

Demand Duo Systems

Operation & Installation Manual

Rinnai

Congratulations on the purchase of your Rinnai Demand Duo System. We trust you will have many years of comfort and enjoyment from your appliance.



BEFORE USING THIS APPLIANCE

Before proceeding with the operation or installation read this manual thoroughly and gain a full understanding of the appliance, to ensure safe and correct use.

IMPORTANT NOTICE FOR INSTALLERS

Please leave these instructions with the end user after commissioning of the system and alert the end user of the content sections "Warnings and "Periodic Inspection" and "Maintenance".

Not suitable as a pool or spa heater.

This manual must be read and understood before installation, commissioning and operation of water heaters and flue systems are attempted. The information contained in other Operating / Installation instructions supplied with water heaters applies in full, unless otherwise dictated in this manual.

This appliance must be installed in accordance with:

- Manufacturer's Installation Instructions
- Current AS/NZS 3000, AS/NZS 3500, AS/NZS 5601
- Plumbing Code of Australia (PCA)
- Local Regulations and Municipal Building Codes including local OH&S requirements

This appliance must be installed, maintained and removed **ONLY** by an Authorised Person.

For continued safety of this appliance it must be installed and maintained in accordance with the manufacturer's instructions.



The Australian
Gas Association
All Rinnai gas products
sold in Australia
are A.G.A. certified.



Certified
Product



WaterMark
AS3498 Lic W169
SAI Global

Certified
Product



WaterMark
AS3498 Lic W208
SAI Global

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WARNINGS & SAFETY



READ ALL INSTRUCTIONS BEFORE USING THE APPLIANCE.

Always comply with the following precautions to avoid dangerous situations and to ensure optimum performance.

Failure to carefully read and follow all instructions in this manual can result in equipment malfunction, property damage, personal injury and/or death.

DANGER: Indicates an imminently hazardous situation which, if not avoided, will result in personal injury or death.

WARNINGS: Indicates a potentially hazardous situation which, if not avoided, could result in personal injury or death.

CAUTIONS: Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury or damage to the appliance. It may also be used to alert against unsafe practices.



REGULATORY INFORMATION

This appliance shall be installed in accordance with these instructions and all regulatory requirements which exist in your area including those in relation to manual lifting, working at heights and on roofs. Applicable publications and regulations may include:

- AS/NZS 3500 National Plumbing and Drainage, AS/NZS 3000 Wiring rules, AS/NZ 5601 Gas Installations & Building Codes of Australia (BCA)
- Local Occupational Health and Safety (OH&S) regulations
- Local Regulations and Municipal Building Codes

DO NOT operate this system before reading the manufacturers instructions.

This appliance must be installed, commissioned and serviced by an authorised person in accordance with all applicable local rules and regulations.

For continued safety of this appliance it must be installed, operated and maintained in accordance with the manufacturer's instructions.

This appliance is heavy, use 2 people or mechanical lifting device. Improper lifting may result in serious injury.

DO NOT modify the electrical wiring of this appliance. If the control power wiring is damaged or deteriorated then it must be replaced only by an authorised person. Failure to do so may result in electric shock, fire, serious injury or product failure.

Care should be taken not to touch the pipe work as it may be HOT!

DO NOT place articles on or against this appliance.

DO NOT store chemicals or flammable materials near this appliance.

DO NOT operate with panels, covers or guards removed from this appliance.

DO NOT remove covers while power is on.

DO NOT enclose this appliance.

DO NOT activate pump unless cylinder is full of water.

Not suitable as a pool or spa heater.

All Rinnai Demand Duo (DD) systems and components are Watermark Certified by SAI Global as applicable.

The Rinnai DD1 model is certified as a gas storage water heater by the Australian Gas Association (AGA).

AGA Certification applies to DD1 models only. AGA Certification does not apply to other DD models in this manual.

All dimensions referred to in these instructions are in millimetres, unless otherwise specified.



A NOTE ON ILLUSTRATIONS

The illustrations used in this manual are for explanatory purposes only and the shape of your unit may vary slightly from that which is shown in this manual.



MANDATORY INSPECTION PRIOR TO INSTALLATION

Immediately report any damage or discrepancies to the Supplier of the appliance. This appliance was inspected and tested at the time of manufacture and packaging, and released for transportation without known damage. Upon receipt, inspect the exterior for evidence of rough handling in shipment. Ensure that the appliance is labelled correctly for the gas and electrical supply, and/or other services it is intended to be connected to.

For safety and warranty purposes, appliances that may be damaged or incorrect must not be installed or operated under any circumstances. Installation of damaged or incorrect appliances may contravene local government regulations. Rinnai disclaims any liability or responsibility whatsoever in relation to the installation or operation of damaged or incorrect appliances.

NOTICE TO VICTORIAN CONSUMERS



This appliance **MUST** be installed by a person licensed with the Victorian Building Authority.

ONLY a licensed person will have insurance protecting their workmanship.

Make sure you use a licensed person to install this appliance and ask for your Compliance Certificate.

For further information contact the Victorian Building Authority on 1300 815 127

SAFETY



This appliance is **NOT** intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they **DO NOT** play with the appliance.

Any power leads from the water heater system components **MUST** be plugged into an external weatherproof electrical outlet. If the power supply cord of the system is damaged, it **MUST** be replaced by an authorised person in order to avoid a hazard, using genuine replacement parts available from Rinnai. Take care of not to touch the power plugs with wet hands.

If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

DO NOT touch the unit cover or the flue outlet.

DO NOT insert objects into the flue outlet.

DO NOT spray water directly into the flue outlet.

Keep, trees, shrubs, etc. well clear of the flue outlet.

On colder days steam may discharged from the flue outlet. This condition is normal for high efficiency appliances and does not indicate a fault.

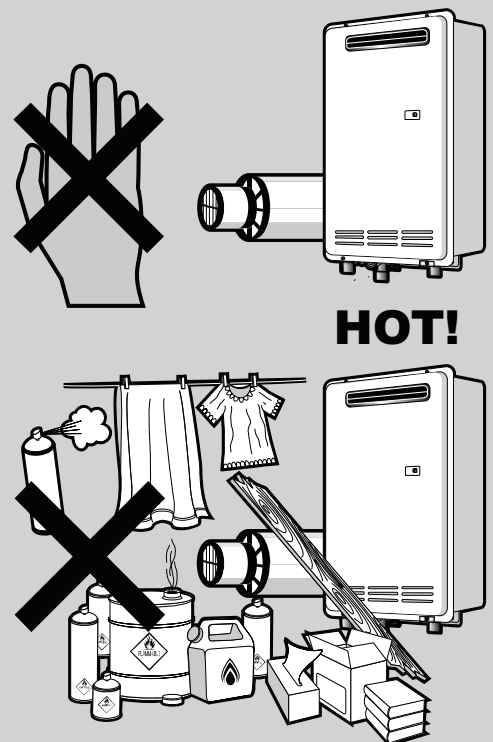
DO NOT Spray aerosols in the vicinity of this appliance while it is in operation.

DO NOT use or store flammable materials in or near this appliance.

DO NOT place articles on or against this appliance.

DO NOT modify this appliance.

DO NOT store pool chemicals near this appliance.



Hydrogen Gas

If the hot water heater is not used for two weeks or more, a quantity of hydrogen gas, which is highly flammable, may accumulate in the water heater. To dissipate this safety, it is recommended that a non electrically operated hot tap be turned on for several minutes at a sink, or bath, but not a dishwasher or other appliance. During this procedure there must be no smoking, open flame or any electrical appliance operating nearby. If hydrogen gas is discharged through the tap, it will probably make a sound like air escaping.

Water Temperature

To meet regulatory requirements the temperature of stored water **MUST NOT** be less than 60°C. The thermostat on your storage tank is factory pre-set to 65°C. The outlet temperature setting of the gas continuous flow heater is factory pre-set to 75°C.



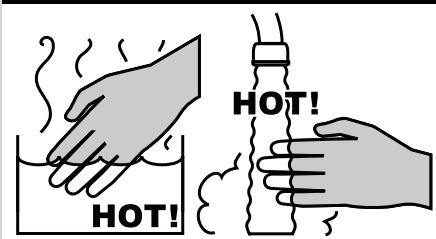
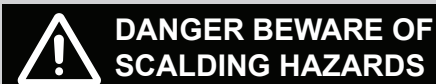
This appliance may deliver water at high temperature. Refer to the Plumbing Code of Australia (PCA), local requirements and installation instructions to determine if additional delivery temperature control is required.



The thermostat setting must only be adjusted by an Electrician or other suitably qualified trades person.

The access cover to the element and thermostat must only be removed by an Electrician or other suitably qualified trades person.

SCALD HAZARDS



Hot Water can cause scalds.

Children, disabled, and the elderly are at the highest risk of being scalded.

Feel water temperature before bathing or showering.

Scalds from hot water taps can result in severe injuries to young children.

Scalds can occur when children are exposed directly to hot water when they are placed into a bath which is too hot.

Always.....

Test the temperature of the water with your elbow before placing your child in the bath, also carefully feel water before bathing or showering yourself.

Supervise children whenever they are in the bathroom.

Make sure that the hot water tap is turned off tightly.

Consider.....

Installing child proof tap covers or child resistant taps (both approaches will prevent a small hand being able to turn on the tap).

Installing tempering valves or thermostatic mixing valves which reduce the hot water temperature delivered to the taps. Your local plumbing authority may already require that these be fitted. Contact your installer or local plumbing authority if in doubt.

Never....

Leave a toddler in the care of another child. They may not understand the need to have the water temperature set at a safe level.

IMPORTANT INFORMATION

SAFETY DEVICES

For safe operation this water heater is fitted with a combination Pressure & Temperature Relief Valve, a thermostat and an over-temperature cut out on each heater.



DO NOT tamper with or remove safety devices.

DO NOT operate this water heater unless all safety devices are fitted and in working order.

The operation of the thermal cut out indicates a possibly dangerous situation. **DO NOT** reset the thermal cut out until the water heater has been serviced by a qualified person.

Pressure & Temperature Relief (PTR) Valve

This valve is located near the top of the water heater and is essential for safe operation.



DO NOT seal or block the outlet of the PTR valve or its drain pipe.

DO NOT replace the PTR valve with one that has a higher pressure rating than is specified for the water heater.

The PTR valve should be checked for performance or replaced at intervals not exceeding 5 years, or more frequently in areas with a high incidence of water deposits by a qualified person. The easing gear must be operated at least once every six months or more frequently in areas with a high incidence of water deposits.

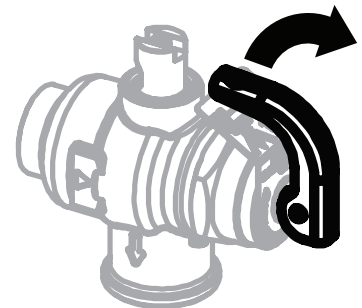


Failure to do this may result in the water heater cylinder failing or under certain circumstances, exploding. Water discharged will be very hot. Exercise care to avoid scald injury. If the valve does not seal again when the easing gear is closed, contact Rinnai to arrange inspection by a qualified person.

It is important you raise and lower the easing gear gently. If the valve does not discharge water when the easing gear lever is lifted, there may be a serious problem and the power supply in the meter box (the switch marked 'Water heater' or 'hot water') or the isolating switch installed near the water heater must be switched off immediately. Contact Rinnai to arrange inspection by a qualified person.

It is normal for the PTR valve to release a small quantity of water through the drain pipe during heating. If the valve dribbles or leaks continuously, try easing the valve gear for a few seconds. This may dislodge any foreign matter and stop leakage. If leakage does not stop there may be a problem as detailed below:

- If there are heavy flows of water until the water heater is cold which then stops until the water reheats there may be a serious problem and the power supply in the meter box (the switch marked 'Water heater' or 'hot water') or the isolating switch installed near the water heater must be switched off immediately. Contact Rinnai to arrange inspection by a qualified person.
- If there is a steady flow for long periods, often at night, it may be as a result of the water pressure exceeding the design pressure of the water heater. Contact your installing plumber as a Pressure Limiting Valve (PLV) may be required.



Gently lift lever until water flows from drain line, lower lever gently to close

Expansion Control Valve (ECV)

An ECV is recommended in all geographical areas where the water supply has a tendency to cause scaling, including South Australia and Western Australia. Local regulatory authorities may require that an ECV be fitted. The ECV is to be supplied and fitted by the installer. Refer to the section Water Quality for more information on scaling water.

If an ECV is fitted, operate the easing gear at least once every six months to remove any deposits and to verify that it is not blocked.

The ECV should be checked for performance or replaced at intervals not exceeding 5 years, or more frequently in areas with a high incidence of water deposits by a qualified person.

It is normal and desirable that the ECV allows a small quantity of water to be discharged through the drain pipe during the heating cycle. If the valve dribbles or leaks continuously, operate the easing gear for a few seconds. This may dislodge any foreign matter and stop leakage. If leakage does not stop Contact Rinnai to arrange inspection by a qualified person.

CARE & MAINTENANCE

WATER QUALITY

The water quality of most public supplies is suitable for the water heating system. The water quality from bore wells is generally unsuitable for the water heating system. Refer to the 'Warranty Conditions' for water quality parameters and how they affect the warranty conditions. If in doubt about the water quality, have it checked against the parameters listed in the warranty conditions. If sludge or foreign matter is present in the water supply, a suitable strainer filter should be incorporated in the water supply to the system.

DRAINING



Draining **MUST** be carried out by a qualified person.

Water may be **HOT** during draining.

Drain the water heater as follows:

1. Isolate or turn 'OFF' the water heater at the electricity supply.
2. Close the cold water isolation valve at the inlet to the water heater.
3. Close all hot water taps.
4. Operate the PTR valve easing gear - gently. Operating the PTR valve easing gear will relieve the pressure in the water heater.
5. Undo the cold water inlet union. Attach a hose to the water heater side of the union. Let the other end of the hose go to a drain.
6. Operate the PTR valve easing gear again. This allows air into the water heater and will result in water draining through the hose.

PERIODIC MAINTENANCE & SERVICING

Rinnai service network personnel are fully trained and equipped. If your Rinnai appliance requires servicing contact Rinnai as per the details on the back page of this manual. Rinnai recommends that this commercial appliance be inspected and serviced by a qualified person every 12 months.

If overflow tray and drain are fitted, it is the users responsibility to have these checked periodically to ensure there are no blockages.

The user should operate the easing gear of the ECV and PTR valve (if fitted) every 6 months as described under "Safety Devices" on page 7.

The pressure and temperature relief valve and expansion control valve **MUST** be checked for performance or replaced by an authorised person at intervals not exceeding 5 years or more frequently in areas where the water is classified as scaling water (see 'Water Quality').

