

MC R-454B Model Series

Commercial Water Source Heat Pumps

Engineering
Submittal
Sheet



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Overview and Certifications



- ▶ 30 to 60 ton capacities
- ▶ Available in modular construction makes it a great replacement for packaged floor-by-floor units (no breaking of refrigerant lines)
- ▶ Variable air volume and 100% outside air capability*
- ▶ High efficiency scroll compressors with multiple independent refrigeration circuits
- ▶ Low GWP ready (R-454B refrigerant)

* Engineered to order

Commercial WSHP Product Portfolio

Product	Water-to-Air							Water-to-Water	
	CP	CP Splits	CF	CL	CA	EC	MC	WT	WW
Price	\$\$\$	\$\$\$	\$\$	\$	\$	\$\$	\$\$	\$\$	\$\$
Model Sizes <6 Ton	007		X	X					
	009		X	X	X				
	012		X	X	X				
	015		X	X	X				
	018		X	X	X				
	024	X	X	X					
	025							X	
	030		X	X					
	035							X	
	036	X	X	X					
	041								
	042		X	X					
	048	X	X	X					
	049							X	
Model Sizes >6 Ton	060	X	X	X				X	
	061							X	
	070	X	X	X				X	
	071								
	072					X			
	096					X			
	120					X			X
	122								X
	150					X			
	151					X			
	180					X			X
	181					X			
	210					X			X
	240					X			X
	300					X			
	360					X	X		X
	420								X
	480						X		
	600						X		
	720						X		

☒ Featured model

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Model Nomenclature

MC 480 - 4 VH C - S B T I U C - X X T X X X X X 1 X X X X 6 X A X X S B A																																																																							
1-2		3-5		6		7		8-9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40	
MODEL: MC																																																																							
NOMINAL CAPACITY: 360, 480, 600, 720																																																																							
ELECTRICAL CONFIGURATION: 3 - 208-230/60/3 4 - 460/60/3 5 - 575/60/3																																																																							
CABINET CONFIGURATION: VH - Vertical, High Cabinet Configuration VL - Vertical, Low Cabinet Configuration																																																																							
COAX OPTIONS: C - Copper N - Cupro-Nickel X - No Condenser																																																																							
WATER CONNECTIONS: S - Side X - N/A																																																																							
RETURN AIR CONFIGURATION: B - Back																																																																							
DISCHARGE AIR LOCATION: F - Front R - Rear T - Top																																																																							
FAN/MOTOR OPTION: I - Belt Drive, Inverter Duty																																																																							
AIR COIL: U - Uncoated																																																																							
REVISION LEVEL: C - Current																																																																							
ELECTRIC HEAT: X - None																																																																							
CABINET CONSTRUCTION: A - G90 Steel / 1/2" Standard 1.5LB Dual Density Fiberglass C - G90 Steel / 1/2" Closed Cell Foam																																																																							
APPLICATION: G - Extended Range (Geothermal) T - Standard Range																																																																							
CODE STRING LEVEL: A - Revision																																																																							
CHANNEL: B - Bosch																																																																							
STANDARD/SPECIAL: S - Standard																																																																							
AGENCY OPTIONS: X - Standard D - Dual Point Power																																																																							
NOT USED: X - None																																																																							
DRIVE SPEED (MC ONLY): A - 794 RPM B - 813 RPM C - 842 RPM D - 871 RPM E - 916 RPM F - 949 RPM G - 982 RPM H - 1034 RPM I - 1072 RPM J - 1111 RPM K - 1149 RPM L - 1172 RPM M - 1200 RPM N - 1214 RPM O - 1256 RPM P - 1305 RPM																																																																							
MOTOR HP (BELT DRIVE ONLY): F - 7.5 G - 10 H - 15 K - 20																																																																							
AIR FILTRATION: 6 - 4" Pleated Filter Bank																																																																							
DESTINATION SPECIFIC REQUIREMENT: X - None A - French & English Documentation																																																																							
ECONOMIZER: X - None E - Waterside Economizer w/ 3 Way Valve and Controls H - Hot Water Coil																																																																							
WATER FLOW CONTROL OPTIONS: X - None																																																																							
CONTROLS: X - Standard I - Inverter J - DDC - Multi-Protocol (BacNET, Modbus, N2) w/ Inverter M - DDC - Multi-Protocol (BacNET, Modbus, N2)																																																																							
TRANSFORMER: 1 - 100 VA																																																																							
REFRIGERATION: X - None B - Hot Gas Bypass C - Hot Gas Bypass with Hot Gas Reheat H - Hot Gas Reheat - On/Off J - Hot Gas Reheat with Straight Cool K - Modulating Hot Gas Reheat, Hot Gas Bypass, and Straight Cool M - Modulating Hot Gas Reheat N - Modulating Hot Gas Reheat with Straight Cool S - Straight Cool T - Hot Gas Bypass with Straight Cool																																																																							
ELECTRICAL OPTIONS: X - As default for non used electrical codes B - Blower Monitor Relay C - Compressor Monitor Relay D - Phase Monitor E - Pump/valve relay G - Boilerless control H - Flow Proving Switch K - Fire Alarm Relay/Dual Power M - Wire transformer to 208 volts																																																																							

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AHRI Ratings (13256-1)						
Model Number	Water Loop Heat Pump				CFM	GPM
	Cooling 86 °F		Heating 68 °F			
	Capacity BTU/h	EER BTU/W-h	Capacity BTU/h	COP		
360	377,300	10.45	463,100	3.45	12,000	90
480	547,900	14.00	593,300	4.10	16,000	120
600	625,700	12.65	687,200	4.00	20,000	150
720	754,600	10.45	926,200	3.45	24,000	180

Rated in accordance with ASHRAE/AHR/ISO 13256-1. English (I-P) Units



MC R-454B Model Series -
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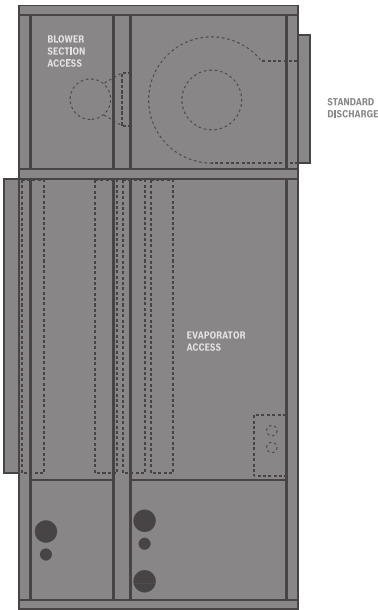
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Vertical Unit (High) Configurations - MC480-720 Model

