

11-1. R410A Piping material

Refrigerant pipe for CITY MULTI shall be made of phosphorus deoxidized copper, and has two types.

A. Type-O: Soft copper pipe (annealed copper pipe), can be easily bent with human's hand.

B. Type-1/2H pipe: Hard copper pipe (Straight pipe), being stronger than Type-O pipe of the same radical thickness.

The maximum operation pressure of R410A air conditioner is 4.30 MPa [623psi]. The refrigerant piping should ensure the safety under the maximum operation pressure. MITSUBISHI ELECTRIC recommends pipe size as Table1, or You shall follow the local industrial standard. Pipes of radical thickness 0.7mm or less shall not be used.

Table 1. Copper pipe size and radial thickness for R410A CITY MULTI.

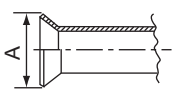
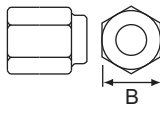
Size (mm)	Size (inch)	Radial thickness (mm)	Radial thickness (mil)	Pipe type
ø6.35	ø1/4"	0.8	[32]	Type-O
ø9.52	ø3/8"	0.8	[32]	Type-O
ø12.7	ø1/2"	0.8	[32]	Type-O
ø15.88	ø5/8"	1.0	[40]	Type-O
ø19.05	ø3/4"	1.2	[48]	Type-O
ø19.05	ø3/4"	1.0	[40]	Type-1/2H or H
ø22.2	ø7/8"	1.0	[40]	Type-1/2H or H
ø25.4	ø1"	1.0	[40]	Type-1/2H or H
ø28.58	ø1-1/8"	1.0	[40]	Type-1/2H or H
ø31.75	ø1-1/4"	1.1	[44]	Type-1/2H or H
ø34.93	ø1-3/8"	1.2	[48]	Type-1/2H or H
ø41.28	ø1-5/8"	1.4	[56]	Type-1/2H or H

* For pipe sized ø19.05 (3/4") for R410A air conditioner, choice of pipe type is up to you.

* The figures in the radial thickness column are based on the Japanese standards and provided only as a reference. Use pipes that meet the local standards.

Flare

Due to the relative higher operation pressure of R410A compared to R22, the flare connection should follow dimensions mentioned below so as to achieve enough the air-tightness.

Flare pipe	Pipe size	A (For R410A) (mm[in.])	Flare nut	Pipe size	B (For R410A) (mm[in.])
	ø6.35 [1/4"]	9.1		ø6.35 [1/4"]	17.0
	ø9.52 [3/8"]	13.2		ø9.52 [3/8"]	22.0
	ø12.70 [1/2"]	16.6		ø12.70 [1/2"]	26.0
	ø15.88 [5/8"]	19.7		ø15.88 [5/8"]	29.0
	ø19.05 [3/4"]	24.0		ø19.05 [3/4"]	36.0

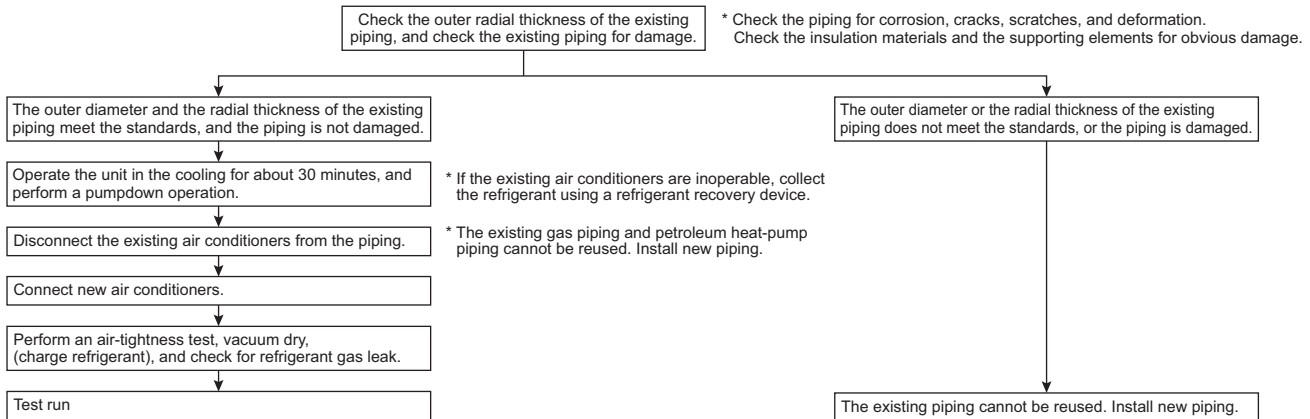
11-2. Piping Design

11-2-1. Use of the existing refrigerant piping


Before operating the compressor, make sure the refrigerant pipes are properly installed.

- Operating the compressor without the refrigerant pipes properly being connected and with the stop (ball) valve open, the compressor may suck in air, raising the pressure inside the refrigerant cycle abnormally high and resulting in pipe bursting and personal injury.

- Adequately insulate the liquid and gas refrigerant pipes to keep condensation from dripping.
- Provide additional insulation on the refrigerant pipes as necessary to keep condensation from forming on the insulation surface. (Insulating material...Heat-resistance temperature: 120°C; Thickness: 15 mm or greater)
 - Installation of the unit in high-temperature high-humidity conditions, such as in the ceiling of the top floor, may require additional insulation.
- Insulate refrigerant pipes with heat-resistant polyethylene foam and without leaving any gap between indoor unit and insulating material or between insulating materials. (Exposed pipes may cause condensation and pose burn hazard.)
- Keep the piping length within the limits, and charge the required amount of refrigerant (R410A).
 - Before charging refrigerant, evacuate the extended piping and the indoor units, and charge refrigerant through the stop valve (applicable when the unit is stopped). When charging refrigerant through the check valve on the suction side, use a safety charger to prevent liquid refrigerant from being inhaled (applicable when the unit is operated).
 - When charging refrigerant, record the amount of refrigerant charged in the relevant section of the maintenance manual (attached to the product).
- Determine the reusability of the existing piping, using the flowchart below.
- If the diameter of the existing piping differs from the standard diameter, check the reusability of the piping and restrictive conditions for reuse.

Cautionary notes on reusing the existing piping


Connecting non-standard diameter pipes

- The following restrictions apply when using pipes with a diameter different from the standard recommended size.

Usability of pipes with non-standard diameters
Main pipe size

	Outside diameter(mm)	Radial thickness	P112	P125	P140	P200
Gas pipe	ø12.7	t 0.8	NA	NA	NA	NA
	ø15.88	t 1.0	A	A	A	NA
	ø19.05	t 1.0	C	C	C	A
	ø22.2	t 1.0	NA	NA	NA	B
	ø28.58 or greater	t 1.0 or greater	NA	NA	NA	NA
Liquid pipe	ø9.52	t 0.8	A	A	A	A
	ø12.7	t 0.8	D	D	D	D
	ø15.88	t 1.0	D	D	D	D
	ø19.05 or greater	t 1.0 or greater	NA	NA	NA	NA

A: Standard piping

B: Usable (with no loss of performance)

C: Usable (with loss of performance), Set the SW6-1 from OFF to ON.

D: Usable (Restrictions on refrigerant charge apply.)

NA: Unusable

Size of the piping after branching and up to indoor units

	Outside diameter(mm)	Radial thickness	P15	P20	P25	P32	P40	P50	P63	P71	P80	P100	P125	P140	P200
Gas pipe	ø12.7	t 0.8	A	A	A	A	A	A	C	C	C	C	C	C	NA
	ø15.88	t 1.0	NA	NA	NA	NA	B	B	A	A	A	A	A	A	NA
	ø19.05	t 1.0	NA	NA	NA	NA	NA	NA	NA	B	B	B	B	B	A
	ø22.2	t 1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	B
	ø25.4	t 1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ø28.58	t 1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liquid pipe	ø6.35	t 0.8	A	A	A	A	A	A	15 m or less	NA	NA	NA	NA	NA	NA
	ø9.52	t 0.8	D	D	D	D	D	D	A	A	A	A	A	A	A
	ø12.7	t 1.0	NA	NA	NA	NA	NA	NA	D	D	D	D	D	D	D
	ø15.88	t 1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ø19.05	t 1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ø22.2	t 1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Pipe diameter and radial thickness Note: For pipes with a diameter of ø22.2 and up, use 1/2-H or H-material.

Outside diameter (mm)	ø6.35	ø9.52	ø12.7	ø15.88	ø19.05	ø22.2	ø25.4	ø28.58
Radial thickness (mm)	0.8	0.8	0.8	1.0	1.0	1.0	1.0	1.0

Restrictions on extending piping/Amount of refrigerant to be charged (REPLACE units)

When reusing the existing piping, calculate the amount of refrigerant to be charged using the formula below. The existing piping is usable if the result of the calculation below is less than 10 kg. If the calculation result is at or above 10 kg, use new piping. When reusing the existing piping, charge the amount of refrigerant required for the piping and for the indoor units.

Calculating the amount of refrigerant to be charged based on pipe size and length

Total length of ø15.88 liquid pipes × 0.20 (m) × 0.20 (kg/m)	+	Total length of ø12.7 liquid pipes × 0.092 (m) × 0.092 (kg/m)	+	Total length of ø9.52 liquid pipes × 0.05 (m) × 0.05 (kg/m)	+	Total length of ø6.35 liquid pipes × 0.019 (m) × 0.019 (kg/m)	=	Amount of additional refrigerant to be charged (REPLACE units) (kg)
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Calculating the amount of refrigerant to be charged based on indoor unit capacity

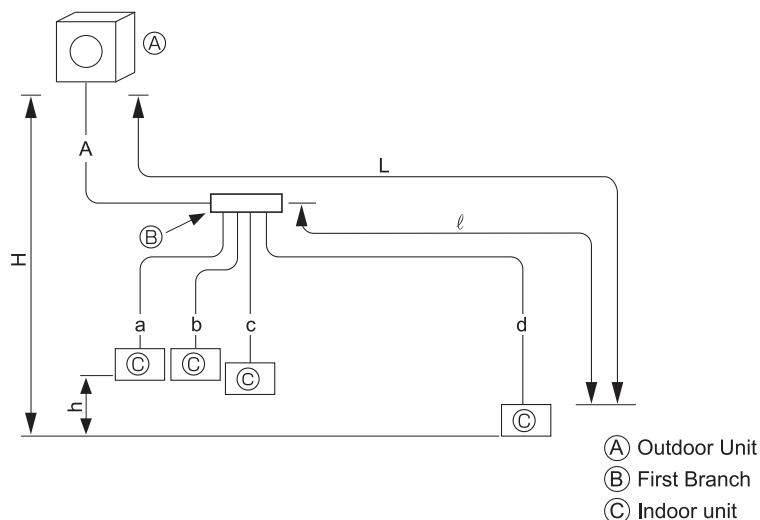
PUMY-SP112-140 PUMY-P112-140	Total capacity index of the connected indoor units	Amount of refrigerant to be charged	PUMY-P200	Total capacity index of the connected indoor units	Amount of refrigerant to be charged
	~ 8.0kW	1.5kg		~ 16.0kW	2.5kg
	8.1kW ~ 16.0kW	2.5kg		16.1kW ~ 25.0kW	3.0kg
	16.1kW ~	3.0kg		25.1kW ~	3.5kg

11-2-2. PUMY-SP112, 125, 140VKM/YKM Piping

<div>Line-Branch Method</div> <div>Connection Examples</div> <div>(Connecting to 4 Indoor Units)</div>		<div><div><div>A</div> Outdoor Unit</div><div><div>B</div> First Branch</div><div><div>C</div> Indoor unit</div></div>																													
Permissible Length	Total Piping Length	$A+B+C+a+b+c+d \leq 120 \text{ m}$																													
	Farthest Piping Length (L)	$A+B+C+d \leq 70 \text{ m}$																													
	Farthest Piping Length After First Branch (ℓ)	$B+C+d \leq 50 \text{ m}$																													
Permissible High/Low Difference	High/Low Difference in Indoor/Outdoor Section (H)	50 meters or less (If the outdoor unit is lower, 30 meters or less)																													
	High/Low Difference in Indoor/Indoor Section (h)	15 meters or less																													
■ Selecting the Refrigerant Branch Kit		Use an optional branch piping kit (CMY-Y62-G-E).																													
■ Select Each Section of Refrigerant Piping		<div><div>(1) Refrigerant Piping Diameter In Section From Outdoor Unit to First Branch (Outdoor Unit Piping Diameter)</div><table><tr><th>Model</th><th colspan="2">Piping Diameter (mm)</th></tr><tr><td>PUMY-SP112</td><td>Liquid Line</td><td>φ9.52</td></tr><tr><td>PUMY-SP125</td><td></td><td></td></tr><tr><td>PUMY-SP140</td><td>Gas Line</td><td>φ15.88</td></tr></table></div> <div><div>(2) Refrigerant Piping Diameter In Section From Branch to Indoor Unit (Indoor Unit Piping Diameter)</div><table><tr><th>Model number</th><th colspan="2">Piping Diameter (mm)</th></tr><tr><td rowspan="2">50 or lower</td><td>Liquid Line</td><td>$\ell \leq 30 \text{ m}$ φ6.35 $\ell > 30 \text{ m}$ φ9.52</td></tr><tr><td>Gas Line</td><td>φ12.7</td></tr><tr><td rowspan="2">63 to 140</td><td>Liquid Line</td><td>φ9.52</td></tr><tr><td>Gas Line</td><td>φ15.88</td></tr></table></div> <div><div>(3) Refrigerant Piping Diameter In Section From Branch to Branch</div><table><tr><th>Liquid Line (mm)</th><th>Gas Line (mm)</th></tr><tr><td>φ9.52</td><td>φ15.88</td></tr></table></div> <div>Note: When connecting the CONNECTION KIT (PAC-LV11M-J) and an M-series indoor unit, refer to the installation manual for the CONNECTION KIT when selecting the pipe size and piping length.</div>	Model	Piping Diameter (mm)		PUMY-SP112	Liquid Line	φ9.52	PUMY-SP125			PUMY-SP140	Gas Line	φ15.88	Model number	Piping Diameter (mm)		50 or lower	Liquid Line	$\ell \leq 30 \text{ m}$ φ6.35 $\ell > 30 \text{ m}$ φ9.52	Gas Line	φ12.7	63 to 140	Liquid Line	φ9.52	Gas Line	φ15.88	Liquid Line (mm)	Gas Line (mm)	φ9.52	φ15.88
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■ Additional refrigerant charge		Refer to “11-3. Refrigerant charging calculation”.																													