If the electric conduit, power supply cord or plug to hot water system is damaged, they **MUST** be replaced by an authorised person in order to avoid a hazard. The power supply cord and plug must be replaced by a genuine replacement part available from Rinnai.

SAVE A SERVICE CALL

Check the items below before requesting a service. Service and parts charges may be incurred where it is found that there is no fault with the water heater and the issue is related to the plumbing installation or is due to the failure of water or electric supplies.

Insufficient or no hot water	
Is the electricity supply connected?	Check that the isolating switch marked "HOT WATER" or "WATER HEATER" at the meter box is switched on. Check also that any isolating switches installed near the water heater are switched on.
	Check the fuse or circuit breaker marked "HOT WATER" or "WATER HEATER" at the meter box. Repeated failure of fuse or tripping of circuit breaker indicates a fault which must be investigated by an authorised trades person.
Is there insufficient gas supply for gas heater(s)?	Check gas is available and turned 'ON'.
	Check the isolation valve in the gas line is opened.
	Refer to your plumber to ensure the gas line has been purged of air after installation.
Are you using more hot water than you think?	Often end users are surprised at the amount of hot water used, especially when showering. If the amount of hot water used during the day exceeds the storage capacity of the hot water system, it is likely that there will be insufficient hot water. Has your plumber install water saving fixture and/or flow control or pressure limiting valves to reduce consumption.
Thermostat settings?	Check the temperature of hot water delivered with a thermometer placed under the closest outlet (usually the kitchen sink) on a non-tempered hot water line. The temperature of the water delivered should be at least 55°C (allowing for heat losses in pipe work). If this is not the case, the temperature may need to be increased. Contact your installer or Rinnai to discuss adjusting the thermostat.
No water from the hot tap?	Restriction in the hot tap or failure of the cold water supply to the heater. Check for water flow at the other hot taps and that the cold water isolation valve is fully open.

INSTALLATION INSTRUCTIONS

These instructions apply to the Demand Duo range of Rinnai water heaters:

Models Covered

DD1 200 (external or internal) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD1 210 (external or internal) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD1 250 (external) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD1C 211 (external or internal) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD2 200 (external or internal) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD2 210 (external or internal) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD2 250 (external) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD2C 211 (external or internal) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD3 200 (external or internal) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD3 210 (external or internal) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD3 250 (external) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD3C 211 (external or internal) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD4 200 (external or internal) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD4 210 (external or internal) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD4 250 (external) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD4C 211 (external or internal) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD5 200 (external or internal) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD5 210 (external or internal) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD5 250 (external) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD5C 211 (external or internal) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD6 200 (external or internal) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD6 210 (external or internal) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD6 250 (external) 250 or 315 (litre tank) N or L (Natural gas or LPG)
DD6C 211 (external or internal) 250 or 315 (litre tank) N or L (Natural gas or LPG)

REGULATIONS

For continued safety of this appliance it must be installed, operated and maintained by authorised person in accordance with manufacturer's instructions, current with AS/NZS 3500 and AS/NZS 5601, local regulations and municipal building codes.

Rinnai Demand Duo hot water systems are not suitable or approved as pool heater.

Read these instructions carefully before proceeding with the installation.

APPLIANCE LOCATION

Ensure reasonable access for installation, servicing and removal. All valves, controls and pumps etc must be easily accessible.

Rinnai Demand Duo tanks and any free standing frames must be mounted on a solid level base, capable of supporting the weight of the appliance when full of water. Ensure components are not allowed to stand in water. Spacers under the tank are recommended in wet areas.

All Demand Duo tanks are "left handed" with the water connections to the left when viewing the thermostat housing from the front.

These systems are combined with Rinnai HD series, HD200e (VRM-2632WC), HD200i (VRM-2632FFUC), HD250e (VRM-3237WC), HDC211e (KM3237WDC), HDC211i (KM3237FFUDC), HD210e (N3237WC) and HD210i (N3237FFC).

Rinnai HD units are fan assisted appliances and thus have lower clearances than a natural draft appliance of the same MJ rating.

HD200E, HD250E, HDC211E, HD210E (EXTERNAL MODELS)

This appliance is designed for 'Outdoor' Installation only. As such, it must be located in an above ground open air situation with natural ventilation, without stagnant areas, where gas leakage and products of combustion are rapidly dispersed by wind and natural convection.

This appliance must be mounted on a vertical structure with the water and gas connections on the underside pointing downwards. For appliances installed on elevated structures or under floors specific requirements apply. Refer to AS/NZS 5601 Section 6 for details.

This appliance must not be used as a domestic spa or swimming pool heater.

Location of the appliance flue terminal must be in accordance with Section 6 and Figure 6.2 of AS/NZS 5601. Figure 6.2 is reproduced in the 'Horizontal Flue Terminal Clearances' section of these instructions.



AS/NZS 5601 is current at the time of printing. It is the installers' responsibility to ensure current requirements are met.

HD200I, HDC211I, HD210I (INTERNAL MODELS)

This appliance is designed for 'Indoor' installation only. It may be installed 'Outdoors' in an enclosure if the requirements of AS/NZS 5601 Section 6 are satisfied. An enclosure is defined as a compartment, enclosed or partitioned off space primarily used for the installing of the appliance.

If installed in an enclosure either Internally or Externally, the location should be ventilated to allow gas to dissipate and provision must be made for the safe disposal of any leaking water to a visible location.

This appliance must not be used as a domestic spa or swimming pool heater.

Two types of flue systems are available:

The Rinnai Commercial Common Flue System. This system is certified and suitable for use with Rinnai non-condensing internal commercial continuous flow water heaters.

The Rinnai Co-Axial FFU flue system. This system is certified and suitable for use with Rinnai condensing and non-condensing internal commercial continuous flow water heaters.

Non-Condensing models are:

REU-V2632FFUC, REU-VM2632FFUC and REU-VRM2632FFUC.

Condensing models are:

REU-KM3237FFUD and REU-KM3237FFUDC, REU-N3237WC and REU-N3237FFUC.

The use of non Rinnai flue components may result in a dangerous situation and violates regulations.

The appliance(s) must be located so that the flue terminal exits the building at a suitable point.

For detailed information refer to "FLUEING FOR INTERNAL MODELS" on page 14.

This appliance must be located so that the flue terminal exits the building at a suitable point.

If a horizontal (wall) terminal FF WALL TERM is used, the location must be in accordance with Section 6 and Figure 6.2 of AS/NZS 5601. Figure 6.2 is reproduced under 'HORIZONTAL FLUE TERMINAL CLEARANCES' on page 13 of this manual.

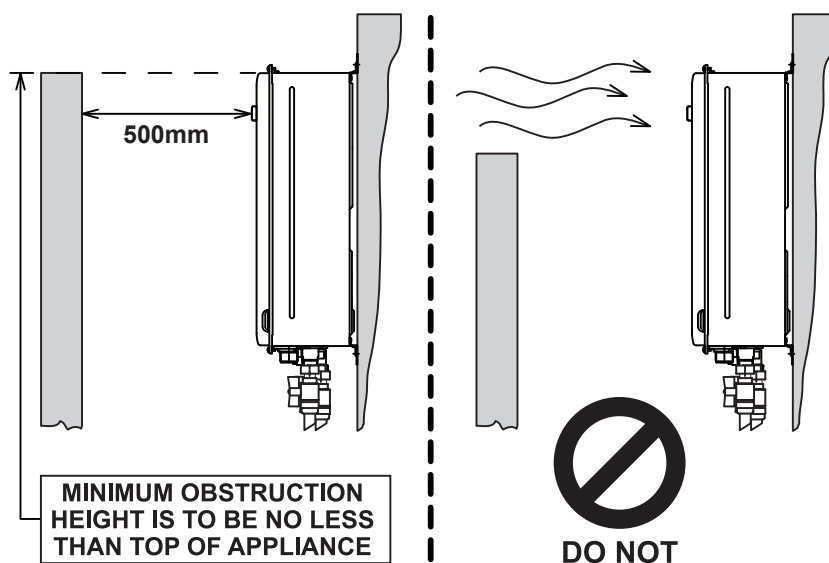
If a vertical (roof) terminal FF ROOF COWL is used, the location must be in accordance with Section 6 of AS/NZS 5601 and the 'FLUEING FOR INTERNAL MODELS' on page 13.

HORIZONTAL OBSTRUCTIONS

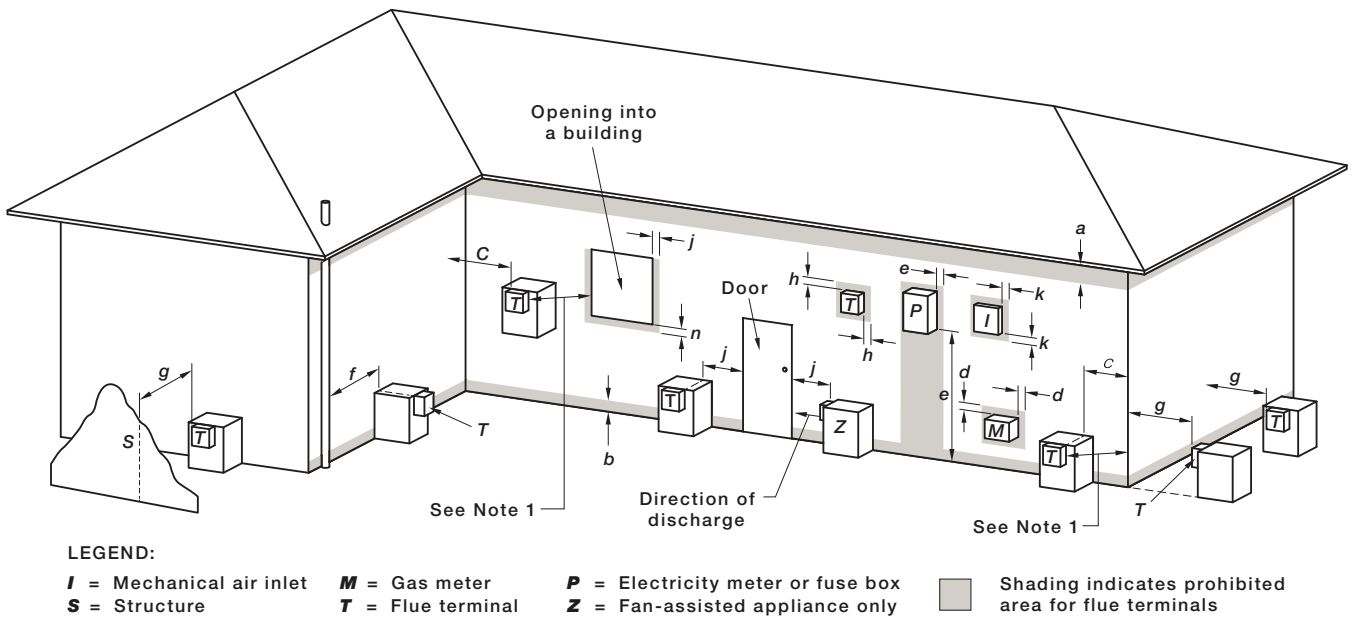
AS/NZS 5601-2010 'Gas Installations' stipulates a minimum horizontal clearance of 500mm between a building structure and obstruction facing the terminal.

For Rinnai External continuous flow water heaters such a building structure must 'obstruct' the full front cover height of the appliance, or extend vertically above and below the front cover.

There must be no partial obstructions to the front cover of the appliance or any other parts of the appliance casing. This will avoid the appliance failing to operate under windy conditions.



HORIZONTAL FLUE TERMINAL CLEARANCES (EXTRACT FROM AS/NZS 5601)



Ref.	Item	Min. Clearances (mm)	
		Natural draft	Fan assisted
a	Below eaves, balconies and other projections:		
	For appliances up to 50 MJ/h input	300	200
	For appliances over 50 MJ/h input	500	300
b	From the ground, above a balcony or other surface *	300	300
c	Front a return wall or external corner *	500	300
d	From a gas meter (M) (see Note 5) (see Clause 5.11.5.9 for vent terminal location of regulator) (see Table 6.7 for New Zealand requirements)	1000	1000
e	From an electricity meter or fuse box (P) † (see Note 5)	500	500
f	From a drain pipe or soil pipe	150	75
g	Horizontally from any building structure* = or obstruction facing a terminal	500	500
h	From any other flue terminal, cowl, or combustion air intake *	500	300
j	Horizontally from an openable window, door, non-mechanical air inlet, or any other opening into a building with the exception of sub-floor ventilation:		
	Appliances up to 150 MJ/h input *	500	300
	Appliances over 150 MJ/h input up to 200 MJ/h input *	1500	300
	Appliances over 200 MJ/h input up to 250 MJ/h input *	1500	500
	Appliances over 250 MJ/h input *	1500	1500
	All fan-assisted flue appliances, in the direction of discharge	-	1500
k	From a mechanical air inlet, including a spa blower	1500	1000
n	Vertically below an openable window, non-mechanical air inlet, or any other opening into a building with the exception of sub-floor ventilation:		
	Space heaters up to 50 MJ/hr input	150	150
	Other appliances up to 50 MJ/hr input	500	500
	Appliances over 50 MJ/h input and up to 150 MJ/h input	1000	1000
	Appliances over 150 MJ/h input	1500	1500

* Unless appliance is certified for closer installation.

† Prohibited area below electricity meter or fuse box extends to ground level.

NOTES:

- Where dimensions c, j or k cannot be achieved an equivalent horizontal distance measured diagonally from the nearest discharge point of the terminal to the opening may be deemed by the *Technical Regulator* to comply.
- See Clause 6.9.4 for restrictions on a flue terminal under a covered area.
- See Figure J3 for clearances required from a flue terminal to an LP Gas cylinder. A flue terminal is considered to be a source of ignition.
- For minimum clearances not addressed above acceptance should be obtained from the *Technical Regulator*.
- Minimum clearances d and e also apply to any combustion air intake openings of appliances.

FIGURE 6.2 (in-part) LOCATION OF FLUE TERMINALS OF BALANCED FLUE, ROOM-SEALED, FAN-ASSISTED OR OUTDOOR APPLIANCES

CO-AXIAL FLUEING FOR INTERNAL MODELS

This system is certified and suitable for use with Rinnai internal commercial continuous flow water heaters.

The Rinnai Flueing system must be installed in accordance with the instructions supplied with the flue terminal. Non Rinnai flueing systems **MUST NOT** be used.

The Rinnai internal flueing system is highly versatile and makes installation of an internal water heater simple and convenient.

The flueing for internal water heaters is a Co-Axial design. It is manufactured from an aluminium or stainless steel inner flue pipe to discharge product of combustion and a thermoplastic outer pipe for air supply to the appliance. The water heater is a room sealed appliance.