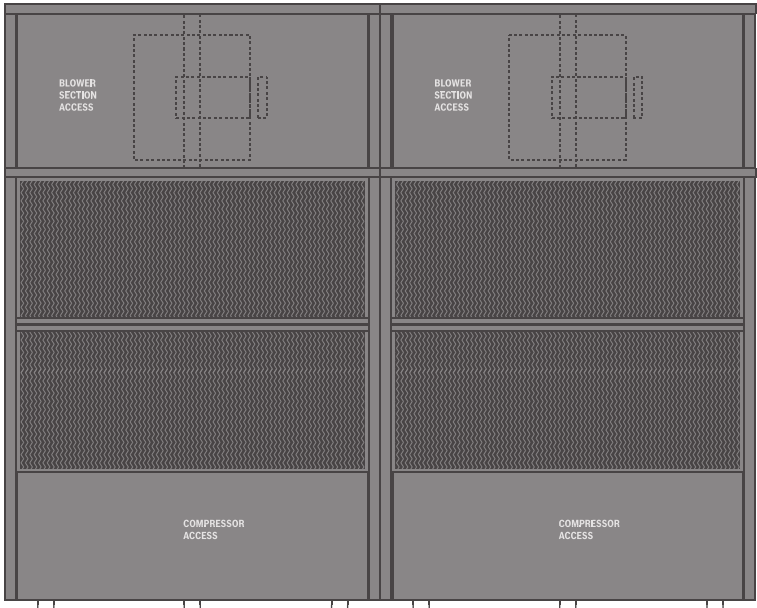
FRONT VIEW



LEFT SIDE VIEW



REAR VIEW



MC R-454B Model Series -
Commercial Water Source Heat Pumps



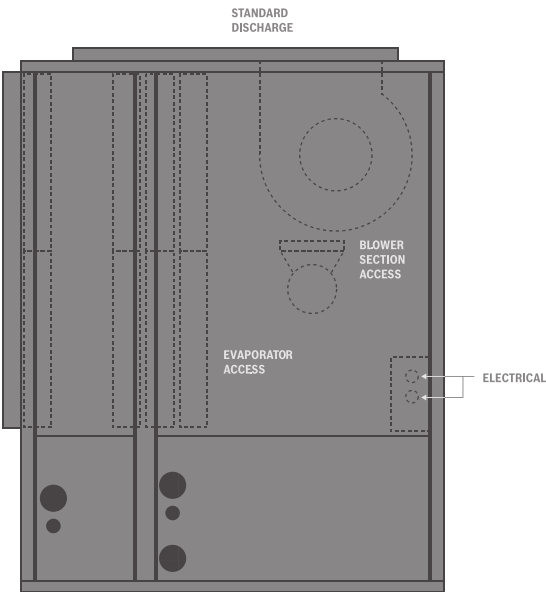
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Vertical Unit (Low) Configurations - MC360 Model

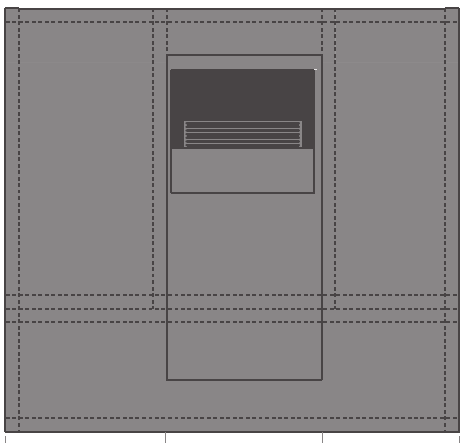
REAR VIEW



LEFT SIDE VIEW



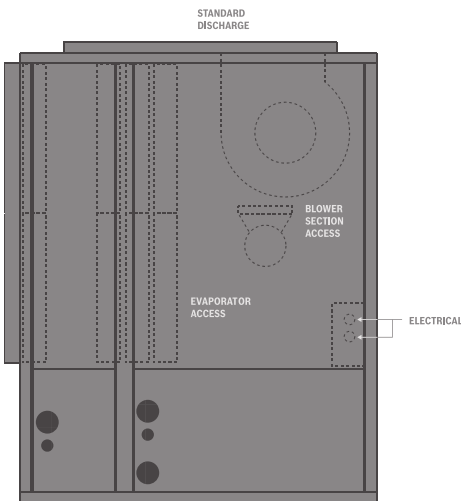
TOP VIEW



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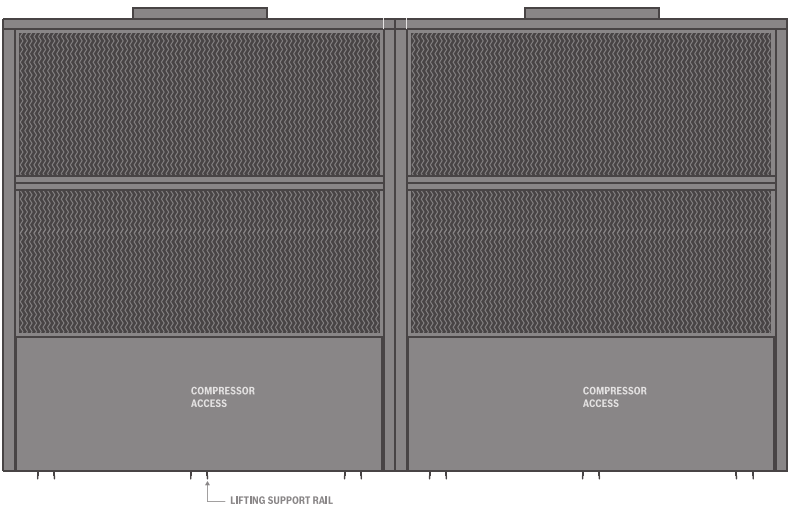


Vertical Unit (Low) Configurations - MC480-720 Model

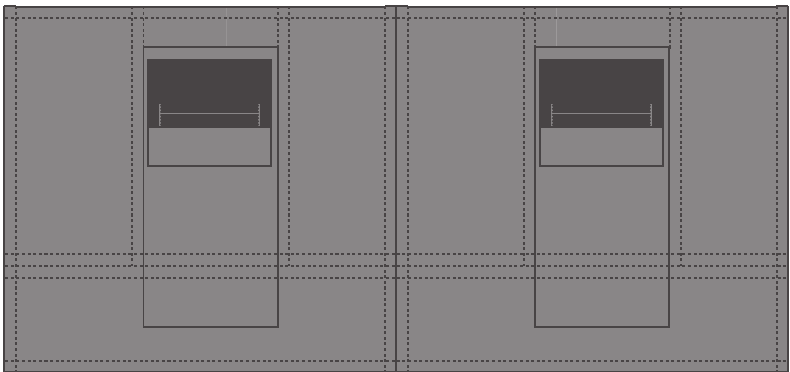


LEFT SIDE VIEW

REAR VIEW



TOP VIEW

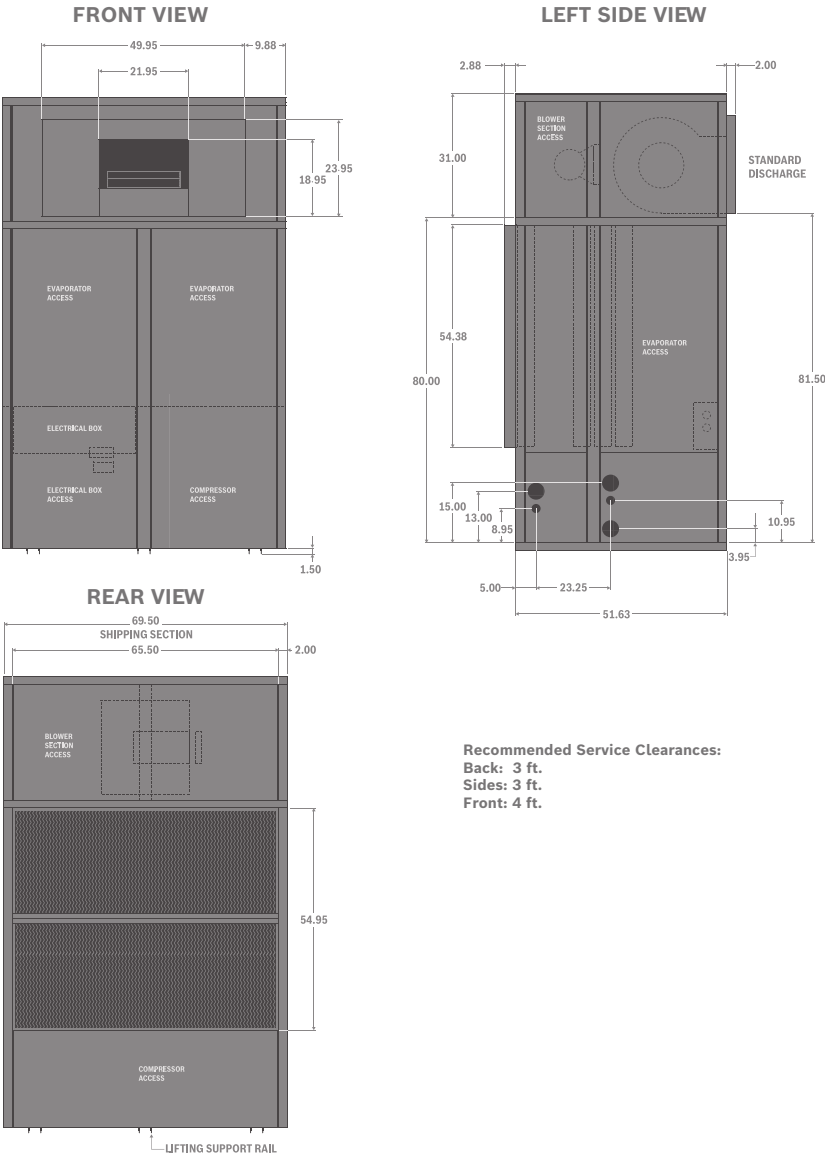


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Vertical Unit (High) Dimensions and Connections - MC360 Model



Recommended Service Clearances:
Back: 3 ft.
Sides: 3 ft.
Front: 4 ft.

