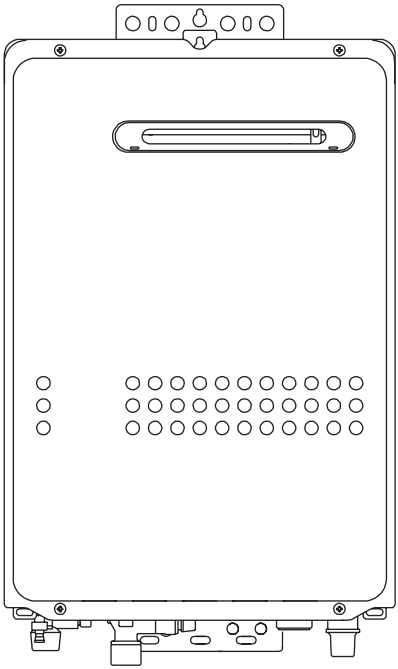
# **Installation** Manual



(e.g. 26ECB5N)

**Condensing Models**

| | |
|---|---|
| 26ECB5N | 21ECB5N |
| 26ECB5L | 21ECB5L |
| 26ECB6N | 21ECB6N |
| 26ECB6L | 21ECB6L |

**Non Condensing Models**

| | |
|---|---|
| 21ENB5N | 26ENA5N |
| 21ENB5L | 26ENA5L |
| 21ENB6N | 26ENA6N |
| 21ENB6L | 26ENA6L |
| 17ENB5N | 32END5N |
| 17ENB5L | 32END5L |
| 17ENB6N | 32END6N |
| 17ENB6L | 32END6L |

**⚠ WARNING**

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

**To be installed and serviced only by an authorised person.**

**This appliance is not suitable for use as a pool heater.**

The "authorised installing person" is responsible for:
1. Correct commissioning of this appliance
2. Ensure unit performs to the specification stated on the data label
3. Demonstrate operation of unit to customer before leaving
4. Hand these instructions to customer

This appliance must be installed in accordance with the manufacturer's installation instructions all Local Building, Water and Gas fitting regulations (AS/NZS 3500.4, AS/NZS 5601, AS/NZS 3000).

**Failure to install this appliance in accordance with these installation instructions may void warranty.**

In the interest of continued product improvement, Dux Manufacturing reserves the right to alter these specifications without notice.



AU Service Department : 1300 365 115
NZ Service Department : 0800 729 389

Potential dangers from accidents during installation and use are divided into the following four categories. Closely observe these warnings, they are critical to your safety.

| | |
|---|---|
| ⚠ DANGER | Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. |
| ⚠ WARNING | Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury. |
| ⚠ CAUTION | Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. |
| NOTICE | Indicates a potentially hazardous situation which, if not avoided, may result in property damage. |

## ⚠ WARNING

If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or death.

## ⚠ CAUTION

**Requests to Installers**

- In order to use the Water Heater safely, read this installation manual carefully, and follow the installation instructions.
- Failures and damage caused by erroneous work or work not as instructed in this manual are not covered by the warranty.
- Check that the installation was done properly in accordance with this Installation Manual upon completion.
- After completing installation, either place this Installation Manual in a plastic pouch and attach it to the side of the Water Heater (or the inside of the pipe cover or recess box if applicable), or hand it to the customer to retain for future reference. Also, be sure to fill in all of the required items on the warranty and to hand the warranty to the customer along with the Owner's Guide.

- The Water Heater must be commissioned including checking gas supply pressures at maximum demand.
- The operation of the Water Heater should be explained including normal operation and regular maintenance.

# Contents

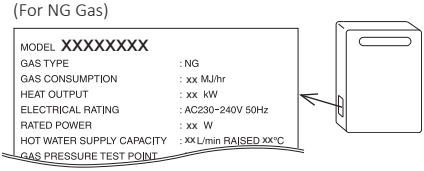
# 1. Before Installation

## ⚠ WARNING

**Check the Gas**

- Check that the data label (left side of casing).
- Check that the gas supply pipe is sized for
  32END5(6)N: 250 MJ/hr
  32END5(6)L: 250MJ/hr
  26ECB5(6)N: 175 MJ/hr
  26ECB5(6)L: 185 MJ/hr
  21ECB5(6)N: 145 MJ/hr
  21ECB5(6)L: 149MJ/hr
  26ENA5(6)N: 200 MJ/hr
  26ENA5(6)L: 200 MJ/hr
  21ENB5(6)N: 159 MJ/hr
  21ENB5(6)L: 159 MJ/hr
  17ENB5(6)N: 125.5 MJ/hr
  17ENB5(6)L: 127 MJ/hr
- DO NOT OPERATE WITH ANY OTHER GAS TYPE.

(For NG Gas)




**Check the Power**

The power supply required is 230- 240 VAC, at 50 Hz.
Using the incorrect voltage may result in fire or electric shock.

**Warning labels**

Located on the front and left hand side of the casing-PLEASE READ THESE LABELS CAREFULLY!

## ⚠ CAUTION

**Do Not Use Appliance for Purposes Other Than Those Specified**

Do not use for other than increasing the temperature of the water supply, as unexpected accidents may occur as a result.

**Check Water Supply Quality**

If the water supply is hard, acidic or otherwise impure, treat the water with approved methods in order to ensure full warranty coverage.
See water quality statement on page 39.

**Frost Protection**

When installed, power to the appliance must be kept switched on, otherwise the appliance should be drained.
This prevents water freezing, and causing damage to the Water Heater.

## *NOTICE*

- This appliance is suitable for potable water applications.
- Do not use this appliance if any part has been underwater. Immediately call a qualified service technician to inspect the appliance and replace any part of the control system and gas control which has been under water.

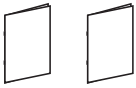
# 2. About the Water Heater

## 2.1 Included Accessories

The following accessories are included with the Water Heater.
Check for any missing items before starting installation.

Anchoring Screw (× 5)

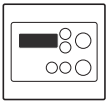
Owner's Guide,
Installation Manual (this document) (1 each)



## 2.2 Optional Accessories

- The accessories listed below are not included with the Water Heater, but may be necessary for installation.
- Refer to page 29-33, for the selection of remote controllers.

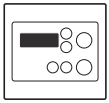
Main Controller Set
[RCM1D]



Main Controller (× 1)
[ECM1D]

RC Cable (× 1)
[ECM-CABLE-10M]

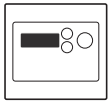
Bathroom Controller Set
[RCB1D]



Bathroom Controller
(× 1)
[ECB1D]

RC Cable (× 1)
[ECM-CABLE-10M]

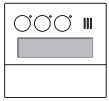
Bathroom 2 Controller Set
[RCB2D]



Bathroom 2 Controller
(× 1)
[ECB2D]

RC Cable (× 1)
[ECM-CABLE-10M]

Main Controller Set *(For 32END series only)*
[CF-KRC-9018C]



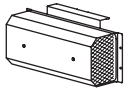
Main Controller (× 1)
[RC-9018C]

RC Cable (× 1)
[ECM-CABLE-10M]

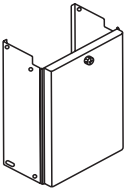
RC Cable (× 1)
[ECM-CABLE-10M]

Quick Connect Cord *(For 32END series only)*
(2 m) (× 1)
[CF-0706377]

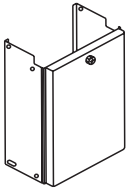
Flue Diverter (× 1) *(For 26ENA series only)*
[CF-L18]



Pipe cover (× 1) *(For other than 32END series)*
[CF-H33-K450]



Pipe cover (× 1) *(For 32END series only)*
[CF-H32-K450]



## 2.3 Specifications

- Specifications may be changed without prior notice.
- The capacity may differ slightly, depending on the water pressure, water supply, piping conditions, and water temperature.

| Item | | | Specification | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Model Name | 50°C model | | 26ECB5N | 26ECB5L | 21ECB5N | 21ECB5L | 21ENB5N | 21ENB5L | 17ENB5N | 17ENB5L |
| | 55°C model | | 26ECB6N | 26ECB6L | 21ECB6N | 21ECB6L | 21ENB6N | 21ENB6L | 17ENB6N | 17ENB6L |
| Type | Installation | | Outdoor, Wall mounted | | | | | | | |
| | Air Supply / Exhaust | | Power Flue | | | | | | | |
| Operating Pressure | | | 200-1,000 kPa | | | | | | | |
| Minimum Flow Rate | | | 2.5 L/min | | | | | | | |
| Dimensions (Height) × (Width) × (Depth) | | | 520 mm × 350 mm × 170 mm | | | | | | | |
| Weight | | | 18 kg | | 17 kg | | 15 kg | | 14 kg | |
| Water Holding Capacity | | | 0.9 L | | 0.8 L | | 0.5 L | | 0.5 L | |
| Connection Sizes | Water Inlet | | R 3/4 (20 mm) | | | | | | | |
| | Hot Water Outlet | | R 3/4 (20 mm) | | | | | | | |
| | Gas Inlet | | R 3/4 (20 mm) | | | | | | | |
| | Condensate Drain | | R1/2 (15 mm) | | | | – | | | |
| Power Supply | Supply | | 230- 240 VAC (50 Hz) | | | | | | | |
| | Consumption | NG/ULPG | 49.0 W / 60.0 W | | 43.0 W / 52.0 W | | 36.0 W / 49.0 W | | 31.0 W / 41.0 W | |
| | | Freeze Prevention | 130 W | | 130 W | | 129 W | | 129 W | |
| Burner Injector Size | | NG | 1.4 mm / 2.4 mm | | 1.3 mm / 2.2 mm | | 1.2 mm / 2.0 mm | | 1.2 mm / 1.8 mm | |
| | | ULPG | 1.1 mm / 1.4 mm | | 0.9 mm / 1.4 mm | | 0.9 mm / 1.4 mm | | 0.9 mm / 1.4 mm | |
| Accessories | | | Anchoring Screws | | | | | | | |

| Item | | | Specification | | | |
|---|---|---|---|---|---|---|
| Model Name | 50°C model | | 26ENA5N | 26ENA5L | 32END5N | 32END5L |
| | 55°C model | | 26ENA6N | 26ENA6L | 32END6N | 32END6L |
| Type | Installation | | Outdoor, Wall mounted | | | |
| | Air Supply / Exhaust | | Power Flue | | | |
| Operating Pressure | | | 200-1,000 kPa | | | |
| Minimum Flow Rate | | | 2.5 L/min | | 2.0 L/min | |
| Dimensions (Height) × (Width) × (Depth) | | | 600 mm × 350 mm × 170 mm | | 615 mm × 464 mm × 240 mm | |
| Weight | | | 19 kg | | 30 kg | |
| Water Holding Capacity | | | 0.9 L | | 1.2 L | |
| Connection Sizes | Water Inlet | | R 3/4 (20 mm) | | | |
| | Hot Water Outlet | | R 3/4 (20 mm) | | | |
| | Gas Inlet | | R 3/4 (20 mm) | | | |
| | Condensate Drain | | – | | | |
| Power Supply | Supply | | 230- 240 VAC (50 Hz) | | | |
| | Consumption | NG/ULPG | 62.0 W / 64.0 W | | 76.0 W / 101.0 W | |
| | | Freeze Prevention | 129 W | | 145 W | |
| Burner Injector Size | | NG | 2.3 mm | | 2.4 mm | |
| | | ULPG | 1.6 mm | | 1.5 mm | |
| Accessories | | | Anchoring Screws | | | |

