

Job Name:

Schedule Reference:

Date:



VRF HEAT PUMP WITH HEAT RECOVERY SYSTEM

**UNIT OPTION**

- Standard Model ..... PQR-Y-P312TSLMU-A1

**ACCESSORIES**

- Twinning Kit ... (Required - sold separately) ..... CMY-Q200CBK
- BC Controller Main ..... CMB-P108/1010/1013/16NU-GA1
- BC Controller Main ..... CMB-P108/1010NU-HA1 / 16NU-HA1
- BC Controller Sub ..... CMB-P104/108NU-GB1 / 1016NU-HB1
- Joint Adapter (Port Connector > 54,000 Btu/h) ..... CMY-R160C-J1
- T-Branch Joint ( $\leq 72,000$  Btu/h) ..... CMY-Y102SS-G2
- T-Branch Joint (73,000 - 144,000 Btu/h) ..... CMY-Y102LS-G2
- T-Branch Joint (145,000 - 234,000 Btu/h) ..... CMY-Y202S-G2
- T-Branch Joint ( $\geq 235,000$  Btu/h) ..... CMY-Y302S-G2

Unit Type		PQR-Y-P312TSLMU-A1	PQR-Y-P168TLMU-A1	PQR-Y-P144TLMU-A1
Nominal Cooling Capacity	Btu/h	312,000	168,000	144,000
Nominal Heating Capacity	Btu/h	350,000	188,000	160,000
External Dimensions (H x W x D)	In. / mm	Refer to Module Data	57-1/8 x 34-11/16 x 21-11/16 / 1,450 x 880 x 550	57-1/8 x 34-11/16 x 21-11/16 / 1,450 x 880 x 550
Net Weight	Lbs. / kg	958 / 434	479 / 217	479 / 217
Electrical Power Requirements	Voltage, Phase, Hertz	Refer to Module Data**	208/230V, 3-phase, 60Hz	
Cooling Power Input	kW	23.41	Refer to System Data	
Heating Power Input	kW	19.11		
Cooling Current (208/230V)	A	72.1 / 65.2	Refer to System Data	
Heating Current (208/230V)	A	58.9 / 53.3		
Minimum Circuit Amp. (MCA)** (*)	A	Refer to Module Data**	44 / 39**	35 / 32**
Maximum Fuse Size**	A	Refer to Module Data**	70 / 70**	60 / 50**
<b>Circulating Water (quality must meet regulations)</b>				
Flow Rate	GPM / L/s	63.4 / 4	31.7 / 2	31.7 / 2
Pressure Drop	psi	12.76	6.38	6.38
Operation Volume Range	GPM / L/s	39.6 - 101.8 / 2.6 - 6.4	19.8 - 50.9 / 1.3 - 3.2	19.8 - 50.9 / 1.3 - 3.2
Maximum Water Pressure	MPa / psi	4 / 580	2 / 290	2 / 290
Water-source Connections (Each for Inlet and Outlet)	In.	Refer to Module Data**	NPT1-1/2 Screw (Install strainer (more than 50 meshes) at water inlet piping of the unit)	
<b>Piping Diameter</b>				
From Twinning Kit to Indoor Units (Brazed) (In. / mm)	Liquid (High Pressure)	1-1/8 / 28.58	Refer to System Data	
	Gas (Low Pressure)	1-3/8 / 34.93		
From Modules to Twinning Kit (Brazed) (In. / mm)	Liquid (High Pressure)	Refer to Module Data	7/8 / 22.2	7/8 / 22.2
	Gas (Low Pressure)		1-1/8 / 28.58	
Indoor Unit	Total Capacity	50 to 150% of WSUs	Refer to System Data	
	Model / Quantity	P06 ~ P96 / 2 to 50		
Sound Pressure Levels	dB(A)	58	56	54
Compressor Operating Range		9- 100%	Refer to System Data	
Compressor Type x Quantity		Refer to Module Data	Inverter-driven Scroll Hermetic x 1	Inverter-driven Scroll Hermetic x 1
Compressor Motor Output	kW		11.0	9.5
Compressor Crankcase Heater	kW		-	-
Refrigerant		Refer to Module Data	R410A	
Lubricant			MEL32	
High-pressure Protection Device		Refer to Module Data	601 psi / 4.15 MPa	601 psi / 4.15 MPa
Compressor / Fan Protection Device			Overheat Protection	Overheat Protection
Inverter Protection Device			Overheat / Overcurrent Protection	Overheat / Overcurrent Protection