Vertical Unit (High) Dimensions - MC360 Model

Model Number	Width	Depth	Height	Blower Section Access Panel Width	Main Section Height w/o Support Rails	Filter Rack/Duct Flange Height	Blower Section Height	Return Duct Flange Depth	Discharge Duct Flange Depth	Bottom to Discharge Duct Flange	Condensate Drain Height	Water In Height	Water Out Height	Economizer Water In Height	Economizer Drain Height	Back to Economizer Connections	Economizer Connections to Condenser Connections	Lifting Support Rail Height	Discharge Height	Discharge Width	Discharge Duct Flange Height	Discharge Duct Flange Width	Side to Discharge Duct Flange	Condenser Water Connections (FPT)	Condensate Drain Connection (FPT)	Economizer Drain Connection (FPT)	Recommended Replacement Nominal Filter Size 4" thick
360	69.50	51.63	111.00	65.50	80.00	54.38	31.00	2.88	2.00	81.50	10.95	3.95	15.00	13.00	8.95	5.00	23.25	1.50	18.95	21.95	23.95	49.95	9.88	2 1/2"	3/4"	1 1/4"	17 x 27 (8)

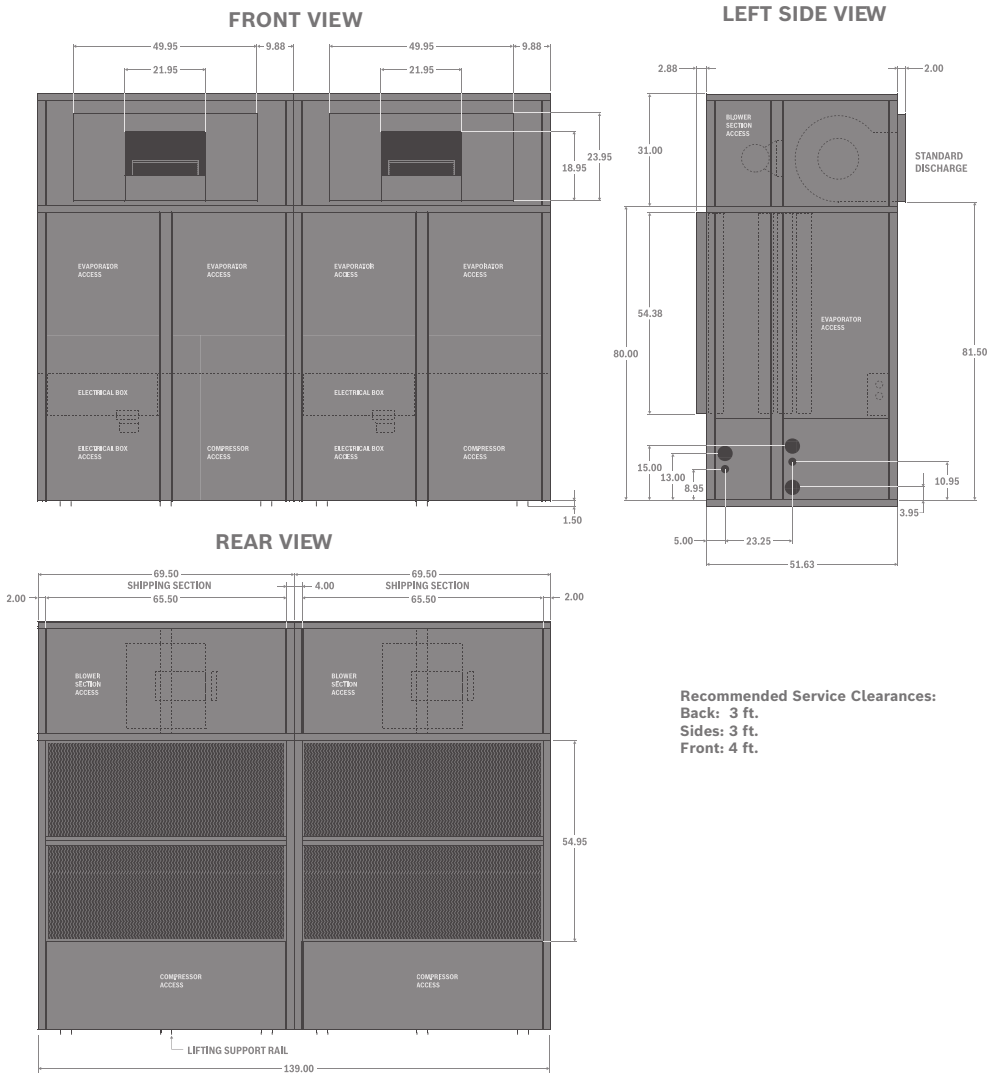
All dimensions in inches unless otherwise noted. All dimensions within $\pm 0.125"$. Specifications subject to change without notice.

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Vertical Unit (High) Dimensions and Connections - MC480-720 Model



Vertical Unit (High) Dimensions - MC480-720 Model

Model Number	Width	Depth	Height	Blower Section Access Panel Width	Main Section Height w/o Support Rails	Filter Rack/Duct Flange Height	Blower Section Height	Return Duct Flange Depth	Discharge Duct Flange Depth	Bottom to Discharge Duct Flange	Condensate Drain Height	Water In Height	Water Out Height	Economizer Water In Height	Economizer Drain Height	Back to Economizer Connections	Economizer Connections to Condenser Connections	Lifting Support Rail Height	Discharge Height	Discharge Width	Discharge Duct Flange Height	Discharge Duct Flange Width	Side to Discharge Duct Flange	Condenser Water Connections (FPT)	Condensate Drain Connection (FPT)	Economizer Drain Connection (FPT)	Recommended Replacement Nominal Filter Size 4" thick
480	139.00	51.63	111.00	65.50	80.00	54.38	31.00	2.88	2.00	81.50	10.95	3.95	15.00	13.00	8.95	5.00	23.25	1.50	18.95	21.95	23.95	49.95	9.88	2 1/2"	3/4"	1 1/4"	17 x 27 (16)
600	139.00	51.63	111.00	65.50	80.00	54.38	31.00	2.88	2.00	81.50	10.95	3.95	15.00	13.00	8.95	5.00	23.25	1.50	18.95	21.95	23.95	49.95	9.88	3"	3/4"	1 1/4"	17 x 27 (16)
720	139.00	51.63	111.00	65.50	80.00	54.38	31.00	2.88	2.00	81.50	10.95	3.95	15.00	13.00	8.95	5.00	23.25	1.50	18.95	21.95	23.95	49.95	9.88	3"	3/4"	1 1/4"	17 x 27 (16)

