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TECHNICAL CHANGES

MUZ09UN → MUZ-A09NA MUZ12UN → MUZ-A12NA
MUH15TN → MUZ-A15NA MUH17TN → MUZ-A17NA
MUH24WN → MUZ-A24NA
MU15TN → MUY-A15NA MU17TN → MUY-A17NA
MU24WN → MUY-A24NA

1. Outdoor unit model has been changed.
2. Control method between indoor and outdoor unit has been changed.
3. Refrigerant has been changed. (R22 → R410A)
4. Fan motor has been changed. (AC → DC)
5. Compressor has been changed. (AC → DC)

MUZ-A09NA → MUZ-A09NA - 1

MUZ-A09NA - U1 → MUZ-A09NA - U2

1. Refrigerant system diagram has been changed.

MUZ-A24NA → MUZ-A24NA - 1

MUZ-A24NA - U1 → MUZ-A24NA - U2

MUY-A24NA → MUY-A24NA - 1

1. Wiring diagram has been changed.

MUZ-A24NA - 1 → MUZ-GA24NA

MUZ-A24NA - U2 → MUZ-GA24NA - U1

MUY-A24NA - 1 → MUY-GA24NA

1. Compressor has been changed. (SNB130FPDH → SNB130FQBH)
2. Wiring diagram has been changed.
3. Fan motor has been changed.
4. ELECTRONIC CONTROL P.C. Board has been changed.

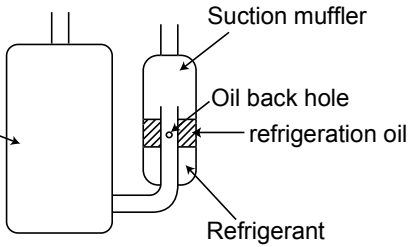
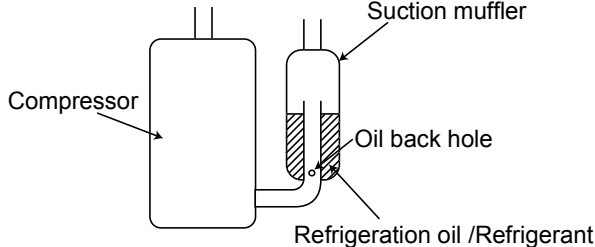
INFORMATION FOR THE AIR CONDITIONER WITH R410A REFRIGERANT

- This room air conditioner adopts HFC refrigerant (R410A) which never destroys the ozone layer.
 - Pay particular attention to the following points, though the basic installation procedure is same as that for R22 air conditioners.
- ① As R410A has working pressure approximate 1.6 times as high as that of R22, some special tools and piping parts/materials are required. Refer to the table below.
 - ② Take sufficient care not to allow water and other contaminations to enter the R410A refrigerant during storage and installation, since it is more susceptible to contaminations than R22.
 - ③ For refrigerant piping, use clean, pressure-proof parts/materials specifically designed for R410A. (Refer to 2. Refrigerant piping.)
 - ④ Composition change may occur in R410A since it is a mixed refrigerant. When charging, charge liquid refrigerant to prevent composition change.

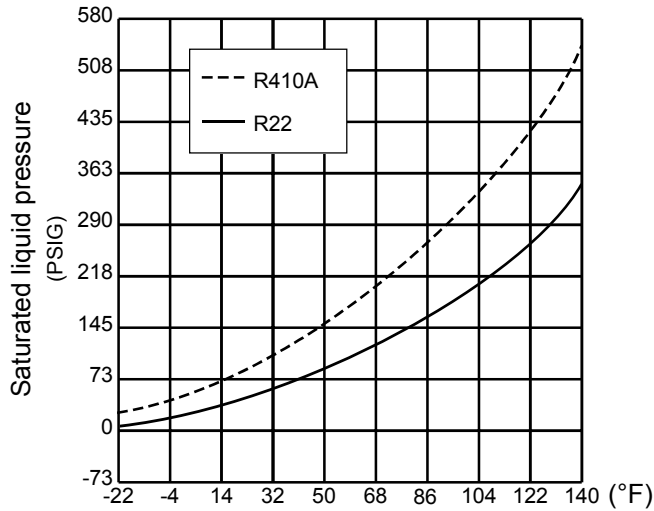
		New refrigerant	Previous refrigerant
Refrigerant	Refrigerant	R410A	R22
	Composition (Ratio)	HFC-32: HFC-125 (50%: 50%)	R22 (100%)
	Refrigerant handling	Pseudo-azeotropic refrigerant	Single refrigerant
	Chlorine	Not included	Included
	Safety group (ASHRAE)	A1 / A1	A1
	Molecular weight	72.6	86.5
	Boiling point (°F)	-60.5	-41.4
	Steam pressure [77°F] (PSIG)	225.82	136.34
	Saturated steam density [77°F] (lb./ft. ³)	3.995	2.772
	Combustibility	Non combustible	Non combustible
	ODP *1	0	0.055
	GWP *2	1730	1700
	Refrigerant charge method	From liquid phase in cylinder	Gas phase
	Additional charge on leakage	Possible	Possible
Refrigeration oil	Kind	Incompatible oil	Compatible oil
	Color	None	Light yellow
	Smell	None	None

*1: Ozone Depletion Potential: based on CFC-11

*2: Global Warming Potential: based on CO₂

	New Specification	Current Specification
Compressor	<p>The incompatible refrigeration oil easily separates from refrigerant and is in the upper layer inside the suction muffler. Raising position of the oil back hole enables to back the refrigeration oil of the upper layer to flow back to the compressor.</p> 	<p>Since refrigerant and refrigeration oil are compatible with each other, refrigeration oil goes back to the compressor through the lower position oil back hole.</p> 

Conversion chart of refrigerant temperature and pressure



1. Tools dedicated for the air conditioner with R410A refrigerant

The following tools are required for R410A refrigerant. Some R22 tools can be substituted for R410A tools.

R410A tools	Can R22 tools be used?	Description
Gauge manifold	No	R410A has high pressures beyond the measurement range of existing gauges.
Charge hose	No	Hose material have been changed to improve the pressure resistance.
Gas leak detector	No	Dedicated for HFC refrigerant.
Torque wrench	Yes	1/4 in. and 3/8 in.
	No	1/2 in. and 5/8 in.
Flare tool	Yes	Clamp bar hole has been enlarged to reinforce the spring strength in the tool.
Flare gauge	New	Provided for flaring work (to be used with R22 flare tool).
Vacuum pump adapter	New	Provided to prevent the back flow of oil. This adapter enables you to use vacuum pumps.
Electronic scale for refrigerant charging	New	It is difficult to measure R410A with a charging cylinder because the refrigerant bubbles due to high pressure and high-speed vaporization

No: Not Substitutable for R410A Yes: Substitutable for R410A

2. Refrigerant piping

① Specifications

Use the copper or copper-alloy seamless pipes for refrigerant that meet the following specifications.

Outside diameter (in.)	Wall thickness (in.)	Insulation material
1/4	0.0315	Heat resisting foam plastic Specific gravity 0.045 Thickness 0.315 in.
3/8	0.0315	
1/2	0.0315	
5/8	0.0394	

② Flaring work and flare nut

Flaring work for R410A pipe differs from that for R22 pipe.

For details of flaring work, refer to Installation manual "FLARING WORK".

Pipe diameter (in.)	Dimension of flare nut mm (in.)	
	R410A	R22
1/4	17 (11/16)	17 (11/16)
3/8	22 (7/8)	22 (7/8)
1/2	26 (1-1/32)	24 (15/16)
5/8	29 (1-5/32)	27 (1-1/16)

3. Refrigerant oil

Apply the special refrigeration oil (accessories: packed with indoor unit) to the flare and the union seat surfaces.

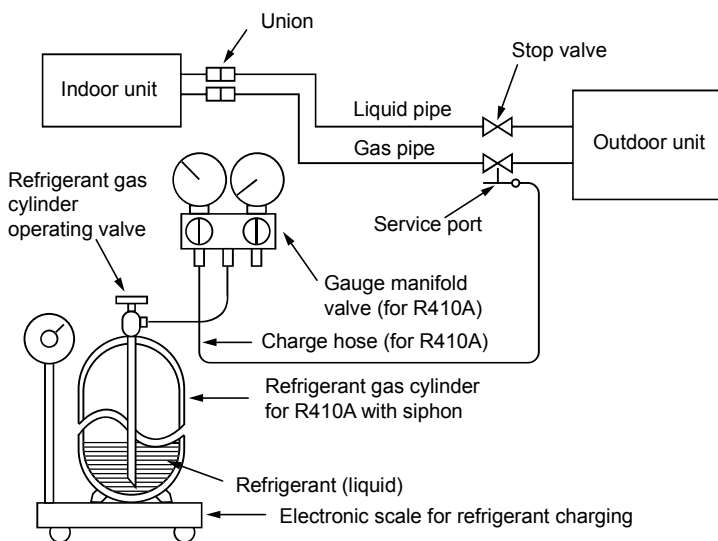
4. Air purge

- Do not discharge the refrigerant into the atmosphere.
Take care not to discharge refrigerant into the atmosphere during installation, reinstallation, or repairs to the refrigerant circuit.
- Use the vacuum pump for air purging for the purpose of environmental protection.

5. Additional charge

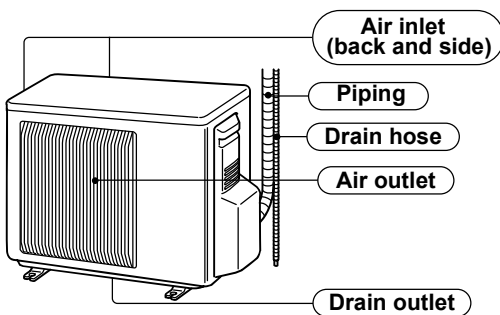
For additional charging, charge the refrigerant from liquid phase of the gas cylinder.

If the refrigerant is charged from the gas phase, composition change may occur in the refrigerant inside the cylinder and the outdoor unit. In this case, capacity of the refrigeration cycle decreases or normal operation can be impossible. However, charging the liquid refrigerant all at once may cause the compressor to be locked. Thus, charge the refrigerant slowly.

