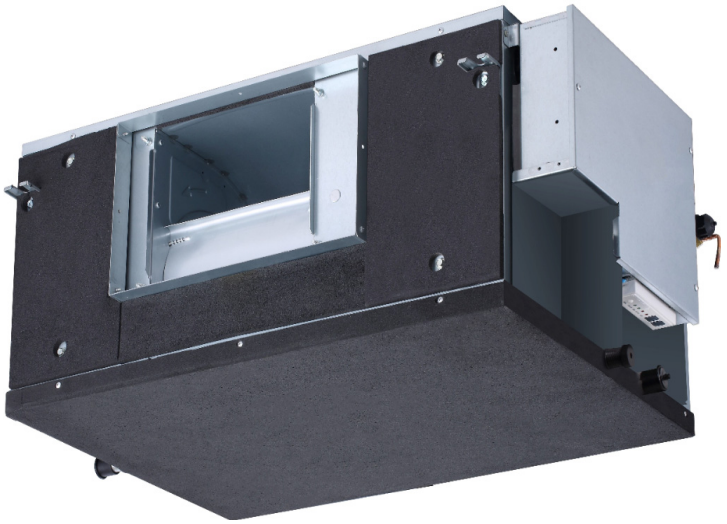
40VMZ009-024
Reheat Unit for
Variable Refrigerant Flow (VRF) Systems

Engineering Data Book



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REHEAT UNIT BASIC INFORMATION

General

The 40VMZ reheat indoor fan coil unit operates in tandem with the 40VMA outside air unit for the purpose of dehumidification. See Fig. 1 for the External Appearance and Fig 2 for the Model Number Nomenclature.

External Appearance

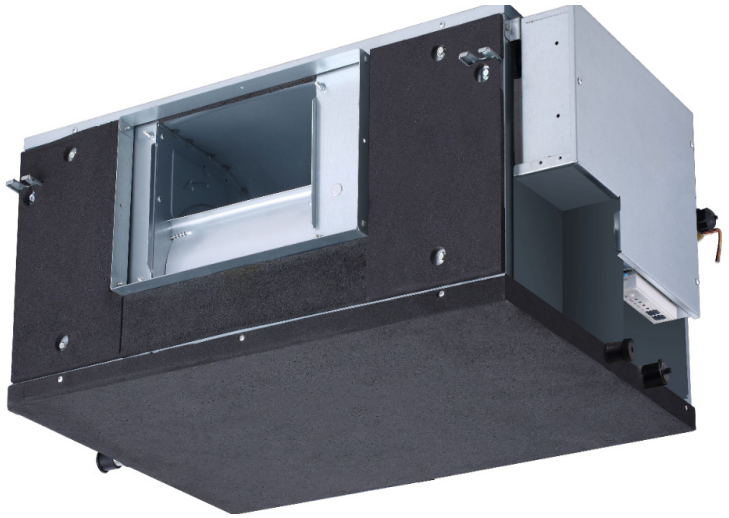


Fig. 1 —40VMZ009/012/015/018/024---3

40VMZ Nomenclature

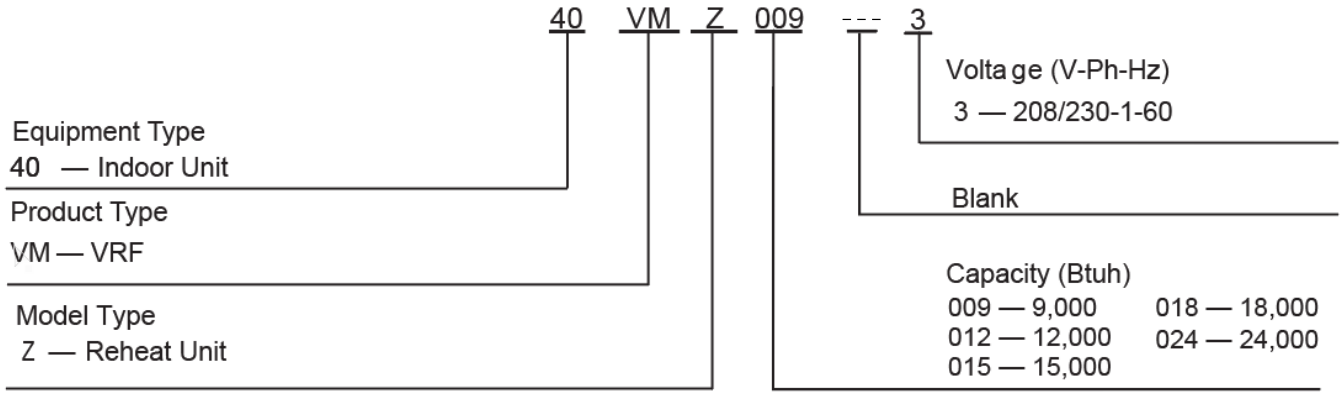


Fig. 2 —Model Number Nomenclature

Specifications

Table 1 —Data Table

MODEL			40VMZ009---3	40VMZ012---3
Heating capacity *1		Btu/h	9,000	12,000
Power supply			208/230V-1Ph-60Hz	208/230V-1Ph-60Hz
MCA		A	0.88	1.4
Casing / Color			Galvanized Steel Plate With Insulation	Galvanized Steel Plate With Insulation
Air Filter (Factory Installed)			28-3/8 x 13-1/4 x 3/8	28-3/8 x 13-1/4 x 3/8
Unit Dimensions (W x H x D)		in.	37-1/2 x 16-1/2 x 27-3/16	37-1/2 x 16-1/2 x 27-3/16
Net Weight		lbs	112	112
Heat Exchanger Type			Inner Groove Copper Tube and Hydrophilic Aluminum fin	Inner Groove Copper Tube and Hydrophilic Aluminum fin
Blower / Motor	Fan Type		Centrifugal fan	Centrifugal fan
	Motor Type		DC motor	DC motor
	Air Flow Rate (H/M/L)	CFM	588/529/441	647/559/471
	Motor Output	W	46	73
Min. External Static Pressure (Factory setting)		in. WG	0.20	0.20
Max. External Static Pressure		in. WG	0.80	0.80
Piping connections	Gas side	in.	5/8	5/8
	Liquid side	in.	3/8	3/8
	Drain port	in.	1	1
Condensate Lift		in.	-	-
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve
Connectable Outdoor Unit			38VMA***RDS(L) Series	38VMA***RDS(L) Series
Wiring	Power Wiring	AWG	Sized per NEC and Local Codes based on Nameplate Electrical Data	Sized per NEC and Local Codes based on Nameplate Electrical Data
	Control Wiring	AWG	Shielding 2-core twisted pair cable 18AWG	Shielding 2-core twisted pair cable 18AWG

NOTES:

*1 Capacities are net, including an addition for heating for indoor fan motor heat.