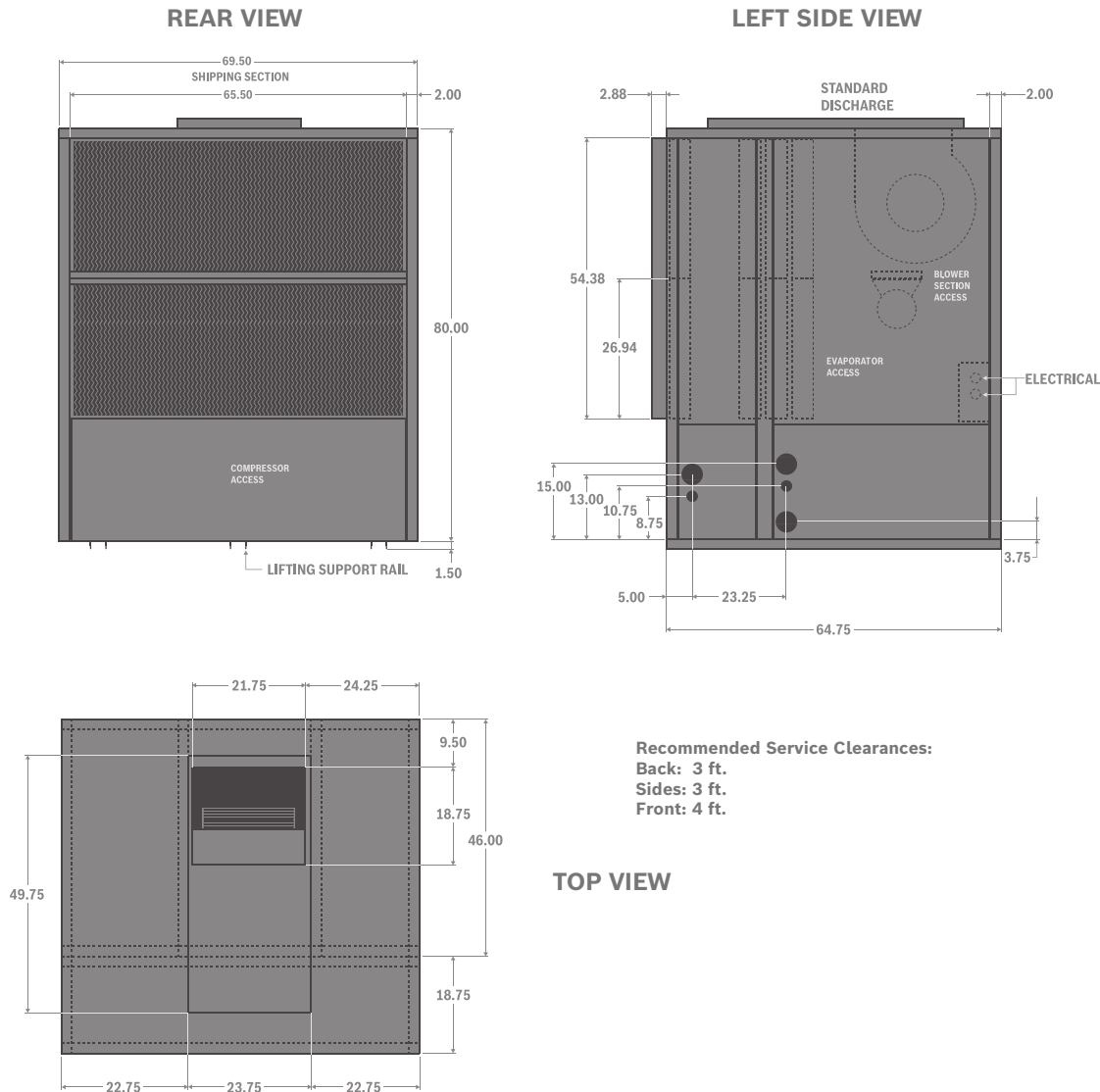
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Vertical Unit (Low) Dimensions and Connections - MC360 Model



Vertical Unit (Low) Dimensions - MC360 Model

Model Number	Width	Depth	Height	Blower Section Access Panel Width	Main Section Height w/o Support Rails	Filter Rack/Duct Flange Height	Blower Section Height	Return Duct Flange Depth	Discharge Duct Flange Depth	Bottom to Discharge Duct Flange	Condensate Drain Height	Water In Height	Water Out Height	Economizer Water In Height	Economizer Drain Height	Back to Economizer Connections	Economizer Connections to Condenser Connections	Lifting Support Rail Height	Discharge Height	Discharge Width	Discharge Duct Flange Height	Discharge Duct Flange Width	Side to Discharge Duct Flange	Condenser Water Connections (FPT)	Condensate Drain Connection (FPT)	Economizer Drain Connection (FPT)	Recommended Replacement Nominal Filter Size 4" thick
360	69.50	64.75	80.00	65.50	54.38	2.88	10.75	3.75	15.00	13.00	8.75	5.00	23.25	1.50	18.75	21.75	24.25	9.50	49.75	23.75	22.75	46.00	18.75	2 1/2"	3/4"	1 1/4"	17 x 27 (8)

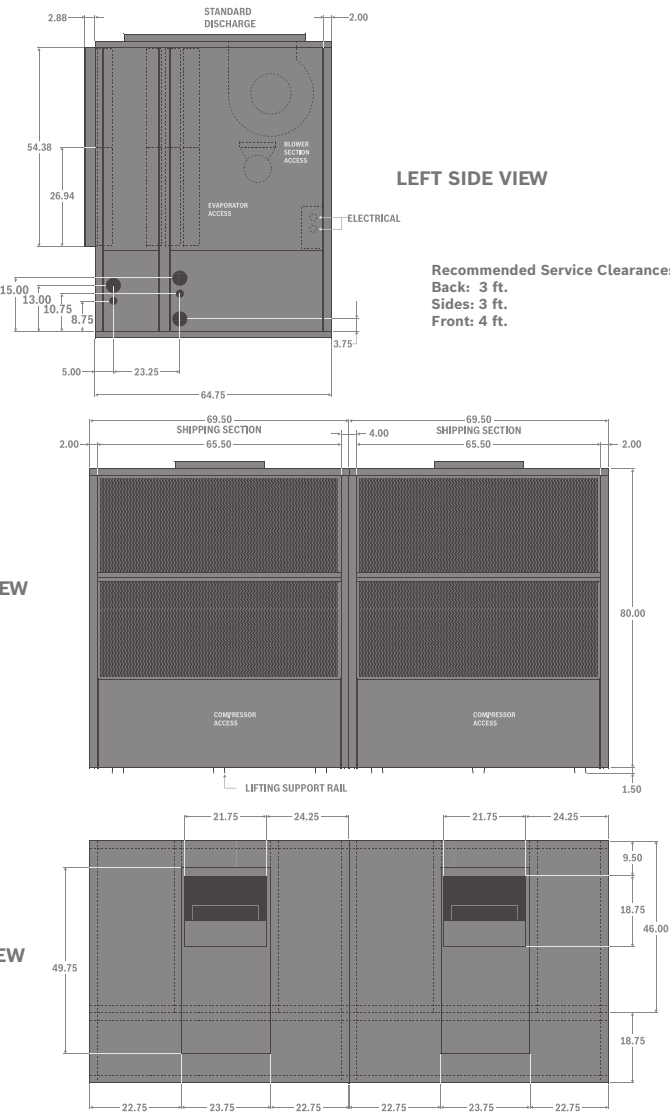
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Vertical Unit (Low) Dimensions and Connections - MC480-720 Model