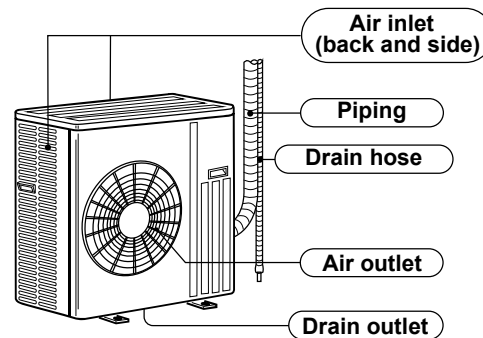


2 PART NAMES AND FUNCTIONS

MUZ-A09NA MUZ-A15NA MUY-A15NA
MUZ-A12NA MUZ-A17NA MUY-A17NA



MUZ-A24NA MUY-A24NA
MUZ-GA24NA MUY-GA24NA



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SPECIFICATION

Item		Model	MSZ-A09NA		MSZ-A12NA
Capacity Rated (Minimum-Maximum)	Cooling *1	Btu/h	9,000 (5,500-9,000)		12,000 (5,700-12,000)
	Heating 47 *1	Btu/h	10,900 (5,200-12,600)		13,600 (5,200-13,600)
Capacity	Heating 17 *2	Btu/h	7,700		8,300
Power consumption Rated (Minimum-Maximum)	Cooling *1	W	690 (390-690)		1,170 (395-1,170)
	Heating 47 *1	W	860 (350-1,100)		1,160 (350-1,160)
Power consumption	Heating 17 *2	W	880		930
EER *1 [SEER] *3	Cooling		13.0 [17.0]		10.3 [17.0]
HSPF IV(V) *4	Heating		8.2 (7.1)		8.2 (7.1)
COP	Heating *1		3.71		3.44
Outdoor unit model			MUZ-A09NA MUZ-A09NA - <u>U1</u>	MUZ-A09NA - <u>U1</u> MUZ-A09NA - <u>U2</u>	MUZ-A12NA
Power supply		V, phase, Hz	208/230, 1, 60		
Max. fuse size (time delay)		A	15		
Min. circuit ampacity		A	12		
Fan motor		F.L.A	0.52		
Compressor	Model		KNB092FPAH		
	Winding resistance (at 68.F) Ω		0.49		
	R.L.A		7.8		
	L.R.A		9.2		
Refrigerant control			Liner expansion valve		
Sound level *1		dB(A)	48		
Defrost method			Reverse cycle		
Dimensions	W	in.	31-1/2		
	D	in.	11-1/4		
	H	in.	21-5/8		
Weight		lb.	82	75	82
External finish			Munsell 3Y 7.8/1.1		
Remote controller			Wireless type		
Control voltage (by built-in transformer)			12 - 24 VDC		
Refrigerant piping			Not supplied		
Refrigerant pipe size (Min. wall thickness)	Liquid	in.	1/4 (0.0315)		
	Gas	in.	3/8 (0.0315)		
Connection method	Indoor		Flared		
	Outdoor		Flared		
Between the indoor & outdoor units	Height difference	ft.	40		
	Piping length	ft.	65		
Refrigerant charge (R410A)			2 lb. 5 oz.	2 lb.	2 lb. 5 oz.
Refrigeration oil (Model)			NEO22		

NOTE: Test conditions are based on ARI 210/240.

*1: Rating conditions (Cooling) — Indoor: 80°FDB, 67°FWB, Outdoor: 95°FDB, (75°FWB) Rated frequency
 (Heating) — Indoor: 70°FDB, 60°FWB, Outdoor: 47°FDB, 43°FWB Rated frequency
 *2: (Heating) — Indoor: 70°FDB, 60°FWB, Outdoor: 17°FDB, 15°FWB Maximum frequency

Item		Model	MSZ-A15NA	MSY-A15NA	MSZ-A17NA	MSY-A17NA
Capacity Rated (Minimum-Maximum)	Cooling *1	Btu/h	15,000 (3,100-15,000)	15,000 (3,100-15,000)	16,200 (3,100-16,200)	16,200 (3,100-16,200)
	Heating 47 *1	Btu/h	18,000 (3,400-20,900)	—	20,100 (3,400-20,900)	—
Capacity	Heating 17 *2	Btu/h	13,000	—	13,000	—
Power consumption Rated (Minimum-Maximum)	Cooling *1	W	1,690 (210-1,690)	1,690 (210-1,690)	2,070 (210-2,070)	2,070 (210-2,070)
	Heating 47 *1	W	1,790 (250-2,330)	—	2,150 (250-2,330)	—
Power consumption	Heating 17 *2	W	1,740	—	1,740	—
EER *1 [SEER] *3	Cooling		8.9 [16.0]	8.9 [16.0]	7.8 [16.0]	7.8 [16.0]
HSPF IV(V) *4	Heating		8.2 (7.1)	—	8.2 (7.1)	—
COP	Heating *1		2.95	—	2.74	—
Outdoor unit model			MUZ-A15NA	MUY-A15NA	MUZ-A17NA	MUY-A17NA
Power supply		V, phase, Hz	208/230, 1, 60			
Max. fuse size (time delay)		A	15			
Min. circuit ampacity		A	14			
Fan motor		F.L.A	0.52			
Compressor	Model		SNB130FPDH			
	Winding resistance (at 68 °F) Ω		0.45			
	R.L.A		10.1			
	L.R.A		12			
Refrigerant control			Liner expansion valve			
Sound level *1		dB(A)	50	50	52	52
Defrost method			51	—	53	—
Dimensions	W	in.	31-1/2			
	D	in.	11-1/4			
	H	in.	21-5/8			
Weight		lb.	88			
External finish			Munsell 3Y 7.8/1.1			
Remote controller			Wireless type			
Control voltage (by built-in transformer)			12 - 24 VDC			
Refrigerant piping			Not supplied			
Refrigerant pipe size (Min. wall thickness)	Liquid	in.	1/4 (0.0315)			
	Gas	in.	1/2 (0.0315)			
Connection method	Indoor		Flared			
	Outdoor		Flared			
Between the indoor & outdoor units	Height difference	ft.	40			
	Piping length	ft.	65			
Refrigerant charge (R410A)			2 lb. 7 oz.			
Refrigeration oil (Model)			NEO22			

NOTE: Test conditions are based on ARI 210/240.

*1: Rating conditions (Cooling) — Indoor: 80 °FDB, 67 °FWB, Outdoor: 95 °FDB, (75 °FWB) Rated frequency
(Heating) — Indoor: 70 °FDB, 60 °FWB, Outdoor: 47 °FDB, 43 °FWB Rated frequency
*2: (Heating) — Indoor: 70 °FDB, 60 °FWB, Outdoor: 17 °FDB, 15 °FWB Maximum frequency

Item		Model	MSZ-A24NA	MSY-A24NA	MSZ-GA24NA	MSY-GA24NA
Capacity Rated Minimum-Maximum)	Cooling *1	Btu/h	22,000 (4,400-22,000)	22,000 (4,400-22,000)	22,000 (4,400-22,000)	22,000 (4,400-22,000)
	Heating 47 *1	Btu/h	23,200 (3,600-24,400)	—	23,200 (3,600-24,400)	—
Capacity	Heating 17 *2	Btu/h	15,200	—	15,200	—
Power consumption Rated (Minimum-Maximum)	Cooling *1	W	2,880 (290-2,880)	2,880 (290-2,880)	2,500 (270-2,500)	2,500 (270-2,500)
	Heating 47 *1	W	2,350 (260-2,570)	—	2,140 (250-2,520)	—
Power consumption	Heating 17 *2	W	1,960	—	1,870	—
EER *1 [SEER] *3	Cooling		7.6 [16.0]	7.6 [16.0]	8.8 [17.5]	8.8 [17.5]
HSPF IV(V) *4	Heating		8.2 (7.1)	—	9.5 (7.1)	—
COP	Heating *1		2.89	—	3.17	—
Outdoor unit model			MUZ-A24NA	MUY-A24NA	MUZ-GA24NA	MUY-GA24NA
Power supply		V , phase , Hz	208/230, 1, 60			
Max. fuse size (time delay)		A	20			
Min. circuit ampacity		A	17			
Fan motor		F.L.A	0.93			
Compressor	Model		SNB130FPDH		SNB130FQBH	
	Winding resistance (at 68 °F) Ω		0.45		0.98	
	R.L.A		10.1		12.8	
	L.R.A		16.0		16.0	
Refrigerant control			Liner expansion valve			
Sound level *1		dB(A)	55			
Defrost method			Reverse cycle			
Dimensions	W	in.	33-1/16			
	D	in.	13			
	H	in.	33-7/16			
Weight		lb.	128		117	
External finish			Munsell 3Y 7.8 1.1			
Remote controller			Wireless type			
Control voltage (by built-in transformer)			12 - 24 VDC			
Refrigerant piping			Not supplied			
Refrigerant pipe size (Min. wall thickness)	Liquid	in.	1/4 (0.0315)			
	Gas	in.	5/8 (0.0394)			
Connection method	Indoor		Flared			
	Outdoor		Flared			
Between the indoor & outdoor units	Height difference	ft.	50			
	Piping length	ft.	100			
Refrigerant charge (R410A)			4 lb.			
Refrigeration oil (Model)			NEO22			

NOTE: Test conditions are based on ARI 210/240.

*1: Rating conditions (Cooling) — Indoor: 80 °FDB, 67 °FWB, Outdoor: 95 °FDB, (75 °FWB) Rated frequency
(Heating) — Indoor: 70 °FDB, 60 °FWB, Outdoor: 47 °FDB, 43 °FWB Rated frequency
*2: (Heating) — Indoor: 70 °FDB, 60 °FWB, Outdoor: 17 °FDB, 15 °FWB Maximum frequency

Test condition

*3, *4

	Mode	Test	Indoor air condition (°F)		Outdoor air condition (°F)	
			Dry bulb	Wet bulb	Dry bulb	Wet bulb
ARI	SEER (Cooling)	"A" Cooling Steady State at rated compressor Speed	80	67	95	(75)
		"B-2" Cooling Steady State at rated compressor Speed	80	67	82	(65)
		"B-1" Cooling Steady State at minimum compressor Speed	80	67	82	(65)
		Low ambient Cooling Steady State at minimum compressor Speed	80	67	67	(53.5)
		Intermediate Cooling Steady State At Intermediate compressor Speed *5	80	67	87	(69)
	HSPF (Heating)	Standard Rating-Heating at rated compressor Speed	70	60	47	43
		Low temperature Heating at rated compressor Speed	70	60	17	15
		Max temperature Heating at minimum compressor Speed	70	60	62	56.5
		High temperature Heating at minimum compressor Speed	70	60	47	43
		Frost Accumulation at rated compressor Speed	70	60	35	33
		Frost Accumulation at Intermediate compressor Speed *5	70	60	35	33

*5: At Intermediate compressor Speed = ("Cooling rated compressor speed" - "minimum compressor speed") / 3 + "minimum compressor speed".