Nominal heating capacity are based on the following condition:

- Outdoor temperature: 91°FDB, 82°FWB (68%RH)
- Entering air temperature: 53°FDB
- Discharge air temperature: 75°FDB
- Equivalent ref. piping length: 25ft (Horizontal)

Table 2 —Data Table

MODEL			40VMZ015---3	40VMZ018---3
Heating capacity *2		Btu/h	15,000	18,000
Power supply			208/230V-1Ph-60Hz	208/230V-1Ph-60Hz
MCA		A	1.4	1.9
Casing / Color			Galvanized Steel Plate With Insulation	Galvanized Steel Plate With Insulation
Air Filter (Factory Installed)			28-3/8 x 13-1/4 x 3/8	28-3/8 x 13-1/4 x 3/8
Unit Dimensions (W x H x D)		in.	37-1/2 x 16-1/2 x 27-3/16	37-1/2 x 16-1/2 x 27-3/16
Net Weight		lbs	112	112
Heat Exchanger Type			Inner Groove Copper Tube and Hydrophilic Aluminum fin	Inner Groove Copper Tube and Hydrophilic Aluminum fin
Blower / Motor	Fan Type		Centrifugal fan	Centrifugal fan
	Motor Type		DC motor	DC motor
	Air Flow Rate (H/M/L)	CFM	765/647/529	1059/971/882
	Motor Output	W	70	88
Min. External Static Pressure (Factory setting)		in. WG	0.20	0.20
Max. External Static Pressure		in. WG	0.80	1.00
Piping connections	Gas side	in.	5/8	5/8
	Liquid side	in.	3/8	3/8
	Drain port	in.	1	1
Condensate Lift		in.	–	-
Refrigerant Control			Electronic Expansion Valve	Electronic Expansion Valve
Connectable Outdoor Unit			38VMA***RDS(L) Series	38VMA***RDS(L) Series
Wiring	Power Wiring	AWG	Sized per NEC and Local Codes based on Nameplate Electrical Data	Sized per NEC and Local Codes based on Nameplate Electrical Data
	Control Wiring	AWG	Shielding 2-core twisted pair cable 18AWG	Shielding 2-core twisted pair cable 18AWG

NOTES:

*1 Capacities are net, including an addition for heating for indoor fan motor heat.

Nominal heating capacity are based on the following condition:

- Outdoor temperature: 91°FDB, 82°FWB (68%RH)
- Entering air temperature: 53°FDB
- Discharge air temperature: 75°FDB
- Equivalent ref. piping length: 25ft (Horizontal)

Table 3 —Data Table

MODEL			40VMZ024---3
Heating capacity *2		Btu/h	24,000
Power supply			208/230V-1Ph-60Hz
MCA		A	2.5
Casing / Color			Galvanized Steel Plate With Insulation
Air Filter (Factory Installed)			28-3/8 x 13-1/4 x 3/8
Unit Dimensions (W x H x D)		in.	37-1/2 x 16-1/2 x 27-3/16
Net Weight		lbs	112
Heat Exchanger Type			Inner Groove Copper Tube and Hydrophilic Aluminum fin
Blower / Motor	Fan Type		Centrifugal fan
	Motor Type		DC motor
	Air Flow Rate (H/M/L)	CFM	1294/1176/1029
	Motor Output	W	124
Min. External Static Pressure (Factory setting)		in. WG	0.20
Max. External Static Pressure?		in. WG	1.00
Piping connections	Gas side	in.	5/8
	Liquid side	in.	3/8
	Drain port	in.	1
Condensate Lift		in.	-
Refrigerant Control			Electronic Expansion Valve
Connectable Outdoor Unit			38VMA***RDS(L) Series
Wiring	Power Wiring	AWG	Sized per NEC and Local Codes based on Nameplate Electrical Data
	Control Wiring	AWG	Shielding 2-core twisted pair cable 18AWG

NOTES:

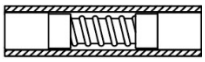
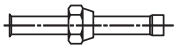
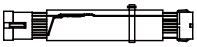
*1 Capacities are net, including an addition for heating for indoor fan motor heat.

Nominal heating capacity are based on the following condition:

- Outdoor temperature: 91°FDB, 82°FWB (68%RH)
- Entering air temperature: 53°FDB
- Discharge air temperature: 75°FDB
- Equivalent ref. piping length: 25ft (Horizontal)

Accessories

Table 4 —Table of Accessories

NAME OF ACCESSORIES	QUANTITY	OUTLINE	USAGE
PQE connection wire	2		Connects the outdoor unit, indoor unit, and sub MDC
Pipe Insulation material	2		Heat insulation
Condensate Connection	1		For Drainage (optional)
Clamp	1		Connects the drain hose to the condensate connection
Copper Nut	1		Use for Pipe connection
LED Display Panel	1		Operation and error display
Copper Pipes	2		Use for inlet and outlet connection
No Beep Harness	1		Prevent beeping noise