Header-Branch Method

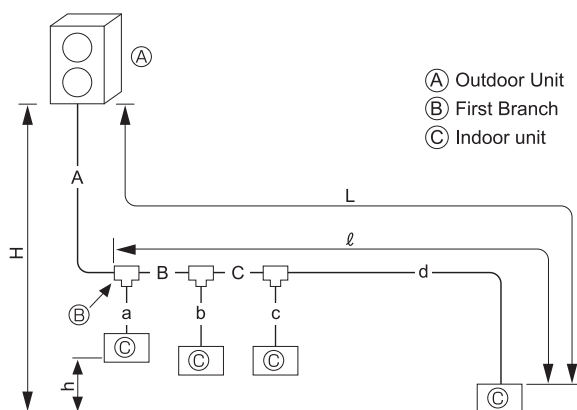
Connection Examples
(Connecting to 4 Indoor Units)



Permissible Length	Total Piping Length	A+a+b+c+d ≤ 120 m													
	Farthest Piping Length (L)	A+d ≤ 70 m													
	Farthest Piping Length After First Branch (ℓ)	d is 50 meters or less													
Permissible High/Low Difference	High/Low Difference in Indoor/Outdoor Section (H)	50 meters or less (If the outdoor unit is lower, 30 meters or less)													
	High/Low Difference in Indoor/Indoor Section (h)	15 meters or less													
■ Selecting the Refrigerant Branch Kit		Please select branching kit, which is sold separately, from the table below. (The kit comprises sets for use with liquid pipes and for use with gas pipes.)													
		<table><tr><td>Branch header (4 branches)</td><td colspan="2">Branch header (8 branches)</td></tr><tr><td>CMY-Y64-G-E</td><td colspan="2">CMY-Y68-G-E</td></tr></table>			Branch header (4 branches)	Branch header (8 branches)		CMY-Y64-G-E	CMY-Y68-G-E						
Branch header (4 branches)	Branch header (8 branches)														
CMY-Y64-G-E	CMY-Y68-G-E														
■ Select Each Section of Refrigerant Piping		(1) Refrigerant Piping Diameter In Section From Outdoor Unit to First Branch (Outdoor Unit Piping Diameter)													
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PUMY-SP112	Liquid Line	φ9.52													
PUMY-SP125															
PUMY-SP140	Gas Line	φ15.88													
Select the size from the table to the right.		Note: When connecting the CONNECTION KIT (PAC-LV11M-J) and an M-series indoor unit, refer to the installation manual for the CONNECTION KIT when selecting the pipe size and piping length.													
■ Additional refrigerant charge		Refer to “11-3. Refrigerant charging calculation”.													

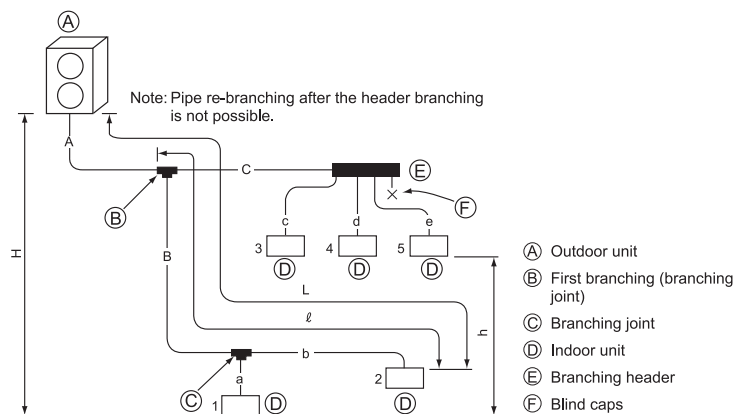
<div>Method of Combined Branching of Lines and Headers</div> <div>Connection Examples</div> <div>(Connecting to 5 Indoor Units)</div>		<div></div>																						
Permissible Length	Total Piping Length	A+B+C+a+b+c+d+e is 120 meters or less																						
	Farthest Piping Length (L)	A+B+b is 70 meters or less																						
	Farthest Piping Length After First Branch (l)	B+b is 50 meters or less																						
Permissible High/Low Difference	High/Low Difference in Indoor/Outdoor Section (H)	50 meters or less (If the outdoor unit is lower, 30 meters or less)																						
	High/Low Difference in Indoor/Indoor Section (h)	15 meters or less																						
<div>■ Selecting the Refrigerant Branch Kit</div>		<div>Please select branching kit, which is sold separately, from the table below.</div> <div>(The kit comprises sets for use with liquid pipes and for use with gas pipes.)</div> <table><tr><td>Branch Joint</td><td>Branch Header (4 branches)</td><td>Branch Header (8 branches)</td></tr><tr><td>CMY-Y62-G-E</td><td>CMY-Y64-G-E</td><td>CMY-Y68-G-E</td></tr></table>	Branch Joint	Branch Header (4 branches)	Branch Header (8 branches)	CMY-Y62-G-E	CMY-Y64-G-E	CMY-Y68-G-E																
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<div>■ Select Each Section of Refrigerant Piping</div> <div><div><div>(1) Section From Outdoor Unit to First Branch (A)</div><div>(2) Sections From Branch to Indoor Unit (a,b,c,d,e)</div><div>(3) Section From Branch to Branch (B,C)</div></div><div>Each Section of Piping</div><div>Select the size from the table to the right.</div></div>		<div><div>(1) Refrigerant Piping Diameter In Section From Outdoor Unit to First Branch (Outdoor Unit Piping Diameter)</div><table><tr><th>Model</th><th>Piping Diameter (mm)</th></tr><tr><td>PUMY-SP112</td><td>Liquid Line $\phi 9.52$</td></tr><tr><td>PUMY-SP125</td><td></td></tr><tr><td>PUMY-SP140</td><td>Gas Line $\phi 15.88$</td></tr></table><div>(3) Refrigerant Piping Diameter In Section From Branch to Branch</div><table><tr><th>Liquid Line (mm)</th><th>Gas Line (mm)</th></tr><tr><td>$\phi 9.52$</td><td>$\phi 15.88$</td></tr></table></div> <div><div>(2) Refrigerant Piping Diameter In Section From Branch to Indoor Unit (Indoor Unit Piping Diameter)</div><table><tr><th>Model number</th><th>Piping Diameter (mm)</th></tr><tr><td rowspan="2">50 or lower</td><td>Liquid Line $\ell \leq 30 \text{ m}$ $\phi 6.35$</td></tr><tr><td>Liquid Line $\ell > 30 \text{ m}$ $\phi 9.52$</td></tr><tr><td rowspan="2">63 to 140</td><td>Gas Line $\phi 12.7$</td></tr><tr><td>Gas Line $\phi 9.52$</td></tr><tr><td></td><td>Gas Line $\phi 15.88$</td></tr></table><div>Note: When connecting the CONNECTION KIT (PAC-LV11M-J) and an M-series indoor unit, refer to the installation manual for the CONNECTION KIT when selecting the pipe size and piping length.</div></div>	Model	Piping Diameter (mm)	PUMY-SP112	Liquid Line $\phi 9.52$	PUMY-SP125		PUMY-SP140	Gas Line $\phi 15.88$	Liquid Line (mm)	Gas Line (mm)	$\phi 9.52$	$\phi 15.88$	Model number	Piping Diameter (mm)	50 or lower	Liquid Line $\ell \leq 30 \text{ m}$ $\phi 6.35$	Liquid Line $\ell > 30 \text{ m}$ $\phi 9.52$	63 to 140	Gas Line $\phi 12.7$	Gas Line $\phi 9.52$		Gas Line $\phi 15.88$
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<div>■ Additional refrigerant charge</div>		<div>Refer to “11-3. Refrigerant charging calculation”.</div>																						

11-2-3. PUMY-P112, 125, 140VKM4/YKM(E)4 Piping

Line-Branch Method
 Connection Examples
 (Connecting to 4 Indoor Units)


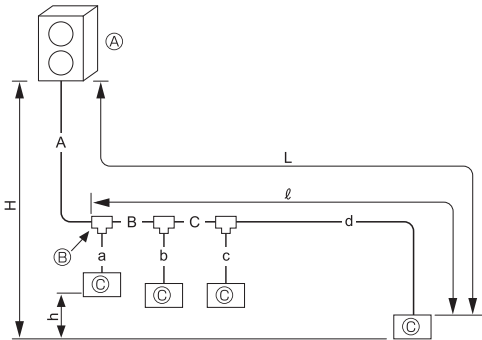
Permissible Length	Total Piping Length		A+B+C+a+b+c+d ≤ 300 m											
	Farthest Piping Length	(L)	A+B+C+d ≤ 150 m											
	Farthest Piping Length After First Branch	(ℓ)	B+C+d ≤ 30 m											
Permissible High/Low Difference	High/Low Difference in Indoor/Outdoor Section	(H)	The outdoor unit is upper: 50 meters or less The outdoor unit is lower: 40 meters or less (30 meters or less if PKFY-P*VBM, PFFY-P*VKM, PFFY-P*VL* type of indoor units are included.)											
	High/Low Difference in Indoor/Indoor Section	(h)	15 meters or less											
■ Selecting the Refrigerant Branch Kit			Use an optional branch piping kit (CMY-Y62-G-E).											
<div>■ Select Each Section of Refrigerant Piping</div> <div>(1) Section From Outdoor Unit to First Branch (A)</div> <div>(2) Sections From Branch to Indoor Unit (a,b,c,d)</div> <div>(3) Section From Branch to Branch (B,C)</div> <div>Select the size from the table to the right.</div>			(1) Refrigerant Piping Diameter In Section From Outdoor Unit to First Branch(Outdoor Unit Piping Diameter)											
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■ Additional refrigerant charge			Note: When connecting the CONNECTION KIT (PAC-LV11M-J) and an M-series indoor unit, refer to the installation manual for the CONNECTION KIT when selecting the pipe size and piping length.											
			Refer to “11-3. Refrigerant charging calculation”.											

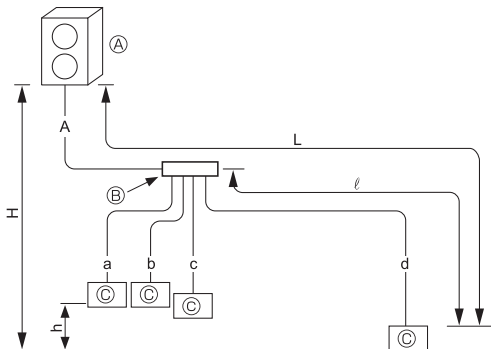
<div>Header-Branch Method Connection Examples (Connecting to 4 Indoor Units)</div>		<div><div><div>Ⓐ Outdoor Unit</div><div>Ⓑ First Branch</div><div>Ⓒ Indoor unit</div></div></div>														
Permissible Length	Total Piping Length	A+a+b+c+d ≤ 300 m														
	Farthest Piping Length (L)	A+d ≤ 150 m														
	Farthest Piping Length After First Branch (ℓ)	d is 30 meters or less														
Permissible High/Low Difference	High/Low Difference in Indoor/Outdoor Section (H)	The outdoor unit is upper: 50 meters or less The outdoor unit is lower: 40 meters or less (30 meters or less if PKFY-P*VBM, PFFY-P*VKM, PFFY-P*VL* type of indoor units are included.)														
	High/Low Difference in Indoor/Indoor Section (h)	15 meters or less														
■ Selecting the Refrigerant Branch Kit		Please select branching kit, which is sold separately, from the table below. (The kit comprises sets for use with liquid pipes and for use with gas pipes.)														
		Branch header (4 branches)	Branch header (8 branches)													
		CMY-Y64-G-E	CMY-Y68-G-E													
■ Select Each Section of Refrigerant Piping		(1) Refrigerant Piping Diameter In Section From Outdoor Unit to First Branch (Outdoor Unit Piping Diameter)														
(1) Section From Outdoor Unit to First Branch (A)		<table><tr><th>Model</th><th colspan="2">Piping Diameter (mm)</th></tr><tr><td>PUMY-P112</td><td>Liquid Line</td><td>ø9.52</td></tr><tr><td>PUMY-P125</td><td rowspan="2">Gas Line</td><td rowspan="2">ø15.88</td></tr><tr><td>PUMY-P140</td></tr></table>		Model	Piping Diameter (mm)		PUMY-P112	Liquid Line	ø9.52	PUMY-P125	Gas Line	ø15.88	PUMY-P140			
Model	Piping Diameter (mm)															
PUMY-P112	Liquid Line			ø9.52												
PUMY-P125	Gas Line			ø15.88												
PUMY-P140																
(2) Sections From Branch to Indoor Unit (a,b,c,d)																
Select the size from the table to the right.																
		(2) Refrigerant Piping Diameter In Section From Branch to Indoor Unit (Indoor Unit Piping Diameter)														
		<table><tr><th>Model</th><th colspan="2">Piping Diameter (mm)</th></tr><tr><td rowspan="2">50 or lower</td><td>Liquid Line</td><td>ø6.35</td></tr><tr><td>Gas Line</td><td>ø12.7</td></tr><tr><td rowspan="2">63 to 140</td><td>Liquid Line</td><td>ø9.52</td></tr><tr><td>Gas Line</td><td>ø15.88</td></tr></table>		Model	Piping Diameter (mm)		50 or lower	Liquid Line	ø6.35	Gas Line	ø12.7	63 to 140	Liquid Line	ø9.52	Gas Line	ø15.88
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50 or lower	Liquid Line	ø6.35														
	Gas Line	ø12.7														
63 to 140	Liquid Line	ø9.52														
	Gas Line	ø15.88														
		Note: When connecting the CONNECTION KIT (PAC-LV11M-J) and an M-series indoor unit, refer to the installation manual for the CONNECTION KIT when selecting the pipe size and piping length.														
■ Additional refrigerant charge		Refer to “11-3. Refrigerant charging calculation”.														