OPERATING RANGE

(1) POWER SUPPLY

	Rated voltage	Guaranteed Voltage (V)
Outdoor unit	208/230 V 1 phase 60 Hz	<p>Min.187 208 230 Max.253</p>

(2) OPERATION

Mode	Condition	Intake air temperature (°F)			
		Indoor		Outdoor	
		DB	WB	DB	WB
Cooling	Standard temperature	80	67	95	—
	Maximum temperature	90	73	115	—
	Minimum temperature	67	57	14	—
	Maximum humidity	78%		—	
Heating	Standard temperature	70	60	47	43
	Maximum temperature	80	67	75	65
	Minimum temperature	70	60	14 5 (MUZ-GA24)*	13 4 (MUZ-GA24)*

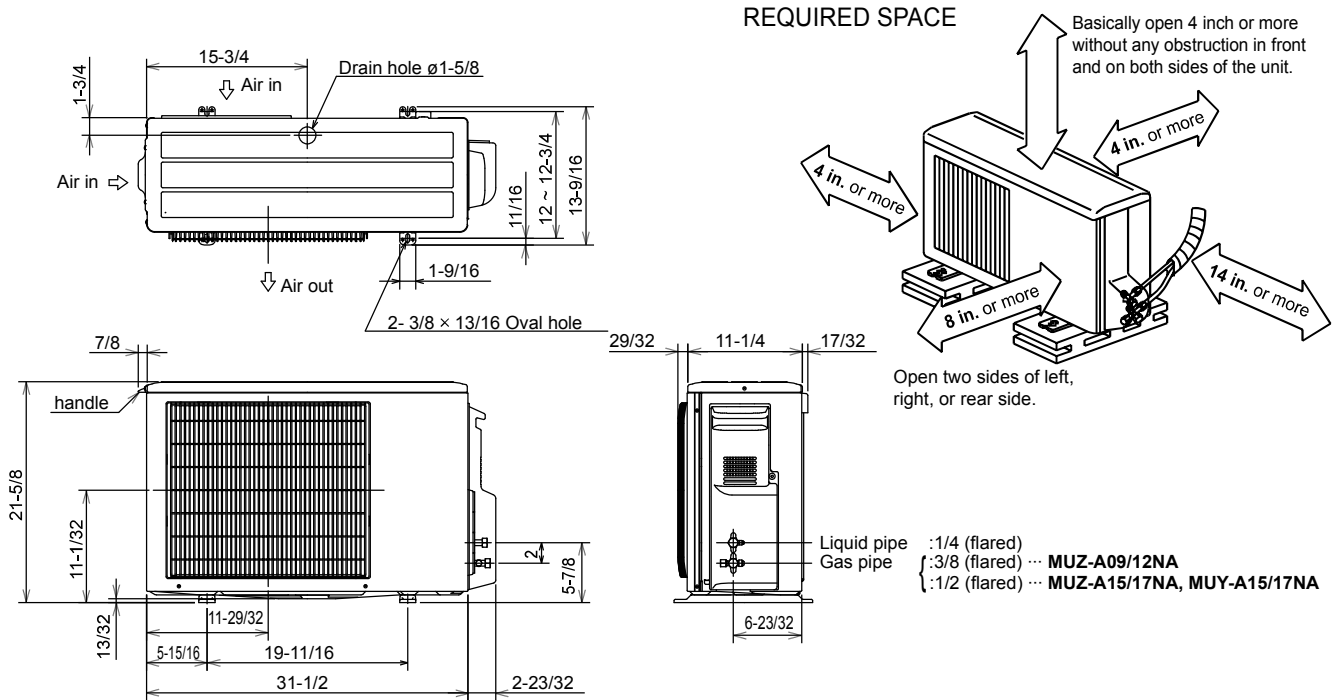
*Except -[u] model

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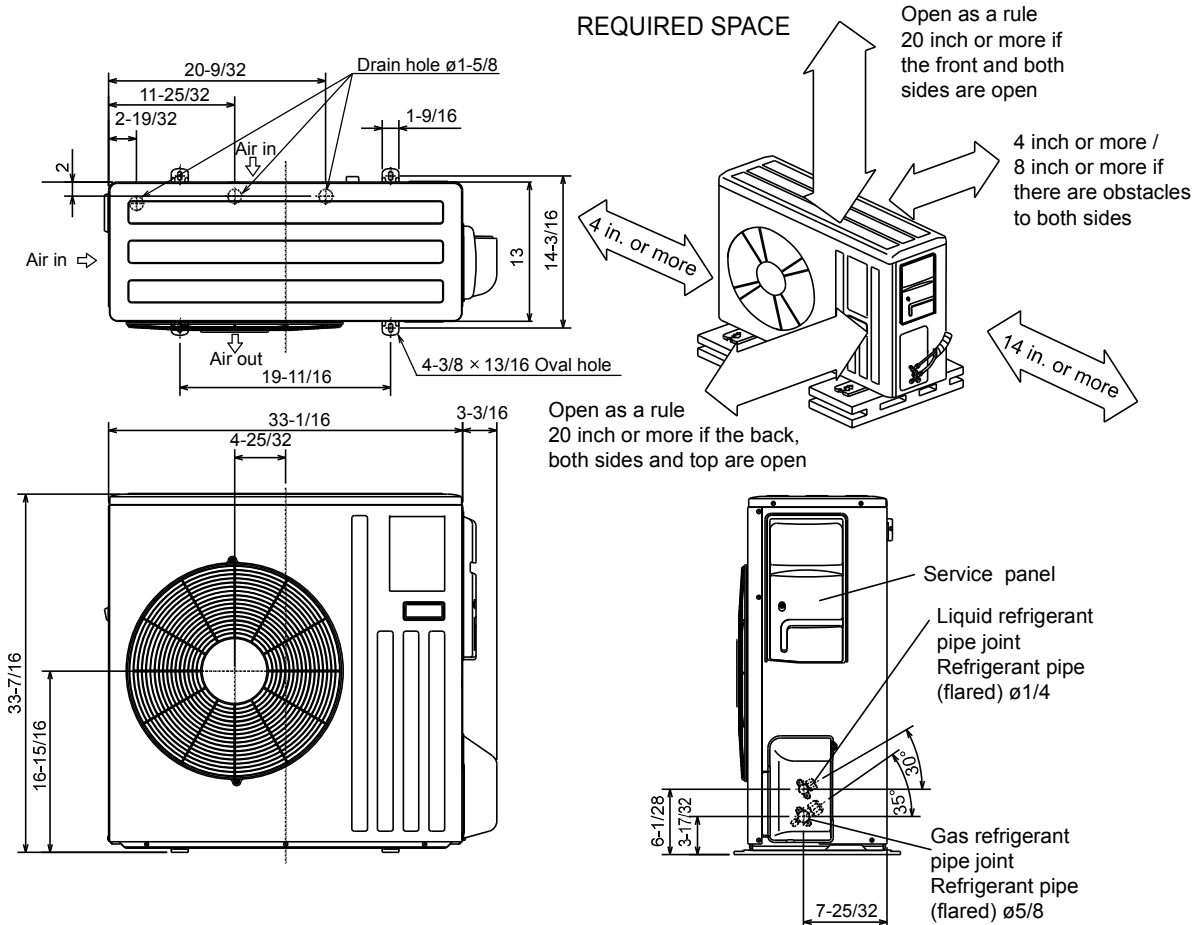
OUTLINES AND DIMENSIONS

MUZ-A09NA MUZ-A12NA MUZ-A15NA MUZ-A17NA MUY-A15NA MUY-A17NA

Unit: inch



MUZ-A24NA MUY-A24NA MUZ-GA24NA MUY-GA24NA



7

DATA

MUZ-A09NA MUZ-A12NA MUZ-A15NA MUZ-A17NA MUZ-A24NA MUZ-GA24NA MUY-A15NA MUY-A17NA MUY-A24NA MUY-GA24NA

7-1. PERFORMANCE DATA

1) COOLING CAPACITY

Model	Indoor air	Outdoor intake air DB temperature (°F)														
	IWB (°F)	75			85			95			105			115		
		TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC
MUZ-A09NA MUZ-A09NA - [U1]	71	11.0	6.4	0.61	10.3	5.9	0.67	9.7	5.6	0.72	9.0	5.2	0.76	8.3	4.8	0.79
	67	10.4	7.4	0.58	9.7	6.9	0.64	9.0	6.4	0.69	8.4	5.9	0.73	7.7	5.5	0.77
	63	9.8	8.3	0.55	9.1	7.7	0.61	8.5	7.1	0.66	7.7	6.5	0.70	7.0	5.9	0.73
MUZ-A09NA - [1] MUZ-A09NA - [U2]	71	11.0	6.4	0.61	10.3	5.9	0.67	9.7	5.6	0.72	9.0	5.2	0.76	8.3	4.8	0.79
	67	10.4	7.4	0.58	9.7	6.9	0.64	9.0	6.4	0.69	8.4	5.9	0.73	7.7	5.5	0.77
	63	9.8	8.3	0.55	9.1	7.7	0.61	8.5	7.1	0.66	7.7	6.5	0.70	7.0	5.9	0.73
MUZ-A12NA	71	14.7	8.5	1.04	13.7	7.9	1.14	12.9	7.4	1.23	12.0	6.9	1.29	11.0	6.4	1.35
	67	13.9	9.9	0.98	13.0	9.2	1.08	12.0	8.5	1.17	11.2	7.9	1.24	10.3	7.3	1.30
	63	13.1	11.0	0.94	12.1	10.2	1.04	11.3	9.5	1.12	10.3	8.7	1.19	9.4	7.9	1.24
MUY-A15NA MUZ-A15NA	71	18.4	9.5	1.50	17.2	8.9	1.65	16.1	8.3	1.77	15.0	7.8	1.87	13.8	7.1	1.94
	67	17.4	11.3	1.42	16.2	10.5	1.56	15.0	9.8	1.69	14.0	9.1	1.79	12.8	8.3	1.88
	63	16.4	12.8	1.35	15.2	11.9	1.50	14.1	11.0	1.61	12.8	10.0	1.72	11.7	9.2	1.79
MUY-A17NA MUZ-A17NA	71	19.8	10.3	1.84	18.5	9.6	2.02	17.4	9.0	2.17	16.2	8.4	2.29	14.9	7.7	2.38
	67	18.8	12.2	1.74	17.5	11.4	1.91	16.2	10.5	2.07	15.1	9.8	2.19	13.9	9.0	2.30
	63	17.7	13.8	1.66	16.4	12.8	1.83	15.2	11.9	1.98	13.9	10.8	2.11	12.6	9.9	2.19
MUY-A24NA MUZ-A24NA	71	27.0	13.4	2.56	25.2	12.5	2.81	23.7	11.7	3.02	22.0	10.9	3.18	20.2	10.1	3.31
	67	25.5	16.1	2.42	23.8	15.0	2.66	22.0	13.9	2.88	20.5	12.9	3.05	18.8	11.9	3.20
	63	24.0	18.3	2.30	22.2	17.0	2.55	20.7	15.8	2.75	18.8	14.4	2.94	17.2	13.1	3.05
MUY-GA24NA MUZ-GA24NA	71	27.0	13.4	2.23	25.2	12.5	2.44	23.7	11.7	2.63	22.0	10.9	2.76	20.2	10.1	2.88
	67	25.5	16.1	2.10	23.8	15.0	2.31	22.0	13.9	2.50	20.5	12.9	2.65	18.8	11.9	2.78
	63	24.0	18.3	2.00	22.2	17.0	2.21	20.7	15.8	2.39	18.8	14.4	2.55	17.2	13.1	2.65

NOTE: 1. IWB: Intake air wet-bulb temperature
 TC: Total Capacity ($\times 10^3$ Btu/h)
 SHC: Sensible Heat Capacity ($\times 10^3$ Btu/h)
 TPC: Total Power Consumption (kW)
 2. SHC is based on 80°F of indoor Intake air DB temperature.