NOTE: Each Rinnai water heater is flued individually.

Horizontal flueing can be used as a direct wall flue or extended from another internal wall.

DD6 Direct Wall Flue



Vertical flueing is used when the water heater needs to be flued vertically through the roof.

A condensate trap is required when vertical flue exceeds 1.5 metres.

Rinnai HD internal water heaters are classified as 'room sealed' appliances. Flue systems must be installed in accordance with Rinnai Installation Instructions (supplied with flue terminals), local gas fitting regulations, municipal building codes, AS/NZS 5601 and all other relevant statutory regulations.

The flue terminal clearances in AS/NZS 5601 do not apply to the HD200e, HD250e, HDC211e or HD210e heaters installed side by side. These appliance are AGA certified to be located side by side, for both internal and external models

Manifold Pack 5 internal

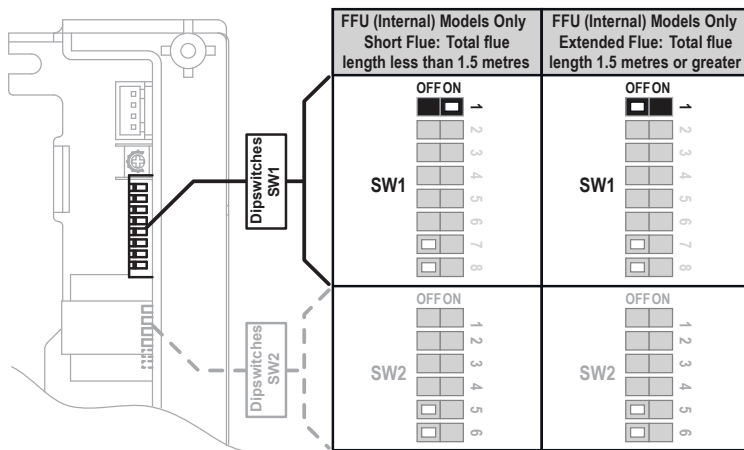




Only Rinnai Flueing systems can be used with Internal Water Heaters. Non-Rinnai Flueing systems are not certified and will not be covered under warranty.

If flue length exceeds 1.5 metres, dip-switch 1 of SW1 located inside the HD unit is to be switched to the 'OFF' position.

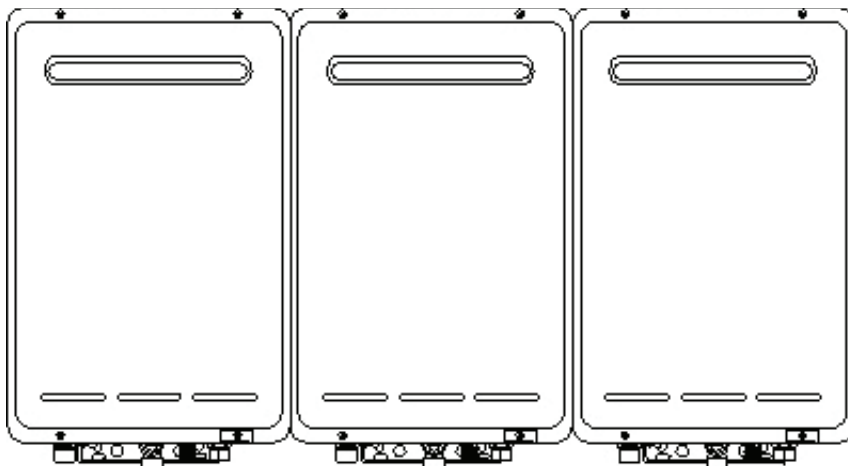
Flue length Dipswitch settings (except for HD200i)



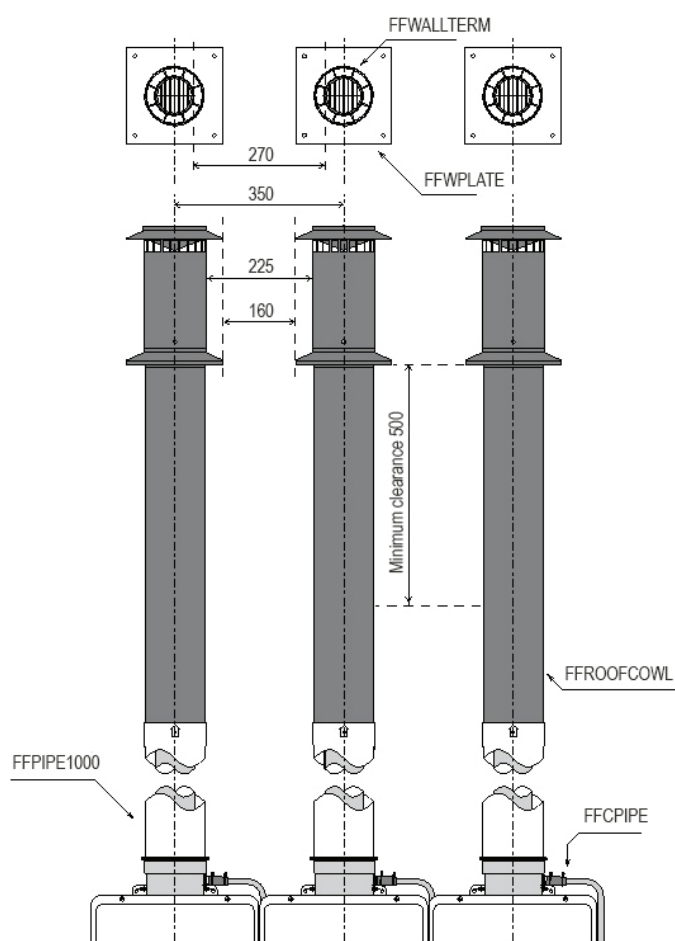
For all further information on Internal Flueing, please refer to separate Flueing manual supplied with Flueing components.

MULTIPLE FLUE TERMINALS

Dimension 'H' in AS/NZS 5601 Figure 6.2 does not apply when multiple Rinnai external water heaters of the same model are installed on the same vertical face with flue terminals at the same height. Under these conditions appliances can abut each other as shown below:



The terminal clearances stated in AS/NZS 5601 do not apply to the HD200, HDC211 and HD210 internal water heaters when they are installed side by side. AGA certification allows for a minimum horizontal separation of 160mm for roof terminals and 270mm for wall terminals.



NOTE All Rinnai Demand Duo systems with HD200, HDC211 and HD210 water heaters have the manifold and flue centres at 375mm and 500mm respectively. This is slightly further apart than above and is acceptable.

COMMON FLUE SYSTEM FOR INTERNAL MODELS

The Rinnai Commercial Common Flue System is certified and suitable only for use with Rinnai non-condensing internal commercial continuous flow water heaters. It is NOT suitable for use with Rinnai condensing water heaters. Refer suitable model listing below:

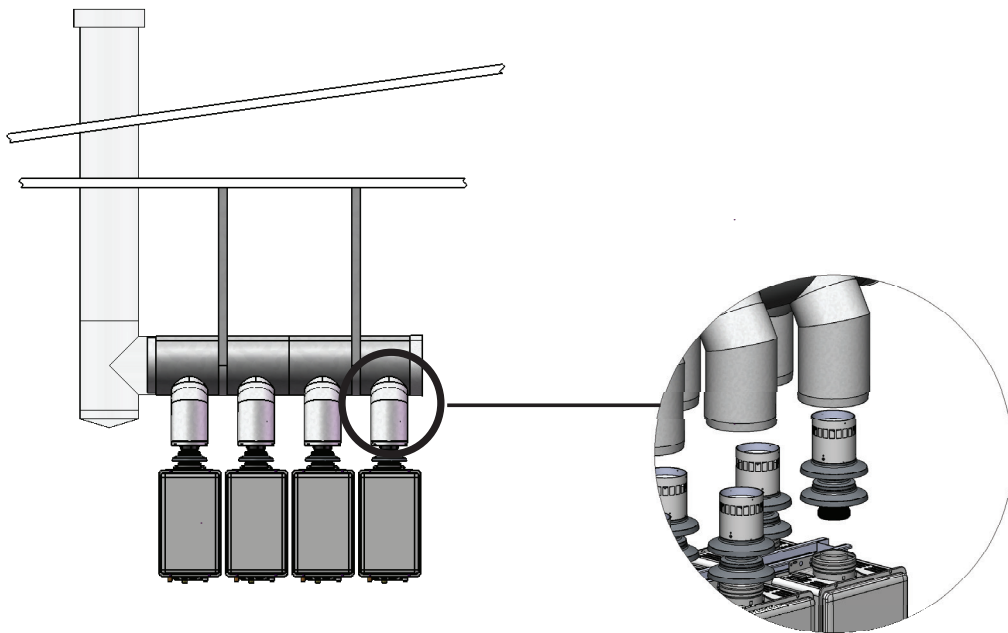
Suitable only for use with the following non-condensing models:

REU-V2632FFUC, REU-VM2632FFUC and REU-VRM2632FFUC.

NOT suitable for use with condensing models:

REU-KM2635FFUD, REU-KM2635FFUDC, REU-KM3237FFUD and REU-KM3237FFUDC.

A Common Flue System can be used. This system utilises adaptors to connect multiple Internal Water Heaters to a Natural Draft Flue (see the instruction manual supplied with the Rinnai Common Flue for details).



INSTALLATION

Unpacking DD1

Remove outer cardboard box. Remove screws attaching feet on tank to wooden pallet. Carefully remove system from pallet and inspect for any transport damage. Ensure that PTR valve and brass plug 32mm supplied in box is located and stored. **DO NOT** install if any components are damaged.

UNPACKING DD2 - DD6

Tank:

Remove outer cardboard box. Remove screws attaching feet on tank to wooden pallet.

Carefully remove tank from pallet and inspect for any transport damage. Ensure that PTR valve, supplied in box is located and stored. **DO NOT** install if any components are damaged.

HD water heaters:

With cardboard box in upright position, remove packing straps and slide lid upwards. Remove water heater from base when required for installation.

Manifold:

Remove manifold, pump and PTR valve(s) and fittings as per bill of materials in the following table.

	PTR VALVE packed with Tank	PTR VALVE packed with manifold	BOILER VALVE packed with manifold	FITTINGS packed with manifold
DD1 200 E/I, DD1 210 E/I	1 x HT 575	N/A	N/A	N/A
DD1 250 E, DD1C 211 E/I	2 x HT 575	N/A	N/A	N/A
DD2 200 E/I, DD2 210 E/I, DD2 250 E, DD2C 211 E/I	1 x HT 575	1 x HT 575	N/A	N/A
DD3 200 E/I, DD3 210 E/I, DD3 250 E, DD3C 211 E/I	1 x HT 575	2 x HT 575	N/A	32mm Tee
DD4 200 E/I, DD4 210 E/I, DD4 250 E, DD4C 211 E/I	1 x HT 575	N/A	1 x Valve	N/A
DD5 200 E/I, DD5 210 E/I, DD5 250 E, DD5C 211 E/I	1 x HT 575	N/A	1 x Valve	N/A
DD6 200 E/I, DD6 210 E/I DD6 250 E, DD6C 211 E/I	1 x HT 575	N/A	1 x Valve	N/A
All HT575 PTR valves are rated at 850 kPa - RA Part No. 11004782				

ASSEMBLY

Demand Duo 1

- Position tank in desired position.
- Attach PTR valve supplied in box to 20mm port at top of tank. As for the DD1 200e / 200i 250L or 315L, plug off second port with 20mm plug supplied. For DD1 250e/211e/211i/210e/210i 250L or 315L, attach another PTR valve to second port at the top of tank.
- Plug off second cold inlet port at the bottom of the tank with 32mm plug supplied with tank.
- Run PTR valve drains to suitable discharge position.

Demand Duo 2 - Demand Duo 6

- Position tank in desired position.
- Attach PTR valve supplied in tank box to 20mm port at top of tank.
- Attach second valve to the other 20mm port at top of tank.
- Attach the third PTR valve on a DD3 to the hot outlet with the 32mm threaded tee, nipple and 32mm male/20mm female reducer supplied.
- Run PTR valve drains to suitable discharge position.
- Mark line on wall where top of HD water heaters are to be located.
- A useful nominal height is 1500mm from floor level. This may change depending on desired position of flue terminal. It may be higher in trafficable areas or to reduce vertical flue length, for example.
- For HD200 heaters on DD2,3, 4, 5 and 6, mark 375mm centres, allowing sufficient space between tank and the nearest heater for the primary pump(s) and pipework. For HD250e/HDC211e/HDC211i/HD210e/HD210i on DD2 - DD6 mark 500mm centres.
- Attach first heater to wall, preferably a centre heater.
- Connect manifold to heater and confirm that marked centres match the manifold.
- Attach rest of heaters to wall and connect manifold. Attach 32mm tee to cold inlet on tank, with union as required. Cold inlet is lowest fitting on the tank, 285mm from the tank base.
- Join inlet of primary pump to tee at cold inlet fitting on tank with 32mm pipe.
- Join outlet of primary pump to inlet of cold (bottom) pipe on manifold.
- Fit cover so that pump is weatherproof if installed outdoors. Ensure power cable enters pump from below and that it is not a track for water to enter pump.



When direct flueing through the wall that the water heaters are mounted on, it may be necessary to attach flue to water heater and push it through the wall before attaching the water heater to the wall.

- Remaining port on the tee is the cold water inlet to the system. It is also the ringmain return point.

- Extend 32mm hot return pipe (centre pipe) from end of manifold to the return fitting on the tank with union as required. This fitting is 385mm from the tank base.
- System is now ready to be plumbed to the building.



Primary pump and/or primary pipe work may need to be increased for long runs of primary pipe work, or installation with many bends in the pipe work between tank and manifold.

- Plug primary pump(s) into the thermostatic controller mounted on the tank.
- Plug power supply to the thermostatic controller into an available GPO. DO NOT turn 'ON'.
- Plug water heaters on DD2 - DD6 to an available GPO (one per heater is required). DO NOT turn 'ON'.