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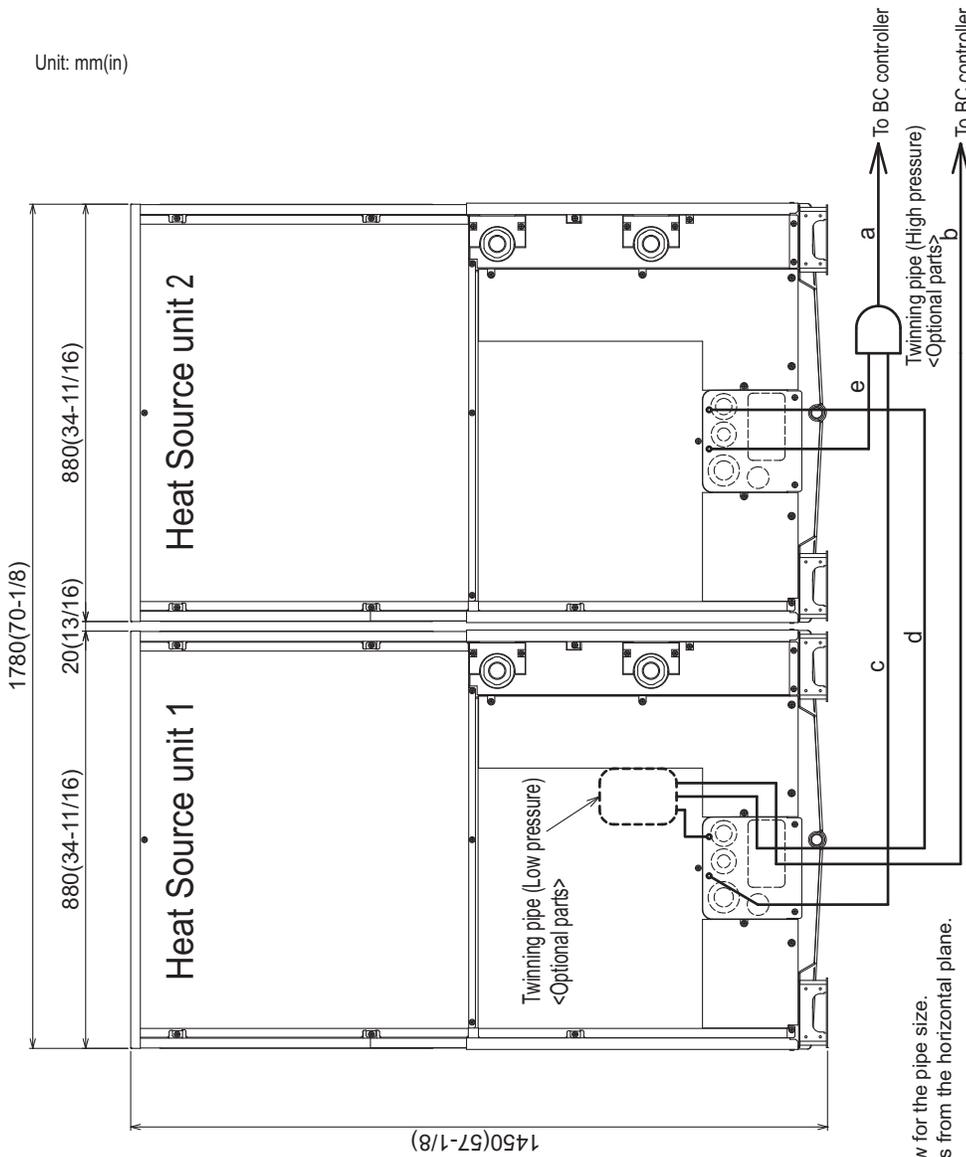
Note: Mitsubishi Electric (MESCA) supports the use of only MESCA supplied and approved accessories for proper functioning of the unit(s). Use of non-MESCA supported accessories will affect warranty coverage.



Specifications are subject to change without notice.

\* All electrical work shall comply with National (CEC) and local codes and regulations.