2) COOLING CAPACITY CORRECTIONS

Model	Refrigerant piping length (one way: ft.)			
	25 (std.)	40	65	100
MSZ-A09/12/15/17NA MSY-A15/17NA	1.0	0.954	0.878	
MSZ-A24NA MSY-A24NA MSZ-GA24NA MSY-GA24NA	1.0	0.95	0.878	0.713

3) HEATING CAPACITY

Model	Indoor air		Outdoor intake air WB temperature (°F)													
	IDB		5		15		25		35		43		45		55	
	(°F)		TC	TPC	TC	TPC	TC	TPC	TC	TPC	TC	TPC	TC	TPC	TC	TPC
MUZ-A09NA MUZ-A09NA - ¹ U1	75				6.3	0.64	7.9	0.75	9.4	0.84	10.6	0.88	11.0	0.89	12.4	0.93
	70	—	—		6.7	0.62	8.2	0.74	9.6	0.82	10.9	0.86	11.2	0.88	12.7	0.91
	65				6.9	0.59	8.6	0.71	10.0	0.80	11.2	0.84	11.6	0.85	13.0	0.89
MUZ-A09NA - ¹ U1 MUZ-A09NA - ² U2	75				6.3	0.64	7.9	0.75	9.4	0.84	10.6	0.88	11.0	0.89	12.4	0.93
	70	—	—		6.7	0.62	8.2	0.74	9.6	0.82	10.9	0.86	11.2	0.88	12.7	0.91
	65				6.9	0.59	8.6	0.71	10.0	0.80	11.2	0.84	11.6	0.85	13.0	0.89
MUZ-A12NA	75				7.9	0.86	9.9	1.02	11.8	1.13	13.3	1.19	13.7	1.21	15.5	1.25
	70	—	—		8.4	0.84	10.2	0.99	12.0	1.10	13.6	1.16	14.0	1.18	15.8	1.23
	65				8.6	0.80	10.7	0.96	12.4	1.07	14.0	1.13	14.4	1.15	16.2	1.21
MUZ-A15NA	75				10.4	1.33	13.1	1.57	15.6	1.75	17.6	1.83	18.1	1.86	20.5	1.93
	70	—	—		11.1	1.29	13.5	1.53	15.9	1.70	18.0	1.79	18.5	1.83	21.0	1.90
	65				11.3	1.24	14.1	1.48	16.5	1.66	18.5	1.75	19.1	1.77	21.4	1.86
MUZ-A17NA	75				11.7	1.60	14.6	1.88	17.4	2.10	19.6	2.20	20.2	2.24	22.9	2.32
	70	—	—		12.4	1.55	15.1	1.84	17.8	2.04	20.1	2.15	20.7	2.19	23.4	2.28
	65				12.7	1.48	15.8	1.77	18.4	1.99	20.7	2.10	21.3	2.13	23.9	2.24
MUZ-A24NA	75				13.5	1.75	16.8	2.06	20.1	2.29	22.6	2.41	23.3	2.44	26.4	2.54
	70	—	—		14.3	1.69	17.4	2.01	20.5	2.23	23.2	2.35	23.9	2.40	27.0	2.49
	65				14.6	1.62	18.2	1.94	21.2	2.17	23.9	2.29	24.6	2.33	27.6	2.44
MUZ-GA24NA	75	10.2	1.26		13.5	1.59	16.8	1.87	20.1	2.09	22.6	2.19	23.3	2.23	26.4	2.31
	70	11.0	1.21		14.3	1.54	17.4	1.83	20.5	2.03	23.2	2.14	23.9	2.18	27.0	2.27
	65	11.6	1.16		14.6	1.48	18.2	1.77	21.2	1.98	23.9	2.09	24.6	2.12	27.6	2.23

NOTE: 1. IDB: Intake air dry-bulb temperature
 TC: Total Capacity ($\times 10^3$ Btu/h)
 TPC: Total Power Consumption (kW)

2. Above data is for heating operation without any frost.

How to operate with fixed operational frequency of the compressor.

1. Press the EMERGENCY OPERATION switch on the front of the indoor unit, and select either EMERGENCY COOL mode or EMERGENCY HEAT mode before starting to operate the air conditioner.
2. The compressor starts with operational frequency.
3. The fan speed of the indoor unit is High.
4. This operation continues for 30 minutes.
5. In order to release this operation, press the EMERGENCY OPERATION switch twice or once, or press any button on the remote controller.

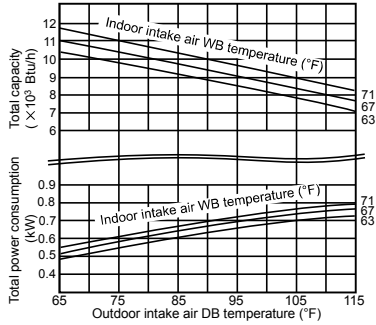
7-2. PERFORMANCE CURVE

Cooling

MUZ-A09NA

MUZ-A09NA- U1

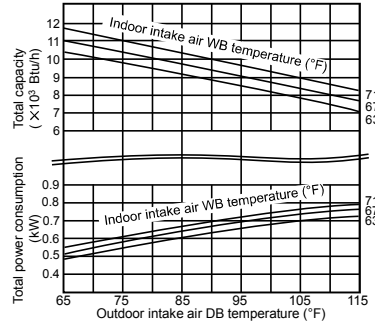
SHF at rating condition = 0.71
Airflow = 275 CFM



MUZ-A09NA- 1

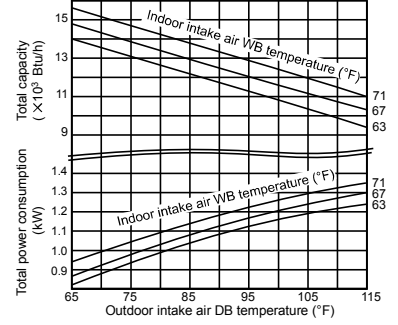
MUZ-A09NA- U2

SHF at rating condition = 0.71
Airflow = 275 CFM



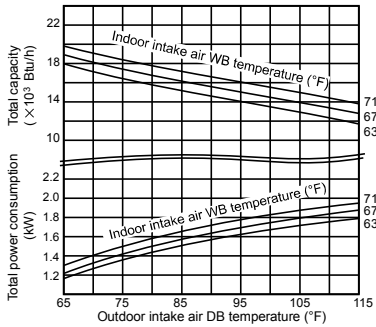
MUZ-A12NA

SHF at rating condition = 0.70
Airflow = 318 CFM



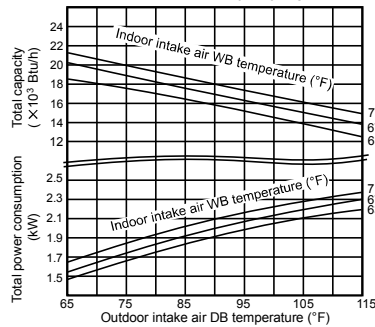
MUZ-A15NA MUY-A15NA

SHF at rating condition = 0.65
Airflow = 342 CFM



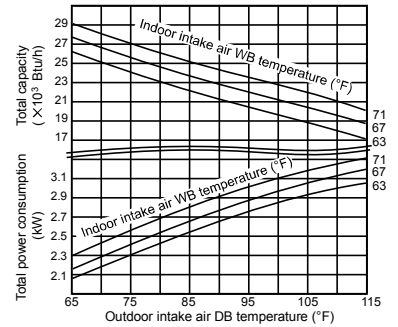
MUZ-A17NA MUY-A17NA

SHF at rating condition = 0.65
Airflow = 342 CFM



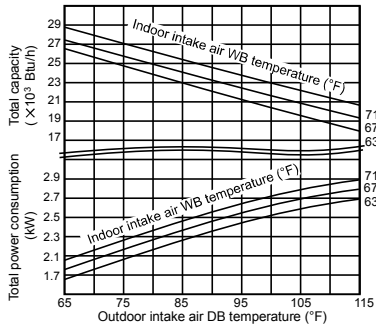
MUZ-A24NA MUY-A24NA

SHF at rating condition = 0.63
Airflow = 508 CFM



MUZ-GA24NA MUY-GA24NA

SHF at rating condition = 0.63
Airflow = 508 CFM

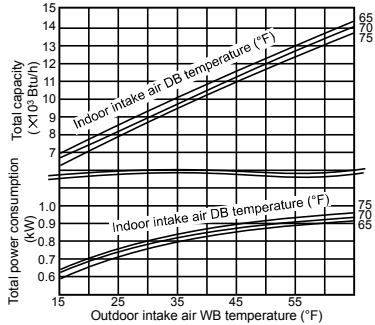


Heating

MUZ-A09NA

MUZ-A09NA- U1

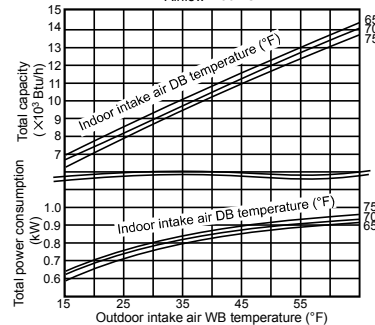
Airflow = 307 CFM



MUZ-A09NA- 1

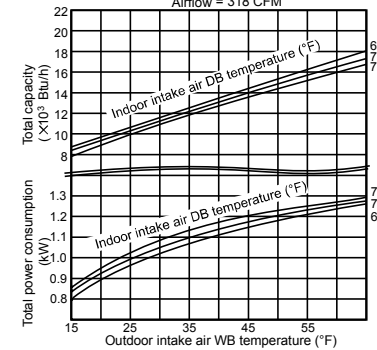
MUZ-A09NA- U2

Airflow = 307 CFM

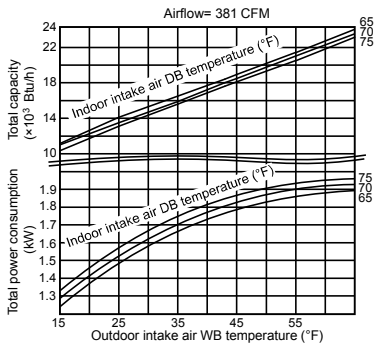


MUZ-A12NA

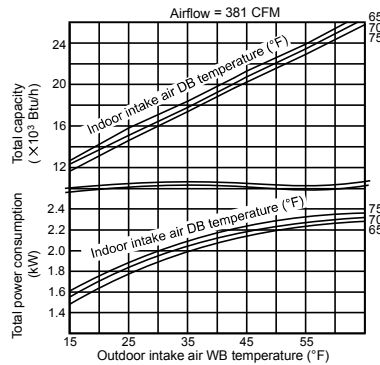
Airflow = 318 CFM



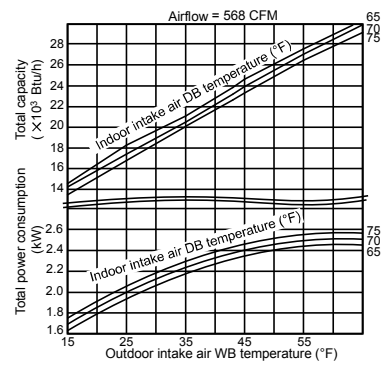
MUZ-A15NA



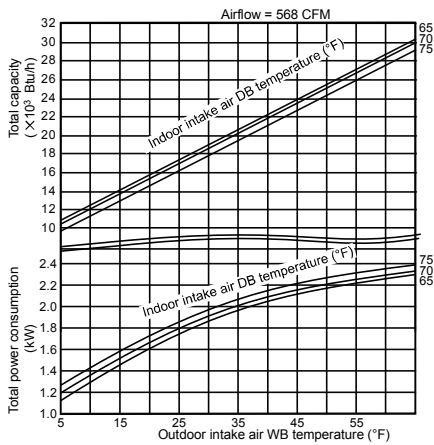
MUZ-A17NA



MUZ-A24NA



MUZ-GA24NA



This value of frequency is not the same as the actual frequency in operating. Refer to 7-5 and 7-6 for the relationships between frequency and capacity.

