MAINLINE®
Reliably Comfortable.™

Elite® Series iM Heat Pumps

This product meets a stringent set of our internally defined sustainability standards

EcoNet®

MLP19AY

Cooling Efficiencies up to: 20.0 SEER2 / 12.5 EER2
Heating Efficiencies up to: 8.5 HSPF2
Nominal Sizes: 2 to 5 Tons [7.0 to 17.6 kW]
Cooling & Heating Capacities 22.8 to 55.0 kBTU [6.7 to 16.1 kW]
Refrigerant Type: R-454B

Manufactured for
Mainline®
HVACmainline.com

ISO 9001:2015

ENERGUIDE Seasonal Energy Efficiency Ratio (SEER) THIS MODEL 20.0 13.0 — Uses least energy → 21.0

ENERGY STAR[1]

AHRI CERTIFIED www.ahridirectory.org Unitary Small HP AHRI Standard 210/240

c UL us LISTED

[1]Proper sizing and installation of equipment is critical to achieve optimal performance. Split system air conditioners and heat pumps must be matched with appropriate coil components to meet ENERGY STAR®. Ask your Contractor for details or visit www.energystar.gov.

Table of Contents

Features and Benefits 3
Model Number Identification 4
General Data/Electrical Data 5
Accessories 6
Unit Dimensions 7
Clearances 8
Refrigerant Line Size Information 9-10
Capacity Ranges 11-14
Performance Data 15
Smart Home Systems 16
Limited Warranty 20

Features and Benefits

- **EcoNet® Enabled:** Automatic system configuration and optimization
- **Diagnostics & Bluetooth®[1] Connectivity:** With the BluArch™ Contractor & EcoNet® Apps, built-in technology makes advanced set-up, monitoring, troubleshooting, and repairing the product easier than ever before
- **Variable Speed Scroll Compressor & Inverter Drive:**
  - — Features variable speed operation from 40 to 100% capacity with the EcoNet® Smart Thermostat
  - — Offers overdrive capability up to 115% to maintain performance in extreme conditions
  - — Provides precise temperature control, advanced humidity control and greater efficiency
- **Brushless DC Condenser Motors (BLDC):** Enhances reliability and allows for easier serviceability
- **Swept Wing Fan Technology:** Features quieter operation and improved unit acoustics
- **Designing for Sustainability with Low GWP:** For 2025, the Environmental Protection Agency (EPA) has set a global warming potential (GWP) limit of 700 for refrigerant used in heating and cooling systems. This new requirement will result a 78%[2] lower GWP than previous-generation refrigerants — with only minimal changes to system installation. For us, this is another step toward our continued sustainability goal of educing greenhouse gas emissions, while still delivering an exceptional level of energy efficient, dependable comfort
- **Refrigerant Detection System[3]:** An integrated one-box, patented design featuring the A2L sensor and mitigation board, offering easier commissioning with a single component and simplified wiring configuration, compatibility with any 24V thermostat application and system protection by automatically pausing outdoor unit operation – if excess refrigerant is detected

[1]The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks is under license. Other trademarks and trade names are those of their respective owners. [2]When comparing the GWP of R-454B to R-410A refrigerant. [3]Factory or field installed in the furnace coil or air handler and is applicable to the complete heating and cooling system featuring Low GWP Refrigerant (A2L).

Heat Pumps

ML	P	19	A	Y	24	A	J	V	C	A
Brand	**Product Category**	**SEER2**	**Region**	**Refrigerant**	**Capacity**	**Major Series**	**Voltage**	**Type**	**Controls**	**Minor Series**
ML - Mainline	P - Heat Pump	19 - 19 SEER2	A - All Regions	Y - R-454B	24 - 24,000 [7.03 kW] 36 - 36,000 [10.55 kW] 48 - 48,000 [14.07 kW] 60 - 60,000 [17.58 kW]	A - 1st Design	J - 208/230/1/60	V - Fully Variable	C - Communicating	A - 1st Design

[ ] Designates Metric Conversions

AVAILABLE MODELS	DESCRIPTION
MLP19AY24AJVCA	2 ton EcoNet® Enabled Inverter Driven Variable Speed iM Heat Pump - 208/230/1/60
MLP19AY36AJVCA	3 ton EcoNet® Enabled Inverter Driven Variable Speed iM Heat Pump - 208/230/1/60
MLP19AY48AJVCA	4 ton EcoNet® Enabled Inverter Driven Variable Speed iM Heat Pump - 208/230/1/60
MLP19AY60AJVCA	5 ton EcoNet® Enabled Inverter Driven Variable Speed iM Heat Pump - 208/230/1/60

STANDARD EQUIPMENT
R-454B Refrigerant
EcoNet® Enabled
Variable Speed Compressor
Compressor Sound Blanket
Variable speed outdoor fan motor
Swept wing fan blade
Field Installed Filter Drier
Front Seating Service Valves
Internal Pressure Relief Valve
Internal Thermal Overload
Long Line capability
Low Ambient capability
3–4–5 Expanded Valve Space
Composite Basepan
2 Screw Control Box Access
No fasteners to remove along bottom
Optimized Venturi Airflow
Single row condenser coil
Powder coated paint
Rust resistant screws
QR code
External gauge ports
Service trays

General Data

MODEL NO.	MLP19AY24AJVCA	MLP19AY36AJVCA	MLP19AY48AJVCA	MLP19AY60AJVCA
Nominal Tonnage	2.0	3.0	4.0	5.0
Valve Connections				
Liquid Line O.D. – in.	3/8	3/8	3/8	3/8
Suction Line O.D. – in.	3/4	3/4	7/8	7/8
Refrigerant (R-454B) furnished oz.[1]	200	200	200	210
Compressor Type	Variable Speed Scroll			
Outdoor Coil				
Net face area – Outer Coil	28.3	32.5	32.5	32.5
Net face area – Inner Coil	—	—	—	—
Tube diameter – in.	0.375	0.375	0.375	0.375
Number of rows	1	1	1	1
Fins per inch	20	20	20	20
Outdoor Fan				
Diameter – in.	26	26	26	26
Number of blades	3	3	3	3
Motor hp	1/2	1/2	1/2	1/2
Shipping weight – lbs.	282	306	306	309
Operating weight – lbs.	278	298	298	301

Electrical Data

Line Voltage Data (Volts-Phase-Hz)	208/230-1-60	208/230-1-60	208/230-1-60	208/230-1-60
Maximum overcurrent protection (amps)[2]	20	35	40	50
Minimum circuit ampacity[3]	12	20	24	30
Compressor				
Rated load amps	9	16	19	25
Locked rotor amps	35	50	50	50

[1]*Refrigerant charge sufficient for 15 ft. length of refrigerant lines. For longer line set requirements see the installation instructions for information about set length and additional refrigerant charge required.*
[2]*HACR type circuit breaker of fuse.*
[3]*Refer to National Electrical Code manual to determine wire, fuse, and disconnect size requirements.*

Accessories

MODEL NO.	MLP19AY24AJVCA	MLP19AY36AJVCA	MLP19AY48AJVCA	MLP19AY60AJVCA
EcoNet® Smart Thermostat	CETST900SYS	CETST900SYS	CETST900SYS	CETST900SYS
Heat Pump Riser 6 in.	686020	686020	686020	686020
Supply/Return Sensor	RXHT-A02	RXHT-A02	RXHT-A02	RXHT-A02