WIRING DIAGRAM

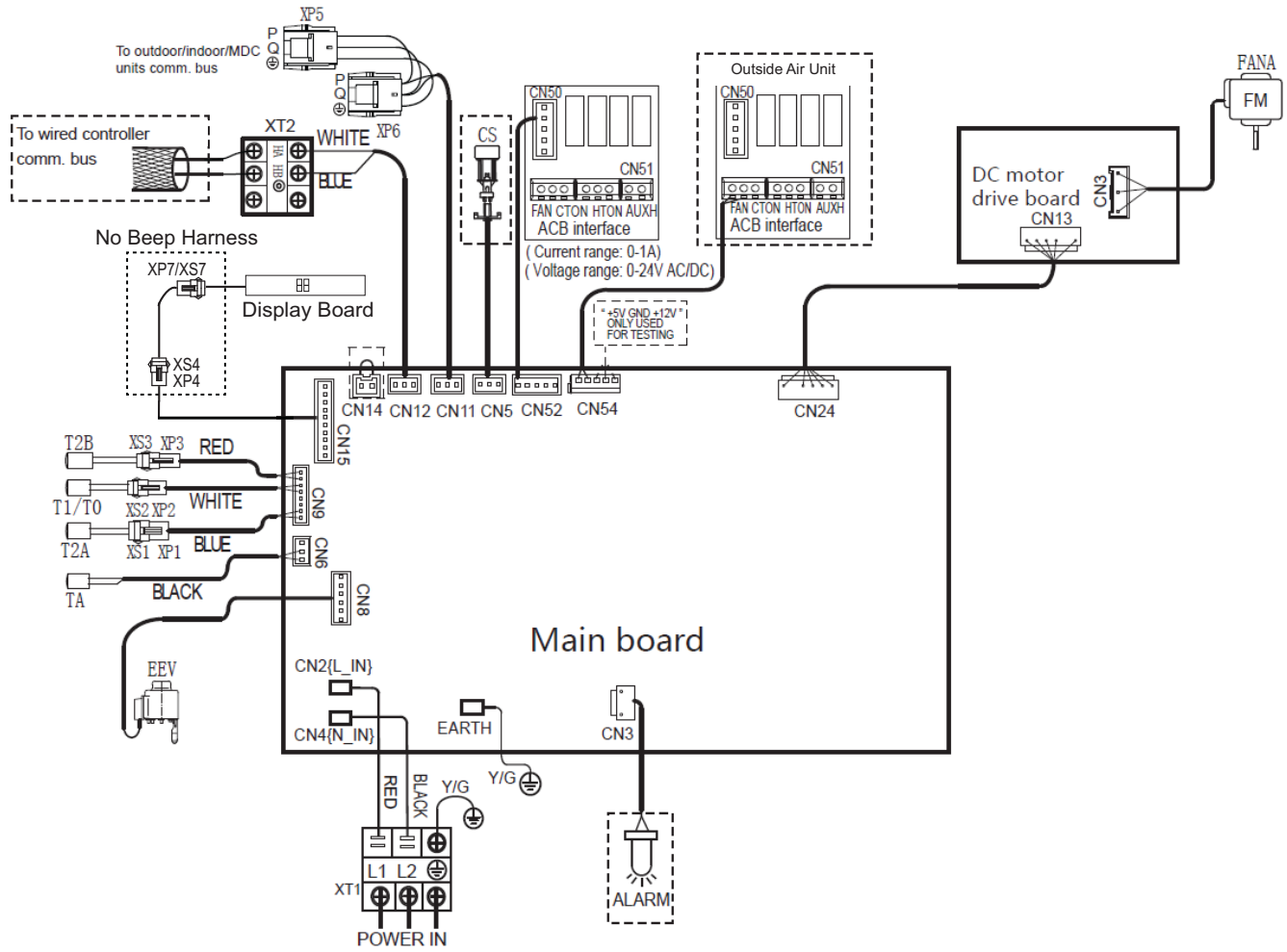


Fig. 3 —Wiring Diagram (40VMZ009/024---3)

Table 5 —Code/Title

CODE	TITLE
ACB	Auxiliary Control Board
ALARM	Warning Lamp
AUXH	Output for Auxiliary Heat
CS	Condensate Switch
CTON	Output for Cooling Operation
EEV	Electronic Expansion Valve
FAN	Output for Fan Operation
FM	Indoor Fan Motor
HTON	Output for Heating Operation
T0	Return Air Temperature Sensor
TA	Supply Air Temperature Sensor
T2A	Evaporator Inlet Temperature Sensor
T2B	Evaporator Outlet Temperature Sensor
XP1-6	Connectors
XS1-4	Connectors
XT1-2	Terminal Block
---------	Optional Component or Field Wiring

NOTE: Field wiring must use copper conductors only.

Table 6 —Wiring Diagram Error Codes

ERROR CODE	ERROR CONTENT
dd	Heating/Cooling Conflict
E1	Communication Error with Outdoor Unit
E2	Temperature Sensor (T1/T0) Error
E3	Temperature Sensor (TA) Error
E4	Temperature Sensor (T2B) Error
E5	Temp Sensor (T2A) Error
E6	DC Fan Error
E7	EEPROM Error (Data Storage)
UU	MDC Error in Auto System-Check Mode
E9	Communication Error with Wired Controller
Eb	EEV Error
EC	Indoor Fan Error in Auto System-Check Mode
Ed	Outdoor Unit Error
EE	Condensate Error
FE	No Address when Power On for First Time