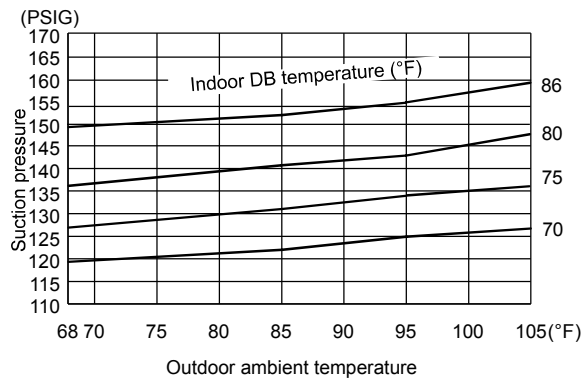
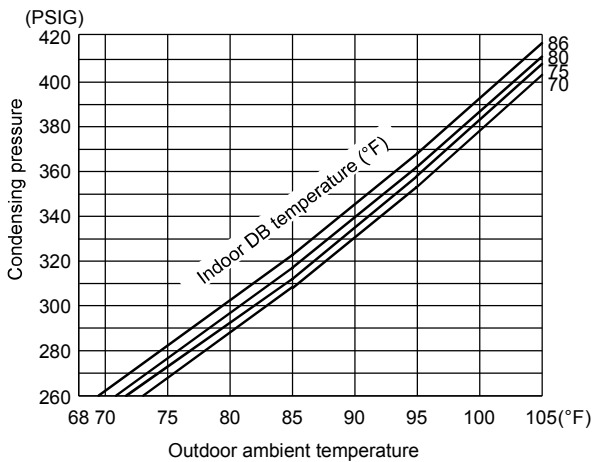
7-3. Condensing pressure

Cooling

Data is based on the condition of indoor humidity 50%.
Air flow should be set to High speed.

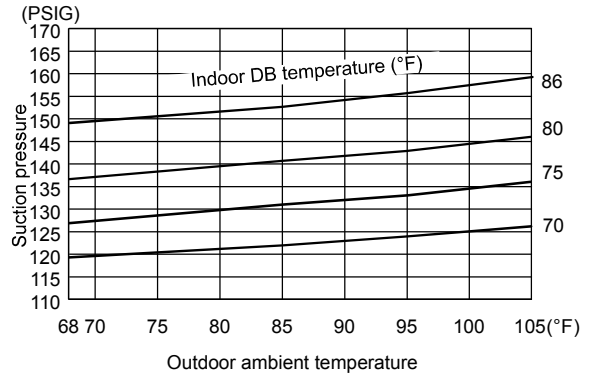
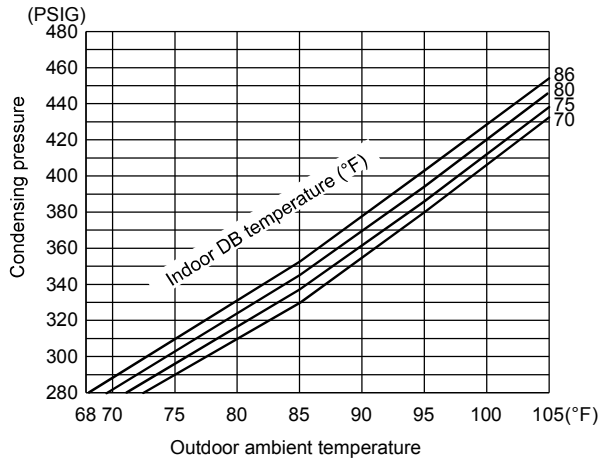
MUZ-A09NA

MUZ-A09NA- U1

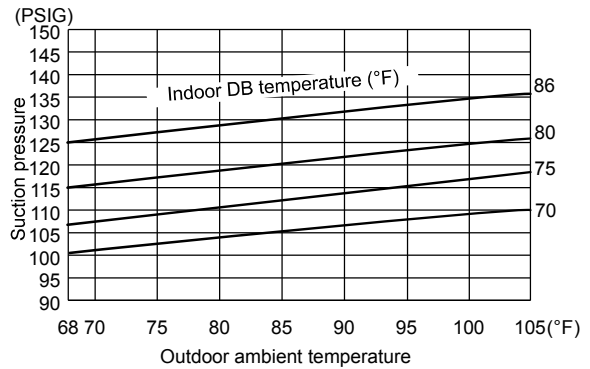
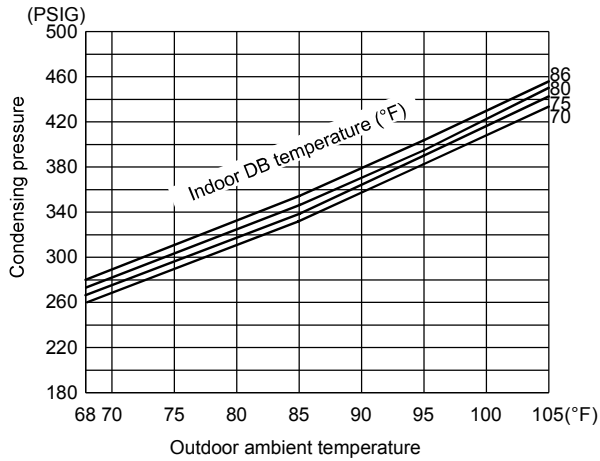


MUZ-A09NA- 1

MUZ-A09NA- U2

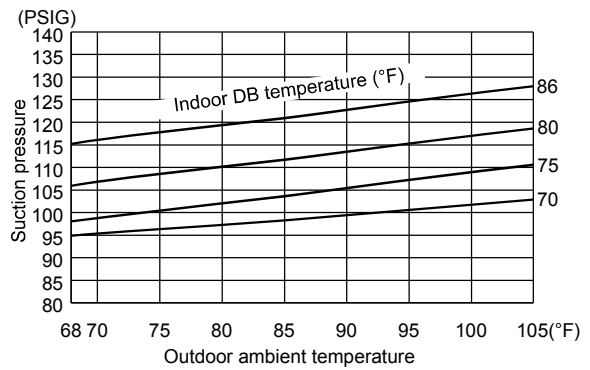
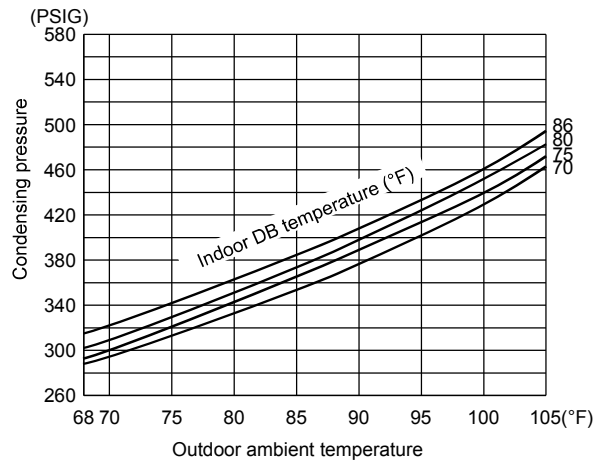


MUZ-A12NA

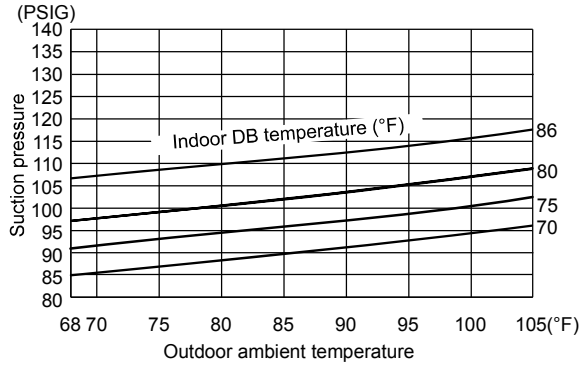
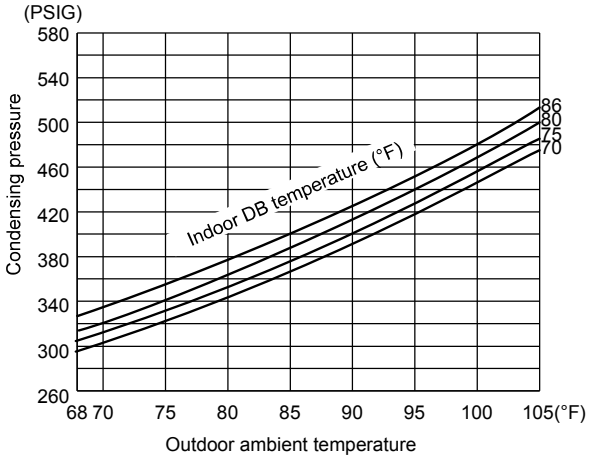


MUZ-A15NA

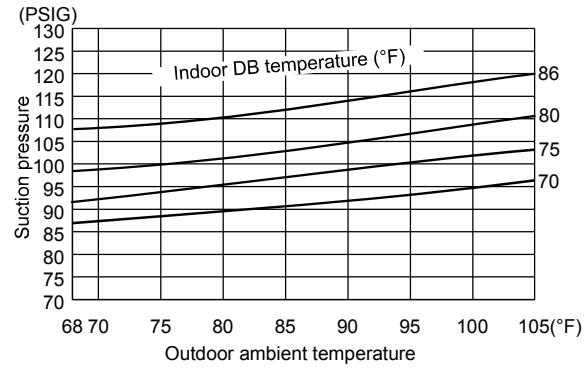
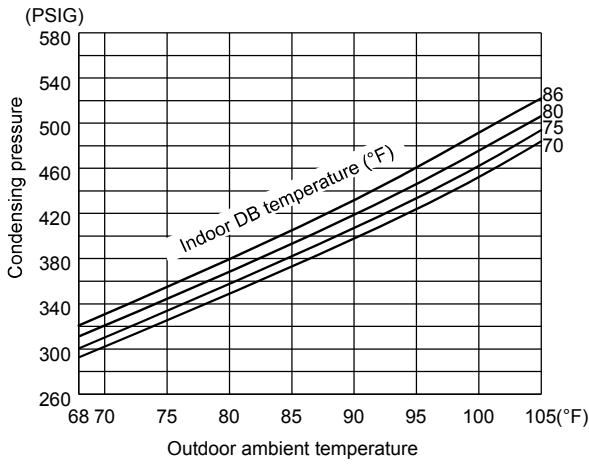
MUY-A15NA