Unit: mm(in)



- Note 1. Connect the pipes as shown in the figure above. Refer to the table below for the pipe size.  
 2. Twinning pipe (High pressure) should not be tilted more than 15 degrees from the horizontal plane.  
 3. See the Installation Manual for the details of Twinning pipe installation.  
 4. Only use the Twinning pipe by Mitsubishi (optional parts).

**Twinning pipe connection size**

Package unit name	PQRYP288TSLMU-A1   PQRYP312TSLMU-A1   PQRYP336TSLMU-A1
Component unit name	Heat Source unit 1   PQRYP144TLMU-A1   PQRYP168TLMU-A1   PQRYP168TLMU-A1 Heat Source unit 2   PQRYP144TLMU-A1   PQRYP144TLMU-A1   PQRYP168TLMU-A1
Twinning pipe Kit (optional parts)	CMY-Q200CBK
High pressure/ a	ø28.58(1-1/8)
Low pressure/ b	ø34.93(1-3/8)
BC controller	ø41.28(1-5/8)

Twinning pipe-Heat source unit	Unit model	
	High pressure c or e	Low pressure d
P144	ø22.2(7/8)	ø28.58(1-1/8)
P168		

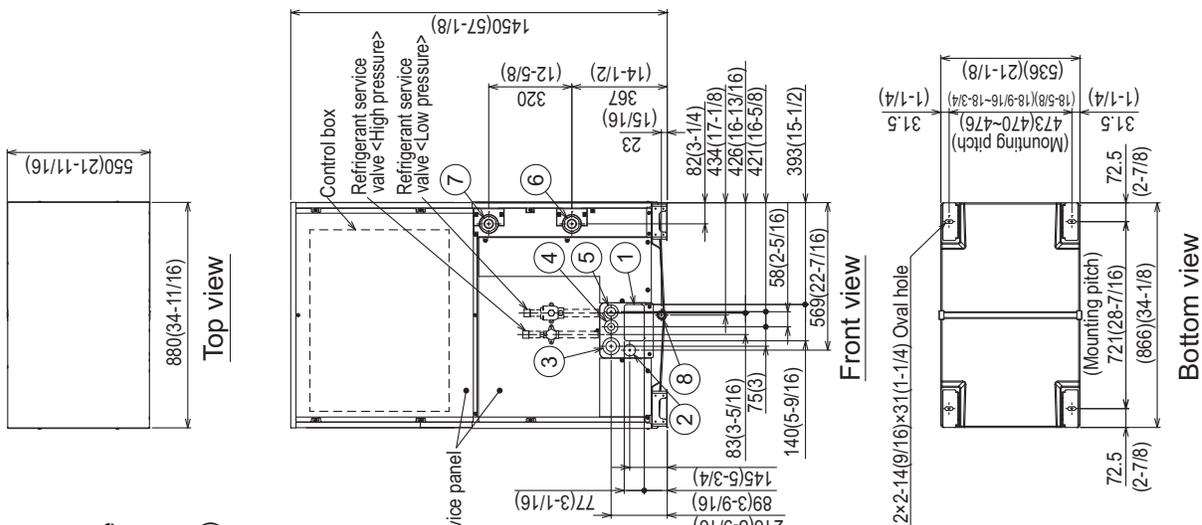
# Modules: 1 : PQRYP144TLMU-A1 - DIMENSIONS

Unit: mm(in)

<Accessories>

- Refrigerant (high pressure) conn. pipe..... 1pc. (P144/P168/P192 ; Packaged in the accessory kit)
- Refrigerant (low pressure) conn. pipe..... 1pc. (P144/P168/P192 ; Packaged in the accessory kit)
- Water stopper..... 1pc. (P144/P168/P192 ; Packaged in the accessory kit)
- Sealing material for water stopper..... 1pc. (P144/P168/P192 ; Packaged in the accessory kit)
- Sealing material for field piping (high pressure, low pressure)..... 1pc. each (P144/P168/P192 ; Packaged in the accessory kit)
- Sealing material for drain socket..... 1pc. (P144/P168/P192 ; Packaged in the accessory kit)
- Pipe cover for low pressure..... 1pc. (P144/P168/P192 ; Packaged in the accessory kit)
- Sealing material for base leg (two types)..... 4pc. each (P144/P168/P192 ; Packaged in the accessory kit)
- Sealing material for panel..... 1pc. (P144/P168/P192 ; Packaged in the accessory kit)

