

[7] Restrictions on Pipe Length

The refrigerant pipe from the outdoor unit is branched at the pipe end, and each branch is then connected to an indoor unit. Flare connections are used for the pipes on the indoor units and for the liquid pipes on the outdoor units. Flange connections are used for gas pipes on the outdoor units. Branched sections are brazed together.

WARNING

Do not let refrigerant (R410A) leak in the presence of an open flame or other heat source. When exposed to an open flame or other heat source, refrigerant will break down, generate poisonous gas, and pose a risk of gas poisoning. Do not weld in a confined space. Perform an air tightness test at the completion of pipe work.

Only use the type of refrigerant (R410A) that is indicated on the unit when installing or reinstalling the unit.

Infiltration of any other type of refrigerant or air into the unit may adversely affect the refrigerant cycle and may cause the pipes to burst or explode.

CAUTION

Do not use the existing refrigerant piping.

A large amount of chlorine that may be contained in the residual refrigerant and refrigerating machine oil in the existing piping may cause the refrigerating machine oil in the new unit to deteriorate.

Use refrigerant pipes made of phosphorus deoxidized copper. Keep the inner and outer surfaces of the pipes clean and free of such contaminants as sulfur, oxides, dust, dirt, shaving particles, oil, and water.

These types of contaminants inside the refrigerant pipes may cause the refrigerant oil to deteriorate.

Store the pipes to be installed indoors, and keep both ends of the pipes sealed until immediately before brazing. (Keep elbows and other joints wrapped in plastic.)

Infiltration of dust, dirt, or water into the refrigerant system may cause the refrigerating machine oil to deteriorate or cause the unit to malfunction.

Charge liquid refrigerant (as opposed to gaseous refrigerant) into the system.

If gaseous refrigerant is charged into the system, the composition of the refrigerant in the cylinder will change and may result in performance loss.

Do not use a charging cylinder.

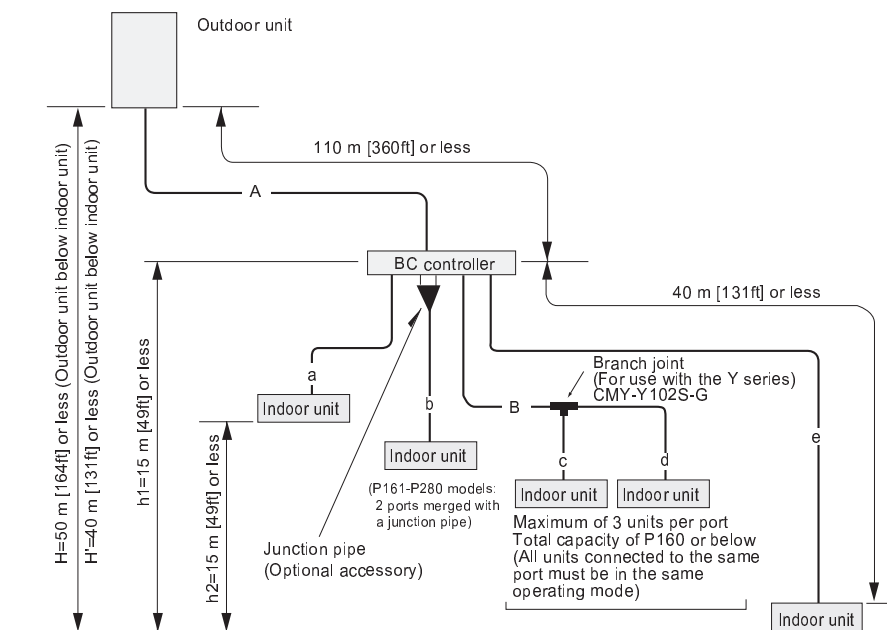
If a charging cylinder is used, the composition of the refrigerant will change, and the unit may experience power loss.