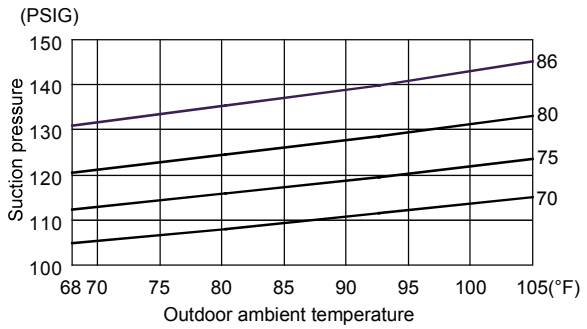
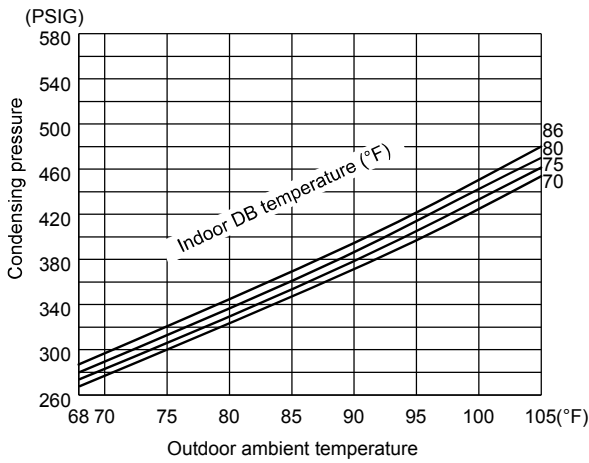
MUZ-A17NA
MUY-A17NA



MUZ-A24NA
MUY-A24NA



MUZ-GA24NA
MUY-GA24NA



Heating

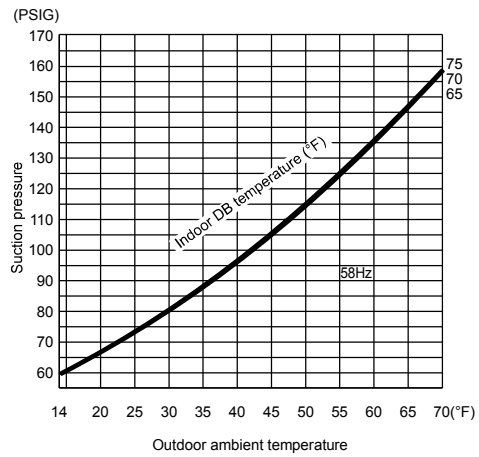
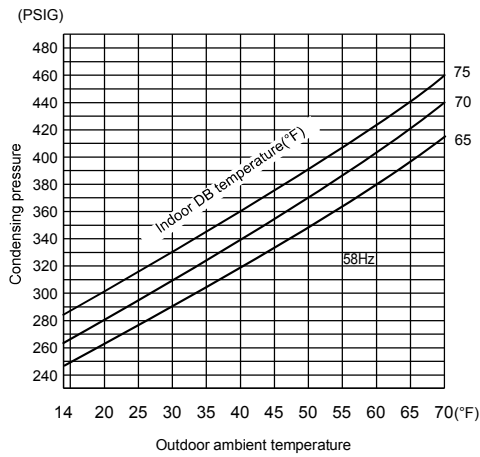
Data is based on the condition of outdoor humidity 75%.

Air flow should be set to High speed.

Data is for heating operation without any frost.

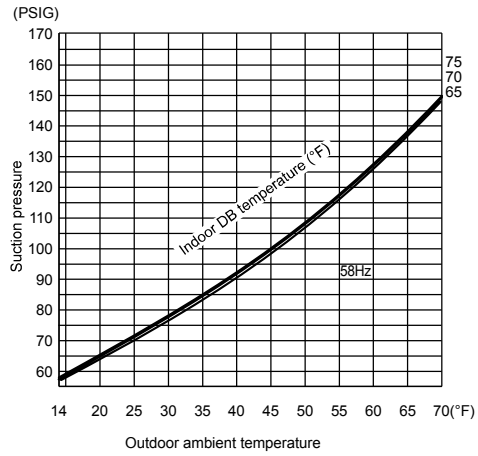
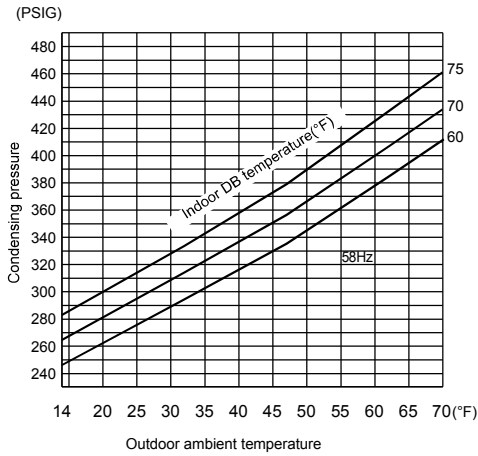
MUZ-A09NA

MUZ-A09NA- U1

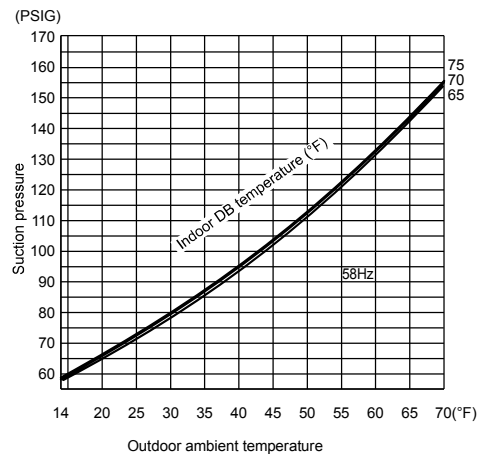
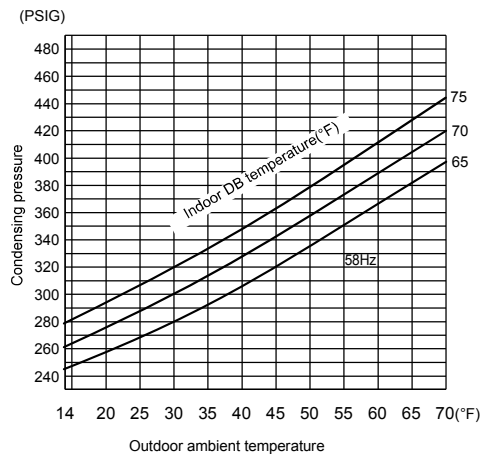


MUZ-A09NA- 1

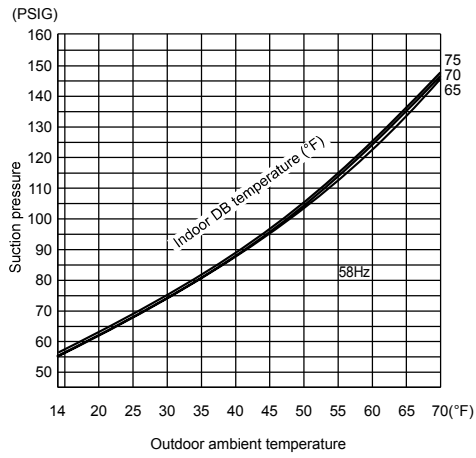
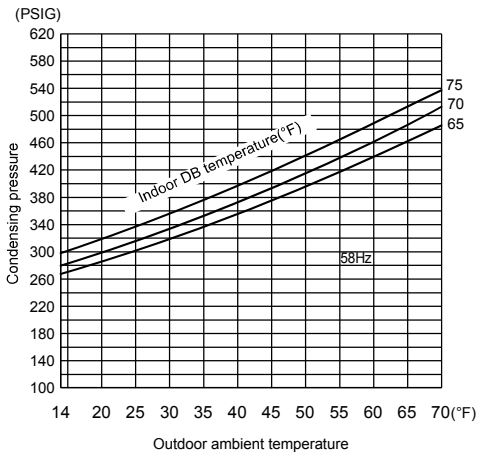
MUZ-A09NA- U2



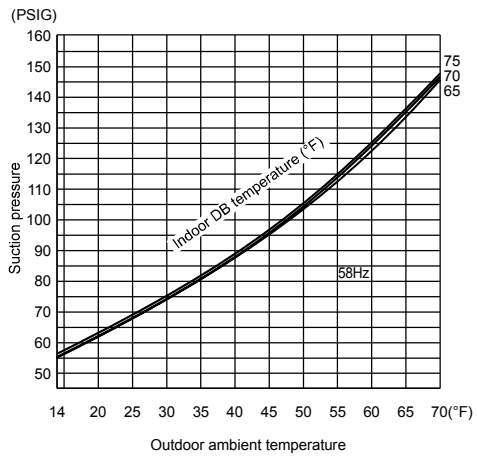
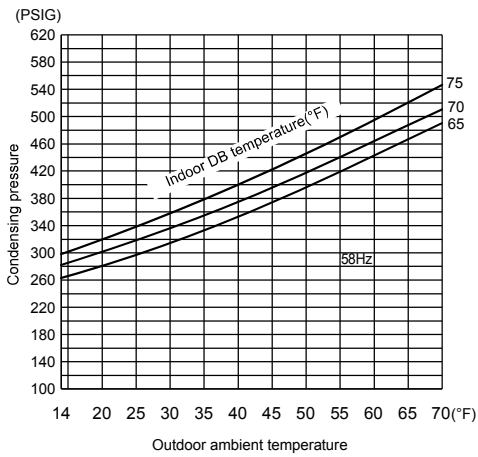
MUZ-A12NA