- Note1. Close a hole of the water piping, the refrigerant piping, the power supply, and the control wiring and unused knockout holes with the putty etc. so as not to infiltrate rain water etc. (field erection work)
- Note2. At the time of product shipment, the front side piping specification serves as the local drainage connection. When connecting on the rear side, please remove the rear side plug sealing corks, and attach a front side. Ensure there is no leak after the attachment has been fitted.
- Note3. Take notice of service space as Fig.A. (In case of single installation, 600mm(23-5/8) or more of back space as front space makes easier access when servicing the unit from rear side.)
- Note4. If water pipes or refrigerant pipes stretch upward, required space for service and maintenance due to replacement of control box is shown in Fig.B.
- Note5. Environmental condition for installation: -20~40°C(DB) (-4~104°F) as indoor installation.
- Note6. In case the temperature around the heat source unit has possibility to drop under 0°C(32°F), be careful for the following point to prevent the pipe burst by the water pipe freeze-up.
- Circulate the water all the time even if the heat source unit is not in operation.
  - Drain the water from inside of the heat source unit when the heat source unit will not operate for a long term.
- Note7. Ensure that the drain piping is downward with a pitch of more than 1/100.
- Note8. At brazing of pipes, wrap the refrigerant service valve with wet cloth and keep the temperature of refrigerant service valve under 120°C(248°F).



NO.	Usage	Specifications
①	Front through hole	140 x 77 Knockout hole (5-9/16) (3-1/16)
②	For pipes	Front through hole (Uses when twinning kit (optional parts) is mounted.) (1-13/16)
③	For wires	Front through hole (2-1/2) or ø34.5 Knockout hole (1-3/8) (1-3/8)
④		Front through hole (1-3/4) or ø22.2 Knockout hole (7/8)
⑤	For transmission cables	Front through hole ø34 Knockout hole (1-3/8)
⑥	Water pipe inlet	NPT1-1/2 Screw
⑦	Water pipe outlet	NPT1-1/2 Screw
⑧	Drain pipe	Rc3/4 Screw

Connecting pipe specifications

Model	Refrigerant pipe		Service valve		Diameter
	High pressure	Low pressure	High pressure	Low pressure	
PQRYP144TLMU-A1	ø25.4 (1-1/8) *1	ø25.4 (1-1/8) *1	ø25.4 (1-1/8) *1	ø25.4 (1-1/8)	ø25.4 (1-1/8)
PQRYP168TLMU-A1	ø25.4 (1-1/8) *1	ø25.4 (1-1/8) *1	ø25.4 (1-1/8) *1	ø25.4 (1-1/8)	ø25.4 (1-1/8)
PQRYP192TLMU-A1	ø25.4 (1-1/8) *1	ø25.4 (1-1/8) *1	ø25.4 (1-1/8) *1	ø25.4 (1-1/8)	ø25.4 (1-1/8)

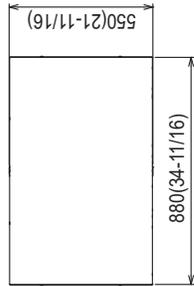
\*1. Connect by using the connecting pipes that are supplied.

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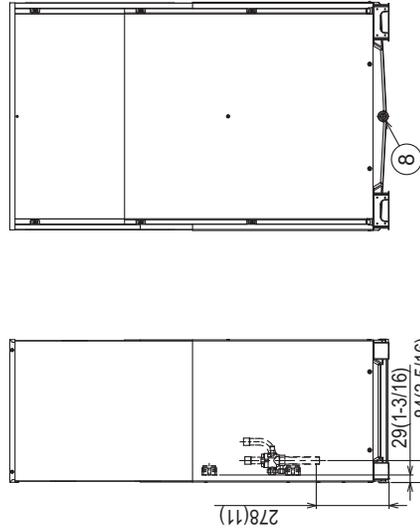
# Modules: 1 : PQRV-P168TLMU-A1 - DIMENSIONS

Unit: mm(in)