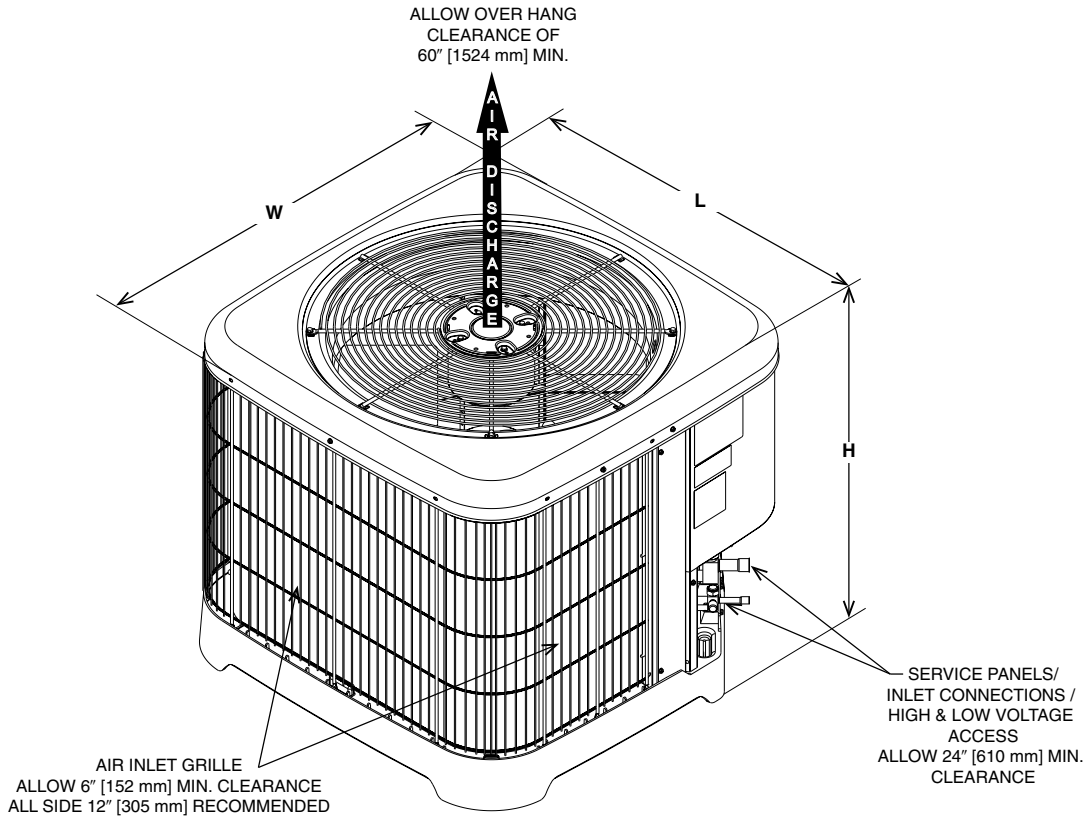
Weighted Sound Power Level (dBA)

UNIT SIZE - VOLTAGE, SERIES	STANDARD RATING (DBA)	TYPICAL OCTAVE BAND SPECTRUM (DBA WITHOUT TONE ADJUSTMENT)							
		125	250	500	1000	2000	4000	6300	8000
MLP19AY24AJVCA	59	34.8	39.7	50.8	48.4	42.5	40.2	34.6	34.5
	69	45.0	50.6	59.5	57.9	56.6	49.5	45.7	44.8
MLP19AY36AJVCA	60	33.6	38.3	57.6	48.2	43.6	39.7	43.0	39.3
	70	44.8	51.1	60.8	60.1	56.2	50.3	49.9	48.3
MLP19AY48AJVCA	59	34.0	38.9	52.3	48.0	43.5	39.8	42.2	37.3
	73	48.5	54.4	65.4	63.1	58.0	55.0	53.3	51.6
MLP19AY60AJVCA	58	36.0	39.3	51.4	46.2	43.8	43.0	41.3	40.2
	73	49.8	54.0	68.0	59.2	55.9	53.7	50.7	49.3

NOTE: Tested in accordance with AHRI Standard 270-08 (not listed in AHRI)

Unit Dimensions

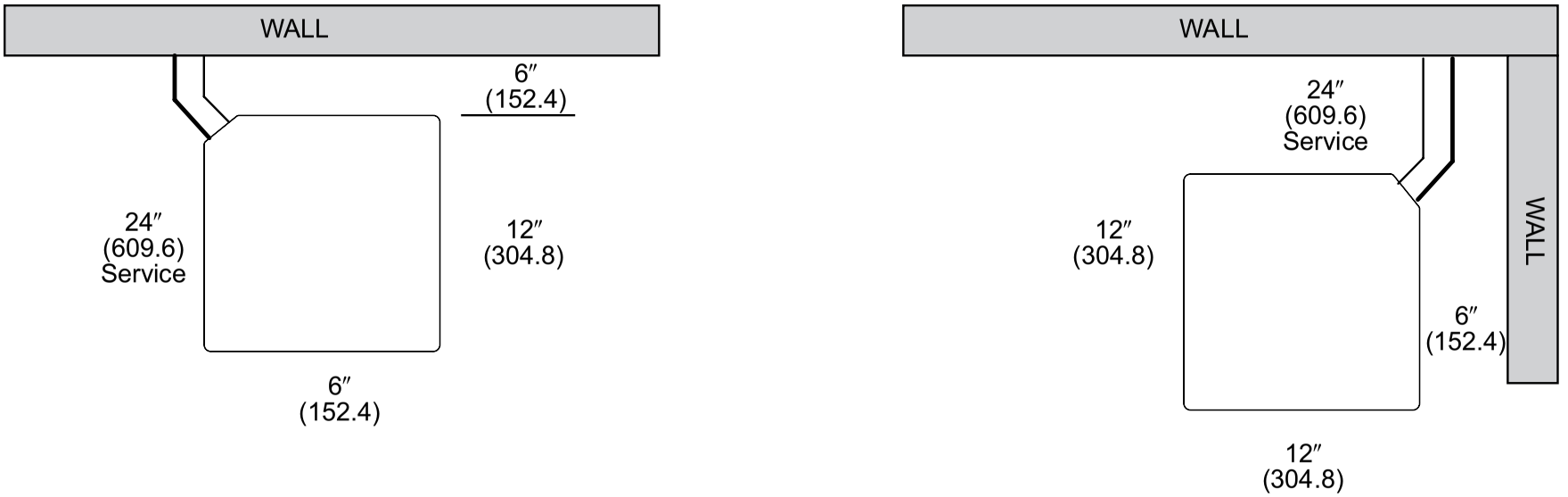
MODEL NO.	OPERATING						SHIPPING					
	H (Height)		L (Length)		W (Width)		H (Height)		L (Length)		W (Width)	
	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm
MLP19AY24AJVCA	45.17	1147	36.13	918	36.13	918	48.18	1224	39.37	1000	39.64	1007
MLP19AY36AJVCA	51.17	1300	36.13	918	36.13	918	53.56	1360	39.37	1000	39.64	1007
MLP19AY48AJVCA	51.17	1300	36.13	918	36.13	918	53.56	1360	39.37	1000	39.64	1007
MLP19AY60AJVCA	51.17	1300	36.13	918	36.13	918	53.56	1360	39.37	1000	39.64	1007