PIPING DIAGRAM

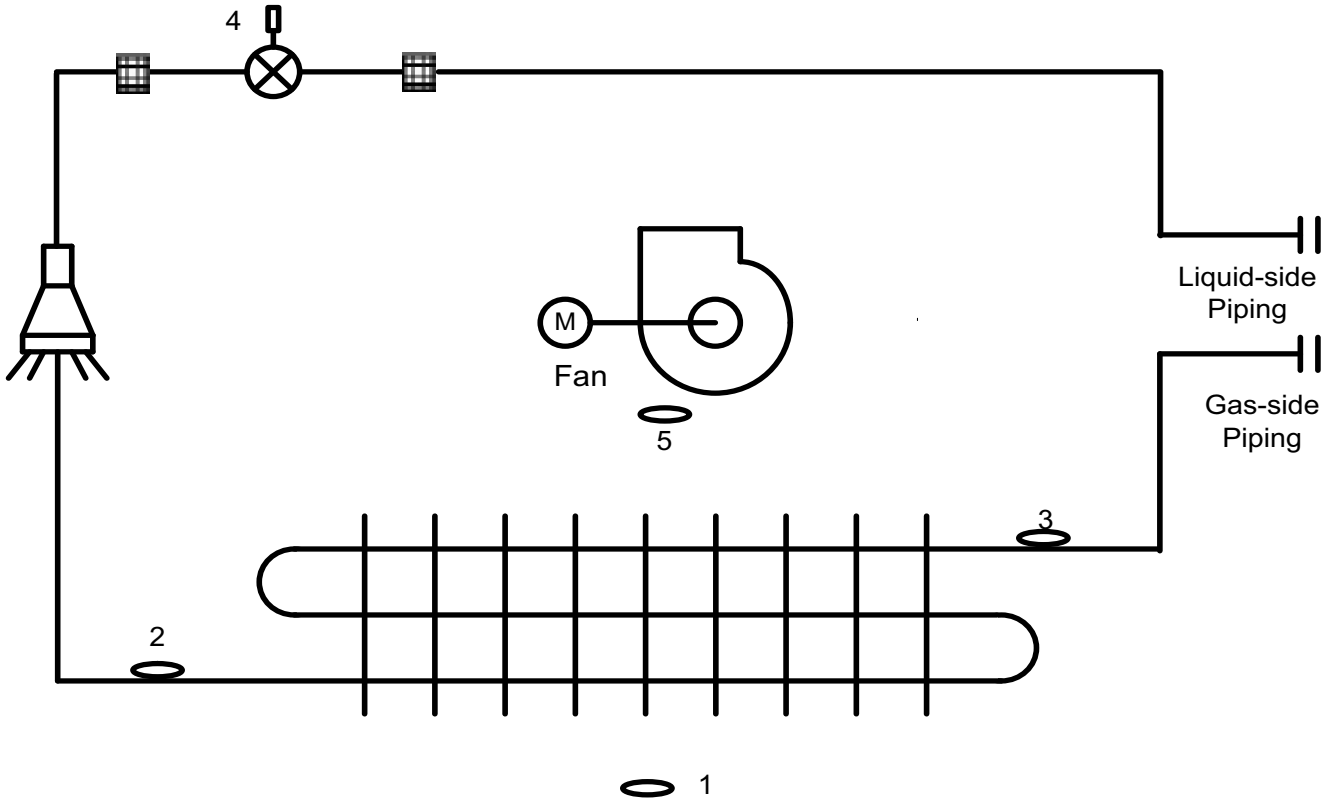


Fig. 4 —Piping

Table 7 —Piping

NUMBER	SYMBOL	NAME
1	T0	Return air temperature sensor
2	T2A	Evaporator Inlet temperature sensor
3	T2B	Evaporator Outlet temperature sensor
4	EEV	Electronic expansion valve
5	TA	Supply air temperature sensor

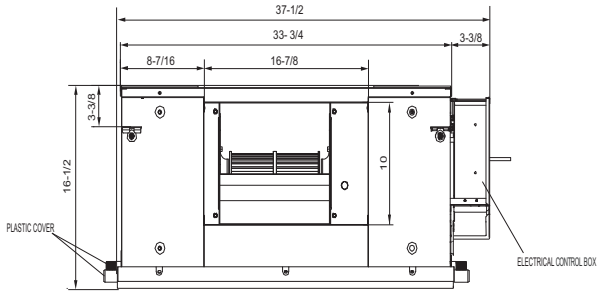
Table 8 —Gas/Liquid Line Sizes

MODEL	GAS	LIQUID
40VMZ009/012/015/018/024---3	5/8	3/8

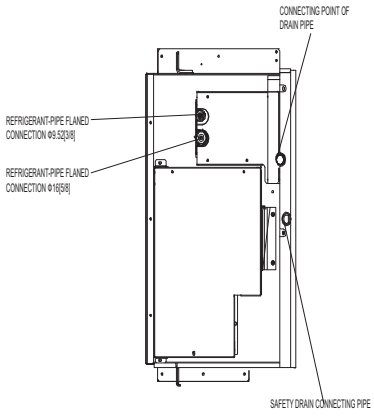
Table 9 —Unit Combination

REHEAT UNIT	OUTSIDE AIR UNIT
40VMZ009---3	40VMA036---3
40VMZ012---3	40VMA048---3
40VMZ015---3	40VMA054---3
40VMZ018---3	40VMA072---3
40VMZ024---3	40VMA096---3

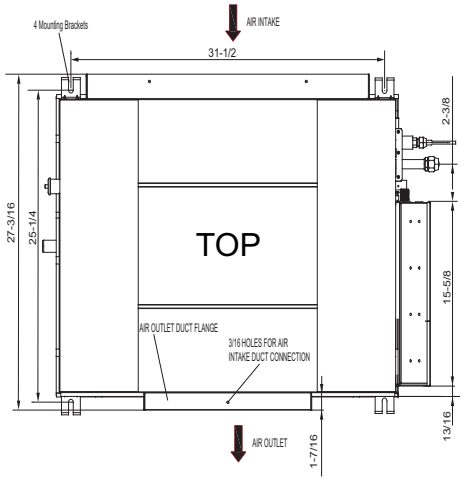
DIMENSIONS

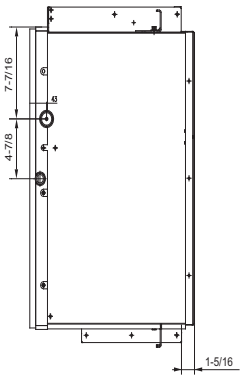


FRONT

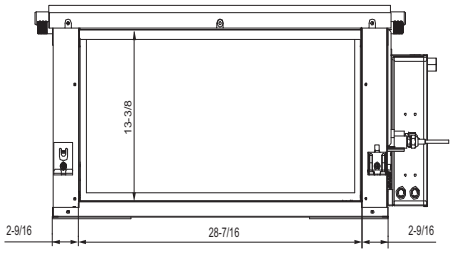


RIGHT SIDE





LEFT SIDE



REAR

NOTE: All dimensions are shown in inches.