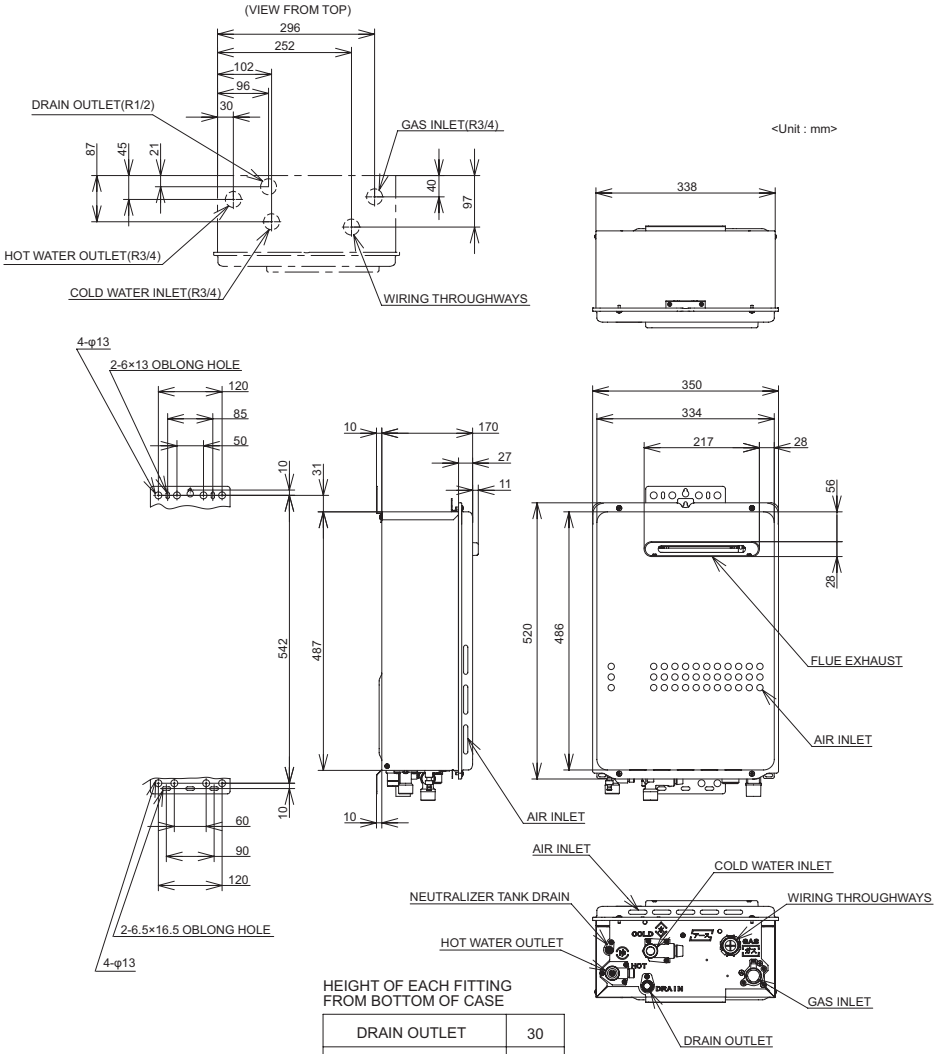
**Performances**

| Item | | | Maximum Performance | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Model Name | 50°C model | | 26ECB5N | 26ECB5L | 21ECB5N | 21ECB5L | 21ENB5N | 21ENB5L | 17ENB5N | 17ENB5L |
| | 55°C model | | 26ECB6N | 26ECB6L | 21ECB6N | 21ECB6L | 21ENB6N | 21ENB6L | 17ENB6N | 17ENB6L |
| Gas Consumption | | NG | 175 MJ/hr | | 145 MJ/hr | | 159 MJ/hr | | 125.5 MJ/hr | |
| | | ULPG | 185 MJ/hr | | 149 MJ/hr | | 159 MJ/hr | | 127 MJ/hr | |
| Maximum Hot Water Capacity (25°C Rise) | | | 26 L/min | | 21 L/min | | 21 L/min | | 17 L/min | |

| Item | | | Maximum Performance | | | |
|---|---|---|---|---|---|---|
| Model Name | 50°C model | | 26ENA5N | 26ENA5L | 32END5N | 32END5L |
| | 55°C model | | 26ENA6N | 26ENA6L | 32END6N | 32END6L |
| Gas Consumption | | NG | 200 MJ/hr | | 250 MJ/hr | |
| | | ULPG | 200 MJ/hr | | 250 MJ/hr | |
| Maximum Hot Water Capacity (25°C Rise) | | | 26 L/min | | 32 L/min | |