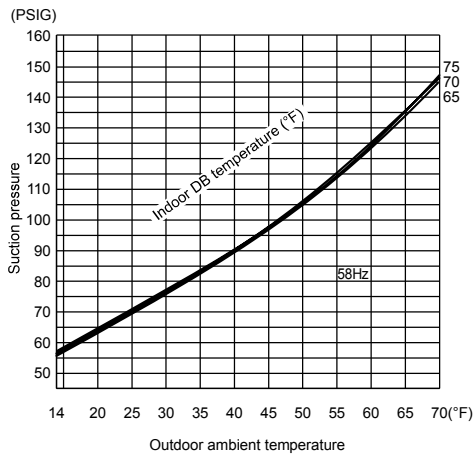
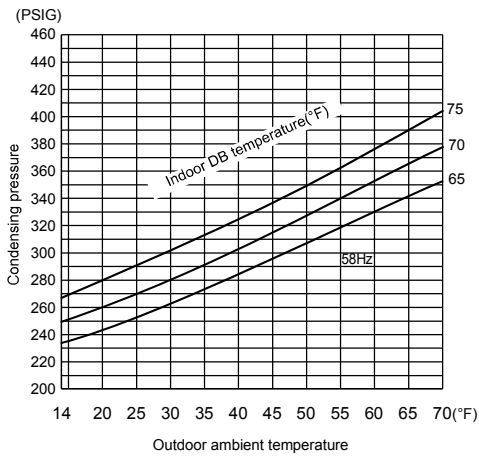
MUZ-A15NA



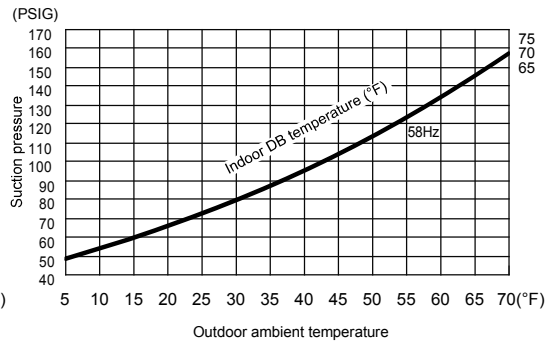
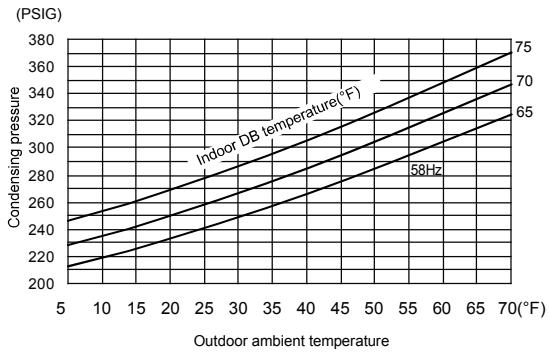
MUZ-A17NA



MUZ-A24NA



MUZ-GA24NA



7-4. STANDARD OPERATION DATA

Model		MUZ-A09NA				MSZ-A12NA			
Item		Unit	Cooling	Heating	Cooling	Heating	Cooling	Heating	
Total	Capacity	Btu/h	9,000	10,900	9,000	10,900	12,000	13,600	
	SHF	—	0.71	—	0.71	—	0.70	—	
	Input	kW	0.690	0.860	0.690	0.860	1,170	1,160	
	Rated frequency	Hz	50	61	50	63	76	76	
Electrical circuit	Indoor unit		MSZ-A09NA				MSZ-A12NA		
	Power supply (V, Phase, Hz)		208 / 230, 1, 60				208 / 230, 1, 60		
	Input	kW	0.016				0.021		
	Fan motor current	A	0.18 / 0.16				0.23 / 0.21		
	Outdoor unit		MUZ-A09NA MUZ-A09NA- U1		MUZ-A09NA- 1 MUZ-A09NA- U2		MUZ-A12NA		
	Power supply (V, phase, Hz)		208 / 230, 1, 60				208 / 230, 1, 60		
	Input	kW	0.674	0.844	0.674	0.844	1.149	1.139	
	Comp. current	A	2.80 / 2.53	3.63 / 3.28	3.14 / 2.84	3.89 / 3.52	5.08 / 4.59	5.03 / 4.54	
Fan motor current	A	0.37 / 0.34		0.33 / 0.30		0.37 / 0.34			
Refrigerant circuit	Condensing pressure	PSIG	363	368	393	372	395	393	
	Suction pressure	PSIG	144	109	144	102	124	103	
	Discharge temperature	°F	145	153	155	165	169	164	
	Condensing temperature	°F	107	108	113	109	112	113	
	Suction temperature	°F	55	37	56	38	54	35	
	Comp. shell bottom temp	°F	140	147	149	159	163	158	
	Ref. pipe length	ft.	25				25		
	Refrigerant charge (R410A)	—	2 lb. 5 oz.		2 lb.		2 lb. 5 oz.		
Indoor unit	Intake air temperature	DB	°F	80	70	80	70	80	70
		WB	°F	67	60	67	60	67	60
	Discharge air temperature	DB	°F	57	105	57	105	56	108
		WB	°F	56	71	56	71	54	72
	Fan speed (High)	rpm	1,080	1,080	1,080	1,080	1,220	1,220	
Airflow (High)	CFM	275 (Wet)	307	275 (Wet)	307	318 (Wet)	353		
Outdoor unit	Intake air temperature	DB	°F	95	47	95	47	95	47
		WB	°F	—	43	—	43	—	43
	Fan speed	rpm	840	840	840	840	840	840	
	Airflow	CFM	1,094	1,094	1,129	1,129	1,094	1,094	



Model			MSZ-A15NA MSY-A15NA	MSZ-A15NA	MSZ-A17NA MSY-A17NA	MSZ-A17NA	
Item		Unit	Cooling	Heating	Cooling	Heating	
Total	Capacity	Btu/h	15,000	18,000	16,200	20,100	
	SHF	-	0.65	—	0.65	—	
	Input	kW	1.69	1.79	2.07	2.15	
	Rated frequency	Hz	77	78	89	88	
Electrical circuit	Indoor unit		MSZ-A15NA, MSY-A15NA		MSZ-A17NA, MSY-A17NA		
	Power supply (V, Phase, Hz)		208 / 230, 1, 60		208 / 230, 1, 60		
	Input	kW	0.030		0.030		
	Fan motor current	A	0.31 / 0.28		0.31 / 0.28		
	Outdoor unit		MUZ-A15NA MUY-A15NA	MUZ-A15NA	MUZ-A17NA MUY-A17NA	MUZ-A17NA	
	Power supply (V, phase, Hz)		208 / 230, 1, 60		208 / 230, 1, 60		
	Input	kW	1.660	1.760	2.040	2.120	
	Comp. current	A	7.56 / 6.84	8.14 / 7.36	9.43 / 8.52	9.93 / 8.98	
	Fan motor current	A	0.42 / 0.38		0.42 / 0.38		
	Refrigerant circuit						
Condensing pressure	PSIG	425	458	442	493		
Suction pressure	PSIG	115	95	106	92		
Discharge temperature	°F	182	180	189	194		
Condensing temperature	°F	117	125	120	130		
Suction temperature	°F	47	30	40	28		
Comp. shell bottom temp	°F	161	153	167	167		
Ref. pipe length	ft.	25		25			
Refrigerant charge (R410A)	-	2 lb. 7 oz.		2 lb. 7 oz.			
Indoor unit	Intake air temperature	DB	°F	80	70	80	70
		WB	°F	67	60	67	60
	Discharge air temperature	DB	°F	53	116	52	120
		WB	°F	52	74	51	75
	Fan speed (High)	rpm	1,300	1,300	1,300	1,300	
Airflow (High)	CFM	342 (Wet)	381	342 (Wet)	381		
Outdoor unit	Intake air temperature	DB	°F	95	47	95	47
		WB	°F	—	43	—	43
	Fan speed	rpm	950	950	950	950	
	Airflow	CFM	1,249	1,249	1,249	1,249	

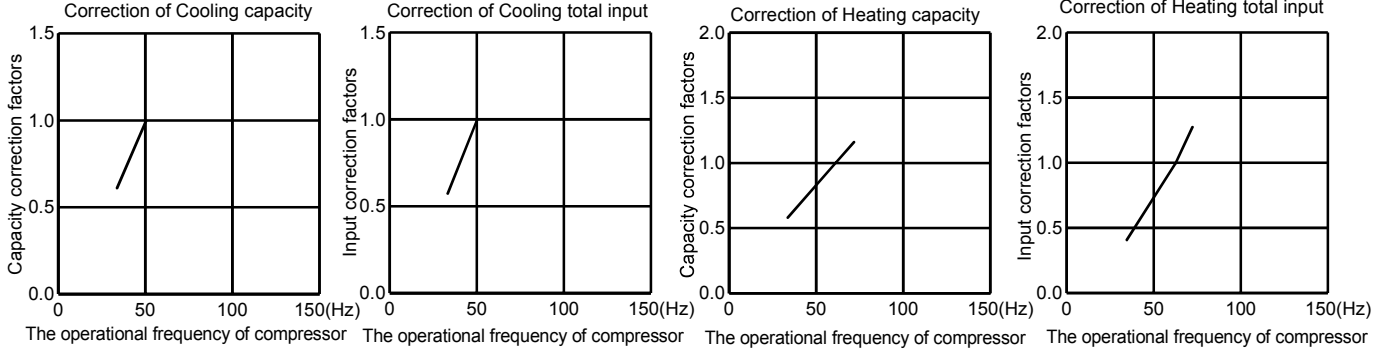


Model			MSZ-A24NA MSY-A24NA	MSZ-A24NA	MSZ-GA24NA MSY-GA24NA	MSZ-GA24NA	
Item		Unit	Cooling	Heating	Cooling	Heating	
Total	Capacity	Btu/h	22,000	23,200	22,000	23,200	
	SHF	-	0.63	—	0.63	—	
	Input	kW	2.88	2.35	2.50	2.14	
	Rated frequency	Hz	110	101	101	96	
Indoor unit			MSZ-A24NA, MSY-A24NA		MSZ-GA24NA, MSY-GA24NA		
Power supply (V, Phase, Hz)			208 / 230, 1, 60				
Input		kW	0.053				
Fan motor current		A	0.52 / 0.47				
Outdoor unit			MUZ-A24NA MUY-A24NA	MUZ-A24NA	MUZ-GA24NA MUY-GA24NA	MUZ-GA24NA	
Power supply (V, phase, Hz)			208 / 230, 1, 60				
Input		kW	2.827	2.297	2.447	2.087	
Comp. current		A	12.81 / 11.59	11.10 / 10.04	10.82 / 9.78	9.32 / 8.43	
Fan motor current		A	0.80 / 0.72		0.80 / 0.72	0.64 / 0.59	
Refrigerant circuit	Condensing pressure	PSIG	447	401	413	375	
	Suction pressure	PSIG	107	92	130	103	
	Discharge temperature	°F	181	170	168	173	
	Condensing temperature	°F	121	115	119	112	
	Suction temperature	°F	37	29	43	31	
	Comp. shell bottom temp	°F	161	148	160	164	
	Ref. pipe length	ft.	25				
	Refrigerant charge (R410A)	-	4 lb.				
Indoor unit	Intake air temperature	DB	°F	80	70	80	70
		WB	°F	67	60	67	60
	Discharge air temperature	DB	°F	56	108	56	108
		WB	°F	55	72	55	72
	Fan speed (High)	rpm	1,310				
Airflow (High)	CFM	385 (Wet)	341	385 (Wet)	341		
Outdoor unit	Intake air temperature	DB	°F	95	47	95	47
		WB	°F	—	43	—	43
	Fan speed	rpm	800		740		
	Airflow	CFM	1,729		1,660		