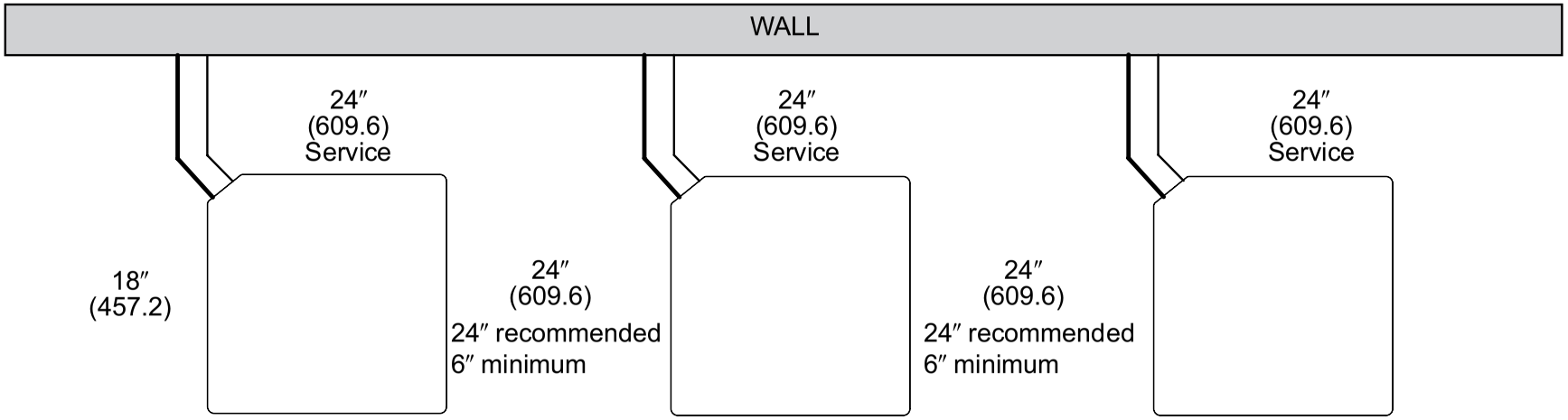


[ ] Designates Metric Conversions

ST-A1226-24-00

CLEARANCES





NOTE: NUMBERS IN () = mm

IMPORTANT: When installing multiple units in an alcove, roof well or partially enclosed area, ensure there is adequate ventillation to prevent re-circulation of discharge air.

Refrigerant Line Size Information

19 SEER2 VARIABLE SPEED HEAT PUMPS								
UNIT SIZE	ALLOWABLE LIQUID LINE SIZE	ALLOWABLE VAPOR LINE SIZE	OUTDOOR UNIT ABOVE OR BELOW INDOOR UNIT EQUIVALENT LENGTH (FEET)					
			< 25	26-50	51-75	76-100	101-125	126-150
			MAXIMUM VERTICAL SEPARATION/CAPACITY MULTIPLIER					
2.0 TON *SEE NOTE 3	1/4"	5/8"	25/1.00	50/0.99	33/0.98	60/0.97	**NR**	**NR**
	5/16"	5/8"	25/1.00	50/0.99	50/0.98	50/0.97	50/0.96	50/0.95
	3/8"	5/8"	25/1.00	50/0.99	50/0.98	50/0.97	50/0.96	50/0.95
	1/4"	3/4"*	25/1.00	50/1.00	33/0.99	60/0.99	**NR**	**NR**
	5/16"	3/4"*	25/1.00	50/1.00	50/0.99	50/0.99	50/0.99	50/0.98
	3/8"	3/4"*	25/1.00	50/1.00	50/0.99	50/0.99	50/0.99	50/0.98
3 TON	5/16"	5/8"	25/0.99	50/0.97	50/0.95	50/0.93	36/0.91	**NR**
	3/8"	5/8"	25/0.99	50/0.97	50/0.95	50/0.93	50/0.91	**NR**
	5/16"	3/4"	25/1.00	50/0.99	50/0.99	50/0.98	36/0.97	20/0.96
	3/8"	3/4"	25/1.00	50/0.99	50/0.99	50/0.98	50/0.97	50/0.96
	1/2"	3/4"	25/1.00	50/0.99	50/0.99	50/0.98	50/0.97	50/0.96
4 TON	3/8"	3/4"	25/0.99	50/0.98	50/0.96	50/0.95	50/0.93	50/0.92
	1/2"	3/4"	25/0.99	50/0.98	50/0.96	50/0.95	50/0.93	50/0.92
	3/8"	7/8"	25/1.00	50/0.99	50/0.99	50/0.98	50/0.98	50/0.97
	1/2"	7/8"	25/1.00	50/0.99	50/0.99	50/0.98	50/0.98	50/0.97
5 TON	3/8"	3/4"	25/0.98	50/0.97	50/0.95	50/0.93	46/0.91	**NR**
	1/2"	3/4"	25/0.98	50/0.97	50/0.95	50/0.93	50/0.91	**NR**
	3/8"	7/8"	25/0.99	50/0.99	50/0.98	50/0.97	50/0.96	38/0.95
	1/2"	7/8"	25/0.99	50/0.99	50/0.98	50/0.97	50/0.96	50/0.95
	3/8"	1-1/8"**	25/1.00	50/1.00	50/1.00	50/0.99	50/0.99	38/0.99
	1/2"	1-1/8"**	25/1.00	50/1.00	50/1.00	50/0.99	50/0.99	50/0.99

NOTES:

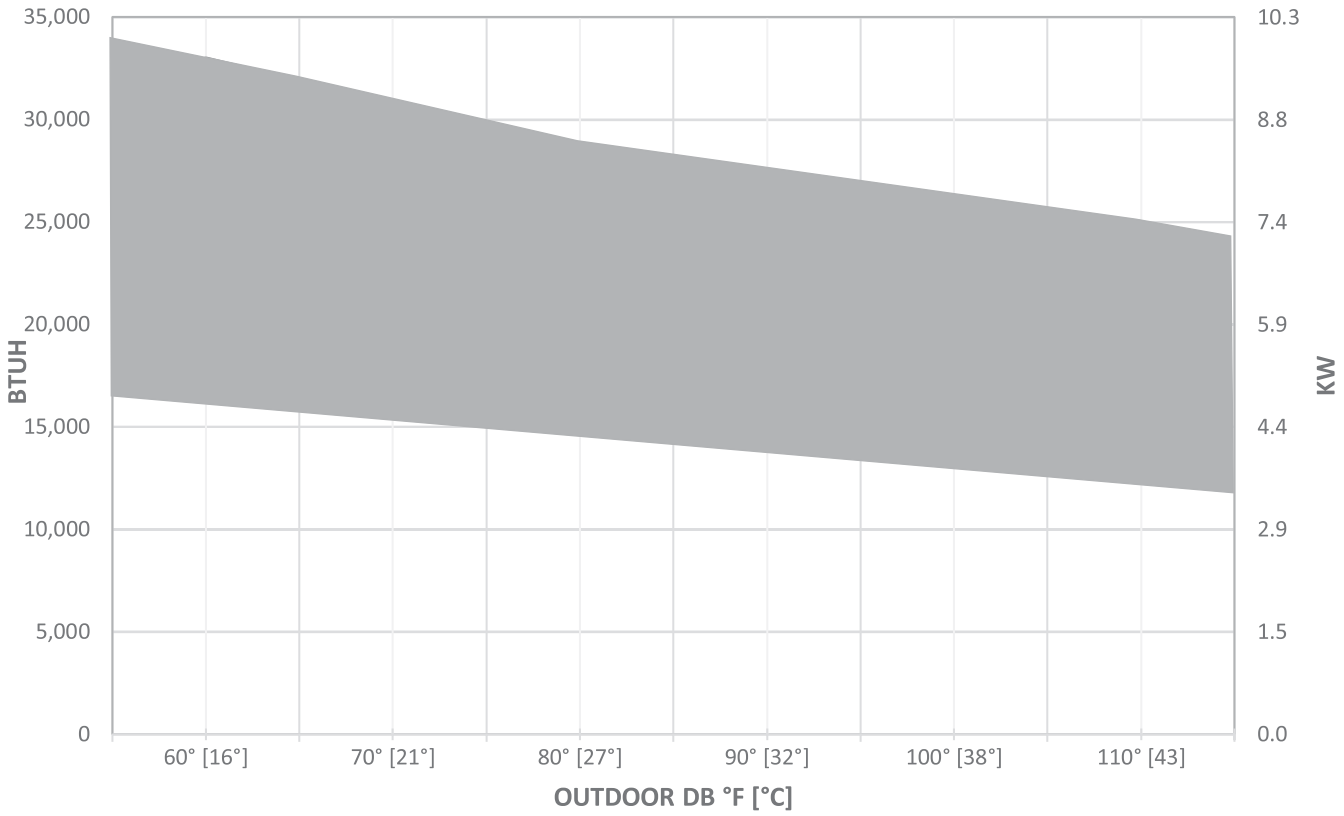
1) Do not exceed 150 ft. linear line length.
2) Do not exceed 50 ft. vertical separation between indoor and outdoor units.
3) *3/4" vapor line should only be used for 2 ton systems if outdoor unit is below or at same level as indoor unit to assure proper oil return.
4) **1-1/8" vapor line should only be used for 5 ton systems if outdoor unit is below or at same level as indoor unit to assure proper oil return.
5) Always use the smallest liquid line allowable to minimize refrigerant charge.
6) Applications shaded in light gray indicate capacity multipliers between 0.90 and 0.96 which are not recommended, but are allowed.
7) Applications shaded in dark gray are not recommended due to excessive liquid or suction pressure drop.

Refrigerant Line Size Information (Con't.)

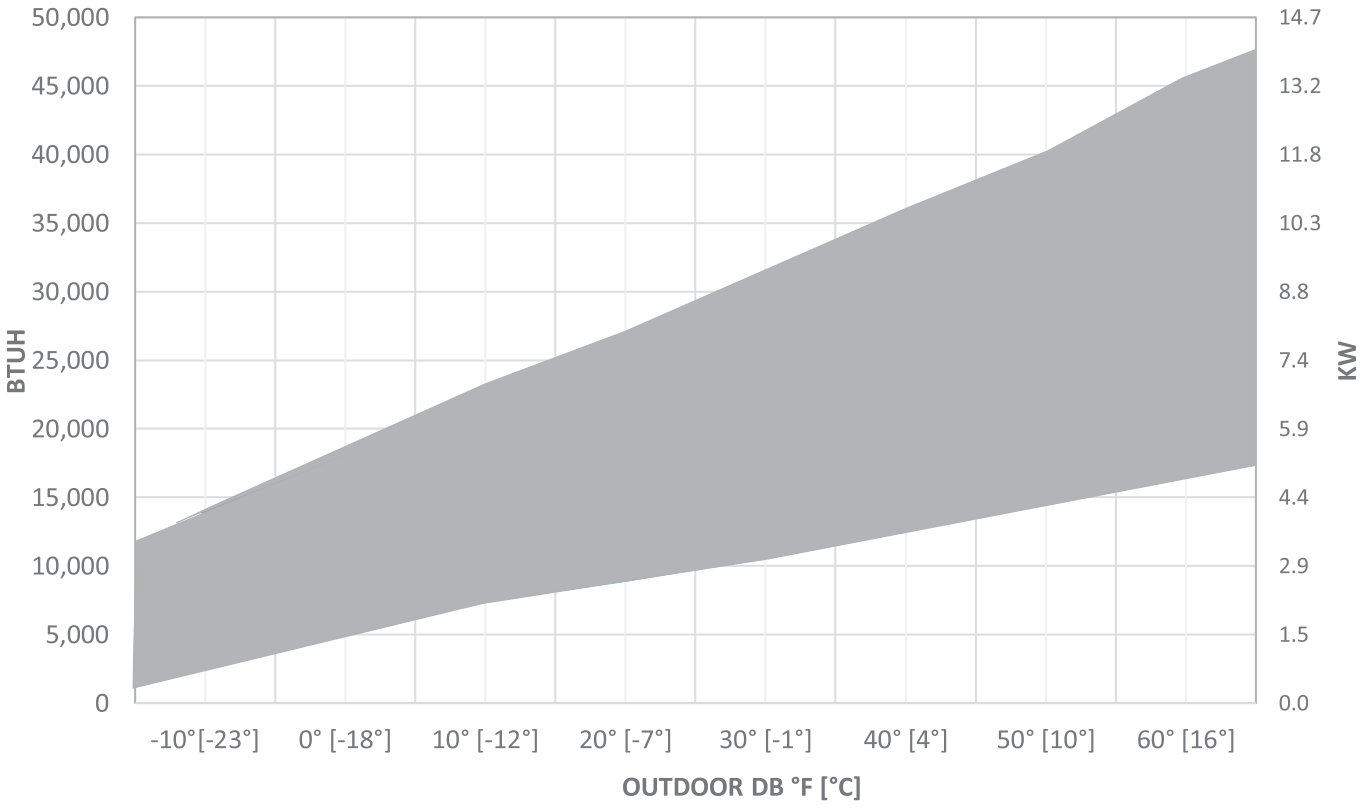
19 SEER2 VARIABLE SPEED HEAT PUMPS								
UNIT SIZE	ALLOWABLE LIQUID LINE SIZE	ALLOWABLE VAPOR LINE SIZE	OUTDOOR UNIT ABOVE OR BELOW INDOOR UNIT EQUIVALENT LENGTH (METERS)					
			< 8	9-15	16-23	24-30	31-38	39-46
			MAXIMUM VERTICAL SEPARATION/CAPACITY MULTIPLIER					
7.0 kW [2.0 TON] *SEE NOTE 3	6.35 [1/4]	15.88 [5/8]	8/1.00	15/0.99	10/0.98	20/0.97	**NR**	**NR**
	7.94 [5/16]	15.88 [5/8]	8/1.00	15/0.99	15/0.98	15/0.97	15/0.96	15/0.95
	9.53 [3/8]	15.88 [5/8]	8/1.00	15/0.99	15/0.98	15/0.97	15/0.96	15/0.95
	6.35 [1/4]	19.05 [3/4]	8/1.00	15/0.99	10/0.99	20/0.99	**NR**	**NR**
	7.94 [5/16]	19.05 [3/4]	8/1.00	15/0.99	15/0.99	15/0.99	15/0.99	15/0.98
	9.53 [3/8]	19.05 [3/4]	8/1.00	15/0.99	15/0.99	15/0.99	15/0.99	15/0.98
10.6 kW [3 TON]	7.94 [5/16]	15.88 [5/8]	8/0.99	15/0.97	15/0.95	15/0.93	11/0.91	**NR**
	9.53 [3/8]	15.88 [5/8]	8/0.99	15/0.97	15/0.95	15/0.93	15/0.91	**NR**
	7.94 [5/16]	19.05 [3/4]	8/1.00	15/0.99	15/0.99	15/0.98	11/0.97	6/0.96
	9.53 [3/8]	19.05 [3/4]	8/1.00	15/0.99	15/0.99	15/0.98	15/0.97	15/0.96
	12.70 [1/2]	19.05 [3/4]	8/1.00	15/0.99	15/0.99	15/0.98	15/0.97	15/0.96
14.1 kW [4 TON]	9.53 [3/8]	19.05 [3/4]	8/0.99	15/0.98	15/0.96	15/0.95	15/0.93	15/0.92
	12.70 [1/2]	19.05 [3/4]	8/0.99	15/0.98	15/0.96	15/0.95	15/0.93	15/0.92
	9.53 [3/8]	22.23 [7/8]	8/1.00	15/0.99	15/0.99	15/0.98	15/0.98	15/0.97
	12.70 [1/2]	22.23 [7/8]	8/1.00	15/0.99	15/0.99	15/0.98	15/0.98	15/0.97
17.6 kW [5 TON]	9.53 [3/8]	19.05 [3/4]	8/0.98	15/0.97	15/0.95	15/0.93	14/0.91	**NR**
	12.70 [1/2]	19.05 [3/4]	8/0.98	15/0.97	15/0.95	15/0.93	15/0.91	**NR**
	9.53 [3/8]	22.23 [7/8]	8/0.99	15/0.99	15/0.98	15/0.97	15/0.96	12/0.95
	12.70 [1/2]	22.23 [7/8]	8/0.99	15/0.99	15/0.98	15/0.97	15/0.96	15/0.95
	9.53 [3/8]	28.58 [1-1/8]**	8/1.00	15/0.99	15/0.99	15/0.99	15/0.99	12/0.99
	12.70 [1/2]	28.58 [1-1/8]**	8/1.00	15/0.99	15/0.99	15/0.99	15/0.99	15/0.99