2. PURY

(1) Line branching

System that requires 16 BC controller ports or fewer

<System with only the main BC controller or standard BC controller>



Unit: m [ft]

Operation			Pipe sections	Allowable length of pipes
Length	Total pipe length		A+B+a+b+c+d+e	300 [984] or less ^{*1}
	Total pipe length from the outdoor unit to the farthest indoor unit		A+e	150 [492] or less (Equivalent length 175 [574] or less)
	Between outdoor unit and BC controller		A	110 [360] or less
	Between BC controller and indoor unit		e	40 [131] or less ^{*2}
Height difference	Between indoor and outdoor units	Outdoor unit above indoor unit	H	50 [164] or less
		Outdoor unit below indoor unit	H'	40 [131] or less
	Between indoor unit and BC controller		h1	15 [49] or less (10 [32] or less) ^{*3}
	Between indoor units		h2	15 [49] or less (10 [32] or less) ^{*3}

*1. When the aggregate length of all pipes exceeds 300m [984ft], observe the restrictions in the figure titled "Restrictions on pipe length" below.

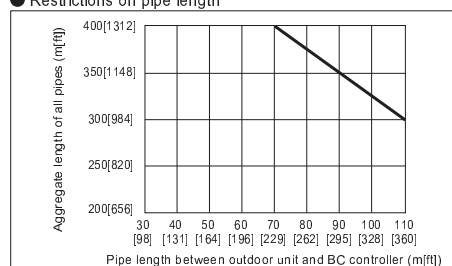
*2. When the overall pipe length between the BC controller and the farthest indoor unit exceeds 40m [131ft], observe the restrictions in the figure titled "Restrictions on pipe length" below. (Except the P96 models)

*3. When the capacity of the connected indoor units is P72 or above, use the figures in the parentheses as a reference.

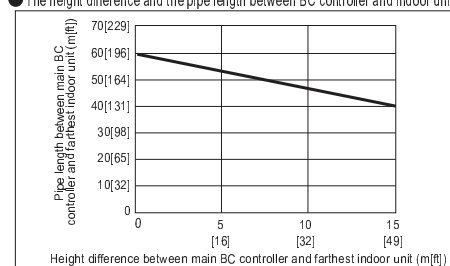
* In the system to which indoor units of P72 model or above are connected, neither a branch joint nor a branch header may be used.

* Do not connect the P72 or P96 models of indoor units with other models of indoor units to the same port.

● Restrictions on pipe length



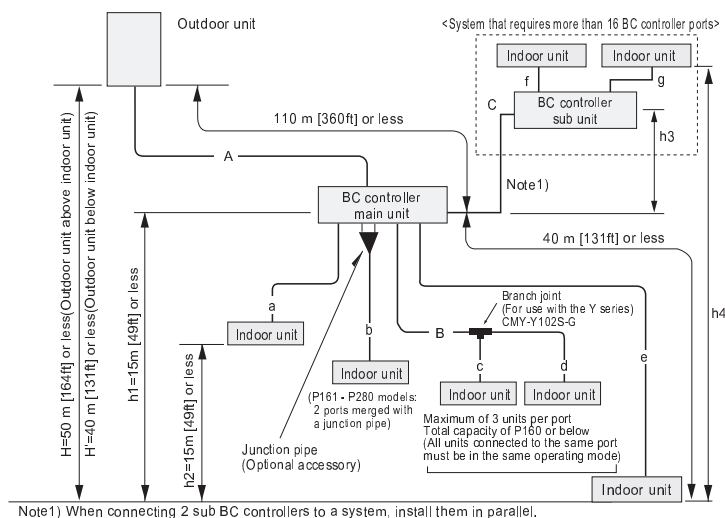
● The height difference and the pipe length between BC controller and indoor units (A)



(2) Line branching

System that requires more than 16 BC controller ports or with multiple BC controllers

<System with both main and sub BC controllers>



Unit: m [ft]

Operation			Pipe sections	Allowable length of pipes
Length	Total pipe length		A+B+C +a+b+c+d+e+f+g	300 [984] or less ^{*1}
	Total pipe length from the outdoor unit to the farthest indoor unit		A+C+g or C+g	150 [492] or less (Equivalent length 175 [574] or less)
	Between outdoor unit and BC controller		A	110 [360] or less
	Between BC controller and indoor unit		e or C+g	40 [131] or less ^{*2}
Height difference	Between indoor and outdoor units	Outdoor unit above indoor unit	H	50 [164] or less
		Outdoor unit below indoor unit	H'	40 [131] or less
	Between indoor unit and BC controller		h1	15 [49] or less (10 [32] or less) ^{*3}
	Between indoor units		h2	15 [49] or less (10 [32] or less) ^{*3}
	Between main BC controller and sub BC controller		h3	15 [49] or less
	Between indoor unit (main BC controller) and indoor unit (sub BC controller)		h4	15 [49] or less (10 [32] or less) ^{*3*4}

*1. When the aggregate length of all pipes exceeds 300m [984ft], observe the restrictions in the figure titled "Restrictions on pipe length" below.