Fig. 5 —40VMZ009/012/015/018/024---3

ELECTRICAL CHARACTERISTICS

Table 10 —Electrical Characteristics

MODEL	POWER SUPPLY					IFM	
	HZ	VOLTS	VOLTAGE RANGE	MCA	MOCP	kW	FLA
40VMZ009---3	60	208/230V	Max.253V Min.187V	0.88	15	0.055	0.70
40VMZ012---3				1.40	15	0.095	1.10
40VMZ015---3				1.40	15	0.095	1.10
40VMZ018---3				1.90	15	0.138	1.50
40VMZ024---3				2.50	15	0.185	2.00

SYMBOLS:
MCA: Minimum Circuit Amps (A)
MOCP: Maximum Overcurrent Protection (A)
kW: Fan Motor Rated Output (kW)
FLA: Full Load Amps (A)
IFM: Indoor Fan Motor

FAN PERFORMANCE

There are 16 external static pressure (ESP) settings for 40VMZ009, 012, 015---3; and 21 external static pressure for the 018 and 024---3 models. The figures below on the left show MAX. ESP, Mid ESP, and Min. ESP as an example for fan characteristics. The following tables on the right show air flows at H-Speed in each ESP for field setting. Allowable ESP selections are listed in the first column. Select the ESP setting according to connected duct resistance. The controller can be used to change the indoor unit fan speed H, M, or L.

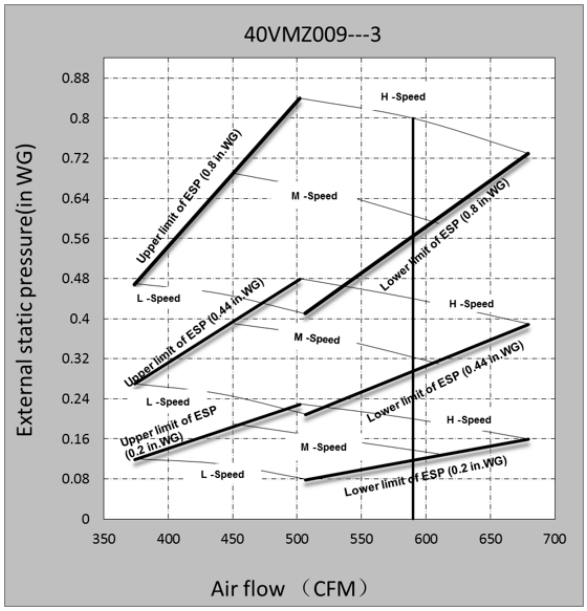


Fig. 6 —Fan Performance 009

Table 11 —Fan Performance 009

External Static	Fan Speed	Range of available air flow rate in H-Speed					
		Max Point		Mid Point		Min Point	
		Max CFM	SP	Mid CFM	SP	Min CFM	SP
0.20	H	676	0.16	588	0.20	500	0.23
0.24	H	676	0.20	588	0.24	500	0.27
0.28	H	676	0.24	588	0.28	500	0.31
0.32	H	676	0.28	588	0.32	500	0.35
0.36	H	676	0.32	588	0.36	500	0.39
0.40	H	676	0.36	588	0.40	500	0.43
0.44	H	676	0.39	588	0.44	500	0.48
0.48	H	676	0.43	588	0.48	500	0.52
0.52	H	676	0.47	588	0.52	500	0.56
0.56	H	676	0.50	588	0.56	500	0.60
0.60	H	676	0.54	588	0.60	500	0.64
0.64	H	676	0.57	588	0.64	500	0.68
0.68	H	676	0.61	588	0.68	500	0.72
0.72	H	676	0.65	588	0.72	500	0.76
0.76	H	676	0.69	588	0.76	500	0.80
0.80	H	676	0.73	588	0.80	500	0.84

LEGEND:
SP - Static Pressure

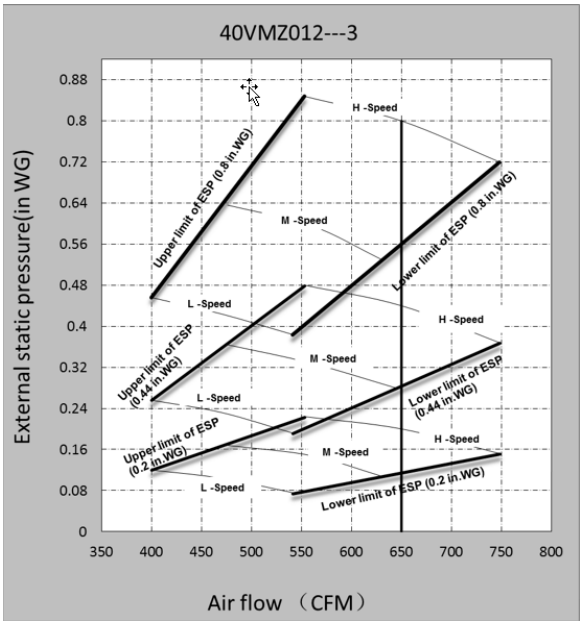


Fig. 7 —Fan Performance 012

Table 12 —Fan Performance 012

External Static	Fan Speed	Range of available air flow rate in H-Speed					
		Max Point		Mid Point		Min Point	
		Max CFM	SP	Mid CFM	SP	Min CFM	SP
0.20	H	744	0.15	647	0.20	550	0.22
0.24	H	744	0.19	647	0.24	550	0.26
0.28	H	744	0.23	647	0.28	550	0.30
0.32	H	744	0.27	647	0.32	550	0.34
0.36	H	744	0.31	647	0.36	550	0.38
0.40	H	744	0.34	647	0.40	550	0.43
0.44	H	744	0.37	647	0.44	550	0.48
0.48	H	744	0.41	647	0.48	550	0.52
0.52	H	744	0.45	647	0.52	550	0.56
0.56	H	744	0.49	647	0.56	550	0.60
0.60	H	744	0.53	647	0.60	550	0.64
0.64	H	744	0.57	647	0.64	550	0.68
0.68	H	744	0.60	647	0.68	550	0.73
0.72	H	744	0.64	647	0.72	550	0.77
0.76	H	744	0.68	647	0.76	550	0.81
0.80	H	744	0.72	647	0.80	550	0.85