NOTES:
1) Do not exceed 46 meters linear line length.
2) Do not exceed 15 meters vertical separation between indoor and outdoor units.
3) *19.05mm [3/4"] vapor line should only be used for 2 ton systems if outdoor unit is below or at same level as indoor unit to assure proper oil return.
4) **28.58mm [1-1/8"] vapor line should only be used for 5 ton systems if outdoor unit is below or at same level as indoor unit to assure proper oil return.
5) Always use the smallest liquid line allowable to minimize refrigerant charge.
6) Applications shaded in light gray indicate capacity multipliers between 0.90 and 0.96 which are not recommended, but are allowed.
7) Applications shaded in dark gray are not recommended due to excessive liquid or suction pressure drop.

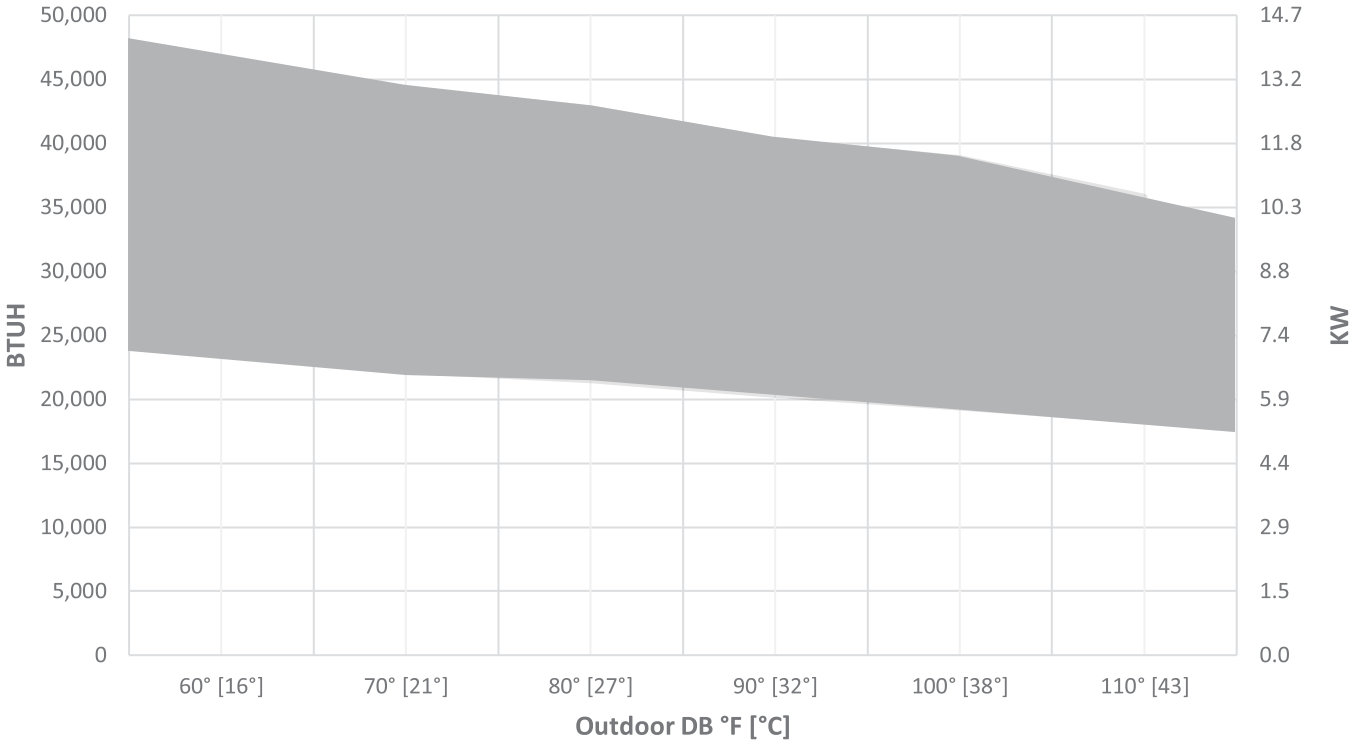
(-)P19AY24 Cooling Capacity Ranges



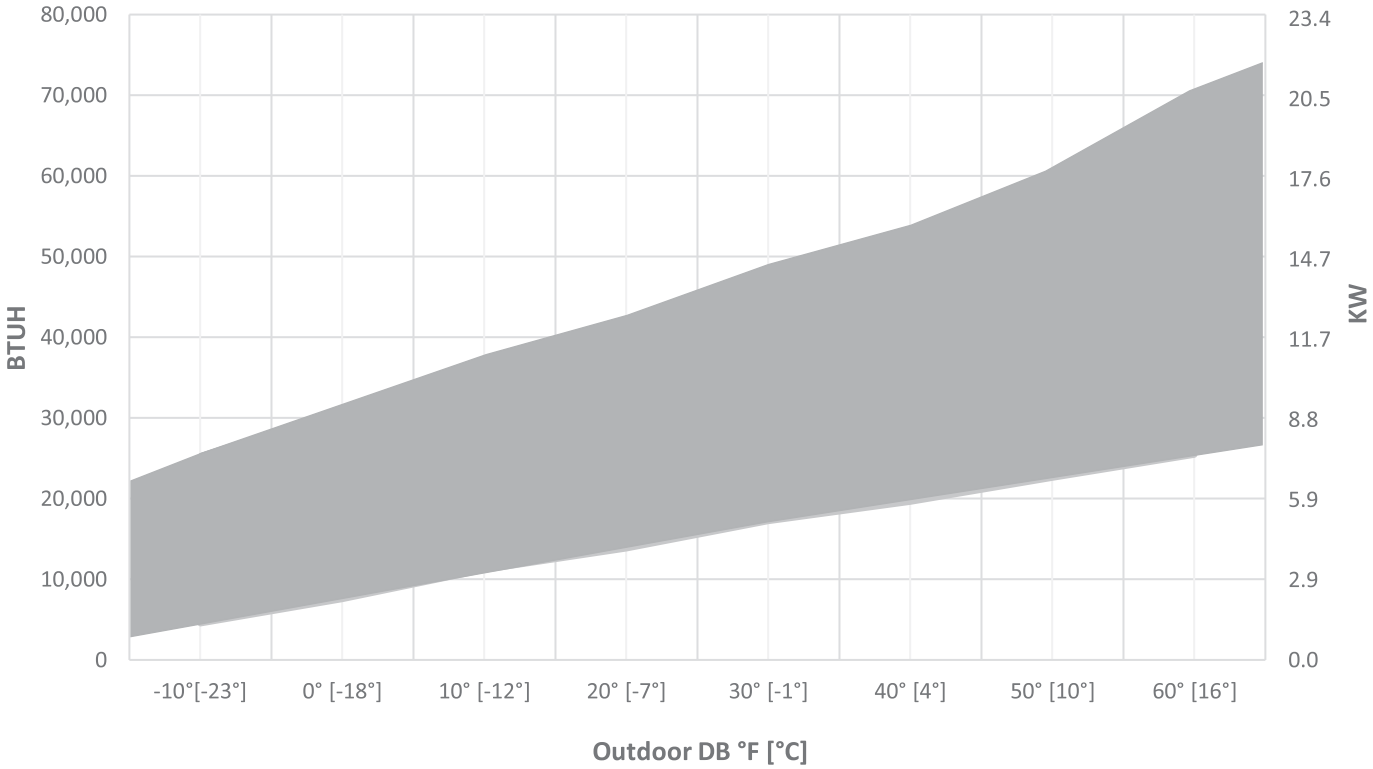
(-)P19AY24 Heating Capacity Ranges



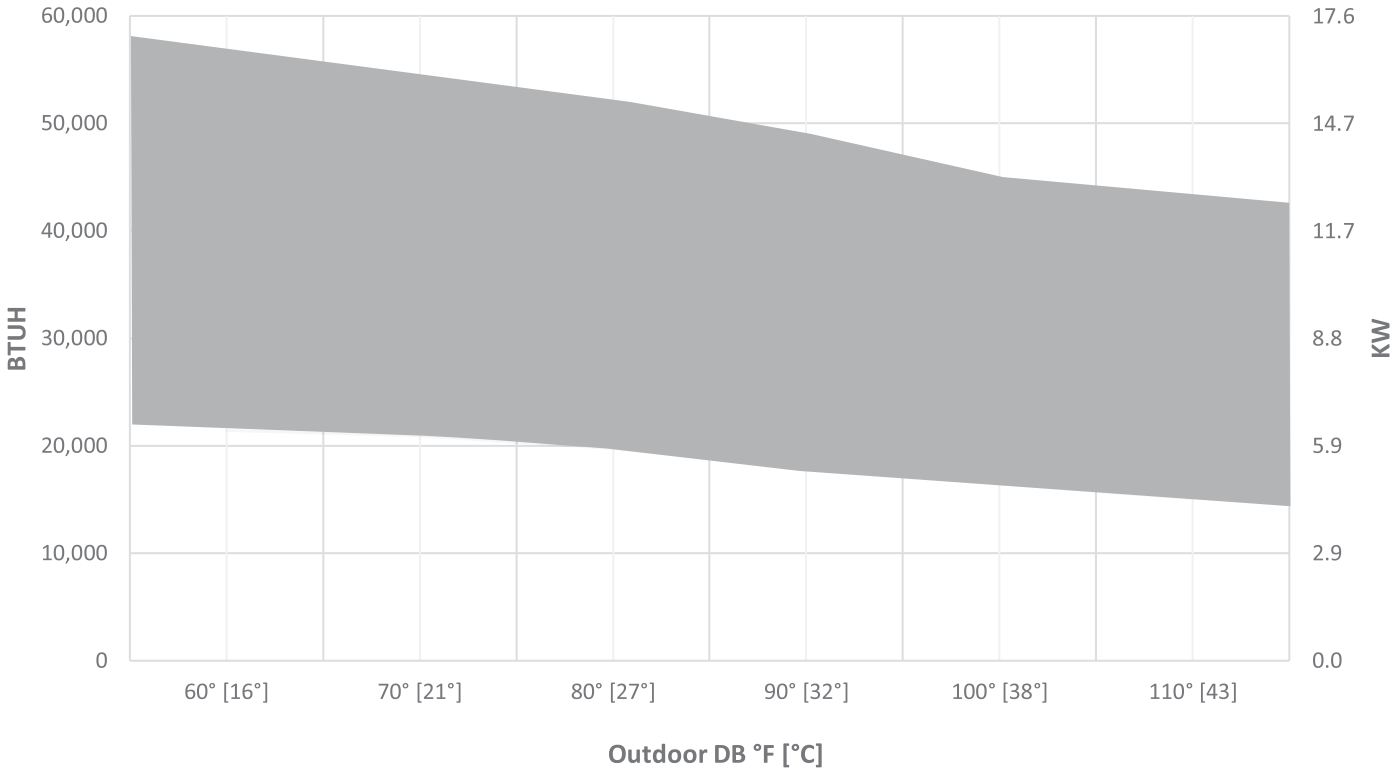
(-)P19AY36 Cooling Capacity Ranges



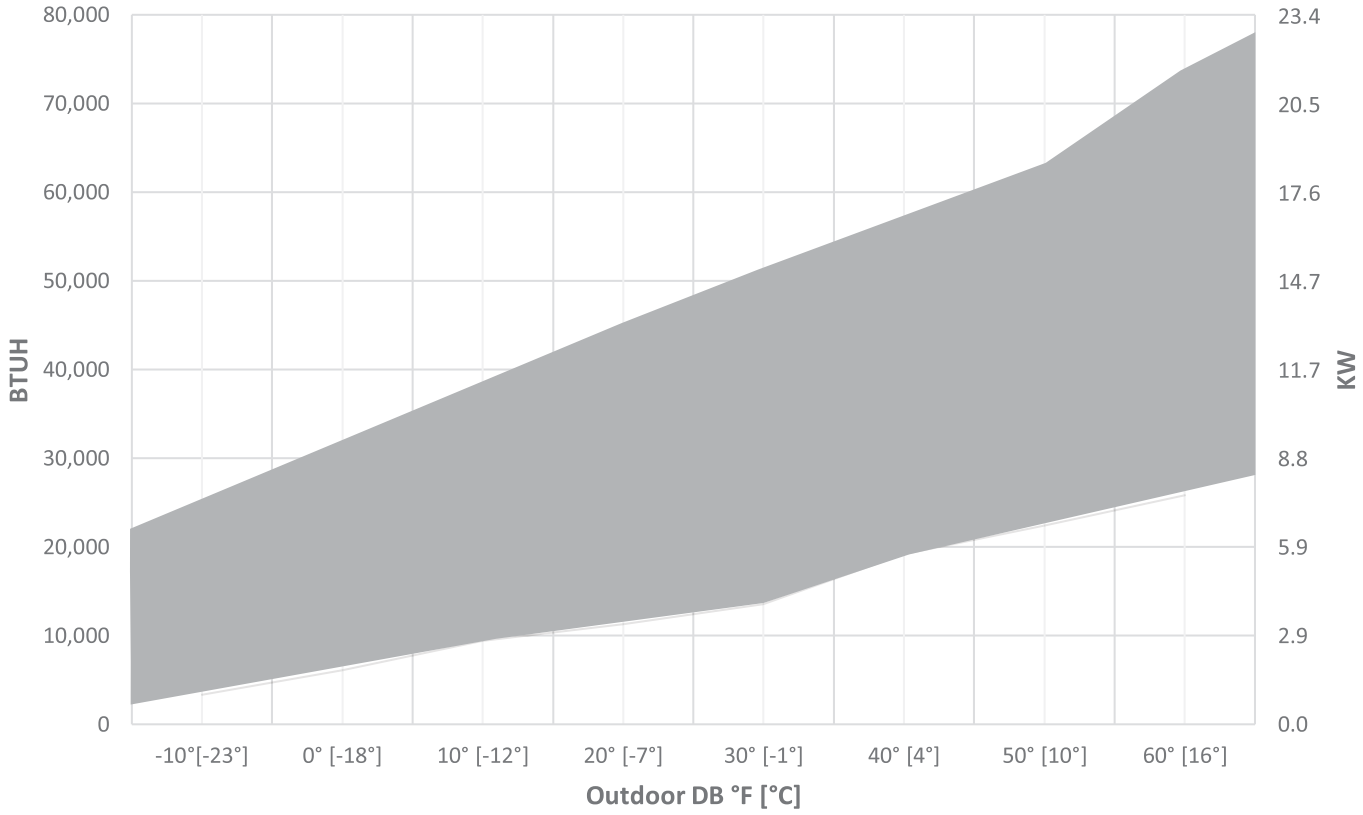
(-)P19AY36 Heating Capacity Ranges



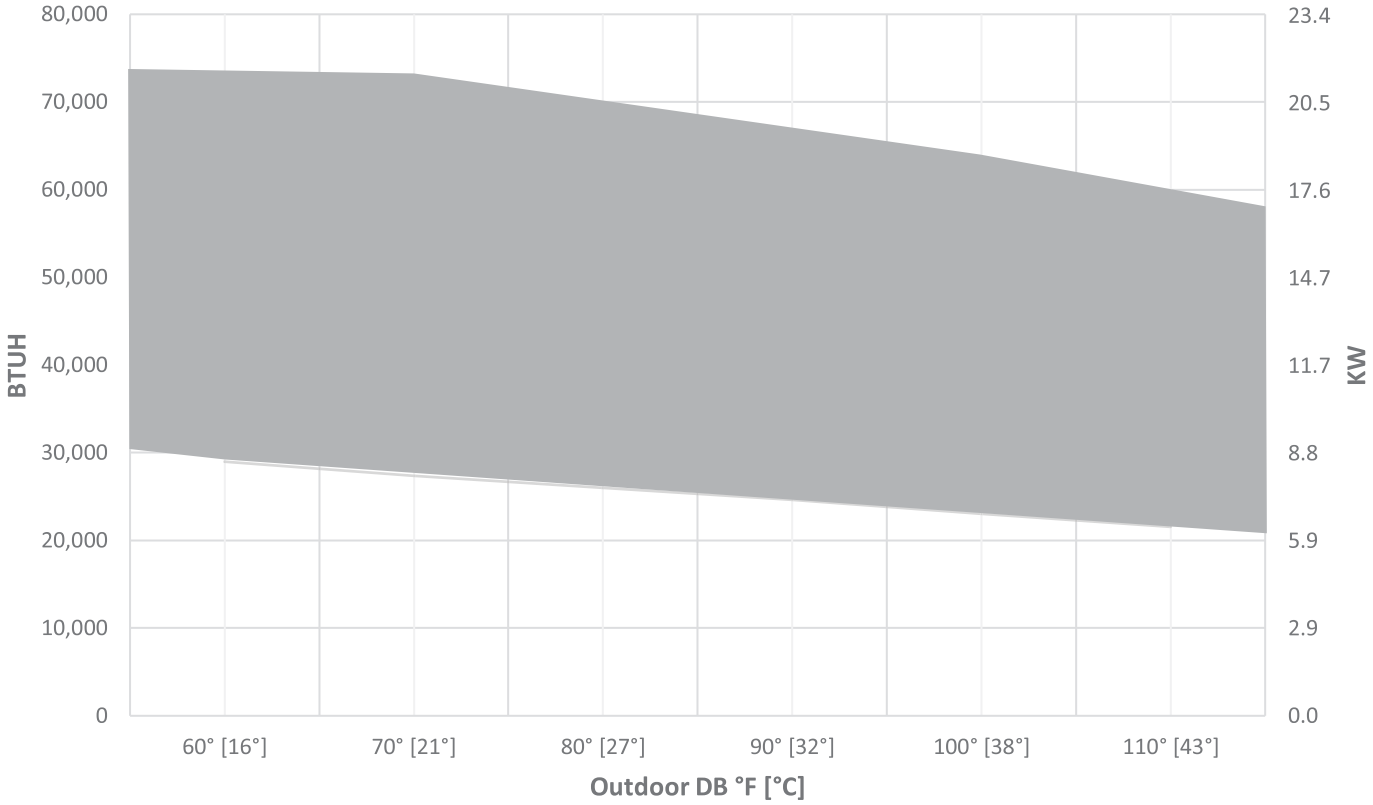
(-)P19AY48 Cooling Capacity Ranges



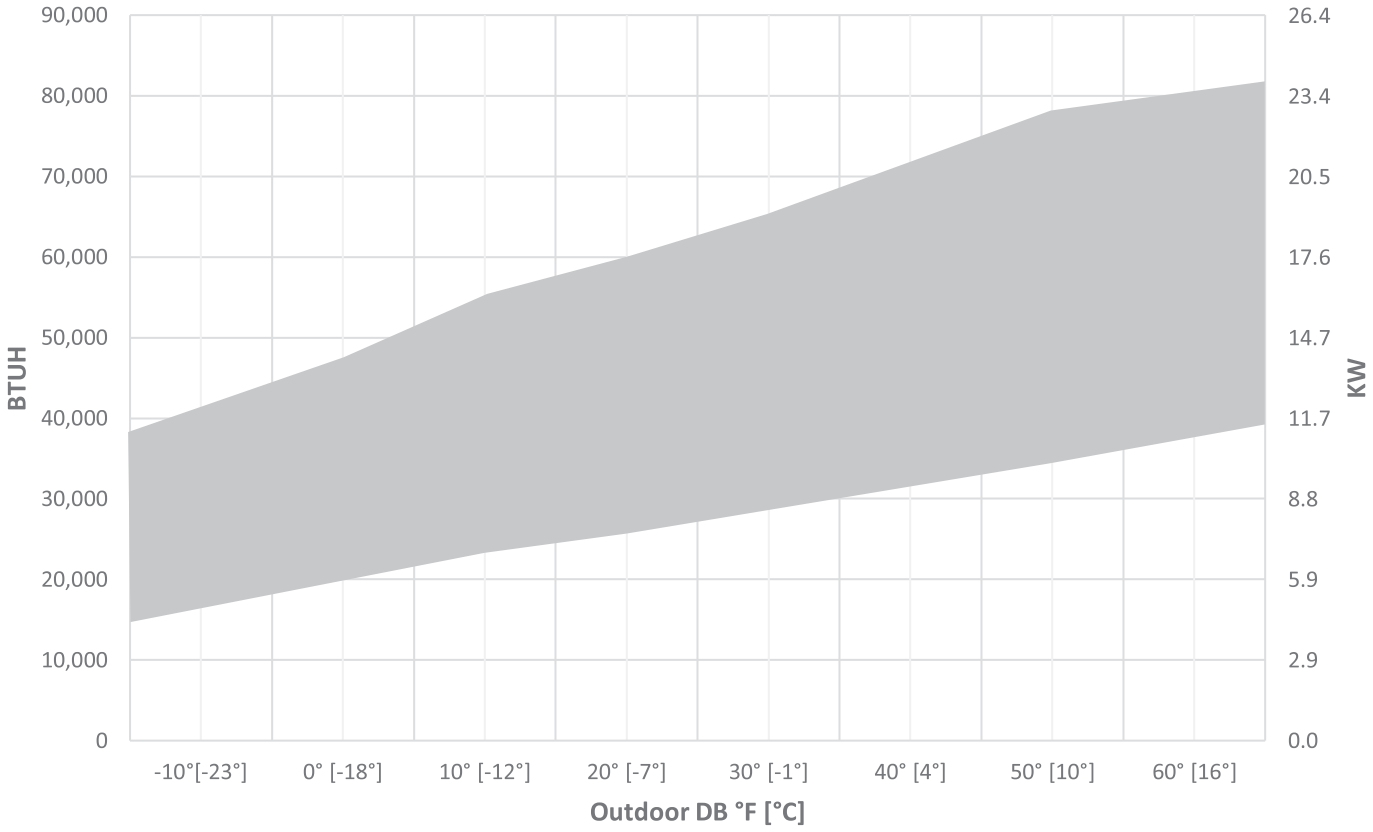
(-)P19AY48 Heating Capacity Ranges



(-)P19AY60 Cooling Capacity Ranges



(-)P19AY60 Heating Capacity Ranges