## 2.4 Dimensions

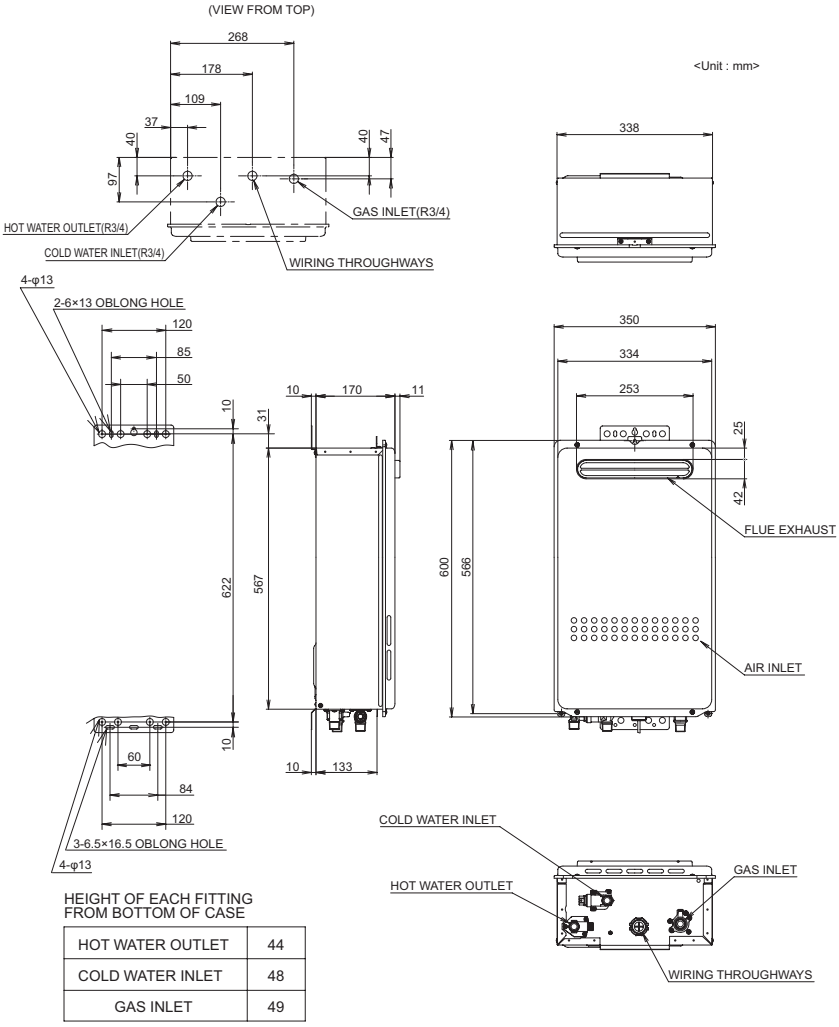
**21/26ECB series**




HEIGHT OF EACH FITTING FROM BOTTOM OF CASE

| | |
|---|---|
| DRAIN OUTLET | 30 |
| HOT WATER OUTLET | 45 |
| COLD WATER INLET | 58 |
| GAS INLET | 50 |

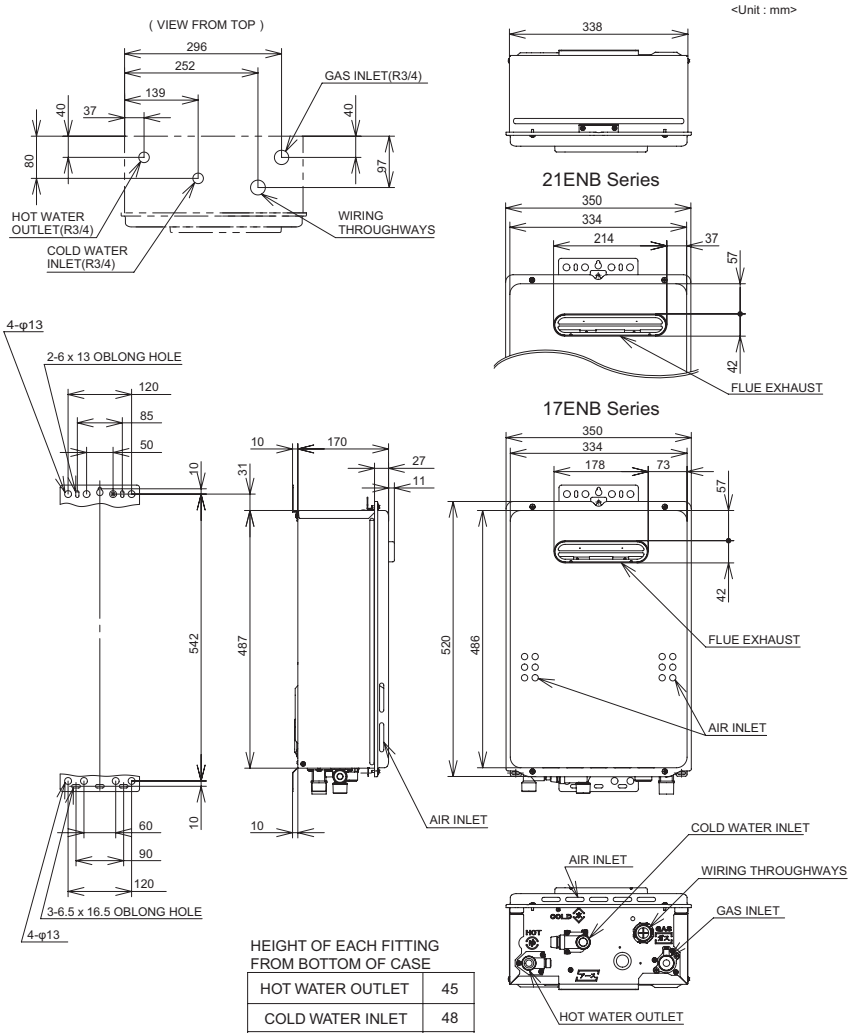
**26ENA series**




HEIGHT OF EACH FITTING FROM BOTTOM OF CASE

| | |
|---|---|
| HOT WATER OUTLET | 44 |
| COLD WATER INLET | 48 |
| GAS INLET | 49 |

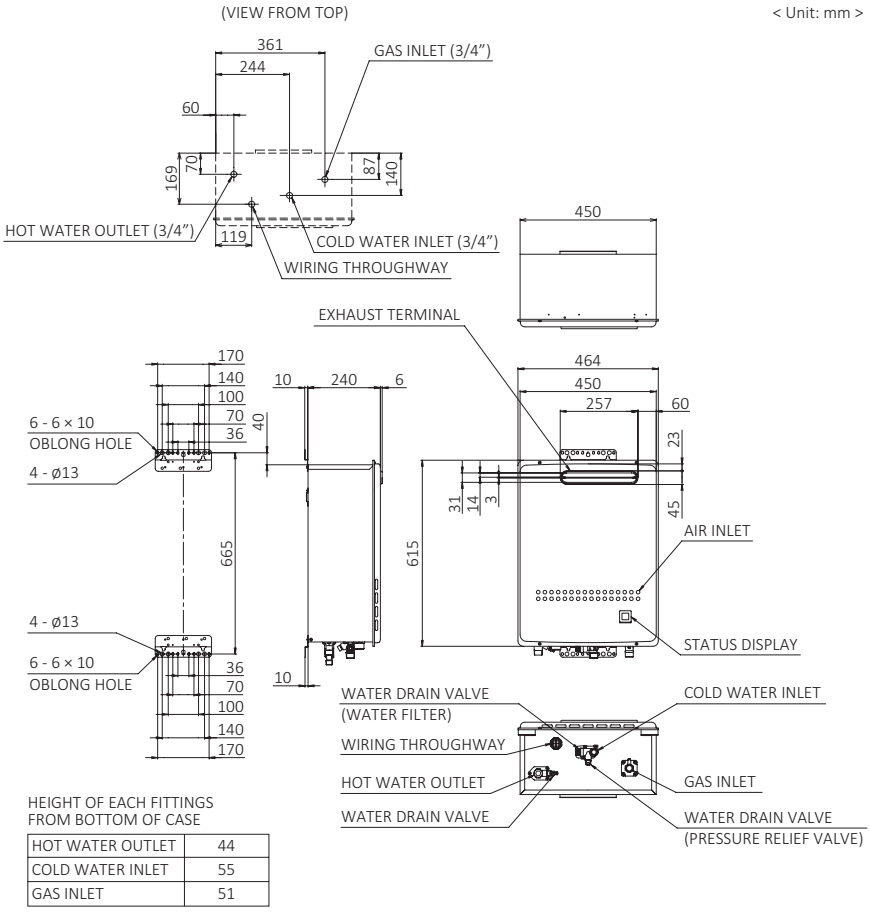
**17/21ENB series**




HEIGHT OF EACH FITTING FROM BOTTOM OF CASE

| | |
|---|---|
| HOT WATER OUTLET | 45 |
| COLD WATER INLET | 48 |
| GAS INLET | 50 |

**32END series**

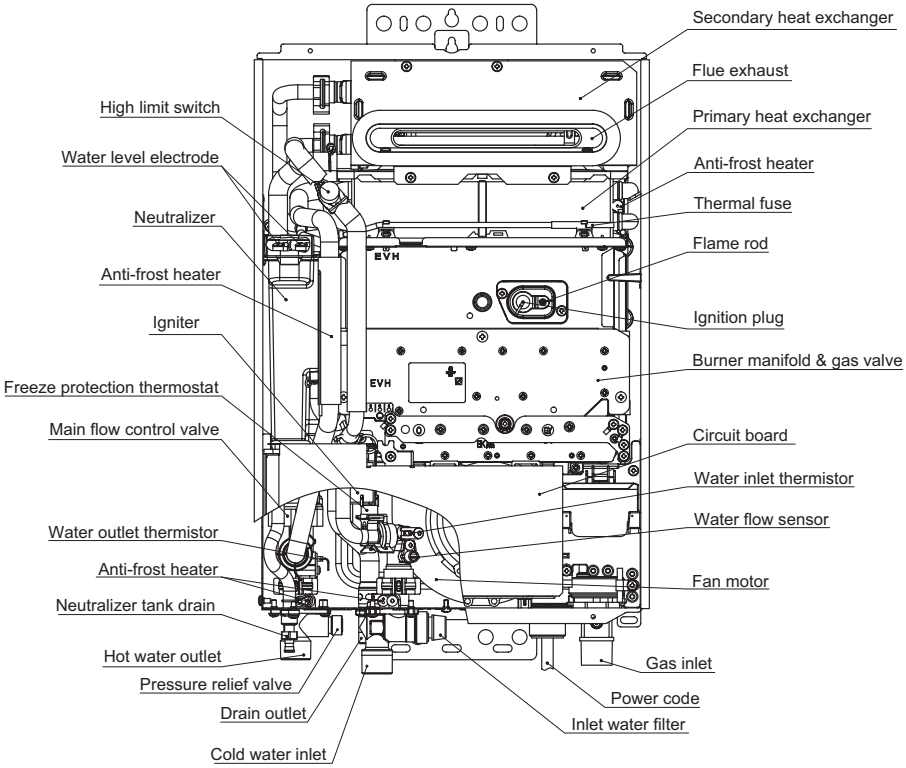



HEIGHT OF EACH FITTINGS
FROM BOTTOM OF CASE

| | |
|---|---|
| HOT WATER OUTLET | 44 |
| COLD WATER INLET | 55 |
| GAS INLET | 51 |

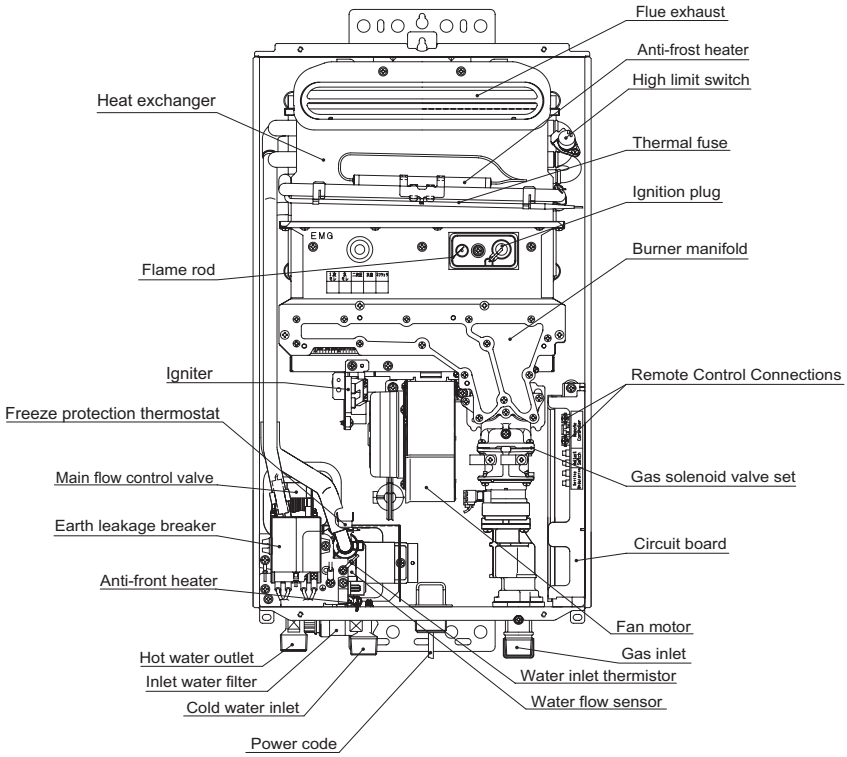
## 2.5 Component Details Example

**21/26ECB series**



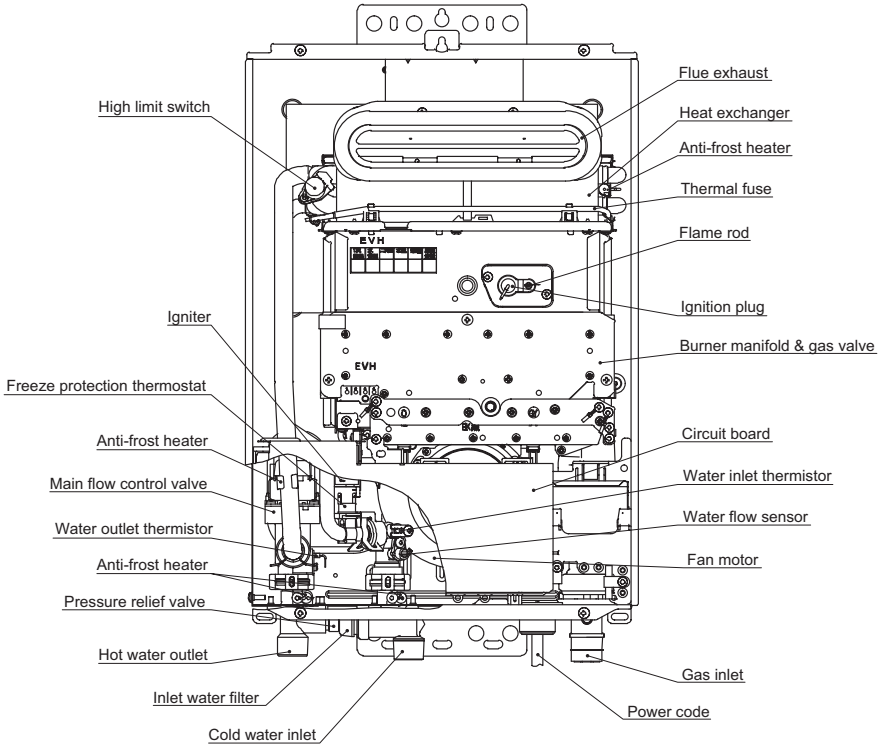

(e.g. 26ECB5N)

**26ENA series**



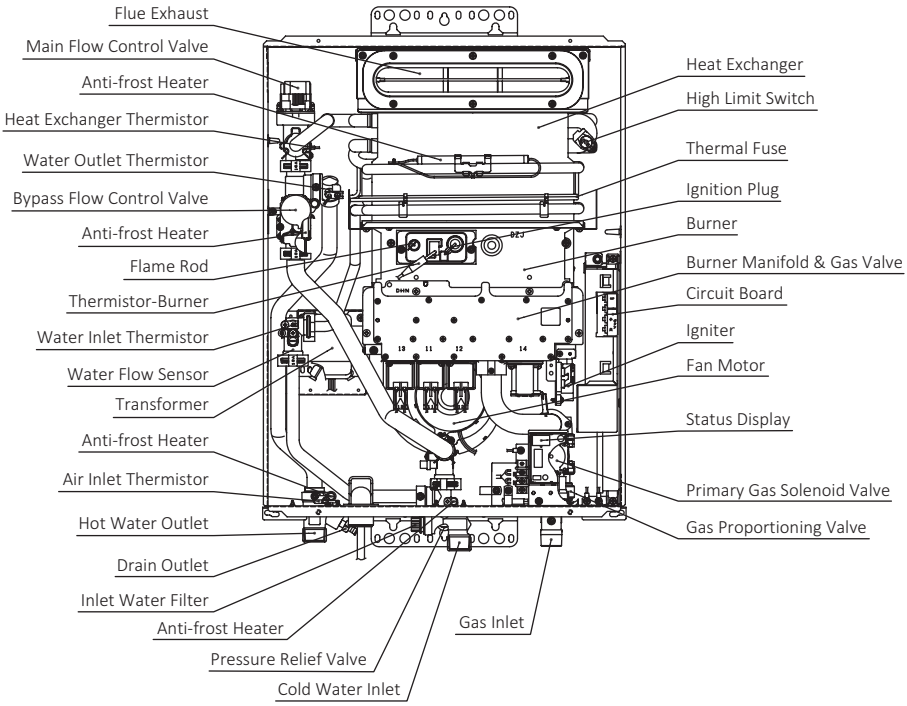

(e.g. 26ENA5N)

**17/21ENB series**




(e.g. 21ENB5N)

**32END series**




(e.g. 32END5N)

# 3. Choosing an Installation Location

## ⚠ DANGER

- This Water Heater is for outdoor installation only. Do not install indoors.
- Do not enclose the termination with corrugated metal or other materials. This will cause carbon monoxide poisoning and a potential fire hazard.

## ⚠ WARNING

- Avoid places where fires are common, such as those where petrol, benzene and adhesives are handled, or places in which corrosive gases (ammonia, chlorine, sulfur, ethylene compounds, acids) are present. If you do not follow the above, a fire or explosion may result causing property damage, personal injury or death.
- Avoid installation in places where dust or debris will accumulate. Dust may block the air-supply opening, causing the performance of the device fan to drop and incomplete combustion to occur as a result.
- Avoid installation in places where special chemical agents (e.g. hair spray or spray detergent) are used. Ignition failures and malfunctions may occur as a result.
- Do not install this Water Heater in a mobile home, recreational vehicle or on a boat as this may be a Carbon Monoxide Poisoning Hazard.

