39	1275	28.38	25.21	2.32
70 (21.1)		20.30	18.66	2.58		23.86	21.75	2.51		28.08	24.94	2.44
75 (23.3)		20.25	18.60	2.73		23.67	21.58	2.64		27.78	24.68	2.56
STAGE 1												
65 (18.3)	700	20.47	18.81	2.46	900	24.06	21.93	2.39	1275	21.17	18.80	1.57
70 (21.1)		20.31	18.66	2.58		23.85	21.75	2.51		20.88	18.55	1.56
75 (23.3)		20.27	18.62	2.73		23.66	21.57	2.64		20.60	18.30	1.65

INDOOR AIR	TVH860 / FCM4X60***L Heating Efficiency Mode Outdoor Coil Entering Air Temperature °F (°C)										
	37 (2.8)				47 (8.3)				57 (13.9)			
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
STAGE 5												
65 (18.3)	1600	64.63	58.81	6.84	1600	73.25	73.25	7.06	1400	43.82	43.82	2.61
70 (21.1)		64.85	59.01	7.31		73.27	73.27	7.50		43.06	43.06	2.72
75 (23.3)		65.13	59.27	7.81		73.33	73.33	7.98		42.35	42.35	2.83
STAGE 3												
65 (18.3)	1275	33.13	30.14	2.42	1275	38.00	38.00	2.52	1400	43.82	43.82	2.61
70 (21.1)		32.71	29.76	2.53		37.45	37.45	2.63		43.06	43.06	2.72
75 (23.3)		32.29	29.38	2.65		36.91	36.91	2.75		42.35	42.35	2.83
STAGE 1												
65 (18.3)	1275	24.69	22.46	1.57	900	16.76	16.76	0.84	900	19.39	19.39	0.96
70 (21.1)		24.31	22.12	1.66		16.40	16.40	0.93		18.97	18.97	1.06
75 (23.3)		23.94	21.78	1.76		16.04	16.04	1.02		18.56	18.56	1.16

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage

Stage 5 – Compressor speed limited to stage four at 7 and stage three at 57 outdoor; **Stage 1** – Compressor speed limited to stage three at 7 and 17 and to stage twp at 27 and 37 outdoor.

See additional notes on page 45

TVH860

HEAT PUMP HEATING PERFORMANCE – COMFORT MODE

INDOOR AIR	TVH860 / FCM4X60***L Heating Efficiency Mode Outdoor Coil Entering Air Temperature °F (°C)										
	7 (–13.9)				17 (–8.3)				27 (–2.8)			
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
STAGE 5												
65 (18.3)	840	29.44	27.05	3.99	1600	48.43	44.16	6.49	1600	55.69	49.46	6.61
70 (21.1)		29.47	27.09	4.22		49.06	44.73	7.02		56.12	49.84	7.10
75 (23.3)		29.57	27.17	4.47		49.80	45.40	7.61		56.61	50.28	7.63
STAGE 3												
65 (18.3)	700	20.47	18.81	2.46	900	24.06	21.94	2.39	1275	28.38	25.21	2.32
70 (21.1)		20.30	18.66	2.58		23.86	21.75	2.51		28.08	24.94	2.44
75 (23.3)		20.25	18.60	2.73		23.67	21.58	2.64		27.78	24.68	2.56
STAGE 1												
65 (18.3)	700	20.47	18.81	2.46	900	24.06	21.93	2.39	1275	21.17	18.80	1.57
70 (21.1)		20.31	18.66	2.58		23.85	21.75	2.51		20.88	18.55	1.56
75 (23.3)		20.27	18.62	2.73		23.66	21.57	2.64		20.60	18.30	1.65

INDOOR AIR	TVH860 / FCM4X60***L Heating Efficiency Mode Outdoor Coil Entering Air Temperature °F (°C)										
	37 (2.8)				47 (8.3)				57 (13.9)			
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ‡			Total	Integ‡			Total	Integ‡	
STAGE 5												
65 (18.3)	1600	64.63	58.81	6.84	1600	73.25	73.25	7.06	1400	43.82	43.82	2.61
70 (21.1)		64.85	59.01	7.31		73.27	73.27	7.50		43.06	43.06	2.72
75 (23.3)		65.13	59.27	7.81		73.33	73.33	7.98		42.35	42.35	2.83
STAGE 3												
65 (18.3)	1275	33.13	30.14	2.42	1275	38.00	38.00	2.52	1400	43.82	43.82	2.61
70 (21.1)		32.71	29.76	2.53		37.45	37.45	2.63		43.06	43.06	2.72
75 (23.3)		32.29	29.38	2.65		36.91	36.91	2.75		42.35	42.35	2.83
STAGE 1												
65 (18.3)	1275	24.69	22.46	1.57	900	16.76	16.76	0.84	900	19.39	19.39	0.96
70 (21.1)		24.31	22.12	1.66		16.40	16.40	0.93		18.97	18.97	1.06
75 (23.3)		23.94	21.78	1.76		16.04	16.04	1.02		18.56	18.56	1.16

Operation in this area is restricted to maintain reliable system operation and customer comfort. The system will default to the next available stage
Stage 5 – Compressor speed limited to stage four at 7 and stage three at 57 outdoor; **Stage 1** – Compressor speed limited to stage three at 7 and 17 and to stage two at 27 and 37 outdoor.