Method of Combined Branching of Lines and HeadersConnection Examples
(Connecting to 5 Indoor Units)

Permissible Length	Total Piping Length	A+B+C+a+b+c+d+e is 300 meters or less													
	Farthest Piping Length (L)	A+B+b is 150 meters or less													
	Farthest Piping Length After First Branch (ℓ)	B+b is 30 meters or less													
Permissible High/Low Difference	High/Low Difference in Indoor/Outdoor Section (H)	The outdoor unit is upper: 50 meters or less The outdoor unit is lower: 40 meters or less (30 meters or less if PKFY-P*VBM, PFFY-P*VKM, PFFY-P*VL* type of indoor units are included.)													
	High/Low Difference in Indoor/Indoor Section (h)	15 meters or less													
■ Selecting the Refrigerant Branch Kit		Please select branching kit, which is sold separately, from the table below. (The kit comprises sets for use with liquid pipes and for use with gas pipes.)													
		Branch Joint	Branch Header (4 branches)	Branch Header (8 branches)											
		CMY-Y62-G-E	CMY-Y64-G-E	CMY-Y68-G-E											
■ Select Each Section of Refrigerant Piping		(1) Refrigerant Piping Diameter In Section From Outdoor Unit to First Branch(Outdoor Unit Piping Diameter)													
<div>(1) Section From Outdoor Unit to First Branch (A)</div> <div>(2) Sections From Branch to Indoor Unit (a,b,c,d,e)</div> <div>(3) Section From Branch to Branch (B,C)</div> <div>Select the size from the table to the right.</div>		<div><table><tr><th>Model</th><th colspan="2">Piping Diameter (mm)</th></tr><tr><td rowspan="3">PUMY-P112 PUMY-P125 PUMY-P140</td><td>Liquid Line</td><td>ø9.52</td></tr><tr><td>Gas Line</td><td>ø15.88</td></tr></table></div>			Model	Piping Diameter (mm)		PUMY-P112 PUMY-P125 PUMY-P140	Liquid Line	ø9.52	Gas Line	ø15.88			
		Model	Piping Diameter (mm)												
		PUMY-P112 PUMY-P125 PUMY-P140	Liquid Line	ø9.52											
			Gas Line	ø15.88											
			(2) Refrigerant Piping Diameter In Section From Branch to Indoor Unit (Indoor Unit Piping Diameter)												
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Liquid Line (mm)	Gas Line (mm)														
ø9.52	ø15.88														
■ Additional refrigerant charge		Refer to “11-3. Refrigerant charging calculation”.													

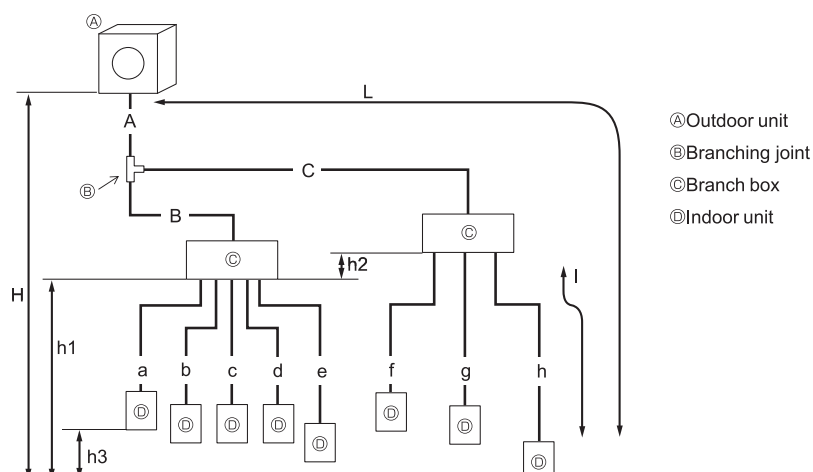
11-2-4. PUMY-P200YKM2 Piping

<div>Line-Branch Method</div> <div>Connection Examples</div> <div>(Connecting to 4 Indoor Units)</div>		<div></div> <div><div>(A) Outdoor Unit</div><div>(B) First Branch</div><div>(C) Indoor unit</div></div>																																																		
Permissible Length	Total Piping Length	$A+B+C+a+b+c+d \leq 150 \text{ m}$																																																		
	Farthest Piping Length (L)	$A+B+C+d \leq 80 \text{ m}$																																																		
	Farthest Piping Length After First Branch (ℓ)	$B+C+d \leq 30 \text{ m}$																																																		
Permissible High/Low Difference	High/Low Difference in Indoor/Outdoor Section (H)	50 meters or less (If the outdoor unit is lower, 40 meters or less)																																																		
	High/Low Difference in Indoor/Indoor Section (h)	15 meters or less																																																		
■ Selecting the Refrigerant Branch Kit		Use an optional branch piping kit (CMY-Y62-G-E).																																																		
<div>■ Select Each Section of Refrigerant Piping</div> <div><div>(1) Section From Outdoor Unit to First Branch (A)</div><div>(2) Sections From Branch to Indoor Unit (a,b,c,d)</div><div>(3) Section From Branch to Branch (B,C)</div><div>Each Section of Piping</div><div>Select the size from the table to the right.</div></div>		<div><div>(1) Refrigerant Piping Diameter In Section From Outdoor Unit to First Branch(Outdoor Unit Piping Diameter)</div><table><tr><th rowspan="2">Model</th><th colspan="2">Piping Diameter (mm)</th></tr><tr><th>Liquid pipe</th><th>Gas pipe</th></tr><tr><td>$L \leq 60\text{m}$</td><td>$\phi 9.52$</td><td rowspan="2">$\phi 19.05$</td></tr><tr><td>$L > 60\text{m}$</td><td>$\phi 12.7$</td></tr></table></div> <div><div>(2) Refrigerant Piping Diameter In Section From Branch to Indoor Unit (Indoor Unit Piping Diameter)</div><table><tr><th rowspan="2">Model number</th><th colspan="2">Piping Diameter (mm)</th></tr><tr><th>Liquid Line</th><th>Gas Line</th></tr><tr><td rowspan="2">50 or lower</td><td>$\phi 6.35$</td><td>$\phi 12.7$</td></tr><tr><td>$\phi 9.52$</td><td>$\phi 15.88$</td></tr><tr><td rowspan="2">63 to 140</td><td>$\phi 9.52$</td><td>$\phi 15.88$</td></tr><tr><td>$\phi 12.7$</td><td>$\phi 19.05$</td></tr><tr><td rowspan="2">200</td><td>$\phi 15.88$</td><td>$\phi 19.05$</td></tr><tr><td>$\phi 19.05$</td><td>$\phi 25.4$</td></tr></table></div> <div><div>(3) Refrigerant Piping Diameter In Section From Branch to Branch</div><table><tr><th rowspan="2">Total capacity of indoor units</th><th colspan="2">Piping Diameter (mm)</th><th rowspan="2">Gas pipe (mm)</th></tr><tr><th>Liquid pipe</th><th>Gas pipe</th></tr><tr><td rowspan="2">Up to16.0kW</td><td>$L \leq 60\text{m}$</td><td>$\phi 9.52$</td><td rowspan="2">$\phi 15.88$</td></tr><tr><td>$L > 60\text{m}$</td><td>$\phi 12.7$</td></tr><tr><td rowspan="2">16.1 to 29.1kW</td><td>$L \leq 60\text{m}$</td><td>$\phi 9.52$</td><td rowspan="2">$\phi 19.05$</td></tr><tr><td>$L > 60\text{m}$</td><td>$\phi 12.7$</td></tr></table></div>			Model	Piping Diameter (mm)		Liquid pipe	Gas pipe	$L \leq 60\text{m}$	$\phi 9.52$	$\phi 19.05$	$L > 60\text{m}$	$\phi 12.7$	Model number	Piping Diameter (mm)		Liquid Line	Gas Line	50 or lower	$\phi 6.35$	$\phi 12.7$	$\phi 9.52$	$\phi 15.88$	63 to 140	$\phi 9.52$	$\phi 15.88$	$\phi 12.7$	$\phi 19.05$	200	$\phi 15.88$	$\phi 19.05$	$\phi 19.05$	$\phi 25.4$	Total capacity of indoor units	Piping Diameter (mm)		Gas pipe (mm)	Liquid pipe	Gas pipe	Up to16.0kW	$L \leq 60\text{m}$	$\phi 9.52$	$\phi 15.88$	$L > 60\text{m}$	$\phi 12.7$	16.1 to 29.1kW	$L \leq 60\text{m}$	$\phi 9.52$	$\phi 19.05$	$L > 60\text{m}$	$\phi 12.7$
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■ Additional refrigerant charge		Refer to “11-3. Refrigerant charging calculation”.																																																		

<div>Header-Branch Method Connection Examples (Connecting to 4 Indoor Units)</div>		<div></div> <div><div>A Outdoor Unit</div><div>B First Branch</div><div>C Indoor unit</div></div>																			
Permissible Length	Total Piping Length	$A+a+b+c+d \leq 150 \text{ m}$																			
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Permissible High/Low Difference	High/Low Difference in Indoor/Outdoor Section (H)	50 meters or less (If the outdoor unit is lower, 40 meters or less)																			
	High/Low Difference in Indoor/Indoor Section (h)	15 meters or less																			
■ Selecting the Refrigerant Branch Kit		Please select branching kit, which is sold separately, from the table below. (The kit comprises sets for use with liquid pipes and for use with gas pipes.)																			
		Branch header (4 branches)	Branch header (8 branches)																		
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■ Select Each Section of Refrigerant Piping		(1) Refrigerant Piping Diameter In Section From Outdoor Unit to First Branch (Outdoor Unit Piping Diameter)																			
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■ Additional refrigerant charge		Refer to “11-3. Refrigerant charging calculation”.																			

<div>Method of Combined Branching of Lines and Headers</div> <div>Connection Examples</div> <div>(Connecting to 5 Indoor Units)</div>		<div></div> <div><div>(A) Outdoor unit</div><div>(B) First branching (branching joint)</div><div>(C) Branching joint</div><div>(D) Indoor unit</div><div>(E) Branching header</div><div>(F) Blind caps</div></div>																																													
Permissible Length	Total Piping Length	A+B+C+a+b+c+d+e is 150 meters or less																																													
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<div>■ Select Each Section of Refrigerant Piping</div> <div><div>(1) Section From Outdoor Unit to First Branch (A)</div><div>(2) Sections From Branch to Indoor Unit (a,b,c,d,e)</div><div>(3) Section From Branch to Branch (B,C)</div><div>Each Section of Piping</div><div>Select the size from the table to the right.</div></div>		<div><div>(1) Refrigerant Piping Diameter In Section From Outdoor Unit to First Branch (Outdoor Unit Piping Diameter)</div><table><tr><td></td><td colspan="2">Piping Diameter (mm)</td></tr><tr><td></td><td>Liquid pipe</td><td>Gas pipe</td></tr><tr><td>L ≤60m</td><td>ø9.52</td><td rowspan="2">ø19.05</td></tr><tr><td>L > 60m</td><td>ø12.7</td></tr></table><div>(3) Refrigerant Piping Diameter In Section From Branch to Branch</div><table><tr><td>Total capacity of indoor units</td><td colspan="2">Liquid pipe (mm)</td><td>Gas pipe (mm)</td></tr><tr><td rowspan="2">Up to16.0kW</td><td>L ≤ 60m</td><td>ø9.52</td><td rowspan="2">ø15.88</td></tr><tr><td>L > 60m</td><td>ø12.7</td></tr><tr><td rowspan="2">16.1 to 29.1W</td><td>L ≤ 60m</td><td>ø9.52</td><td rowspan="2">ø19.05</td></tr><tr><td>L > 60m</td><td>ø12.7</td></tr></table><div><div>(2) Refrigerant Piping Diameter In Section From Branch to Indoor Unit (Indoor Unit Piping Diameter)</div><table><tr><td>Model number</td><td colspan="2">Piping Diameter (mm)</td></tr><tr><td rowspan="2">50 or lower</td><td>Liquid Line</td><td>ø6.35</td></tr><tr><td>Gas Line</td><td>ø12.7</td></tr><tr><td rowspan="2">63 to 140</td><td>Liquid Line</td><td>ø9.52</td></tr><tr><td>Gas Line</td><td>ø15.88</td></tr><tr><td rowspan="2">200</td><td>Liquid Line</td><td>ø9.52</td></tr><tr><td>Gas Line</td><td>ø19.05</td></tr></table></div><div>Note: When connecting the CONNECTION KIT (PAC-LV11M-J) and an M-series indoor unit, refer to the installation manual for the CONNECTION KIT when selecting the pipe size and piping length.</div></div>		Piping Diameter (mm)			Liquid pipe	Gas pipe	L ≤60m	ø9.52	ø19.05	L > 60m	ø12.7	Total capacity of indoor units	Liquid pipe (mm)		Gas pipe (mm)	Up to16.0kW	L ≤ 60m	ø9.52	ø15.88	L > 60m	ø12.7	16.1 to 29.1W	L ≤ 60m	ø9.52	ø19.05	L > 60m	ø12.7	Model number	Piping Diameter (mm)		50 or lower	Liquid Line	ø6.35	Gas Line	ø12.7	63 to 140	Liquid Line	ø9.52	Gas Line	ø15.88	200	Liquid Line	ø9.52	Gas Line	ø19.05
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■ Additional refrigerant charge		Refer to “11-3. Refrigerant charging calculation”.																																													