## ⚠ CAUTION

**Do not install in the following places**

- A location where it is not free from obstacles and stagnant air.
- Near staircases or emergency exits.

## ⚠ CAUTION

**Consideration to the surroundings**

- Do not install the Water Heater where the exhaust will blow on outer walls, other walls or material not resistant to heat. Also consider the surrounding trees and animals. The heat and moisture from the Water Heater may cause discoloration of walls and resinous materials, or corrosion of aluminium materials.
- Do not locate the vent termination directed towards a window or any other structure which has glass or wired glass facing the termination.
- Take care that noise and exhaust gas will not affect neighbors.
- On combustible surfaces (e.g. weatherboards), it is not required to install a fire proof back board.
- Install in a location where the exhaust gas flow will not be affected by fans or range hoods.


**Install according to regulations and manual**

- The Water Heater must be installed according to manual.
- Before installing, make sure that the vent termination will have the proper clearances according to AS/NZS 5601, or your local authority.

## *NOTICE*

Locate the appliance in an area where water leakage from the unit or connections will not result in damage to the area adjacent to the appliance or to the lower floors of the structure. When such locations cannot be avoided, it is recommended that a suitable drain pan, adequately drained, be installed under the appliance. The pan must not restrict combustion air flow.

# 4. Installation Clearances

**⚠ WARNING**

**Before installing, check for the following:**
The location of the flue terminal must comply with the clearances shown on this page. If you are unsure about clearances not indicated here, in general refer to AS/NZS 5601, or your local authority. In Western Australia refer to the WA Office of Energy rules and regulations.
**Flue outlet must be free from any combustible material.**

## CLEARANCES FOR FLUE TERMINAL (front of heater)

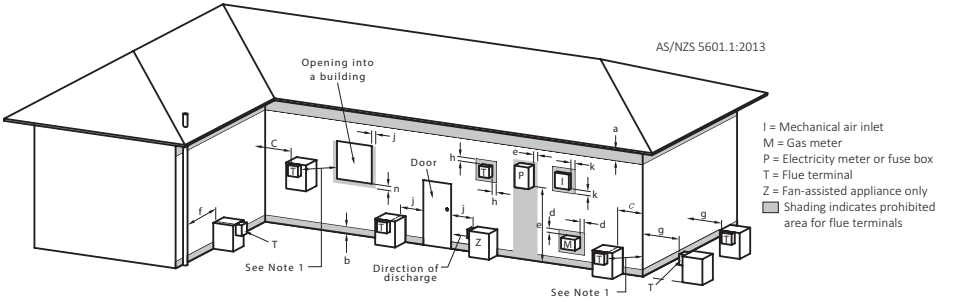



FIGURE 6.2 (in part)
LOCATION OF FLUE TERMINALS OF BALANCED FLUE, ROOM-SEALED, FAN-ASSISTED OR OUTDOOR APPLIANCES

| Ref. | Item | Minimum clearances mm |
|---|---|---|
| | | Fan assisted |
| a | Below eaves, balconies and other projections: | |
| | Appliances up to 50 MJ/h input | 200 |
| | Appliances over 50 MJ/h input | 300 |
| b | From the ground, above a balcony or other surface * | 300 |
| c | From a return wall or external corner * | 300 |
| d | From a gas meter (M) (see Note 5)<br>(see Clause 5.11.5.9 for vent terminal location of regulator)<br>(see Table 6.7 for New Zealand requirements) | 1000 |
| e | From an electricity meter or fuse box (P) † (see Note 5) | 500 |
| f | From a drain pipe or soil pipe | 75 |
| g | Horizontally from any building structure * or obstruction facing a terminal | 500 |
| h | From any other flue terminal , cowl, or combustion air intake * | 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* | 300 |
| | Appliances over 150 MJ/h input up to 200 MJ/h input* | 300 |
| | Appliances over 200 MJ/h input up to 250 MJ/h input* | 500 |
| | Appliances over 250 MJ/h input* | 1500 |
| | All fan-assisted flue appliances, in the direction of discharge | 1500 |
| k | From a mechanical air inlet, including a spa blower | 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/h input | 150 |
| | Other appliances up to 50 MJ/h input | 500 |
| | Appliances over 50 MJ/h input and up to 150 MJ/h input | 1000 |
| | Appliances over 150 MJ/h input | 1500 |

* Unless appliance is certified for closer installation.
† Prohibited area below electricity meter or fuse box extends to ground level.

NOTES:
1 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.
2 See Clause 6.9.4 for restrictions on a flue terminal under a covered area.
3 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.
4 For appliances not addressed above acceptance should be obtained from the Technical Regulator.
5 Minimum clearances d and e also apply to any combustion air intake openings of appliances.

# 5. Installation of the Water Heater

## Securing the Water Heater to the wall

**⚠ WARNING**

Do not drop or apply unnecessary force to the appliance when installing. Internal parts may be damaged and may become highly dangerous.

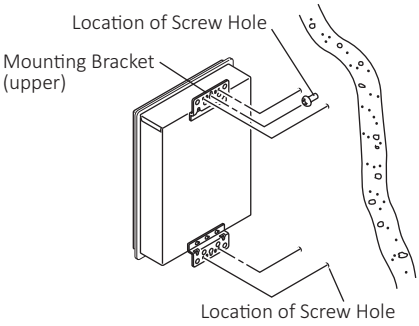
**⚠ CAUTION**

- Protect your hands with gloves and take caution to not inflict injury.
- Be careful not to hit electrical wiring, gas, or water piping while drilling holes.

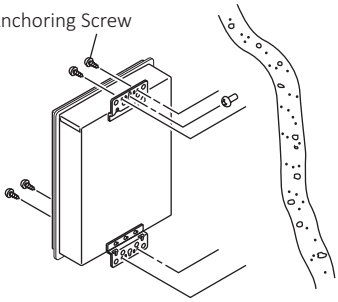
***NOTICE***

- Installation must conform with all local building, water or Gas Regulations or AS/NZS 5601.
- The weight of the appliance will be applied to the wall. If the strength of the wall is not sufficient, reinforcement must be done to prevent the transfer of vibration.
- Install the appliance on a vertical wall and ensure that it is level.
- Insure no additional pressure is applied to the pipework.

1. Drill a single screw hole, making sure to hit a stud.
2. Insert and tighten the screw and hang the Water Heater by the upper wall mounting bracket.
3. Determine the positions for the remaining four screws (two for the top bracket and two for the bottom), and remove the Water Heater.




4. Drill holes for the remaining four screws.
5. Hang the Water Heater again by the first screw, and then insert and tighten the remaining four screws.
6. Take waterproofing measures so that water does not enter the building from screws mounting the device.




7. Make sure the Water Heater is installed securely so that it will not fall or move due to vibrations or earthquakes.

# 6. Connecting the Gas Supply

Follow the instructions from the gas supplier.

**Gas Type**

The gas type indicated on the Water Heater's rating plate (NG or ULPG) must match the type of gas being supplied to the Water Heater.

**Gas Meter**

Select a gas meter capable of supplying the entire MJ/h demand of all gas appliances in the building.

**Gas Connection**

1. Fit a union to the Water Heater gas inlet for easy connection and removal. The thread diameter is 20 mm.

   ***NOTE*** THIS DOES NOT INDICATE THE SIZE OF THE GAS SUPPLY.

2. Fit an suitably approved isolating gas cock in the supply pipe adjacent to the Water Heater gas connection.
3. Ensure that the supply pipe and the gas pressure regulator (ULPG or Natural Gas) has sufficient flow capacity for this and other appliances connected to the fitting pipe.
4. For ULPG appliances ensure that gas cylinders are of sufficient size. The Water Heater alone will require 2 × 45 Kg capacity cylinders.
5. Before connecting the appliance to the gas service, purge any debris or air from the gas service.
6. Check all joints for leaks with an approved leak tester after connection.

**Pressure**

Ensure measurement is taken when the appliance is operating at maximum load.

**⚠ WARNING**

The inlet gas pressure must be within the range specified.
This is for the purposes of input adjustment.

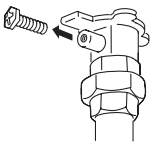
**Pressure Test**

The appliance and its gas connections must be leak tested before placing the appliance in operation.

If test pressures are in excess of 1/2 psi (3.5 kPa), the appliance must be completely disconnected from the gas supply piping system during the test process.

**Measuring Gas Pressure**

- In order to check the gas supply pressure to the Water Heater, a tap is provided on the gas inlet.
  1. Remove the hex head phillips screw from the tap.
  2. Connect a manometer using a silicon tube.



- In order to check the gas manifold pressure on the gas valve inside the Water Heater. The pressure can be checked by removing the hex head phillips screw and connecting a manometer with a silicon tube.

**Pipe Sizing**

- In order to choose the proper size for the gas pipe, consult local codes and/or the AS/NZS 5601.
- Size the gas pipe according to total MJ/h demand of the building and length from the meter or regulator so that the following supply pressures are available even at maximum demand refer AS/NZS 5601:

| | Supply Pressure | |
|---|---|---|
| | **Natural Gas** | **ULPG Gas** |
| **Min** | **1.13 kPa** | **2.75 kPa** |
| **Max** | **3.00 kPa** | **3.50 kPa** |

**⚠ WARNING**

Gas pressures below the required minimum pressure may result in ignition failure, personal injury or death.

**NOTE**
- Ensure that the gas pipe size is correct. If undersized the appliance will not operate correctly.
- SERVICE CALLS ARE CHARGEABLE FOR UNITS WITH INCORRECT PIPE SIZES OR BLOCKED GAS OR WATER FILTERS.

**Flexible Connectors**

Flexible gas pipes are not recommended unless the minimum inside diameter is ¾ in. or greater and the rated capacity of the connector is equal to or greater than the MJ/h demand of the Water Heater.

**Reference Tools & Sample Calculations**

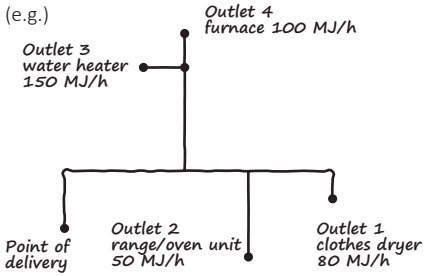
**NOTICE**

The tables and samples below are for reference only. The professional sizing and installing the gas pipe should always run the appropriate calculations before all installations.

**[Calculation Example]**
A partial set of sizing tables are printed on page 22-23.

1. Draw a sketch of a piping system.
   Enter the system information.

(e.g.)




2. • Determine the gas type used and supply gas Pressure, and enter it.
   • Determine the piping material and enter it to the below.
   • Select the appropriate pipe sizing table from page 22-23 and enter it to the below.

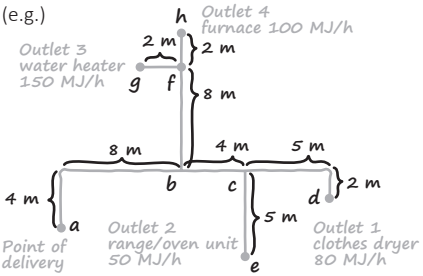
(e.g.)

Gas type: Natural
Supply gas pressure: 1.13
Piping material: Copper
Table used: 1
Pressure drop: 0.12 kPa

Gas type: _____
Supply gas pressure: _____
Piping material: _____
Table used: _____
Pressure drop: _____

3. • On the sketch, mark the delivery point (meter or regulator) as “a” and the first tee as “b”. Let the section “a-b” be the first section.
   • Section from the first tee “b” to the second tee “c” set “b-c” and set the section to the next tee in the same way.