Performance Data @ AHRI Standard Conditions – Cooling

DESIGNATED TESTED COMBINATION (DTC)												
OUTDOOR UNIT	AIR HANDLER	TOTAL CAPACITY BTU/H [kW]	NET SENSIBLE BTU/H [kW]	NET LATENT BTU/H [kW]	SEER2	EER2	INDOOR CFM [L/s]	47 DEGREE HEATING CAPACITY BTU/H [kW]	47 DEGREE COP	17 DEGREE HEATING CAPACITY BTU/H [kW]	17 DEGREE COP	REGION IV HSPF2
MLP19AY24AJVC	MLHMVY3621MEACA	22,800 [6.7]	17,500 [5.1]	5,300 [1.6]	19.0	12.0	785 [370.5]	22,800 [6.7]	4.00	20,000 [5.9]	2.00	8.5
MLP19AY36AJVC	MLHMVY3621MEACA	34,200 [10.0]	26,200 [7.7]	8,000 [2.3]	19.0	12.0	1,225 [578.1]	34,200 [10.0]	4.00	30,500 [8.9]	2.00	8.5
MLP19AY48AJVC	MLHMVY4821SEACA	45,500 [13.3]	34,900 [10.2]	10,600 [3.1]	19.0	12.0	1,590 [750.4]	45,500 [13.3]	3.50	43,000 [12.6]	2.00	8.5
MLP19AY60AJVC	MLHMVY6021SEACA	54,000 [15.8]	41,400 [12.1]	12,600 [3.7]	17.5	10.5	1,685 [795.2]	54,000 [15.8]	3.50	54,000 [15.8]	2.00	8.5

NOTE: This data includes DTC (Designated Test Combination) ratings and is for reference purposes only. A full listing of official ratings and system match-ups, along with downloadable certificates, can be accessed from the AHRI website: www.ahridirectory.org.

[ ] Designates Metric Conversions

Integrated Controls

EcoNet® is smart, technology that allows Heating and Cooling, products to communicate with each other on one integrated network.