Vertical Unit (Low) Dimensions - MC480-720 Model

Model Number	Width	Depth	Height	Blower Section Access Panel Width	Main Section Height w/o Support Rails	Filter Rack/Duct Flange Height	Blower Section Height	Return Duct Flange Depth	Discharge Duct Flange Depth	Bottom to Discharge Duct Flange	Condensate Drain Height	Water In Height	Water Out Height	Economizer Water In Height	Economizer Drain Height	Back to Economizer Connections	Economizer Connections to Condenser Connections	Lifting Support Rail Height	Discharge Height	Discharge Width	Discharge Duct Flange Height	Discharge Duct Flange Width	Side to Discharge Duct Flange	Condenser Water Connections (FPT)	Condensate Drain Connection (FPT)	Economizer Drain Connection (FPT)	Recommended Replacement Nominal Filter Size 4" thick
480	139.00	64.75	80.00	65.50	54.38	2.88	10.75	3.75	15.00	13.00	8.75	5.00	23.25	1.50	18.75	21.75	24.25	9.50	49.75	23.75	22.75	46.00	18.75	2 1/2"	3/4"	1 1/4"	17 x 27 (16)
600	139.00	64.75	80.00	65.50	54.38	2.88	10.75	3.75	15.00	13.00	8.75	5.00	23.25	1.50	18.75	21.75	24.25	9.50	49.75	23.75	22.75	46.00	18.75	3"	3/4"	1 1/4"	17 x 27 (16)
720	139.00	64.75	80.00	65.50	54.38	2.88	10.75	3.75	15.00	13.00	8.75	5.00	23.25	1.50	18.75	21.75	24.25	9.50	49.75	23.75	22.75	46.00	18.75	3"	3/4"	1 1/4"	17 x 27 (16)

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Operating Limits			
Fluid Type	Limit	Cooling	Heating
Air	Minimum ambient air	50°F	40°F
	Maximum ambient air	100°F	85°F
	Rated ambient air	80°F	68°F
	Minimum Air coil entering air db/wb	65/57°F	45°F
	Maximum Air Coil entering air db/wb	95/85°F	80°F
	Rated Air coil entering air db/wb	80/67°F	68/59°F
Liquid	Antifreeze Protection Required LWT / EWT	-	< 40/< 50°F
	Minimum water coil entering fluid	50°F	50/20°F
	Maximum water coil entering fluid	110°F	80°F
	Rated water coil entering fluid	Water Loop application	86°F
		Ground Loop application	77°F
		Ground Water application	59°F
	Maximum operating water pressure	Standard unit 450psi/3,102kPA	
	Minimum operating water flow rate	1.5 GPM per ton	

* Antifreeze solution is required at these fluid temperatures.

MC R-454B Model Series - Commercial Water Source Heat Pumps



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Antifreeze Correction							
Antifreeze Type	Antifreeze Volume %	Cooling			Heating		WPD Correction Factor EWT 30 °F
		EWT 90 °F			EWT 30 °F		
		Total Cap.	Sens. Cap	Power	Htg. Cap	Power	
Water	0	1.000	1.000	1.000	1.000	1.000	1.000
Propylene Glycol	5	0.998	0.998	1.004	0.995	0.999	1.085
	10	0.996	0.995	1.008	0.989	0.997	1.165
	15	0.994	0.992	1.012	0.980	0.995	1.257
	25	0.989	0.983	1.023	0.962	0.990	1.491
	35	0.981	0.972	1.040	0.938	0.984	1.812
	40	0.976	0.965	1.050	0.923	0.981	2.012
	45	0.970	0.956	1.062	0.907	0.977	2.240
Methanol	50	0.964	0.948	1.076	0.890	0.972	2.502
	5	0.997	0.997	1.003	0.990	0.997	1.060
	10	0.996	0.996	1.005	0.979	0.993	1.100
	15	0.994	0.994	1.008	0.970	0.990	1.140
Ethanol	5	0.998	0.998	1.002	0.981	0.994	1.160
	10	0.996	0.996	1.004	0.960	0.988	1.230
	15	0.992	0.992	1.006	0.944	0.983	1.280
	25	0.986	0.986	1.009	0.917	0.974	1.400
Ethylene Glycol	5	0.999	0.999	1.002	0.997	0.999	1.035
	10	0.998	0.996	1.005	0.993	0.998	1.086
	15	0.996	0.994	1.009	0.986	0.996	1.145
	25	0.992	0.988	1.018	0.974	0.993	1.278
	30	0.989	0.984	1.023	0.967	0.992	1.354
	35	0.986	0.979	1.029	0.960	0.990	1.436
	40	0.983	0.974	1.036	0.953	0.988	1.528
	45	0.979	0.969	1.044	0.944	0.986	1.629
50	0.975	0.962	1.053	0.934	0.983	1.743	

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Waterside Pressure Drop			
Model Number	Water Flow Rate (GPM)	Waterside Pressure Drop without Internal Valve (PSI)	Waterside Pressure Drop with Internal Valve (PSI)
360	45.0	1.7	2.1
	67.5	3.5	4.3
	90.0	5.8	7.3
	120.0	9.7	12.4
480	60.0	2.1	2.8
	90.0	4.4	5.9
	120.0	7.2	9.9
	160.0	12.0	16.7
600	75.0	1.6	2.6
	112.5	3.2	5.5
	150.0	5.4	9.5
	200.0	8.9	16.3
720	90.0	1.7	3.2
	135.0	3.5	6.9
	180.0	5.8	11.8
	240.0	9.7	20.3

- All values based upon pure water at EWT 70°F

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Electrical Data - Belt Drive Motor