(e.g.)



4. • Enter the demand which is the amount of gas flowing through a section of pipe in the table below.
   • Enter the length for all pipe sections in the table below.
   • Round up to the lengths in the appropriate table on page 22-23. Read across until a capacity equal to or greater than the required demand for the section is found. Read up to find the size. Repeat for each section of piping. Enter this size in the table below.

(e.g.)

| Section | Demand | Length | Size |
|---|---|---|---|
| a b | Outlet 1+2+3+4= 380 MJ/h | 12 m | 40 mm |
| b c | Outlet 1+2= 130 MJ/h | 4 m | 20 mm |
| c d | Outlet 1= 80 MJ/h | 7 m | 20 mm |
| c e | Outlet 2= 50 MJ/h | 5 m | 20 mm |
| b f | Outlet 3+4= 250 MJ/h | 8 m | 25 mm |
| f g | Outlet 3= 150 MJ/h | 2 m | 20 mm |
| f h | Outlet 4= 100 MJ/h | 2 m | 20 mm |
| | | | |

| Section | Demand | Length | Size |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

5. • Enter the input rating for each appliance in the table below.
   • Enter the length from each appliance to the nearest tee in the outlet length in the table below.
   • Round up to the lengths in the appropriate table on page 22-23. Read across until a capacity equal to or greater than the required demand for the section is found. Read up to find the size. Repeat for each appliance. Enter this size in the table below.

(e.g.)

| Appliance | Demand | Outlet length | Size |
|---|---|---|---|
| Outlet 1 | 80 MJ/h | 7 m | 20 mm |
| Outlet 2 | 50 MJ/h | 5 m | 20 mm |
| Outlet 3 | 150 MJ/h | 2 m | 20 mm |
| Outlet 4 | 100 MJ/h | 2 m | 20 mm |

| Appliance | Demand | Outlet length | Size |
|---|---|---|---|
| Outlet 1 | | | |
| Outlet 2 | | | |
| Outlet 3 | | | |
| Outlet 4 | | | |

**Final Check**

1. Turn on and operate all gas appliances including the Water Heater.
2. Ensure that the inlet pressure of each appliance is above the minimum pressure required for the appliance.

***NOTE***
- If all appliances are not receiving the minimum inlet pressure, the gas piping system may need to be changed.
- As the gas inlet size varies depending on the area, type of gas, piping material, etc., more details should be determined after confirmation according to AS/NZS 5601.1:2013.

**[Gas pipe sizing tables]**

- These tables are for reference only. Consult gas pipe manufacturer for actual pipe capacities.
- It is an example of Copper Pipe (AS 1432 TypeB) and Natural Gas.
- Values in Table are in MJ of Gas per Hour.

**1. Maximum Natural Gas Delivery Capacity (For supply pressure around 1.25 kPa) - COPPER PIPE (AS 1432 TYPE B) [MJ/h]**

| Pipe Size | 0.12 kPa Pressure Drop | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Length (including fittings) : metres | | | | | | | | | | | | | | | | | |
| | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| 15 | 62 | 43 | 34 | 29 | 26 | 22 | 19 | 17 | 15 | – | – | – | – | – | – | – | – | – |
| 20 | 206 | 141 | 114 | 97 | 86 | 78 | 72 | 67 | 63 | 59 | 52 | 48 | 44 | 41 | 37 | 33 | 30 | 28 |
| 25 | 452 | 311 | 249 | 214 | 189 | 171 | 158 | 147 | 138 | 130 | 115 | 104 | 96 | 89 | 84 | 79 | 75 | 72 |
| 32 | 867 | 596 | 478 | 409 | 363 | 329 | 302 | 281 | 264 | 249 | 221 | 200 | 184 | 171 | 161 | 152 | 144 | 138 |
| 40 | 1459 | 1002 | 805 | 689 | 611 | 553 | 509 | 474 | 444 | 420 | 372 | 337 | 310 | 288 | 271 | 256 | 243 | 232 |
| 50 | 3356 | 2307 | 1852 | 1585 | 1405 | 1273 | 1171 | 1090 | 1022 | 966 | 856 | 776 | 713 | 664 | 623 | 588 | 559 | 533 |
| 65 | 6217 | 4273 | 3431 | 2937 | 2603 | 2358 | 2169 | 2018 | 1894 | 1789 | 1585 | 1436 | 1321 | 1229 | 1154 | 1090 | 1035 | 987 |
| 80 | 9884 | 6794 | 5455 | 4669 | 4138 | 3750 | 3450 | 3209 | 3011 | 2844 | 2521 | 2284 | 2101 | 1955 | 1834 | 1732 | 1645 | 1570 |
| 100 | – | – | – | – | – | – | – | – | – | 6286 | 5571 | 5048 | 4644 | 4320 | 4054 | 3829 | 3637 | 3469 |
| 125 | – | – | – | – | – | – | – | – | – | 11520 | 10210 | 9251 | 8511 | 7918 | 7429 | 7017 | 6665 | 6358 |
| 150 | – | – | – | – | – | – | – | – | – | 18531 | 16423 | 14881 | 13690 | 12736 | 11950 | 11288 | 10720 | 10227 |

**2. Maximum Natural Gas Delivery Capacity (For supply pressure around 1.5-2.5 kPa) - COPPER PIPE (AS 1432 TYPE B) [MJ/h]**

| Pipe Size | 0.25 kPa Pressure Drop | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Length (including fittings) : metres | | | | | | | | | | | | | | | | | |
| | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| 15 | 93 | 64 | 51 | 44 | 39 | 35 | 32 | 30 | 258 | – | – | – | – | – | – | – | – | – |
| 20 | 306 | 210 | 169 | 145 | 128 | 116 | 107 | 99 | 93 | 88 | 78 | 71 | 65 | 61 | 57 | 54 | 51 | 49 |
| 25 | 672 | 462 | 371 | 318 | 281 | 255 | 235 | 218 | 205 | 193 | 171 | 155 | 143 | 133 | 125 | 118 | 112 | 107 |
| 32 | 1289 | 886 | 712 | 609 | 540 | 489 | 450 | 419 | 393 | 371 | 329 | 298 | 274 | 255 | 239 | 226 | 215 | 205 |
| 40 | 2170 | 1491 | 1197 | 1025 | 908 | 823 | 757 | 704 | 661 | 624 | 553 | 501 | 461 | 429 | 403 | 380 | 361 | 345 |
| 50 | 4993 | 3431 | 2755 | 2358 | 2090 | 1894 | 1742 | 1621 | 1521 | 1437 | 1273 | 1154 | 1061 | 987 | 926 | 875 | 831 | 793 |
| 65 | 9247 | 6355 | 5104 | 4368 | 3871 | 3508 | 3227 | 3002 | 2817 | 2661 | 2358 | 2137 | 1966 | 1829 | 1716 | 1621 | 1539 | 1469 |
| 80 | 14703 | 10105 | 8115 | 6945 | 6155 | 5577 | 5131 | 4773 | 4479 | 4231 | 3750 | 3397 | 3125 | 2908 | 2728 | 2577 | 2448 | 2335 |
| 100 | – | – | – | – | – | – | – | – | – | 9350 | 8287 | 7509 | 6908 | 6426 | 6030 | 5696 | 5409 | 5161 |
| 125 | – | – | – | – | – | – | – | – | – | 17136 | 15187 | 13761 | 12660 | 11777 | 11050 | 10438 | 9914 | 9458 |
| 150 | – | – | – | – | – | – | – | – | – | 27564 | 24429 | 22135 | 20363 | 18944 | 17775 | 16790 | 15946 | 15213 |

**3. Maximum Natural Gas Delivery Capacity (For supply pressure around 2.75-5 kPa) - COPPER PIPE (AS 1432 TYPE B) [MJ/h]**

| Pipe Size | 0.75 kPa Pressure Drop | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Length (including fittings) : metres | | | | | | | | | | | | | | | | | |
| | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| 15 | 168 | 115 | 93 | 79 | 70 | 64 | 59 | 54 | 51 | 48 | 43 | 39 | 36 | 33 | 31 | 29 | 28 | 27 |
| 20 | 554 | 381 | 306 | 262 | 232 | 210 | 193 | 180 | 169 | 160 | 141 | 128 | 118 | 110 | 103 | 97 | 92 | 88 |
| 25 | 1218 | 837 | 672 | 575 | 510 | 462 | 425 | 396 | 371 | 351 | 311 | 281 | 259 | 241 | 226 | 214 | 203 | 193 |
| 32 | 2336 | 1606 | 1289 | 1104 | 978 | 886 | 815 | 758 | 712 | 672 | 596 | 540 | 497 | 462 | 433 | 409 | 389 | 371 |
| 40 | 3931 | 2702 | 2170 | 1857 | 1646 | 1491 | 1372 | 1276 | 1197 | 1131 | 1002 | 908 | 836 | 777 | 729 | 689 | 654 | 624 |
| 50 | 9046 | 6217 | 4993 | 4273 | 3787 | 3431 | 3157 | 2937 | 2755 | 2603 | 2307 | 2090 | 1923 | 1789 | 1678 | 1585 | 1506 | 1437 |
| 65 | 16754 | 11515 | 9247 | 7914 | 7014 | 6355 | 5847 | 5439 | 5104 | 4821 | 4273 | 3871 | 3562 | 3313 | 3109 | 2937 | 2789 | 2661 |
| 80 | 26639 | 18309 | 14703 | 12584 | 11153 | 10105 | 9297 | 8649 | 8110 | 7665 | 6794 | 6155 | 5663 | 5268 | 4943 | 4669 | 4435 | 4231 |
| 100 | – | – | – | – | – | – | – | – | – | 16941 | 15015 | 13604 | 12516 | 11644 | 10925 | 10320 | 9801 | 9350 |
| 125 | – | – | – | – | – | – | – | – | – | 31048 | 27517 | 24932 | 22938 | 21339 | 20022 | 18912 | 17962 | 17136 |
| 150 | – | – | – | – | – | – | – | – | – | 49941 | 44262 | 40104 | 36896 | 34324 | 32205 | 30421 | 28892 | 27564 |

| 4. Maximum Natural Gas Delivery Capacity (For supply pressure around 5-10 kPa) - COPPER PIPE (AS 1432 TYPE B) [MJ/h] | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pipe Size | 1.5 kPa Pressure Drop | | | | | | | | | | | | | | | | | |
| | Length (including fittings) : metres | | | | | | | | | | | | | | | | | |
| | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| 15 | 244 | 168 | 135 | 115 | 102 | 93 | 85 | 79 | 74 | – | – | – | – | – | – | – | – | – |
| 20 | 807 | 554 | 445 | 381 | 338 | 306 | 281 | 262 | 246 | 232 | 206 | 186 | 171 | 160 | 150 | 141 | 134 | 128 |
| 25 | 1772 | 1218 | 978 | 837 | 742 | 672 | 619 | 575 | 540 | 510 | 452 | 410 | 377 | 351 | 329 | 311 | 295 | 2813 |
| 32 | 3399 | 2336 | 1876 | 1606 | 1423 | 1289 | 1186 | 1104 | 1035 | 978 | 867 | 785 | 723 | 672 | 631 | 596 | 566 | 540 |
| 40 | 5720 | 3931 | 3157 | 2702 | 2395 | 2170 | 1996 | 1857 | 1742 | 1646 | 1459 | 1322 | 1216 | 1131 | 1061 | 1002 | 952 | 908 |
| 50 | 13161 | 9046 | 7264 | 6217 | 5510 | 4993 | 4593 | 4273 | 4009 | 3787 | 3356 | 3041 | 2798 | 2603 | 2442 | 2307 | 2191 | 2090 |
| 65 | 24377 | 16754 | 13454 | 11515 | 10206 | 9247 | 8507 | 7914 | 7426 | 7014 | 6217 | 5633 | 5182 | 4821 | 4523 | 4273 | 4058 | 3871 |
| 80 | 38760 | 26639 | 21392 | 18309 | 16227 | 14703 | 13526 | 12584 | 11807 | 11153 | 9887 | 8956 | 8239 | 7665 | 7192 | 6794 | 6452 | 6155 |
| 100 | – | – | – | – | – | – | – | – | – | 24649 | 21846 | 19794 | 18210 | 16941 | 15895 | 15015 | 14260 | 13604 |
| 125 | – | – | – | – | – | – | – | – | – | 45174 | 40037 | 36276 | 33374 | 31048 | 29131 | 27517 | 26134 | 24932 |
| 150 | – | – | – | – | – | – | – | – | – | 72663 | 64400 | 58351 | 53682 | 49941 | 46858 | 44262 | 42037 | 40104 |

# 7. Connecting the Water Supply

- Installation and service must be performed by a qualified plumber.
- Observe all applicable codes.