*2. When the overall pipe length between the BC controller and the farthest indoor unit exceeds 40m [131ft], observe the restrictions in the figure titled "Restrictions on pipe length" below. (Except the P96 models)

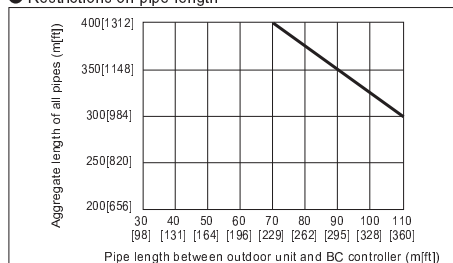
*3. When the capacity of the connected indoor units is P72 or above, use the figures in the parentheses as a reference.

*4. When connecting 2 sub BC controllers to a system, observe the allowable length in the table above.

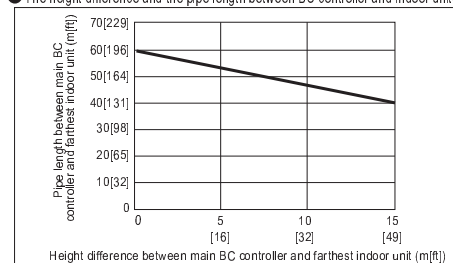
* A system that requires more than 16 BC controller ports requires two or three BC controllers (main and sub), and three pipes will be used between the main and the sub BC controllers.

* In the system to which indoor units of P72 model or above are connected, neither a branch joint nor a branch header may be used.

● Restrictions on pipe length



● The height difference and the pipe length between BC controller and indoor units (A)



3. Refrigerant pipe size

(1) Between outdoor unit and BC controller (Part A)

Unit: mm [in]

Operation		Outdoor unit				
		PURY-P72TGMU-A	PURY-P96TGMU-A	PURY-P108TGMU-A	PURY-P126TGMU-A	PURY-P144TGMU-A
Refrigerant pipe size	High-pressure pipe	ø15.88 [5/8"]	ø19.05 [3/4"]			ø22.2 [7/8"]
	Low-pressure pipe	ø19.05 [3/4"]	ø22.2 [7/8"]		ø28.58 [1-1/8"]	
Connection to outdoor unit and BC controller	High-pressure pipe	ø15.88 [5/8"] (Braze connection)	ø19.05 [3/4"] (Braze connection)			ø22.2 [7/8"] (Braze connection)
	Low-pressure pipe	ø19.05 [3/4"] (Braze connection)	ø22.2 [7/8"] (Braze connection)		ø28.58 [1-1/8"] (Braze connection)	

Operation		Outdoor unit				
		PURY-P168TGMU-A	PURY-P192TGMU-A	PURY-P204TGMU-A	PURY-P216TGMU-A	PURY-P234TGMU-A
Refrigerant pipe size	High-pressure pipe	ø22.2 [7/8"]		ø28.58 [1-1/8"]		
	Low-pressure pipe	ø28.58 [1-1/8"]				
Connection to outdoor unit and BC controller	High-pressure pipe	ø22.2 [7/8"] (Braze connection)		ø28.58 [1-1/8"] (Braze connection)		
	Low-pressure pipe	ø28.58 [1-1/8"] (Braze connection)				

(Note) Flanges with a short copper pipe are attached to the low-pressure pipes on the outdoor units.

(2) Between BC controller and indoor unit (Parts a, b, c, d, and e)

Unit: mm [in]

Operation		Indoor unit			
		06,08,12,15,18	24,27,30,36,48	72	96
Refrigerant pipe size	Liquid pipe	ø6.35 [1/4"]	ø9.52 [3/8"]		
	Gas pipe	ø12.7 [1/2"]	ø15.88 [5/8"]	ø19.05 [3/4"]	ø22.2 [7/8"]
Connection to outdoor unit (Flare connection for all models)	Liquid pipe	ø6.35 [1/4"]	ø9.52 [3/8"]		
	Gas pipe	ø12.7 [1/2"]	ø15.88 [5/8"]	ø19.05 [3/4"]	ø22.2 [7/8"]