Model Number	Voltage Code	Rated Voltage	Voltage Min/Max	Compressor			Blower Motor			Total Unit w/ Belt Drive Motor			Compressor Service			
				QTY	RLA (each)	LRA (each)	Motor HP	Motor Qty	FLA	Min Circuit Amps	MOP Calc	MOP	Cold Winding Resistance			Run Capacitor (µF/V)
360	3	208-230/3/60	197/253	2	49.0	386	7.5	1	21.2	131.5	180.5	175	-	-	0.18	-
	3	208-230/3/60	197/253	2	49.0	386	10	1	27.8	138.1	187.1	175	-	-	0.18	-
	3	208-230/3/60	197/253	2	49.0	386	15	1	40.5	150.8	199.8	175	-	-	0.18	-
	3	208-230/3/60	197/253	2	49.0	386	20	1	53.0	164.3	217.3	200	-	-	0.18	-
	4	460/3/60	414/506	2	24.0	182	7.5	1	9.9	63.9	87.9	80	-	-	0.79	-
	4	460/3/60	414/506	2	24.0	182	10	1	12.7	66.7	90.7	90	-	-	0.79	-
	4	460/3/60	414/506	2	24.0	182	15	1	18.8	72.8	96.8	90	-	-	0.79	-
	4	460/3/60	414/506	2	24.0	182	20	1	24.3	78.4	102.7	100	-	-	0.79	-
	5	575/3/60	518/632	2	19.2	131	7.5	1	7.9	51.1	70.3	70	-	-	1.38	-
	5	575/3/60	518/632	2	19.2	131	10	1	10.3	53.5	72.7	70	-	-	1.38	-
480	5	575/3/60	518/632	2	19.2	131	15	1	15.1	58.3	77.5	70	-	-	1.38	-
	5	575/3/60	518/632	2	19.2	131	20	1	19.5	62.8	82.3	80	-	-	1.38	-
	3	208-230/3/60	197/253	4	33.3	255	7.5	2	21.2	183.9	217.2	200	-	-	0.33	-
	3	208-230/3/60	197/253	4	33.3	255	10	2	27.8	197.1	230.4	225	-	-	0.33	-
	3	208-230/3/60	197/253	4	33.3	255	15	2	40.5	224.3	264.8	250	-	-	0.33	-
	3	208-230/3/60	197/253	4	33.3	255	20	2	53.0	252.5	305.5	300	-	-	0.33	-
	4	460/3/60	414/506	4	15.4	140	7.5	2	9.9	85.3	100.7	100	-	-	1.19	-
	4	460/3/60	414/506	4	15.4	140	10	2	12.7	90.9	106.3	100	-	-	1.19	-
	4	460/3/60	414/506	4	15.4	140	15	2	18.8	103.9	122.7	110	-	-	1.19	-
	4	460/3/60	414/506	4	15.4	140	20	2	24.3	116.3	140.6	125	-	-	1.19	-
600	5	575/3/60	518/632	4	12.9	108	7.5	2	7.9	70.6	83.5	80	-	-	2.06	-
	5	575/3/60	518/632	4	12.9	108	10	2	10.3	75.4	88.3	80	-	-	2.06	-
	5	575/3/60	518/632	4	12.9	108	15	2	15.1	85.6	100.7	100	-	-	2.06	-
	5	575/3/60	518/632	4	12.9	108	20	2	19.5	95.5	115.0	110	-	-	2.06	-
	3	208-230/3/60	197/253	4	40.8	270	7.5	2	21.2	215.8	256.6	250	-	-	0.27	-
	3	208-230/3/60	197/253	4	40.8	270	10	2	27.8	229.0	269.8	250	-	-	0.27	-
	3	208-230/3/60	197/253	4	40.8	270	15	2	40.5	254.4	295.2	250	-	-	0.27	-
	3	208-230/3/60	197/253	4	40.8	270	20	2	53.0	282.5	335.5	300	-	-	0.27	-
	4	460/3/60	414/506	4	19.4	147	7.5	2	9.9	102.3	121.7	110	-	-	1.04	-
	4	460/3/60	414/506	4	19.4	147	10	2	12.7	107.9	127.3	125	-	-	1.04	-
720	4	460/3/60	414/506	4	19.4	147	15	2	18.8	120.1	139.5	125	-	-	1.04	-
	4	460/3/60	414/506	4	19.4	147	20	2	24.3	132.3	156.6	150	-	-	1.04	-
	5	575/3/60	518/632	4	13.7	109	7.5	2	7.9	74.0	87.7	80	-	-	1.69	-
	5	575/3/60	518/632	4	13.7	109	10	2	10.3	78.8	92.5	90	-	-	1.69	-
	5	575/3/60	518/632	4	13.7	109	15	2	15.1	88.8	103.9	100	-	-	1.69	-
	5	575/3/60	518/632	4	13.7	109	20	2	19.5	98.7	118.2	110	-	-	1.69	-
	3	208-230/3/60	197/253	4	49.0	386	7.5	2	21.2	250.7	299.7	250	-	-	0.18	-
	3	208-230/3/60	197/253	4	49.0	386	10	2	27.8	263.9	312.9	300	-	-	0.18	-
	3	208-230/3/60	197/253	4	49.0	386	15	2	40.5	289.3	338.3	300	-	-	0.18	-
	3	208-230/3/60	197/253	4	49.0	386	20	2	53.0	315.3	368.3	350	-	-	0.18	-
	4	460/3/60	414/506	4	24.0	182	7.5	2	9.9	121.8	145.8	125	-	-	0.79	-
720	4	460/3/60	414/506	4	24.0	182	10	2	12.7	127.4	151.4	150	-	-	0.79	-
	4	460/3/60	414/506	4	24.0	182	15	2	18.8	139.6	163.6	150	-	-	0.79	-
	4	460/3/60	414/506	4	24.0	182	20	2	24.3	150.7	175.0	150	-	-	0.79	-
	5	575/3/60	518/632	4	19.2	131	7.5	2	7.9	97.4	116.6	110	-	-	1.38	-
	5	575/3/60	518/632	4	19.2	131	10	2	10.3	102.2	121.4	110	-	-	1.38	-
	5	575/3/60	518/632	4	19.2	131	15	2	15.1	111.8	131.0	125	-	-	1.38	-
	5	575/3/60	518/632	4	19.2	131	20	2	19.5	120.7	140.2	125	-	-	1.38	-

NOTE: Resistance value tolerance +/- 7%. All resistance values must be measured with compressor at room temperature.

Bosch Thermotechnology Corp.
Londonderry, NH • Watertown, MA • Ft. Lauderdale, FL

MC R-454B Model Series - Commercial Water Source Heat Pumps



Electrical Data - Belt Drive Motor With Inverter

Model Number	Voltage Code	Rated Voltage	Voltage Min/Max	Compressor			Blower Motor			Total Unit w/ Belt Drive Motor			Compressor Service			
				QTY	RLA (each)	LRA (each)	Motor HP	Motor Qty	Inverter Input Current (each)	Min Circuit Amps	MOP Calc	MOP	Single Phase R-C	Single Phase S-C	Three Phase Line-Line	Run Capacitor (µF/V)
360	3	208-230/3/60	197/253	2	49.0	386	7.5	1	24.2	134.5	183.5	175	-	-	0.18	-
	3	208-230/3/60	197/253	2	49.0	386	10	1	30.8	141.1	190.1	175	-	-	0.18	-
	3	208-230/3/60	197/253	2	49.0	386	15	1	46.2	156.5	205.5	200	-	-	0.18	-
	3	208-230/3/60	197/253	2	49.0	386	20	1	59.4	172.3	231.7	225	-	-	0.18	-
	4	460/3/60	414/506	2	24.0	182	7.5	1	12.0	66.0	90.0	90	-	-	0.79	-
	4	460/3/60	414/506	2	24.0	182	10	1	14.0	68.0	92.0	90	-	-	0.79	-
	4	460/3/60	414/506	2	24.0	182	15	1	23.0	77.0	101.0	100	-	-	0.79	-
	4	460/3/60	414/506	2	24.0	182	20	1	27.0	81.8	108.8	100	-	-	0.79	-
	5	575/3/60	518/632	2	19.2	131	7.5	1	9.0	52.2	71.4	70	-	-	1.38	-
	5	575/3/60	518/632	2	19.2	131	10	1	11.0	54.2	73.4	70	-	-	1.38	-
480	3	208-230/3/60	197/253	4	33.3	255	7.5	2	24.2	189.9	223.2	200	-	-	0.33	-
	3	208-230/3/60	197/253	4	33.3	255	10	2	30.8	203.1	236.4	225	-	-	0.33	-
	3	208-230/3/60	197/253	4	33.3	255	15	2	46.2	237.2	283.4	250	-	-	0.33	-
	3	208-230/3/60	197/253	4	33.3	255	20	2	59.4	266.9	326.3	300	-	-	0.33	-
	4	460/3/60	414/506	4	15.4	140	7.5	2	12.0	89.5	104.9	100	-	-	1.19	-
	4	460/3/60	414/506	4	15.4	140	10	2	14.0	93.5	108.9	100	-	-	1.19	-
	4	460/3/60	414/506	4	15.4	140	15	2	23.0	113.4	136.4	125	-	-	1.19	-
	4	460/3/60	414/506	4	15.4	140	20	2	27.0	122.4	149.4	125	-	-	1.19	-
	5	575/3/60	518/632	4	12.9	108	7.5	2	9.0	72.8	85.7	80	-	-	2.06	-
	5	575/3/60	518/632	4	12.9	108	10	2	11.0	76.8	89.7	80	-	-	2.06	-
600	3	208-230/3/60	197/253	4	40.8	270	7.5	2	24.2	221.8	262.6	250	-	-	0.27	-
	3	208-230/3/60	197/253	4	40.8	270	10	2	30.8	235.0	275.8	250	-	-	0.27	-
	3	208-230/3/60	197/253	4	40.8	270	15	2	46.2	267.2	313.4	300	-	-	0.27	-
	3	208-230/3/60	197/253	4	40.8	270	20	2	59.4	296.9	356.3	350	-	-	0.27	-
	4	460/3/60	414/506	4	19.4	147	7.5	2	12.0	106.5	125.9	125	-	-	1.04	-
	4	460/3/60	414/506	4	19.4	147	10	2	14.0	110.5	129.9	125	-	-	1.04	-
	4	460/3/60	414/506	4	19.4	147	15	2	23.0	129.4	152.4	150	-	-	1.04	-
	4	460/3/60	414/506	4	19.4	147	20	2	27.0	138.4	165.4	150	-	-	1.04	-
	5	575/3/60	518/632	4	13.7	109	7.5	2	9.0	76.2	89.9	80	-	-	1.69	-
	5	575/3/60	518/632	4	13.7	109	10	2	11.0	80.2	93.9	90	-	-	1.69	-
720	3	208-230/3/60	197/253	4	49.0	386	7.5	2	24.2	256.7	305.7	300	-	-	0.18	-
	3	208-230/3/60	197/253	4	49.0	386	10	2	30.8	269.9	318.9	300	-	-	0.18	-
	3	208-230/3/60	197/253	4	49.0	386	15	2	46.2	300.7	349.7	300	-	-	0.18	-
	3	208-230/3/60	197/253	4	49.0	386	20	2	59.4	329.7	389.1	350	-	-	0.18	-
	4	460/3/60	414/506	4	24.0	182	7.5	2	12.0	126.0	150.0	150	-	-	0.79	-
	4	460/3/60	414/506	4	24.0	182	10	2	14.0	130.0	154.0	150	-	-	0.79	-
	4	460/3/60	414/506	4	24.0	182	15	2	23.0	148.0	172.0	150	-	-	0.79	-
	4	460/3/60	414/506	4	24.0	182	20	2	27.0	156.8	183.8	175	-	-	0.79	-
	5	575/3/60	518/632	4	19.2	131	7.5	2	9.0	99.6	118.8	110	-	-	1.38	-
	5	575/3/60	518/632	4	19.2	131	10	2	11.0	103.6	122.8	110	-	-	1.38	-

NOTE: Resistance value tolerance +/- 7%. All resistance values must be measured with compressor at room temperature.