DD1 Models, Drawing and Specifications

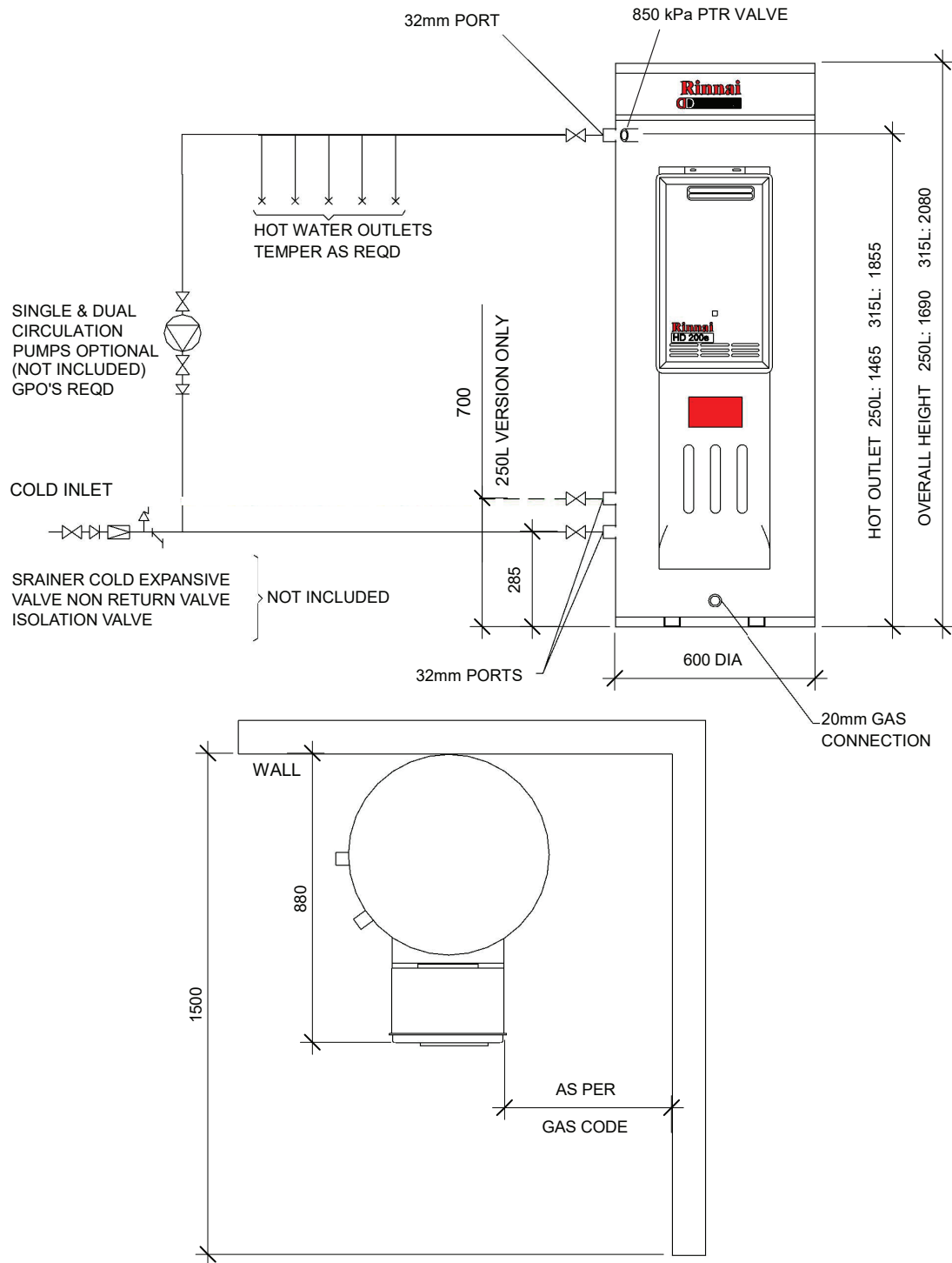
All Dimensions are (mm)								
DD Model	PTR Inclusions	Primary pump	MJ Rating (HD Water Heater)	Total System Weight (kg)	Fittings			
					Hot	Cold	PTR	Gas
DD1 200e/250 ext	1 * HT 575 (46 kW)	UPS20 - 60N	199	110	RP1 1/4" (32mm)	*RP1 1/4" (32mm)	RP 3/4" (20mm)	RP 3/4" (20mm)
DD1 210e/250 ext	2 * HT 575 (92 kW)	UPS25 - 80N	209	125	RP1 1/4" (32mm)	*RP1 1/4" (32mm)	RP 3/4" (20mm)	RP 3/4" (20mm)
DD1C 211e/250 ext	2 * HT 575 (92 kW)	UPS25 - 80N	211	125	RP1 1/4" (32mm)	*RP1 1/4" (32mm)	RP 3/4" (20mm)	RP 3/4" (20mm)
DD1 200e/315 ext	1 * HT 575 (46 kW)	UPS20 - 60N	199	120	RP1 1/4" (32mm)	RP1 1/4" (32mm)	RP 3/4" (20mm)	RP 3/4" (20mm)
*DD1 200i/250 int	1 * HT 575 (46 kW)	UPS20 - 60N	199	110	RP1 1/4" (32mm)	*RP1 1/4" (32mm)	RP 3/4" (20mm)	RP 3/4" (20mm)
DD1 210e/315 ext	2 * HT 575 (92 kW)	UPS25 - 80N	209	125	RP1 1/4" (32mm)	*RP1 1/4" (32mm)	RP 3/4" (20mm)	RP 3/4" (20mm)
DD1C 211e/315 ext	2 * HT 575 (92 kW)	UPS25 - 80N	211	125	RP1 1/4" (32mm)	*RP1 1/4" (32mm)	RP 3/4" (20mm)	RP 3/4" (20mm)
DD1 200i/315 int	1 * HT 575 (46 kW)	UPS20 - 60N	199	120	RP1 1/4" (32mm)	RP1 1/4" (32mm)	RP 3/4" (20mm)	RP 3/4" (20mm)
DD1 210i/250 int	2 * HT 575 (92 kW)	UPS25 - 80N	209	125	RP1 1/4" (32mm)	*RP1 1/4" (32mm)	RP 3/4" (20mm)	RP 3/4" (20mm)
DD1C 211i/250 int	2 * HT 575 (92 kW)	UPS25 - 80N	211	125	RP1 1/4" (32mm)	*RP1 1/4" (32mm)	RP 3/4" (20mm)	RP 3/4" (20mm)
DD1 250e/250 ext	2 * HT 575 (92 kW)	UPS25 - 80N	250	120	RP1 1/4" (32mm)	*RP1 1/4" (32mm)	RP 3/4" (20mm)	RP 3/4" (20mm)
DD1 210i/315 int	2 * HT 575 (92 kW)	UPS25 - 80N	209	125	RP1 1/4" (32mm)	*RP1 1/4" (32mm)	RP 3/4" (20mm)	RP 3/4" (20mm)
DD1C 211i/315 int	2 * HT 575 (92 kW)	UPS25 - 80N	211	125	RP1 1/4" (32mm)	*RP1 1/4" (32mm)	RP 3/4" (20mm)	RP 3/4" (20mm)
DD1 250e/315 ext	2 * HT 575 (92 kW)	UPS25 - 80N	250	130	RP1 1/4" (32mm)	RP1 1/4" (32mm)	RP 3/4" (20mm)	RP 3/4" (20mm)
DD 250	1 * HT 575 (46 kW)	N/A	N/A	73	RP1 1/4" (32mm)	*RP1 1/4" (32mm)	RP 3/4" (20mm)	RP 3/4" (20mm)
DD 315	1 * HT 575 (46 kW)	N/A	N/A	88	RP1 1/4" (32mm)	RP1 1/4" (32mm)	RP 3/4" (20mm)	RP 3/4" (20mm)
DD COMBO 250	1 * HT 575 (46 kW)	N/A	N/A	75	RP1 1/4" (32mm)	RP1 1/4" (32mm)	RP 3/4" (20mm)	RP 3/4" (20mm)
DD COMBO 315	1 * HT 575 (46 kW)	N/A	N/A	90	RP1 1/4" (32mm)	RP1 1/4" (32mm)	RP 3/4" (20mm)	RP 3/4" (20mm)

ALL HT 575 PTR valves are rated at 850 kPa - RA Part No. 11004782



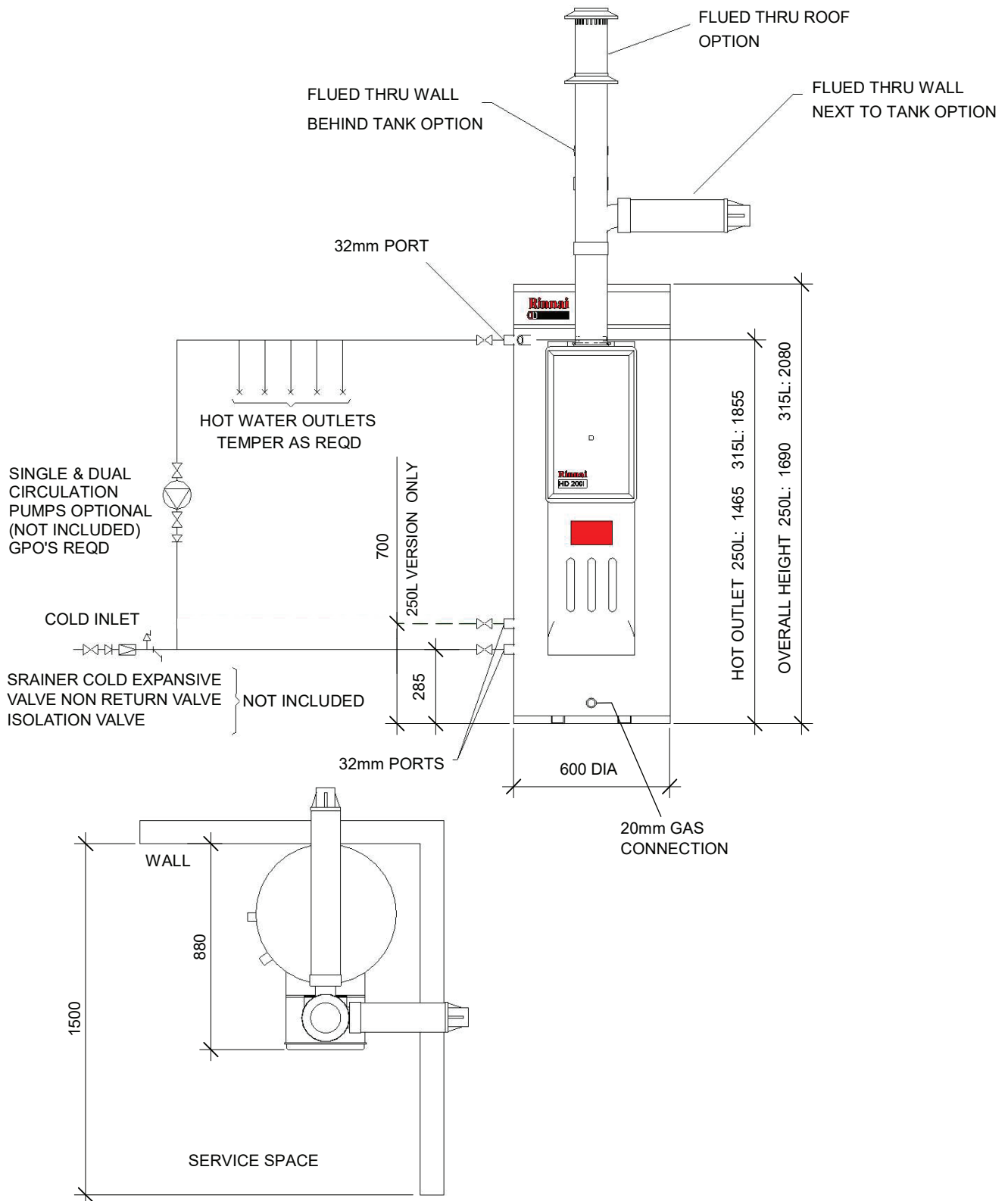
DD1 250L only tank supplied with 32mm brass plug to plug one of the unused cold inlet ports.