- <Accessories>
- Refrigerant (high pressure) conn. pipe.....1pc.  
(P-144/P168/P192 ; Packaged in the accessory kit)
  - Refrigerant (low pressure) conn. pipe..... 1pc.  
(P-144/P168/P192 ; Packaged in the accessory kit)
  - Water stopper..... 1pc.  
(P-144/P168/P192 ; Packaged in the accessory kit)
  - Sealing material for water stopper..... 1pc.  
(P-144/P168/P192 ; Packaged in the accessory kit)
  - Sealing material for field piping (high pressure, low pressure).....1pc. each  
(P-144/P168/P192 ; Packaged in the accessory kit)
  - Sealing material for drain socket..... 1pc.  
(P-144/P168/P192 ; Packaged in the accessory kit)
  - Pipe cover for low pressure..... 1pc.  
(P-144/P168/P192 ; Packaged in the accessory kit)
  - Sealing material for base leg (two types).....4pc. each  
(P-144/P168/P192 ; Packaged in the accessory kit)
  - Sealing material for panel..... 1pc.  
(P-144/P168/P192 ; Packaged in the accessory kit)



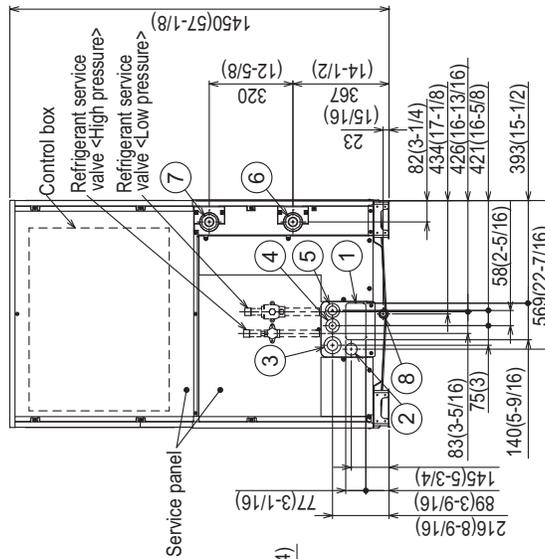
Top view



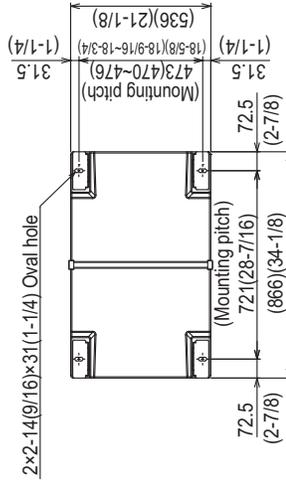
Right side view

Back view

NO.	Usage	Specifications
①	Front through hole	140 x 77 Knockout hole (5-9/16) (3-1/16)
②	For pipes	Front through hole (Uses when wiring kit (optional parts) is mounted.)
③	For wires	Front through hole Front through hole
④	For transmission cables	Front through hole
⑤	Water pipe inlet	Front through hole
⑥	Water pipe outlet	Front through hole
⑦	Drain pipe	Front through hole
⑧		Front through hole



Front view



Bottom view

- Note1. Close a hole of the water piping, the refrigerant piping, the power supply, and the control wiring and unused knockout holes with the putty etc. so as not to infiltrate rain water etc. (field erection work)
- Note2. At the time of product shipment, the front side piping specification serves as the local drainage connection. When connecting on the rear side, please remove the rear side plug sealing corks, and attach a front side. Ensure there is no leak after the attachment has been fitted.
- Note3. Take notice of service space as Fig.A. (In case of single installation, 600mm(23-5/8) or more of back space as front space makes easier access when servicing the unit from rear side.)
- Note4. If water pipes or refrigerant pipes stretch upward, required space for service and maintenance due to replacement of control box is shown in Fig.B.
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- Note6. In case the temperature around the heat source unit has possibility to drop under 0°C(32°F), be careful for the following point to prevent the pipe burst by the water pipe freeze-up.
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- Note7. Ensure that the drain piping is downward with a pitch of more than 1/100.
- Note8. At brazing of pipes, wrap the refrigerant service valve with wet cloth and keep the temperature of refrigerant service valve under 120°C(248°F).