LEGEND:
SP - Static Pressure

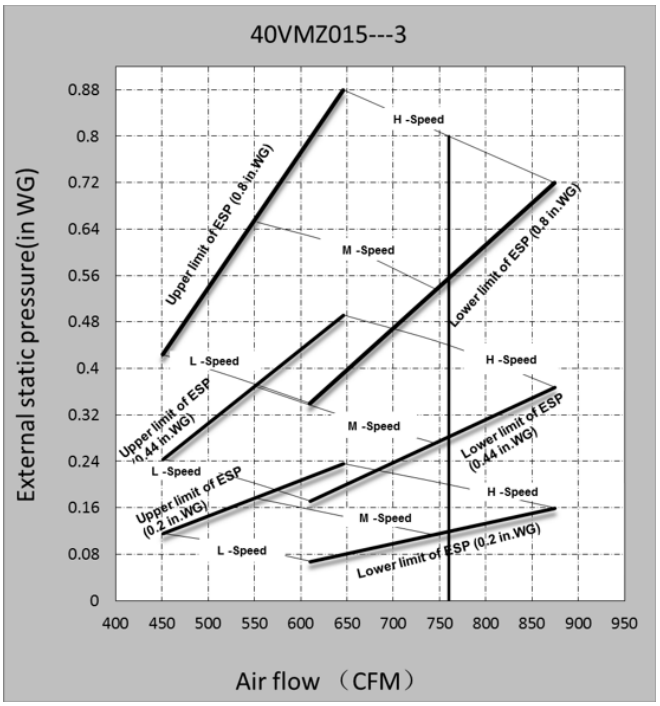


Fig. 8 —Fan Performance 015

Table 13 —Fan Performance 015

External Static	Fan Speed	Range of available air flow rate in H-Speed					
		Max Point		Mid Point		Min Point	
		Max CFM	SP	Mid CFM	SP	Min CFM	SP
0.20	H	880	0.16	765	0.20	650	0.24
0.24	H	880	0.20	765	0.24	650	0.28
0.28	H	880	0.24	765	0.28	650	0.32
0.32	H	880	0.28	765	0.32	650	0.36
0.36	H	880	0.31	765	0.36	650	0.40
0.40	H	880	0.34	765	0.40	650	0.44
0.44	H	880	0.37	765	0.44	650	0.49
0.48	H	880	0.41	765	0.48	650	0.53
0.52	H	880	0.45	765	0.52	650	0.57
0.56	H	880	0.49	765	0.56	650	0.61
0.60	H	880	0.53	765	0.60	650	0.66
0.64	H	880	0.57	765	0.64	650	0.71
0.68	H	880	0.60	765	0.68	650	0.76
0.72	H	880	0.64	765	0.72	650	0.80
0.76	H	880	0.68	765	0.76	650	0.84
0.80	H	880	0.72	765	0.80	650	0.88

LEGEND:
SP - Static Pressure

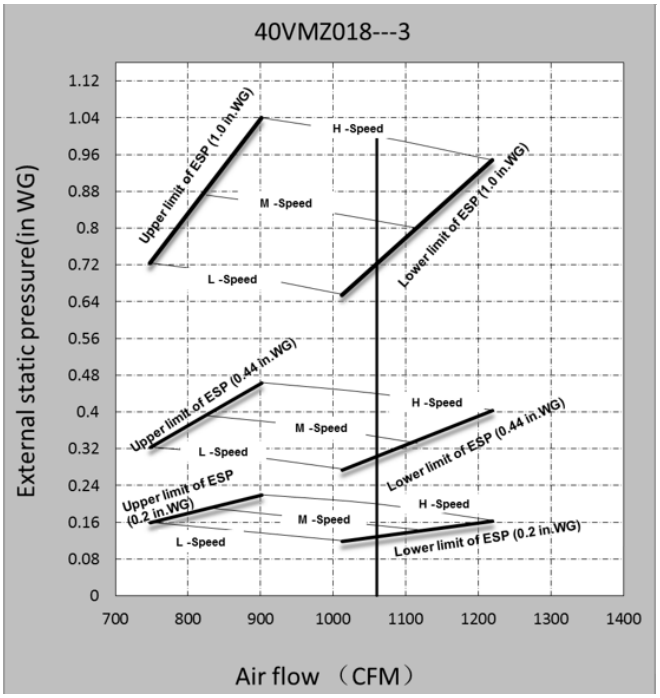


Fig. 9 —Fan Performance 018

Table 14 —Fan Performance 018

External Static	Fan Speed	Range of available air flow rate in H-Speed					
		Max Point		Mid Point		Min Point	
		Max CFM	SP	Mid CFM	SP	Min CFM	SP
0.20	H	1218	0.16	1059	0.20	900	0.22
0.24	H	1218	0.20	1059	0.24	900	0.26
0.28	H	1218	0.24	1059	0.28	900	0.30
0.32	H	1218	0.28	1059	0.32	900	0.34
0.36	H	1218	0.32	1059	0.36	900	0.38
0.40	H	1218	0.36	1059	0.40	900	0.42
0.44	H	1218	0.40	1059	0.44	900	0.46
0.48	H	1218	0.44	1059	0.48	900	0.50
0.52	H	1218	0.48	1059	0.52	900	0.54
0.56	H	1218	0.52	1059	0.56	900	0.58
0.60	H	1218	0.56	1059	0.60	900	0.62
0.64	H	1218	0.60	1059	0.64	900	0.66
0.68	H	1218	0.64	1059	0.68	900	0.70
0.72	H	1218	0.68	1059	0.72	900	0.75
0.76	H	1218	0.71	1059	0.76	900	0.80
0.80	H	1218	0.75	1059	0.80	900	0.84
0.84	H	1218	0.79	1059	0.84	900	0.88
0.88	H	1218	0.83	1059	0.88	900	0.92
0.92	H	1218	0.87	1059	0.92	900	0.96
0.96	H	1218	0.91	1059	0.96	900	1.00