DD1 200e / 250L & 315L



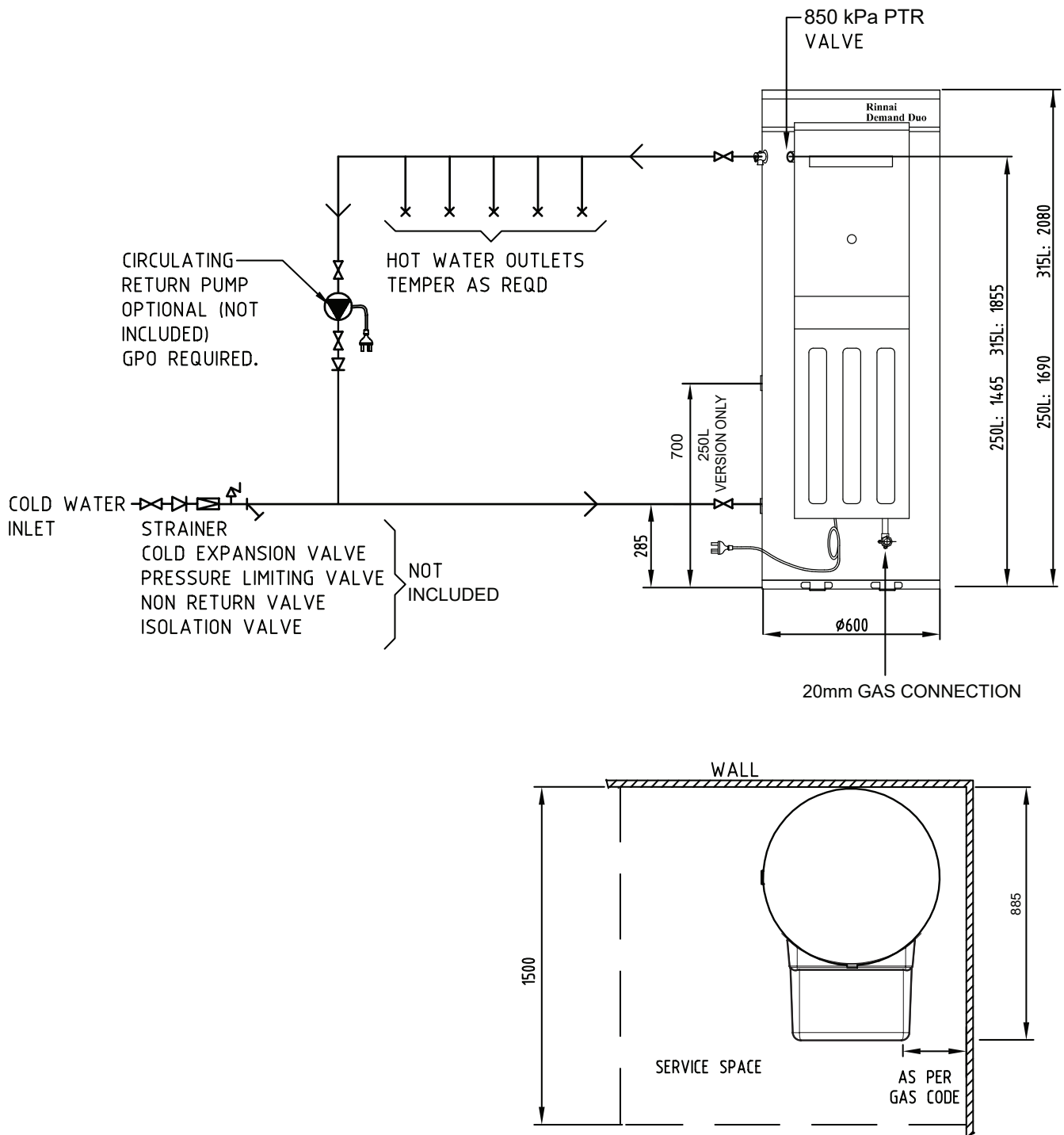
NOTE: PLUG UNUSED COLD INLET PORT WITH BRASS PLUG 32MM SUPPLIED WITH TANK

DD1 200i / 250L & 315L



NOTE: PLUG UNUSED COLD INLET PORT WITH BRASS PLUG 32MM SUPPLIED WITH TANK

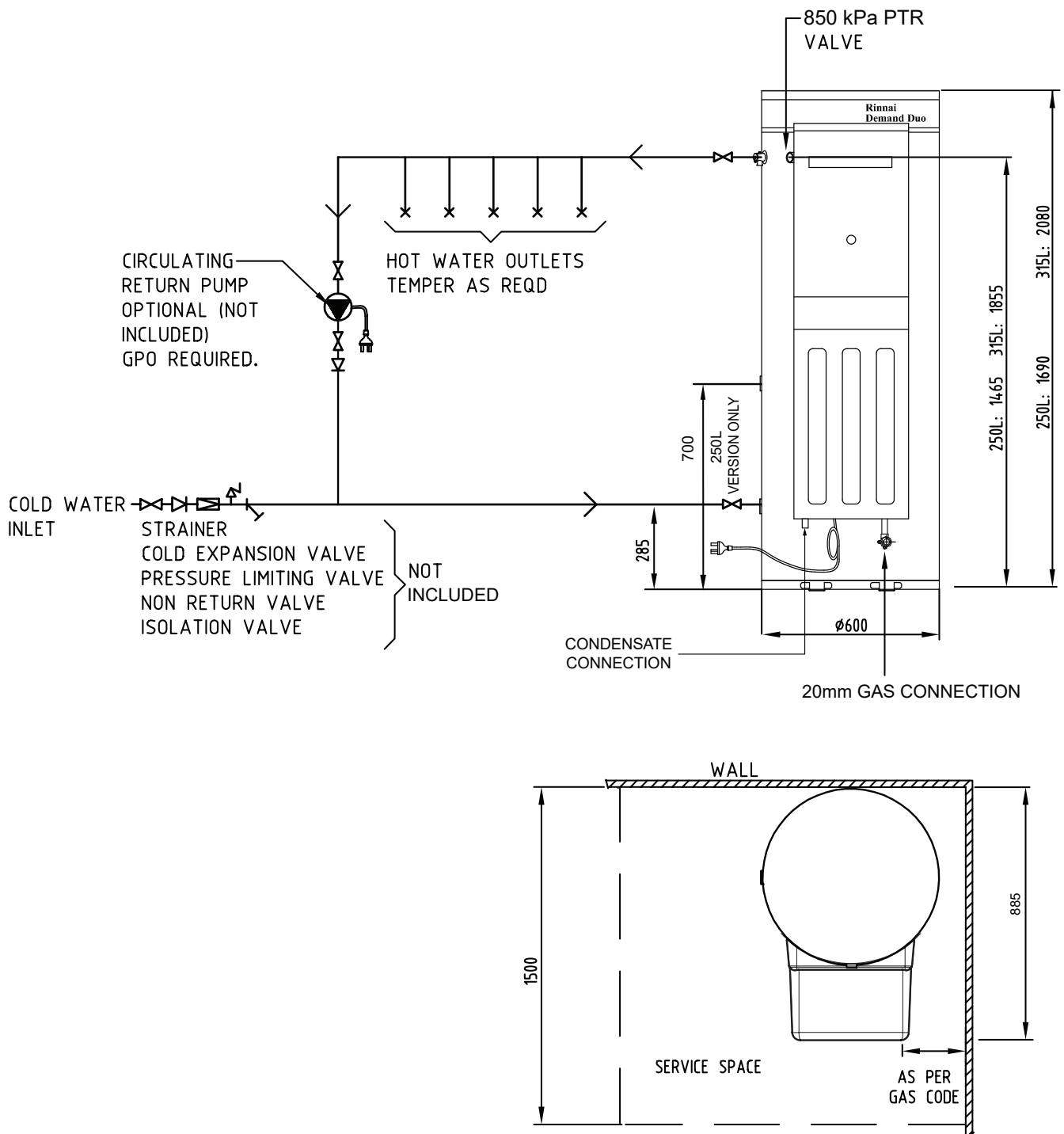
DD1 250e / 250L & 315L



NOTE: PLUG UNUSED COLD INLET PORT WITH BRASS PLUG 32MM SUPPLIED WITH TANK

DD1C 211e 250L & 315L

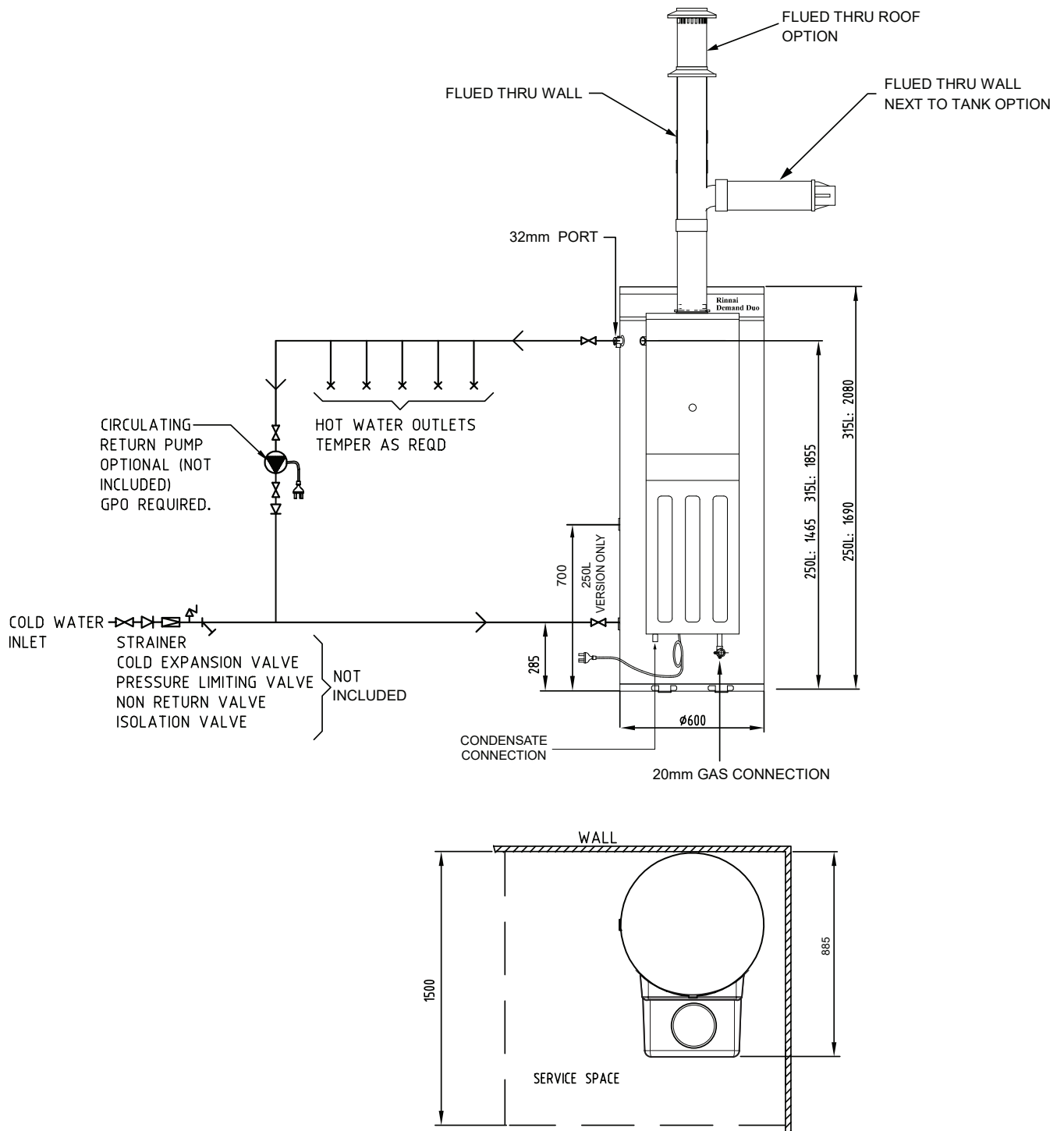
DD1 210e 250L & 315L



NOTE: PLUG UNUSED COLD INLET PORT WITH BRASS PLUG 32MM SUPPLIED WITH TANK

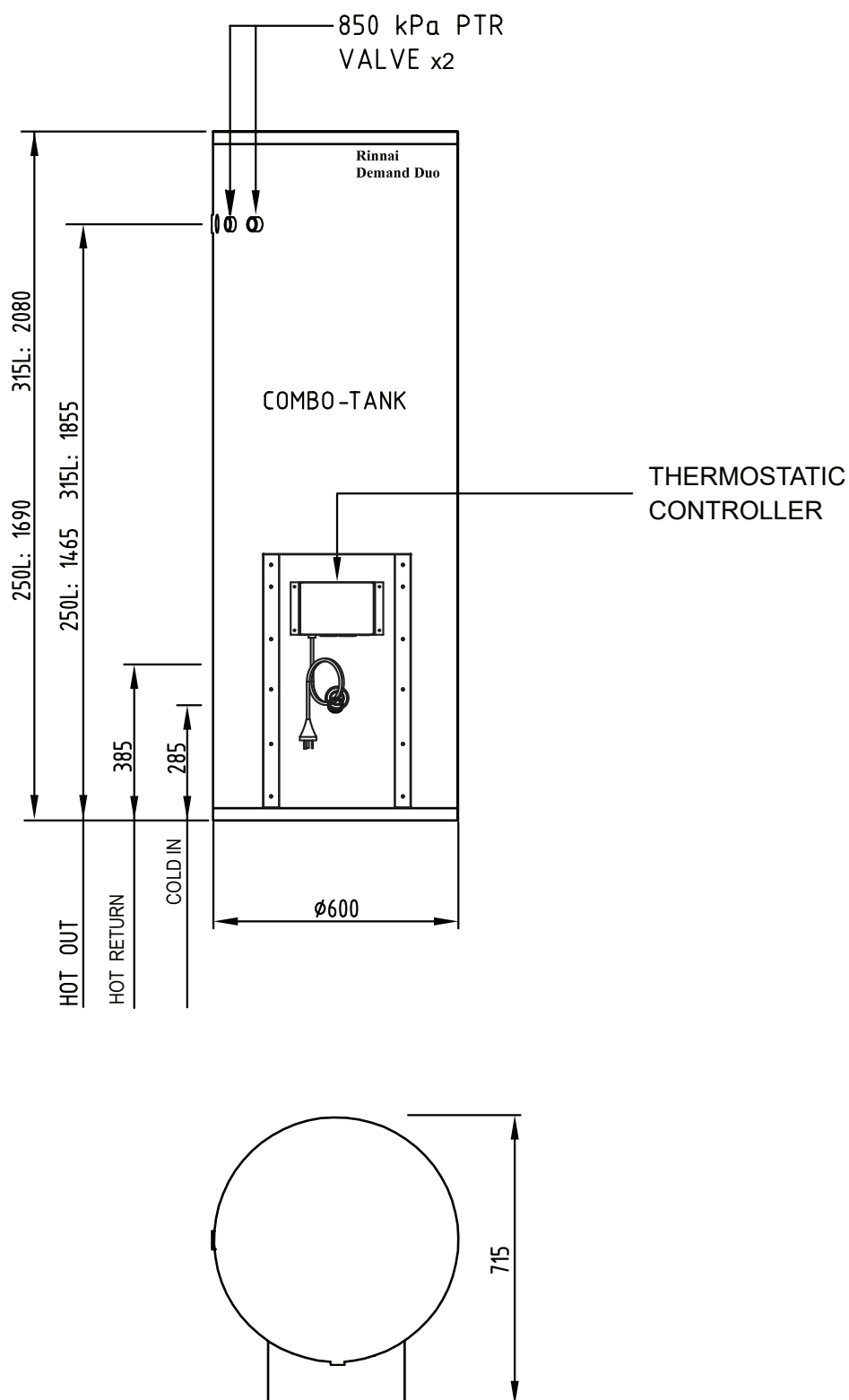
DD1C 211i 250L & 315L

DD1 210i 250L & 315L



NOTE: PLUG UNUSED COLD INLET PORT WITH BRASS PLUG 32MM SUPPLIED WITH TANK

DD COMBO 250L & 315L



NOTE: PLUG UNUSED COLD INLET PORT WITH BRASS PLUG 32MM SUPPLIED WITH TANK

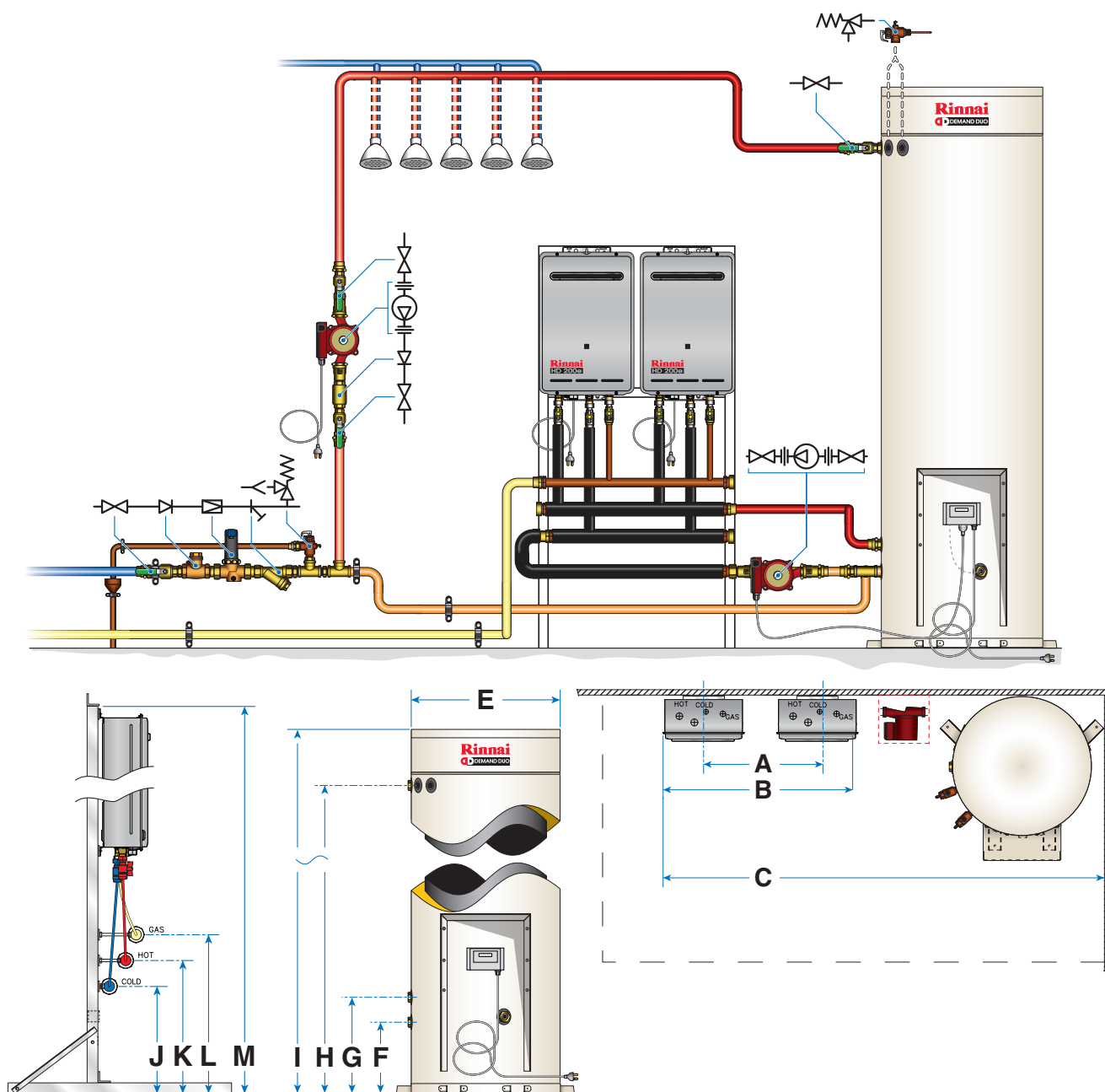
SPECIFICATIONS

DEMAND DUO DRAWING AND SPECIFICATIONS									
(All dimensions are in mm)									
DD model	A	B	C	D	E	PTR Inclusions	Primary pump	Total system weight - 250L tank (Kgs)	Total system weight - 315L tank (Kgs)
DD2 200 Ext/Intl	375	750	1850	715	600	2 x HT575	UPS25-80N	120	132
DD3 200 Ext/Intl		1125	2225			3 x HT575 + Tee	UPS25-80N	150	162
DD4 200 Ext/Intl		1500	2600			1 x HT575 + 1 x Boiler Valve	UPS25-80N	180	192
DD5 200 Ext/Intl		1875	2975				UPS32-100N	210	222
DD6 200 Ext/Intl		2250	3350				UPS32-100N	240	252
DD2 211/250 Ext/Intl DD2 210/250 Ext/Intl	500	1000	2100	715	600	2 x HT575	UPS32-100N	143	155
DD3 211/250 Ext/Intl DD3 210/250 Ext/Intl		1500	2600			3 x HT575 + Tee	UPS32-100N	183	195
DD4 211/250 Ext/Intl DD4 210/250 Ext/Intl		2000	3100			1 x HT575 + 1 x Boiler Valve	2 x UPS32-100N	228	240
DD5 211/250 Ext/Intl DD5 210/250 Ext/Intl		2500	3600				2 x UPS32-100N	268	280