11-2-5. PUMY-SP112, 125, 140VKM/YKM (WHEN USING BRANCH BOX)

Branch box Method
 Connection Examples
 (Connecting to 8 Indoor Units)


Permissible length (One-way)	Total piping length	$A + B + C + a + b + c + d + e + f + g + h \leq 120 \text{ m}$
	Farthest piping length (L)	$A + C + h \leq 80 \text{ m}$ ($A + C \leq 55 \text{ m}$, $h \leq 25 \text{ m}$)
	Piping length between outdoor unit and branch boxes	$A + B + C \leq 55 \text{ m}$
	Farthest piping length after branch box (1)	$l \leq 25 \text{ m}$
	Total piping length between branch boxes and indoor units	$a + b + c + d + e + f + g + h \leq 95 \text{ m}$
Permissible height difference (One-way)	In indoor/outdoor section (H)*	$H \leq 50 \text{ m}$ (In case of that outdoor unit is set higher than indoor unit) $H \leq 30 \text{ m}$ (In case of that outdoor unit is set lower than indoor unit)
	In branch box/indoor unit section (h1)	$h1 + h2 \leq 15 \text{ m}$
	In each branch unit (h2)	$h2 \leq 15 \text{ m}$
	In each indoor unit (h3)	$h3 \leq 12 \text{ m}$
	Number of bends	≤ 15

*Branch box should be placed within the level between the outdoor unit and indoor units.

■ Select Each Section of Refrigerant Piping

- (1) Section From Outdoor Unit to Branch box (A, B, C)
 (2) Sections From Branch box to Indoor Unit (a to h)
- Each Section of Piping

Select the size from the table to the right.

(1) Refrigerant Piping Diameter In Section From Outdoor Unit to Branch box (Outdoor Unit Piping Diameter)

Model	Piping Diameter (mm)	
PUMY-SP112	Liquid Line	$\phi 9.52$
PUMY-SP125	Gas Line	$\phi 15.88$
PUMY-SP140		

(2) Refrigerant Piping Diameter In Section From Branch box to Indoor Unit (Indoor Unit Piping Diameter)

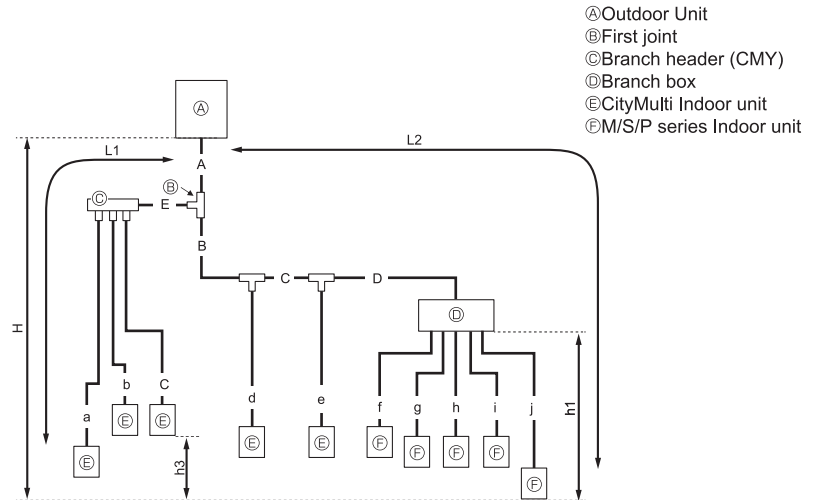
Indoor unit series	kW type	A Liquid pipe	B Gas pipe
M series or S series	15 to 42	$\phi 6.35$	$\phi 9.52$
	50	$\phi 6.35$	$\phi 12.7$
	60	$\phi 6.35$	$\phi 15.88$
	71,80	$\phi 9.52$	$\phi 15.88$
P series	35,50	$\phi 6.35$	$\phi 12.7$
	60 to 100	$\phi 9.52$	$\phi 15.88$

■ Additional refrigerant charge

Refer to "11-3. Refrigerant charging calculation".

Mixed Method

Connection Examples
(Connecting to 1 Branch box)



Permissible length (One-way)	Total piping length	$A+B+C+D+E+a+b+c+d+e+f+g+h+i+j \leq 120 \text{ m}$
	Farthest piping length (L1)	$A+E+a \text{ or } A+B+C+e \leq 70 \text{ m}$
	Farthest piping length, Via Branch box (L2)	$A+B+C+D+j \leq 80 \text{ m}$
	Piping length between outdoor unit and branch box	$A+B+C+D \leq 55 \text{ m}$
	Farthest piping length from the first joint	$B+C+D \text{ or } B+C+e \leq 50 \text{ m}$
	Farthest piping length after branch box	$j \leq 25 \text{ m}$
	Total piping length between branch boxes and indoor units	$f+g+h+i+j \leq 95 \text{ m}$
Permissible height difference (One-way)	In indoor/outdoor section (H)*	$H \leq 50 \text{ m}$ (In case of outdoor unit is set higher than indoor unit) $H \leq 30 \text{ m}$ (In case of outdoor unit is set lower than indoor unit)
	In branch box/indoor unit section (h1)	$h1 \leq 15 \text{ m}$
	In each indoor unit (h3)	$h3 \leq 12 \text{ m}$
Number of bends		≤ 15

*Branch box should be placed within the level between the outdoor unit and indoor units.

■ Selecting the Refrigerant Branch Kit

Please select branching kit, which is sold separately, from the table below.
(The kit comprises sets for use with liquid pipes and for use with gas pipes.)

Branch header (4 branches)	Branch header (8 branches)
CMY-Y64-G-E	CMY-Y68-G-E

■ Select Each Section of Refrigerant Piping

- (1) Section From Outdoor Unit to Branch box or Branch header (A to E)
 (2) Sections From Branch box or Branch header to Indoor Unit (a to j)
- Each Section of Piping

Select the size from the table to the right.

- (1) Refrigerant Piping Diameter In Section From Outdoor Unit to Branch box or Branch header (Out-door Unit Piping Diameter)

Model	Piping Diameter (mm)	
PUMY-SP112 PUMY-SP125 PUMY-SP140	Liquid Line	$\phi 9.52$
	Gas Line	$\phi 15.88$

- (2) Refrigerant Piping Diameter In Section From Branch box or Branch header to Indoor Unit (Indoor Unit Piping Diameter)

Indoor unit series	kW type	A Liquid pipe		B Gas pipe
CityMulti	15 to 50	$\ell \leq 30 \text{ m}$	$\phi 6.35$	$\phi 12.7$
		$\ell > 30 \text{ m}$	$\phi 9.52$	
M series or S series	63 to 140		$\phi 9.52$	$\phi 15.88$
	22 to 42		$\phi 6.35$	$\phi 9.52$
	50		$\phi 6.35$	$\phi 12.7$
	60		$\phi 6.35$	$\phi 15.88$
P series	71,80		$\phi 9.52$	$\phi 15.88$
	35,50		$\phi 6.35$	$\phi 12.7$
	60 to 100		$\phi 9.52$	$\phi 15.88$

Note:

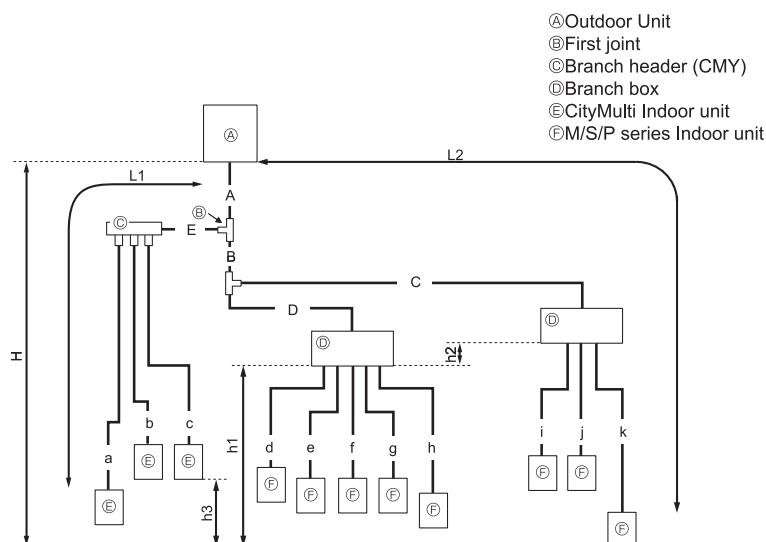
When connecting the CONNECTION KIT (PAC-LV11M-J) and an M-series indoor unit, refer to the installation manual for the CONNECTION KIT when selecting the pipe size and piping length.

■ Additional refrigerant charge

Refer to "11-3. Refrigerant charging calculation".

Mixed Method

Connection Examples
(Connecting to 2 Branch boxes)



Permissible length (One-way)	Total piping length	$A+B+C+D+E+a+b+c+d+e+f+g+h+i+j+k \leq 120 \text{ m}$
	Farthest piping length (L1)	$A+E+a \leq 70 \text{ m}$
	Farthest piping length. Via Branch box (L2)	$A+B+C+k \leq 80 \text{ m}$
	Piping length between outdoor unit and branch boxes	$A+B+C+D \leq 55 \text{ m}$
	Farthest piping length from the first joint	$B+C \text{ or } E+a \leq 50 \text{ m}$
	Farthest piping length after branch box	$k \leq 25 \text{ m}$
	Farthest branch box form outdoor unit	$A+B+C \leq 55 \text{ m}$
Permissible height difference (One-way)	Total piping length between branch boxes and indoor units	$d+e+f+g+h+i+j+k \leq 95 \text{ m}$
	In indoor/outdoor section (H)*	$H \leq 50 \text{ m}$ (In case of outdoor unit is set higher than indoor unit) $H \leq 30 \text{ m}$ (In case of outdoor unit is set lower than indoor unit)
	In branch box/indoor unit section (h1)	$h1+h2 \leq 15 \text{ m}$
	In each branch unit (h2)	$h2 \leq 15 \text{ m}$
	In each indoor unit (h3)	$h3 \leq 12 \text{ m}$
Number of bends		≤ 15

*Branch box should be placed within the level between the outdoor unit and indoor units.

■ Selecting the Refrigerant Branch Kit

Please select branching kit, which is sold separately, from the table below.
(The kit comprises sets for use with liquid pipes and for use with gas pipes.)

Branch header (4 branches)	Branch header (8 branches)
CMY-Y64-G-E	CMY-Y68-G-E

■ Select Each Section of Refrigerant Piping

- (1) Section From Outdoor Unit to Branch box or Branch header (A to E)
 (2) Sections From Branch box or Branch header to Indoor Unit (a to k)
- Each Section of Piping

Select the size from the table to the right.

(1) Refrigerant Piping Diameter In Section From Outdoor Unit to Branch box or Branch header (Out-door Unit Piping Diameter)

Model	Piping Diameter (mm)	
PUMY-SP112 PUMY-SP125 PUMY-SP140	Liquid Line	$\phi 9.52$
	Gas Line	$\phi 15.88$

(2) Refrigerant Piping Diameter In Section From Branch box or Branch header to Indoor Unit (Indoor Unit Piping Diameter)

Indoor unit series	kW type	A Liquid pipe		B Gas pipe
CityMulti	15 to 50	$\ell \leq 30 \text{ m}$	$\phi 6.35$	$\phi 12.7$
		$\ell > 30 \text{ m}$	$\phi 9.52$	
M series or S series	63 to 140		$\phi 9.52$	$\phi 15.88$
	22 to 42		$\phi 6.35$	$\phi 9.52$
	50		$\phi 6.35$	$\phi 12.7$
	60		$\phi 6.35$	$\phi 15.88$
P series	71,80		$\phi 9.52$	$\phi 15.88$
	35,50		$\phi 6.35$	$\phi 12.7$
	60 to 100		$\phi 9.52$	$\phi 15.88$

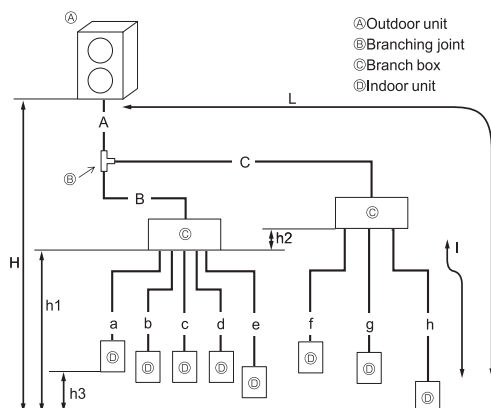
Note:

When connecting the CONNECTION KIT (PAC-LV11M-J) and an M-series indoor unit, refer to the installation manual for the CONNECTION KIT when selecting the pipe size and piping length.