NOTES:

* Tested combination.

† The kW values include the compressor, outdoor fan motor, and indoor blower motor. The kW from supplement heaters should be added to these values to obtain total system kilowatts.

‡The Btuh heating capacity values shown are net integrated values from which the defrost effect has been subtracted. The Btuh heating from supplement heaters should be added to those values to obtain total system capacity.

NOTE: When the required data falls between the published data, interpolation may be performed. Extrapolation is not an acceptable practice.

EDB — Entering Dry Bulb

DETAILED HEATING CAPACITIES# – EFFICIENCY MODE & COMFORT MODE CONTINUED

TVH860

HEATING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
FCM4X60***L	1.00	1.00	
EA*4X60L21A*	0.97	1.02	*8MV*1102120**
EA*4X60L21A*	0.96	1.07	*9MA*0602120A**
EA*4X60L21A*	0.97	1.02	*9MA*0802120A**
EA*4X60L21A*	0.97	1.02	*9MA*1002122A**
EA*4X60L24A*	0.97	1.02	*8MV*1102120**
EA*4X60L24A*	0.97	0.97	*8MV*1352422**
EA*4X60L24A*	0.96	1.07	*9MA*0602120A**
EA*4X60L24A*	0.97	1.02	*9MA*0802120A**
EA*4X60L24A*	0.97	1.02	*9MA*1002122A**
EA*4X60L24A*	0.97	1.02	*9MA*1202422A**
EHD4X60AAL	0.98	1.03	*8MV*1102120**
EHD4X60AAL	0.98	1.03	*8MV*1352422**
EHD4X60AAL	0.96	1.07	*9MA*0602120A**
EHD4X60AAL	0.97	1.02	*9MA*0802120A**
EHD4X60AAL	0.98	1.03	*9MA*1002122A**
EHD4X60AAL	0.97	1.02	*9MA*1202422A**
EN(A,D,W)4X60L24**	0.97	0.97	*8MV*1102120**
EN(A,D,W)4X60L24**	0.97	0.97	*8MV*1352422**
EN(A,D,W)4X60L24**	0.96	1.02	*9MA*0602120A**
EN(A,D,W)4X60L24**	0.97	1.02	*9MA*0802120A**
EN(A,D,W)4X60L24**	0.97	1.02	*9MA*1002122A**
EN(A,D,W)4X60L24**	0.97	1.02	*9MA*1202422A**

2–STAGE (Hi–Stage 5, Lo–Stage 2)					
HEATING INDOOR MODEL	HIGH SPEED CAP.	POWER	LOW SPEED CAP.	POWER	FURNACE MODEL
FVM4X60***L	1.00	1.00	1.00	1.00	
EN(A,D,W)4X60L24**	1.00	1.04	1.04	1.10	OLV154F20A

GUIDE SPECIFICATIONS
GENERAL

AIR−COOLED, SPLIT−SYSTEM HEAT PUMP
(C,H,T)VH8

System Description

Outdoor−mounted, air−cooled, split−system heat pump unit suitable for ground or rooftop installation. Unit consists of a hermetic compressor, an air−cooled coil, forward−swept blade propeller−type condenser fan, and a control box. Unit will discharge supply air upward as shown on contract drawings. Unit will be used in a refrigeration circuit to match up to a packaged fan coil or coil unit.

Quality Assurance

- Unit will be rated in accordance with the latest edition of AHRI Standard 240.
- Unit will be certified for capacity and efficiency, and listed in the latest AHRI directory.
- Unit construction will comply with latest edition of ASHRAE and with NEC.
- Unit will be constructed in accordance with UL standards and will carry the UL label of approval. Unit will have C−UL approval.
- Unit cabinet will be capable of withstanding Federal Test Method Standard No. 141 (Method 6061) 500−hr salt spray test.
- Air−cooled condenser coils are pressure tested and the outdoor units are leak tested.
- Unit constructed in ISO9001 approved facility.

Delivery, Storage, and Handling

- Unit will be shipped as single package only and is stored and handled per unit manufacturer's recommendations.

Warranty (for inclusion by specifying engineer)

- U.S. and Canada only.

PRODUCTS

Equipment

- Factory−assembled, single−piece, air−cooled heat pump unit. Contained within the unit enclosure is all factory wiring, piping, controls, compressor, refrigerant charge R−410A refrigerant, and special features required prior to field start−up.

Unit Cabinet

- Unit cabinet will be constructed of galvanized steel, bonderized, and coated with a powder coat paint.