DD6 211/250 Ext/Intl DD6 210/250 Ext/Intl		3000	4100				2 x UPS32-100N	308	320

Tank Model	F	G	H	I	Dry Weight	Wet Weight
250 Litre	285	385	1465	1690	60 kg	310 kg
315 Litre			1855	2080	72 kg	385 kg

HD Model	J	K	L	M	MJ Rating
HD200e	340	440	540	1500	199
HD200i					195
HD250e					250
HDC211e					211
HDC211i					211
HD210e					209
HD210i					209

Typical installation for Demand Duo



NOTE: PRIMARY PUMP (S) MUST BE PLUGGED INTO THE CONTROLLER AND NOT AN AVAILABLE GPO

DEMAND DUO PLUS DRAWING AND SPECIFICATIONS

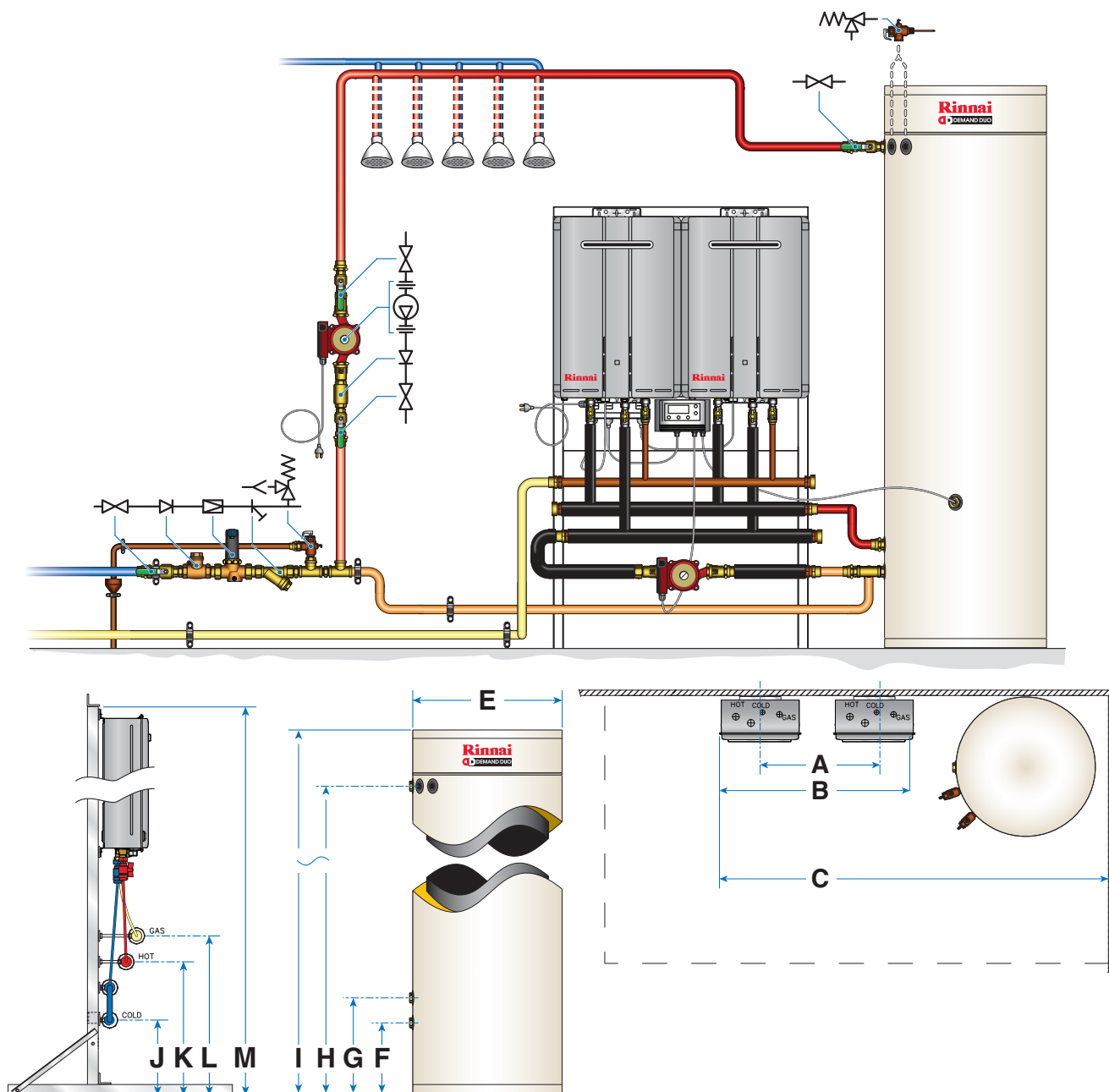
(All dimensions are in mm)

DD model	A	B	C	E	PTR Inclusions	Primary pump	Total system weight - 250L tank (Kgs)	Total system weight - 315L tank (Kgs)
DD2 200 Ext/Intl	375	750	1600	600	2 x HT575	UPS25-80N	120	132
DD3 200 Ext/Intl		1125	1925		3 x HT575 + Tee	UPS25-80N	150	162
DD4 200 Ext/Intl		1500	2350		1 x HT575 + 1 x Boiler Valve	UPS25-80N	180	192
DD5 200 Ext/Intl		1875	2725			UPS32-100N	210	222
DD6 200 Ext/Intl		2250	3100			UPS32-100N	240	252
DD2 211/250 Ext/Intl DD2 210/250 Ext/Intl	500	1000	1850	600	2 x HT575	UPS32-100N	143	155
DD3 211/250 Ext/Intl DD3 210/250 Ext/Intl		1500	2350		3 x HT575 + Tee	UPS32-100N	183	195
DD4 211/250 Ext/Intl DD4 210/250 Ext/Intl		2000	2850		1 x HT575 + 1 x Boiler Valve	2 x UPS32-100N	228	240
DD5 211/250 Ext/Intl DD5 210/250 Ext/Intl		2500	3350			2 x UPS32-100N	268	280
DD6 211/250 Ext/Intl DD6 210/250 Ext/Intl		3000	3850			2 x UPS32-100N	308	320

Tank Model	F	G	H	I	Dry Weight	Wet Weight
250 Litre	285	385	1465	1690	60 kg	310 kg
315 Litre			1855	2080	72 kg	385 kg

HD Model	J	K	L	M	MJ Rating
HD200e	260	440	540	1500	199
HD200i					195
HD250e					250
HDC211e					211
HDC211i					211
HD210e	340	440	540	1500	209
HD210i	340				209

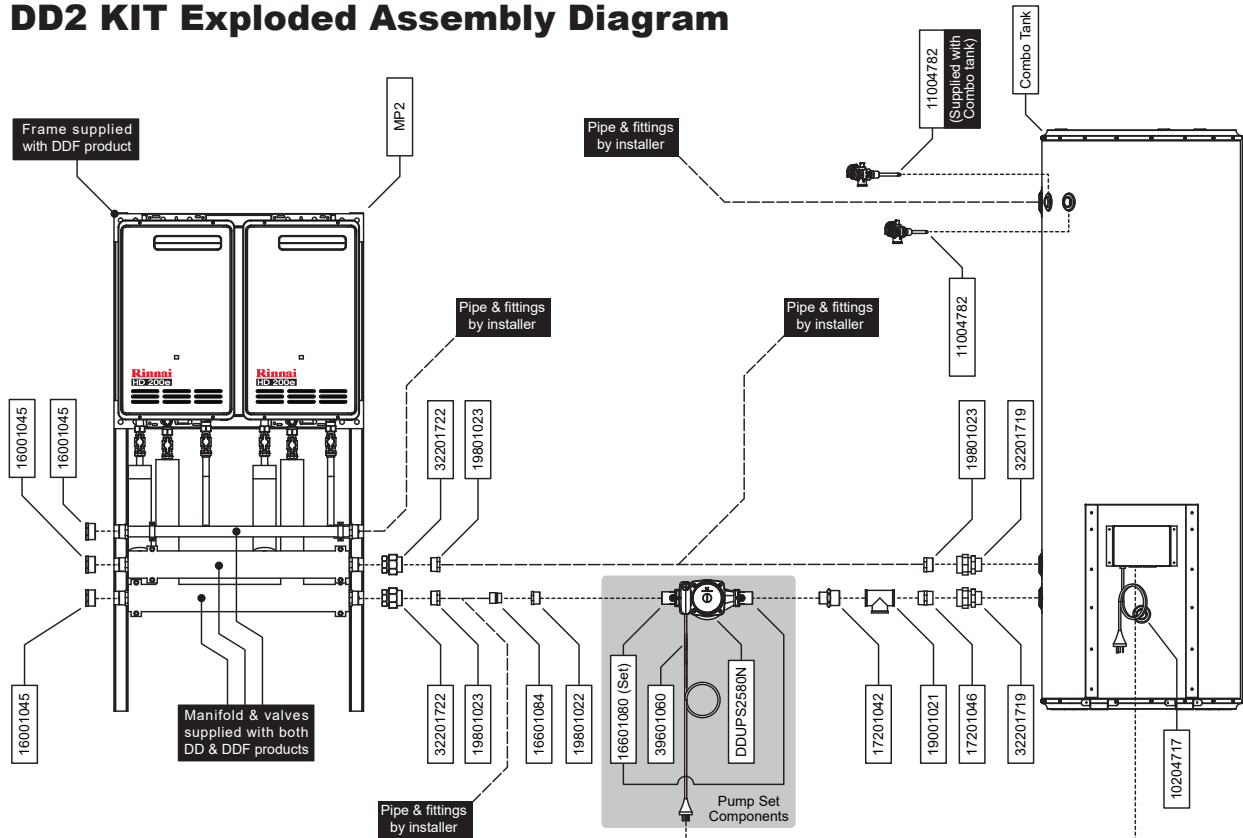
Typical installation for Demand Duo Plus