■ Additional refrigerant charge

Refer to "11-3. Refrigerant charging calculation".

11-2-6. PUMY-P112, 125, 140VKM4/YKM(E)4 (WHEN USING BRANCH BOX)

Branch box Method
 Connection Examples
 (Connecting to 8 Indoor Units)


Permissible length (One-way)	Total piping length	$A + B + C + a + b + c + d + e + f + g + h \leq 150 \text{ m}$
	Farthest piping length (L)	$A + C + h \leq 80 \text{ m}$
	Piping length between outdoor unit and branch boxes	$A + B + C \leq 55 \text{ m}$
	Farthest piping length after branch box (I)	$I \leq 25 \text{ m}$
	Total piping length between branch boxes and indoor units	$a + b + c + d + e + f + g + h \leq 95 \text{ m}$
Permissible height difference (One-way)	In indoor/outdoor section (H)*1	$H \leq 50 \text{ m}$ (In case of that outdoor unit is set higher than indoor unit) $H \leq 40 \text{ m}$ (In case of that outdoor unit is set lower than indoor unit)
	In branch box/indoor unit section (h1)	$h1 + h2 \leq 15 \text{ m}$
	In each branch unit (h2)	$h2 \leq 15 \text{ m}$
	In each indoor unit (h3)	$h3 \leq 12 \text{ m}$
Number of bends		≤ 15

*1 Branch box should be placed within the level between the outdoor unit and indoor units.

■ Select Each Section of Refrigerant Piping

- (1) Section From Outdoor Unit to Branch box (A, B, C)
 (2) Sections From Branch box to Indoor Unit (a to h)
- } Each Section of Piping

Select the size from the table to the right.

(1) Refrigerant Piping Diameter In Section From Outdoor Unit to Branch box (Outdoor Unit Piping Diameter)

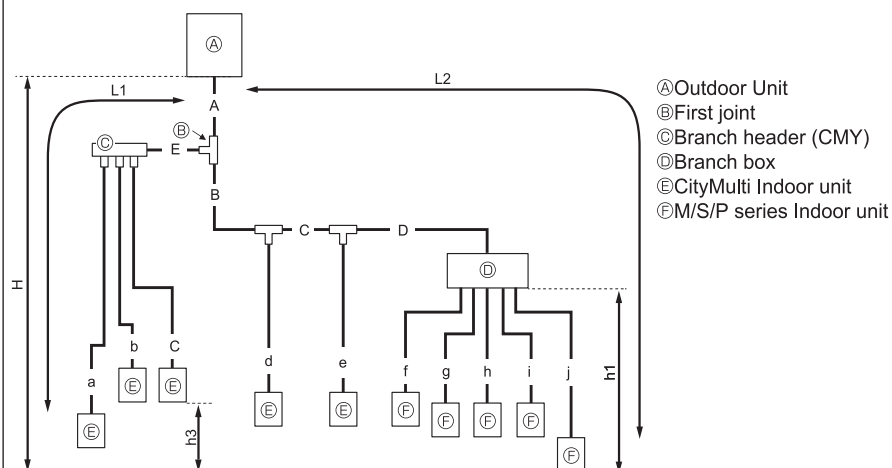
Model	Piping Diameter (mm)	
PUMY-P112	Liquid Line	$\phi 9.52$
PUMY-P125		
PUMY-P140		
	Gas Line	$\phi 15.88$

(2) Refrigerant Piping Diameter In Section From Branch box to Indoor Unit (Indoor Unit Piping Diameter)

Indoor unit series	Model number	A Liquid pipe (mm)	B Gas pipe (mm)
M series or S series	15 to 42	$\phi 6.35$	$\phi 9.52$
	50	$\phi 6.35$	$\phi 12.7$
	60	$\phi 6.35$	$\phi 15.88$
	71	$\phi 9.52$	$\phi 15.88$
P series	35,50	$\phi 6.35$	$\phi 12.7$
	60 to 100	$\phi 9.52$	$\phi 15.88$

■ Additional refrigerant charge

Refer to "11-3. Refrigerant charging calculation".

Mixed MethodConnection Examples
(Connecting to 1 Branch box)

Permissible length (One-way)	Total piping length	$A+B+C+D+E+a+b+c+d+e+f+g+h+i+j \leq 300 \text{ m}^{*2}$
	Farthest piping length (L1)	$A+E+a$ or $A+B+C+e \leq 85 \text{ m}$
	Farthest piping length. Via Branch box (L2)	$A+B+C+D+j \leq 80 \text{ m}$
	Piping length between outdoor unit and branch box	$A+B+C+D \leq 55 \text{ m}$
	Farthest piping length from the first joint	$B+C+D$ or $B+C+e \leq 30 \text{ m}$
	Farthest piping length after branch box	$j \leq 25 \text{ m}$
	Total piping length between branch boxes and indoor units	$f+g+h+i+j \leq 95 \text{ m}$
Permissible height difference (One-way)	In indoor/outdoor section (H) ^{*1}	$H \leq 50 \text{ m}$ (In case of outdoor unit is set higher than indoor unit) $H \leq 40 \text{ m}$ (In case of outdoor unit is set lower than indoor unit)
	In branch box/indoor unit section (h1)	$h1 \leq 15 \text{ m}$
	In each indoor unit (h3)	$h3 \leq 12 \text{ m}$
Number of bends		≤ 15

*1 Branch box should be placed within the level between the outdoor unit and indoor units.

*2 When a cylinder unit or hydrobox is connected, the maximum piping length is 150 m.

■ Selecting the Refrigerant Branch KitPlease select branching kit, which is sold separately, from the table below.
(The kit comprises sets for use with liquid pipes and for use with gas pipes.)

Branch header (4 branches)	Branch header (8 branches)
CMY-Y64-G-E	CMY-Y68-G-E

■ Select Each Section of Refrigerant Piping

- (1) Section From Outdoor Unit to Branch box or Branch header (A to E)
- (2) Sections From Branch box or Branch header to Indoor Unit (a to j)
- Each Section of Piping

Select the size from the table to the right.

(1) Refrigerant Piping Diameter In Section From Outdoor Unit to Branch box or Branch header (Outdoor Unit Piping Diameter)

Model	Piping Diameter (mm)	
PUMY-P112	Liquid Line	ø9.52
PUMY-P125	Gas Line	ø15.88
PUMY-P140		

(2) Refrigerant Piping Diameter In Section From Branch box or Branch header to Indoor Unit (Indoor Unit Piping Diameter)

Indoor unit series	Model number	A Liquid pipe (mm)	B Gas pipe (mm)
CityMulti	15 to 50	ø6.35	ø12.7
	63 to 140	ø9.52	ø15.88
M series or S series	15 to 42	ø6.35	ø9.52
	50	ø6.35	ø12.7
	60	ø6.35	ø15.88
	71	ø9.52	ø15.88
P series	35,50	ø6.35	ø12.7
	60 to 100	ø9.52	ø15.88

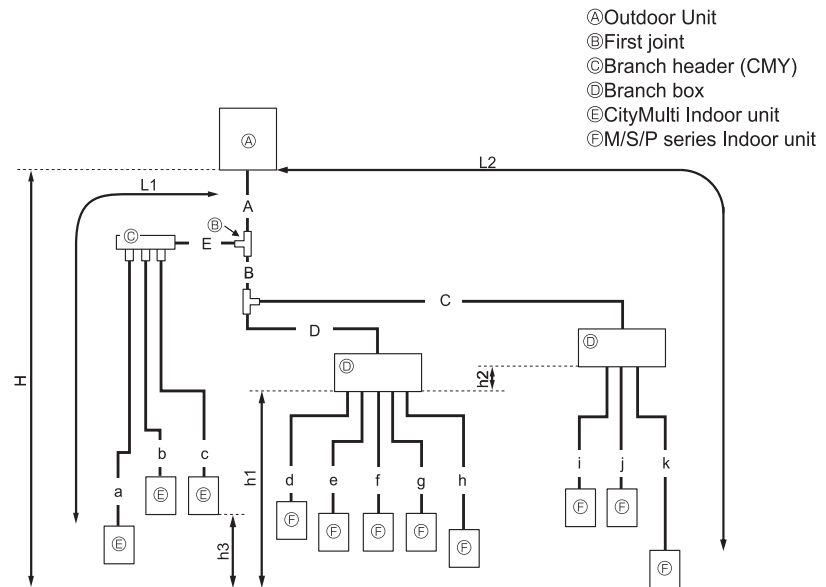
Note:

When connecting the CONNECTION KIT (PAC-LV11M-J) and an M-series indoor unit, refer to the installation manual for the CONNECTION KIT when selecting the pipe size and piping length.

■ Additional refrigerant charge

Refer to "11-3. Refrigerant charging calculation".

Mixed Method
Connection Examples
(Connecting to 2 Branch boxes)



Permissible length (One-way)	Total piping length	$A+B+C+D+E+a+b+c+d+e+f+g+h+i+j+k \leq 240 \text{ m}^{*2}$
	Farthest piping length (L1)	$A+E+a \leq 85 \text{ m}$
	Farthest piping length. Via Branch box (L2)	$A+B+C+k \leq 80 \text{ m}$
	Piping length between outdoor unit and branch boxes	$A+B+C+D \leq 55 \text{ m}$
	Farthest piping length from the first joint	$B+C \text{ or } E+a \leq 30 \text{ m}$
	Farthest piping length after branch box	$k \leq 25 \text{ m}$
	Farthest branch box form outdoor unit	$A+B+C \leq 55 \text{ m}$
Permissible height difference (One-way)	Total piping length between branch boxes and indoor units	$d+e+f+g+h+i+j+k \leq 95 \text{ m}$
	In indoor/outdoor section (H) ^{*1}	$H \leq 50 \text{ m}$ (In case of outdoor unit is set higher than indoor unit) $H \leq 40 \text{ m}$ (In case of outdoor unit is set lower than indoor unit)
	In branch box/indoor unit section (h1)	$h1+h2 \leq 15 \text{ m}$
	In each branch unit (h2)	$h2 \leq 15 \text{ m}$
Number of bends	In each indoor unit (h3)	$h3 \leq 12 \text{ m}$
		≤ 15

^{*1} Branch box should be placed within the level between the outdoor unit and indoor units.

^{*2} When a cylinder unit or hydrobox is connected, the maximum piping length is 150 m.

■ Selecting the Refrigerant Branch Kit

Please select branching kit, which is sold separately, from the table below.
(The kit comprises sets for use with liquid pipes and for use with gas pipes.)

Branch header (4 branches)	Branch header (8 branches)
CMY-Y64-G-E	CMY-Y68-G-E

■ Select Each Section of Refrigerant Piping

- (1) Section From Outdoor Unit to Branch box or Branch header (A to E)
- (2) Sections From Branch box or Branch header to Indoor Unit (a to k)
- Each Section of Piping

Select the size from the table to the right.

(1) Refrigerant Piping Diameter In Section From Outdoor Unit to Branch box or Branch header (Out-door Unit Piping Diameter)

Model	Piping Diameter (mm)
PUMY-P112	Liquid Line
PUMY-P125	
PUMY-P140	Gas Line
	ø9.52
	ø15.88

(2) Refrigerant Piping Diameter In Section From Branch box or Branch header to Indoor Unit (Indoor Unit Piping Diameter)

Indoor unit series	Model number	A Liquid pipe (mm)	B Gas pipe (mm)
CityMulti	15 to 50	ø6.35	ø12.7
	63 to 140	ø9.52	ø15.88
M series or S series	15 to 42	ø6.35	ø9.52
	50	ø6.35	ø12.7
	60	ø6.35	ø15.88
	71	ø9.52	ø15.88
P series	35,50	ø6.35	ø12.7
	60 to 100	ø9.52	ø15.88

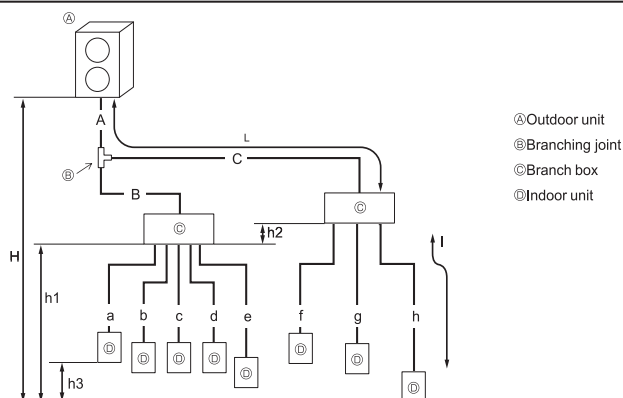
Note:

When connecting the CONNECTION KIT (PAC-LV11M-J) and an M-series indoor unit, refer to the installation manual for the CONNECTION KIT when selecting the pipe size and piping length.

■ Additional refrigerant charge

Refer to "11-3. Refrigerant charging calculation".