LEGEND:
SP - Static Pressure

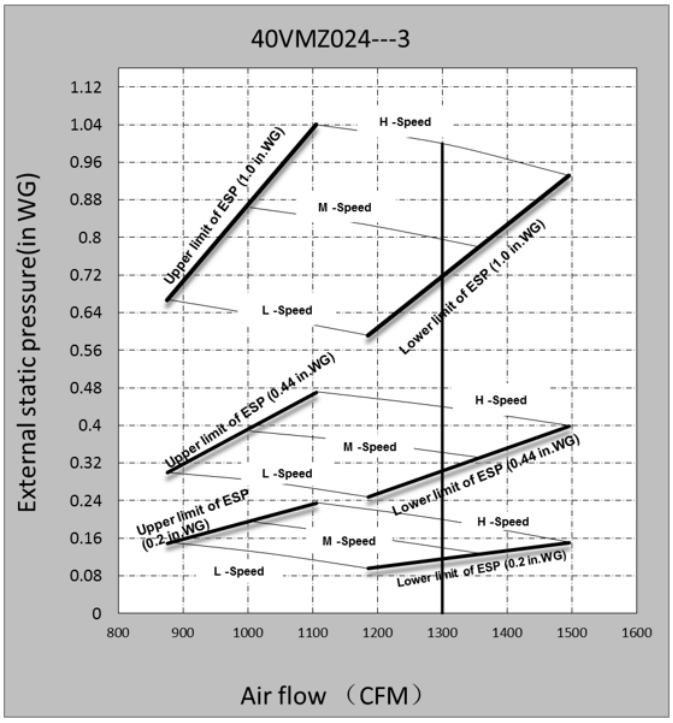


Fig. 10 —Fan Performance 024

Table 15 —Fan Performance 024

External Static	Fan Speed	Range of available air flow rate in H-Speed					
		Max Point		Mid Point		Min Point	
		Max CFM	SP	Mid CFM	SP	Min CFM	SP
0.20	H	1488	0.15	1294	0.20	1100	0.24
0.24	H	1488	0.19	1294	0.24	1100	0.28
0.28	H	1488	0.23	1294	0.28	1100	0.32
0.32	H	1488	0.27	1294	0.32	1100	0.36
0.36	H	1488	0.31	1294	0.36	1100	0.40
0.40	H	1488	0.35	1294	0.40	1100	0.44
0.44	H	1488	0.40	1294	0.44	1100	0.47
0.48	H	1488	0.44	1294	0.48	1100	0.51
0.52	H	1488	0.48	1294	0.52	1100	0.55
0.56	H	1488	0.52	1294	0.56	1100	0.59
0.60	H	1488	0.56	1294	0.60	1100	0.63
0.64	H	1488	0.60	1294	0.64	1100	0.67
0.68	H	1488	0.64	1294	0.68	1100	0.71
0.72	H	1488	0.67	1294	0.72	1100	0.76
0.76	H	1488	0.70	1294	0.76	1100	0.80
0.80	H	1488	0.73	1294	0.80	1100	0.84
0.84	H	1488	0.77	1294	0.84	1100	0.88
0.88	H	1488	0.81	1294	0.88	1100	0.92
0.92	H	1488	0.85	1294	0.92	1100	0.96
0.96	H	1488	0.89	1294	0.96	1100	1.00
1.00	H	1488	0.93	1294	1.00	1100	1.04

LEGEND:
SP - Static Pressure

SOUND DATA

Sound Pressure Levels

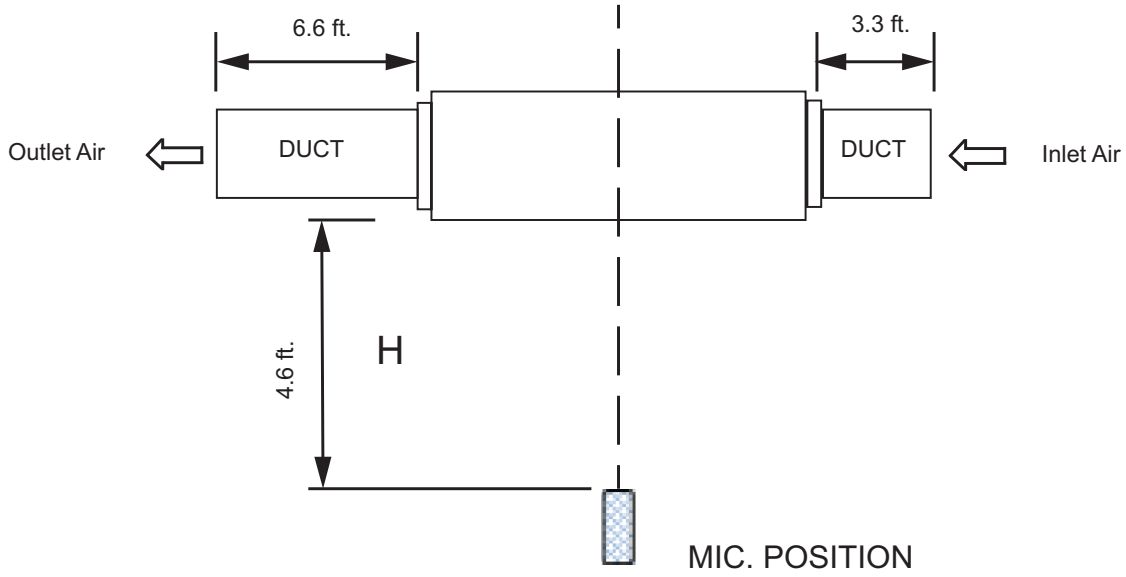


Fig. 11 —Sound Pressure Levels

Table 16 —Sound Pressure Levels

Model	H	M	L
40VMZ009---3	35.2	34.0	31.6
40VMZ012---3	39.3	38.6	32.5
40VMZ015---3	39.8	38.4	34.2
40VMZ018---3	44.5	43.8	42.2
40VMZ024---3	47.7	47.0	44.5

Units are dBA.