(3) Between main BC controller and sub BC controller (Part C)

Unit: mm [in]

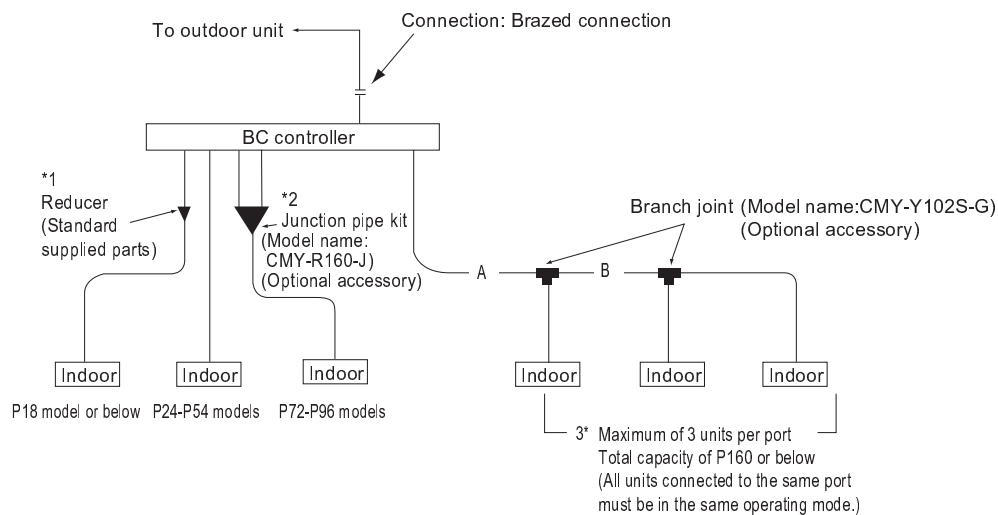
Operation		Indoor unit		
		-P72	P73-P108	P109-P126
Refrigerant pipe size (Brazed connection for all models)	Liquid pipe	ø9.52 [3/8"]		ø12.7 [1/2"]
	High-pressure gas pipe	ø15.88 [5/8"]	ø19.05 [3/4"]	
	Low-pressure gas pipe	ø19.05 [3/4"]	ø22.2 [7/8"]	ø28.58 [1-1/8"]

Select the proper size pipes for the main BC controller based on the total capacity of the indoor units that are connected to both of the sub BC controllers, and for the sub BC controller, on the total capacity of the indoor units that are connected to each sub BC controller.

(Note) Use the piping that is specified in Section "[3] Piping Materials" under "Read Before Servicing".

4. Connecting the BC controller

- (1) Size of the pipe that fits the standard BC controller ports
P72-P126 models



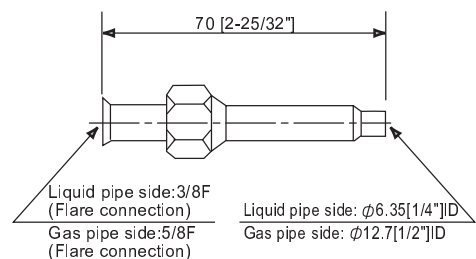
The ports of the BC controller accommodates the pipes on P18-P54 models of indoor units.
 To connect other types of indoor units, follow the procedure below.

Unit: mm [in]

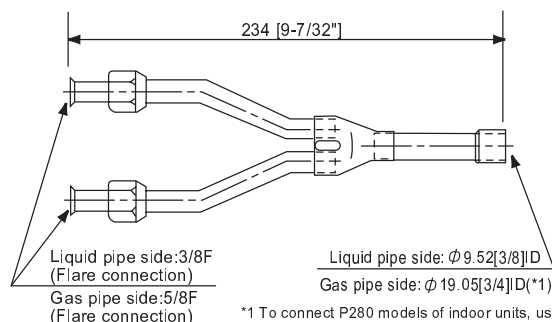
Operation		Pipe sections	
		High-pressure side (gas)	Low-pressure side (gas)
Outdoor unit side	PURY-P72TGMU-A	ø15.88 [5/8"] (Brazed connection)	ø19.05 [3/4"] (Brazed connection)
	PURY-P96TGMU-A PURY-P108TGMU-A	ø19.05 [3/4"] (Brazed connection)	ø22.2 [7/8"] (Brazed connection)
	PURY-P126TGMU-A		ø28.58 [1-1/8"] (Brazed connection)
Indoor unit side		ø9.52 [3/8"] (Flare connection)	ø15.88 [5/8"] (Flare connection)

* Standard BC controllers can only be connected to P72-126 models of outdoor units.