## 7.1 Guidelines

**Installation location**

- If installing the Water Heater on a roof (Above lower-level hot water supply):
  If the Water Heater is installed on a roof to supply water to the levels below, make sure that the water pressure supplied to the Water Heater does not drop below 199 kPa. It may be necessary to install a pump system to ensure that the water pressure is maintained at this level.
  Check the pressure before putting the Water Heater into operation.
  If you do not supply proper pressure to the Water Heater, noise may increase, the life of the Water Heater will be shortened, and the Water Heater may shut down frequently.

**Potable water**

- Piping and components connected to the Water Heater shall be suitable for use with potable water.
- Toxic chemicals, such as those used for boiler treatment, shall not be introduced into the potable water.
- A Water Heater used to supply potable water may not be connected to any heating system or components previously used with a nonpotable water heating appliance.

**Valve**

When water is required in one part of the system at a higher temperature than in the rest of the system, means such as a mixing valve shall be installed to temper the water to reduce the scald hazard.

**Connecting water supply**

- Flush water through the pipe to clean out metal powder, sand and dirt before connecting it.
- Use a union coupling for connecting the pipes to reduce the force applied to the piping.
- Use approved piping materials.

***NOTE***
- Avoid using joints as much as possible to keep the piping simple.
- Avoid piping in which an air holdup can occur.
- Avoid connection by fluid seal. It will cause the filter to stick, that is torn.

**Cold water supply**

**⚠ CAUTION**

(Only 32END series)
Ensure this appliance does not receive inlet water greater than 85°C when used as a Solar booster.

***NOTICE***

No pressure reduction is required unless the water pressure exceeds 1,000 kPa.

- Pipe and fittings must meet the installation requirements of AS/NZS 3500.4 and local authority regulations.
- An isolating valve must be installed on the water inlet in close proximity to the Water Heater.
- A GATE VALVE OR BALL VALVE must be used on the cold water inlet to the Water Heater, THIS REQUIREMENT IS AN AUSTRALIA WIDE REQUIREMENT UNDER THE NATIONAL PLUMBING CODE. STOP TAPS OR COMBINATION STOP TAPS AND NON-RETURN VALVES ARE NOT TO BE USED.
- The Water Heater needs a minimum water supply pressure of 200 kPa to operate.
- Maximum water supply pressure must not exceed 1,000 kPa.
- If the water pressure is too high, use a Pressure Reducing Valve and a Water Hammer Arrester.
- The unit is fitted with a pressure relief valve. In some circumstances, there may be small amounts of water droplets appearing from pressure relief valve. If required pressure relief valve should be connected to a suitable drain.

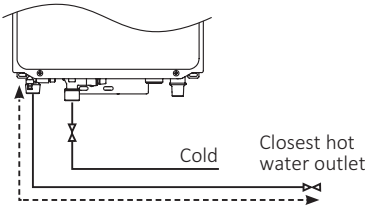
**Hot water supply**

**⚠ WARNING**

For any sanitary fixture used for personal hygiene, the delivered hot water temperature shall not exceed 50˚C for Australia and 55˚C for New Zealand.
For Australia, models which are not 50˚C compliant should be fitted with a temperature control device meeting the appropriate plumbing code requirements.

- Pipe and fittings must meet the installation requirements of AS/NZS 3500.4.
- Hot water lines should be lagged with suitable insulating material.
- DO NOT FIT ANY VALVES OR RESTRICTORS TO THE OUTLET OF THE WATER HEATER.
- DO NOT FIT ANY OBSTRUCTION TO THE PRESSURE RELIEF LOCATED ON THE HOT WATER OUTLET CONNECTION.

**[(50°C Compliant Models Only) Minimum Distances]**
In order to comply with AS 3498 the minimum distances as per the diagram below must be observed.

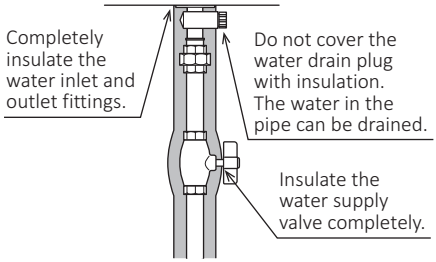



**Commission Check for 50°C Temperature Delivery**
A temperature check must be completed at the nearest outlet to the Water Heater to ensure delivered water is below 50°C.

To check the water temperature is below 50°C.
1. At the closest outlet adjust the hot water flow to at least 5 litres/min.
2. After hot water has been running for 1 min confirm the water temperature is below 50°C.
3. Turn the water off.

## 7.2 Freeze Prevention

Perform the following insulation measures for prevention of freezing.
- Take appropriate heat insulation measures (e.g. wrapping with heat insulation materials, using heat tape, electric heaters, solenoids, or pipe covers) according to the climate of the region to prevent the plumbing external to the Water Heater from freezing.
  The freeze prevention heaters will not prevent this plumbing from freezing.
- Make sure that there are no water leaks from the cold and hot water supply lines, then insulate the pipes completely.
- Be sure to also completely insulate the water supply valve and the cold and hot water connections on the Water Heater.




## 7.3 After Installing the water supply piping

After purging the air from the system using the hot water supply taps, remove the water inlet strainer located on the cold water supply inlet connection. Remove any debris from the filter and replace. When replacing the filter, do not over-tighten the Sealing.

# 8. Connecting the Condensate Drain

ONLY APPLICABLE TO CONDENSING MODELS.
PLEASE FOLLOW LOCAL CODES ABOUT PIPING.

**Condensing Water Heater**

In order to ensure proper operation of this Water Heater, need to install the condensate drain pipe to drain condensate which produces during operation.

**Material of the condensate drain piping**

Use plastic pipe, such as PVC, for the drain line.

***NOTE*** Do not use steel, black iron, or other materials that can corrode when touching water.

**Sizing of the condensate drain piping**

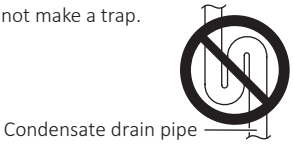
In order to drain the condensate, a 15 mm (1/2 in. BSP) male thread fitting is provided at the base of the Water Heater.

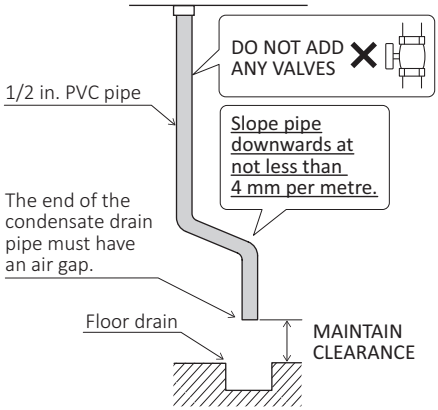
***NOTE*** DO NOT FIT ANY VALVES OR REDUCE THE SIZE OF THIS FITTING OR THE CONDENSATE PIPING TO LESS THAN 15 mm (1/2 in. BSP).

**Condensate drain piping**

Make the condensate drain piping run as short as possible.

***NOTE*** Do not make a trap.



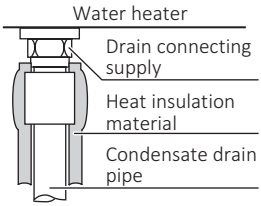




**After installing the condensate drain piping**

- Make sure that there are no obstructions blocking the condensate drain line from discharging condensate.
- Be sure to check that condensate is freely flowing from the condensate drain piping.
  Condensate will begin flowing out of the Water Heater **within 15 minutes after operation has started**.

**Freeze prevention**

Take measures to prevent the condensate drain lines from freezing (insulation, heat tape, electric heaters, etc.).



# 9. Connecting Electricity

## 9.1 Water Heater

**⚠ WARNING**

**Electrical Shock Hazard**
Do not connect the electrical power to the appliance until all Remote Controllers have been connected.
It may result in death or serious injury from electrical shock.

**⚠ CAUTION**

Electrostatic discharge can affect electronic components.
Take precautions to prevent electrostatic discharges from personnel or hand tools during the Water Heater installation and servicing to protect product's electronic control.

**Power Supply**

- The Water Heater is equipped with a 1.5 m cable with a three pinned earthed plug to be connected to 230- 240 VAC at 50 Hz.
  The power consumption may be up to 21/26ECB series 190 W, 17/21ENB series 179 W, 26ENA series 193 W, 32END series 246 W.
  Use an appropriate circuit.
- The Water Heater requires 230-240 VAC 50 Hz in Australia and New Zealand, weatherproof plug installed in a protected position adjacent to the appliance.
- If the power cord is damaged and requires replacement, use only an original spare part available from the manufacturer.
- Tie the redundant power cord outside the Water Heater. Putting the redundant length of cord inside the Water Heater may cause electrical interference and faulty operation.

***NOTE***

- Do not let the power cord contact the gas piping.
- Do not disconnect the electrical power when not in use. When the power is off, the freeze prevention in the Water Heater will not operate, resulting in possible freezing damage.

**Ground**

To prevent electrical shock, always plug power lead into an earthed point.

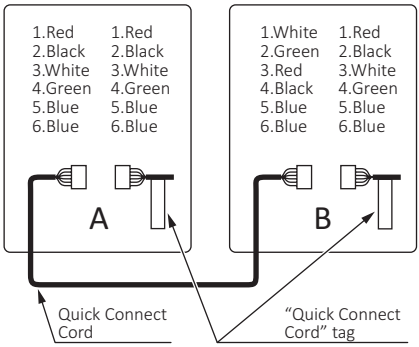
## 9.2 Quick Connect Cord

***NOTE*** For Quick Connect Multi-System installation only use the Quick Connect Cord (part No. CF-0706377, sold separately).

- The Remote Controller can be connected to either Water Heater A or B only.

***NOTE*** Do not connect the Remote Controller to both Water Heaters. If the Remote Controller is connected to both Water Heaters, remove the unnecessary Remote Controller before connecting the Quick Connect Cord.

- The wire coloring on the Quick Connect Cord will not be the same as the wire coloring of the connection plug inside the Water Heater.