11-2-7. PUMY-P200YKM2 Piping (WHEN USING BRANCH BOX)

Branch box Method
 Connection Examples
 (Connecting to 8 Indoor Units)


Permissible length (One-way)	Total piping length	$A + B + C + a + b + c + d + e + f + g + h \leq 150 \text{ m}$
	Farthest piping length (L)	$A + C + h \leq 80 \text{ m}$
	Piping length between outdoor unit and branch boxes	$A + B + C \leq 55 \text{ m}$
	Farthest piping length after branch box (1)	$l \leq 25 \text{ m}$
	Total piping length between branch boxes and indoor units	$a + b + c + d + e + f + g + h \leq 95 \text{ m}$
Permissible height difference (One-way)	In indoor/outdoor section (H)*1	$H \leq 50 \text{ m}$ (In case of that outdoor unit is set higher than indoor unit) $H \leq 40 \text{ m}$ (In case of that outdoor unit is set lower than indoor unit)
	In branch box/indoor unit section (h1)	$h1 + h2 \leq 15 \text{ m}$
	In each branch unit (h2)	$h2 \leq 15 \text{ m}$
	In each indoor unit (h3)	$h3 \leq 12 \text{ m}$
Number of bends		≤ 15

*1 Branch box should be placed within the level between the outdoor unit and indoor units.

■ Select Each Section of Refrigerant Piping

- (1) Section From Outdoor Unit to Branch box (A, B, C)
- (2) Sections From Branch box to Indoor Unit (a to h)
- Each Section of Piping

Select the size from the table to the right.

- (1) Refrigerant Piping Diameter In Section From Outdoor Unit to First Branch (Outdoor Unit Piping Diameter)
- A

	Piping Diameter (mm)	
	Liquid pipe	Gas pipe
$L \leq 20 \text{ m}$	$\phi 9.52$	$\phi 19.05$
$L > 20 \text{ m}$	$\phi 12.7$	

L: The farthest piping length from the outdoor unit to an indoor unit.

- B, C

Total capacity of indoor units	Liquid pipe (mm)		Gas pipe (mm)
Up to 16.0kW	$L \leq 20 \text{ m}$	$\phi 9.52$	$\phi 15.88$
	$L > 20 \text{ m}$	$\phi 12.7$	
16.1 to 29.1W	$L \leq 20 \text{ m}$	$\phi 9.52$	$\phi 19.05$
	$L > 20 \text{ m}$	$\phi 12.7$	

- (2) Refrigerant Piping Diameter In Section From Branch box to Indoor Unit (Indoor Unit Piping Diameter)

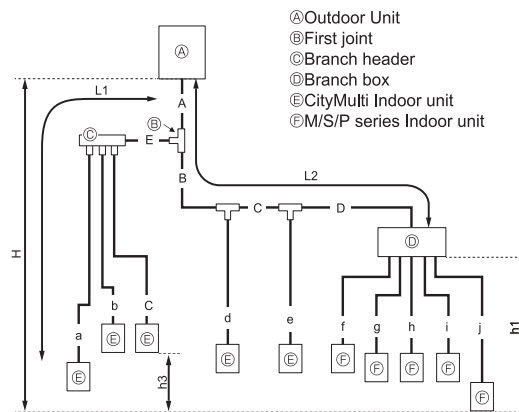
Indoor unit series	kW type	A Liquid pipe	B Gas pipe
M series or S series	15-42	$\phi 6.35 \text{ mm}$	$\phi 9.52 \text{ mm}$
	50	$\phi 6.35 \text{ mm}$	$\phi 12.7 \text{ mm}$
	60	$\phi 6.35 \text{ mm}$	$\phi 15.88 \text{ mm}$
	71	$\phi 9.52 \text{ mm}$	$\phi 15.88 \text{ mm}$
P series	35-50	$\phi 6.35 \text{ mm}$	$\phi 12.77 \text{ mm}$
	60-100	$\phi 9.52 \text{ mm}$	$\phi 15.88 \text{ mm}$

■ Additional refrigerant charge

Refer to "11-3. Refrigerant charging calculation".

Mixed Method

Connection Examples
(Connecting to 1 Branch box)



Permissible length (One-way)	Total piping length	$A+B+C+D+E+a+b+c+d+e+f+g+h+i+j \leq 150 \text{ m}$
	Farthest piping length (L1)	$A+E+a$ or $A+B+C+e \leq 80 \text{ m}$
	Farthest piping length. Via Branch box (L2)	$A+B+C+D+j \leq 80 \text{ m}$
	Piping length between outdoor unit and branch box	$A+B+C+D \leq 55 \text{ m}$
	Farthest piping length from the first joint	$B+C+D$ or $B+C+e \leq 30 \text{ m}$
	Farthest piping length after branch box	$j \leq 25 \text{ m}$
	Total piping length between branch boxes and indoor units	$f+g+h+i+j \leq 95 \text{ m}$
Permissible height difference (One-way)	In indoor/outdoor section (H)*1	$H \leq 50 \text{ m}$ (In case of outdoor unit is set higher than indoor unit) $H \leq 40 \text{ m}$ (In case of outdoor unit is set lower than indoor unit)
	In branch box/indoor unit section (h1)	$h1 \leq 15 \text{ m}$
	In each indoor unit (h3)	$h3 \leq 12 \text{ m}$
Number of bends		≤ 15

*1 Branch box should be placed within the level between the outdoor unit and indoor units.

■ Selecting the Refrigerant Branch Kit

Please select branching kit, which is sold separately, from the table below.
(The kit comprises sets for use with liquid pipes and for use with gas pipes.)

Branch header (4 branches)	Branch header (8 branches)
CMY-Y64-G-E	CMY-Y68-G-E

■ Select Each Section of Refrigerant Piping

- (1) Section From Outdoor Unit to Branch box or Branch header (A to E)
- (2) Sections From Branch box or Branch header to Indoor Unit (a to j)
- Each Section of Piping

Select the size from the table to the right.

- (1) Refrigerant Piping Diameter In Section From Outdoor Unit to Branch box or Branch header (Outdoor Unit Piping Diameter)

	Piping Diameter (mm)	
	Liquid pipe	Gas pipe
$L1 \leq 60\text{m}$ or $L2 \leq 20\text{m}$	$\phi 9.52$	$\phi 19.05$
$L1 > 60\text{m}$ or $L2 > 20\text{m}$	$\phi 12.7$	

B to E

Total capacity of indoor units	Liquid pipe (mm)		Gas pipe (mm)
Up to 16.0kW	$L1 \leq 60\text{m}$ or $L2 \leq 20\text{m}$	$\phi 9.52$	$\phi 15.88$
	$L1 > 60\text{m}$ or $L2 > 20\text{m}$	$\phi 12.7$	
16.1 to 29.1W	$L1 \leq 60\text{m}$ or $L2 \leq 20\text{m}$	$\phi 9.52$	$\phi 19.05$
	$L1 > 60\text{m}$ or $L2 > 20\text{m}$	$\phi 12.7$	

L1: The farthest piping length from the outdoor unit to an indoor unit.

L2: The farthest piping length for the main pipes from the outdoor unit to the branch box.

- (2) Refrigerant Piping Diameter In Section From Branch box or Branch header to Indoor Unit (Indoor Unit Piping Diameter)

Indoor unit series	kW type	A Liquid pipe	B Gas pipe
CityMulti	15–50	$\phi 6.35 \text{ mm}$	$\phi 12.7 \text{ mm}$
	63–140	$\phi 9.52 \text{ mm}$	$\phi 15.88 \text{ mm}$
	200	$\phi 9.52 \text{ mm}$	$\phi 19.05 \text{ mm}$
M series or S series	15–42 (09–13)	$\phi 6.35 \text{ mm}$	$\phi 9.52 \text{ mm}$
	50 (18)	$\phi 6.35 \text{ mm}$	$\phi 12.7 \text{ mm}$
	60 (24)	$\phi 6.35 \text{ mm}$	$\phi 15.88 \text{ mm}$
	71 (26)	$\phi 9.52 \text{ mm}$	$\phi 15.88 \text{ mm}$
P series	35, 50 (18)	$\phi 6.35 \text{ mm}$	$\phi 12.7 \text{ mm}$
	60–100 (26)	$\phi 9.52 \text{ mm}$	$\phi 15.88 \text{ mm}$

Note:

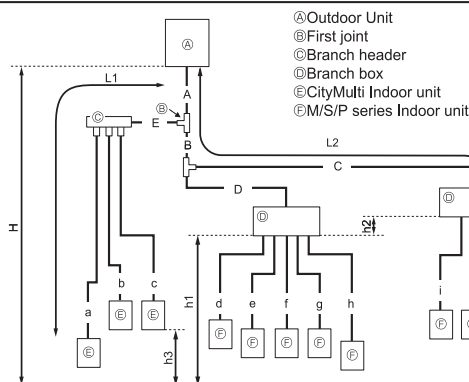
When connecting the CONNECTION KIT (PAC-LV11M-J) and an M-series indoor unit, refer to the installation manual for the CONNECTION KIT when selecting the pipe size and piping length.

■ Additional refrigerant charge

Refer to "11-3. Refrigerant charging calculation".

Mixed Method

Connection Examples
(Connecting to 2 Branch boxes)



Permissible length (One-way)	Total piping length	$A+B+C+D+E+a+b+c+d+e+f+g+h+i+j+k \leq 150 \text{ m}$
	Farthest piping length (L1)	$A+E+a \leq 80 \text{ m}$
	Farthest piping length, Via Branch box (L2)	$A+B+C+k \leq 80 \text{ m}$
	Piping length between outdoor unit and branch boxes	$A+B+C+D \leq 55 \text{ m}$
	Farthest piping length from the first joint	$B+C \text{ or } E+a \leq 30 \text{ m}$
	Farthest piping length after branch box	$k \leq 25 \text{ m}$
	Farthest branch box from outdoor unit	$A+B+C \leq 55 \text{ m}$
	Total piping length between branch boxes and indoor units	$d+e+f+g+h+i+j+k \leq 95 \text{ m}$
Permissible height difference (One-way)	In indoor/outdoor section (H)*1	$H \leq 50 \text{ m}$ (In case of outdoor unit is set higher than indoor unit) $H \leq 40 \text{ m}$ (In case of outdoor unit is set lower than indoor unit)
	In branch box/indoor unit section (h1)	$h1+h2 \leq 15 \text{ m}$
	In each branch unit (h2)	$h2 \leq 15 \text{ m}$
	In each indoor unit (h3)	$h3 \leq 12 \text{ m}$
Number of bends		≤ 15

*1 Branch box should be placed within the level between the outdoor unit and indoor units.

■ Selecting the Refrigerant Branch Kit

Please select branching kit, which is sold separately, from the table below.
(The kit comprises sets for use with liquid pipes and for use with gas pipes.)

Branch header (4 branches)	Branch header (8 branches)
CMY-Y64-G-E	CMY-Y68-G-E

■ Select Each Section of Refrigerant Piping

- (1) Section From Outdoor Unit to Branch box or Branch header (A to E)
- (2) Sections From Branch box or Branch header to Indoor Unit (a to k)
- Each Section of Piping

Select the size from the table to the right.

- (1) Refrigerant Piping Diameter In Section From Outdoor Unit to Branch box or Branch header (Outdoor Unit Piping Diameter)

	Piping Diameter (mm)	
	Liquid pipe	Gas pipe
$L1 \leq 60 \text{ m}$ or $L2 \leq 20 \text{ m}$	$\phi 9.52$	$\phi 19.05$
$L1 > 60 \text{ m}$ or $L2 > 20 \text{ m}$	$\phi 12.7$	

B to E

Total capacity of indoor units	Liquid pipe (mm)		Gas pipe (mm)
Up to 16.0kW	$L1 \leq 60 \text{ m}$ or $L2 \leq 20 \text{ m}$	$\phi 9.52$	$\phi 15.88$
	$L1 > 60 \text{ m}$ or $L2 > 20 \text{ m}$	$\phi 12.7$	
16.1 to 29.1W	$L1 \leq 60 \text{ m}$ or $L2 \leq 20 \text{ m}$	$\phi 9.52$	$\phi 19.05$
	$L1 > 60 \text{ m}$ or $L2 > 20 \text{ m}$	$\phi 12.7$	

L1: The farthest piping length from the outdoor unit to an indoor unit.

L2: The farthest piping length for the main pipes from the outdoor unit to the branch box.

- (2) Refrigerant Piping Diameter In Section From Branch box or Branch header to Indoor Unit (Indoor Unit Piping Diameter)

Indoor unit series	kW type	A Liquid pipe	B Gas pipe
CityMulti	15–50	$\phi 6.35 \text{ mm}$	$\phi 12.7 \text{ mm}$
	63–140	$\phi 9.52 \text{ mm}$	$\phi 15.88 \text{ mm}$
	200	$\phi 9.52 \text{ mm}$	$\phi 19.05 \text{ mm}$
M series or S series	15–42	$\phi 6.35 \text{ mm}$	$\phi 9.52 \text{ mm}$
	50	$\phi 6.35 \text{ mm}$	$\phi 12.7 \text{ mm}$
	60	$\phi 6.35 \text{ mm}$	$\phi 15.88 \text{ mm}$
	71	$\phi 9.52 \text{ mm}$	$\phi 15.88 \text{ mm}$
P series	35–50	$\phi 6.35 \text{ mm}$	$\phi 12.7 \text{ mm}$
	60–100	$\phi 9.52 \text{ mm}$	$\phi 15.88 \text{ mm}$

Note:

When connecting the CONNECTION KIT (PAC-LV11M-J) and an M-series indoor unit, refer to the installation manual for the CONNECTION KIT when selecting the pipe size and piping length.