- 1) To connect P06-P18 models of indoor units use the reducer that is supplied with the BC controller.
- 2) To connect P72 or P96 models of indoor units (or when the total capacity of indoor units exceeds P55), use a junction pipe kit (model name: CMY-R160J) and merge the two nozzles.



Note) Use the flare nut that is supplied with the BC controller.



*1 To connect P280 models of indoor units, use the $\phi 22.2 [7/8"]$ ID reducer that is supplied.

Supplied with a thermal insulation cover

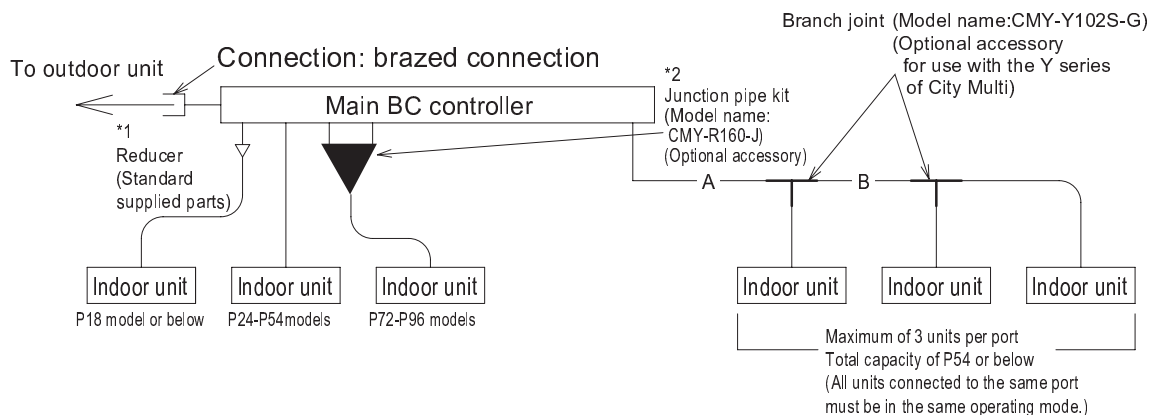
- 3) To connect multiple indoor units to a port (or to a junction pipe)
 - Maximum total capacity of connected indoor units: P54 or below (in a system with a junction pipe: P96 or below)
 - Maximum number of connectable indoor units: 3 units
 - Branch joint: Use CMY-Y102S-G (optional accessory).
 - Refrigerant pipe selection (size of the pipes in sections A and B in the figure above): Select the proper size pipes based on the total capacity of the downstream indoor units, using the table below as a reference.

Unit: mm [in]

Total capacity of indoor units	Liquid pipe	Gas pipe
P54 or below	$\phi 9.52 [3/8"]$	$\phi 15.88 [5/8"]$
P55-P72		$\phi 19.05 [3/4"]$
P73-P96		$\phi 22.2 [7/8"]^{*1}$

*1. Use the pipe that is supplied.

(2) Size of the pipe that fits the main BC controller ports
P72-P234 models



The ports of the BC controller accommodates the pipes on P24-P54 models of indoor units. To connect other types of indoor units, follow the procedure below.

- To connect P06-P18 models of indoor units use the reducer that is supplied with the BC controller.
- To connect P72 or P96 models of indoor units (or when the total capacity of indoor units exceeds P55), use a junction pipe kit (model name: CMY-R160J) and merge the two nozzles.
- To connect multiple indoor units to a port (or to a junction pipe)
 - Maximum total capacity of connected indoor units: P54 or below (in a system with a junction pipe: P96 or below)
 - Maximum number of connectable indoor units: 3 units
 - Refrigerant pipe selection (size of the pipes in sections A and B in the figure above): Select the proper size pipes based on the total capacity of the downstream indoor units, using the table below as a reference.