NC Curves

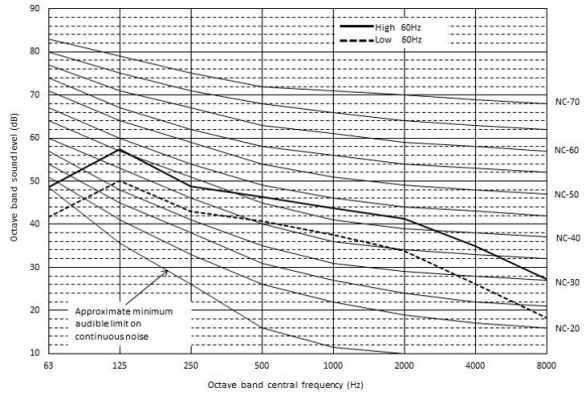


Fig. 12 —40VMZ009---3

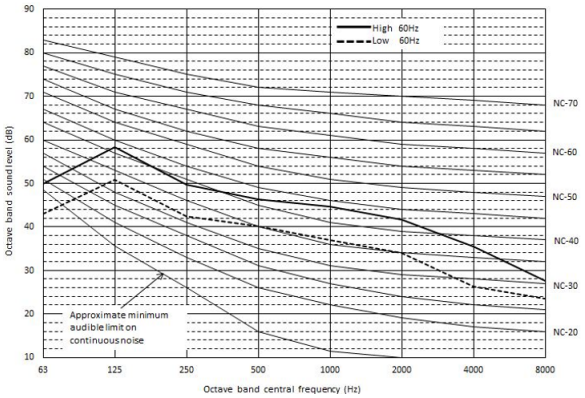


Fig. 13 —40VMZ012---3

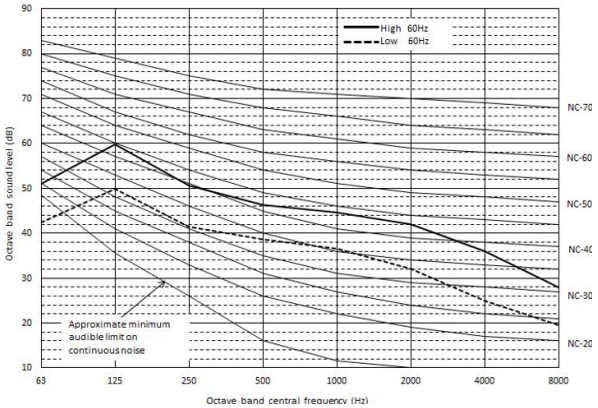


Fig. 14 —40VMZ015---3

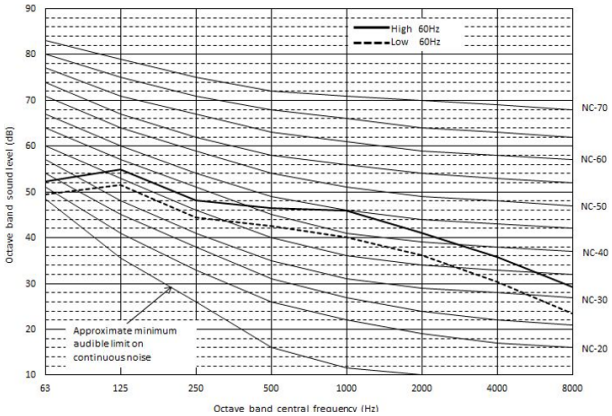


Fig. 15 —40VMZ018---3

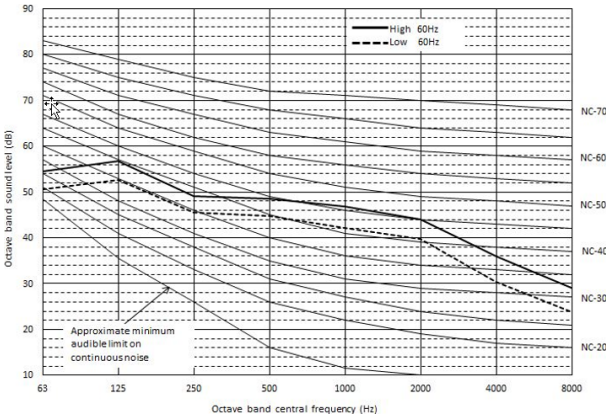


Fig. 16 —40VMZ024---3

CAPACITY DATA TABLES

Table 17 —Heating Capacity

Model	Capacity index*	Air flow CFM	Entering Air Temp. (°F DB)	TC
40VMZ	9	588	53	13.78
		529	53	12.41
		441	53	10.34
	12	647	53	15.16
		559	53	13.09
		471	53	11.03
	15	765	53	17.92
		647	53	15.16
		529	53	12.41
	18	1059	53	24.81
		971	53	22.74
		882	53	20.68
	24	1294	53	30.32
		1176	53	27.57
		1029	53	24.12

QUESTIONS AND ANSWERS

Q. What modes are available for the reheat unit?
A. The reheat unit will operate as normal in heating or fan only mode.

Q. Can you set the reheat unit in Auto or Cooling mode?
A. No, Auto mode or Cooling mode are not options for the reheat unit.

Q. What happens when the unit is forced/commanded into Auto or Cooling mode?
A. The reheat unit will go into standby status.

Q. Does the reheat unit require its own port on the MDC?
A. Yes, the reheat unit requires its own port on the MDC.

Q. Can the reheat unit be connected to any port on the MDC?
A. Yes, the reheat unit can be connected to any port on the MDC.

Q. Does the reheat unit require a unique address like the other indoor units?
A. Yes, the reheat unit will require unique addressing the same as the other indoor units.

Q. Are there any special piping rules for the reheat unit?
A. No, it follows the same piping rules as the high static ducted unit.

Q. During thermal OFF, will the fan stay ON?
A. Yes, the fan will still stay ON during thermal OFF.