NOTE: PRIMARY PUMP (S) MUST BE PLUGGED INTO THE CONTROLLER AND NOT AN AVAILABLE GPO

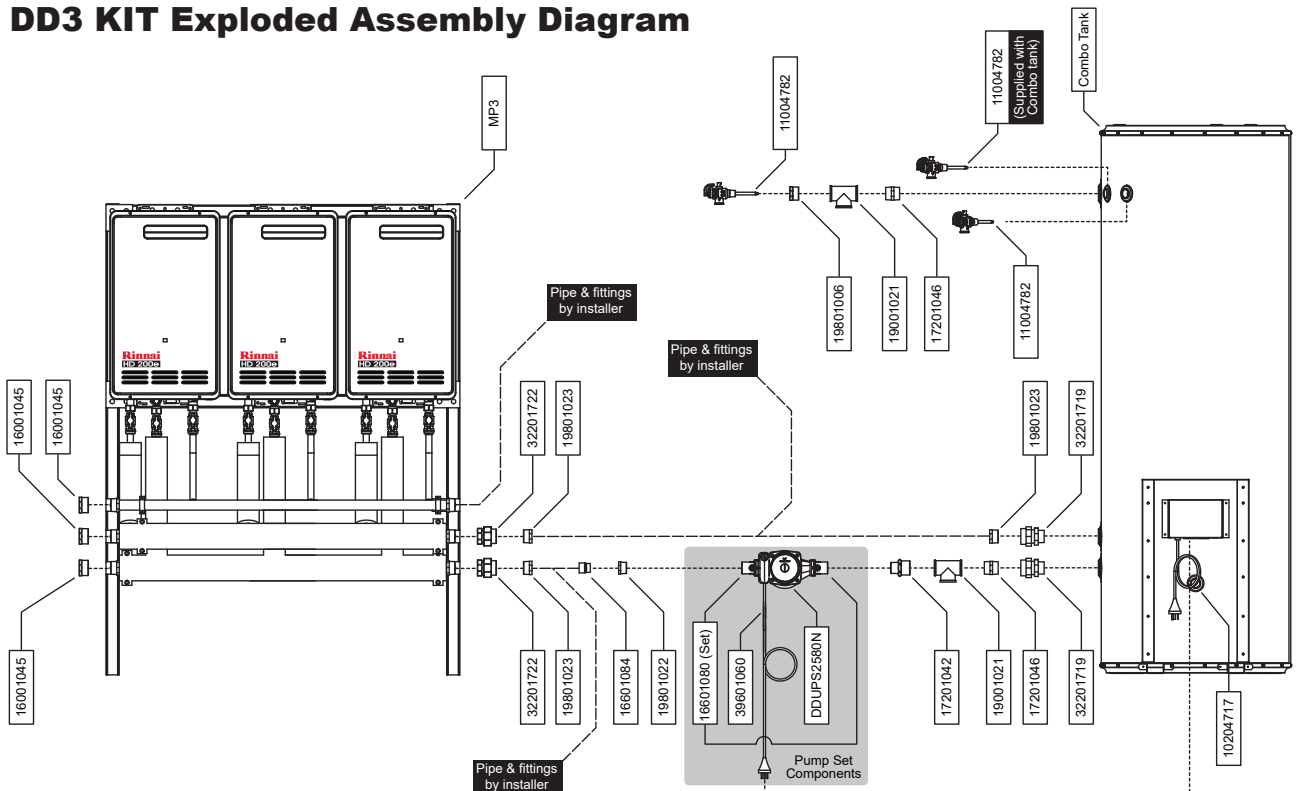
Typical Rinnai Demand Duo DD2 system installation with HD200

DD2 KIT Exploded Assembly Diagram



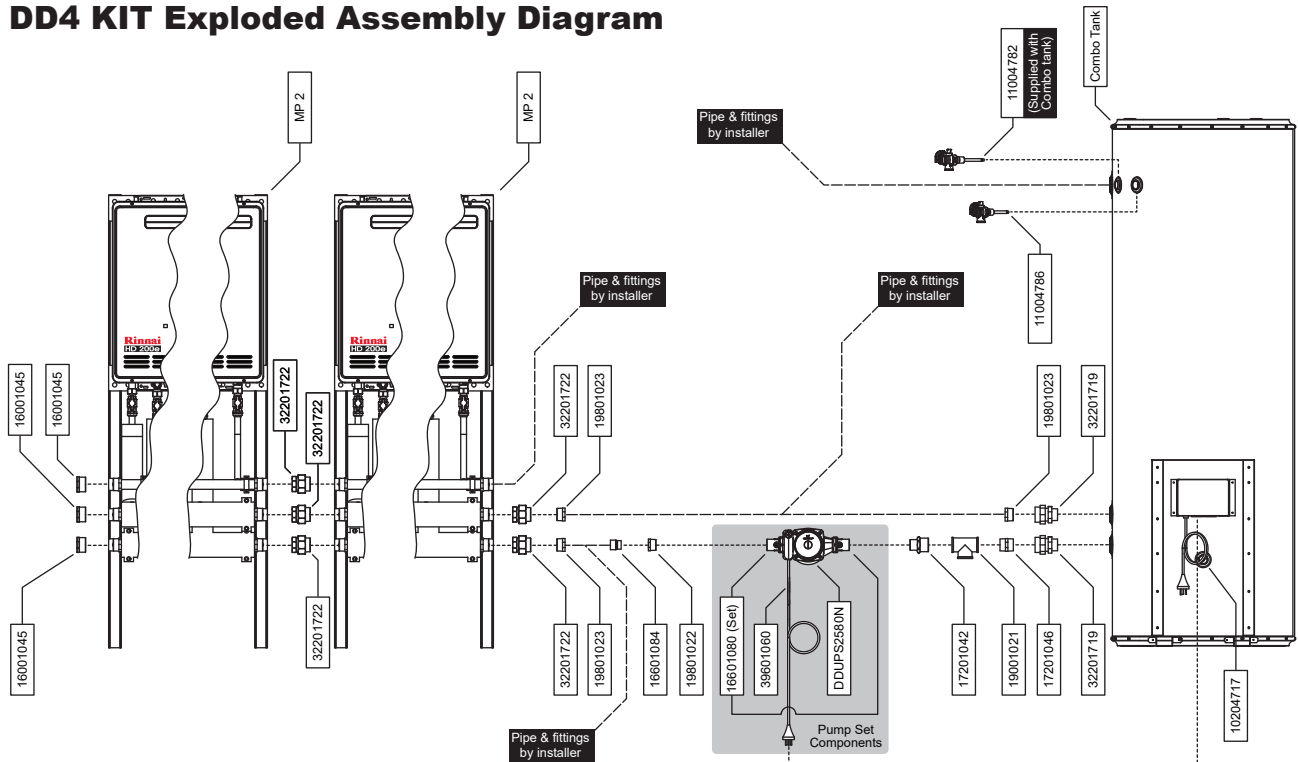
Typical Rinnai Demand Duo DD3 system installation with HD200

DD3 KIT Exploded Assembly Diagram



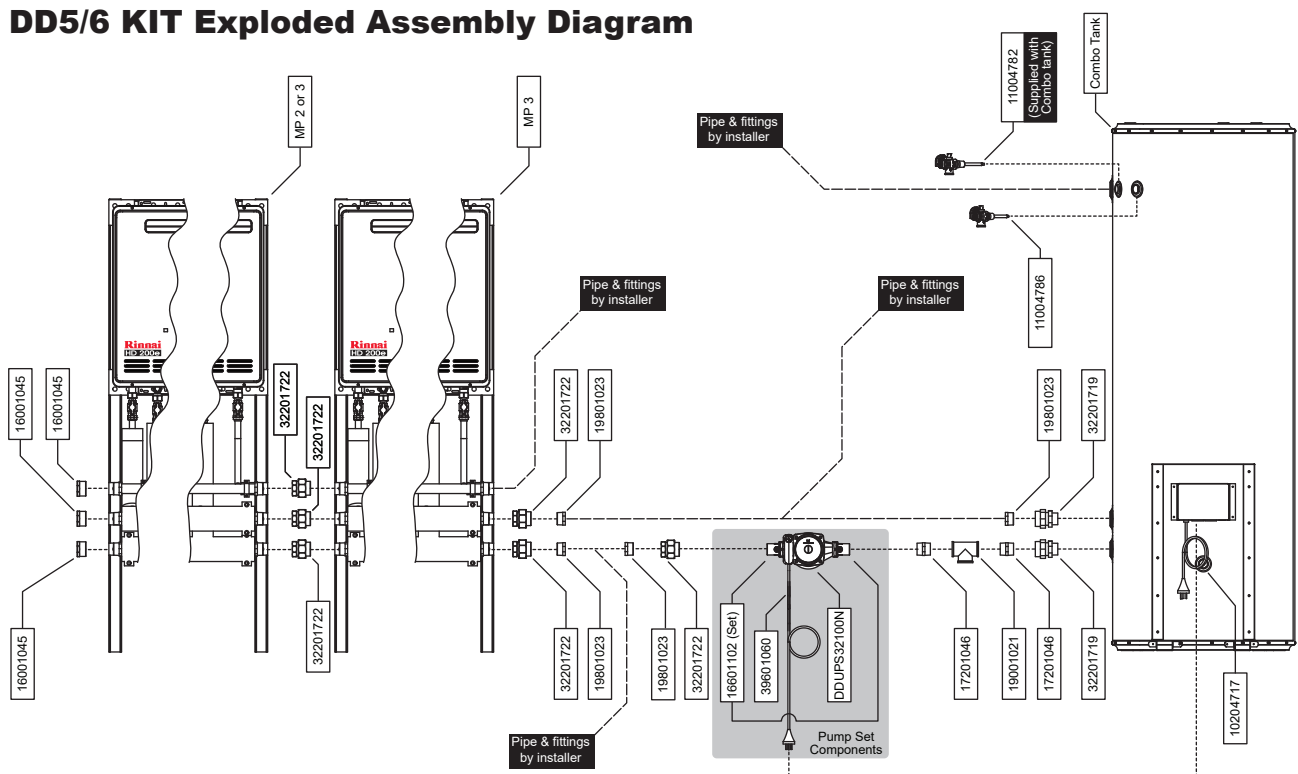
Typical Rinnai Demand Duo DD4 system installation with HD200

DD4 KIT Exploded Assembly Diagram



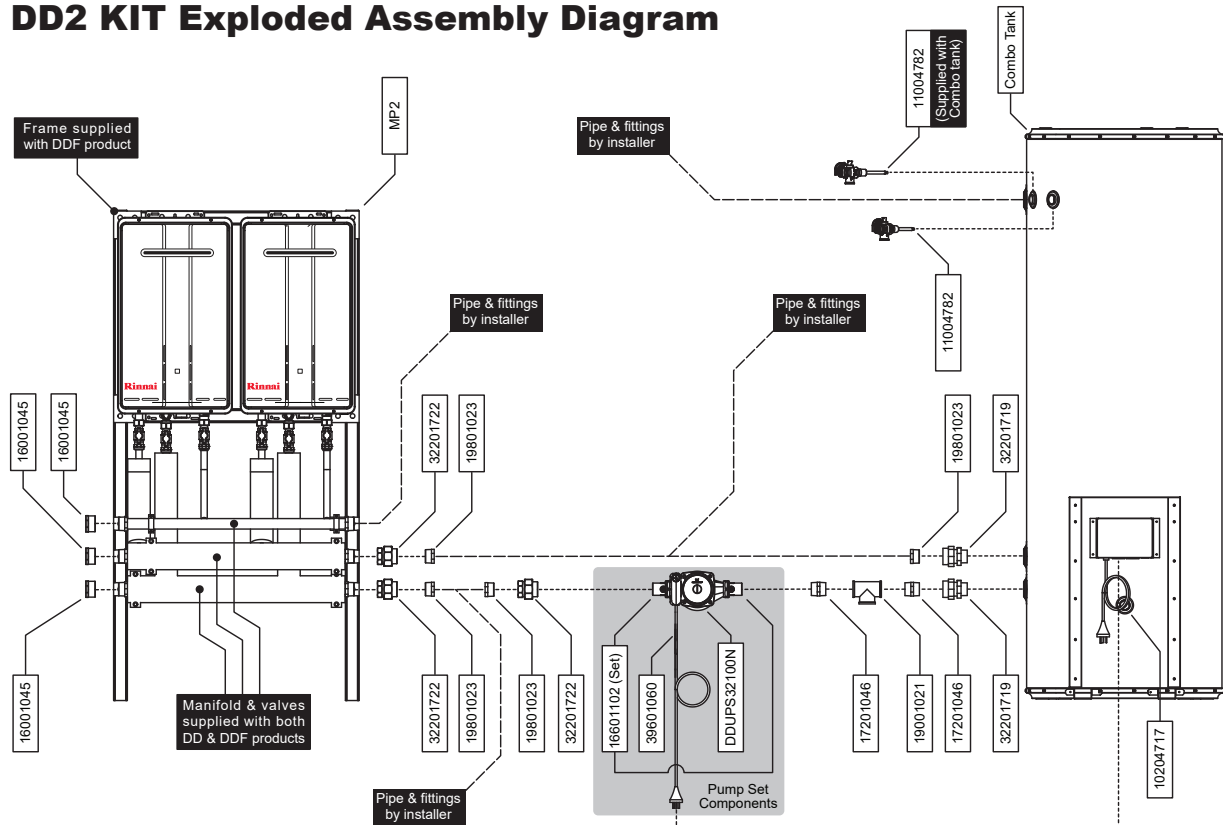
Typical Rinnai Demand Duo DD5 & DD6 system installation with HD200

DD5/6 KIT Exploded Assembly Diagram



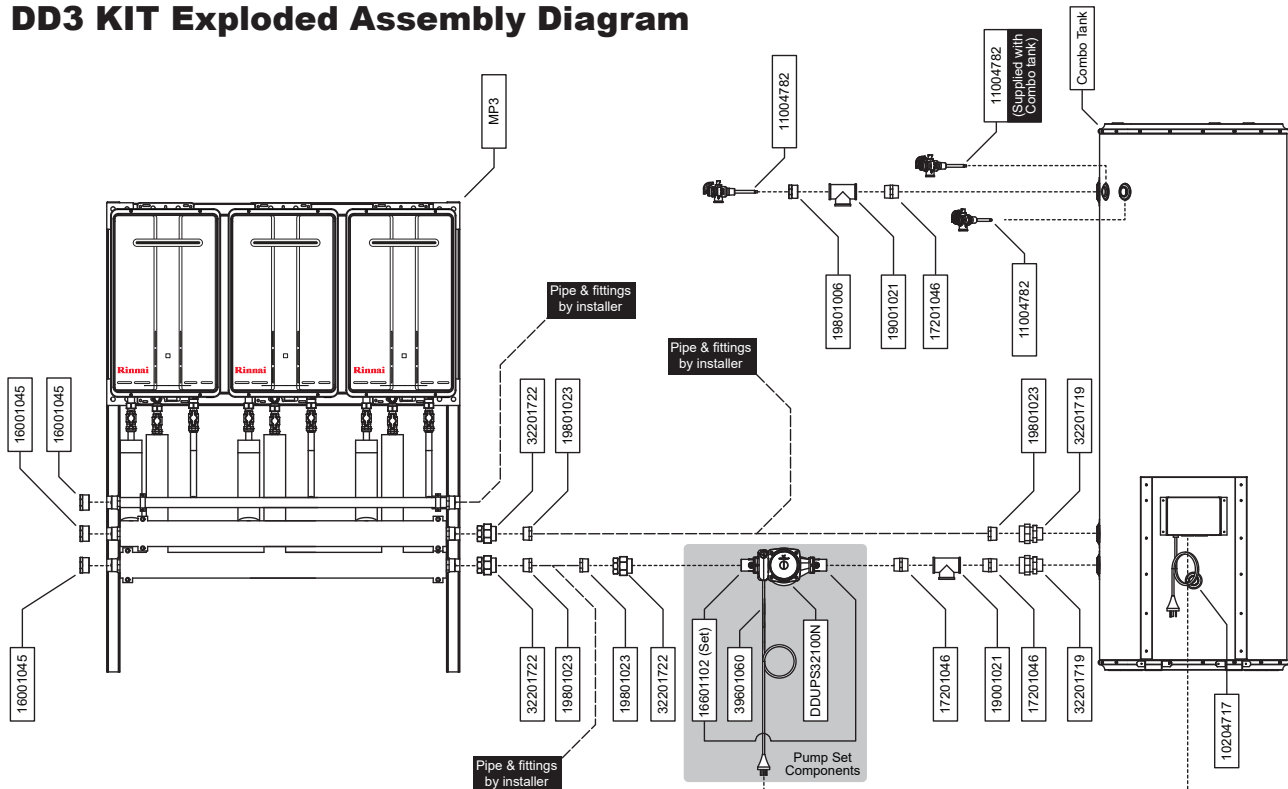
Typical Rinnai Demand Duo DD2 system installation with HDC211 or HD210

DD2 KIT Exploded Assembly Diagram

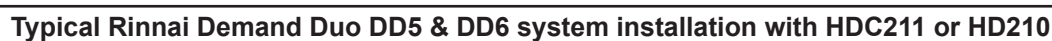


Typical Rinnai Demand Duo DD3 system installation with HDC211 or HD210

DD3 KIT Exploded Assembly Diagram



DD4 KIT Exploded Assembly Diagram



DD5/6 KIT Exploded Assembly Diagram

INSTALLATION HANDOVER MANUAL

Cold Water Supply

- Connect cold water pipe work to one of the cold inlets of tank, including required valves as shown in diagrams on previous page to comply to AS/NZS 3500 and local regulations. (Block unused cold port with brass plug 32mm).
- Maximum cold water inlet pressure is 650 kPa. Fit pressure limiting valve (rated @ 700 kPa) if cold water inlet pressure is in excess of 650 kPa.
- For ease of draining, it is advisable to fit a "Tee" piece with a capped valve between the cold water isolation valve and the cold water inlet connection on the Demand Duo storage Tank. Tap provided.