■ Additional refrigerant charge

Refer to "11-3. Refrigerant charging calculation".

11-3. Refrigerant charging calculation

Additional refrigerant charge

Refrigerant for the extended piping is not included in the outdoor unit when the unit is shipped from the factory. Therefore, charge each refrigerant piping system with additional refrigerant at the installation site. In addition, in order to carry out service, enter the size and length of each liquid pipe and additional refrigerant charge amounts in the spaces provided on the "Refrigerant amount" plate on the outdoor unit.

Calculation of additional refrigerant charge

- Calculate the additional charge using the liquid pipe size and length of the extended piping and total capacity of connected indoor units.
- Calculate the additional refrigerant charge using the procedure below, and charge with the additional refrigerant.
- For amounts less than 0.1 kg, round up the calculated additional refrigerant charge.
(For example, if the calculated charge is 6.01 kg, round up the charge to 6.1 kg.)

PUMY-SP112, 125, 140/PUMY-P112, 125, 140

<Additional Charge>

Calculation of refrigerant charge

Pipe size Liquid pipe ø6.35	+	Pipe size Liquid pipe ø9.52	+	Total capacity of connected indoor units	Amount for the indoor units
(m) x 19.0 (g/m)		(m) x 50.0 (g/m)		~ 8.0kW	1.5kg
				8.1 ~ 16.0kW	2.5kg
				16.1kW ~	3.0kg

Included refrigerant amount when shipped from the factory

■PUMY-SP112, 125, 140

Included refrigerant amount
3.5kg

■PUMY-P112, 125, 140

Included refrigerant amount
4.8kg

PUMY-P200

<Additional Charge>

Calculation of refrigerant charge

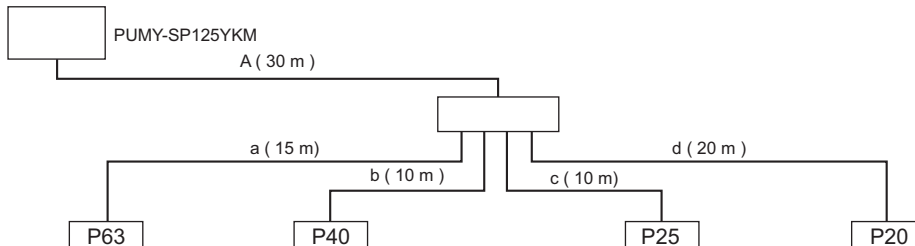
Pipe size Liquid pipe ø6.35	+	Pipe size Liquid pipe ø9.52	+	Pipe size Liquid pipe ø12.7	+	Total capacity of connected indoor units	Amount for the indoor units
(m) x 19.0 (g/m)		(m) x 50.0 (g/m)		(m) x 92.0 (g/m)		~ 16.0kW	2.5kg
						16.1 ~ 25.0kW	3.0kg
						25.1kW ~	3.5kg

* When connecting 4 PEFY-P·VMA3 indoor units, use 3.5kg regardless of the amount indicated in the preceding table according to the total capacity.

Included refrigerant amount when shipped from the factory

Included refrigerant amount
7.3kg

Example:



<Example>

Outdoor model: P125

Indoor 1: P63 (7.1kW) A: ø9.52 30 m a: ø9.52 15 m
 2: P40 (4.5kW) b: ø6.35 10 m
 3: P25 (2.8kW) c: ø6.35 10 m
 4: P20 (2.2kW) d: ø6.35 20 m

<Calculation example>

Additional refrigerant charge

$$40 \times \frac{19.0}{1000} + 45 \times \frac{50.0}{1000} + 3.0 = 6.1 \text{ kg (rounded up)}$$

The total length of each liquid line is as follows:

ø9.52: A + a = 30 + 15 = 45 m

ø6.35: b + c + d = 10 + 10 + 20 = 40 m

The total capacity of connected indoor unit is as follows:

$$7.1 + 4.5 + 2.8 + 2.2 = 16.6$$

■Maximum refrigerant charge

There is a limit to the amount of refrigerant that can be charged into a unit.

Regardless of the amount yielded by the formula above, observe the maximum refrigerant charge in the table below.

Total index of the outdoor units			SP112VKM	SP125VKM	SP140VKM	SP112YKM	SP125YKM	SP140YKM
Maximum refrigerant charge	Factory charge	kg	3.5	3.5	3.5	3.5	3.5	3.5
	Charged on site	kg	9.0	9.0	9.0	9.0	9.0	9.0
	Total for system	kg	12.5	12.5	12.5	12.5	12.5	12.5

Total index of the outdoor units			P112VKM4	P125VKM4	P140VKM4	P112YKM(E)4	P125YKM(E)4	P140YKM(E)4	P200YKM2
Maximum refrigerant charge	Factory charge	kg	4.8	4.8	4.8	4.8	4.8	4.8	7.3
	Charged on site	kg	13.8	13.8	13.8	13.8	13.8	13.8	13.1
	Total for system	kg	18.6	18.6	18.6	18.6	18.6	18.6	20.4

12-1. Requirement on installation site

12-1-1. General caution

- A. Avoid locations exposed to direct sunlight or other sources of heat.
- B. Select a location from which noise emitted by the unit will not inconvenience the neighbors.
- C. Select a location permitting easy wiring and pipe access to the power source and indoor unit.
- D. Avoid locations where combustible gases may leak, be produced, flow, or accumulate.
- E. Note that water may drain from the unit during operation.
- F. Select a level location that can bear the weight and vibration of the unit.
- G. Avoid locations where the unit can be covered by snow. In areas where heavy snow fall is anticipated, special precautions such as raising the installation location or installing a hood on the air intake must be taken to prevent the snow from blocking the air intake or blowing directly against it. This can reduce the airflow and a malfunction may result.
- H. Avoid locations exposed to oil, steam, or sulfuric gas.
- I. Use the transportation handles of the outdoor unit to transport the unit. If the unit is carried from the bottom, hands or fingers may be pinched.

12-1-2. Installation at windy location.

When installing the outdoor unit on a rooftop or other location unprotected from the wind, situate the air outlet of the unit so that it is not directly exposed to strong winds. Strong wind entering the air outlet may impede the normal airflow and a malfunction may result.

The following shows two examples of precautions against strong winds.

- ① Install an optional air guide if the unit is installed in a location where strong winds from a typhoon, etc. may directly enter the air outlet. (Fig. 12-1-2a, Fig. 12-1-2c)
- ② Position the unit so that the air outlet blows perpendicularly to the seasonal wind direction, if possible. (Fig. 12-1-2b, Fig. 12-1-2d)

■PUMY-SP112, 125, 140VKM/YKM

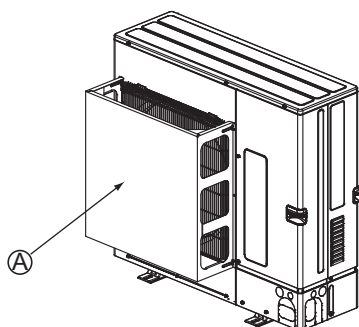


Fig. 12-1-2a

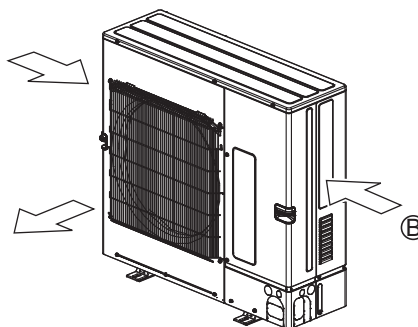


Fig. 12-1-2b

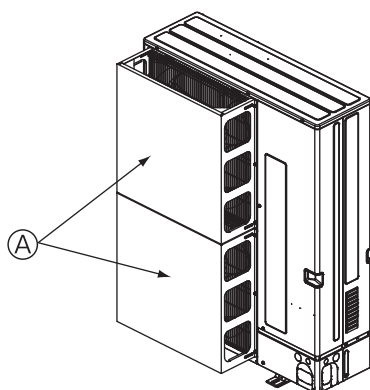
■PUMY-P112, 125, 140VKM4/YKM(E)4
PUMY-P200YKM2

Fig. 12-1-2c

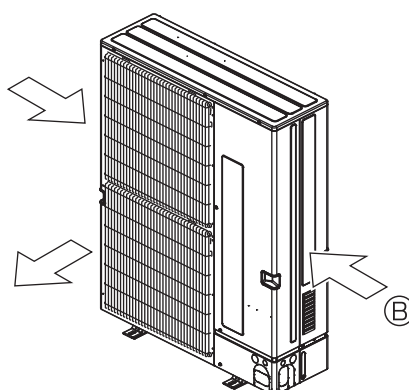


Fig. 12-1-2d

12-1-3. Foundation

- A. Be sure to install the unit in a sturdy, level surface to prevent rattling noises during operation.
(see Fig. 12-1-3a, Fig. 12-1-3b)
- B. Foundation specifications are as follows.

mm [in.]			
Thickness of concrete	Weight-bearing capacity	Foundation bolt	Bolt length
120 [4-3/4"]	320 kg [706lbs]	M10 [3/8"]	70 [2-25/32"]

- C. Make sure that the length of the foundation bolt is within 30 mm [1-3/16"] of the bottom surface of the base.
- D. Secure the base of the unit firmly with four-M10 [3/8"] foundation bolts in sturdy locations.

⚠ Warning:

- A. The foundation base should be strong enough to support the outdoor unit, otherwise, it may fall down and cause damage or injuries.
- B. The unit must be installed according to the instructions in order to minimize the risk of damage from earthquakes, typhoons, or strong winds.

■PUMY-SP-VKM/YKM

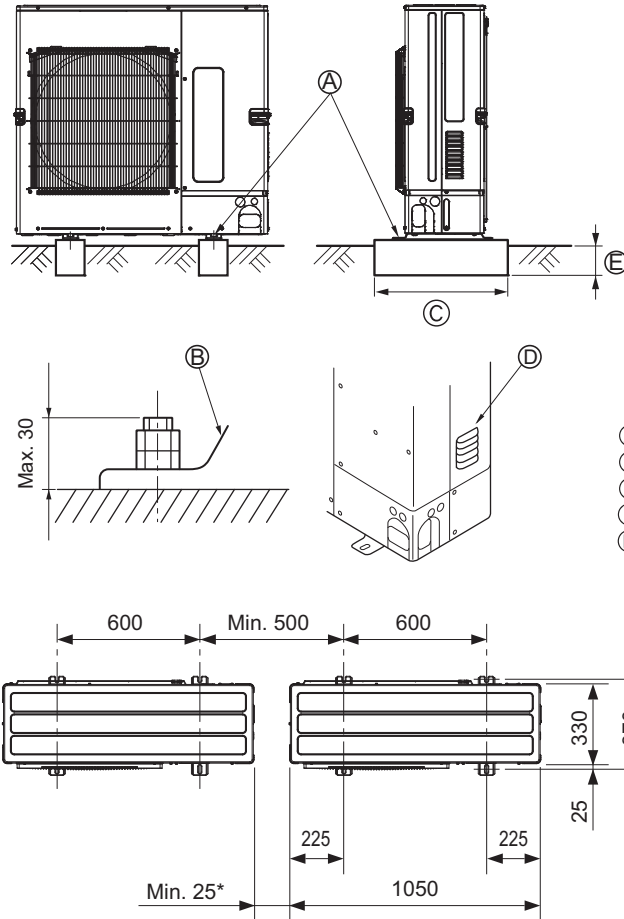


Fig. 12-1-3a

■PUMY-P-VKM4/YKM(E)4, PUMY-P-YKM2

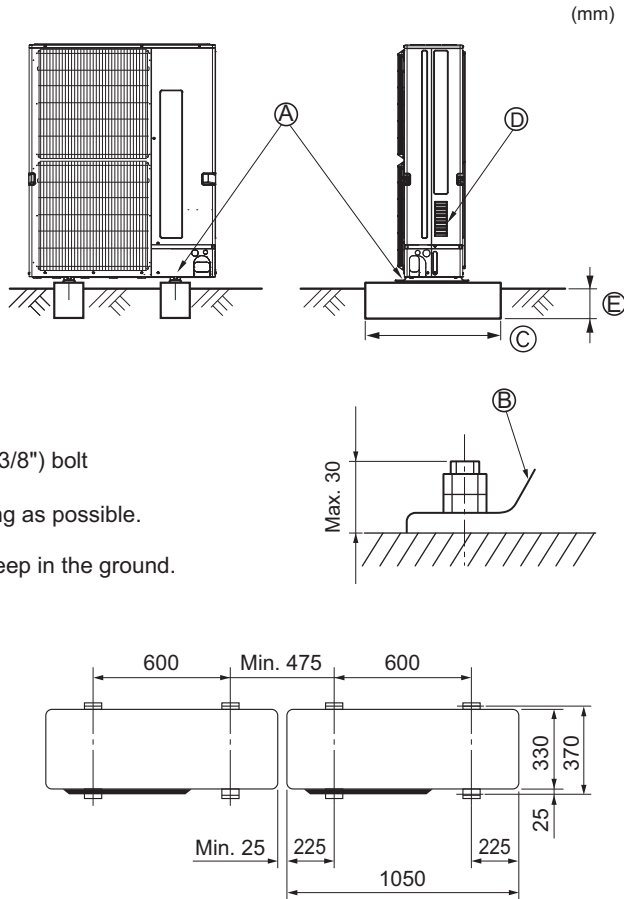


Fig. 12-1-3b

* When installing a single outdoor unit, the clearance is 15 mm or more.