7-5. CAPACITY AND INPUT CORRECTION BY INVERTER OUTPUT FREQUENCY

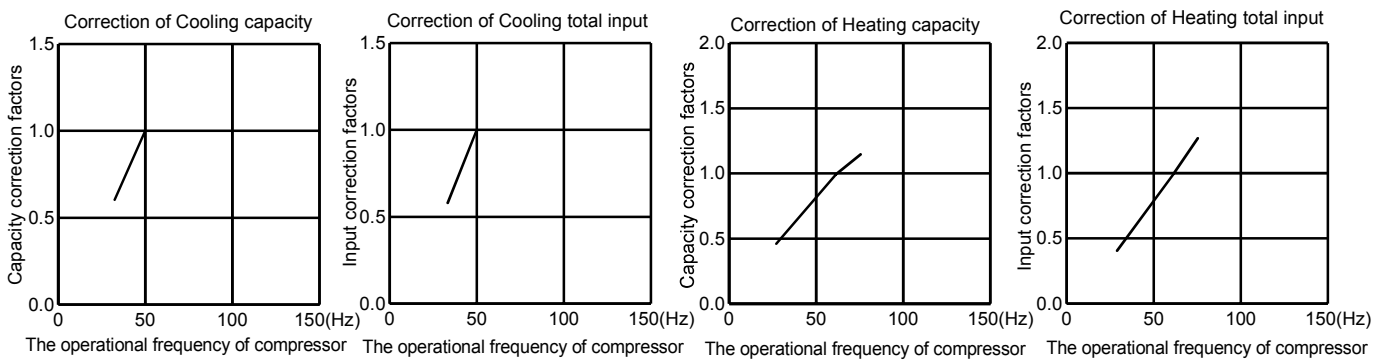
MUZ-A09NA

MUZ-A09NA - [U1]

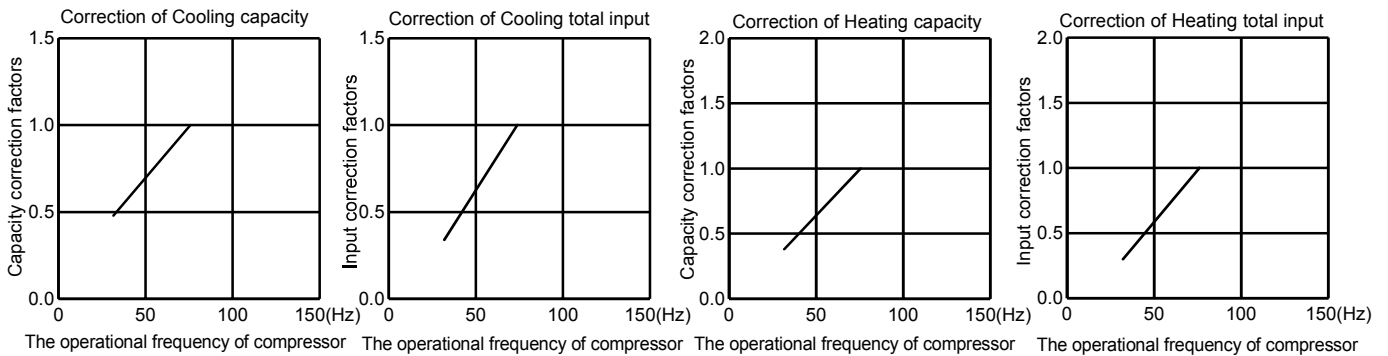


MUZ-A09NA - [1]

MUZ-A09NA - [U2]

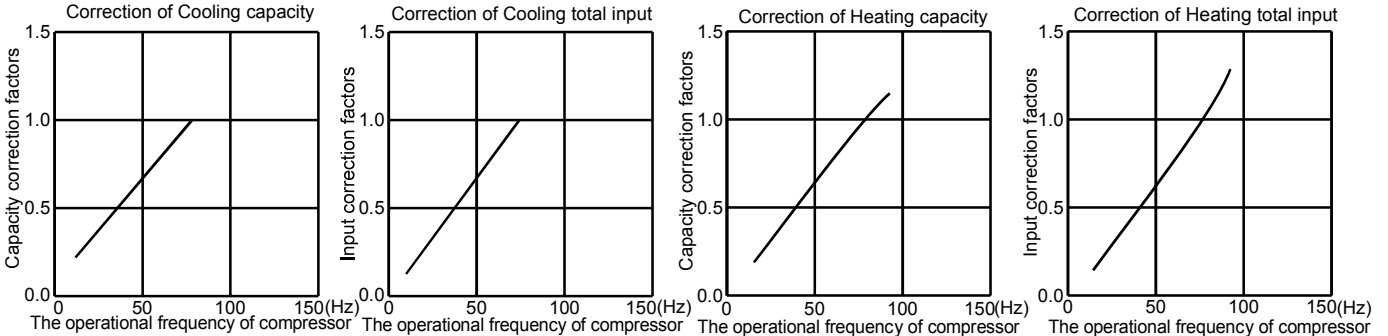


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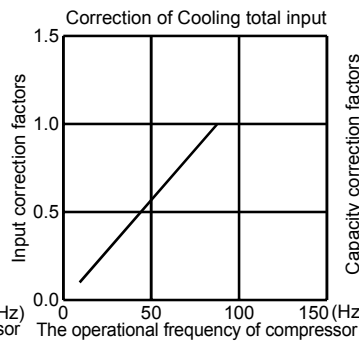
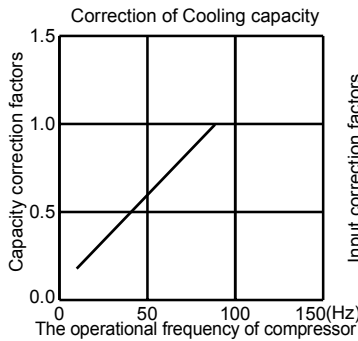


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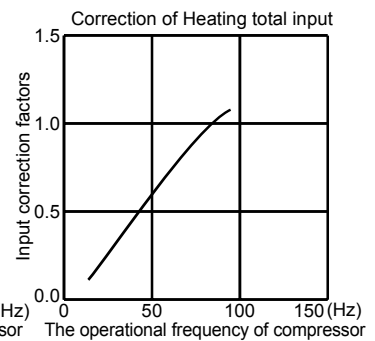
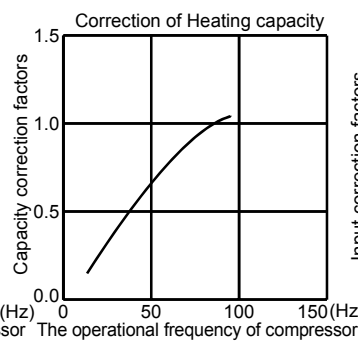
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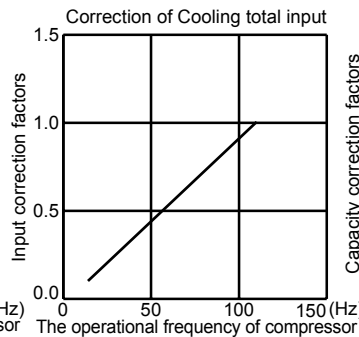
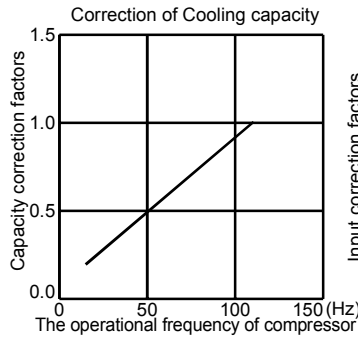
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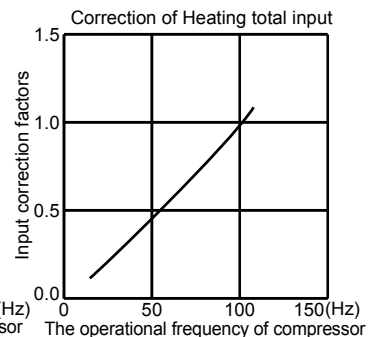
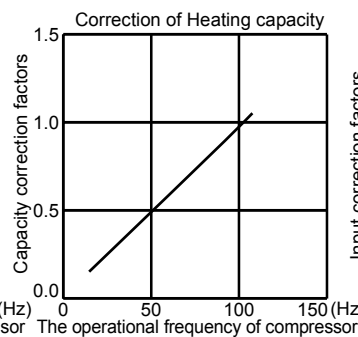
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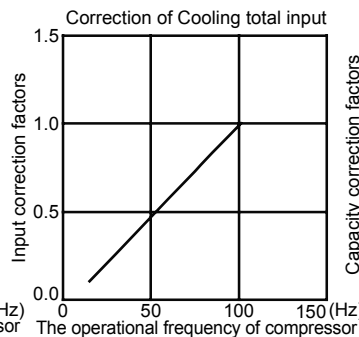
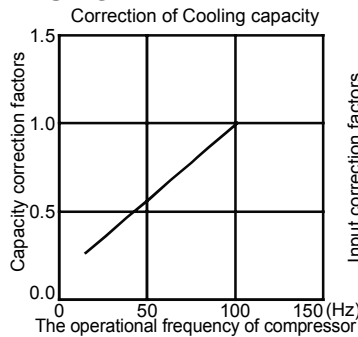
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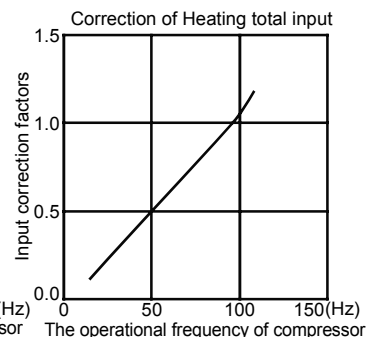
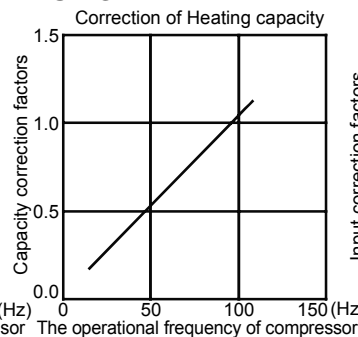
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MUY-GA24NA**



MUZ-GA24NA



7-6. TEST RUN OPERATION (How to operate fixed-frequency operation)

1. Press EMERGENCY OPERATION switch to COOL or HEAT mode (COOL: Press once, HEAT: Press twice).
2. Test run operation starts and continues to operate for 30 minutes.
3. Compressor operates at rated frequency in COOL mode or 58 Hz in HEAT mode.
4. Indoor fan operates at High speed.
5. After 30 minutes, test run operation finishes and EMERGENCY OPERATION starts (operation frequency of compressor varies).
6. To cancel test run operation (EMERGENCY OPERATION), press EMERGENCY OPERATION switch or any button on remote controller.