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MC R-454B Model Series - Commercial Water Source Heat Pumps



Blower Performance CFM (Standard Blower Motor)														
Model Number	Nominal Airflow	Airflow	Available External Static Pressure (in. wc. wet coil and filter included)											
			2.00		2.50		3.00		3.50		4.00		4.50	
			RPM	HP	RPM	HP	RPM	HP	RPM	HP	RPM	HP	RPM	HP
360	12,200	9,500	813	7.5	871	15	949	10	1034	15	1111	15	1172	15
		10,000	813	7.5	916	10	949	10	1034	15	1111	15	1172	15
		10,500	842	10	916	10	982	15	1034	15	1111	15	1172	15
		11,000	842	10	916	10	982	15	1034	15	1111	15	1172	15
		11,500	871	15	916	15	982	15	1034	15	1111	15	1172	20
		12,000	871	15	949	15	982	15	1072	15	1111	20	1172	20
		12,500	871	15	949	15	1034	15	1072	20	1111	20	1172	20
		13,500	916	15	982	20	1034	20	1072	20	1149	20	-	-
480	16,000	13,000	794	7.5	916	7.5	982	7.5	1111	7.5	1200	10	1256	10
		14,000	794	7.5	871	7.5	982	7.5	1072	10	1172	10	1256	10
		15,000	794	7.5	871	7.5	982	7.5	1072	10	1172	10	1256	15
		16,000	794	7.5	871	7.5	982	7.5	1034	10	1149	10	1256	15
		17,000	794	7.5	871	7.5	982	7.5	1034	10	1111	15	1214	15
		18,000	813	7.5	871	7.5	949	10	1034	10	1111	15	1172	15
		19,000	813	7.5	871	15	949	10	1034	15	1111	15	1172	15
600	20,000	16,000	794	7.5	871	7.5	982	7.5	1034	10	1149	10	1256	15
		17,000	794	7.5	871	7.5	982	7.5	1034	10	1111	15	1214	15
		18,000	813	7.5	871	7.5	949	10	1034	10	1111	15	1172	15
		19,000	813	7.5	871	15	949	10	1034	15	1111	15	1172	15
		20,000	813	7.5	916	10	949	10	1034	15	1111	15	1172	15
		21,000	842	10	916	10	982	15	1034	15	1111	15	1172	15
		22,000	842	10	916	10	982	15	1034	15	1111	15	1172	15
		23,000	871	15	916	15	982	15	1034	15	1111	15	1172	20
720	24,000	24,000	871	15	949	15	982	15	1072	15	1111	20	1172	20
		19,000	813	7.5	871	15	949	10	1034	15	1111	15	1172	15
		20,000	813	7.5	916	10	949	10	1034	15	1111	15	1172	15
		21,000	842	10	916	10	982	15	1034	15	1111	15	1172	15
		22,000	842	10	916	10	982	15	1034	15	1111	15	1172	15
		23,000	871	15	916	15	982	15	1034	15	1111	15	1172	20
		24,000	871	15	949	15	982	15	1072	15	1111	20	1172	20
25,000	871	15	949	15	1034	15	1072	20	1111	20	1172	20		

MC R-454B Model Series - Commercial Water Source Heat Pumps



Physical Data					
Description	Unit	360	480	600	720
Compressor Type	qty	Scroll (2)	Scroll (4)	Scroll (4)	Scroll (4)
Compressor Size	hp	15	10	12.5	15
Max Water Working Pressure	psig/kPa	450/3102	450/3102	450/3102	450/3102
Number of Refrigerant Circuits	—	2	4	4	4
Air Side Coils					
Evaporator Coil Type	—	Tube-Fin	Tube-Fin	Tube-Fin	Tube-Fin
Evaporator Dimensions (H x L)	in	26 x 62 (2)	26 x 62 (4)	26 x 62 (4)	26 x 62 (4)
Evaporator Rows	—	4	3	4	4
Waterside Economizer Coil Dimensions (H x L)	in	26.2 X 61 (2)	26.2 X 61 (4)	26.2 X 61 (4)	26.2 X 61 (4)
Waterside Economizer Coil Rows	—	3	3	3	3
Hot Gas Reheat Coil Dimensions (H x L)	in	26.2 X 62.5 (2)	26.2 X 62.5 (4)	26.2 X 62.5 (4)	26.2 X 62.5 (4)
Hot Gas Reheat Coil Rows	—	1	1	1	1
Motor & Blower					
Fan Motor Type/Speeds	—	Belt Drive/1	Belt Drive/1	Belt Drive/1	Belt Drive/1
Standard Fan Motor	hp	15	10	15	15
Number of Motors	—	1	2	2	2
Available Fan Motors	hp	7.5, 10, 15, 20	7.5, 10, 15	7.5, 10, 15, 20	7.5, 10, 15, 20
Blower Wheel Size (Dia. x W x Qty)	in	18 x 18 x 1	18 x 18 x 2	18 x 18 x 2	18 x 18 x 2
Water Coil					
Connection Type	—	FPT	FPT	FPT	FPT
Size	in	2 1/2	2 1/2	3	3
Water Coil Type (Qty)	—	Coaxial (2)	Coaxial (4)	Coaxial (4)	Coaxial (4)
Coil Volume	gal	2.69	1.80	2.69	2.69
Vertical Cabinet					
Standard Filter Size - 4" (H x L)	in	17 x 27 (8)	17 x 27 (16)	17 x 27 (16)	17 x 27 (16)
Refrigeration Charge (Circuit)	oz	264	144	284	264
Refrigeration Charge (Total)	oz	528	576	1,136	1,056
Weight - Operating	lbs	2,650	4,750	5,500	5,550
Weight - Shipping	lbs	2,866	4,846	5,700	5,732

MC R-454B Model Series - Commercial Water Source Heat Pumps



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Module Operating Weights									
Description	Unit	Vertical Unit (High) Configuration				Vertical Unit (Low) Configuration			
		360	480	600	720	360	480	600	720
Main Air Conditioning Section									
Number of Sections	qty	1	2	2	2	1	2	2	2
Main Section (ea)	lbs	1,450	1,175	1,550	1,575	2,100	1,825	2,200	2,225
Reheat Coil Option (ea)	lbs	40	40	40	40	40	40	40	40
Filter/Economizer Sections									
Number of Sections	qty	1	2	2	2	1	2	2	2
Filter Section (ea)	lbs	310	310	310	310	310	310	310	310
Economizer Option (ea)	lbs	200	200	200	200	200	200	200	200
Blower Section									
Number of Sections	qty	1	2	2	2	Included in Main Air Conditioning Section			
Fan Section (w/ Max Motor Size)	lbs	650	650	650	650	Included in Main Air Conditioning Section			
Total Unit									
Number of Sections	qty	3	6	6	6	2	4	4	4
Total Unit with Options	lbs	2,650	4,750	5,500	5,550	2,650	4,750	5,500	5,550

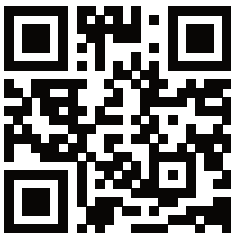


MC Capacity Data



For authorized users only.