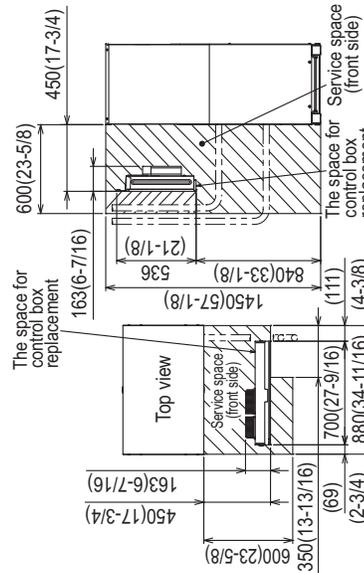


Fig.A

Fig.B

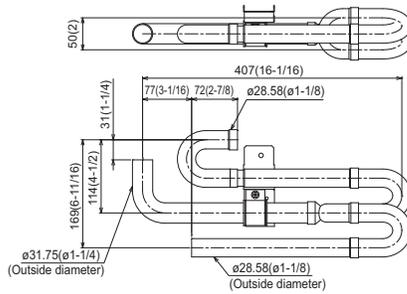
Connecting pipe specifications

Model	Refrigerant pipe		Service valve	
	High pressure	Low pressure	High pressure	Low pressure
PQRV144TLMU-A1	ø25.4 (1)	ø28.58 (1-1/8)	ø25.4 (1)	ø28.58 (1-1/8)
PQRV168TLMU-A1	ø25.4 (1)	ø28.58 (1-1/8)	ø25.4 (1)	ø28.58 (1-1/8)
PQRV192TLMU-A1	ø25.4 (1)	ø28.58 (1-1/8)	ø25.4 (1)	ø28.58 (1-1/8)

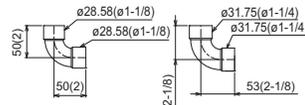
\*1. Connect by using the connecting pipes that are supplied.

# Twining Kit: CMY-Q200CBK

## CMY-Q200CBK Low-pressure pipe twining kit



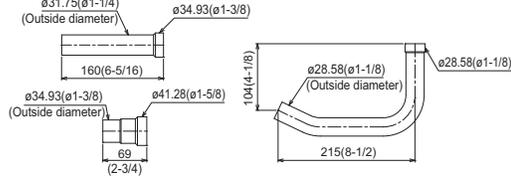
### <Elbow pipe(Accessory)>



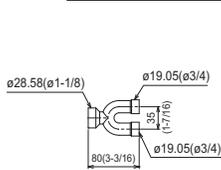
### <Accessory>

Fixing screw	...	1
Insulation cover	...	1
Pipe cover (75mm(3) Length)	...	1
Pipe cover (360mm(14-3/16) Length)	...	1
Pipe cover (70mm(2-13/16) Length)	...	1
Pipe cover (130mm(5-1/8) Length)	...	1
Pipe cover (100mm(3-15/16) Length)	...	1
Pipe cover (160mm(6-5/16) Length)	...	1
Cable tie	...	2
Water stopper	...	1
Sealing material (Small)	...	1
Sealing material (Large)	...	1

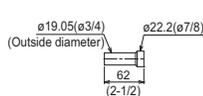
### <Pipe for routing through the front (Accessory)>



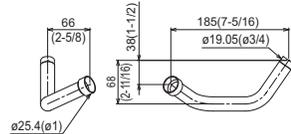
## High-pressure twining pipe



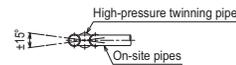
### <Deformed pipe(Accessory)>



### <Pipe for routing through the front (Accessory)>



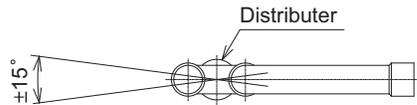
Note 1. Refer to the figure below for the installation position of the high-pressure twining pipe.



Inclination tolerance of the high-pressure twining pipe is  $\pm 15^\circ$  relative to the ground.

2. Pipe diameter is indicated by inside diameter.

Note 1. Reference the attitude angle of the branch pipe below the fig.



The angle of the branch pipe for high pressure is within  $\pm 15^\circ$

- Use the attached pipe to braze the port-opening of the distributor.
- Pipe diameter is indicated by inside diameter.

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## Notes:



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