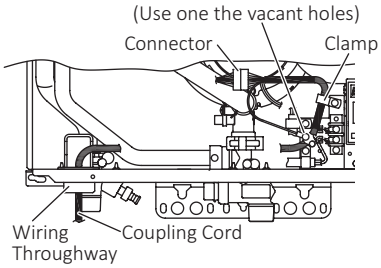



**Connecting the Quick Connect Cord to the two Water Heaters**

1. Check the electrical power is disconnected from the Water Heater.
2. Remove the front cover (4 screws).
3. Pass the Quick Connect Cord through the wiring throughway and into the Water Heater.
4. Plug the connector on the Quick Connect Cord to the connector inside the Water Heater.
5. Connect the ground wire (gray color wire) to the screw at the base of the Water Heater.

***NOTE*** If the ground wire is not attached, electrical noise may cause problems.

6. Secure the Quick Connect Cord with a clamp.
7. Reattach the front cover (4 screws).



# 10. Remote Controller

| | | Main Controller | | Bath Room Controller | | Operation |
|---|---|---|---|---|---|---|
| | | ECM1D | RC-9018C | ECB1D | ECB2D | |
| General application | 17ENB series<br>21ENB series<br>21ECB series<br>26ECB series<br>26ENA series<br>32END series | ✔ | | | | Works |
| | | | | ✔ | | Won't work |
| | | | | | ✔ | Won't work |
| | | ✔ | | ✔ | | Works |
| | | ✔ | | ✔ | ✔ (× 2) | Works |
| | | ✔ | | | ✔ (× 2) | Won't work |
| | | | | ✔ | ✔ (× 2) | Won't work |
| | Maximum number of installed | 1 | 1 | 1 | 2-3 | Total: 4 |
| Quick Connect Multi-System (2 units)<br><br>Recirculation system (32END6 series only) (1 unit only) | 32END series | | ✔ | | | Works |

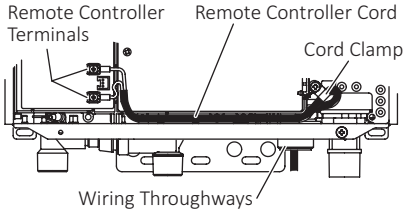
* The Remote Controller used is different, for general application (one unit installation) and piping applications (Quick Connect Multi-System / Recirculation system).

## 10.1 Connecting Remote Controller Cord to the Water Heater

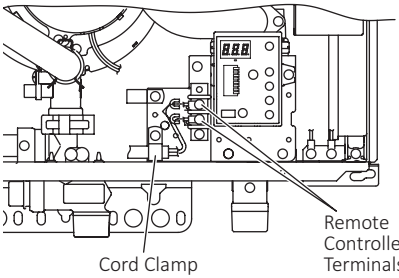
***NOTE***

- Tie the excess cord outside the Water Heater. Do not put the extra length inside the Water Heater.
- The remote controller cord can be extended up to 35 m.
- Be sure to hand tighten when screwing to the terminal block. Power tools may cause damage to the terminal block.
- Use remote controller cord for any extensions.
- Install according to the National Electrical Code and all applicable local codes.

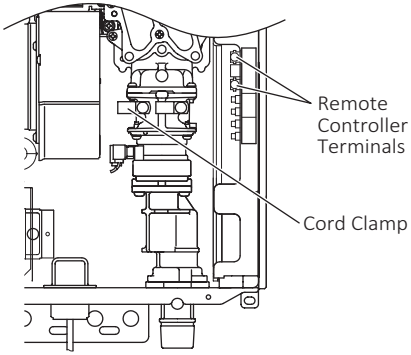
1. Disconnect the electrical power to the Water Heater.
2. Leave enough slack so that the remote controller cord will not be damaged if the Water Heater is removed from the wall.
3. Remove the front cover (4 screws).
4. Pass the remote controller cord through the wiring throughway and into the Water Heater.
5. Connect the Y-shaped terminals at the end of the remote controller cord to the terminal block.
6. Secure the remote controller cord with a clamp.
7. Reattach the front cover.




(21/26ECB series and 17/21ENB series)




(32END series)




(26ENA series)

## 10.2 Temperature Setting

**⚠ WARNING**

When changing the temperature, make sure to confirm with the customer that the temperature of the hot water will be very high and that there is a risk of scalding.

To ensure compliance with Australian Standard AS/NZS 3500.4, for sanitary areas, install the Water Heater with a tempering valve. In New Zealand, please refer to the New Zealand Building Code and all other applicable electrical, gas fitting and plumbing codes.
Temperature is controlled by the maximum temperature set in the Water Heater.

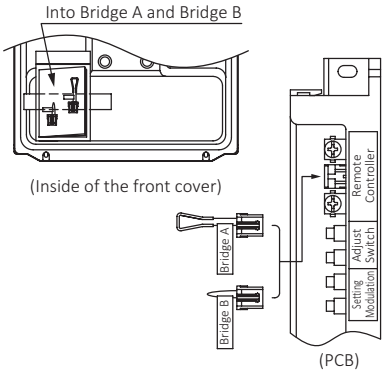
**21/26ECB series, 17/21ENB series and 26ENA series**

**[The changing procedure of the maximum temperature setting]**

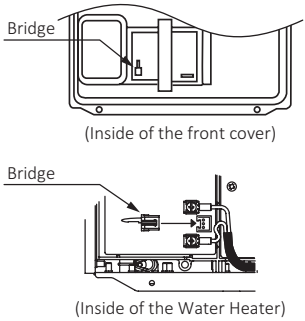
1. Turn the Water Heater off by pressing the Operation button on the Remote Controller.
2. Disconnect the electrical power to the Water Heater.
3. Remove the front cover (4 screws).

4. Find bridge attached to the inside of the front cover, and insert the bridge into plastic clip between the remote controller terminals.

   • 26ENA series




   • 21/26ECB series, 17/21ENB series




5. Reattach the front cover (4 screws).
6. Reconnect the electrical power to the Water Heater.

(°C)

| 17/21ENB series, 21/26ECB series, 26ENA series | | | | Without Controller | Main Controller | | Bath Room Controller | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ECM1D | RC-9018C | ECB1D | ECB2D |
| General application | 50°C model | 17ENB5 N/L<br>21ENB5 N/L<br>21ECB5 N/L<br>26ECB5 N/L | Factory Setting | 50 | 37-48, 50 | | 37-48, 50 | |
| | | | Bridge in | 42 | 37-42 | | 37-42 | |
| | | 26ENA5 N/L | Factory Setting | 50 | 37-48, 50 | | 37-48, 50 | |
| | | | Bridge A | 50 | 37-48, 50 | | 37-48, 50 | |
| | | | Bridge B | 42 | 37-42 | | 37-42 | |
| | 55°C model | 17ENB6 N/L<br>21ENB6 N/L<br>21ECB6 N/L<br>26ECB6 N/L | Factory Setting | 55 | 37-48, 50, 55 | | 37-48, 50 | |
| | | | Bridge in | 60 | 37-48, 50, 55, 60 | | | |
| | | 26ENA6 N/L | Factory Setting | 55 | 37-48, 50, 55 | | 37-48, 50 | |
| | | | Bridge A | 75 | 37-48, 50, 55, 60, 75 | | | |
| | | | Bridge B | 60 | 37-48, 50, 55, 60 | | | |

• Maximum temperature is controlled by the maximum default temperature set in the Water Heater.

**32END series**

**[The changing procedure of the maximum temperature setting]**

***NOTE*** This setting (“F03”) must be done with all hot water fixtures closed within the first 10 minutes of connecting the electrical power to the Water Heater.

1. Turn the Water Heater off by pressing the Operation button on the Remote Controller.

   ***NOTE*** Do not use the Water Heater while temperature setting.

2. Remove the front cover (4 screws).

3. Change the temperature with MODE button and UP/DOWN button on the status display.

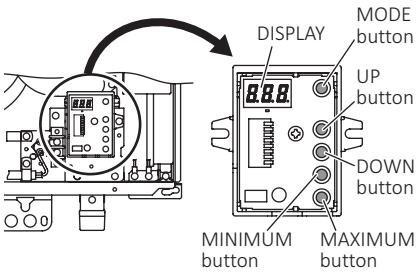
   1) Press and hold MODE button for 2 seconds, and set the DISPLAY to “F03” using UP or DOWN button.

   2) Press MODE button once when DISPLAY lights “F03”.
      • Switch to SELECT mode.

   3) Select the temperature using UP or DOWN button.

      50°C model: 37-48°C (In 1°C intervals), 50°C
      55°C model: 37-48°C (In 1°C intervals), 50°C, 55°C, 60°C, 75°C

   4) After selecting the temperature, press MODE button again for 2 seconds.
      • If “---” is displayed for a few seconds, turn the power off at the power point and wait 10 seconds, then turn the back on and repeat steps 3 1) to 4).




4. Reattach the front cover (4 screws).

(°C)

| General application | | MODE button | Maximum Temperature Setting | Without Controller | Main Controller | | Bath Room Controller | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ECM1D | RC-9018C | ECB1D | ECB2D |
| 50°C model | 32END5 N/L | Factory Setting | 50 | 50 | 37-48, 50 | | 37-48, 50 | |
| | | F03 | 37 | 37 | 37 | | 37 | |
| | | | ⋮ | ⋮ | ⋮ | | ⋮ | |
| | | | 48 | 48 | 37-48 | | 37-48 | |
| 55°C model | 32END6 N/L | Factory Setting | 55 | 55 | 37-48, 50, 55 | | 37-48, 50 | |
| | | F03 | 37 | 37 | 37 | | 37 | |
| | | | ⋮ | ⋮ | ⋮ | | ⋮ | |
| | | | 48 | 48 | 37-48 | | 37-48 | |
| | | | 50 | 50 | 37-48, 50 | | 37-48, 50 | |
| | | | 60 | 60 | 37-48, 50, 55, 60 | | 37-48, 50 | |
| | | | 75 | 75 | 37-48, 50, 55, 60, 75 | | 37-48, 50 | |

• Maximum temperature is controlled by the maximum default temperature set in the Water Heater.

(°C)

| Quick Connect Multi-System (2 units)<br>Recirculation system (32END6 N/L only) (1 unit only) | | MODE button | Maximum Temperature Setting | Without Controller | Main Controller | | Bath Room Controller | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ECM1D | RC-9018C | ECB1D | ECB2D |
| 50°C model | 32END5 N/L | Factory Setting | 50 | | | 37-48, 50 | | |
| | | F03 | 37 | | | 37 | | |
| | | | ⋮ | | | ⋮ | | |
| | | | 48 | | | 37-48 | | |
| 55°C model | 32END6 N/L | Factory Setting | 55 | | | 37-48, 50, 55 | | |
| | | F03 | 37 | | | 37 | | |
| | | | ⋮ | | | ⋮ | | |
| | | | 48 | | | 37-48 | | |
| | | | 50 | | | 37-48, 50 | | |
| | | | 60 | | | 37-48, 50, 55, 60 | | |
| | | | 75 | | | 37-48, 50, 55, 60, 65, 70, 75 | | |

- Maximum temperature is controlled by the maximum default temperature set in the Water Heater.
- (For Quick Connect Multi-System) Set the maximum temperature with each Water Heater.

# 11. Trial Operation

The installer should test operate the Water Heater, explain to the customer how to use the Water Heater, and give the owner this manual before leaving the installation.

**Trial Operation**

**⚠ DANGER**

There is a possibility of scald if the setting temperature is too high.

If overheating occur, or the gas supply fail to shut off, turn off the manual control valve to the appliance.

***NOTE***
- White smoke may be noticed from the exhaust vent during cold weather. This is not a malfunction of the Water Heater.
- If the Water Heater does not operate normally, refer to "Troubleshooting" in the Owner's Guide.

1. Open a hot water fixture to confirm that water is available, and then close the fixture.
2. Open the gas supply valve.
3. Turn on the Operation button on the Remote Controller (the Operation indicator will turn on).