- For extended performance data please access Bosch Select Tool 2.0 (BST2.0) in your device
- To obtain an access, please scan the QR code and enter your information (for authorized users with login credentials)



Scan QR Code

MC R-454B Model Series - Commercial Water Source Heat Pumps



Temperature Pressure Operating Data - 360									
Enter Fluid Temp (°F)	Water Flow (GPM)	Cooling				Heating			
		Suction Pressure (PSIG)	Discharge Pressure (PSIG)	Water Temp Rise (°F)	Air Temp Drop (°F)	Suction Pressure (PSIG)	Discharge Pressure (PSIG)	Water Temp Drop (°F)	Air Temp Rise (°F)
30	45.0	Operation Not Recommended				56-72	255-312	8-10	18-22
	90.0					64-80	265-323	4-5	20-25
40	45.0	111-137	196-236	20-25	18-23	66-84	268-330	10-11	21-25
	90.0	106-131	168-206	9-14	18-23	75-94	279-342	5-6	23-28
50	45.0	112-139	222-270	20-25	18-23	77-98	283-349	11-12	24-29
	90.0	111-137	194-239	10-13	18-23	88-110	293-361	6-7	26-32
60	45.0	114-141	250-306	20-25	18-22	91-114	293-364	13-15	27-33
	90.0	112-139	221-273	9-14	19-23	103-128	308-381	7-8	30-36
70	45.0	115-143	284-346	20-24	18-23	105-132	310-386	14-16	30-36
	90.0	114-141	253-312	9-14	18-23	120-148	329-407	8-9	33-40
80	45.0	117-145	320-390	20-24	18-22	122-151	329-409	16-19	33-40
	90.0	115-143	288-354	10-13	18-23	140-171	351-434	9-11	37-44
90	45.0	118-147	360-438	19-24	17-21	140-172	350-436	18-21	37-45
	90.0	117-145	329-401	9-12	18-22	162-196	377-464	10-12	41-49
100	45.0	120-150	406-490	19-23	17-21	Operation Not Recommended			
	90.0	119-148	374-453	9-12	17-21				

Temperature Pressure Operating Data - 480									
Enter Fluid Temp (°F)	Water Flow (GPM)	Cooling				Heating			
		Suction Pressure (PSIG)	Discharge Pressure (PSIG)	Water Temp Rise (°F)	Air Temp Drop (°F)	Suction Pressure (PSIG)	Discharge Pressure (PSIG)	Water Temp Drop (°F)	Air Temp Rise (°F)
30	60.0	Operation Not Recommended				56-72	261-318	8-10	18-22
	120.0					63-79	271-329	4-5	19-24
40	60.0	112-138	208-248	22-26	20-25	65-83	273-335	9-10	21-25
	120.0	110-135	175-213	10-15	20-25	73-92	284-347	5-6	22-27
50	60.0	113-140	233-281	21-26	20-25	76-97	287-353	11-12	23-28
	120.0	112-138	199-244	11-14	20-25	86-108	300-368	6-7	25-31
60	60.0	115-142	262-318	21-25	20-24	89-112	303-374	12-14	26-32
	120.0	113-140	227-279	10-14	20-24	101-126	318-391	7-8	29-35
70	60.0	116-144	296-358	20-25	19-24	102-129	320-396	14-16	29-35
	120.0	115-142	258-317	10-14	19-24	117-145	339-417	8-9	32-39
80	60.0	118-146	332-402	20-25	19-23	118-147	340-420	15-18	32-39
	120.0	116-144	294-360	10-13	19-24	136-167	363-446	8-10	36-43
90	60.0	119-148	373-451	20-24	18-22	135-167	361-447	17-20	36-44
	120.0	118-146	334-406	10-13	19-23	157-191	390-477	10-12	40-48
100	60.0	121-151	420-504	19-24	18-22	Operation Not Recommended			
	120.0	120-149	379-458	10-13	18-22				

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MC R-454B Model Series - Commercial Water Source Heat Pumps



Temperature Pressure Operating Data - 600

Enter Fluid Temp (°F)	Water Flow (GPM)	Cooling				Heating			
		Suction Pressure (PSIG)	Discharge Pressure (PSIG)	Water Temp Rise (°F)	Air Temp Drop (°F)	Suction Pressure (PSIG)	Discharge Pressure (PSIG)	Water Temp Drop (°F)	Air Temp Rise (°F)
30	75.0	Operation Not Recommended				52-68	240-297	6-8	17-21
	150.0					59-75	228-286	4-5	18-23
40	75.0	103-129	173-213	20-24	17-22	60-78	249-311	8-9	19-23
	150.0	101-126	155-193	9-14	17-22	66-85	256-319	5-6	21-26
50	75.0	105-132	197-245	20-24	17-22	70-91	258-324	10-11	22-27
	150.0	104-130	179-224	10-13	17-22	77-99	264-332	5-6	23-29
60	75.0	107-134	224-280	19-24	17-21	80-103	270-341	11-13	24-30
	150.0	106-133	206-258	9-14	17-21	89-114	279-352	6-7	26-32
70	75.0	108-136	255-317	19-24	16-21	92-119	282-358	13-15	27-33
	150.0	106-133	207-266	9-14	17-22	103-131	304-382	7-8	29-36
80	75.0	110-138	290-360	20-24	21-25	105-134	293-373	14-17	30-37
	150.0	109-137	273-339	9-12	16-21	119-150	307-390	8-10	33-40
90	75.0	112-141	331-409	19-23	16-20	119-151	318-404	16-19	32-40
	150.0	110-138	297-369	9-12	16-20	137-171	326-413	9-11	36-44
100	75.0	113-143	372-456	18-23	15-19	Operation Not Recommended			
	150.0	113-142	357-436	9-12	16-20				

Temperature Pressure Operating Data - 720

Enter Fluid Temp (°F)	Water Flow (GPM)	Cooling				Heating			
		Suction Pressure (PSIG)	Discharge Pressure (PSIG)	Water Temp Rise (°F)	Air Temp Drop (°F)	Suction Pressure (PSIG)	Discharge Pressure (PSIG)	Water Temp Drop (°F)	Air Temp Rise (°F)
30	90.0	Operation Not Recommended				56-72	255-312	8-10	18-22
	180.0					64-80	265-323	4-5	20-25
40	90.0	111-137	196-236	20-25	18-23	66-84	268-330	10-11	21-25
	180.0	106-131	168-206	9-14	18-23	75-94	279-342	5-6	23-28
50	90.0	112-139	222-270	20-25	18-23	77-98	283-349	11-12	24-29
	180.0	111-137	194-239	10-13	18-23	88-110	293-361	6-7	26-32
60	90.0	114-141	250-306	20-25	18-22	91-114	293-364	13-15	27-33
	180.0	112-139	221-273	9-14	19-23	103-128	308-381	7-8	30-36
70	90.0	115-143	284-346	20-24	18-23	105-132	310-386	14-16	30-36
	180.0	114-141	253-312	9-14	18-23	120-148	329-407	8-9	33-40
80	90.0	117-145	320-390	20-24	18-22	122-151	329-409	16-19	33-40
	180.0	115-143	288-354	10-13	18-23	140-171	351-434	9-11	37-44
90	90.0	118-147	360-438	19-24	17-21	140-172	350-436	18-21	37-45
	180.0	117-145	329-401	9-12	18-22	162-196	377-464	10-12	41-49
100	90.0	120-150	406-490	19-23	17-21	Operation Not Recommended			
	180.0	119-148	374-453	9-12	17-21				

Bosch Thermotechnology Corp.
Londonderry, NH • Watertown, MA • Ft. Lauderdale, FL