Fans

- Condenser fan will be direct−drive propeller type, forward swept blade, discharging air upward.
- Condenser fan motors will be totally enclosed, 1−phase type with class B insulation and permanently lubricated.
- Shafts will be corrosion resistant.
- Fan blades will be statically and dynamically balanced.
- Condenser fan openings will be equipped with coated steel wire safety guards.

Compressor

- Compressor will be hermetically sealed.
- Compressor will be mounted on rubber vibration isolators.
- Compressor will be covered with a sound absorbing blanket.

Condenser Coil

- Condenser coil will be air cooled.
- Coil will be constructed of aluminum fins mechanically bonded to copper tubes which are then cleaned, dehydrated, and sealed.

Refrigeration Components

- Refrigeration circuit components will include liquid−line front−seating shutoff valve with sweat connections, vapor−line front−seating shutoff valve with sweat connections, system charge of R−410A refrigerant, POE compressor oil, accumulator, charge compensator, electronic expansion valve, and reversing valve.
- Unit will be equipped with high−pressure switch, suction pressure transducer, and filter drier for R−410A refrigerant.

Operating Characteristics

- The capacity of the unit will meet or exceed _____ Btuh at a suction temperature of _____ °F (°C). The power consumption at full load will not exceed _____ kW.
- Combination of the unit and the evaporator or fan coil unit will have a total net cooling capacity of _____ Btuh or greater at conditions of _____ CFM entering air temperature at the evaporator at _____ °F (°C) wet bulb and _____ °F (°C) dry bulb, and air entering the unit at _____ °F (°C).
- The system will have a SEER of _____ Btuh/watt or greater at DOE conditions.

Electrical Requirements

- Nominal unit electrical characteristics will be _____ v, single phase, 60 hz. The unit will be capable of satisfactory operation within voltage limits of _____ v to _____ v.
- Unit electrical power will be single point connection.
- Control circuit will be 24v.
- Compliant with IEC 61000−4−5 Transient Surge Requirement.

Special Features

- Refer to section of this literature identifying accessories and descriptions for specific features and available enhancements.
- Observer® control with appropriate software version is required for full featured operation.

SYSTEM DESIGN SUMMARY

1. Intended for outdoor installation with free air inlet and outlet. Outdoor fan external static pressure available is less than 0.01−in. wc.
2. This product is not qualified for low ambient cooling operation.
   Minimum cooling outdoor operating temperatures:
   - Communicating systems: 40°F (4.44°C)
   - Non−communicating systems: 55°F (12.8°C)
3. The maximum outdoor operating ambient in cooling mode is 115°F (46.11°C).
4. Minimum outdoor operating air temperature for heating mode is 10°F (−12.2°C).
5. Maximum outdoor operating air temperature for heating mode is 66°F (18.9°C).
6. For reliable operation, unit should be level in all horizontal planes.
7. This unit is qualified for up to 100 ft (30.5 m) equivalent length of line set without additional accessories.
8. If any refrigerant tubing is buried, provide a 6 in. (152.4 mm) vertical rise to the valve connections at the unit. Refrigerant tubing lengths up to 36 in. (914.4 mm) may be buried without further consideration. Do not bury refrigerant lines longer than 36 in. (914.4 mm).
9. Use only copper wire for electric connection at unit. Aluminum and clad aluminum are not acceptable for the type of connector provided.
10. Do not apply capillary tube indoor coils to these units.
11. R−410A refrigerant TXV required on indoor coil.

Accessory Description and Usage

Support Feet

Raises unit above base pad. 2 and 3 ton kit contains 5 feet for stable installation with small base. 4 and 5 ton kit contains 4 feet.

Usage Guideline:

Recommended in cold climates where snow can accumulate around unit. Allows improved base pan drainage.

Recommended for rooftop applications.

Thermostatic Expansion Valve (TXV)

A modulating flow−control valve which meters refrigerant liquid flow rate into the evaporator in response to the superheat of the refrigerant gas leaving the evaporator.

Usage Guideline:

Required if indoor unit does not already contain R−410A refrigerant TXV

Vapor Line Muffler

An external muffler installed in the vapor line to minimize vibration transmitted through refrigerant lines

Usage Guideline:

Recommended if vapor line is not installed per recommendations in the installation instructions and vibration may be transmitted into the structure.

WALL CONTROL

TSTAT0201CW	Observer® Self Configuring Communicating Wall Control	ALL

ACCESSORY USAGE GUIDELINES

KIT NUMBER	KIT NAME	Unit Size (Voltage/Series)					
		24	25	36	37	48	60
NASA00201SF	Support Feet, 4” (102mm) tall	X	X	X	X	X	X
NAEA40501TX	TXV Kit, R−410A 2010 and later Piston Coils	X	X				
NAEA40601TX				X	X		
NAEA40701TX						X	X
NAEB40501TX	TXV Kit, R−410A 2010 and later Piston Coils		X				
NAEB40601TX				X	X		
NAEB40701TX						X	
1187979	Vapor Line Muffler	X	X	X	X	X	X

X = Accessory