**[If installed a single water heater]**

4. Open a hot water fixture and confirm that the Burner on indicator of Remote Controller turns on, and that hot water is being produced.

   ***NOTE*** If an error code "11" appears on the Remote Controller, air may be trapped in the gas pipe.
   1) Close a hot water fixture.
   2) Turn the unit off and then back on.
   3) Open a hot water fixture again.
   4) If necessary, repeat until the air is completely purged from the gas pipe.

5. Check that the hot water temperature changes by pressing the ↑ / ↓ buttons.

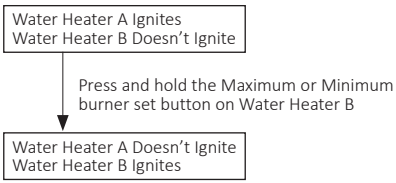
Proceed to Step 6

**[If installed with a Quick Connect Multi-System]**

4. Slowly open a hot water fixture and check that a Water Heater ignites independently.

   ***NOTE*** If an error code "11" or "F11" appears on the Remote Controller, the air is not completely purged from the gas pipe.
   1) Close a hot water fixture.
   2) Turn the Water Heater off and then back on.
   3) Reopen a hot water fixture.
   4) If necessary, repeat until the air is completely purged from the gas pipe.

5. To change ignition priority on the heaters, press and hold the Maximum or Minimum burner set button on the circuit board, repeat step 4.



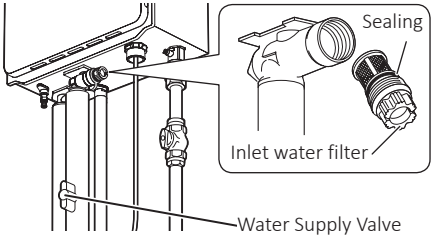

   ***NOTE*** If step 4 and step 5 cannot be done, the Quick Connect Cord may not be properly connected. Check that the cord is properly connected.

Proceed to Step 6

**[Procedure to follow after step 5 for both installation of a single Water Heater and installation with a Quick Connect Multi-System]**

6. After the trial operation, clean the filter in the cold water inlet according to the procedure as follows.

1) Close the water supply valve.




(e.g. 26ECB5N)

2) Open all hot water fixtures.
3) With a bucket ready, remove the inlet water filter. (about 1 L will drain out)
4) Clean the inlet water filter with a brush under running water.
5) Reattach and close inlet water filter.

***NOTE*** Do not lose the Sealing.

6) Close all hot water fixtures.
7) Open the water supply valve and check that water does not leak from the inlet water filter.

**If error codes "11", "12", and "90" appear, check the following contents.**

**["11" : Ignition failure, "12" : Flame loss]**
- Check that the gas supply pipe is appropriately sized.
- Check that the gas supply pressure is within the ranges required in this manual.
- Check that the gas supply matches the type indicated on the Water Heater's rating plate.
- Air may be left in the gas piping. Repeat the power ON/OFF.

**["90" : Combustion abnormality]**
- Check that the air supply / exhaust vent for blockage.
- Check that the gas supply pressure is within the ranges required in this manual.
- Check that the condensate piping is not frozen or clogged.
- Check that the condensate piping is in a downward slope.

**Handling after trial operation**

If the Water Heater will not be used immediately, close all gas and water valves, and drain all of the water out of the Water Heater and the plumbing system to prevent the Water Heater and system from freezing, and discharge the gas out of the gas pipe.

***NOTICE***

Freezing is not covered by the warranty.

**Lighting Instructions**

**⚠ WARNING**

A fire or explosion may result if these instructions are not followed, which may cause death, personal injury or property damage.

This Water Heater does not have a pilot. It is equipped with an ignition device that automatically lights the burner.
**Do not try to light the burner by hand.**
1. Read the safety information in the installation manual or on the right side of the Water Heater.
2. Turn off all electrical power to the Water Heater.
3. Do not attempt to light the burner by hand.
4. Turn the gas control manual valve (external to the Water Heater) clockwise to the off position.
5. Wait five minutes to clear out any gas. If the smell of gas remains, stop, and follow the instructions on page 3 of Owner's Guide.
6. Turn the gas control manual valve counterclockwise to the on position.
7. Turn on the electrical power to the Water Heater.
8. The Water Heater will now operate whenever hot water is needed. If the Water Heater will not operate, follow the shutdown instructions and call a service technician.

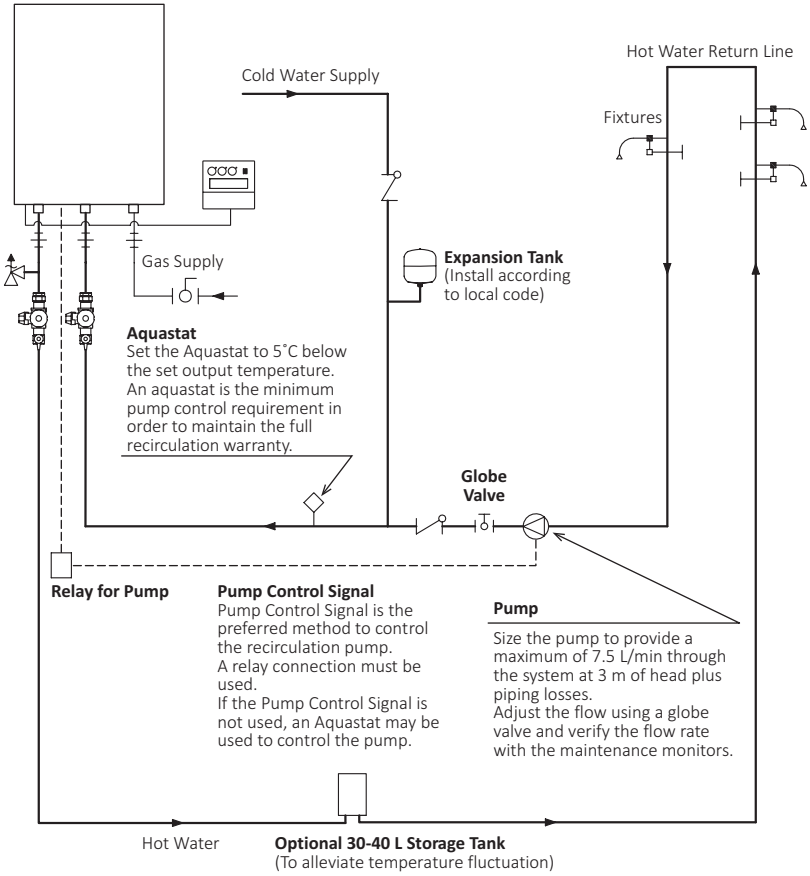
**Shutdown Instructions**

1. Stop any water demand.
2. Turn off the electrical power.
3. Turn the gas control manual valve clockwise to the off position.

# 12. Plumbing Application *(For 32END6 series only)*

**Recirculation System**

- With a Recirculation System, the water from the Water Heater to the fixtures can be warmed up in advance. You can get hot water to your fixtures more quickly with less waste of water.
- Scale build-up is more likely to occur in a Recirculation System, therefore it is critically important to have proper maintenance. Refer to the Owner's Manual.

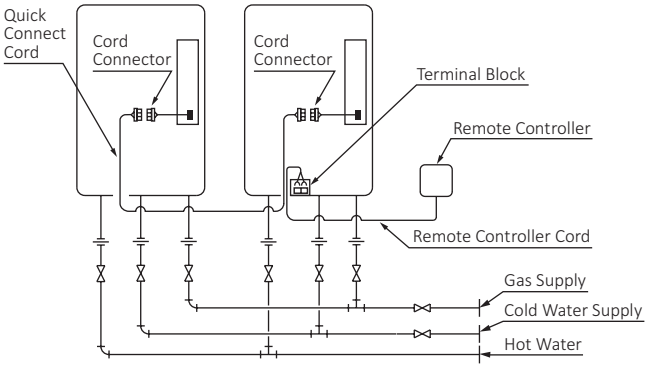


# 13. Installation of the Quick Connect Multi-System *(For 32END series only)*

The Quick Connect Multi-System allows the installation of two Water Heaters together utilizing only the Quick Connect Cord.

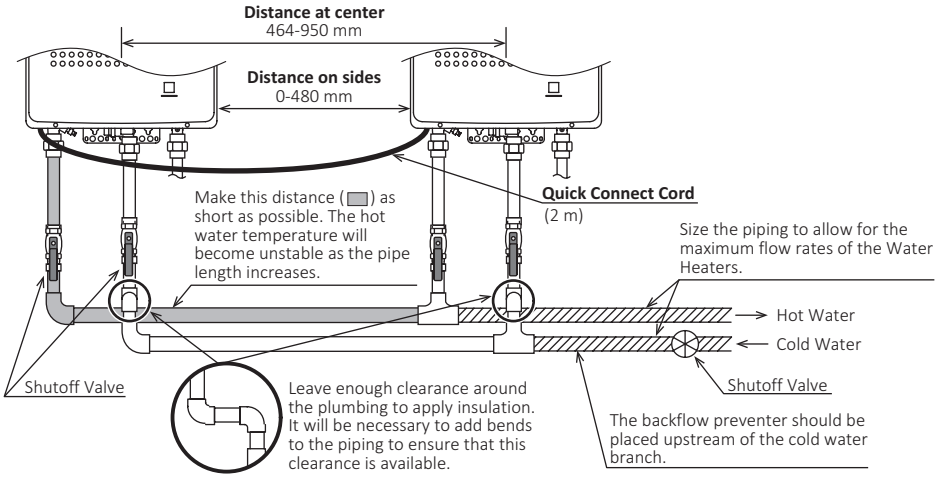
**System Diagram**

Connect a single Remote Controller to only one of the Water Heaters.




**Typical Plumbing**

Insulate or apply heating materials to both the cold water supply piping and the hot water supply piping to prevent freezing during cold weather and to prevent heat loss through the piping.



# 14. Maintenance

## 14.1 Periodic Check

- Check the following to ensure proper operation of the Water Heater periodically .
- Also check the items of maintenance described in the Owner's Guide or consult Dux Hot Water for recommended service checks.

**[Burner]**
- Check the burner flame periodically for a proper blue color and consistency.
- If the flame does not appear normal, the burner may need to be cleaned by a qualified service technician.

**[Water filter]**
- Check and clean the filter inside of cold inlet connection.

**NOTICE**

Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

## 14.2 WATER QUALITY

All Dux water heating appliances are constructed from high quality materials and components and all are certified for compliance with relevant parts of Australian and New Zealand gas, electrical and water standards.

Whilst Dux water heaters are warranted against defects, the warranty is conditional upon correct installation and use, in accordance with detailed instructions provided with the heater. In the case of the water supplied to the heater, it is important that the water quality be of acceptable standard.

The water quality limits/parameters listed in water quality table are considered acceptable and generally, Australian and New Zealand suburban water supplies fall within these limits/parameters.

In areas of Australia and New Zealand where water may be supplied, either fully or partly, from bores, artesian wells or similar, one or more of the important limits may well be exceeded and the heater could, therefore, be at risk of failure.

Where uncertainty exists concerning water quality, intending appliance users should seek a water analysis from the water supplying authority and in cases where it is established that the water supply does not meet the quality requirements of the water quality table, the Dux warranty would not apply.

**WATER QUALITY TABLE**

Maximum levels:

| pH | Saturation Index(LSI) (langelier) | Total Hardness | Chlorides | Sodium | Iron | Silicon Dioxide ($SiO_2$) |
|---|---|---|---|---|---|---|
| 6.5-9 | +0.4 to Minus 1.0 @65C | 200 mg/L | 250 mg/L | 180 mg/L | 1 mg/L | 50 mg/L |