Unit: mm [in]

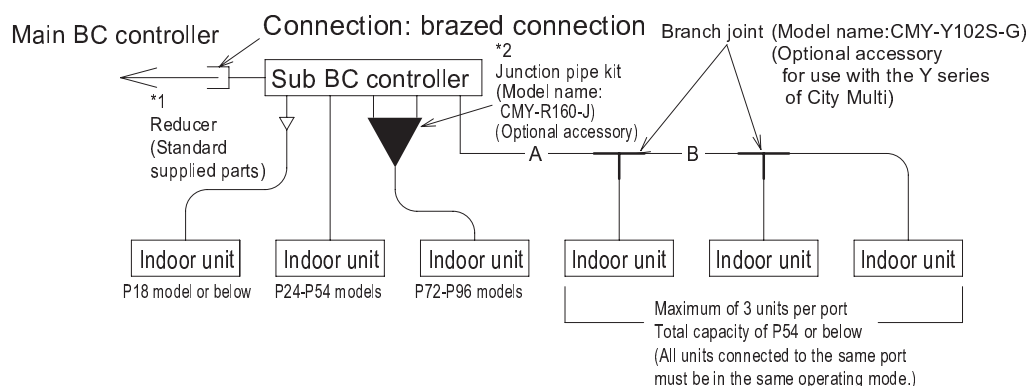
Total capacity of indoor units	Liquid pipe	Gas pipe
P54 or below	ø9.52 [3/8"]	ø15.88 [5/8"]
P55-P72		ø19.05 [3/4"]
P73-P96		ø22.2 [7/8"] ^{*1}

*1. Use the pipe that is supplied.

Unit: mm [in]

Operation		Pipe sections	
		High pressure side	Low-pressure side
Outdoor unit side	PURY-P72TGMU-A	ø15.88 [5/8"] (Brazed connection)	ø19.05 [3/4"] (Brazed connection)
	PURY-P96TGMU-A	ø19.05 [3/4"] (Brazed connection)	ø22.2 [7/8"] (Brazed connection)
	PURY-P108TGMU-A		ø28.58 [1-1/8"] (Brazed connection)
	PURY-P126TGMU-A		
	PURY-P144TGMU-A	ø22.2 [7/8"] (Brazed connection)	ø28.58 [1-1/8"] (Brazed connection)
	PURY-P168TGMU-A		
	PURY-P192TGMU-A		
	PURY-P204TGMU-A	ø28.58 [1-1/8"] (Brazed connection)	
	PURY-P216TGMU-A		
	PURY-P234TGMU-A		
Indoor unit side		ø9.52 [3/8"] (Flare connection)	ø15.88 [5/8"] (Flare connection)

(3) Size of the pipe that fits the sub BC controller ports
P72-P234 models



The ports of the BC controller accommodates the pipes on P24-P54 models of indoor units. To connect other types of indoor units, follow the procedure below.

- 1) To connect P06-P18 models of indoor units use the reducer that is supplied with the BC controller.
- 2) To connect P72 or P96 models of indoor units (or when the total capacity of indoor units exceeds P55), use a junction pipe kit (model name: CMY-R160J) and merge the two nozzles.
- 3) To connect multiple indoor units to a port (or to a junction pipe)
 - Maximum total capacity of connected indoor units: P54 or below (in a system with a junction pipe: P96 or below)
 - Maximum number of connectable indoor units: 3 units
 - Refrigerant pipe selection (size of the pipes in sections A and B in the figure above): Select the proper size pipes based on the total capacity of the downstream indoor units, using the table below as a reference.

Unit: mm [in]

Total capacity of indoor units	Liquid pipe	Gas pipe
P54 or below	ø9.52 [3/8"]	ø15.88 [5/8"]
P55-P72		ø19.05 [3/4"]
P73-P96		ø22.2 [7/8"] ^{*1}

*1. Use the pipe that is supplied.

Unit: mm [in]

Operation		Pipe sections		
	Total capacity of the indoor units that are connected to the BC controller in question	High-pressure side (gas)	Low-pressure side (gas)	Liquid pipe side
On the BC controller side	P72 model or below	ø15.88 [5/8"] (Braze connection)	ø19.05 [3/4"] (Braze connection)	ø9.52 [3/8"] (Braze connection)
	P73-P108 models	ø19.05 [3/4"] (Braze connection)	ø22.2 [7/8"] (Braze connection)	
	P109 model or above		ø28.58 [1-1/8"] (Braze connection)	ø12.7 [1/2"] (Braze connection)

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