Hot Water Outlet

- Connect hot water outlet pipe to 32mm fitting on upper left hand side of the storage Tank with union and isolation valve as required.
- Ensure adequate insulation / lagging is fitted to hot water pipe to minimize heat loss.

Return Pump

- A secondary or building return pump may be installed in conjunction with the Rinnai Demand Duo hot water system. Pump should be sized for minimal temperature loss around the ringmain. Pump must have a check valve on the discharge.
- Return line from building loop is connected to the cold water supply pipe after the check valve. From that point onwards the cold pipe should be insulated.

Gas Supply

- Check gas type of Rinnai HD matches gas supply available (LPG or Natural) on job site.
- Gas inlet connection is located at the front bottom of the weather shroud on a DD1 and is the top pipe on a DD2 - DD6 manifold.
- Appropriate gas isolation valve to be fitted to DD1, DD2 - DD6 have gas isolation valves per water heater.
- Ensure gas pipe sizing is adequate to deliver the required volume / pressure. Pipe size used on inlet fitting is no indication of pipe size required.
- Refer to appropriate pipe sizing chart in Appendix "F" AS/NZS 5601 for appropriate sized gas pipe that should be used to ensure adequate gas supply.
- Gas meter / LPG cylinder & regulator should also be of a suitable size to ensure sufficient gas supply to the gas installation.
- Purge gas pipe to ensure removal of debris etc prior to final connection.
- Check for gas escapes using suitable methods as listed in Appendix "E" AS/NZS 5601.

Filling Instructions

Do not turn on pump / water heater before cylinder and water heater are completely full of water.

- Flush cold water inlet pipe to remove any debris before final connection to cold water inlet on Rinnai Demand Duo cylinder.
- Turn on hot water tap to allow air to be expelled while cylinder is filling with cold water.
- Slowly open cold water isolation valve on cold water supply pipe.
- Allow cylinder to fill. Turn off hot water tap once non-aerated water flows through hot water tap.
- Check all connections for water leakage. Tighten as required.
- Purge gas lines until gas is available at water heaters.
- Prime circulating pump(s) before start up by removing chrome screw and allowing water to drip out the end of the pump shaft.

Starting Instructions

- Turn all GPOs ON.
- Thermostat will initiate.
- For standard systems "75" should appear in the maintenance monitor window on the gas heater. When flow is created by primary pump. That is the outlet temperature from the water heater. It must be higher than the thermostat set point.
- Thermostat will display temperature of water in tank. When it reaches the 65°C set point the pump and therefore, water heater will stop. The display on the water heater will not be lit when not operating.

Demand Duo Principle of Operation

Cold water enters the storage tank after passing through an isolation and non return valve.

A tee is fitted to the cold inlet pipe down stream from the non return valve. From this tee, one branch connects to the lower inlet of the storage tank and the other branch connects to the primary (tank circulation) pump. (Not applicable to DD1 Models). This pumps water to the inlet of the heat source. The water heaters will only operate when this pump is running.

The heated water from the HD (s) returns to the tank at the second lowest connection point, located above the cold inlet.

Hot water leaves the tank from the top of the tank. This may be circulated around the building and returned, via a ringmain pump (set) to the cold inlet before the tee as described above.

When there is a hot water draw off, cold water enters the tank and pushes the hot water out of the tank towards the outlet, as per any storage hot water system.

When the temperature in the tank drops below the thermostat set point, the thermostat activates the primary pump(s). They draw water from the cold water feed to the tank, the tank itself, or a combination of both. As stated previously, this water is then heated by the HD (s) and returns to the tank heated. This process is continued until the thermostat set point is reached and the pump is switched off.

The outlet temperature setting of the HD (s) must be set at least three (3) degrees hotter than the thermostat set point. Factory settings are: HD (s) 75°C, Thermostat 65°C.

Thermostatic Controller Operation

The thermostatic controller is factory preset and designed to control the operation of primary pumps between storage tank and external heat source, such as HD200, HD250, HDC211 and HD210.

It has many functions and temperature sets points available which are described in the manual provided with the controller.

Demand Duo Preventative Maintenance

All Items

- Inspect for damage, corrosion or water leaks.

Tank

- Ensure that tank is not leaking.
- Ensure that PTR valves are not leaking. It is normal for PTR valve to operate during the heating cycle, relieving pressure as the water is expanding. The PTR Valve is rated to 850 kPa and cold inlet pressure should not exceed 500-700 kPa. If it does, then a pressure reduction valve should be fitted to the cold water inlet.
- Valve may be operating if water temperature in tank is close to 99°C. If this is the case thermostatic controller or other heating equipment has failed to operate correctly. Contact Rinnai service department.
- If pressure and temperature are low but valve is leaking, pull the lever for up to 30 seconds, as some foreign material may be jammed in the valve seat. If valve fails to seat correctly, valve should be replaced. PTR Valves are a non-repairable safety device and should be replaced with the correct model and pressure rating.

Primary Pump

- DD1 = Grundfos UPS20-60N set to speed 3
- DD1C = Grundfos UPS25-80N set to speed 3
- DD2,3,4 = Grundfos UPS25-80N
- DD2,3C = Grundfos UPS32-100N
- DD5,6 = Grundfos UPS32-100N
- DD4,5,6C = 2 x Grundfos UPS32-100N
- Primary pumps are plugged into the relevant position on the thermostatic controller. Refer to manual provided with the controller.
- Some projects may have larger and/or dual pumps for redundancy or long primary pipe run situations.
- Pump(s) operate only when activated by the thermostatic controller and the pump operation is indicated on the controller screen.

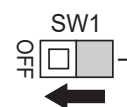
- Ensure that pumps are installed in a weather proof location or protected from being subjected to water ingress. By themselves they are not. Wet pump electrics may cause failure. Water can run along power lead so keep the lead looping under the pump and curving upwards toward the electrical box.
- Ensure shaft is horizontal. **DO NOT** aim shaft upwards or downwards.
- **DO NOT** locate terminal box under pump housing. Position it on top preferable or on side
- **Bleed pump with chrome screw at end of pump casing.** This will be facing towards you when the pump shaft is horizontal. Pump runs on water bearing and is critical for life of pump. Excessive noise indicates damage or lack of bleed.
- When this screw is removed the spinning / stationary impeller shaft can be inspected.
- Ensure pump direction of flow arrow is towards the heat source.
- If shaft is spinning but there is no flow: Check ball valves and any non return valve for correct installation and operation. UPS25-80N and UPS32-100N pumps have inbuilt ball valves in the unions. Line up screwdriver slot parallel to pipe to position them open.

Heavy Duty (HD) Heat Source

- Ensure that filter at water inlet is clean. **NOTE: that this is an 'O' ring seal and does not need to be excessively tightened. Just make sure 'O' ring is engaged inside machined surface in brass housing. Isolate water supply to DD before removing filter for cleaning and inspection. Ensure water in storage cylinder is not excessively hot before removing HD inlet filter.**
- Ensure all HD (s) are operating. Ensure power is available to HD (s) if it is not operating. Can check GPO. Ensure power is available to the HD (s) before applying power to thermostatic controller and pump(s).
- Many new jobs or ones where the gas supply has been modified need to purge the gas supply lines as they are full of air. Purge should be carried in accordance with AS/NZS 5601, Appendix 'D'.
- All models up to late 2006: Look at flame through inspection window for conical shape, blue base and yellow tip. Flame height will vary if heater is modulating. Inspection window is located in front cover of appliance.
- All HD models: when operating the number displayed should be higher than the temperature setting on the thermostatic controller.
 - Eg Tank = 65°C, HD = 75°C. These are factory standard settings.
 - Eg Tank = 80°C, HD = 85°C. These are the maximum allowable settings.
- All HD models will display a fault number if one has occurred. Below is a full list of fault codes.
- In jobs that operate for long hours and/or in dusty or smoky environments the combustion air fan may become dirty. This may be indicated by fault 10. Contact Rinnai Service.
- Internal heaters may operate for a short period of time and then stop. This can be caused by the flueing not being pushed together properly and exhaust gases are re-entering the inlet air. Push the flue together to remedy this. Also inspect flue terminal for any cause to divert exhaust air back into the inlet air. Ensure flue is terminated correctly in accordance with AS/NZS 5601.


For Internal (FFU) models only (except HD210i)

- ☒ Have you used only RINNAI FFU flueing components?
- ☒ If flue exceeds 2m, dip-switch 1 of SW1 is to be switched to the 'OFF' position as shown.



Your Rinnai Continuous Flow water heaters has a self diagnostic capability. If a fault occurs, an Error Code will flash on the Digital Monitor. If you have Temperature Controllers. This assists with diagnosing the fault, and may enable you to overcome a problem without a service call. Please quote the code displayed when enquiring about service.

HD Fault Codes

Code	Description	Remedy
-	Noticeable reduction in water flow	Inlet water filter needs to be cleaned - Service call
03	Power interruption during Bath fill (Water will not flow on power reinstatement)	Turn off all hot water taps Press On/Off twice
05	By-Pass Flow Control Failure	Service Call
10	Air Supply or Exhaust Blockage or Condensate Pipe Blockage	Service Call
11	No ignition / No gas supply	Check gas is turned on at water heater and gas meter or cylinder
12	Flame Failure / Low gas flow	Check gas is turned on at water heater and gas meter or cylinder. Check there are no obstructions to the flue outlet
14	Heat Exchanger Overheat Failure	Service Call
15	Venturi Control Failure	Service Call
16	Over Temperature Warning	Service Call
17	Venturi Blockage	Service Call
19	Electrical Earthing Failure	Service Call
21	Data Transfer Error	Service Call
32	Outgoing Water Temperature Sensor Failure	Service Call
33	Heat Exchanger Thermistor Failure	Service Call
34	Combustion Air Temperature Sensor Failure	Service Call
38	Exhaust Thermistor Failure	Service Call
41	Freeze Protection Thermistor Failure	Service Call
51	Inlet Thermistor Failure	Service Call
52	Gas Valve Failure	Service Call
54	High Exhaust Gas Temperature Failure	Service Call
55	Scheduled Service Reminder (refer to page 13)	Service Call
5E	Cascade Connection Failure	Service Call
61	Combustion Fan Failure	Service Call
65	Water Flow Control Failure (Does not stop flow properly)	Service Call
70	PCB Failure	Service Call
71	Solenoid Valve Circuit Failure	Service Call
72	Flame Rod Failure	Service Call
	Wireless water controller (when fitted) is 'Out of Range' due to the distance from transceiver or an obstruction.	Move wireless water controller or transceiver or remove the obstruction.



NOTE

Some fault codes are model specific and so not all codes will display on all models. If the fault code being displayed is not listed above, contact Rinnai for advice.

In the majority of cases, you may be able to clear the Error Code simply by turning the hot water tap OFF, then ON again. If this does not clear the Error Code, try pushing the On/Off button OFF, then ON again. If the Error Code still remains, contact Rinnai for advice.

Ringmain Pump

- These are used for circulating water around the building. They are normally left on or may have a time clock to switch it off at night when the building is not in use.
- These pumps do not pressurise the system.
- They must have a non return valve.
 - Swing non return valves must be horizontal or upward as they rely on gravity to close the valve.
 - Spring check valves can be located on any plane but may contribute excessive back pressure and restrict the pump flow rate.
- Return water should only be slightly cooler than water leaving the tank. If the temperature drop around the circuit is too high it may indicate that the ring main pump flow rate is not high enough and indicates a design fault or a blockage in the pipework (or poor pipework insulation). Investigate valves and operation of pump (same procedure as primary pump).

Service

Rinnai recommend that all commercial water heater installations have a service arrangement.

Annual services are recommended at a minimum. Refer to the back cover for contact information.

Rinnai Australia Pty Ltd

ABN 74 005 138 769 | AU45204

100 Atlantic Drive, Keysborough, Victoria 3173

P.O. Box 460, Braeside, Victoria 3195

Tel: (03) 9271 6625

Fax: (03) 9271 6622

National Help Line

Tel: 1300 555 545* Fax: 1300 555 655

Monday to Friday, 8.00 am to 5.00 pm EST.

After Hours Hot Water Service Line

Tel: 1800 000 340*

**Cost of a local call higher from mobile or public phones.*

For further information visit **www.rinnai.com.au**
or email **enquiry@rinnai.com.au**

Rinnai has a Service and Spare Parts network with personnel who are fully trained and equipped to give the best service on your Rinnai appliance. If your appliance requires service, please call our National Help Line. Rinnai recommends that this appliance be serviced every year.

With our policy of continuous improvement, we reserve the right to change, or discontinue at any time, specifications or designs without notice.