12-2. Spacing

12-2-1. PUMY-SP112, 125, 140VKM/YKM

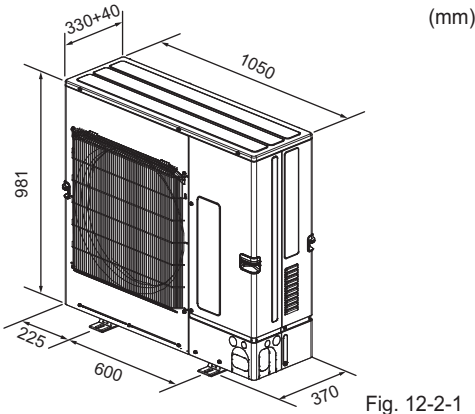


Fig. 12-2-1

12-2-1-1. Spacing individual PUMY-SP-VKM/YKM

Follow Fig. 12-2-2~7 to space individual PUMY-SP-VKM/YKM at the installation site.

12-2-1-2. Spacing grouped PUMY-SP-VKM/YKM

Follow Fig. 12-2-8~13 to space grouped PUMY-SP-VKM/YKM at the installation site.

Leave 25 mm space or more between PUMY-SP-VKM/YKM units.

		mm[in.]	
<p>* Using an optional air outlet guide, the clearance ≥ 500 mm [19-11/16\"/></p>	<p>* Using an optional air outlet guide, the clearance ≥ 500 mm [19-11/16\"/></p>	<p>* Using an optional air outlet guide, the clearance ≥ 1000 mm [39-3/8\"/></p>	<p>* Using an optional air outlet guide, the clearance ≥ 1000 mm [39-3/8\"/></p>
<p>Fig. 12-2-6 Obstacles at front and rear only</p>			
<p>* Using an optional air outlet guide, the clearance ≥ 500 mm [19-11/16\"/></p>	<p>* NO upward airflow outlet guide.</p>	<p>* Using an optional air outlet guide for upward airflow, the clearance ≥ 1500 mm [59-1/16\"/></p>	<p>* Stacked layer ≤ 2 units; * Side-by-side stacked groups ≤ 2 groups;</p>

12-2-2. PUMY-P112, 125, 140VKM4/YKM(E)4
PUMY-P200YKM2

(mm)

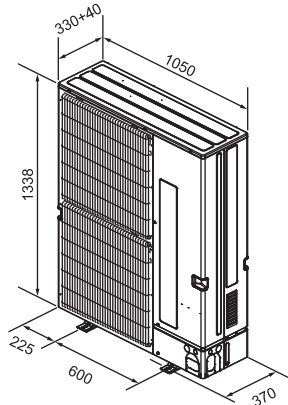


Fig. 12-2-14

12-2-2-1. Spacing individual PUMY-P-VKM4/YKM4(2)/YKME4

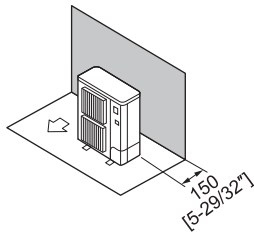
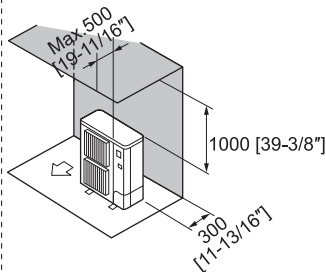
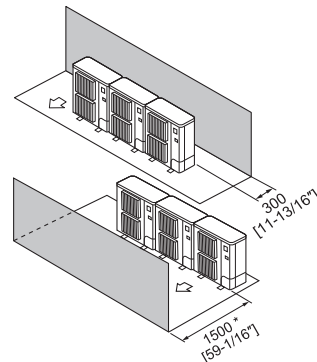
Follow Fig. 12-2-15~20 to space individual PUMY-P-VKM4/YKM4(2)/YKME4 at the installation site.

mm[in.]

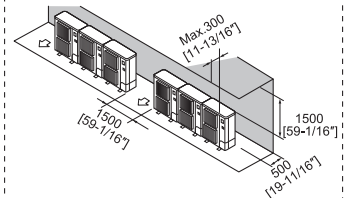
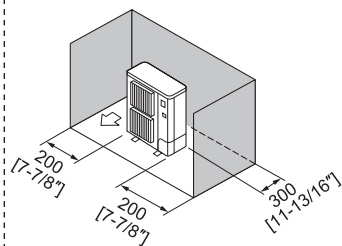
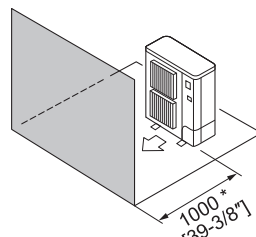
12-2-2-2. Spacing grouped PUMY-P-VKM4/YKM4(2)/YKME4

Follow Fig. 4-2-21~26 to space grouped PUMY-P-VKM4/YKM4(2)/YKME4 at the installation site. Leave 25 mm space or more between PUMY-P-VKM4/YKM4(2)/YKME4 units.

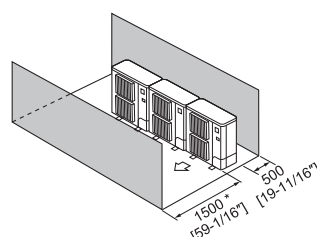
mm[in.]

Fig. 12-2-15
Obstacles at rear onlyFig. 12-2-16
Obstacles at rear and above only

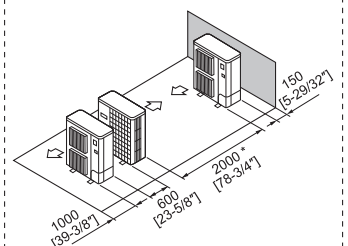
* When using an optional air outlet guide, the clearance is 1000 mm [39-3/8"] or more.

Fig. 12-2-21
Obstacles at rear or front only* In case of side-by-side installation, <=3 units;
* Do not install the optional air outlet guides for upward airflow.Fig. 12-2-22
Obstacles at rear and above onlyFig. 12-2-17
Obstacles at rear and sides only

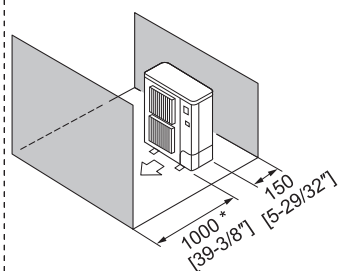
* Using an optional air outlet guide, the clearance >= 500 mm [19-11/16"].

Fig. 12-2-18
Obstacles at front only

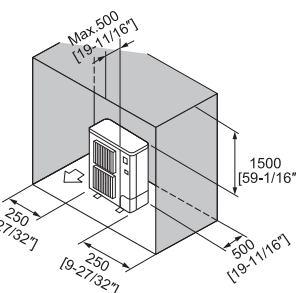
* Using an optional air outlet guide, the clearance >= 1000 mm [39-3/8"].

Fig. 12-2-23
Obstacles at front and rear only

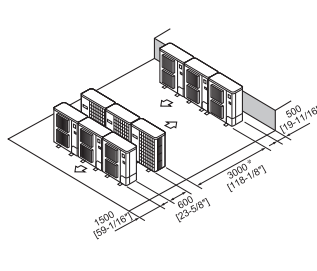
* Using an optional air outlet guide, the clearance >= 1000 mm [39-3/8"].

Fig. 12-2-24
Parallel individuals arrangement

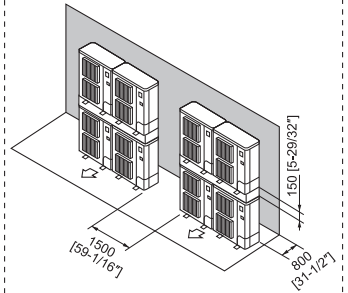
* Using an optional air outlet guide, the clearance >= 500 mm [19-11/16"].

Fig. 12-2-19
Obstacles at front and rear only

* NO upward airflow outlet guide.

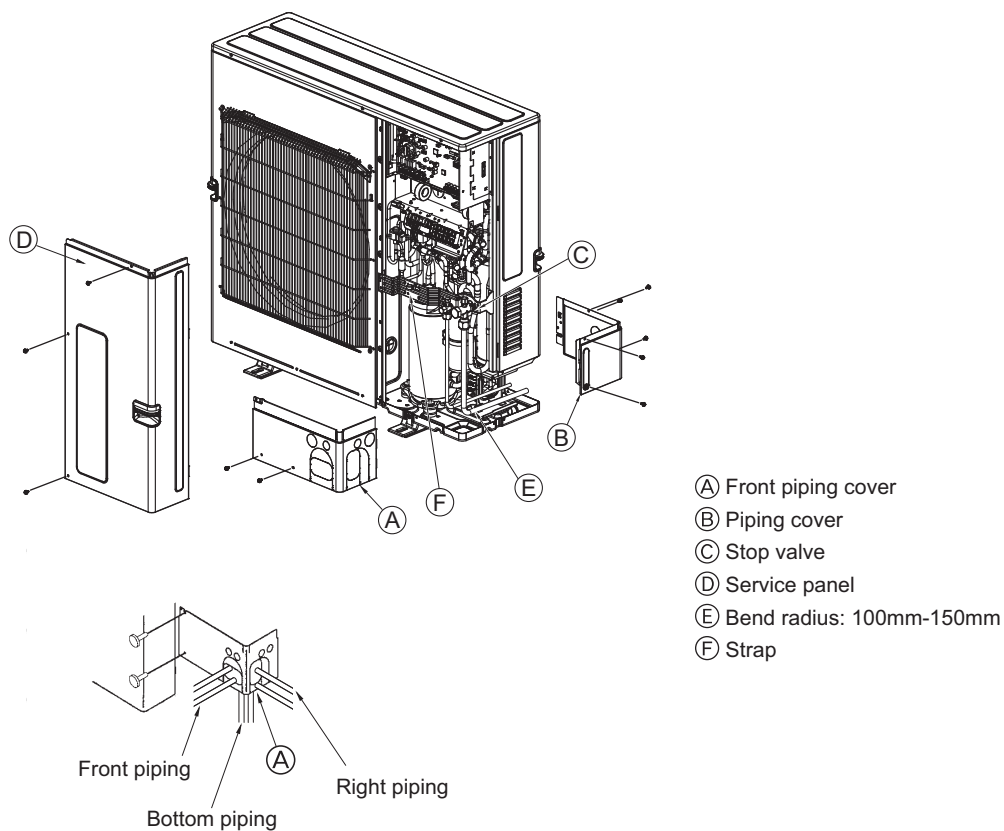
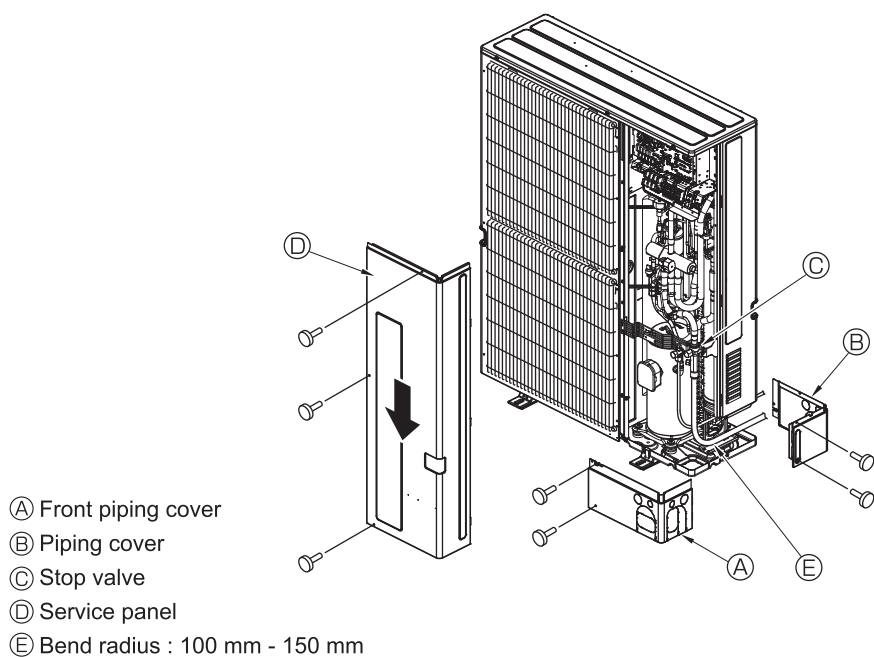
Fig. 12-2-20
Obstacles at rear, sides and above only

* Using an optional air outlet guide for upward airflow, the clearance >= 1500 mm [59-1/16"].

Fig. 12-2-25
Parallel groups arrangement* Stacked layer <= 2 units;
* Side-by-side stacked groups <= 2 groups;Fig. 12-2-26
Stacked groups arrangement

12-3. Piping direction

PUMY-SP112, 125, 140VKM/YKM

PUMY-P112, 125, 140VKM4/YKM(E)4
PUMY-P200YKM2



for a greener tomorrow

Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.

⚠ Warning

- Do not use refrigerant other than the type indicated in the manuals provided with the unit and on the nameplate.
 - Doing so may cause the unit or pipes to burst, or result in explosion or fire during use, repair, or at the time of disposal of the unit.
 - It may also be in violation of applicable laws.
 - MITSUBISHI ELECTRIC CORPORATION cannot be held responsible for malfunctions or accidents resulting from the use of the wrong type of refrigerant.
- Our air conditioning equipment and heat pumps contain a fluorinated greenhouse gas, R410A.

mitsubishi electric corporation

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