THE ECONET® SMART THERMOSTAT

CETST900SYS

BUILT-IN WIFI

4.3" LCD TOUCH SCREEN

LOCAL WEATHER – Current conditions plus 6-day forecast

5 OPERATING MODES – Heat, Cool, Auto, Emergency Heat and Fan Only

7-DAY PROGRAMMABLE SCHEDULE – Offers comfort without thought

ONE-TOUCH AWAY – Quickly switch to your energy-saving away preferences

VACATION SCHEDULING – Allows you to save while you're away and come home to comfort

STANDBY SCREEN – Displays indoor temperature and current weather

OPERATIONAL FEATURES

AUTOMATIC CHANGEOVER – Transitions between heating and cooling automatically to keep the house comfortable

INTEGRATED WATER CONTROL – Enables easy water heater management

SMOOTH ARRIVAL – Prompts the system to start ahead of schedule to ensure the home is at the desired temperature at the scheduled time

HUMIDITY CONTROL – Supports humidifier accessories or over-cool based dehumidification

DETAILED OPERATING STATUS – View pertinent equipment status information and run times

CONTINUOUS FAN – Offers 5 speeds (Low, Medium Low, Medium, Medium High, High)

SHORT-CYCLE PROTECTION – Avoids damage to equipment from short run cycles

MONITORING & REMOTE CONTROL FEATURES

ACTIVE MONITORING – Alerts to problems that need immediate attention

REMOTE CONTROL – Allows adjusting of comfort and settings from anywhere using a mobile device

SERVICE ALERTS – Sends routine maintenance reminders

AIR FILTER MONITORING – Detects when it's time to replace the air filter

ALARM HISTORY – Displays time-stamped alarm codes with clear descriptions

16

MAINLINE®
Reliably Comfortable.™

GENERAL TERMS OF LIMITED WARRANTY*

Mainline® will furnish a replacement for any part of this product which fails in normal use and service within the applicable period stated, in accordance with the terms of the limited warranty.

***For complete details of the Limited and Conditional Warranties, including applicable terms and conditions, contact your local contractor or the Manufacturer for a copy of the product warranty certificate.**

Conditional Unit Replacement
(Registration Required)..... Ten (10) Years
Parts..... Ten (10) Years

Before proceeding with installation, refer to installation instructions packaged with each model, as well as complying with all Federal, State, Provincial, and Local codes, regulations, and practices.

"In keeping with its policy of continuous progress and product improvement, Mainline reserves the right to make changes without notice."

www.MainlineCollection.com

PRINTED IN U.S.A. 10/24 QG FORM NO. PML-845